

tyco

Electronics

Catalog 1307612
Revised 7-01

PRODUCTS FOR
**INDUSTRIAL &
COMMERCIAL**
APPLICATIONS

AGASTAT
ALCOSWITCH
AMP
BUCHANAN
MICRODOT
OEG
P&B
SCHRACK



Introduction

At Tyco Electronics, the world's largest passive components manufacturer, we have the products, knowledge, and services to meet the diverse electronic component needs of industrial and commercial OEM's. And we continue to develop innovative, cost-effective solutions to satisfy tomorrow's applications. This catalog contains the Tyco Electronics interconnection products, switches, relays and circuit breakers most widely used in these industries:

Commercial Building Equipment

- Security & Alarm Systems
- HVAC Equipment
- Lighting
- Elevators
- Vending Equipment
- Amusement Equipment

Appliance

- Cooking Equipment
- Refrigeration
- Laundry Equipment
- Countertop Appliances
- Air Conditioners
- Home Power Tools
- Garage Door Openers
- Lawn & Garden Equipment

Industrial Machinery & Process Control Equipment

- Manufacturing Equipment
- Material Handling Equipment
- Industrial Process Control Subsystems & Components
- Factory Automation Systems
- Robotics & Robotic Components

Motors

- Motors
- Generators
- Rectifiers
- Motor Controls

Test, Measurement, and Medical Instrumentation Equipment

- Automatic Test Equipment
- Semiconductor Testers
- Oscilloscopes
- Specialty Instrumentation
- Diagnostic Medical Equipment
- Therapeutic Medical Equipment
- General Medical Equipment

USING THIS CATALOG

The products listed in this catalog are the most widely used product part numbers offered by Tyco Electronics for industrial and commercial applications. Many of these parts are readily available directly from Tyco Electronics, or through an Authorized Tyco Electronics distributor. For complete product line information, order the catalogs referenced at the bottom of the product pages, contact the Tyco Electronics Technical Support Center at 1-800-522-6752, or visit our on-line electronic catalog on the internet at <http://catalog.tycoelectronics.com> (see inside back cover of catalog for Support Services information).

Application Guide

An *Application Guide*, immediately following the *Table of Contents*, identifies the segments of the Industrial and Commercial markets in which the products contained in this catalog are *typically* used.

Part Number Index

Section 14 contains a *Part Number Index* that lists all cataloged Tyco Electronics part numbers by base number only. Complete Tyco Electronics part numbers with prefixes and/or suffixes are shown on the pages indicated. The part numbers of products acquired from Thomas & Betts Corporation by Tyco Electronics are included in this index as complete Thomas & Betts part numbers. (Acquired products are described at top of next page.) You will find this index to be extremely helpful if you already know the Tyco Electronics or Thomas & Betts part number.

Introduction

Acquired Products Part Number Cross Reference

The ALCOSWITCH and BUCHANAN products in this catalog were acquired from Thomas & Betts Corporation by Tyco Electronics. Also included are former AUGAT and ANSLEY products that are now part of applicable AMP product lines. These products are listed in this catalog using a Thomas & Betts part number. Before ordering, see the *Acquired Products Part Number Cross Reference* in Section 15 for equivalent Tyco Electronics part numbers. If no equivalent part number is listed, contact the Technical Support Center at 1-800-552-6752 for assistance.

CD-ROM OF CATALOG AVAILABLE

This catalog is available in PDF (Portable Document Format) on a CD-ROM. Request CD No. 1308356. Links are provided to our on-line Electronic Catalog (<http://catalog.tycoelectronics.com>) where you can access customer drawings, application specifications, product specifications, and instruction sheets. To reduce your CAD input time, the Electronic Catalog also contains 2D geometries and 3D CAD models in IGES format for many of the parts listed in this catalog.

NEED MORE INFORMATION?

See the inside back cover of this catalog for helpful information about our Support Services.

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The dimensions in this catalog are for reference purposes only and are subject to change without notice. Dimensions are in inches over [millimeters], unless otherwise specified. Always consult our customer drawings for recommended PC board layout and panel cutout dimensions; do not use catalog dimensions. Specifications are subject to change without notice. Consult Tyco Electronics at 1-800-522-6752 for latest dimensions and design specifications.

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ACTION PIN, AGASTAT, ALCOSWITCH, AMP, AMP DUOPLUG 2.5, AMP MONO-SHAPE, AMP SC, AMPACT, AMP-BARREL, AMP-DUAC, AMP-FAX, AMP-HDI, AMP-IN, AMPINNERGY, AMP-LATCH, AMPLI-BOND, AMPLIMITE, AMPLIVAR, AMPMODU, AMP-O-LECTRIC, AMP-O-MATIC, AMPOMATOR, AMPPOWER, AMP-TAPEMATIC, AMP-TAPETRONIC, AMP-TY, BANTAM ROTA-CRIMP, BUCHANAN, CABLE MAKER, CERTI-CRIMP, CERTI-LOK, CERTI-SEAL, CHAMP, CHAMP-LOK, CHAMPOMATOR, COAXICON, Comp-U-Sertor, COPALUM, DIAMOND GRIP, DIPLOMATE, DUALAN, DYNA-CRIMP, ENERFLEX, EPO-TEK, EUROLATCH, FASTIN-FASTON, FASTON, FSD, Green Series, HOLTITE, JACKMATE, LGH, LightCrimp Plus, LightCrimp, LIGHTRAY MPX, MAG-MATE, MARC 43, MARC 53, MARC 63, MARC 73, MATE-N-LOK, MICRODOT, MICRO-EDGE, Micro-MaTch, MICRO-PITCH, MICTOR, OEG, P&B, PICABOND, PIDG, PLASTI-BOND, PLASTI-GRIP, POWERBAND, PRO-CRIMPER, RAYCHEM, R-CAM, RDI, ROTA-CRIMP, RSD, SCHRACK, SHUR-PLUG, SMT QUICK-GRIP, SNAPTRACK, SOLISTRAND, STRATO-THERM, ST, TERMASHIELD, TERMI-FOIL, TERMINYL, TERMI-POINT, TETRA-CRIMP, T-HEAD, Tiny, TRA-CON, TWIST/CON, TYCO, and Z-PACK are trademarks.

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Application Guide
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Identifies the segments of the Industrial and Commercial markets in which the products contained in this catalog are *typically* used.

1

Input/Output Connectors
1001-1164

AMPLIMITE Subminiature D .050 Series, AMPLIMITE Subminiature D Commercial, AMPLIMITE Subminiature D per MIL-C-24308, Microminiature D (MICRODOT), Rectangular (MICRODOT), CHAMP .050 Series II Ribbon Style, SDL (Shielded Data Link), Shielded Miniature Circular DIN, and Modular Plug & Jack Connectors.

2

PCB and Wire Connectors
2001-2268

Card Edge, AMPMODU 50/50 Grid Board-to-Board, AMPMODU System 50 Board-to-Board, AMPMODU .025 Square Interconnection System, AMPMODU MTE IDC Interconnection System, AMPMODU MT and Shielded MT IDC Interconnection System, AMPMODU .031 x .062 Interconnection System, PC/104 and PC/104-Plus, MTA-100 & MTA-156 IDC, CHAMP .050 Series I Ribbon Style, 0.8mm FH (Free Height) Board-to-Board, CT (Common Termination) Wire-to-Board, EI (Economy Interconnect) Wire-to-Board, and Micro MaTch Board-to-Board & Wire-to-Board Connectors. PCB Terminals & Disconnects.

3

Backplane / High Speed Connectors
3001-3110

Micro-Strip, MICTOR, Z-PACK 2mm HM, Z-PACK 2mm Futurebus+, Z-PACK Stripline 100, AMP-HDI (High Density Interconnect), TBC Plus (Twin Beam Contact), and Eurocard (DIN 41612) Connectors.

4

Ribbon and Flexible Flat Cable Products
4001-4060

Ribbon Cable Connectors: AMPMODU 50/50 Grid and AMP-LATCH Connectors. IDC Flat Ribbon Cable. Flexible Film Products: .050 x .100 and .100 x .100 Centerline Flexible Flat Conductor (FFC) Connectors, and 1.0mm FPC (Flexible Printed Circuit) Connectors.

5

Sockets
5001-5080

DIP, SIP, SIMM, DIMM, PLCC, PQFP, and HOLTITE Press-fit Discrete Sockets. Display and Specialty Sockets. Adapters.

6

Switches
6001-6096

DIP, Slide, Toggle, Tact, Pushbutton, and Power Tool Switches. Industrial Controls. Knobs.

7

Terminals and Splices
7001-7172

Uninsulated Terminals: SOLISTRAND, DIAMOND GRIP, STRATO-THERM, AMPOWER. Insulated Terminals: PIDG, Radiation Resistant, PLASTI-GRIP, AMPLI-BOND, TERMINYL, CERTI-SEAL, and Closed End Splices. Quick Connect/Disconnect Terminals: FASTON, FASTIN-FASTON, Positive Lock, Positive Lock RAST 5, Ultra-Fast FASTON, Ultra-Fast Plus FASTON, Ultra-Pod FASTON, and PIDG FASTON. Machine Applied Open Barrel Terminals. Magnet Wire Terminals: AMPLIVAR and MAG-MATE. Aluminum/Copper Wire Terminals: TERMI-FOIL and COPALUM. Appliance Related Connectors: Power Blocks & Rings, Surface Burner Connector System, and RAST 5/2.5 Products.

8

Terminal Blocks
8001-8130

Eurostyle, Barrier Strip, Card Edge, Europa, and NEMA Style Terminal Blocks. Interface Module Systems.

Pin and Socket Connectors 9001-9260	Universal MATE-N-LOK II, Universal MATE-N-LOK, Commercial MATE-N-LOK, .140 MATE-N-LOK, .093 and .062 Commercial Pin and Socket, Mini-Universal MATE-N-LOK 2, Mini-Universal MATE-N-LOK, Micro MATE-N-LOK 3mm, (MR) Miniature Rectangular, AMP-DUAC, Precision Pin & Socket Contacts, Circular Plastic (CPC) & Metal-Shell Circular Plastic, MICRODOT Circular, M Series, Metrimate, and Econoseal Connectors.	9
RF Coax Connectors 10001-10076	BNC, TNC, Decoupled, Twin BNC, N Series, F Series, G Series, SMA, SMB, MCX, OSP Miniature Blind Mate, OSSP Subminiature Blind Mate, OSMP, OSMT, SMT QuickGrip, MMCX, and MICRODOT Connectors. Between Series Adapters.	10
Fiber Optic Products 11001-11030	LightCrimp, ST-Style, AMP SC-Style, and FSMA Connectors. Active Device Mounts. Adapters. AMP SC Duplex Transceivers, 1.3 μm LED, Multimode InGaAs Photodetector.	11
Specialty Products & Relays and Circuit Breakers 12001-12040	Flexible Cable Protection System, ENERFLEX Flexible Conduit Connectors, Convenience Outlets, LGH High Voltage Connectors, LGH Micro-Miniature High Voltage Connectors, High Current Commercial Connector, AMP Power Lock, and AMPINNERGY Connectors. AGASTAT, OEG, P&B, and SCHRACK Relays and Circuit Breakers.	12
Tooling 13001-13028	Hand, semiautomatic, and fully-automatic tooling for application of crimp, insulation displacement contact (IDC), inserted, and flexible circuit products. Auxiliary equipment.	13
Part Number Index 14001-14030	Listing of Tyco Electronics base part numbers and associated page numbers. Includes part numbers and associated page numbers of ALCOSWITCH, ANSLEY, AUGAT, and BUCHANAN products acquired from Thomas & Betts Corporation.	14
Acquired Products Part Number Cross Reference 15001-15024	Cross reference comprising ALCOSWITCH, ANSLEY, AUGAT, and BUCHANAN products acquired from Thomas & Betts Corporation. Provides cross reference between T&B and Tyco Electronics part numbers, and associated page numbers.	15

Page Number	Product	Market Segment				
		Commercial & Building Equipment (HVAC, Lighting, Security, Vending)	Appliance	Industrial Machinery & Process Control Equipment	Motors	Instrumentation Equipment (Test, Measurement, Medical)
1 Input/Output Connectors						
1002-1019	AMPLIMITE .050 Series Subminiature D Connectors	✓		✓		✓
1020-1094	AMPLIMITE Subminiature D Connectors	✓	✓	✓		✓
1095-1102	AMPLIMITE Subminiature D Connectors per MIL-C-24308			✓		✓
1103	Microminiature D Connectors (MICRODOT)			✓		✓
1104	Rectangular Connectors (MICRODOT)			✓		✓
1105-1109	CHAMP .050 Series II Ribbon Style Connectors					✓
1110-1136	CHAMP Ribbon Style Connectors	✓		✓		✓
1137-1141	SDL (Shielded Data Link) Connectors			✓		✓
1142-1145	Shielded Miniature Circular DIN Connectors	✓		✓		✓
1146-1152	Modular Plugs		✓	✓	✓	✓
1153-1163	Modular Jacks		✓	✓	✓	✓
2 PCB and Wire Connectors						
2003-2020	Card Edge Connectors					
2003-2006	Standard Edge .050 Series PCI					✓
2007-2010	Standard Edge .050 Series			✓		✓
2011-2017	Standard Edge II			✓		✓
2018-2020	Low Profile	✓				
2021-2026	AMPMODU 50/50 Grid Board-to-Board Connectors			✓		✓
2027-2041	AMPMODU System 50 Board-to-Board Connectors			✓		✓
2042-2163	AMPMODU .025 Square Interconnection System	✓	✓	✓		✓
2164-2178	AMPMODU .031 x .062 Interconnection System	✓		✓		✓
2179-2184	PC/104 and PC/104-Plus Connectors			✓		
2185-2196	MTA-100 IDC Connectors	✓	✓	✓		
2197-2198	CST-100 II Crimp Connectors	✓	✓	✓		
2199-2211	MTA-156 IDC Connectors	✓	✓	✓		
2212-2213	MTA-156 IDC Quad Connectors	✓	✓	✓		
2214-2218	SL-156 Crimp Connectors	✓	✓	✓		
2220-2223	IDC Flat Ribbon Cable	✓	✓	✓		✓
2228-2230	CHAMP .050 Series I Board-to-Board Connectors					✓
2231-2239	0.8mm Free Height (FH) Surface Mount Board-to-Board Connectors					✓
2240-2245	CT (Common Termination) Wire-to-Board Connectors			✓		✓
2246-2252	Economy Interconnect (EI) Series Wire-to-Board and Wire-to-Wire Connectors	✓		✓		
2253-2259	Micro MaTch Miniature Board-to-Board and Wire-to-Board Connector System	✓		✓		✓
2260-2268	Printed Circuit Board Terminals and Disconnects	✓	✓	✓		✓
3002-3007	Micro-Strip Connectors					✓
3008-3019	MICTOR Connectors					✓
3020-3048	Z-PACK 2mm HM Connectors			✓		✓
3049-3057	Z-PACK 2mm FutureBus+ Connectors					✓
3058-3067	Z-PACK Stripline 100 Connectors					✓
3068-3077	AMP-HDI (High Density Interconnect) Connectors			✓		✓
3078-3084	TBC Plus (Twin-Beam Contact) Connectors			✓		✓
3085-3110	Eurocard Connectors			✓		✓

V

Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

Technical Support Center
1-800-522-6752
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Page Number	Product	Market Segment				
		Commercial & Building Equipment (HVAC, Lighting, Security, Vending)	Appliance	Industrial Machinery & Process Control Equipment	Motors	Instrumentation Equipment (Test, Measurement, Medical)
4	Ribbon and Flexible Flat Cable Products					
	4002-4032 Ribbon Cable Connectors					
	4002-4004 AMPMODU 50/50 Grid Connectors	✓		✓		✓
	4005-4006 AMP-LATCH System 50 Connectors	✓		✓		✓
	4007-4032 AMP-LATCH Ribbon Cable Connectors	✓	✓	✓		✓
	4033-4058 Flexible Film Products					
	4033-4038 .050 x .100 Centerline FFC Cable Connectors	✓		✓		✓
	4039-4054 .100 x .100 Centerline FFC Cable Connectors	✓	✓	✓		✓
	4055-4059 1.0 [.039] FPC (Flexible Printed Circuit) Connectors	✓		✓		✓
5	Sockets					
	5002-5017 DIP Sockets			✓		✓
	5018-5020 SIP Sockets			✓		✓
	5021-5023 SIMM MICRO-EDGE Sockets					✓
	5024, 5025 SIMM II Right-Angle Sockets					✓
	5026, 5027 SO DIMM Sockets					✓
	5028-5031 DIMM II Sockets					✓
	5032 DIMM IIP (Performance) Sockets					✓
	5033-5038 PLCC Sockets	✓		✓		✓
	5039-5042 PQFP Sockets			✓		✓
	5043-5047 HOLTITE Press-fit Zero Profile Discrete Sockets	✓		✓		✓
	5048-5052 Adapters			✓		✓
	5053-5055 Display Sockets	✓		✓		✓
	5056-5080 Specialty Sockets					
	5056-5060 Crystal Socket Assemblies			✓		✓
	5061, 5062 Programming Jumper Plug, Assemblies	✓		✓		✓
	5063 Fuse Sockets	✓		✓		✓
	5064 Crystal Oscillator Sockets			✓		✓
	5065, 5066 Low Profile Sockets	✓		✓		✓
	5067-5070 Transistor Sockets			✓		✓
	5071, 5072 Lamp Sockets	✓		✓		✓
	5073, 5074 TO-3 Transistor Sockets			✓		✓
	5075, 5076 Push Fit Test Jacks			✓		✓
	5077, 5078 Printed Circuit Test Jacks			✓		✓
	5079, 5080 Micro-Miniature Test Jacks			✓		✓
	6002-6008 DIP Switches	✓		✓		✓
	6009-6030 Slide Switches	✓	✓			✓
	6031-6045 Toggle Switches	✓				✓
	6046-6048 Tact Switches	✓	✓	✓	✓	✓
	6049-6064 Pushbutton Switches	✓	✓	✓		✓
	6065-6077 Industrial Controls	✓		✓	✓	✓
	6078-6094 Knobs	✓		✓	✓	✓
	6095, 6096 Power Tool Switches		✓			

Page Number	Product	Market Segment				
		Commercial & Building Equipment (HVAC, Lighting, Security, Vending)	Appliance	Industrial Machinery & Process Control Equipment	Motors	Instrumentation Equipment (Test, Measurement, Medical)
7	Terminals and Splices					
	7003-7036 Uninsulated Terminals and Splices					
	7003-7016 SOLISTRAND (Solid & Stranded Wire Applications)	✓	✓	✓		
	7017-7020 DIAMOND GRIP		✓			
	7021-7031 STRATO-THERM (High-Temperature Applications)		✓	✓		✓
	7032-7036 AMPOWER (Power Applications)		✓	✓		✓
	7037-7074 Insulated Terminals and Splices					
	7037-7049 PIDG (Pre-Insulated DIAMOND GRIP)	✓	✓	✓		✓
	7050, 7051 Radiation Resistant/150°C		✓			
	7052-7061 PLASTI-GRIP	✓		✓		✓
	7062-7064 AMPLI-BOND			✓		
	7065, 7066 TERMINYL			✓		
	7069 CERTI-SEAL Splices (Sealing Applications)	✓				
	7070-7074 Closed End Splices	✓	✓	✓		✓
	7075-7125 Quick Connect/Disconnect Terminals and Splices					
	7075-7109 FASTON Receptacles and Tabs	✓	✓	✓	✓	✓
	7110-7113 Positive Lock FASTON Receptacles		✓	✓	✓	✓
	7114 Positive Lock RAST 5 Connector System		✓			
	7115-7119 Ultra-Fast FASTON & Ultra-Fast Plus FASTON Fully Insulated Receptacles and Tabs	✓	✓	✓	✓	✓
	7120-7122 Ultra-Pod Fully Insulated FASTON Receptacles and Tabs	✓	✓	✓		✓
	7123-7125 PIDG FASTON Receptacles	✓	✓	✓		✓
	7126-7133 Machine Applied Terminals and Splices, Open Barrel	✓	✓	✓	✓	✓
	7135-7149 Magnet Wire Terminals and Splices					
	7135-7139 AMPLIVAR	✓	✓	✓	✓	✓
	7140-7149 MAG-MATE	✓	✓	✓	✓	✓
	7150-7157 Aluminum/Copper Wire Terminals and Splices					
	7150-7153 TERMI-FOIL (For Copper & Aluminum Foil or Strip)			✓		✓
	7154-7157 COPALUM (Copper and Aluminum Wire)		✓	✓		
	7158-7171 Appliance Related Connectors					
	7158-7160 Power Blocks and Power Rings		✓			
	7161-7163 Surface Burner Connector System		✓			
	7164-7171 RAST 5/2.5 Connectors		✓			
8	Terminal Blocks					
	8002-8049 Eurostyle Terminal Blocks	✓		✓		✓
	8050-8077 Barrier Strips	✓		✓		
	8078-8082 Card Edge Connector Systems			✓		✓
	8083-8086 Interface Module Systems			✓		
	8087-8100 Europa Terminal Blocks	✓	✓	✓	✓	
	8101-8130 NEMA Terminal Blocks	✓		✓		

Page Number	Product	Market Segment				
		Commercial & Building Equipment (HVAC, Lighting, Security, Vending)	Appliance	Industrial Machinery & Process Control Equipment	Motors	Instrumentation Equipment (Test, Measurement, Medical)
9	Pin and Socket Connectors					
	9003-9014 Universal MATE-N-LOK II Connectors	✓	✓	✓		✓
	9015-9028 Universal MATE-N-LOK Connectors	✓	✓	✓		✓
	9022 Universal MATE-N-LOK Flanged Cap Housings with Twist and Lock Feature		✓			
	9029-9040 Commercial MATE-N-LOK Connectors		✓	✓		✓
	9041-9043 .140 MATE-N-LOK Connectors, Large Insulation		✓	✓		✓
	9044-9049 .093 Commercial Pin and Socket Connectors		✓	✓		✓
	9050-9057 Mini-Universal MATE-N-LOK 2 Connectors	✓	✓	✓		✓
	9058-9066 Mini-Universal MATE-N-LOK Connectors	✓	✓	✓		✓
	9067 Micro MATE-N-LOK 3mm Pitch Connector System			✓		✓
	9068-9076 (MR) Miniature Rectangular Connectors			✓		✓
	9077-9079 .062 Commercial Pin and Socket Connectors	✓	✓	✓		✓
	9086-9093 AMP-DUAC Connectors	✓	✓	✓		✓
	9094-9118 Precision Pin and Socket Contacts	✓		✓		✓
	9119-9169 Circular Plastic (CPC) & Metal-Shell Circular Plastic Connectors	✓		✓		✓
	9170, 9171 MICRODOT Circular Connectors	✓		✓		✓
	9173-9222 M Series Pin and Socket Connectors			✓		✓
	9223-9252 Metrimate Pin and Socket Connectors			✓		
	9253-9259 Econoseal Sealed Pin and Socket Connectors	✓		✓		✓
10	RF Coax Connectors					
	10004-10035 Miniature Connectors					
	10004-10018 BNC Connectors	✓		✓		✓
	10019-10026 TNC Connectors			✓		✓
	10027 Decoupled Connectors			✓		✓
	10029 Twin BNC Connectors					✓
	10030-10034 N Series Connectors					✓
	10035 F Series Connectors					✓
	10035 G Series Connectors					✓
	10036-10066 Subminiature Connectors					
	10036-10049 SMA Connectors	✓				✓
	10050-10061 SMB Connectors	✓				✓
	10062 MCX Connectors					✓
	10063 Blind Mate Connectors					
	10064 OSP Miniature Blind Mate Connectors					✓
	10065 OSSP Subminiature Blind Mate Connectors					✓
	10066 OSMP Connectors					✓
	10067-10071 Micro Miniature Connectors					
	10067 OSMT Connectors					✓
	10068 SMT QuickGrip Connectors					✓
	10069 MMCX Connectors					✓
	10070, 10071 MICRODOT Coaxial Connectors			✓		✓
	10072, 10073 Between Series Adapters					✓

Page Number	Product	Market Segment				
		Commercial & Building Equipment (HVAC, Lighting, Security, Vending)	Appliance	Industrial Machinery & Process Control Equipment	Motors	Instrumentation Equipment (Test, Measurement, Medical)
11	Fiber Optic Products					
	11002-11014 Connectors and Adapters					
	11002 LightCrimp Plus No Polish ST and AMP SC Connectors					✓
	11003 LightCrimp Epoxyless ST and AMP SC Connectors			✓		
	11004-11006 ST-Style Connectors			✓		✓
	11007 ST-Style Active Device Mounts					✓
	11009 SC-Style Adapters	✓				✓
	11010 SC-Style Connectors - Multimode	✓		✓		✓
	11014 FSMA Connectors					✓
	11015-11023 Actives					
	11015-11018 SC Duplex Transceivers					✓
	11019, 11020 1.3 μm LED					✓
	11021-11023 Multimode InGaAs Photodetector					✓
12	Specialty Products & Relays and Circuit Breakers					
	12002 Flexible Cable Protection System	✓		✓		
	12003 ENERFLEX Flexible Conduit Connectors	✓		✓		
	12004-12006 Convenience Outlets	✓	✓	✓		
	12007-12016 LGH High Voltage Connectors	✓		✓		✓
	12017-12021 LGH Microminiature High Voltage Connectors					✓
	12022-12024 High Current Commercial Connector	✓				
	12025-12029 AMP Power Lock Connectors			✓		
	12030-12034 AMPINNERGY Wire-to-Board Connectors	✓		✓		
	12035-12037 AMPINNERGY Wire-to-Wire Connectors	✓		✓		
	12038, 12039 Relays and Circuit Breakers	✓	✓	✓		✓

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AMPLIMITE .050 Series Connectors (.050 x .100 [1.27 x 2.54] Centerline) Series III

Product Facts

- Compatible with SCSI-2, SCSI-3, EIA RS-232, ISO-11569*, HIPPI, IPI-2 and IEE 802.3 MII standards
- High-density D type interface
- 20 through 120 contact positions
- Tab plug contacts and tuning-fork receptacle contacts, with reliable two-point (redundant) contact; contact normal force is not dependent on plastic housing support
- Insulation displacement wire termination of discrete wire, round-to-flat laminated wires and flat ribbon cable
- Vertical and right-angle headers
- Vertical headers with ACTION PIN contacts
- Board-to-board, cable-to-board and cable-to-cable connection
- Rugged die cast back-shell with excellent EMI/RFI protection
- Shields mate before contacts, with ground mating first and breaking last
- Squeeze-to-release latches or jackscrew hardware
- Board connectors compatible with standard thru-hole flow solder and surface-mount reflow solder processes (Series III)
- Unshielded, All-Plastic Cable Plugs available
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189A-207
- Produced under a Quality Management System certified to ISO 9001



A copy of the certificate is available upon request



Shielded AMPLIMITE .050 Series connectors offer a high-density D type interface. Featuring .050 x .100 [1.27 x 2.54] contact centerline spacing, these compact and reliable connectors are available in 20 through 120 positions. Their construction offers exceptional EMI/RFI shielding effectiveness.

Shielded AMPLIMITE .050 Series Connectors, Series III, are approved to SCSI-2, SCSI-3, EIA RS-232, ISO-11569*, HIPPI, and IEE 802.3 MII standards.

Connectors are available in cable-mount and panel mount versions and vertical and right-angle mount pcb headers plus vertical mount with ACTION PIN contacts. The headers feature high temperature housings for reflow soldering processes. Cable and panel connectors use insulation displacement contacts for fast termination of discrete, round-to-flat laminated, and ribbon cable.

Backshells are available with either a straight or angled cable exit. Hardware includes a choice of integral squeeze-to-release latches or jackscrews.

Unshielded, All-Plastic Cable Plugs are available in 50 through 100 positions and offer an economical answer to your connector needs on applications where EMI/RFI protection is not a factor.

*26-position cable assembly with spring latches

.100 [2.54] and .120 [3.05] Solder Tail Length



Without Boardlocks



With Boardlocks

Material:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel

Technical Documents:

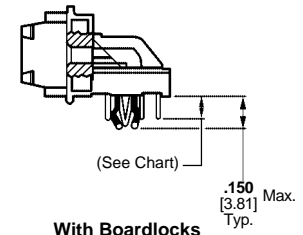
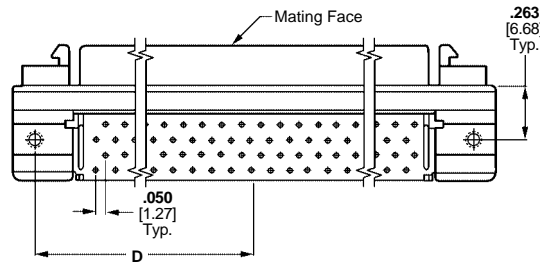
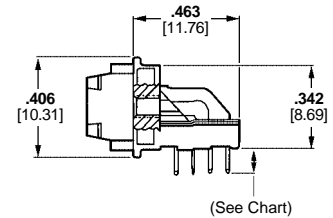
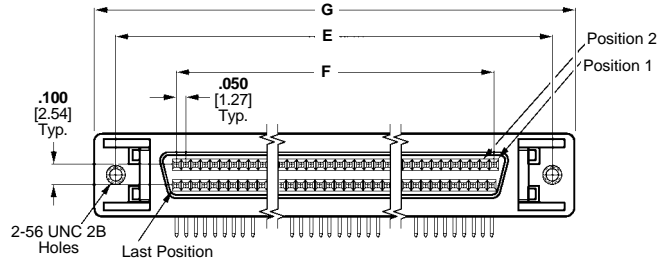
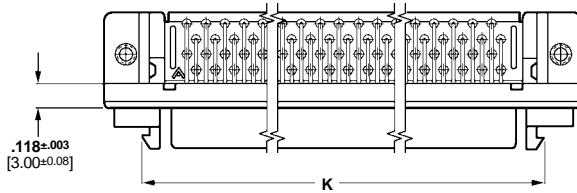
Product Specification

108-1228

Application Specification

114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out, unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



No. of Positions	Dimensions					Part Numbers	
	D	E	F	G	K	With .100 [2.54] Solder Tails	With Boardlocks
26	.615	1.230	.600	1.465	1.065	787190-2	787171-2
	15.62	31.24	15.24	37.21	27.05		
40	.790	1.580	.950	1.815	1.415	—	787171-4
	20.07	40.13	24.13	46.10	35.94		
50	.915	1.830	1.200	2.065	1.665	787190-5	787171-5
	23.24	46.48	30.48	52.45	42.29		
50	.915	1.830	1.200	2.065	1.665	—	787266-5*
	23.24	46.48	30.48	52.45	42.29		
68	1.140	2.280	1.650	2.515	2.115	787190-7	787171-7
	28.96	57.91	41.91	63.88	53.72		
100	1.540	3.080	2.450	3.315	2.915	—	787171-9
	39.12	78.23	62.23	84.20	74.04		

*Part Number 787266-5 has 4-40 threaded mating holes (2 places), for use with female screwlock Part Number 750644-1.

AMPLIMITE .050 Series Right-Angle Receptacle Headers Without Rails and Latch Blocks, Series III

.100 [2.54] and .120 [3.05] Solder Tail Lengths

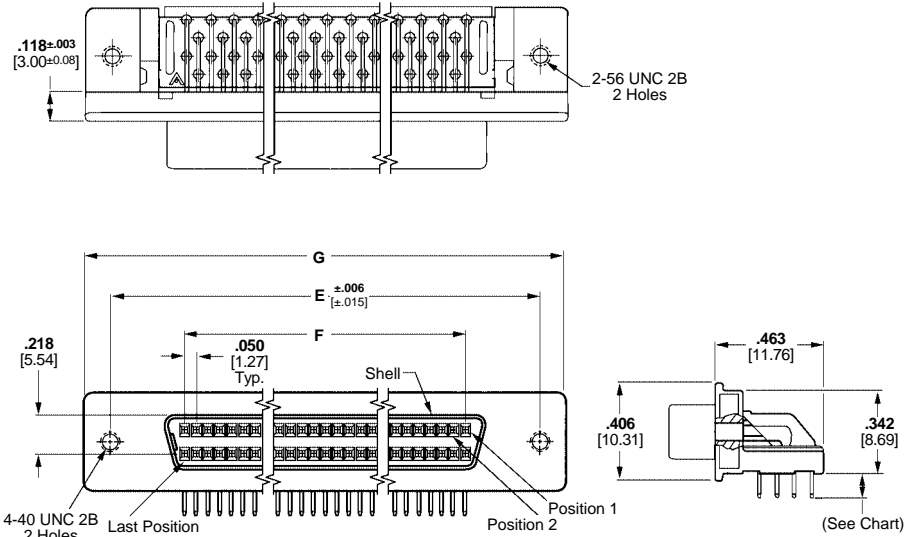
For use with jackscrew
mating hardware



Without Boardlocks



With Boardlocks



Material:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

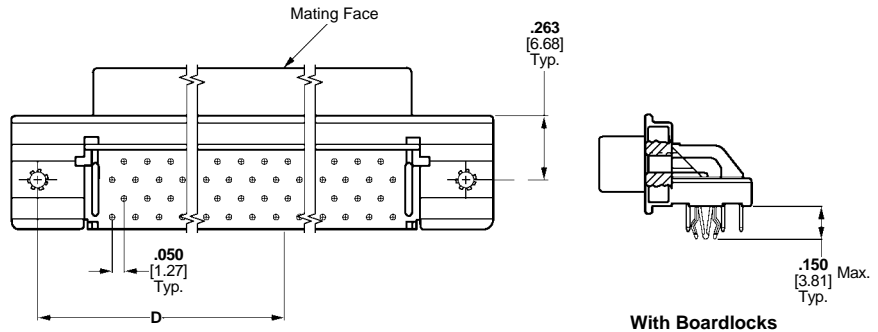
Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel

Related Product Data:

Required Hardware—page 1017, screwlocks



Technical Documents:

Product Specification
108-1228

Application Specification
114-40029

No. of Positions	Dimensions				Part Numbers		
					With .100 [2.54] Solder Tails		With .120 [3.05] Solder Tails
	D	E	F	G	Without Boardlocks	With Boardlocks	With Boardlocks
40	.790 20.07	1.580 40.13	.950 24.13	1.815 46.10	—	787170-4	787362-4
50	.915 23.24	1.830 46.48	1.200 30.48	2.065 52.45	787169-5	787170-5	787362-5
68	1.140 28.96	2.280 57.91	1.650 41.91	2.515 63.88	787169-7	787170-7	787362-7
100	1.540 39.12	3.080 78.23	2.450 62.23	3.315 84.20	787169-9	787170-9	787362-9

Note: Female screwlocks must be used to mate with cable assemblies with male jackscrew hardware.

AMPLIMITE .050 Series Right-Angle Receptacle Headers Without Rails—With Latch Blocks, Series III

.100 [2.54] and .120 [3.05] Solder Tail Lengths



Without Boardlocks



With Boardlocks

Material:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel

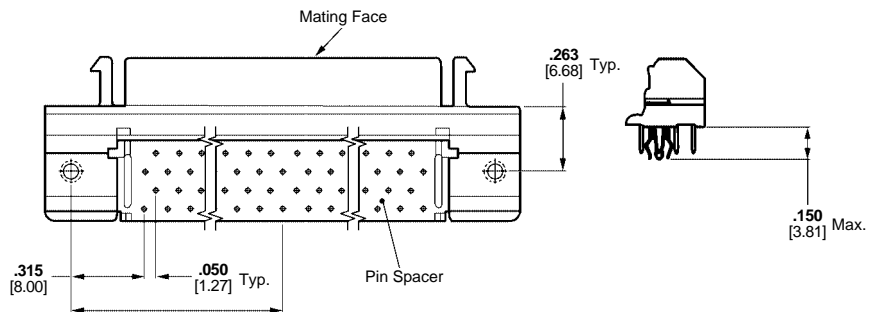
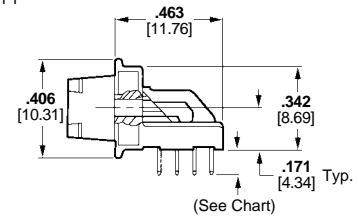
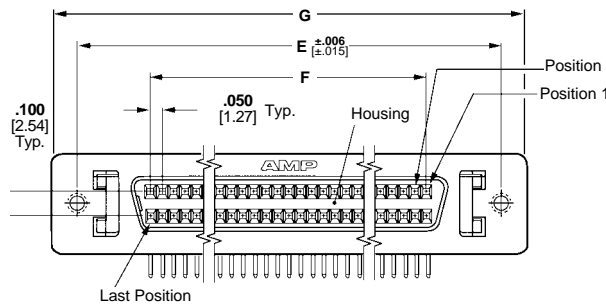
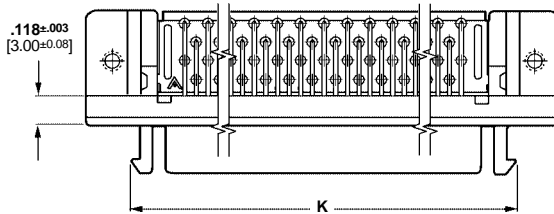
Related Product Data:

Hardware—page 1017

Technical Documents:

Product Specification
108-1228

Application Specification
114-40029

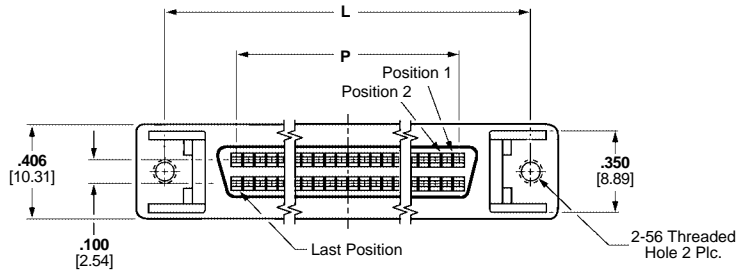


No. of Positions	Dimensions					Part Numbers		
						With .100 [2.54] Solder Tails		With .120 [3.05] Solder Tails
	D	E	F	G	K	Without Boardlocks	With Boardlocks	With Boardlocks
26	.615	1.230	.600	1.465	1.065	787394-2	787082-2	—
	15.62	31.24	15.24	37.21	27.05			
28	.640	1.280	.650	1.515	1.115	787394-3	787082-3	—
	16.26	32.51	16.51	38.48	28.32			
50	.915	1.830	1.200	2.065	1.665	787394-5	787082-5	787083-5
	23.24	46.48	30.48	52.45	42.29			
50	.915	1.830	1.200	2.065	1.665	—	787395-5*	—
	23.24	46.48	30.48	52.45	42.29			
68	1.140	2.280	1.650	2.515	2.115	787394-7	787082-7	787083-7
	28.96	57.91	41.91	63.88	53.72			
100	1.540	3.080	2.450	3.315	2.915	—	787082-9	—
	39.12	78.23	62.23	84.20	74.04			

*Part Number 787395-5 has 4-40 threaded mating holes (2 places), for use with female screwlock Part Number 750644-1.

AMPLIMITE .050 Series Vertical Receptacle Headers With Rails and Latch Blocks, Series III

.125 [3.18] Solder Tail Length



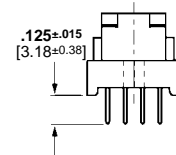
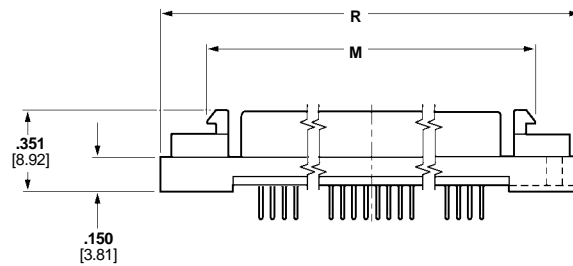
Material:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel



Technical Documents:

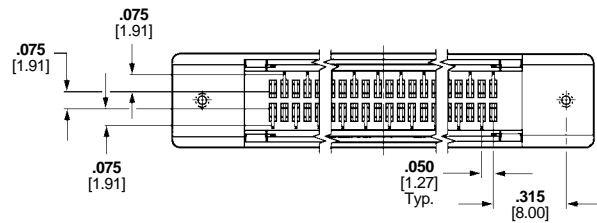
Product Specification

108-1228

Application Specification

114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out, unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



No. of Positions	Dimensions				Part Numbers
	L	M	P	R	
20	1.080 27.43	.915 23.24	.450 11.43	1.315 33.40	749069-1
26	1.230 31.24	1.065 27.05	.600 15.24	1.465 37.21	749069-2
40	1.580 40.13	1.415 35.94	.950 24.13	1.815 46.10	749069-4
50	1.830 46.48	1.665 42.29	1.200 30.48	2.065 52.45	749069-5
68	2.280 57.91	2.115 53.72	1.650 41.91	2.515 63.88	749069-7
100	3.080 78.23	2.915 74.04	2.450 62.23	3.315 84.20	749069-9

AMPLIMITE .050 Series Vertical Receptacle Headers Without Rails and Latch Blocks, Series III

.125 [3.18] Solder Tail Length

For use with jackscrew mating hardware



Material:

Housing—Thermoplastic, 94V-0 rated, black. SMT compatible

Shell—Steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel

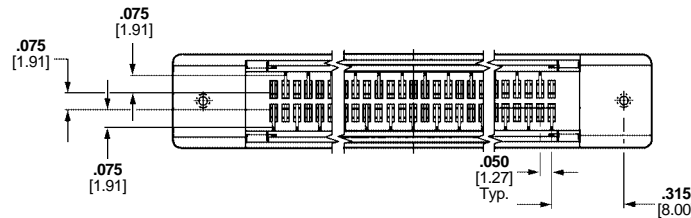
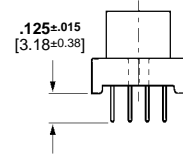
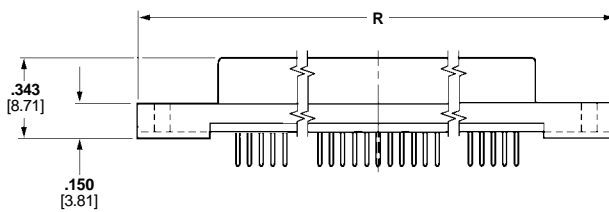
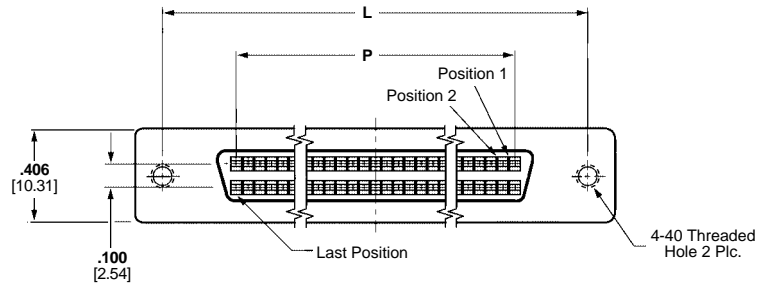
Related Product Data:

Required Hardware—page 1017, screwlocks

Technical Documents:

Product Specification
108-1228

Application Specification
114-40029

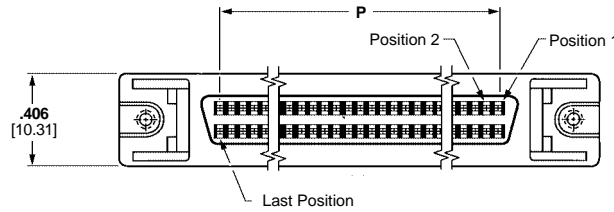


No. of Positions	Dimensions			Part Numbers
	L	P	R	
50	1.830 46.48	1.200 30.48	2.065 52.45	749070-5
68	2.280 57.91	1.650 41.91	2.515 63.88	749070-7
100	3.080 78.23	2.450 62.23	3.315 84.20	749070-9

Note: Female screwlocks must be used to mate with cable assemblies with male jackscrew hardware.

AMPLIMITE .050 Series Vertical Receptacle Headers With Rails and Latch Blocks, Series III

**.173 [4.39] and .280 [7.11]
Lengths, ACTION PIN Tails**



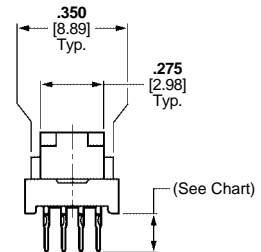
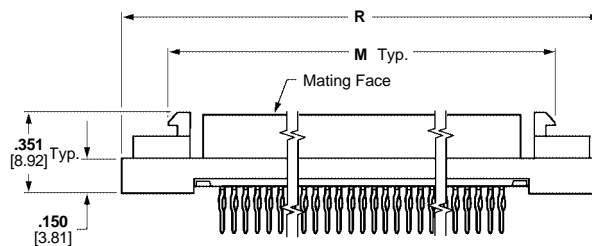
Material:

Housings—Thermoplastic, 94V-0 rated, black, SMT compatible

Shell—Carbon steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel



Technical Documents:

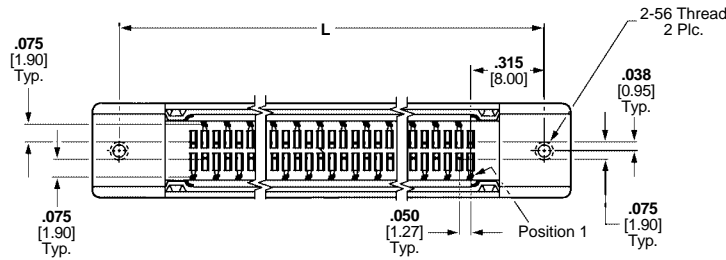
Product Specification

108-1228-2

Application Specification

114-40029

Note: Extra pin contact protection is provided by rails, which facilitate a straight-out unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.



No. of Positions	Dimensions				Part Numbers	
	L	M	P	R	With .173 [4.39] ACTION PIN Contacts	With .280 [7.11] ACTION PIN Contacts
20	1.080 27.43	.915 23.24	.450 11.43	1.315 33.40	786554-1	—
26	1.230 31.34	1.065 27.05	.600 15.24	1.465 37.21	786554-2	—
50	1.830 46.48	1.665 42.29	1.200 30.48	2.065 52.45	786554-5	786556-5
68	2.280 57.91	2.115 53.72	1.650 41.91	2.515 63.88	786554-7	786556-7
100	3.080 78.23	2.915 74.04	2.450 62.23	3.315 84.20	786554-9	—
120	3.580 90.93	3.415 86.74	2.950 74.93	3.815 96.90	1-786554-0	1-786556-0

AMPLIMITE .050 Series Vertical Receptacle Headers Without Rails and Latch Blocks, Series III

.173 [4.39] and .280 [7.11] Lengths, ACTION PIN Tails

For use with jackscrew
mating hardware



Material:

Housings—Thermoplastic, 94V-0 rated, black, SMT compatible

Shell—Carbon steel, plated bright nickel over copper

Bracket—Zinc, plated nickel over copper

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end; tin-lead on solder end; all underplated nickel

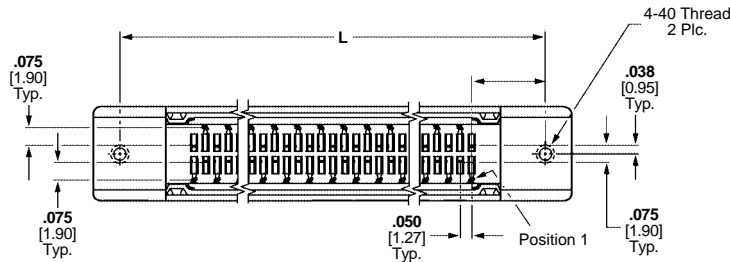
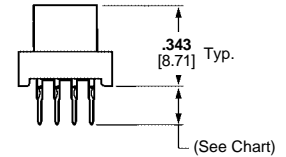
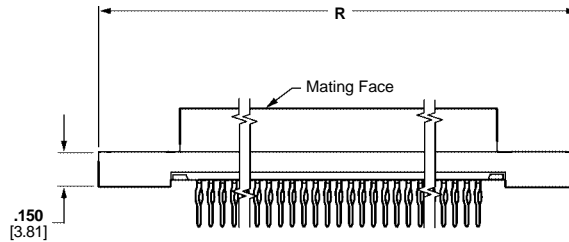
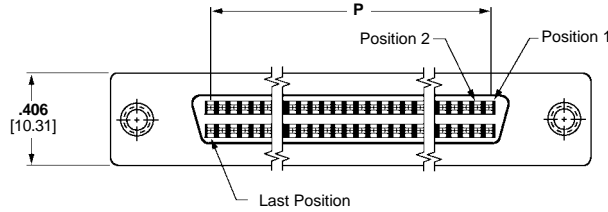
Related Product Data:

Required Hardware—page 1017, screwlocks

Technical Documents:

Product Specification
108-1228-2

Application Specification
114-40029



No. of Positions	Dimensions			Part Numbers	
	L	P	R	With .173 [4.39] ACTION PIN Contacts	With .280 [7.11] ACTION PIN Contacts
50	1.830 46.48	1.200 30.48	2.065 52.45	786555-5	786557-5
68	2.280 57.91	1.650 41.91	2.515 63.88	786555-7	786557-7
100	3.080 78.23	2.450 62.23	3.315 84.20	786555-9	786557-9

AMPLIMITE .050 Series Cable Plug Connectors, Series III

Shielded Plugs



Shielded Plug



Wire Lacing Termination Covers

Material:

Housing and Covers—Thermoplastic, 94V-0 rated, black or gray

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin-lead on termination end, all underplated .nickel

Shell—Steel, plated tin-nickel alloy over nickel over min. copper

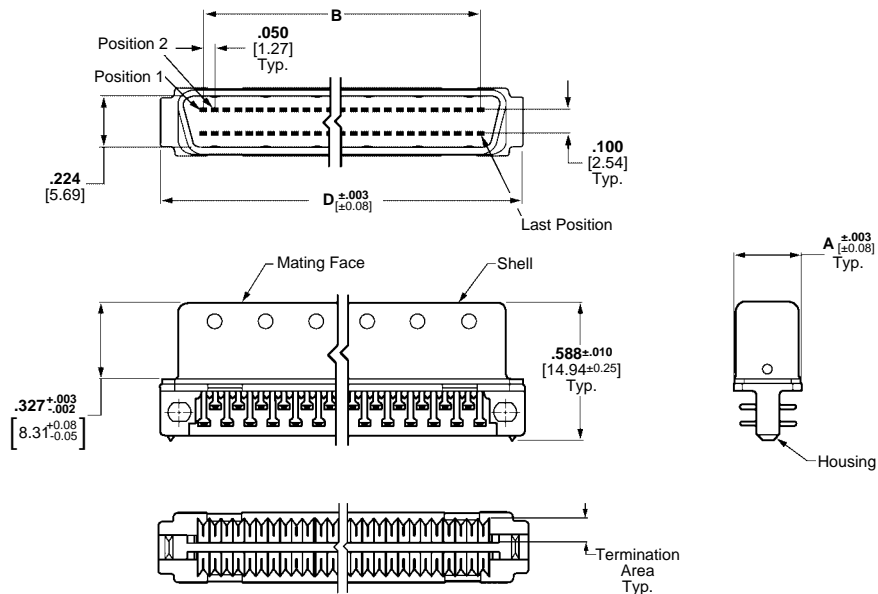
Recommended wire size—28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter.

Technical Documents:

Product Specification
108-1228

Application Specification
114-40029

Instruction Sheet
408-9427



Shielded Plug with Unassembled Wire Lacing Termination Covers

Connector With Unassembled Wire Lacing Termination Covers

No. of Positions	Dimensions			Part Numbers	
	A	B	D	.032-.036 [0.81-0.91] Outer Wire Dia. Black	.029-.031 [0.74-0.79] Outer Wire Dia. Gray
26	.293 7.44	.600 15.24	.979 24.87	750913-2	1-750913-2
40	.293 7.44	.950 24.13	1.329 33.76	750913-4	1-750913-4
50	.293 7.44	1.200 30.48	1.579 40.11	750913-5	1-750913-5
68	.293 7.44	1.650 41.91	2.029 51.54	750913-7	1-750913-7
100	.373 9.47	2.450 62.23	2.829 71.86	—	1-750913-9

Notes: 1 Plug connector requires backshell kit for complete assembly. Refer to pages 1014-1016 for backshell kit part numbers.

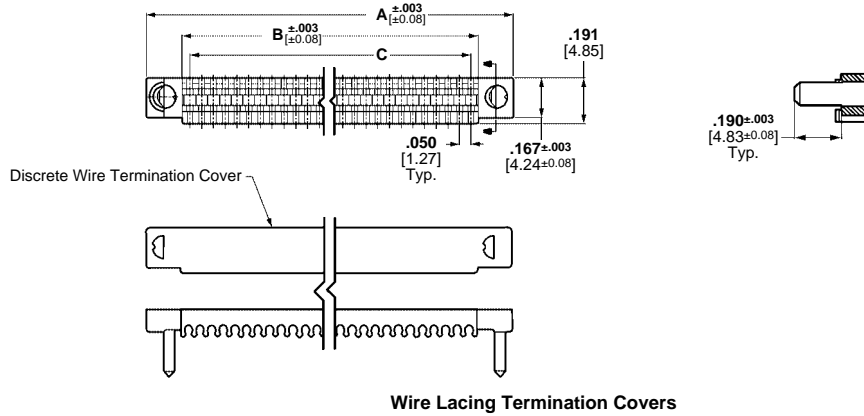
2 For termination, cover closing and wire lacing tooling, see page 1019.

AMPLIMITE .050 Series Cable Plug Connectors, Series III

Shielded Plugs



Wire Lacing Termination Covers



Input/Output Connectors

Wire Lacing Covers Only

No. of Positions	Dimensions			Part Numbers	
	A	B	C	.032-.036 [0.81-0.91] Outer Wire Dia. (Black)	.029-.031 [0.74-0.79] Outer Wire Dia. (Gray)
26	.965 24.51	.664 16.87	.600 15.24	750877-2	1-750877-2
40	1.315 33.40	1.014 25.76	.950 24.13	750877-4	1-750877-4
50	1.565 39.75	1.264 32.11	1.200 30.48	750877-5	1-750877-5
68	2.015 51.18	1.714 43.54	1.650 41.91	750877-7	1-750877-7
100	2.815 71.50	2.514 63.86	2.450 62.23	—	1-750877-9

Note: Two covers required per connector assembly.

AMPLIMITE .050 Series Connector Application Tooling for Use with Wire Lacing Termination Covers

Manual Arbor Frame Assembly— Part Number 58024-1

Equipped with Cover Lacing Assembly—
Part Number 91293-1
(Includes Seating Bars for 50 and 100 Positions). See Table 3 for Seating Bar Part Numbers.

Extra Lacing Stations available for use with Lacing Assembly—
Part Number 91293-1
Order Lower Tooling Assembly—
Part Number 543481-1



Arbor Frame, Part Number 58024-1
Equipped with Cover Lacing Assembly,
Part Number 91293-1



Lower Tooling Assembly
Part Number 543481-1



Miniature Applicator Frame Assembly
Part Number 91295-1
Equipped with Cover Closing Kit
Part Number 543508-1



Seating Bars

Table Number 3

No. of Positions	Seating Bar Part No.
26	543494-2
40	543494-3
50	543494-1
68	543502-2
100	543502-1

Note: All Tooling must be ordered separately by part number.

Note: AMP Manual Miniature Applicator Frame Assembly, Cover Closing Kit, and Staple Insertion Kit each must be ordered separately by part number.

AMPLIMITE .050 Series Cable Receptacle Connectors, Series III

Shielded Receptacles



Shielded Receptacle with Assembled Termination Covers

Material:

Housing and Covers—Thermoplastic, 94V-0 rated, black

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold on mating end, tin-lead on termination end, all underplated nickel

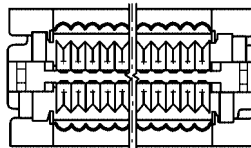
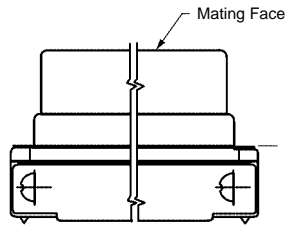
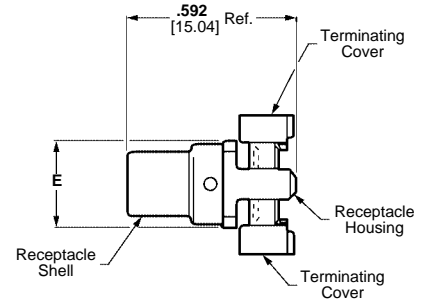
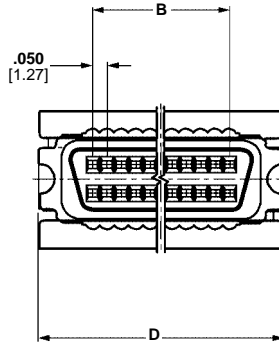
Shell—Steel, plated bright tin-lead over copper

Recommended wire size—28 AWG [0.08-0.09mm²] or 30 AWG [0.05mm²], solid or 7 strand, with a .029-.036 [0.74-0.89] insulation diameter.

Technical Documents:

Product Specification
108-1228

Application Specification
114-40029



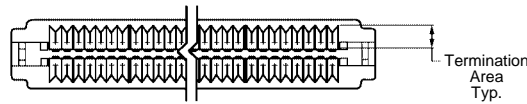
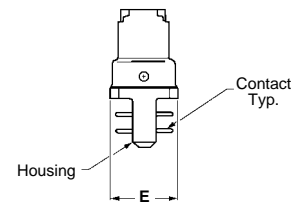
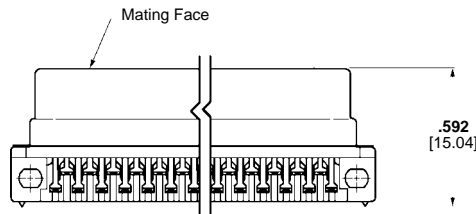
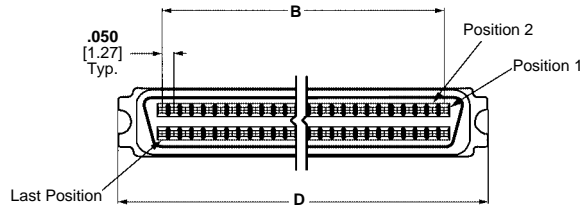
AMPLIMITE .050 Series Cable Receptacle Connectors, Series III

Shielded Receptacles



Shielded Receptacle with Unassembled Termination Covers

Wire Lacing Termination Covers



No. of Positions	Dimensions			Part Numbers		
				Connectors With Standard Termination Covers		Connectors With Unassembled Wire Lacing Termination Covers
	B	D	E	Assembled Covers	Unassembled Covers	.032-.036 [0.81-.036] Outer Wire Dia.
40	.950 24.13	1.329 33.76	.293 7.44	—	749699-4	—
50	1.200 30.48	1.579 40.11	.293 7.44	749210-5	749699-5	—
68	1.650 41.91	2.029 51.54	.293 7.44	749210-7	749699-7	786860-7
100	2.450 62.23	2.829 71.86	.373 9.47	—	749699-8	—

Notes: 1 Receptacle connector requires backshell kit for complete assembly. Refer to pages 1014-1016 for backshell kit part numbers.

2 For termination, cover closing and wire lacing tooling, see page 1011.

3 For Termination Tooling other than Wire Lacing see pages 1018, 1019.

AMPLIMITE .050 Series Shielded Backshell Kits, With Jackscrews, Series III

Straight Exit with Jackscrews



Straight Exit Male Jackscrews Style A

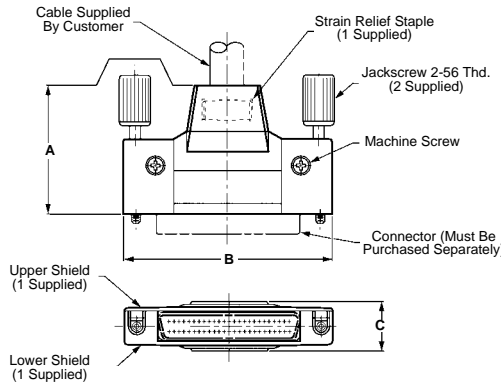


Straight Exit Male Jackscrews Style B

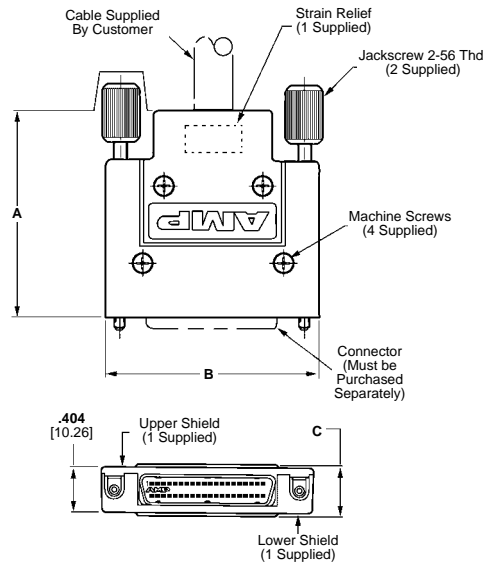


Straight Exit Female Jackscrews Style A

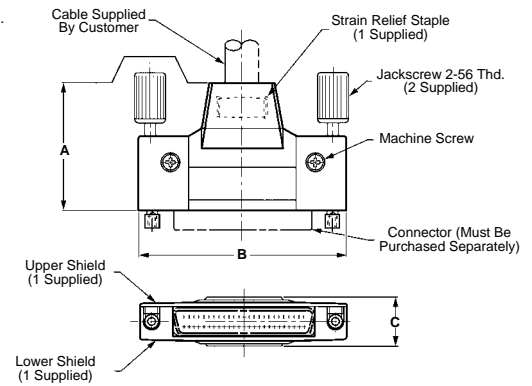
Style A Straight Exit Male Jackscrews



Style B Straight Exit Male Jackscrews



Style A Straight Exit Female Jackscrews



Material:

Jackscrews—Stainless steel or steel, black electroless nickel plated

Jackscrew Caps—Polyolefin or PVC, black

2-56 Screws—Stainless steel

Backshell—Zinc, plated nickel over copper

Strain Relief Staple—Steel, plated tin-lead over nickel

Technical Documents:

Product Specification

108-1228

Application Specification

114-40029

Instruction Sheet

408-9427

No. of Positions	Style	Dimensions			Part Numbers			
		A	B	C	Pkg.	Max. O.D.	Male with #2-56 Threads	Female with #2-56 Threads
40	B	1.822	1.830	.456	Bulk	.450	787543-1	787543-7
		46.25	46.48	11.58	Bulk	.400	787543-2	787543-8
					Bulk	.350	787543-3	787543-9
50	A	1.270	2.085	.480	Individual	.400	749080-1	—
		32.26	52.96	12.19	Bulk	.400	749080-2	—
100	A	1.695	3.325	.595	Individual	.500	749081-1	—
		43.05	84.46	15.11		12.70		
100	A	2.082	3.325	.615	Individual	.500	749854-1	—
		52.88	84.46	15.62		12.70		

Notes: 1 Each backshell kit includes upper and lower backshells, two male or female jackscrews, one strain relief staple and two or four #2-56 screws. All are packaged unassembled.

2 For Staple Insertion Tooling see page 1019.

AMPLIMITE .050 Series Shielded Backshell Kits, With Spring Latches, Series III



**Style A
Straight Exit
with Latches**



**Style A
Angled Exit
with Latches**



**Style B
Straight Exit
with Latches**

Material:

Backshell—Zinc, plated nickel over copper

Spring Latch—Stainless steel

2-56 Screws—Stainless steel

Strain Relief Staple—Steel, plated tin-lead over nickel

Technical Documents:

Product Specification

108-1228

Application Specification

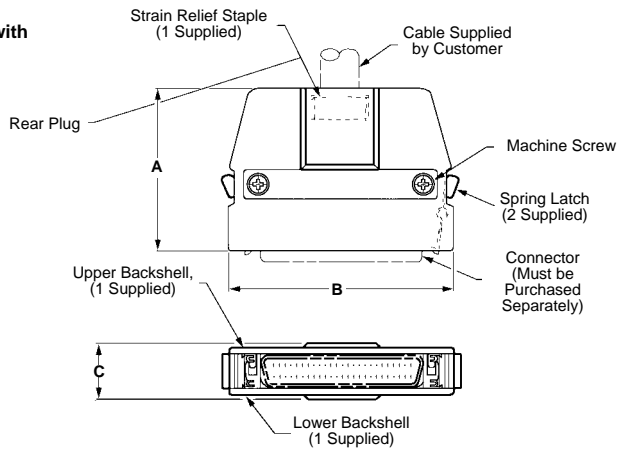
114-40029

Instruction Sheet

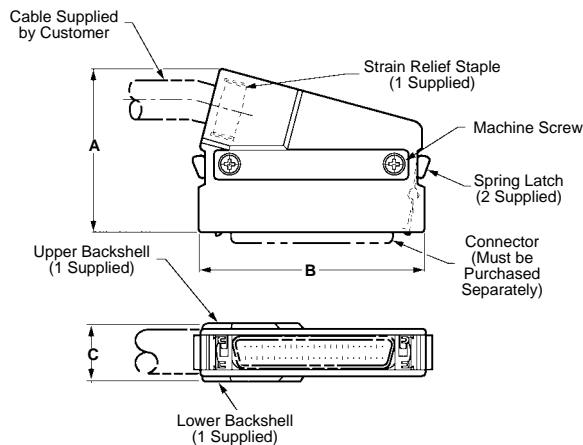
408-9427

Note: Extra pin contact protection is provided by rails on the receptacle, which facilitate a straight-out unmating motion. A side-to-side rocking motion should not be used to disengage the connector system.

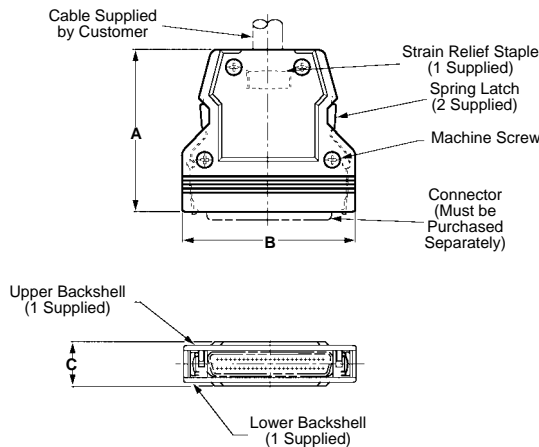
**Style A
Straight Exit with
Latches**



**Style A
Angled Exit with
Latches**



**Style B
Straight Exit with
Latches**



AMPLIMITE .050 Series Shielded Backshell Kits, With Spring Latches, Series III

Straight and Angled Exit RFI/EMI Shields (Two-Piece) for Jacketed Cable

No. of Positions	Style	Dimensions			Max. O.D.	Part Numbers	
		A	B	C		Straight with Latches	Angled with Latches
20	A	1.290 32.77	1.215 30.86	.400 10.16	.270 6.86	749190-1	749199-1
26	B	1.290 32.77	1.335 33.91	.400 10.16	.270 6.86	749608-1	—
26	A	1.290 32.77	1.365 34.67	.400 10.16	.270 6.86	—	749609-1
40	A	1.290 32.77	1.715 43.56	.400 10.16	.320 8.13	—	749201-1
40	A	1.290 32.77	1.715 43.56	.409 10.39	.320 8.13	749192-1	—
50	A	1.395 35.43	1.965 49.91	.480 12.19	.355 9.02	749193-1	—
50	A	1.395 35.43	1.965 49.91	.480 12.19	.400 10.16	749193-2	749202-2
50	B	1.800 45.72	1.965 49.91	.492 12.50	.480 12.19	749889-3	—
68	A	1.405 35.69	2.415 61.34	.520 13.21	.400 10.16	—	749204-1
68	A	1.405 35.69	2.415 61.34	.520 13.21	.440 11.18	749195-2	749204-2
80	A	1.600 40.64	2.715 68.96	.565 14.35	.420 10.67	—	749205-1
80	A	1.600 40.64	2.715 68.96	.565 14.35	.500 12.70	749196-2	—
100	A	1.725 43.82	3.215 81.66	.615 15.62	.500 12.70	—	749206-1

Notes: ¹ Each backshell kit includes upper and lower backshells, two spring latches, one strain relief staple and two or four 2-56 screws. All are packaged unassembled.

² For staple insertion tooling see page 1019.

³ 50 and 68 positions meet SCSI-2 standards.

AMPLIMITE .050 Series Hardware Series III

Screwlock Kits



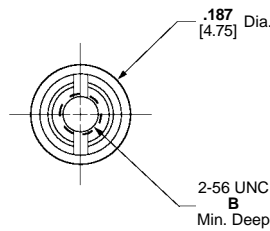
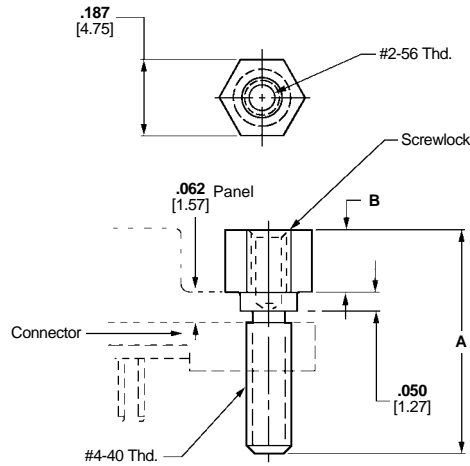
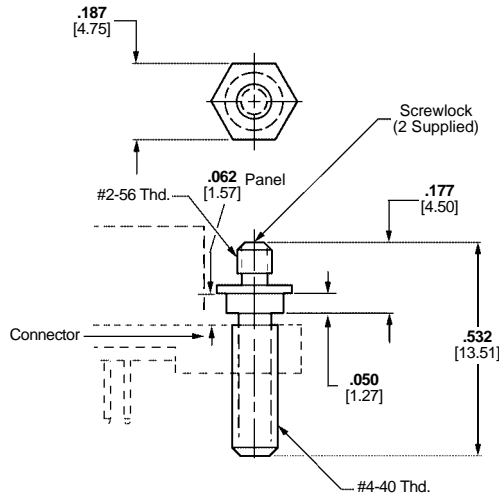
Male
Part Number 749086-1
(Includes two screwlocks)



Female
(Includes two screwlocks)

Dim. A	Dim. B	Part Number
.562 14.27	.157 3.99	749087-1
.380 9.65	.157 3.99	749087-2 ¹

¹ Recommended for right-angle board mount connectors.



Female
(Includes two screwlocks)

Thread Size	Part Numbers	
	A	B
4-40	.110 2.79	750644-1
2-56	.090 2.29	786585-2

Recommended for pc board mount or panel mount connectors with latches or latches and rails. Permits cable connectors to be spring latch-type or jackscrew-type

Material:

Stainless steel (female)
Steel, zinc plated black (male)

Related Product Data:

Used with the following connectors:

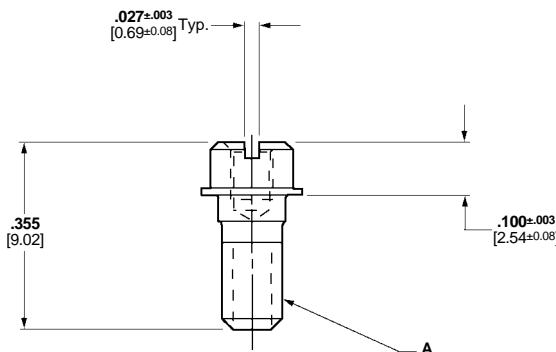
Right-Angle Receptacle Header—
pages 1003-1005

Vertical Receptacle Header—
pages 1006, 1007

Technical Documents:

Product Specification
108-1228

Application Specification
114-40029



AMPLIMITE .050 Series Application Tooling, Series III

To meet medium to high volume production of discrete wire terminations, AMP offers the following tooling:

The CHAMPOMATOR Model 2.5 Bench Terminating Machine—
Part Number 354786-1, used in conjunction with Control Module—
Part Number 852423-□, and Tie Bar—
Part Number 762637-□ (Table No. 1).



Control Module
Part Numbers 852423-1 120 VAC
 852423-2 100 VAC
 852423-3 230 VAC

CHAMPOMATOR 2.5 Machine
Part Number 354786-1

Note: The CHAMPOMATOR 2.5 Machine includes plug and receptacle nests, as well as wire setup gauge.

Table Number 1

Connector Size	Tie Bar Part Numbers
20 Pos.	762637-1
26 Pos.	1-762637-1
28 Pos.	1-762637-2
40 Pos.	762637-3
50 Pos.	762637-4
60 Pos.	762637-5
68 Pos.	762637-6
80 Pos.	762637-7
100 Pos.	762637-9
120 Pos.	1-762637-0

Discrete Wire Application Tooling

For low to medium volume production use the AMP Arbor Frame Assembly—
Part Number 58024-1 equipped with Applicator—
Part Number 91291-1 for .032-.036 [0.81-0.89] Conductor Insulation O.D. and Applicator—
Part Number 91291-2 for .029-.032 [0.74-0.81] Conductor Insulation O.D.

Note: AMP Arbor Frame Assembly and Applicator Kit must be ordered separately.



Arbor Frame
Part Number 58024-1
Equipped with
Applicator Part Number 91291-□

AMPLIMITE .050 Series Application Tooling, Series III

Manual Miniature Applicator Frame Assembly— Part Number 91295-1

This Frame requires Cover Closing Kit—
Part Number 543508-1

Cable Staple Tooling

To provide cable strain relief use Manual Miniature Applicator Frame Assembly—
Part Number 91295-1.

This Frame requires Staple Insertion Kit—

Part Number 543515-1 to install staples into lower backshells of connector kits and assemblies.



Staple Insertion Kit
Part Number 543515-1
(For use with Miniature Applicator Frame Assembly Part Number 91295-1)

Miniature Applicator Frame Assembly
Part Number 91295-1
Equipped with Cover Closing Kit
Part Number 543508-1

AMPLIMITE .050 Series Connector Application Tooling for Use with Wire Lacing Terminating Covers

Manual Arbor Frame Assembly— Part Number 58024-1

Equipped with Cover Lacing Assembly—
Part Number 91293-1 (Includes Seating Bars for 50 and 100 Positions). See Table 3 for Seating Bar Part Numbers.

Extra Lacing Stations available for use with Lacing Assembly—

Part Number 91293-1
Order Lower Tooling Assembly—
Part Number 543481-1



Arbor Frame, Part Number 58024-1
Equipped with
Cover Lacing Assembly, Part Number 91293-1

Note: AMP Manual Miniature Applicator Frame Assembly, Cover Closing Kit, and Staple Insertion Kit each must be ordered separately by part number.



Seating Bars

Table Number 3

No. of Positions	Seating Bar Part Numbers
26	543494-2
50	543494-1
68	543502-2
100	543502-1

Notes: All Tooling must be ordered separately by part number. Two seating bars required per tool assembly.

Termination Tooling for .025 [0.64] Centerline Ribbon Cable

Used with Manual Arbor Tool

Part Number 91085-2,
or Pneumatic Arbor Tool
Part Number 91112-3
and Universal Base Tool
Part Number 768338-4.

No. of Positions	Plug/Receptacle Upper Tooling Kit
50	679235-2
68	



Lower Tooling Assembly
Part Number 543481-1

HDP-22 Crimp Snap-In Contact Connectors**Product Facts:**

- Approximately 65% higher density than HD-20 connectors
- Lower cost, commercial version of the AMP military approved Series 90 family
- Available with shielding overmold hardware and shielding enclosure kits
- Capable of using numerous standard HD-20 cable clamps and mating hardware
- Low cost, high performance, precision-formed crimp contacts
- Intermateable with any size 22 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association, File No. LR 164196 



For complete product information, order Catalog 82068

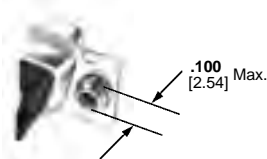
HDP-22 Crimp Snap-In Contact Connectors



Plug
(With Grounding Indents)

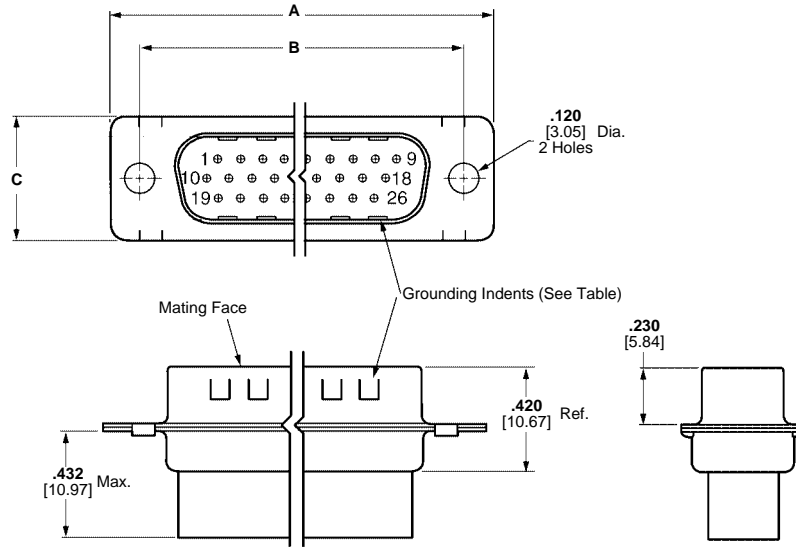


Receptacle

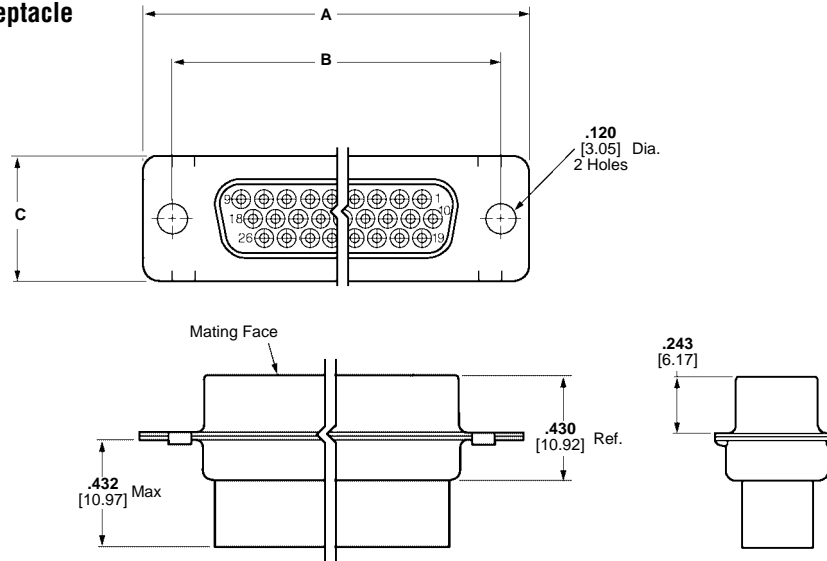


Clinch Nut
(Plug and Receptacle)

Plug



Receptacle



Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Contacts and ferrules must be purchased separately.

Related Product Data:

Contacts—page 1025

Ferrules—page 1024

Mateable Connectors:

Cable Clamps—pages 1047-1052

Mating Hardware—pages 1058-1065

Technical Documents:

Product Specification

108-1268

Application Specification

114-10001

Instruction Sheets

408-9375, 408-9381

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Shell Size	No. of Contact Positions	Dimensions			Part Numbers			
		A	B	C	With Grounding Indents	With Clinch Nuts	With Grounding Indents	With Clinch Nuts
					Plug	Plug	Receptacle	Receptacle
1	15	1.213 30.81	.984 24.99	.494 12.55	748364-1	—	748565-1	748696-1
2	26	1.541 39.14	1.312 33.33	.494 12.55	748365-1	749717-1	748566-1	—
3	44	2.088 53.84	1.852 47.04	.494 12.55	748366-1	—	748567-1	786583-1
4	62	2.729 69.32	2.500 63.50	.494 12.55	748367-1	—	748568-1	—
5	78	2.635 66.93	2.406 61.11	.605 15.37	748368-1	—	748569-1	—

Note: Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.

For complete product information, order Catalog 82068

HDP-22 Crimp Snap-In Contact Connectors

Basic Shielding Hardware Kits



Plug



Receptacle

Each kit contains:

- Connector
- Inner shield
- Outer shield

Contacts and ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shields—Steel, tin plated

Related Product Data:

Contacts—page 1025

Ferrules—page 1024

Mateable Connectors—pages 1021 & 1022

Mating Hardware—pages 1058-1065

Technical Documents:

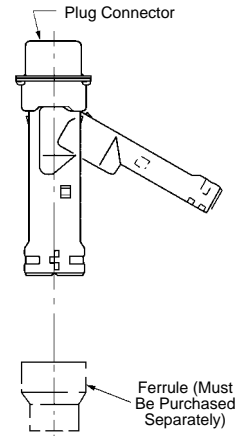
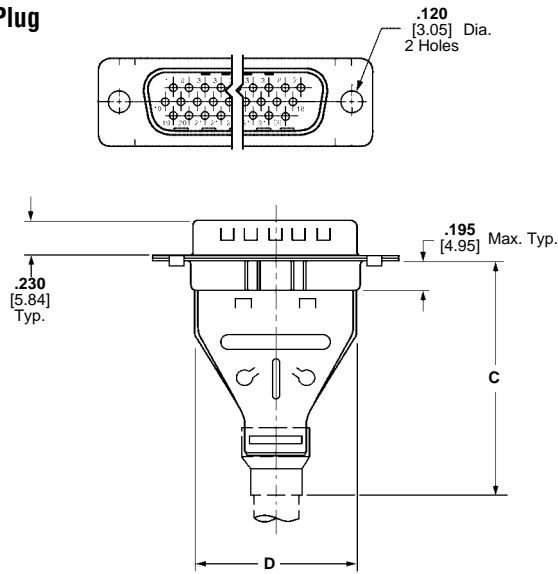
Product Specification
108-1268

Application Specifications
114-10001, 114-40030

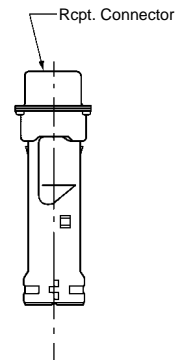
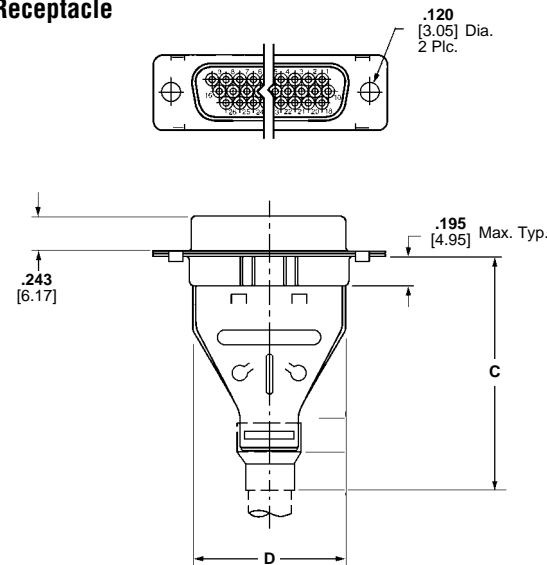
Instruction Sheet
408-9381, 408-9010

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Insulation Diameter	Max. Cable Dia.†	Kit Numbers	
		C	D			Plug	Receptacle
1	15	1.535 38.99	.700 17.78	.165-.455 4.19-11.56	.350 8.89	748468-1	748634-1
2	26	1.535 38.99	1.024 26.01	.165-.455 4.19-11.56	.350 8.89	748469-1	748635-1
3	44	1.535 38.99	1.576 40.03	.165-.455 4.19-11.56	.350 8.89	748470-1	748636-1
4	62	1.892 48.06	2.215 56.26	.338-.562 8.59-14.28	.450 11.43	748471-1	—
5	78	1.876 47.65	2.120 53.85	.338-.490 8.59-12.45	.450 11.43	748472-1	748638-1

Notes: 1. Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.

2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDP-22 Crimp Snap-In Contact Connectors

Shielding Hardware Enclosure Kits



Plug



Receptacle

Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Contacts and ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shields—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

Related Product Data:

Contacts—page 1025

Ferrules—page 1024

Mateable Connectors—pages 1021 & 1022

Mating Hardware—pages 1058-1065

Technical Documents:

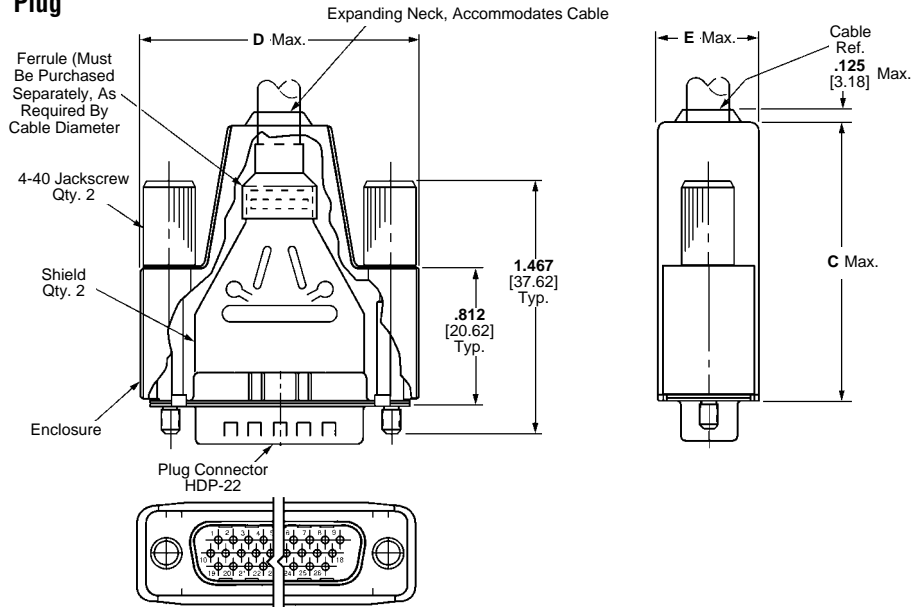
Product Specification
108-1268

Application Specifications
114-10001, 114-40030

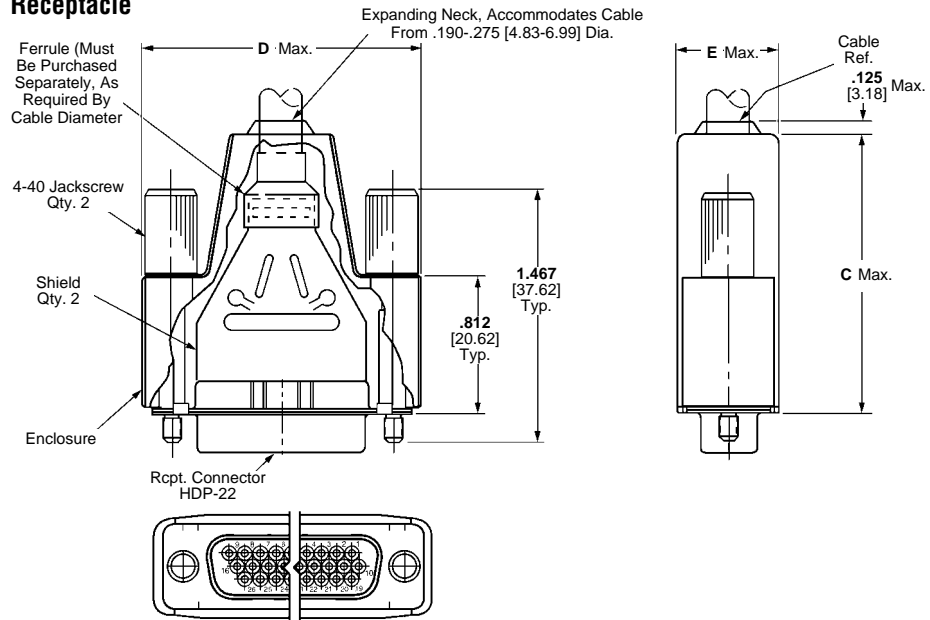
Instruction Sheets
408-9381, 408-9172

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Insulation Diameter	Max. Cable Dia.†	Kit Numbers		Shielding Enclosure Expansion Tool	
		C	D	E			Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	15	1.640 41.66	1.355 34.42	.630 16.00	.190-.375 4.83-9.53	.350 8.89	748473-1	748639-1	.355 9.02	58241-4
2	26	1.640 41.66	1.685 42.80	.630 16.00	.190-.375 4.83-9.53	.350 8.89	748474-1	748640-1	.445 11.56	58241-1
3	44	1.640 41.66	2.205 56.01	.630 16.00	.217-.435 5.51-11.05	.350 8.89	748475-1	748641-1	.562 14.28	58241-2
4	62	2.010 51.05	2.860 72.64	.730 18.54	.338-.562 8.59-14.28	.450 11.43	748476-1	748642-1	—	—
5	78	2.010 51.05	2.770 70.36	.730 18.54	.338-.490 8.59-12.45	.450 11.43	748477-1	—	—	—

Notes: 1. Plugs accept size 22 DF pin contacts and receptacles accept size 22 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDP-22 Crimp Snap-In Contact Connectors

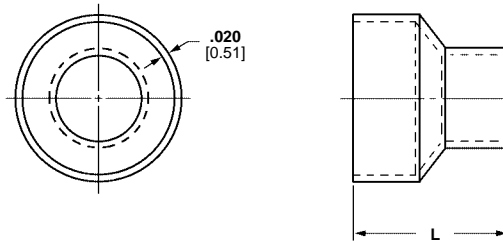
Ferrules for Shielding Hardware Kits



Stepped



Straight



Material and Finish:

Steel (annealed), tin plated

Related Product Data:

Shielding Hardware and Enclosure Kits—pages 1022, 1023

Technical Documents:

Instruction Sheets

408-9199, 408-9242, 408-9243, 408-9315, 408-9507, 408-9508

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

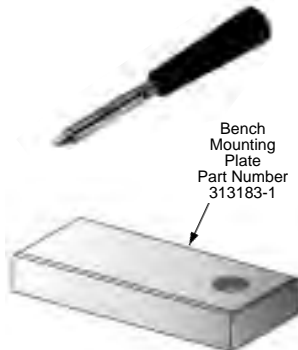
Shell Sizes	Style	L Dim.	Cable Diameter	Part Numbers	
				Ferrule	Die Sets*
1-3	Stepped	.440 11.18	.165-.190 4.19-4.83	747579-8	543424-3
1-3	Stepped	.440 11.18	.190-.217 4.83-5.51	747579-8	543424-2
1-3	Stepped	.440 11.18	.217-.246 5.51-6.25	747579-8	543424-8
1-3	Stepped	.440 11.18	.246-.284 6.25-7.21	1-747579-0	543424-1
1-3	Stepped	.440 11.18	.284-.324 7.21-8.23	1-747579-0	543424-7
1-3	Stepped	.440 11.18	.324-.375 8.23-9.53	1-747579-1	543424-6
1-3	Straight	.440 11.18	.375-.437 9.53-11.05	1-747579-2	543424-5
1-3	Straight	.440 11.18	.400-.460 10.16-11.56	1-747579-4	543424-4
4-5	Stepped	.625 15.88	.230-.265 5.84-6.73	1-747580-0	543425-2
4-5	Stepped	.625 15.88	.338-.385 8.59-9.78	747580-8	543425-1
4-5	Stepped	.625 15.88	.375-.432 9.53-10.97	747580-4	58238-1
4-5	Stepped	.625 15.88	.422-.490 10.72-12.45	747580-5	58237-2
4	Straight	.625 15.88	.480-.562 12.19-14.28	747580-6	58237-1

*Die sets used with Hand Crimping Tool Part Number 543344-1 or Pneumatic Bench Tool Part Number 312522-3 equipped with Die Set Holder Part Number 58449-1.

Application Tooling for Shielding Hardware Kits



Hand Crimping Tool
Part Number 543344-1
(Requires Die Sets, see table above.)



Shielding Enclosure Expansion Tools
Part Numbers
58241-1 (.450 [11.43])†
58241-2 (.572 [14.53])†
58241-4 (.330 [8.38])†
†Maximum Cable Diameter

Pneumatic Bench Tool
Part Number 312522-3
(Requires Die Set Holder Part Number 58449-1.)



For complete product information, order Catalog 82068

HDP-22 Crimp Snap-In Contact Connectors

Precision Formed Crimp Snap-In Contacts, Size 22 DF

Material:

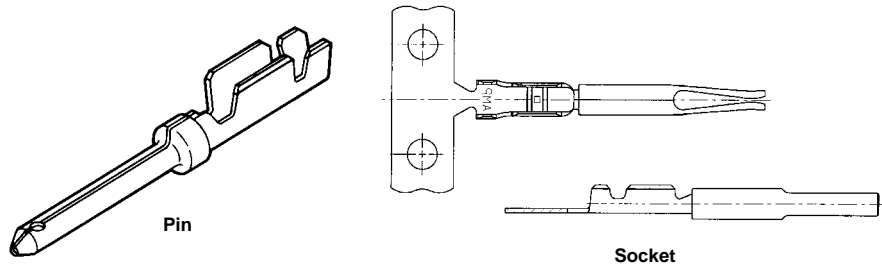
Pin—Brass

Socket—Phosphor bronze

Finish:

A—Duplex plated .000030 [0.00076] gold on mating end, tin-lead on crimp barrel, with entire contact nickel underplated

B—Duplex plated gold flash on mating end, tin-lead on crimp barrel, entire contact nickel underplated



Wire Size AWG mm ²	Insulation Diameter Max.	Contact Finish (Plating Code)	Contact Part Numbers				Hand Tools for Loose Form Contacts	
			Pin		Socket		PRO-CRIMPER II Hand Tool	CERTI-CRIMP Hand Tool
			Strip Form	Loose Form	Strip Form	Loose Form		
28-22 0.4-0.08	.040 1.02	A	748333-2	748333-4	748610-2	748610-4	90800-1	90430-1
		B	748333-5	748333-7	748610-5	748610-7		

Notes: Strip form contacts shipped 20,000 pieces/reel.

Related Product Data:

Connectors used with—pages 1021-1023

Application Tooling:

Hand Tools—PRO-CRIMPER II - page 13003, CERTI-CRIMP (SAHT) - page 13012

Bench Machines—AMP-O-LECTRIC Model G Terminating Machine - page 13005, AMP-O-LECTRIC Model K Terminating Machine - page 13007, Entry Level Terminator - page 13006, AMP-O-MATIC Stripper Crimper - page 13011

Leadmakers—pages 13008-13009

**Insertion/Extraction
Tool Part Number 91285-1 (Instruction Sheet—408-9404)**

This tool contains interchangeable tips to Insert/Extract
Size 22, 28-22 AWG [0.08-0.4 mm²] Crimp Contacts
Size 20, 28-20 AWG [0.08-0.4 mm²] Crimp Contacts
Size 20, Posted Contacts

Technical Documents:

Product Specification

108-1268

Application Specification

114-10001

Instruction Sheet




408-9381

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

For complete product information, order Catalog 82068

HDE-20 IDC Connectors for Discrete Wire and Jacketed Cable

Product Facts

- Insulation displacement contacts preloaded in housings
- No wire stripping
- Post plated contacts with no bare edges
- Duplex plated contacts—gold on mating end and tin on crimp end
- Patented contact promotes reliable termination of a wide range of wire sizes and insulation diameters
- Removable contacts for replacement and repair
- Selective loading of contacts available
- Crimp snap-in contacts available for making jumpers between circuits
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association, File No. LR 164196 



Typical Application Rates

Tool	Rate
Pistol Style	7.4 Sec./Line
Arbor Tool	5.0 Sec./Line
CHAMPOMATOR Machine	2.8 Sec./Line

Note: Rates are based on total time to complete a double ended 25 position Jacketed Cable Assembly

For complete product information, order Catalog 82068

HDE-20 All-Plastic IDC Connectors

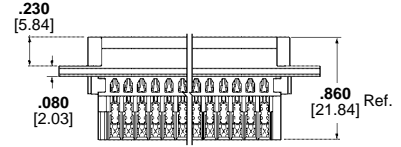
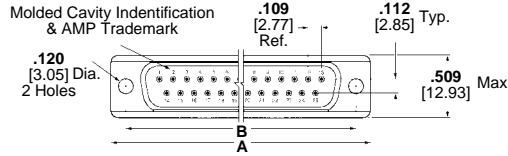
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Input/Output Connectors



Plug

Plug



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1050, 1053

Mating Hardware—pages 1058-1065

Technical Documents:

Product Specification

108-40011

Application Specifications

114-40002, 114-40003

Instruction Sheet

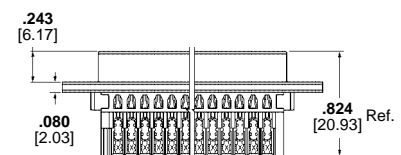
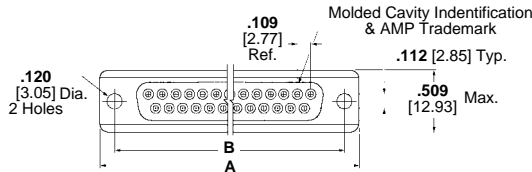
408-6621

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Receptacle

Receptacle



Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers	
		A	B		Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire Plug	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire Plug
1	9	1.213 30.81	.984 24.99	A	745203-1	745203-2
				B	—	745203-5
2	15	1.541 39.14	1.312 33.33	A	—	745207-2
				B	—	745207-5
3	25	2.090 53.09	1.852 47.04	A	745211-1	745211-2
				B	—	745211-5
4	37	2.732 69.39	2.500 63.50	A	—	745215-2

- Notes:**
- All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
 - HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 - Individual conductor strands should be larger than .005 inch [0.127] diameter.
 - Extraction Tool Part Number 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.

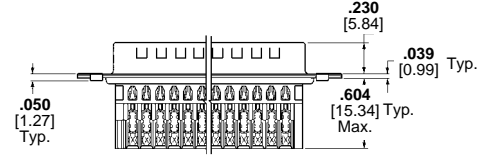
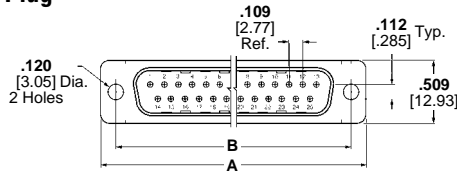
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers	
		A	B		Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire Receptacle	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire Receptacle
1	9	1.213 30.81	.984 24.99	A	—	745201-2
				B	—	745201-5
2	15	1.541 39.14	1.312 33.33	A	—	745205-2
				B	—	745205-5
3	25	2.090 53.09	1.852 47.04	A	745209-1	745209-2
				B	—	745209-5
4	37	2.732 69.39	2.500 63.50	A	—	745213-2

For complete product information, order Catalog 82068

HDE-20 Metal-Shell IDC Connectors



Plug



Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1050, 1053, 1054

Mating Hardware—pages 1058-1065

Technical Documents:

Product Specification

108-40011

Application Specifications

114-40002, 114-40003

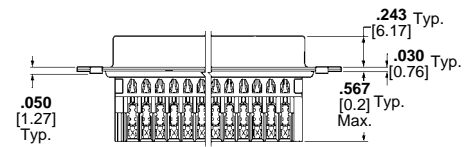
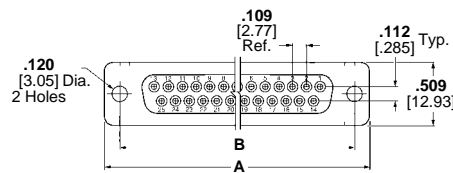
Instruction Sheet

408-6645

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Receptacle



Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers		
		A	B		Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
		Plug					
1	9	1.213 30.81	.984 24.99	A	745492-1	745492-2	745492-3
				B	—	745492-5	745492-6
2	15	1.541 39.14	1.312 33.33	A	745494-1	745494-2	—
				B	—	745494-5	745494-6
3*	25	2.088 53.04	1.852 47.04	A	745496-1	745496-2	745496-3
				B	745496-4	745496-5	745496-6
4	37	2.729 69.32	2.500 63.50	A	745498-1	745498-2	—
				B	—	745498-5	745498-6

* RS-232, size 3 connector, for 26-22 0.15-0.4mm² AWG wire select loaded circuits 1-8,15,17, 20 and 22, Plug Part Number 747740-1, Receptacle Part Number 747741-1, gold flash contacts.

- Notes:**
- All connectors are preloaded with insulation displacement contacts. Pins in plug connectors and sockets in receptacle connectors. Contacts accept a max. wire insulation thickness of .015 [0.38] and a max. wire insulation dia. of .060 [1.52].
 - Connectors can be made available with clinch nuts, contact Tyco Electronics.
 - HDE connectors are designed for terminating solid or stranded (7-strand max.) wire.
 - Individual conductor strands should be larger than .005 inch [0.127] diameter.
 - Extraction Tool Part Number 91232-1 (Instruction Sheet 408-6631) is used to remove pin or socket contacts.

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Connector Part Numbers		
		A	B		Contact Identification No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact Identification No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact Identification No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
		Receptacle					
1	9	1.213 30.81	.984 24.99	A	745491-1	745491-2	745491-3
				B	—	745491-5	—
2	15	1.541 39.14	1.312 33.33	A	745493-1	745493-2	745493-3
				B	—	745493-5	745493-6
3*	25	2.088 53.04	1.852 47.04	A	745495-1	745495-2	745495-3
				B	—	745495-5	745495-6
4	37	2.729 69.32	2.500 63.50	A	745497-1	745497-2	—
				B	—	745497-5	745497-6

For complete product information, order Catalog 82068

HDE-20 Basic Shielding Hardware Kits



Each kit contains:

- Connector
- Inner shield
- Outer shield

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

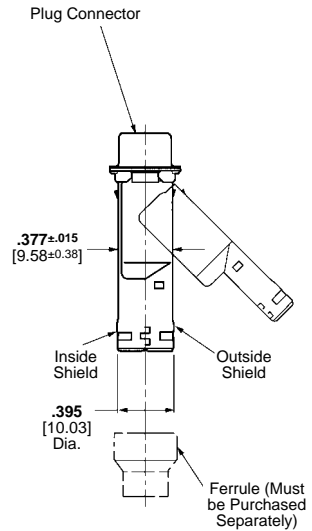
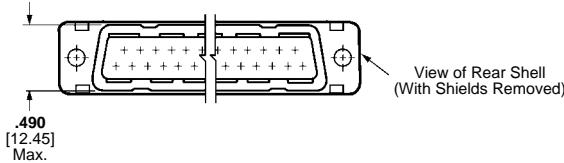
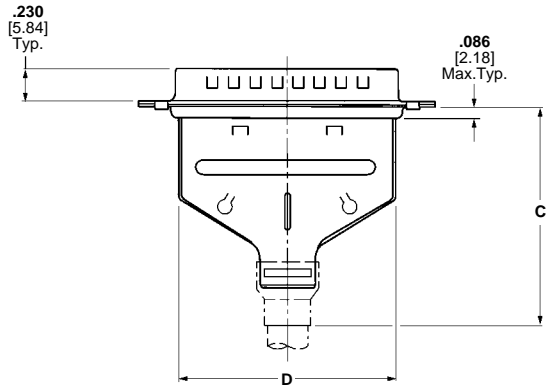
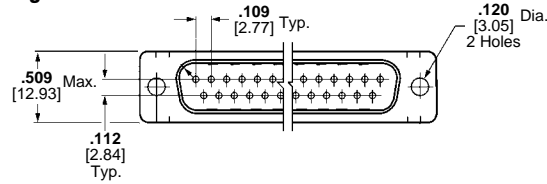
Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Plug



Technical Documents:

Product Specifications

108-40011, 108-40030

Application Specifications

114-40002, 114-40003, 114-40006

Instruction Sheet

408-9010

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Related Product Data:

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1052

Mating Hardware—pages 1058-1065

Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Ins. Dia.	Max. Cable Dia.†	Contact Finish (Plating Code)	Connector Part Numbers		
		C	D				Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact I.D. No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
							Plug	Plug	Plug
1	9	1.520 38.61	.678 17.22	.165-.455 4.19-11.56	.350 8.89	A	—	747515-2	747515-3
						B	—	747515-5	—
2	15	1.520 38.61	1.002 25.45	.165-.455 4.19-11.56	.350 8.89	A	747531-1	747531-2	—
						B	—	747531-5	—
3	25	1.520 38.61	1.550 39.37	.165-.455 4.19-11.56	.350 8.89	A	747547-1	747547-2	—
						B	747547-4	747547-5	—
4	37	1.867 47.42	2.205 56.01	.338-.562 8.59-14.28	.450 11.43	A	747563-1	—	—
						B	—	747563-5	—

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDE-20 Basic Shielding Hardware Kits



Each kit contains:

- Connector
- Inner shield
- Outer shield

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

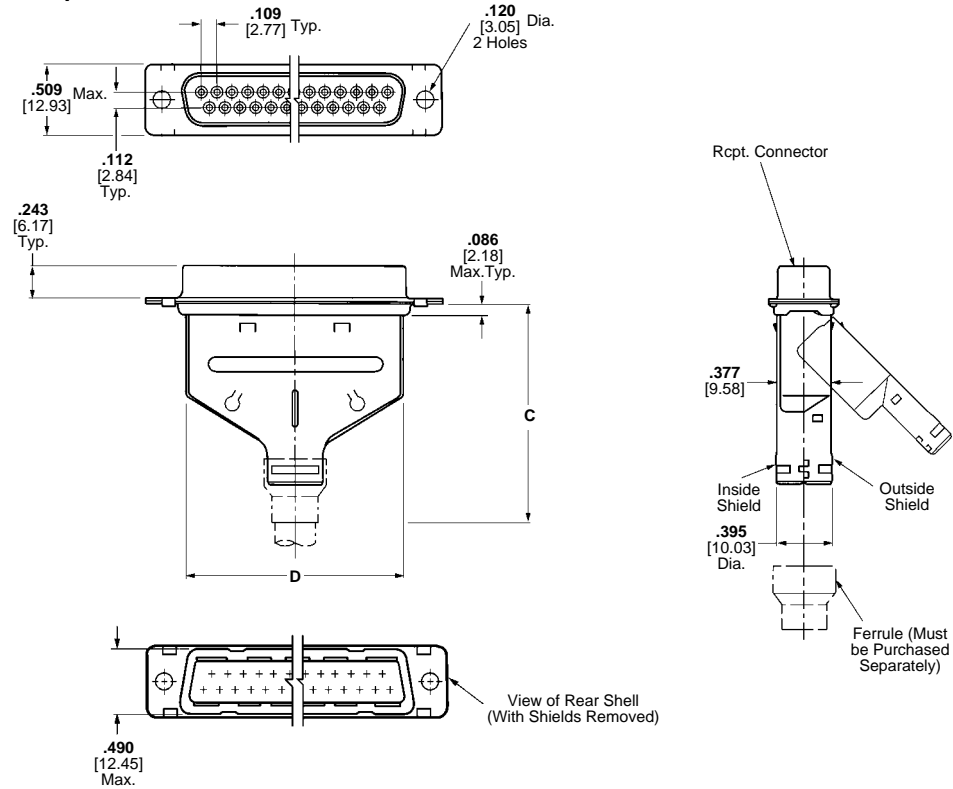
Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Receptacle



Technical Documents:

Product Specifications

108-40011, 108-40030

Application Specifications

114-40002, 114-40003, 114-40006

Instruction Sheet

408-9010

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Related Product Data:

Ferrules—page 1024

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1052

Mating Hardware—pages 1058-1065

Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Ins. Dia.	Max. Cable Dia.†	Contact Finish (Plating Code)	Connector Part Numbers		
		C	D				Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²] Wire	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²] Wire	Contact I.D. No. 3 for 22-20 AWG [0.4-0.6mm ²] Wire
							Receptacle	Receptacle	Receptacle
1	9	1.520 38.61	.678 17.22	.165-.455 4.19-11.56	.350 8.89	A	—	747516-2	747516-3
							—	747516-5	—
2	15	1.520 38.61	1.002 25.45	.165-.455 4.19-11.56	.350 8.89	A	—	747532-2	—
							—	747532-5	—
3	25	1.520 38.61	1.550 39.37	.165-.455 4.19-11.56	.350 8.89	A	747548-1	747548-2	—
							—	747548-5	—
4	37	1.867 47.42	2.205 56.01	.338-.562 8.59-14.28	.450 11.43	B	747564-4	747564-5	—
							—	—	—

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDE-20 Basic Shielding Hardware Kits



Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

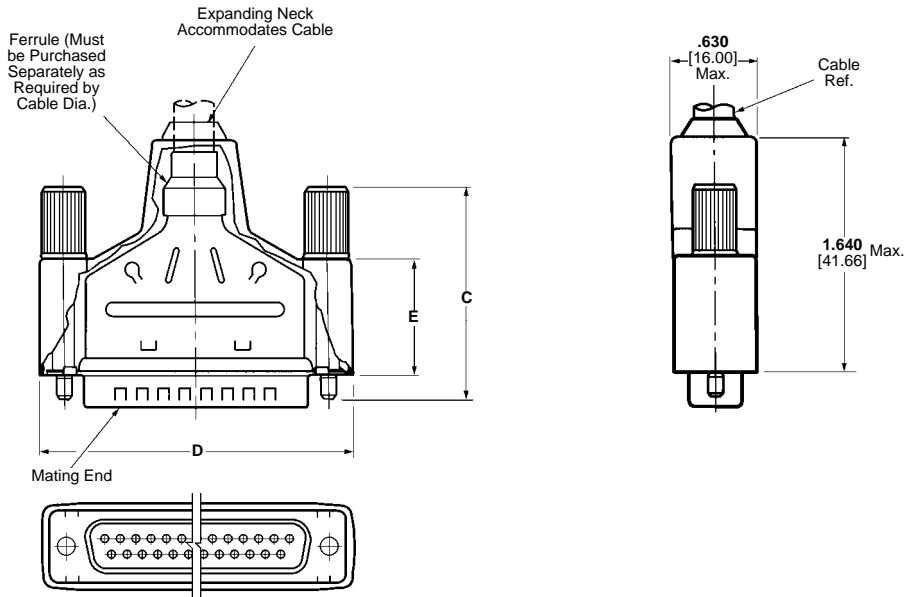
Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Plug



Related Product Data:

Ferrules—page 1024

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1052

Mating Hardware—pages 1059-1065

Technical Documents:

Product Specifications

108-40011, 108-40030

Application Specifications

114-40002, 114-40003, 114-40006

114-40008

Instruction Sheet

408-9172

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Ins. Dia.	Max. Cable Dia.†	Contact Finish (Plating Code)	Kit Part Numbers			Shielding Enclosure Expansion Tool	
		C	D	E				Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²]	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²]	Contact I.D. No. 3 for 22-20 AWG [0.4-0.6mm ²]	Cable O.D. (Max.)	Part Numbers
								Plug	Plug	Plug		
1	9	1.640 41.66	1.355 34.42	.630 16.00	.190-.375 4.83-9.53	.350 8.89	A B	— —	747944-2 747944-5	— —	.355 9.02	58241-4
2	15	1.640 41.66	1.685 42.80	.630 16.00	.190-.375 4.83-9.53	.350 8.89	A B	747946-1 —	747946-2 747946-5	— —		
3	25	1.640 41.66	2.210 56.13	.630 16.00	.217-.435 5.51-11.05	.350 8.89	A B	747948-1 747948-4	747948-2 747948-5	— 747948-6	.455 11.56	58241-1
4	37	2.010 51.05	2.865 72.77	.730 18.54	.338-.562 8.59-14.28	.450 11.43	A B	747950-1 —	747950-2 747950-5	— —	.562 14.27	58241-2

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDE-20 Basic Shielding Hardware Kits

Receptacle



Each kit contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Enclosure—PVC, black

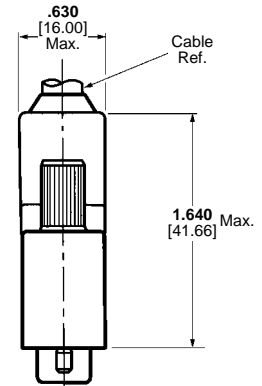
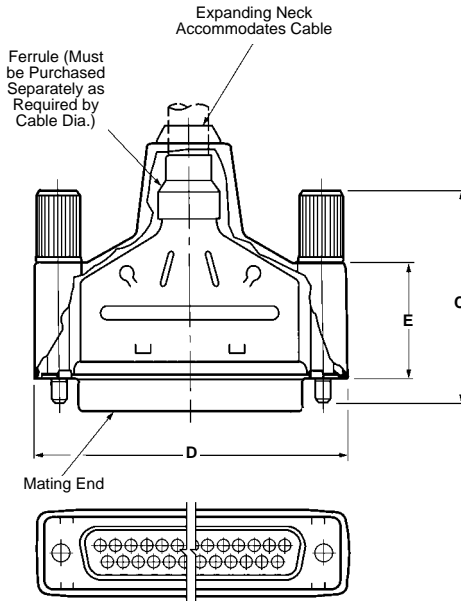
Jackscrews—Zinc alloy

Contacts—Phosphor bronze

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated



Related Product Data:

Ferrules—page 1024

Mateable Connectors:

HDP—pages 1039-1043

HDF—pages 1034-1038

HD-20 Board Mount—pages 1070-1084

HD-20 Solder Cup—pages 1044-1046

Cable Clamps—pages 1048-1052

Mating Hardware—pages 1059-1065

Technical Documents:

Product Specifications

108-40011, 108-40030

Application Specifications

114-40002, 114-40003, 114-40006

114-40008

Instruction Sheet

408-9172

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Ins. Dia.	Max. Cable Dia.†	Contact Finish (Plating Code)	Kit Part Numbers		Shielding Enclosure Expansion Tool	
		C	D	E				Contact I.D. No. 1 for 30-26 AWG [0.05-0.15mm ²]	Contact I.D. No. 2 for 26-22 AWG [0.15-0.4mm ²]	Cable O.D. (Max.)	Part Numbers
								Receptacle	Receptacle		
1	9	1.640 41.66	1.355 34.42	.630 16.00	.190-.375 4.83-9.53	.350 8.89	A	747943-1	747943-2	.355 9.02	58241-4
							B	—	747943-5		
2	15	1.640 41.66	1.685 42.80	.630 16.00	.190-.375 4.83-9.53	.350 8.89	A	747945-1	747945-2	.455 11.56	58241-1
							B	—	747945-5		
3	25	1.640 41.66	2.210 56.13	.630 16.00	.217-.435 5.51-11.05	.350 8.89	A	747947-1	747947-2	.562 14.27	58241-2
							B	747947-4	747947-5		
4	37	2.010 51.05	2.865 72.77	.730 18.54	.338-.562 8.59-14.28	.450 11.43	A	—	747949-2	.562 14.27	58241-2
							B	—	747949-5		

†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDE-20 Application Tooling

Tool	Handle & Head Tool Assembly	Handle	Head Assembly	See Page
Manual Pistol Grip Tool	608868-1	58074-1	58063-2	13015
Air Pistol Grip Tool	—	58075-1	58063-2	13015

Bench Mounted Tools with Modular Heads

Tool	Bench Assembly	Head Assembly	See Page
Bench Mount Pneumatic Power Assembly	58338-1	58063-2	13015
Bench Mount Electric Power Assembly	931800-1	58063-2	13015

Manual Arbor Tool No. 91085-2 (For Jacketed Cable)

Wire Outside Diameter	Tool Mount	Termination Tool	See Page
.041-.060 [1.04-1.52]	543157-1	543426-1	13015
.040 [1.02] and smaller	543157-1	543426-2	13015

Semi-Automatic Bench Tooling

CHAMPOMATOR 2.5 Bench Terminating Machine – **Part Number** 354786-4
 Control Module –
 Part No. 852423-1 120 VAC
 Part No. 852423-2 100 VAC
 Part No. 852423-3 230 VAC
 See page 13018




Automatic Tooling (For Jacketed Cable)

CHAMPOMATOR 3A Terminating Machine **Part Number** 1-761420-3
 See page 13019

For complete product information, order Catalog 82068

HDF-20 IDC Mass Termination Connector for Flat Ribbon Cable, .050 [1.27] Conductor Centers

Product Facts

- Available in all 5 standard shell sizes
- Selection of through holes, 4-40 threaded inserts or 4-40 threaded self-locking inserts
- Option of 90° or 180° cable exit
- Low terminated height from the mounting flange to the back of the connector
- Visual inspection of termination possible
- Fluted cover provides positive alignment of cable prior to termination
- Wide range of application tooling—from portable hand tool to bench mounted pneumatic semi-automatic equipment
- Patented insulation displacement contact latches into the connector cover
- Contact design provides a “gastight” termination
- Contacts accept 28 AWG [0.08mm²] solid and stranded, and 26 AWG [0.15mm²] solid and stranded round conductor flat ribbon cable on .050 [1.27] centers
- Qualified to Battelle Level III environments
- Contacts are duplex plated with gold on the mating end and tin-lead on the termination end
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association,  File No. LR 7189



HDF-20 Low Profile Metal-Shell Connectors (for Round Conductor Flat Ribbon Cable)

Plug Assemblies (with Grounding Indents)



Housing and Covers are Preassembled; Cable Stabilizer is Separate.

Material and Finish:

- Front Shell**—Steel, tin plated
- Housing, Cover & Cable Stabilizer**—Black thermoplastic, 94V-0 rated
- Threaded Inserts**—Brass, unplated
- Contacts**—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Receptacles:

- HDF-20 Metal-Shell**—page 1036
- HDE**—pages 1026-1032
- HDP**—pages 1039-1043
- HD-20 Board Mount**—pages 1069-1094

Accessories:

- Mating Hardware**—pages 1058-1065
- Application Tooling**—AMP-LATCH Hand Tool Kit 768340-1 page 13014

Technical Documents:

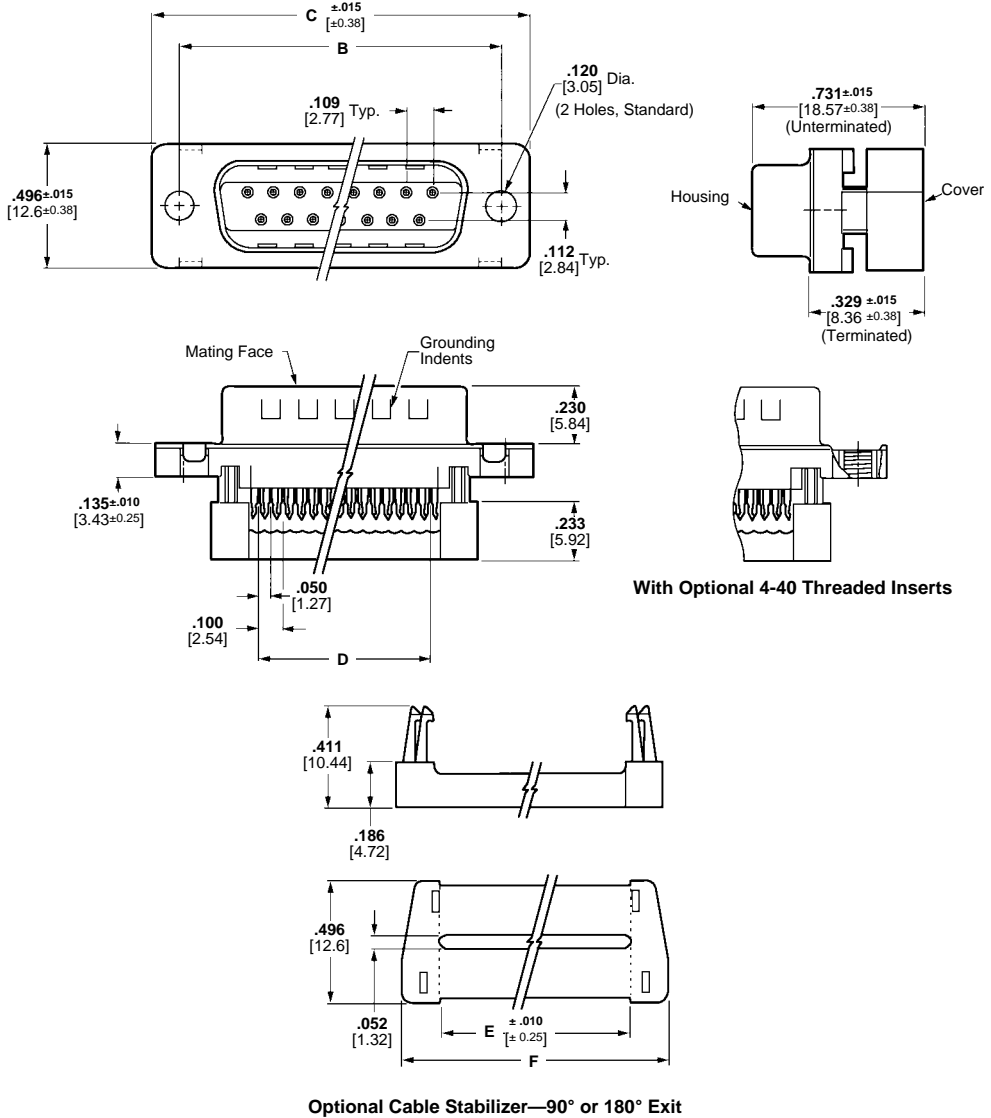
Product Specifications

108-40004 Ribbon Cable, PVC Insulated, AMP
108-40012 HDF-20 Low Profile Connectors

Application Specification

114-40005 Ribbon Cable Connectors

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Input/Output Connectors

Optional Cable Stabilizer—90° or 180° Exit

No. of Contact Positions (Shell Size)	Dimensions					Optional Cable Stabilizer Part Numbers	Plug Assembly Part Numbers	
	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts
9 (1)	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747306-4	747043-4
15 (2)	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747306-3	747043-3
25 (3)	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747306-2	747043-2
37 (4)	2.500 63.50	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747306-1	747043-1

Note: All plug assemblies are supplied with housing and cover preassembled (shown above).

HDF-20 Low Profile Metal-Shell Connectors (for Round Conductor Flat Ribbon Cable)

Receptacle Assemblies



Housing and Covers are Preassembled; Cable Stabilizer is Separate.

Material and Finish:

Front Shell—Steel, tin plated

Housing, Cover & Cable Stabilizer—Black thermoplastic, 94V-0 rated

Threaded Inserts—Brass, unplated

Socket Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Plugs:

HDF-20 Metal-Shell—page 1037

HDE—pages 1026-1032

HDP—pages 1039-1043

HD-20 Board Mount—pages 1069-1094

Accessories:

Mating Hardware—pages 1058-1065

Application Tooling—AMP-LATCH Hand Tool Kit 768340-1 page 13014

Technical Documents:

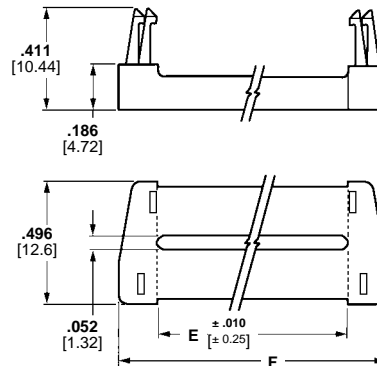
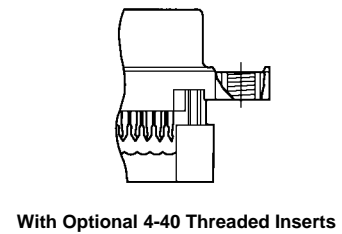
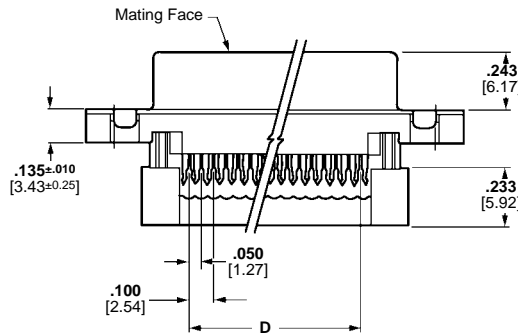
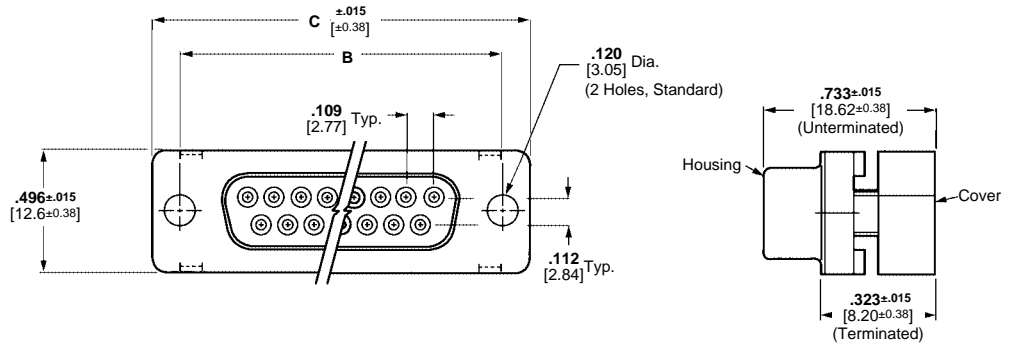
Product Specifications

108-40004 Ribbon Cable, PVC Insulated, AMP
108-40012 HDF-20 Low Profile Connectors

Application Specification

114-40005 Ribbon Cable Connectors

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Optional Cable Stabilizer—90° or 180° Exit

No. of Contact Positions (Shell Size)	Dimensions					Optional Cable Stabilizer Part Numbers	Receptacle Assembly Part Numbers	
	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts
9 (1)	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747303-4	747052-4
15 (2)	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747303-3	747052-3
25 (3)	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747303-2	747052-2
37 (4)	2.500 63.50	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747303-1	747052-1

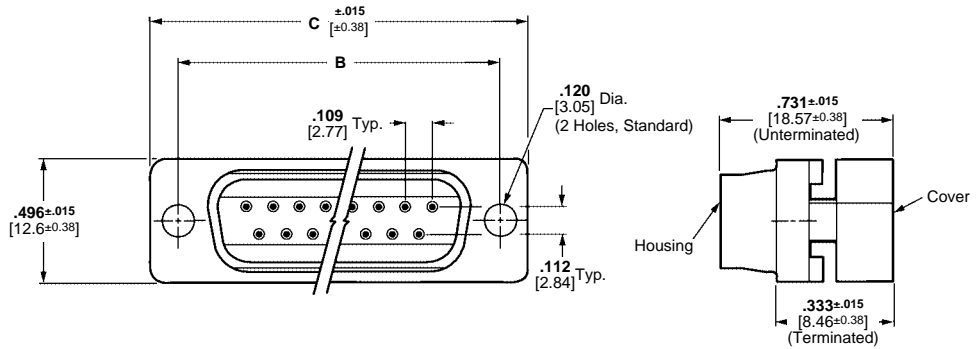
Note: All plug assemblies are supplied with housing and cover preassembled (shown above).

Plug Assemblies



Housing and Covers are Preassembled; Cable Stabilizer is Separate.

HDF-20 Low Profile All-Plastic Connectors (for Round Conductor Flat Ribbon Cable)



Material and Finish:

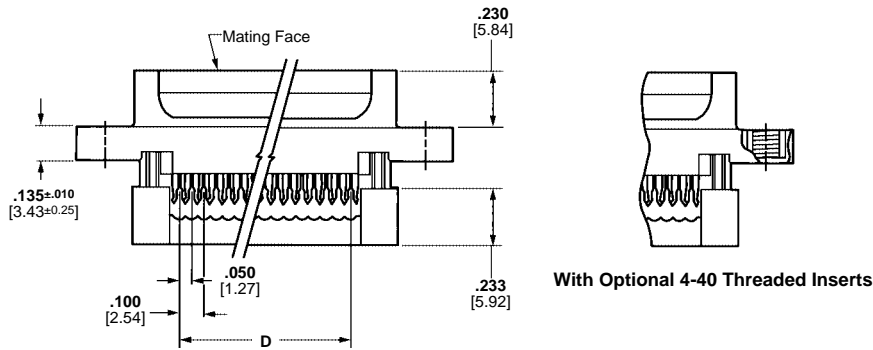
Housing, Cover & Cable Stabilizer

—Black thermoplastic, 94V-0 rated

Threaded Inserts

—Brass, unplated

Pin Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Receptacles:

HDF-20 All-Plastic—page 1038

HD-20 Board Mount—pages 1069-1094

HDE All-Plastic—page 1027

Accessories:

Mating Hardware—pages 1058-1065

Application Tooling—AMP-LATCH Hand Tool Kit 768340-1 page 13014

Technical Documents:

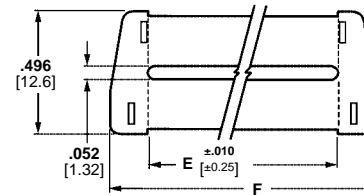
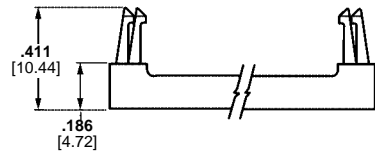
Product Specifications

108-40004 Ribbon Cable, PVC Insulated, AMP
108-40012 HDF-20 Low Profile Connectors

Application Specification

114-40005 Ribbon Cable Connectors

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Optional Cable Stabilizer—90° or 180° Exit

No. of Contact Positions (Shell Size)	Dimensions					Optional Cable Stabilizer Part Numbers	Plug Assembly Part Numbers	
	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts
9 (1)	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747321-4	747053-4
15 (2)	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747321-3	747053-3
25 (3)	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747321-2	747053-2
37 (4)	2.500 63.50	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747321-1	747053-1

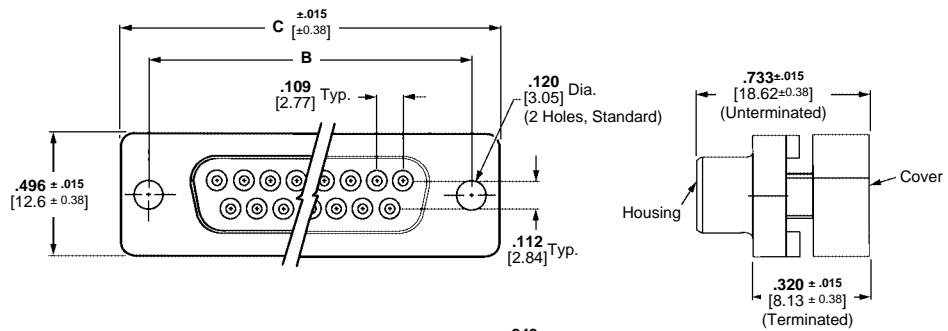
Note: All plug assemblies are supplied with housing and cover preassembled (shown above).

HDF-20 Low Profile All-Plastic Connectors (for Round Conductor Flat Ribbon Cable)

Receptacle Assemblies



Housing and Covers are Preassembled; Cable Stabilizer is Separate.



Material and Finish:

Housing, Cover & Cable Stabilizer

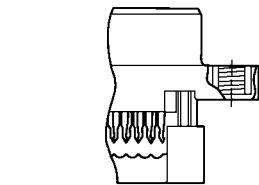
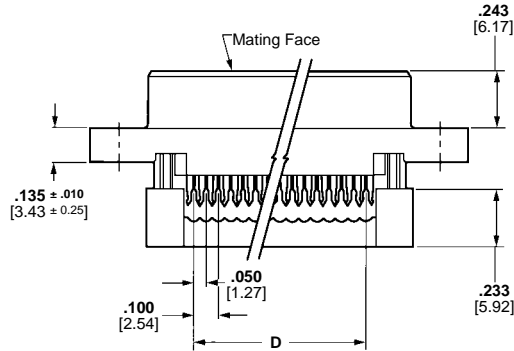
—Black thermoplastic, 94V-0 rated

Threaded Inserts

—Brass, unplated

Socket Contacts

—Phosphor bronze, duplex plated .000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel



With Optional 4-40 Threaded Inserts

Related Product Data:

Mateable Plugs:

HDF-20 All-Plastic—page 1038

HDE All-Plastic—page 1027

HD-20 Board Mount—pages 1069-1094

Accessories:

Mating Hardware—pages 1058-1065

Application Tooling—AMP-LATCH Hand Tool Kit 768340-1 page 13014

Technical Documents:

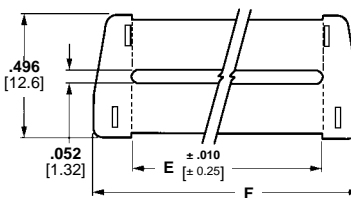
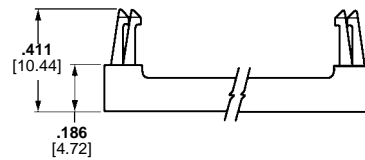
Product Specifications

108-40004 Ribbon Cable, PVC Insulated, AMP
108-40012 HDF-20 Low Profile Connectors

Application Specification

114-40005 Ribbon Cable Connectors

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: 1-800-522-6752.






Optional Cable Stabilizer—90° or 180° Exit

No. of Contact Positions (Shell Size)	Dimensions					Optional Cable Stabilizer Part Numbers	Receptacle Assembly Part Numbers	
	B	C	D	E	F		With Standard Mounting Holes	With Threaded Inserts
9 (1)	.984 24.99	1.216 30.89	.400 10.16	.480 12.19	.759 19.28	747275-4	747318-4	747051-4
15 (2)	1.312 33.32	1.541 39.14	.700 17.78	.780 19.81	1.087 27.61	747275-3	747318-3	747051-3
25 (3)	1.852 47.04	2.090 53.09	1.200 30.48	1.280 32.51	1.623 41.22	747275-2	747318-2	747051-2
37 (4)	2.500 63.50	2.732 69.39	1.800 45.72	1.880 47.75	2.275 57.78	747275-1	747318-1	747051-1

Note: All plug assemblies are supplied with housing and cover preassembled (shown above).

HDP-20 Crimp Snap-In Contact Connectors

Product Facts

- Shell sizes offer wide choice of contact positions—9, 15, 25, 37 and 50
- Lower cost, commercial version of the AMP military approved series
- Tin or zinc plated shells, with or without grounding indents
- Crimp snap-in contacts allows loading of only the number of contacts being used
- Available with shielding hardware and shielding enclosure kits
- Numerous cable clamps and mating hardware options
- Low cost, high performance, precision-formed crimp contacts
- Machine applied terminations promote highest production rates at lower applied cost
- Intermateable with any size 20 Subminiature D connector dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association,  File No. LR 16455



For complete product information, order Catalog 82068

HDP-20 Crimp Snap-In Contact Connectors

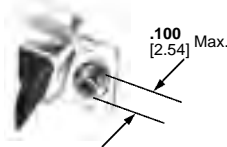


Material and Finish:
Shell—Steel, zinc or tin plated
Insert—94V-0 rated thermoplastic, black

Mounting Holes:
Standard—.120 [3.05] Dia.
Clinch Nut—4-40 threads with self-locking feature

- Related Product Data:**
Contacts—page 1043
Mateable Connectors:
HDE—pages 1026-1032
HDF—pages 1034-1038
HDP—pages 1039-1043
HDP Solder Cup—pages 1044-1046
HD-20 Board Mount—pages 1069-1094
Cable Clamps—pages 1048-1054
Mating Hardware—pages 1058-1065

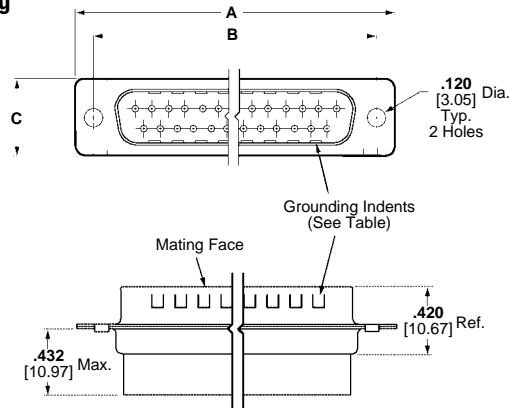
Technical Documents:
Product Specification
 108-40005
Application Specifications
 114-10000, 114-40030



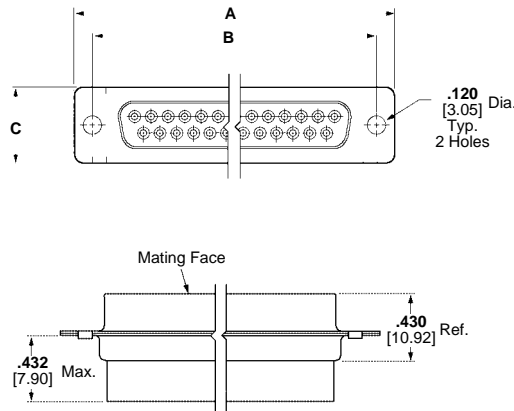
Clinch Nut
(Plug and Receptacle)

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.

Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Insert Material	Mounting Method	Zinc Plated Shell	Part Numbers			
		A	B	C				Plug		Receptacle	
								Without Grounding Indents	With Grounding Indents	Zinc Plated Shell	Tin Plated Shell
1	9	1.213 30.81	.984 24.99	.494 12.55	94V-0	Standard	205204-1	205204-3	205204-4	205203-1	205203-3
						Clinch Nut	—	745906-1	745906-2	—	745907-1
						Floating Bushing	205434-1	—	—	205439-1	—
2	15	1.541 39.14	1.312 33.33	.494 12.55	94V-0	Standard	205206-1	205206-2	205206-3	205205-1	205205-2
						Clinch Nut	—	745908-1	745908-2	—	745909-1
						Floating Bushing	205436-1	—	—	—	—
3	25	2.088 53.04	1.852 47.04	.494 12.55	94V-0	Standard	205208-1	207464-1	207464-2	205207-1	207463-1
						Clinch Nut	745036-1	—	745036-2	207516-1	207516-3
						Floating Bushing	205436-1	—	—	—	—
4	37	2.729 69.32	2.500 63.50	.494 12.55	94V-0	Standard	205210-1	205210-2	205210-3	205209-1	205209-2
						Clinch Nut	—	—	745135-2	—	207661-3
						Floating Bushing	205436-1	—	—	—	—
5	50	2.635 66.93	2.406 61.11	.605 15.37	94V-0	Standard	205212-1	205212-2	205212-3	205211-1	205211-2
						Clinch Nut	—	—	745883-2	—	745884-1
						Floating Bushing	205436-1	—	—	—	—

*Clinch nut mounting with M-3 threads.
Note: Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.

For complete product information, order Catalog 82068

HDP-20 Basic Shielding Hardware Kits



Each kit contains:

- Connector
- Inner shield
- Outer shield

Contacts and ferrules must be purchased separately.

Material and Finish:

Connector Shells—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shield—Steel, tin plated

Related Product Data:

Contacts—page 1043

Ferrules—page 1024

Mateable Connectors:

HDE—pages 1026-1032

HDF—pages 1034-1038

HDP—pages 1039-1043

HDP Solder Cup—pages 1044-1046

HD-20 Board Mount—pages 1069-1094

Cable Clamps—pages 1048-1054

Mating Hardware—pages 1058-1065

Technical Documents:

Product Specifications

108-40005, 108-40030

Application Specifications

114-10000, 114-40030

Instruction Sheet

408-9010

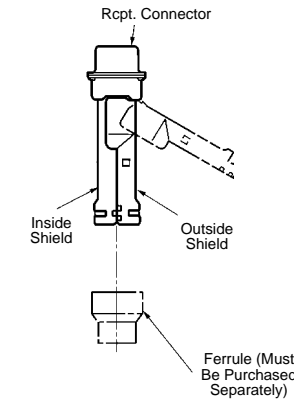
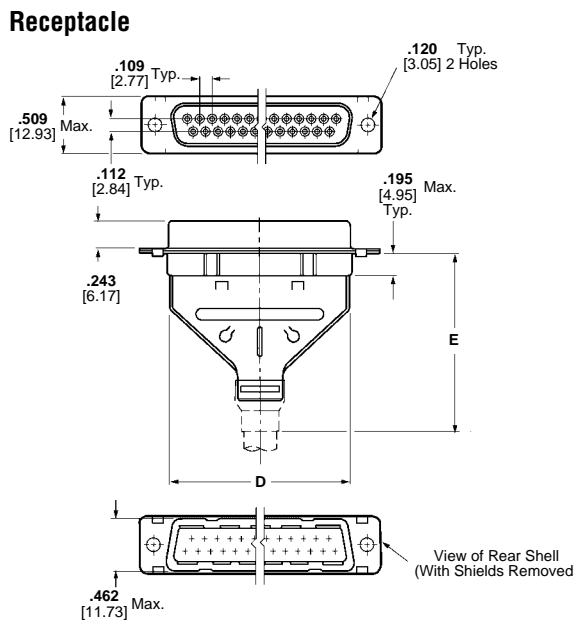
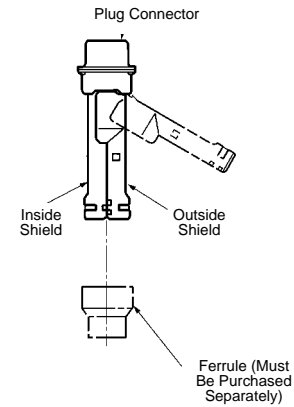
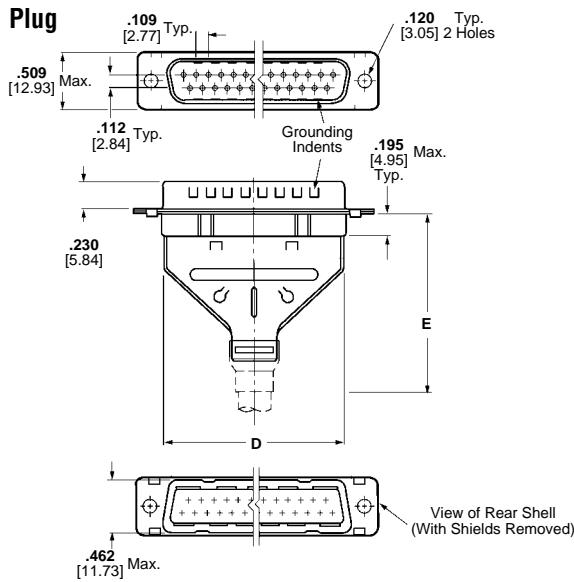
Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



.100 [2.54] Max.

Clinch Nut
(Plug and Receptacle)

For complete product information, order Catalog 82068



Shell Size	No. of Contact Positions	Dimensions		Recommended Cable Insulation Diameter	Max. Cable Dia.†	Mounting Method	Plug Kit Numbers	Receptacle Kit Numbers
		D	E					
1	9	.700	1.535	.165-.455	.350	Standard	747522-1	747523-1
		17.78	38.99			Clinch Nut	748526-1	748536-1
2	15	1.024	1.535	.165-.455	.350	Standard	747538-1	747539-1
		26.01	38.99			Clinch Nut	750636-1	787908-1
3	25	1.576	1.535	.165-.455	.350	Standard	747554-1	747555-1
		40.03	38.99			Clinch Nut	—	749763-1
4	37	2.215	1.892	.338-.562	.450	Standard	747570-1	747571-1
		56.26	48.06			Clinch Nut	786929-1	—
5	50	2.120	1.876	.338-.480	.450	Standard	747577-1	747578-1
		53.85	47.65					

*Clinch nut mounting with M-3 thread.

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.

2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

Input/Output Connectors

HDP-20 Shielding Hardware Enclosure Kits



Each Kit Contains:

- Connector
- Inner shield
- Outer shield
- Enclosure
- Two jackscrews

Contacts and ferrules must be purchased separately.

Material and Finish:

- Connector Shells**—Steel, tin plated.
- Connector Insert**—94V-0 rated thermoplastic, black
- Shield**—Steel, tin plated
- Enclosure**—PVC, black
- Jackscrews**—Zinc alloy

Related Product Data:

- Contacts**—page 1043
- Ferrules**—page 1024
- Mateable Connectors:**
- HDE**—pages 1026-1032
- HDF**—pages 1034-1038
- HDP**—pages 1039-1043
- HDP Solder Cup**—pages 1044-1046
- HD-20 Board Mount**—pages 1069-1094
- Mating Hardware**—pages 1058-1065

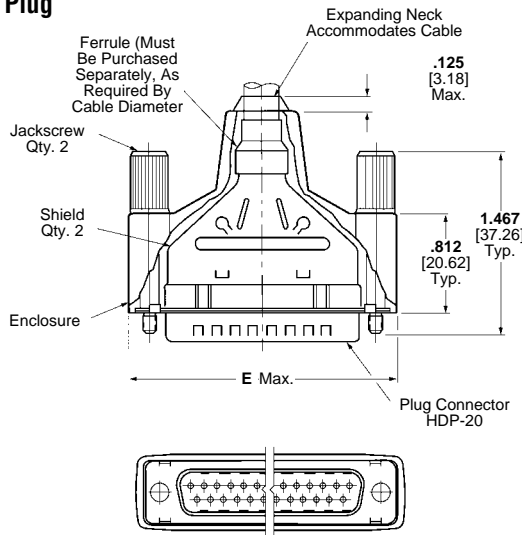
Technical Documents:

- Product Specifications**
108-40005, 108-40030
- Application Specifications**
114-10000, 114-40030
- Instruction Sheet**
408-9172

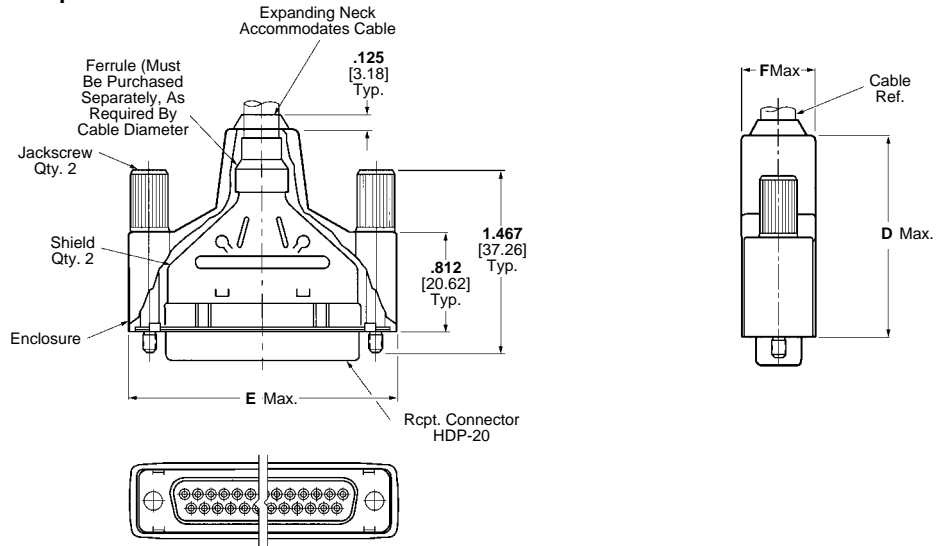
Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Recommended Cable Insulation Diameter	Max. Cable Dia.†	Insert Material	Kit Numbers		Shielding Enclosure Expansion Tool	
		D	E	F				Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	9	1.660 42.16	1.355 34.42	.630 16.00	.190-.375 4.83-9.53	.350 8.89	94V-0	747952-1	747951-1	.355 9.02	58241-4
2	15	1.660 42.16	1.685 42.80	.630 16.00	.190-.375 4.83-9.53	.350 8.89	94V-0	747954-1	747953-1		
3	25	1.660 42.16	2.210 56.13	.630 16.00	.217-.435 5.51-11.05	.350 8.89	94V-0	747956-1	747955-1	.455 11.56	58241-1
4	37	2.010 51.05	2.865 72.77	.730 18.54	.338-.562 8.59-14.28	.450 11.43	94V-0	747958-1	747957-1	.562 14.28	58241-2
5	50	2.010 51.05	2.775 70.49	.730 18.54	.338-.562 8.59-14.28	.450 11.43	94V-0	747960-1	747959-1		

Notes: 1. Plugs accept size 20 DF pin contacts and receptacles accept size 20 DF socket contacts.
2. Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.
†Maximum cable diameter after jacket and braid removed.

For complete product information, order Catalog 82068

HDP-20 Connector Contacts, Precision Formed

Contact Size 20 DF Pin Diameter .040 [1.02]

Material and Finish:

Pin—Brass

Socket—Phosphor bronze

Plated

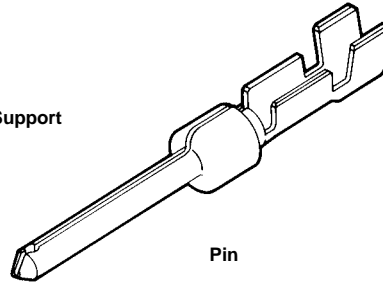
A—Select—Gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end

B—Duplex—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

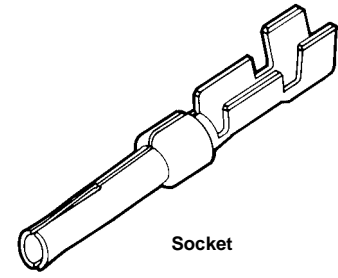
C—Gold flash over nickel on entire contact

D—Duplex—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

With Insulation Support



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers				Hand Tools for Loose Form Contacts		
			Pin		Socket		PRO-CRIMPER II Hand Tool	CERTI-CRIMP Hand Tool (Color Code)	Applicators* for Strip Form Contacts
			Strip Form	Loose Form	Strip Form	Loose Form			
28-24 0.08-0.2	.040 1.02	A	66507-3	66507-9	66505-3	66505-9	58448-2	90302-1 (Blue Dot)	466423-4** 466901-1****
		B	3-66507-0	5-66507-7	6-66505-0	—			
		C	66507-4	1-66507-0	66505-4	1-66505-0			
		D	3-66507-1	5-66507-9	5-66505-7	5-66505-9			
	.060 1.52	A	66682-2	66682-4	66683-2	66683-4	—	90374-1 (Black Dot)	466963-1****
		B	66682-9	—	1-66683-0	—			
		D	66682-6	—	66683-7	—			
		A	745254-2	745254-6	745253-2	745253-6			
26-22 0.15-0.4	.050 1.27	B	1-745254-4	1-745254-6	1-745253-4	1-745253-6	—	90406-1 (Yellow Dot)	466968-1****
		C	745254-3	745254-7	745253-3	745253-7			
		D	1-745254-1	1-745254-3	1-745253-1	1-745253-3			
		A	66506-3	66506-9	66504-3	66504-9			
24-20 0.2-0.6	.060 1.52	B	2-66506-4	5-66506-7	5-66504-9	6-66504-0	58448-2	90302-1 (Red Dot)	466422-4** 466900-1****
		C	66506-4	1-66506-0	66504-4	1-66504-0			
		D	2-66506-5	5-66506-9	5-66504-6	5-66504-7			
		A	66506-3	66506-9	66504-3	66504-9			

*For Part Numbers of Special Applicators and Applicators for other model machines, call the Technical Support Center at **1-800-522-6752**.

**For use with AMP-O-LECTRIC Model "G" Terminating Machine.

***For use with AMP-O-MATIC Model II Stripper-Crimper Machine.

Related Product Data:

Connectors used with:

HDP—pages 1039-1043

Application Tooling:

Hand Tools—PRO-CRIMPER II - page 13003, CERTI-CRIMP (SAHT) - page 13012

Bench Machines—AMP-O-LECTRIC Model G Terminating Machine - page 13005, AMP-O-LECTRIC Model K Terminating Machine - page 13007, Entry Level Terminator - page 13006, AMP-O-MATIC Stripper Crimper - page 13011

Leadmakers—pages 13008-13009

Technical Documents:

Product Specification

108-40005

Application Specifications

114-10000, 114-40030

Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



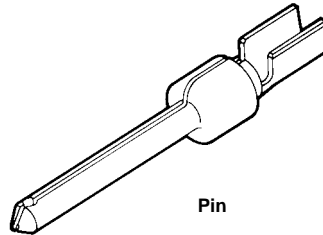
Insertion/Extraction Tool Part Number 91285-1

This tool includes interchangeable tips to Insert/Extract:

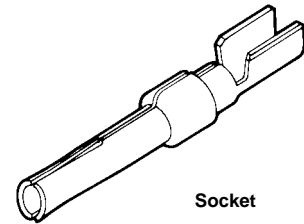
Size 22, 28-22 AWG

[0.4, 0.08-0.04 mm²] Crimp Contacts
(Instruction Sheet—408-9404)

Without Insulation Support



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Max.	Contact Finish (Plating Code)	Contact Part Numbers		Hand Tools for Loose Form Contacts	
			Pin Strip Form	Socket Strip Form	CERTI-CRIMP Hand Tool (Color Code)	Applicators* for Strip Form Contacts
28-24 0.08-0.2	.068 1.73	A	205310-2	205311-3	90265-1 (Blue Dot)	466903-1****
		C	—	205311-4		
24-20 0.2-0.6	.068 1.73	A	205202-2	205201-3	90265-1 (Red Dot)	466902-1****
		C	205202-6	205201-6		
		A	745229-2	745230-2		
22-18 0.4-0.8	.068 1.73	B	1-745229-1	1-745230-1	90405-1 (Green Dot)	466996-1****
		C	745229-5	745230-5		
		D	—	745230-8		

Note: Wire insulation diameter is limited by the connector housing cavity and clearance for the insertion/extraction tool.

*For Part Numbers of Special Applicators and Applicators for other model machines, call the Technical Support Center at **1-800-522-6752**.

***For use with AMP-O-MATIC Model II Stripper-Crimper Machine.

For complete product information, order Catalog 82068

HD-20 Solder Cup Connectors**Product Facts**

- Preloaded duplex-plated solder cup contacts
- Shell finish in choice of standard zinc chromate or tin
- One-piece 94V-0 rated plastic insert
- Anti-solderwicking contact design
- Intermateable with other subminiature D connectors
- Available in 9, 15, 25 and 37 position (shell sizes 1-4) plugs and receptacles
- Easy application without special application tools
- Shields offer full EMI shielding and ESD insulation
- Crimped shield termination for low impedance
- Variety of ferrules for all cable sizes
- Ferrule-to-shield crimp provides strain relief
- Shields may be post molded or covered with enclosures
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed under Underwriters Laboratories Inc., Standard 1863, Communication Circuit Accessories,  File No. E81956
- Certified by Canadian Standards Association,  File No. LR 16455



HD-20 Solder Cup Connectors



Material and Finish:

- Shell**—Steel, tin or zinc plated
- Insert**—94V-0 rated thermoplastic, black
- Contacts**—Phosphor bronze; duplex plated with gold flash on mating end, tin-lead on solder cup, with entire contact nickel underplated

Related Product Data:

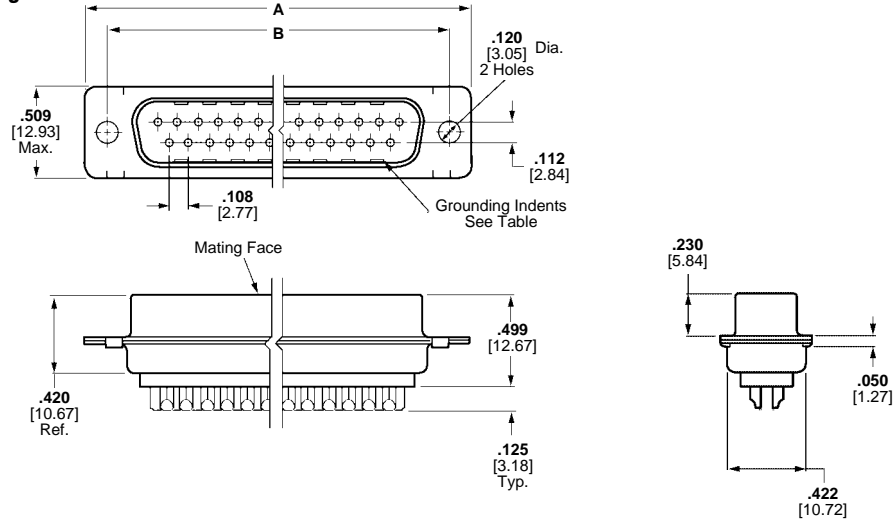
- Mateable Connectors:**
- HDE**—pages 1026-1032
- HDF**—pages 1034-1038
- HDP**—pages 1039-1043
- HD-20 Solder Cup**—pages 1044-1046
- HD-20 Board Mount**—pages 1069-1094
- Cable Clamps**—pages 1048-1057
- Mating Hardware**—pages 1058-1065

Technical Documents:

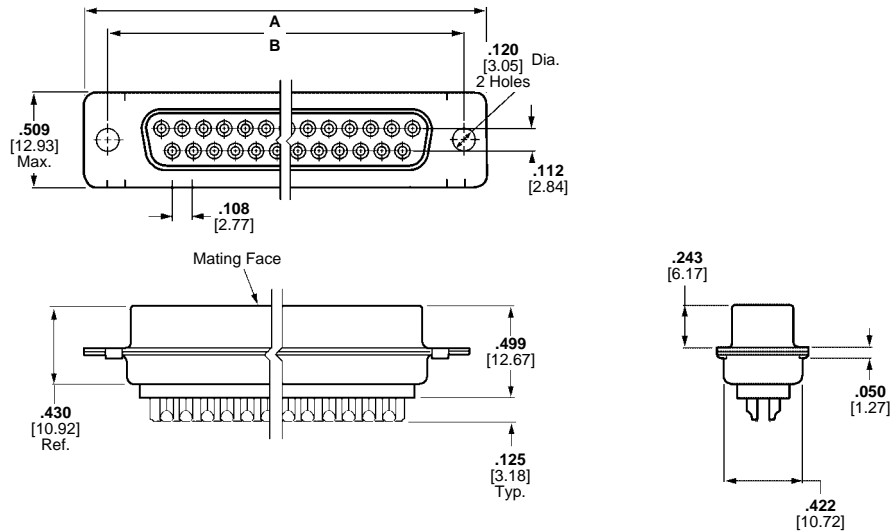
- Product Specification**
108-40031
- Instruction Sheet**
408-9193
- Note:** Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support



Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions		Plug Part Numbers		Receptacle Part Numbers	
		A	B	Tin Plated Shell	Zinc Plated Shell	Tin Plated Shell	Zinc Plated Shell
1	9	1.213 30.81	.984 24.99	747904-2	747904-4	747905-2	747905-4
2	15	1.541 39.14	1.312 33.33	747908-2	747908-4	747909-2	—
3	25	2.088 53.04	1.852 47.04	747912-2	747912-4	747913-2	747913-4
4	37	2.729 69.32	2.500 63.50	747916-2	747916-4	747917-2	—

HD-20 Solder Cup Shielding Hardware Enclosure Kits



Each kit contains

- Connector with preloaded, nonremovable contacts
 - Inner shield
 - Outer shield
 - Enclosure
 - Two jackscrews
- Ferrules must be purchased separately.

Material and Finish:

Connector Shell—Steel, tin plated

Connector Insert—94V-0 rated thermoplastic, black

Shields—Steel, tin plated

Enclosure—PVC, black

Jackscrews—Zinc alloy

Contacts—Phosphor bronze

Contacts—Phosphor bronze; duplex plated with gold flash on mating end, tin-lead on solder cup, with entire contact nickel underplated

Related Product Data:

Ferrules—page 1024

Mateable Connectors:

HDE—pages 1026-1032

HDF—pages 1034-1038

HDP—pages 1039-1043

HD-20 Solder Cup—pages 1044-1046

HD-20 Board Mount—pages 1091-1094

Technical Documents:

Product Specification

108-40031

Application Specification

114-40030

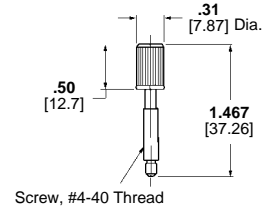
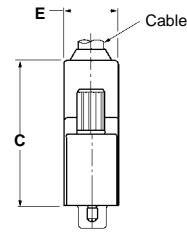
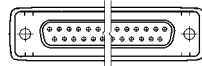
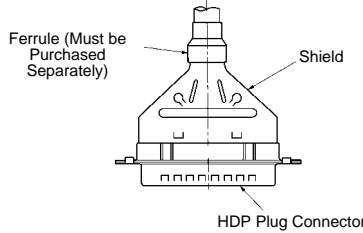
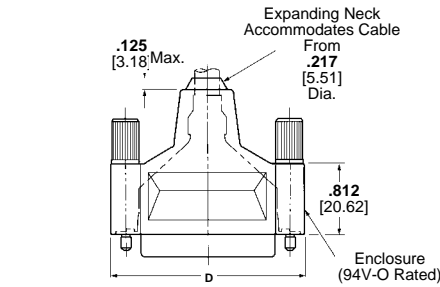
Instruction Sheets

408-9193, 408-9217, 408-9218

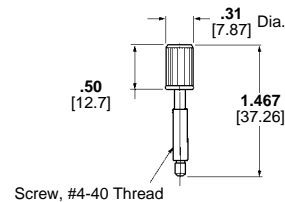
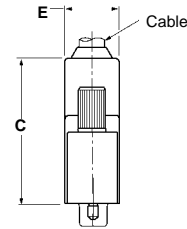
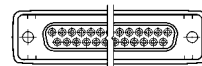
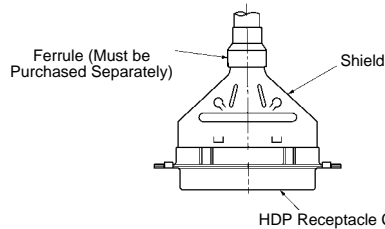
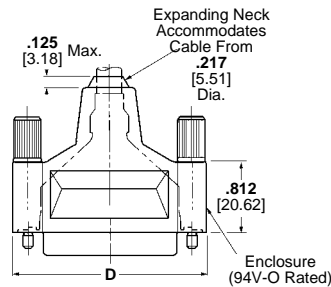
Note: Instruction Sheets for AMP Tooling are packaged with the tooling. For additional information call the Technical Support Center: **1-800-522-6752**.



Plug



Receptacle



Shell Size	No. of Contact Positions	Dimensions			Cable Insulation Diameter	Max. Cable Dia.†	Kit Numbers		Shielding Enclosure Expansion Tool	
		C	D	E			Plug	Receptacle	Cable O.D. (Max.)	Part Number
1	9	1.660	1.350	.630	.190-.375	.350	748046-1	748047-1	.355	58241-4
		42.16	34.29	16.00	4.83-9.53	8.89				
2	15	1.660	1.680	.630	.190-.375	.350	748048-1	748049-1	.355	58241-1
		42.16	42.67	16.00	4.83-9.53	8.89				
3	25	1.660	2.205	.630	.217-.435	.350	748050-1	748051-1	.465	58241-1
		42.16	56.01	16.00	5.51-11.05	8.89				
4	37	2.030	2.860	.730	.338-.562	.450	748052-1	—	.562	58241-2
		51.56	72.64	18.54	8.59-14.27	11.43				

Note: Components of the kits are shipped unassembled and bulk-packaged in quantities of 100 pieces.

†Maximum cable diameter after jacket and braid removed.

Accessories for Cable and PCB Connectors**1**

Input/Output Connectors

Numerous accessories are available for strain relief and cable clamping, shielding, connector-to-connector mating, connector-to-connector pc board mounting, and keying. These accessories are illustrated and tabled on the following pages.

The connector the accessory is used with is listed under the Related Product Data heading next to the accessory listing.

For complete product information, order Catalog 82068

Unshielded Cable Clamps

Universal Cable Clamps for Jacketed Cable

Material and Finish:

Cable Clamp Housing—

Thermoplastic, black

Cable Clamp Wedge Set—

Thermoplastic, black

4-40 Mounting Screws—

Steel, zinc plated

Related Product Data:

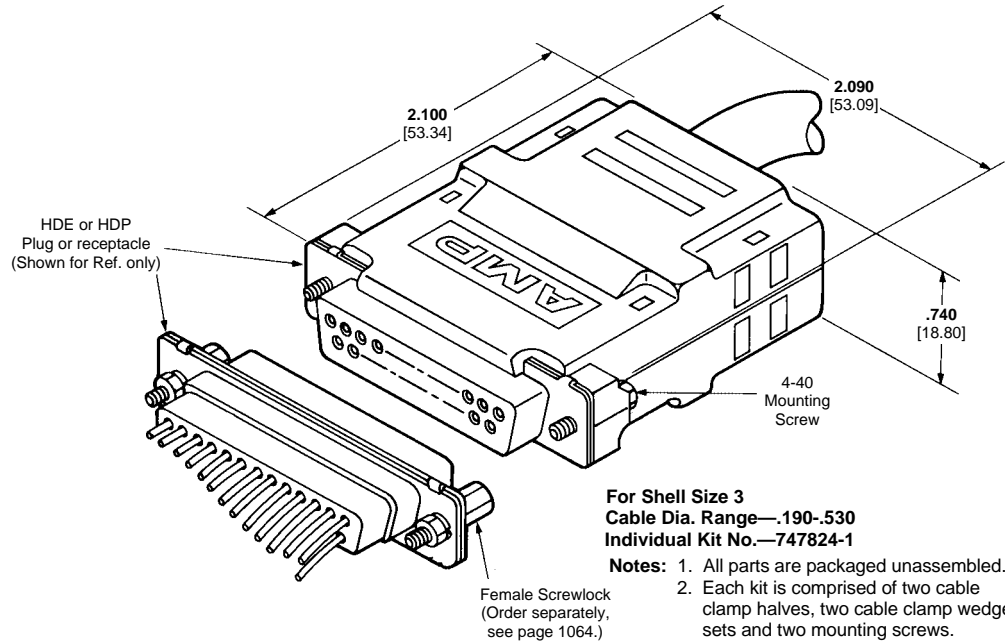
Connectors used with:

HDE Metal-Shell—page 1028

HDP Metal-Shell—page 1040

Other accessory capabilities:

Spring Latches (Two Piece)—page 1062



Straight/90° Exit

Material and Finish:

Cable Clamp Housing—

Thermoplastic, gray

4-40 Mounting Screws—

Steel, zinc plated

4-40 Housing Screws & Hex Nuts—

Steel, zinc plated

Related Product Data:

Connectors used with:

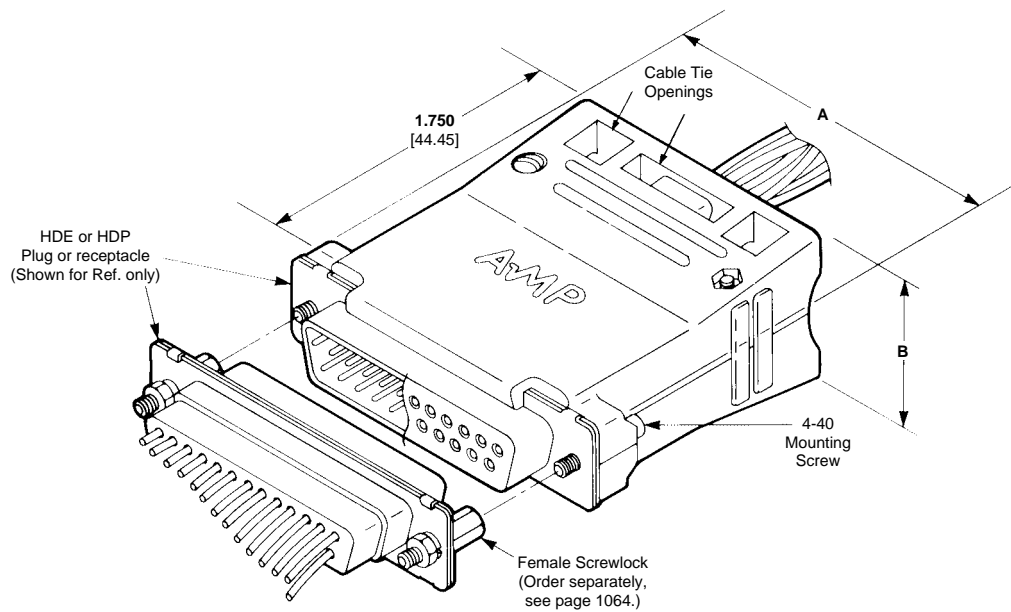
HDE All-Plastic—page 1027

HDE Metal-Shell—page 1028

HDP Metal-Shell—page 1040

Other accessory capabilities:

Spring Latches (Two Piece)—page 1062



Shell Size	Dimensions		Cable Dia. (Max.)	Cable Clamp Kit Numbers	
	A	B		Individual	Bulk Packed*
2	1.550 39.37	.826 20.98	.350 8.89	206471-1	—
3	2.090 53.09	.826 20.98	.335 8.51	206472-1	—
			.460 11.68	745134-1	—
4	2.738 69.55	.826 20.98	.675 17.15	745081-1	745081-2
5	2.644 67.16	.938 23.83	.775 19.69	745082-1	—

*Each part is individually bulk packed for multiple assembly orders.

- Notes:** 1. All parts are packaged unassembled.
 2. Straight or 90° cable exit is achieved by inserting AMP-TY Cable Ties through cable tie openings and clamping the cable to one housing half only.

For complete product information, order Catalog 82068

Unshielded Cable Clamps

One-Piece, All-Plastic Cable Clamp for Jacketed Cable, 180°/120° Exit (HDP and HDE) (Quik-Snap)

The AMP Quik-Snap Backshell Kit is a one-piece, all-plastic cable clamp kit designed for use with either the AMPLIMITE HDP-20, HDP-22, or HDE, all-plastic or metal-shell connectors.

Kits are available for connector sizes 1, 2, 3, and 4 with a cable exit option of 180° or 120°.

Each kit contains:

- 1-Hinged, plastic clamp
- 2-Self-tapping screws
- 1-Strain relief clip
- 1-Cable exit gate plug (Used to close unused exit)

(For metal-shell connector applications an optional kit with 2 retainer clips and screws is available.)

Material and Finish:

- Cover**—Polypropylene, black
- Strain Relief Clip**—Stainless steel
- Retainer Clip**—Stainless steel
- Screws**—Carbon steel, zinc plated

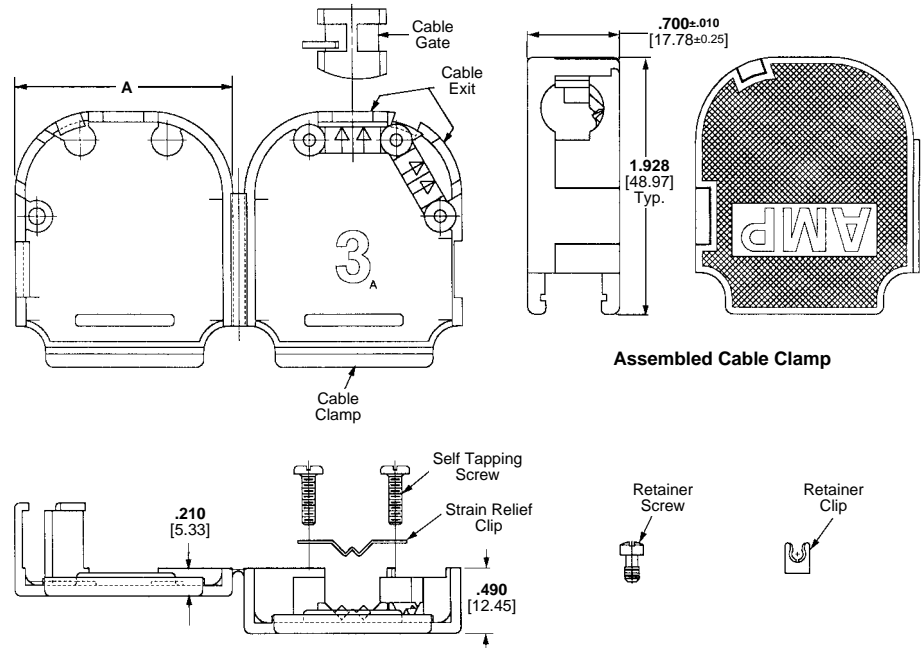
Related Product Data:

Connectors used with:

- HDP Metal-Shell**—page 1040
- HDE All-Plastic**—page 1027
- HDE Metal-Shell**—page 1028

Technical Documents:

Instruction Sheet
408-9544



1
Input/Output Connectors

Shell Size	Cable Dia. Range (Ref.)	Dimension A	Kit Number* with Screws and Retainer Clips	Kit Number without Screws and Retainer Clips	Packaging
1	.075-.250 1.91-6.35	.782 19.86	749914-1	750100-2	Bulk Pkg.
			749914-2	750100-1	Unit Kit
2	.170-.380 4.32-9.65	1.105 28.07	749915-2	750101-1	Unit Kit
3	.180-.460 4.57-11.68	1.650 41.91	—	750078-1	Unit Kit
4	.250-.550 6.35-13.97	2.296 58.32	749916-1	750987-2	Bulk Pkg.
			749916-2	—	Unit Kit

*For metal-shell connectors only.

For complete product information, order Catalog 82068

Unshielded Cable Clamps

Low Profile Cable Clamps feature a two-piece construction which allows the two cover halves to be snapped together, no hardware is required for assembly. They can be used on plugs or receptacles and will not interfere with commonly used mating hardware. Sufficient Cable Support Gates (or a Cable Support Gate Latch) are supplied with each cable clamp kit to achieve adjustable clamping over a wide range of jacketed cable diameters.

Material:

Black thermoplastic

Related Product Data:

Connectors used with:

HDE All-Plastic—page 1027

HDE Metal-Shell—page 1028

Other accessory capabilities:

Male Screw Retainers—page 1058

Female Screwlocks—page 1059

Locking Posts and Slide Latches—pages 1060-1061

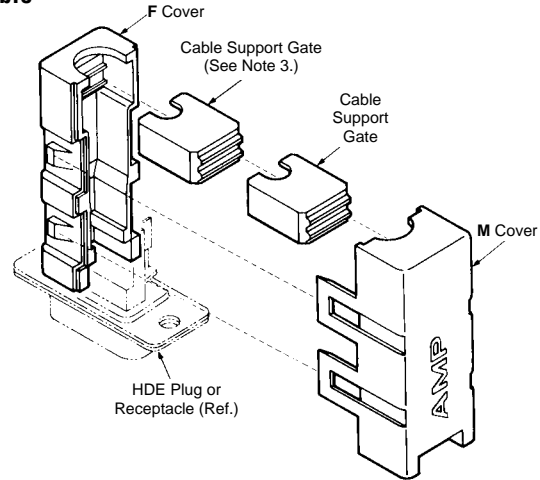
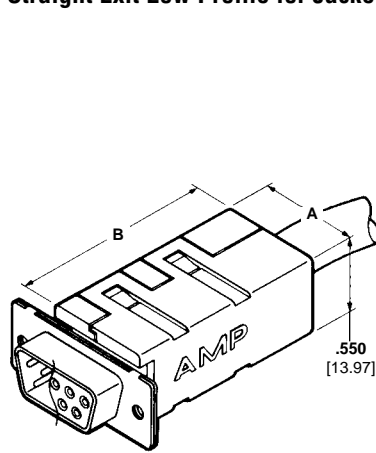
Latching Blocks—pages 1063, 1064

Technical Documents:

Instruction Sheet

408-6659

Straight Exit Low Profile for Jacketed Cable

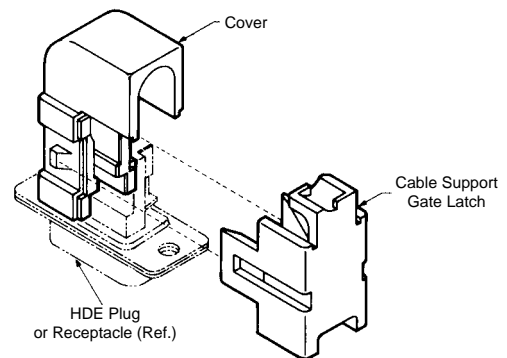
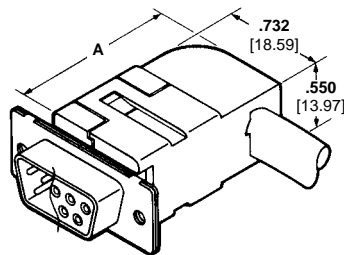


Shell Size	Dimensions				Cable Dia. (Max.)	Cable Clamp Kit Numbers	
	A	B		Individual		Bulk Packed*	
		When used On Plug	When used on Receptacle				
1	.732 18.59	1.582 40.18	1.533 38.94	.330 8.38	745547-1	745547-2	
2	1.056 26.82	1.582 40.18	1.533 38.94	.425 10.80	745553-1	745553-2	
3	1.604 40.74	1.700 43.18	1.651 41.94	.550 13.97	745560-1	745560-2	

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of two cover halves (F and M) and an assortment of cable support gates.
 3. Cable support gate must be used as shown for small diameter cable.

90° Exit Low Profile for Jacketed Cable



Shell Size	Dimension A		Cable Dia. (Max.)	Cable Clamp Kit Number
	When used on Plug	When used on Receptacle		Individual
1	1.290 32.77	1.241 31.52	.330 8.38	745550-1

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cover half and an assortment of cable support gate latches.

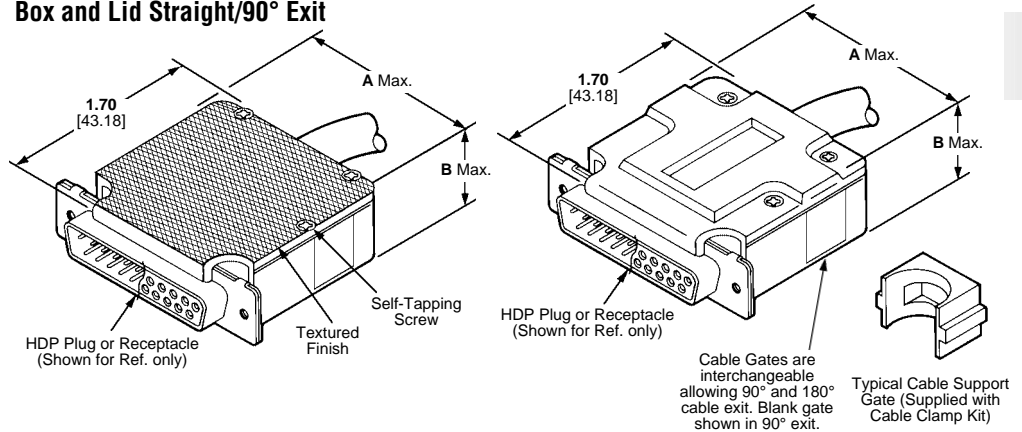
For complete product information, order Catalog 82068

Box and Lid Cable Clamps can be used on either plugs or receptacles and will not interfere with commonly used hardware. Their hinged construction allows easy assembly to a harness. A wide range of cable diameters are accommodated through the use of cable support gates, supplied with each cable clamp.

Cable clamps are available in kits with appropriate hardware for convenient plug/receptacle mating. See below for kits with Male Screw Retainers.

Unshielded Cable Clamps

Box and Lid Straight/90° Exit



Shell Size 1 & 2

Shell Size 3 & 4

Material and Finish:

- Cable Clamp Housing**—Thermoplastic, black with textured finish
- Gates**—Thermoplastic, black
- Flat Head Screws**—Steel, black, zinc plated

Related Product Data:

- Connectors used with:**
- HDP Metal-Shell**—page 1040
- Other accessory capabilities:**
- Male Screw Retainers**—page 1058
- Female Screwlocks**—page 1059
- Locking Posts and Slide Latches**—pages 1060, 1061
- Spring Latches (Two Piece)**—page 1062
- Latching Blocks**—pages 1063, 1064

Technical Documents:

Instruction Sheet
408-7555

Material and Finish:

- Cable Clamp Housing**—Thermoplastic, black with textured finish
- Gates**—Thermoplastic, black
- Flat Head Screws**—Steel, black, zinc plated
- Male Screw**—Steel, zinc plated yellow chromate
- Retaining Clip**—Stainless steel

Related Product Data:

- Connectors used with**
- HDP Metal-Shell**—page 1040

Technical Documents:

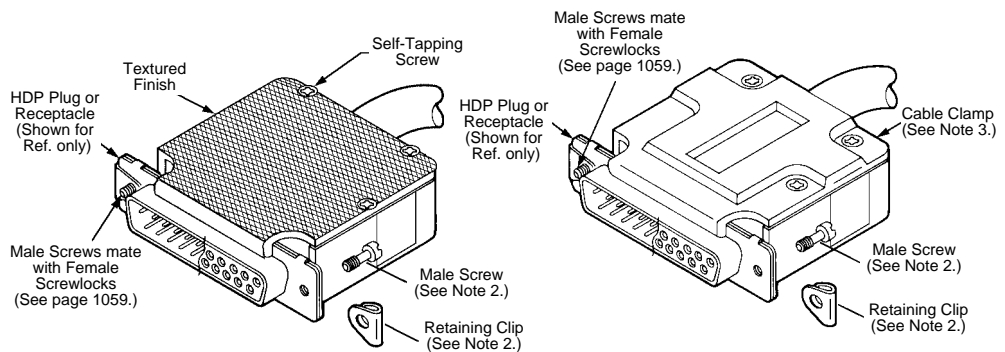
Instruction Sheets
408-7555, 408-7837

Shell Size	Dimensions		Cable Dia. Max. (Ref.)		Cable Clamp Kit Numbers	
	A	B	Straight Cable Exit	90° Cable Exit	Individual	Bulk Packed*
1	.755 19.18	.630 16.00	.160 4.06	.160 4.06	207467-1	207467-2
2	1.078 27.38	.630 16.00	.320 8.13	.320 8.13	207470-1	207470-2
3	1.620 41.15	.770 19.56	.390 9.91	.390 9.91	207345-1	207345-2
4	2.268 57.61	.770 19.56	.640 16.26	.405 10.29	207473-1	207473-2

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Cable diameter is adjustable by changing cable support gates. Use the flat side of cable support gates for discrete wire, and the semicircle side for jacketed cable.
 3. Cable clamp assemblies are available in kits with male screw retainers, see below.

Box and Lid Straight/90° Exit Cable Clamp Kits with Male Screw Retainers



Shell Size 1 & 2

Shell Size 3 & 4

Shell Size	Cable Clamp Kit Numbers	
	Individual	Bulk Packed*
1	207908-1	207908-2
2	207908-4	—
3	207908-7	207908-8
4	1-207908-0	—

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cable clamp and male screw retainer hardware (2 each). Male screw retainers are also available in kit form, see page 1058.
 3. For ordering cable clamps separately, see above.

For complete product information, order Catalog 82068

Unshielded Cable Clamps

Straight/45° Exit Cable Clamps can be used on either a plug or receptacle and will not interfere with commonly used hardware, such as Male Screw Retainers, Female Screw-locks or Spring Latches and Latching Blocks. Their hinged construction allows easy assembly to a harness. Also, the straight or 45° angle of the cable exit is achieved by merely positioning the Cable Support Gate for the desired angle prior to installing the assembly onto the plug or receptacle.

Cable Clamp assemblies are available in kits with appropriate hardware for convenient plug/receptacle mating.

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut—Steel, zinc plated (sizes 1 and 2 include self-tapping screws only)

Related Product Data:

Connectors used with:

HDP Metal-Shell—page 1040

Other accessory capabilities:

Male Screw Retainers—page 1058

Female Screwlocks—page 1059

Locking Posts and Slide Latches—pages 1060, 1061

Spring Latches (Two Piece)—page 1062

Latching Blocks—pages 1063, 1064

Technical Documents:

Instruction Sheet
408-7555

Material and Finish:

Cable Clamp Housing—Thermoplastic, black with textured finish

Gates—Thermoplastic, black

Pan Head Screws, 6-32 Set Screw and 6-32 Square Nut—Steel, zinc plated (sizes 1 and 2 include self-tapping screws only)

Male Screw—Steel, zinc plated yellow chromate

Retaining Clip—Stainless steel

Related Product Data:

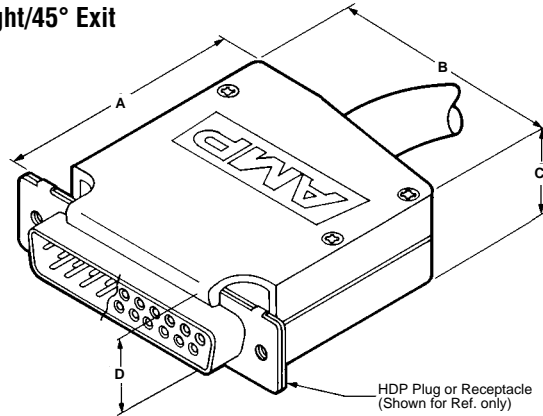
Connectors used with:

HDP Metal-Shell—page 1040

Technical Documents:

Instruction Sheets
408-7555, 408-7837

Clam Shell Straight/45° Exit

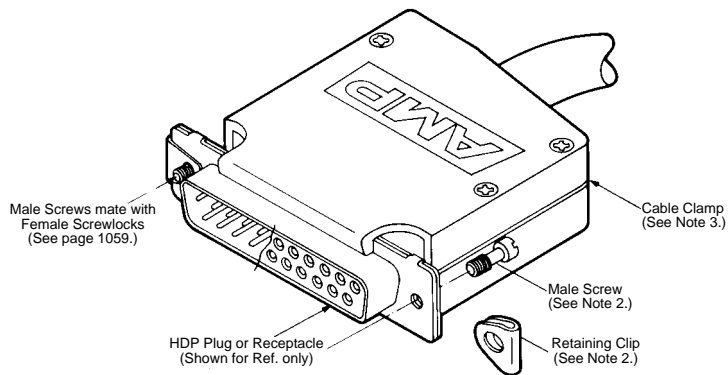


Shell Size	Dimensions				Cable Dia. (Max.)	Short Cable Clamp Part Numbers		Standard Cable Clamp Part Numbers	
	A	B	C	D		Individual	Bulk Packed*	Individual	Bulk Packed*
1	1.625	.750	.620	.620	.256	—	—	205729-1	205729-3
	41.28	19.05	15.75	15.75	6.30	—	—	—	—
2	1.250	1.073	.580	.620	.320	206393-1	—	—	—
	31.75	27.25	14.73	15.75	8.13	—	—	205730-1	205730-3
3	1.625	1.073	.620	.620	.320	—	—	205730-1	205730-3
	41.28	27.25	15.75	15.75	8.13	—	—	—	—
3	1.250	1.615	.580	.620	.420	206390-1	206390-3	—	—
	31.75	41.02	14.73	15.75	10.67	—	—	—	—
4	1.625	1.615	.620	.620	.420	—	—	205718-1	205718-4
	41.28	41.02	15.75	15.75	10.67	—	—	—	—
4	1.625	2.263	.620	.620	.490	—	—	205731-1	—
	41.28	57.48	15.75	15.75	12.45	—	—	—	—
5	1.625	2.168	.730	.730	.600	—	—	205732-1	—
	41.28	55.07	18.54	18.54	15.24	—	—	—	—

*Each part is individually bulk packed for multiple assembly orders.

- Notes:**
1. All parts are packed unassembled.
 2. Quantity of pan head screws supplied with cable clamp assembly varies with shell size.
 3. Cable clamps are available in kits with male screw retainers, see below.
 4. All pan head screws have combination cross-recessed and slotted heads.

Clam Shell Straight/45° Exit Cable Clamp Kits with Male Screw Retainers



Shell Size	Short Cable Clamp Kit Numbers		Standard Cable Clamp Kit Numbers	
	Individual	Bulk Packed*	Individual	Bulk Packed*
1	—	—	206478-1	2-206478-0
2	1-206478-1	—	206478-2	—
3	1-206478-2	2-206478-6	206478-3	2-206478-2

*Each part is individually bulk packed for multiple assembly orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a cable clamp and male screw retainer hardware (2 each). Male screw retainers are also available in kit form, see page 1058.
 3. For ordering cable clamps separately, see above.

For complete product information, order Catalog 82068

Unshielded Cable Clamps

Straight/90° Exit Cable Clamps can be used on a plug or receptacle and will not interfere with commonly used mating hardware. Their three-piece construction allows easy assembly to a cable harness. Also, the same cable clamp components are used for both straight and 90° cable exit applications. This is accomplished by simply positioning the Male and Female Panels on the Yoke for the desired angle.

Material:

Black thermoplastic

Related Product Data:

Connectors used with:

HDE All-Plastic—page 1027

HDE Metal-Shell—page 1028

HDP Metal-Shell—page 1040

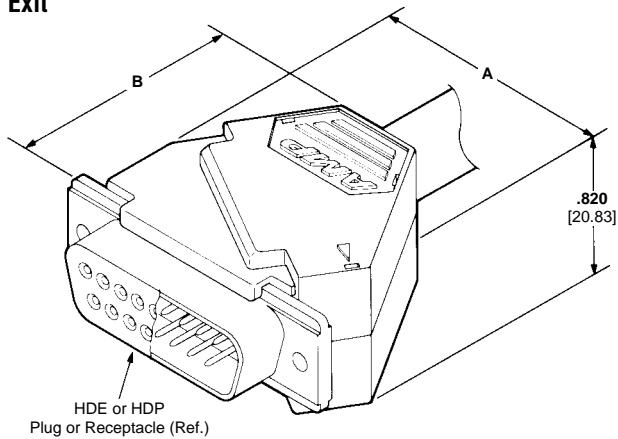
Other accessory capabilities:

Female Screwlocks—page 1059

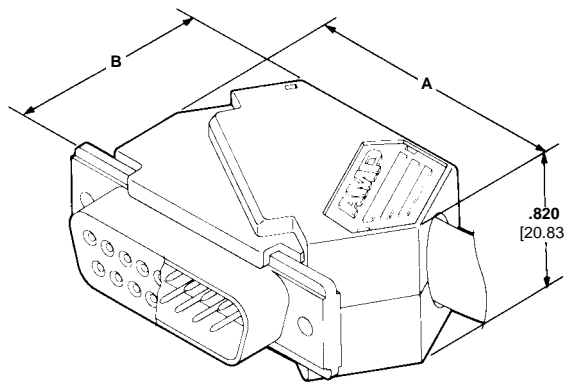
Locking Posts and Slide Latches—pages 1060, 1061

Latching Blocks—pages 1064, 1065

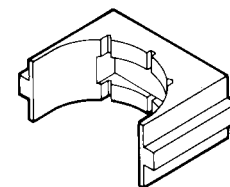
Straight/90° Exit



Straight Cable Exit Application



90° Cable Exit Application



Typical Cable Support Gate
(Supplied with Cable Clamp Kit)

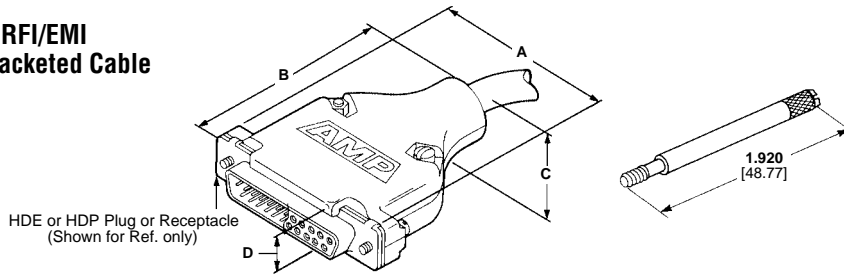
Shell Size	Cable Clamp Configuration	Dimensions		Cable Dia.	Cable Clamp Kit Numbers		
		A	B		Individual		
3	Straight Exit	1.906	48.41	1.672	42.47	.550 13.97	745306-1
	90° Exit	2.066	52.48	1.396	35.46		
4	Straight Exit	2.424	61.57	1.820	46.23	.750 19.05	745311-1
	90° Exit	2.638	67.01	1.596	40.54		

- Notes:**
1. All parts are packaged unassembled.
 2. Each cable clamp assembly includes a yoke, male panel, female panel and four cable support gates. The cable diameter is adjustable by changing the cable support gates.

For complete product information, order Catalog 82068

Shielded and Unshielded Cable Clamps

Straight Exit RFI/EMI Shields for Jacketed Cable (Two-Piece)



4-40 Male Jackscrew Kit Nos.: 747784-8 (bulk packed)*†

*Each part is individually bulk packed for multiple kit orders.
†Slotted for screwdriver use.

This RFI/EMI shield allows cable to be fully prepared and terminated to the connector before the shield is installed. During installation, the shield of the jacketed cable is folded back and compressed into the cable opening of the RFI/EMI shield. For greater cable support and/or shielding effectiveness, split-ring and crimp ferrules are available (pages 1055-1057).

Material and Finish:

Die Cast Shield—Zinc alloy, plated bright nickel over bright copper

Metal-Plated Plastic Shield—Thermoplastic, plated nickel over copper

Plastic Shield—Thermoplastic, black

4-40 Fillister Head Screws and Hex Nuts—Steel, zinc plated

4-40 Mounting Screws—Steel, zinc plated

Jackscrews—Stainless Steel, passivated

Related Product Data:

Ferrules—pages 1056, 1057

Connectors used with:

HDE Metal-Shell—page 1028

HDP Metal-Shell (Tin plated only)—pages 1021, 1040

Other accessory capabilities:

Spring Latch (Two-Piece)—page 1062

Technical Documents:

Product Specification
108-40032

Instruction Sheet
408-6609

Shell Size	Dimensions				Cable O.D. (Max.)	Die Cast Shield Kit Numbers	Metal-Plated Plastic Shield Kit Numbers	Grommet Sets		
	A	B	C	D				Cable O.D. Range	No. of Grommets Per Set	Part Number
1	1.215 30.86	1.910 48.51	.550** 13.97	.620** 15.75	.200 5.08	745171-2	745854-5	—	—	—
					.240 6.10	745171-1	745854-3	—	—	—
					.370 9.40	745171-5	745854-1	.185-.320 4.70-8.13	4	747746-1
					.225 5.72	745172-3	747099-7	—	—	—
2	1.545 39.24	1.910 48.51	.620 15.75	.620 15.75	.300 7.62	745172-2	747099-5	—	—	—
					.375 9.53	745172-1	747099-3	.185-.320 4.70-8.13	4	747746-1
					.430 10.92	1-745172-3	747099-1	—	—	—
					.280 7.11	745173-5	745833-9	—	—	—
3	2.090 53.09	1.920 48.77	.680 17.27	.620** 15.75	.350 8.89	745173-4	745833-7	—	—	—
					.430 10.92	745173-3	745833-5	—	—	—
					.480 12.19	745173-2	745833-3	—	—	—
					.530 13.46	745173-1	745833-1	.255-.470 6.48-11.94	6	747973-1
4	2.738 69.55	1.920 48.77	.800 20.32	.620 15.75	.350 8.89	745174-5	747100-9	—	—	—
					.425 10.80	745174-4	747100-7	—	—	—
					.500 12.70	745174-3	747100-5	—	—	—
					.530 13.46	2-745174-7	1-747100-1	.255-.470 6.48-11.94	6	747973-1
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.55	.575 14.61	745174-2	747100-3	—	—	—
					.650 16.51	745174-1	747100-1	—	—	—
					.375 9.53	745175-6	—	—	—	—
					.450 11.43	745175-5	747098-9	—	—	—
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.55	.525 13.34	745175-4	747098-7	.255-.470 6.48-11.94	6	747973-1
					.600 15.24	745175-3	747098-5	—	—	—
					.675 17.15	745175-2	—	—	—	—
					.750 19.05	745175-1	747098-1	—	—	—

Cable Clamp Kits with Grommets

Shell Size	Dimensions				Cable O.D. Range	No. of Grommets Per Set	Kit Numbers			
	A	B	C	D			Die Cast Shield	Metal-Plated Plastic Shield	Unshielded Plastic with Jackscrews	Unshielded Plastic Shield
1	1.215 30.86	1.910 48.51	.550** 13.97	.620** 15.75	.185-.320 4.70-8.13	4	748676-1	748677-1	787033-1	748678-1
2	1.545 39.24	1.910 48.51	.620 15.75	.620 15.75	.185-.320 4.70-8.13	4	748676-2	748677-2	—	748678-2
3	2.090 53.09	1.920 48.77	.680 17.27	.620** 15.75	.255-.470 6.48-11.94	6	748676-3	748677-3	787033-3	748678-3
4	2.738 69.55	1.920 48.77	.800 20.32	.620 15.75	.255-.470 6.48-11.94	6	748676-4	748677-4	—	748678-4
5	2.644 67.16	1.920 48.77	.900 22.86	.730 18.54	.255-.470 6.48-11.94	6	748676-5	748677-5	—	748678-5

- Notes:**
1. All parts are packaged unassembled.
 2. Jackscrews can be purchased separately.
 3. Split-ring and crimp ferrules are shown on pages 1055-1057.
 4. These cable clamps will not accept connector housings with clinch nuts.

** The following dimensions apply to the plastic and metal-plated plastic cable clamps: Size 1: C=.570 [14.48], D=.630 [16.0]
Size 3: D=.640 [16.26]

For complete product information, order Catalog 82068

Shielded Cable Clamps

Crimp Ferrules for Braided Cable Shield (See pages 1056 & 1057 for Inner and Outer Ferrule Part Numbers.)

Material and Finish:

Outer Ferrule—Copper, plated .000100 [0.00254] min. tin

Inner Ferrule—.023 [0.58] thick brass, plated .000050 [0.00127] tin over copper

Related Product Data:

Shields used with:
Straight Exit—page 1054

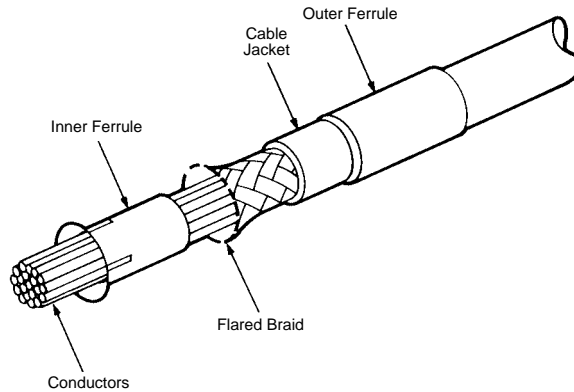
Technical Documents:

Product Specification
108-40032

Instruction Sheets
408-9315 Hand Tool
408-9318 Die Sets

Application Tooling

Note: Crimp ferrules are for use with braided shields only. Crimp ferrules require application tooling with die sets for attachment to cable.



Pneumatic Bench Tool
Part Number 312522-2
(Requires Die Set Holder
Part Number 58240-1.)



AMP Hand Tool Part Number 543344-1
(See pages 1053 & 1054 for Hand Tool
Die Set Numbers)

Split-Ring Ferrules for Foil or Braided Cable Shield (See pages 1056 & 1058 for Split-Ring Ferrule Part Numbers.)

Material:

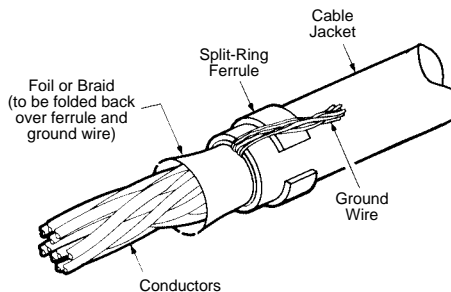
Aluminum

Related Product Data:

Shields used with:
Straight Exit—page 1054

Technical Document:

Product Specification
108-40032



Note: Split-ring ferrules cannot be used with outer and inner ferrules. Split-ring ferrules are suitable for both foil and braided shields. The ferrules do not require tooling for assembly.

For complete product information, order Catalog 82068

Shielded Cable Clamps

Crimp and Split-Ring Ferrules

Shell Size	Cable Dia. (Max.)	When using these Shield Kits				Use these Ferrules				
		Straight Exit Shield Kit Numbers		90° Exit Die Cast Shield Kit Numbers		Split-Ring Ferrule Numbers	Crimp Ferrule Numbers and Tooling Numbers**			
		Die Cast	Metal-Plated Plastic	With Slide Latch	Without Slide Latch		Inner	Outer	Die Set For Hand Tool 543344-1	Applicator Die Set
1	.200 5.08	745171-2	745854-5	—	—	745508-2	—	—	—	—
	.240 6.10	745171-5	745854-1	—	—	—	1-745129-8	745130-8	543013-2	813809-1
	.240 6.10	745171-1	745854-3	—	—	745508-3	1-745129-6	745130-8	543013-1	813809-1
	.280 7.11	745171-5	745854-1	—	—	—	3-745129-4	1-745130-6	1-543013-7	813809-7
	.370 9.40	745171-5	745854-1	—	—	745508-6	1-745129-7	1-745130-0	543013-6	813809-5
2	.225 5.72	745172-3	747099-7	745652-4	—	745508-3	—	—	—	—
	.240 6.10	745172-1	747099-3	745652-2	745918-2	—	1-745129-8	745130-8	543013-2	813809-1
	.240 6.10	—	747099-1	745652-1	—	—	2-745129-1	745130-8	543013-3	813809-1
	.280 7.11	—	747099-1	745652-1	—	—	3-745129-2	1-745130-6	1-543013-6	813809-7
	.300 7.62	745172-2	747099-5	745652-3	745918-3	745508-4	—	—	—	—
	.350 8.90	—	747099-1	745652-1	—	—	2-745129-0	745130-9	543013-4	813809-2
	.365 9.27	745172-1	747099-3	745652-2	745918-2	—	1-745129-7	1-745130-0	543013-6	813809-5
3	.375 9.53	745172-1	747099-3	745652-2	745918-2	745508-6	—	—	—	—
	.430 10.92	1-745172-3	747099-1	745652-1	—	745508-1	1-745129-9	1-745130-1	543013-7	813809-3
	.240 6.10	745173-3	745833-5	745653-3	747194-3	—	2-745129-1	745130-8	543013-3	813809-1
	.280 7.11	745173-5	745833-9	745653-5	—	745508-4	—	—	—	—
	.280 7.11	745173-3	745833-5	745653-3	747194-3	—	3-745129-2	1-745130-6	1-543013-6	813809-7
	.350 8.90	745173-4	745833-7	745653-4	—	745508-5	—	—	—	—
	.350 8.90	745173-3	745833-5	745653-3	747194-3	—	2-745129-0	745130-9	543013-4	813809-2
	.350 8.90	745173-1	745833-1	745653-1	—	—	2-745129-4	745130-9	543013-5	813809-2
	.430 10.92	745173-3	745833-5	745653-3	747194-3	745508-1	1-745129-9	1-745130-1	543013-7	813809-3
	.430 10.92	745173-1	745833-1	745653-1	—	—	2-745129-3	1-745130-1	543013-8	813809-3
.480 12.19	745173-2	745833-3	745653-2	—	745508-8	—	—	—	—	
.530 13.46	745173-1	745833-1	745653-1	—	745508-9	2-745129-2	1-745130-2	1-543013-0	813809-4	

*For split-ring ferrules, Min. O.D. is .040 [1.02] smaller than Max. O.D.

**For inner and outer ferrules, Min. O.D. is .050 [1.27] smaller than Max. O.D. At the Max. cable O.D. the Min. insulation thickness is .060 [1.52].

Continued on Page 1057

For complete product information, order Catalog 82068

Shielded Cable Clamps

Crimp and Split-Ring Ferrules

Shell Size	Cable Dia. (Max.)	When using these Shield Kits				Use these Ferrules				
		Straight Exit Shield Kit Numbers		90° Exit Die Cast Shield Kit Numbers		Split-Ring* Ferrule Numbers	Crimp Ferrule Numbers and Tooling Numbers**			
		Die Cast	Metal-Plated Plastic	With Slide Latch	Without Slide Latch		Inner	Outer	Die Set for Hand Tool 543344-1	Applicator Die Set
4	.240 6.10	745174-4	747100-7	—	—	—	2-745129-1	745130-8	543013-3	813809-1
	.280 7.11	745174-4	747100-7	—	—	—	3-745129-2	1-745130-6	1-543013-6	813809-7
	.350 8.90	745174-5	747100-9	—	—	745508-5	—	—	—	—
	.350 8.90	745174-4	747100-7	—	—	—	2-745129-0	745130-9	543013-4	813809-2
	.430 10.92	745174-4	747100-7	—	—	745508-1	1-745129-9	1-745130-1	543013-7	813809-3
	.500 12.70	745174-3	747100-5	—	—	745508-8	—	—	—	—
	.525 13.34	745174-1	747100-1	—	—	—	2-745129-6	1-745130-2	1-543013-1	813809-4
	.575 14.61	745174-2	747100-3	—	—	1-745508-0	—	—	—	—
	.650 16.51	745174-1	747100-1	—	—	1-745508-1	2-745129-5	1-745130-3	1-543013-3	—
	5	.240 6.10	745175-6	1-747098-1	—	—	—	1-745129-8	745130-8	543013-2
.350 8.90		745175-4	747098-7	—	—	—	2-745129-4	745130-9	543013-5	813809-2
.365 9.27		745175-6	1-747098-1	—	—	—	1-745129-7	1-745130-0	543013-6	813809-5
.375 9.53		745175-6	1-747098-1	—	—	745508-6	—	—	—	—
.430 10.92		745175-4	747098-7	—	—	—	2-745129-3	1-745130-1	543013-8	813809-3
.450 11.43		745175-5	747098-9	—	—	745508-7	—	—	—	—
.525 13.34		745175-4	747098-7	—	—	745508-9	—	—	—	—
.530 13.46		745175-4	747098-7	—	—	—	2-745129-2	1-745130-2	1-543013-0	813809-4
.600 15.24		745175-3	747098-5	—	—	1-745508-0	—	—	—	—
.650 16.51		745175-1	747098-1	—	—	—	2-745129-9	1-745130-3	1-543013-4	—
.675 17.15	745175-2	—	—	—	1-745508-1	—	—	—	—	
.750 19.05	745175-1	747098-1	—	—	1-745508-2	2-745129-8	1-745130-4	1-543013-5	—	

*For split-ring ferrules, Min. O.D. is .040 [1.02] smaller than Max. O.D.

**For inner and outer ferrules, Min. O.D. is .050 [1.27] smaller than Max. O.D. At the Max. cable O.D. the Min. insulation thickness is .060 [1.52].

Note: Refer to page 1054 for Application Tooling for ferrules.

Hardware

Male Screw Retainers for Metal-Shell Connectors (HDE and HDP)

Material and Finish:

Male Screw—Steel, zinc plated clear or yellow chromate

Retaining Clip—.012 [0.31] stainless steel

Related Product Data:

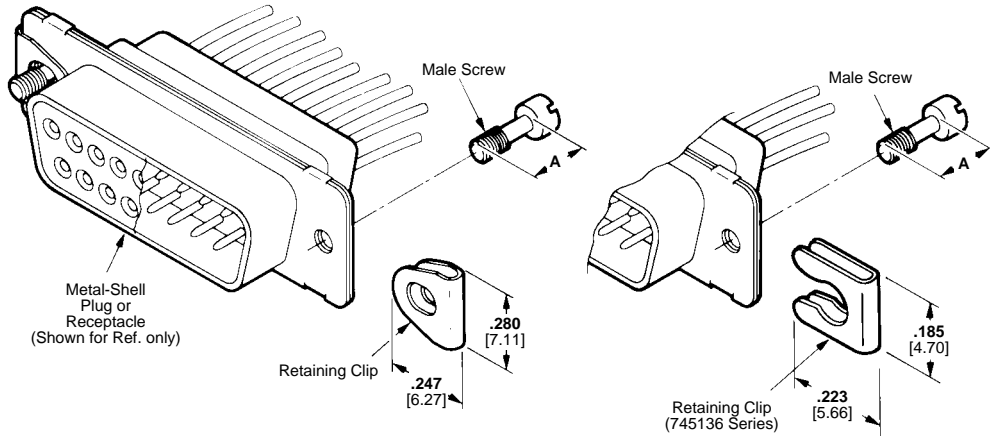
Connectors used with:

HDE Metal-Shell—page 1028

HDP Metal-Shell—page 1040

Technical Documents:

Instruction Sheet
408-7837



Male Screw Finish	Thread Size	Dimension A	Male Screw Retainer Kit Numbers	
			Individual	Bulk Packed*
Yellow Chromate	4-40	.220 5.59	205980-1	205980-3
		.200 5.08	745136-1	745136-2
	M3 (Metric)	.225 5.72	207871-1	—
Clear Chromate	4-40	.220 5.59	205980-4	205980-5
		.200 5.08	745136-3	745136-4

*Each part is individually bulk packed for multiple kit orders.

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two male screws and two retaining clips. Male screw retainers are also furnished as part of cable clamp kits (pages 1051 and 1052).
3. Male screw retainers mate with female screwlocks (page 1059) and with HD metal-shell board mount connectors featuring 4-40 threaded inserts or female screwlocks.
4. Retaining clip must be assembled onto connector flanges with threaded hole toward wire side of connector.

Male Screw Retainers for All-Plastic Connectors (HDE)

Material and Finish:

Male Screw—Steel, zinc plated yellow chromate

Retaining Clip—.012 [0.51] stainless steel

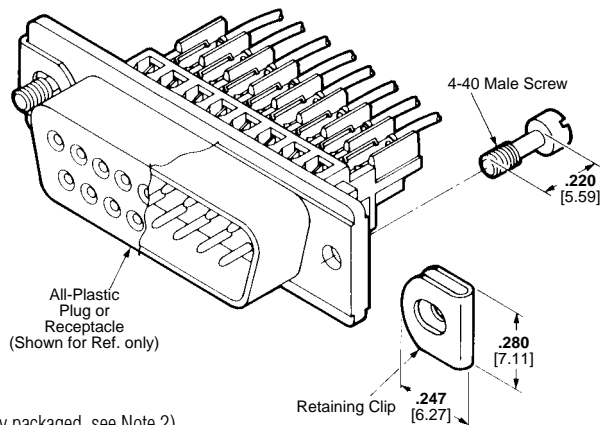
Related Product Data:

Connectors used with:

HDE All-Plastic—page 1027

Technical Documents:

Instruction Sheet
408-7837



Kit Numbers:

745647-1 (Individually packaged, see Note 2)

745647-2 (Bulk packed)*

*Each part is individually bulk packed for multiple kit orders.

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two 4-40 male screws and two retaining clips.
3. Male screw retainers mate with female screwlocks (page 1059), with HD All-Plastic board mount connectors featuring integral standoffs with 4-40 threaded inserts and female screwlocks.
4. Retaining clips must be assembled onto connector flanges with threaded hole toward wire side of connector.

For complete product information, order Catalog 82068

Hardware

Female Screwlocks for Metal-Shell and All-Plastic Connectors (HDE, HDF, HDP)

Material and Finish:

All Parts—Cold rolled steel, zinc plated clear or yellow chromate

Related Product Data:

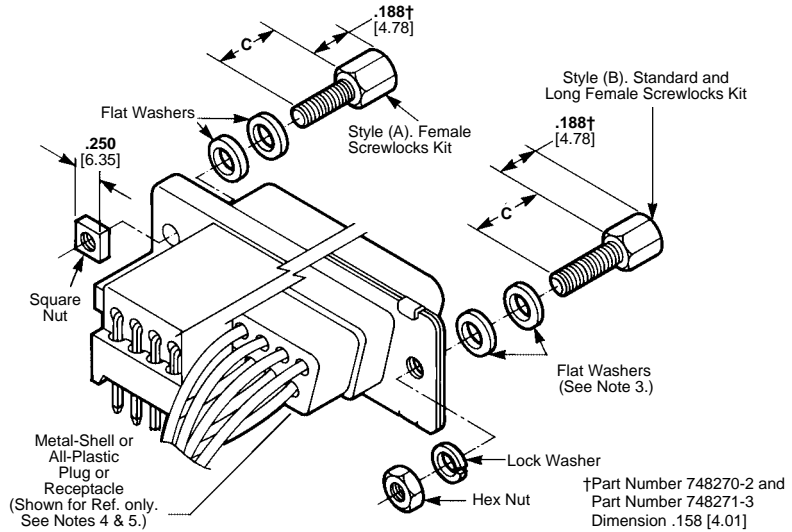
Connectors used with:

HDE Metal-Shell or All-Plastic—pages 1027, 1028

HDF Metal-Shell or All-Plastic—pages 1034-1038

HDP Metal-Shell—page 1040

HD Board Mount—pages 1069-1094



Technical Documents:

Instruction Sheet
408-7837



Nut Driver, Part Number 811262-1
(Used for assembling female screwlocks to connector flange)

Connector Used with	Style	Dimension C	Thread Size	Finish	Kit Number	
					Individual	Bulk Packed ^Δ
HD All-Plastic Right-Angle Plugs and Receptacles	(A)	.250 6.35	4-40	Yellow Chromate	207952-1	—
				Clear Chromate	207952-3	—
HDE Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.250 6.35	4-40	Yellow Chromate	745563-1	745563-2
				Clear Chromate	745563-3	745563-4
HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.312 7.93	4-40	Yellow Chromate	205817-1	205817-2
				Clear Chromate	205817-3	205817-4
			M3 (Metric)	Yellow Chromate	207872-1	—
				Clear Chromate	207872-3	—
HD All-Plastic Plugs and Receptacles with Integral Standoffs	(B)	.560 14.22	4-40	Yellow Chromate	207719-1	207719-2
				Clear Chromate	207719-3	207719-4
				Clear Chromate	747223-3	—
.090 Thick Panels †	(B)	.312 7.93	4-40	Yellow Chromate	748271-3	—

^ΔEach part is individually bulk packed for multiple kit orders.

Notes: 1. All parts are packaged unassembled.

2. Each female screwlock kit is comprised of two assemblies as illustrated above.

3. One or two flat washers may be required for panel thicknesses less than .060 [1.52]. Female screwlocks are not recommended for panel thicknesses greater than .060 [1.52].

4. Female screwlocks with 2-56 thread size are to be used with cable clamps with mounting flanges. Female screwlocks with 4-40 and M3 (Metric) thread sizes can be used with all other cable clamps.

5. Female screwlocks mate with male screw retainers (page 1063).

6. Short female screwlocks cannot be used with the HDF connectors.

*2-56 is the male thread size. The female thread size is 4-40.

††206897-1 kit contains 2-screwlocks, 2-hex nuts and 2-retainers.

Individual Screwlocks

(Washers and Nuts not included)

Connector Used with	Style	Dimension C	Thread Size	Finish	Screwlocks	
					Individual	Bulk Packed ^Δ
HD All-Plastic Right-Angle Plugs and Receptacles	(A)	.250 6.35	4-40	Yellow Chromate	207953-2	—
				Clear Chromate	207953-3	—
				Yellow Chromate	205818-2	—
				Clear Chromate	205818-3	—
HDP or HDF Metal-Shell or All-Plastic Plugs and Receptacles	(B)	.312 7.93	M2.6** (Metric)	Clear Chromate	749765-3	—
				Yellow Chromate	748270-2	—
			M3*** (Metric)	Clear Chromate	747404-3	—
				Clear Chromate	747877-3	—
			(Special)	.185 4.70	4-40	Clear Chromate

^ΔEach part is individually bulk packed for multiple kit orders.

^{ΔΔ}With captivated star washer. No additional hardware included.

†Part Number 748270-2 Dimension .158 [4.01]

**M2.6 is the female thread size. The male thread size is 4-40.

***M3 is the female thread size. The male thread size is 4-40.

For complete product information, order Catalog 82068

Hardware

Slide Latches

Material and Finish:

4-40 Screws, Washers and Hex Nuts—Steel, zinc plated yellow chromate

2-56 Screws, Washers and Hex Nuts—Steel, zinc plated clear chromate

Slide Latch—Stainless steel

Related Product Data:

Connectors used with:

HDE Metal-Shell or All-Plastic—pages 1027, 1028

HDF Metal-Shell or All-Plastic—pages 1034-1038

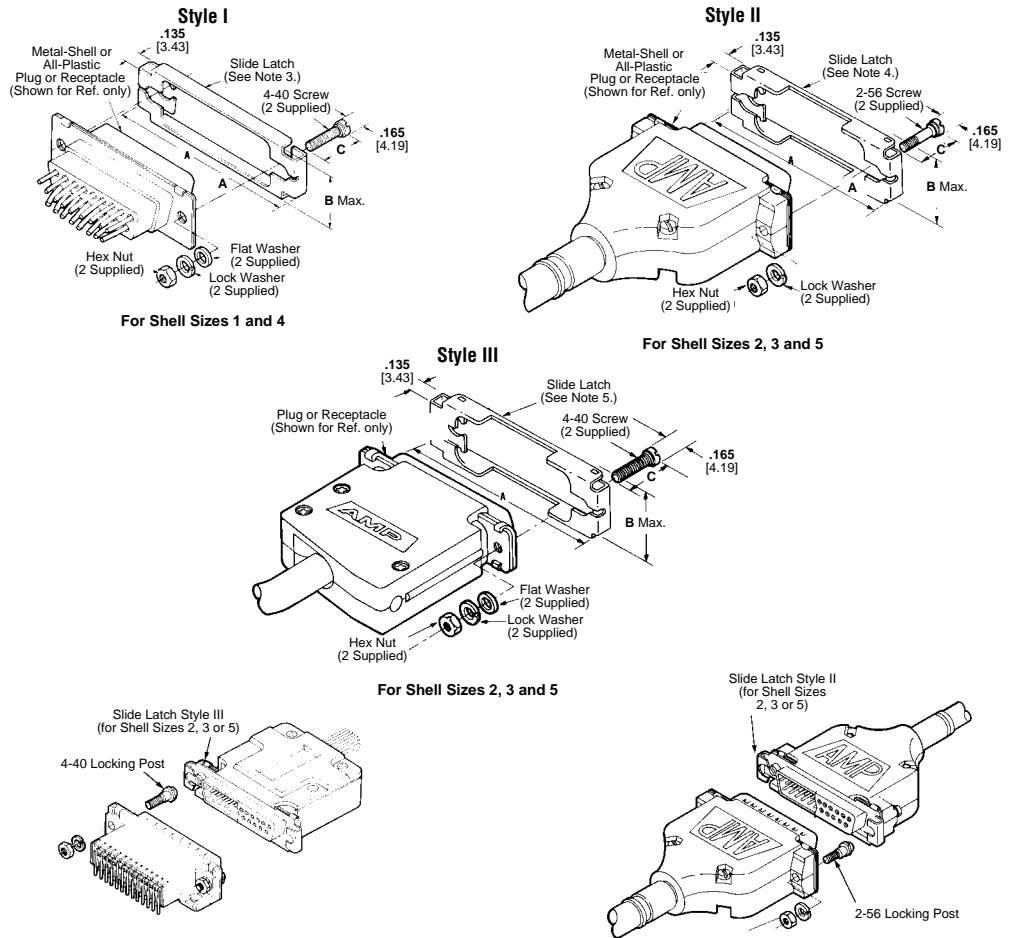
HDP Metal-Shell—page 1040

HD Board Mount—pages 1069-1094

Technical Documents:

Instruction Sheet

408-6551



Typical Applications of Locking Posts and Slide Latches

Shell Size	Style	Dimensions			Slide Latch Kit Numbers	
		A	B	C	Individual	Bulk Packed*
1	I	1.397	.490	.415	745404-1	—
		35.48	12.45	10.54		
2	II	1.725	.470	.547	745583-1	745583-2
		43.82	11.94	13.89		
	III	1.725	.470	.415	745583-5	745583-6
3	II	2.265	.470	.547	745584-1	—
		57.53	11.94	13.89		
4	I	2.913	.490	.415	745407-1	—
		73.99	12.45	10.54		
5	II	2.819	.575	.547	745578-1	—
		71.60	14.61	13.89		
	III	2.819	.575	.415	745578-3	—
		71.60	14.61	10.54		

*Each part is individually bulk packed for multiple kit orders.

- Notes:**
1. All parts are packaged unassembled.
 2. Each kit is comprised of a slide latch and two screws, flat washers (if required), lock washers and hex nuts. Style I slide latches are also furnished as part of cable clamp kits.
 3. Style I slide latches can be used with cable clamps that do not extend beyond the front flange of the connector or on connectors without cable clamps.
 4. Style II slide latches can be used with any cable clamp that has the mounting ear configuration as shown above.
 5. Style III slide latches can be used on connectors without cable clamps or with cable clamps that do not have the mounting ear configuration shown with Style II above.
 6. Slide latches mate with locking posts (page 1061).

For complete product information, order Catalog 82068

Hardware

Slide Latch Clip Assembly for Unfiltered Mating Half

Material and Finish:

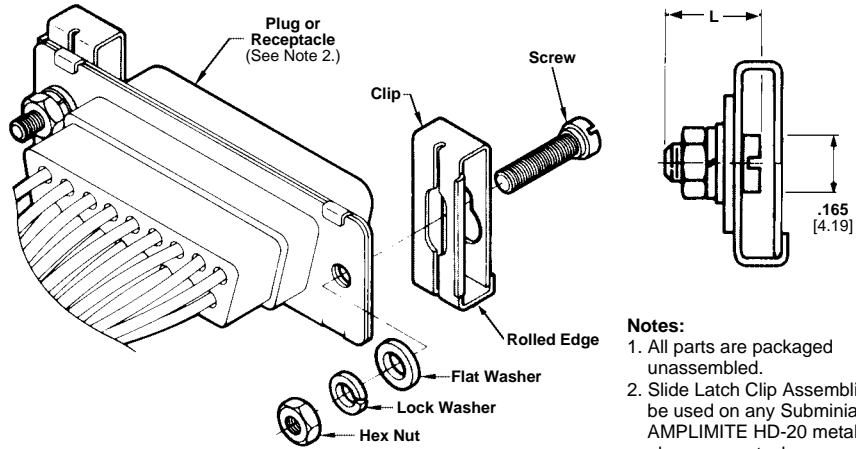
Screw, Washers and Hex Nut—Cold rolled steel, zinc plated per ASTM B 633

Clip—Stainless steel

Kit Part Numbers:

Thread Size	Screw Length L	Pkg.	Part Numbers
4-40	.415 10.54	Unit†	206942-1
2-56	.547 13.89	Unit	748078-1

†Two assemblies per package.



Notes:

1. All parts are packaged unassembled.
2. Slide Latch Clip Assemblies can be used on any Subminiature D AMPLIMITE HD-20 metal-shell plug or receptacle.
3. Slide Latch Clip Assemblies mate with Locking Post Assemblies shown below.

Technical Documents:

Instruction Sheet
408-7785

Locking Post Assembly

Material and Finish:

All Parts—Cold rolled steel, zinc plated clear or yellow chromate

Related Product Data:

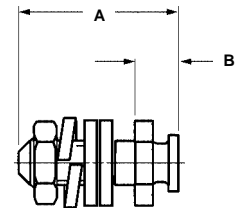
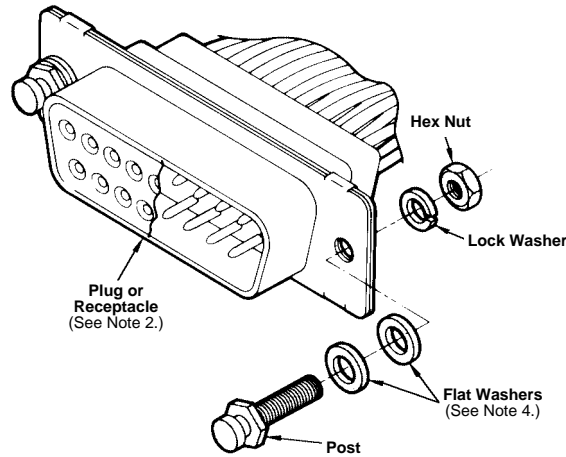
Connectors used with:

HDE Metal-Shell or All-Plastic—pages 1027-1028

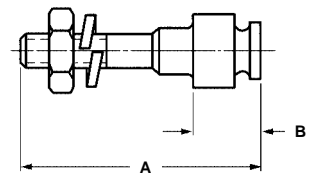
HDF Metal-Shell or All-Plastic—pages 1034-1038

HDP Metal-Shell—page 1040

HD Board Mount—pages 1069-1094



Part Number 206514-1



Part Number 747242-1

Thread Size	Locking Post Finish	Dimensions		Locking Post Kit Number (See Note 4)	
		A	B	Individual	Bulk Packed
4-40	Yellow Chromate	.410 10.41	.110 2.79	206514-1	206514-3
	Chromate	.560 14.22	.110 2.79	206514-6	206514-7
2-56	Yellow Chromate	.615 15.62	.172 4.37	747242-1	—
	Clear Chromate	.615 15.62	.172 4.37	747242-3	—

*Each part is individually bulk packed for multiple kit orders.

Notes:

1. All parts are packaged unassembled.
2. Each kit is comprised of two complete assemblies, as illustrated above.
3. For front panel mounting, it is recommended that a shim be used between the connector flange and panel to prevent bowing of the flange.
4. Locking posts with 2-56 thread size are to be used with cable clamps with mounting flanges. Locking posts with 4-40 thread size can be used with all other cable clamps.
5. Locking posts mate with slide latches (page 1060).

For complete product information, order Catalog 82068

Hardware

Spring Latches for Cable Clamps with Mounting Ears (Two-Piece)

Material:

.015 [0.38] Stainless steel

Related Product Data:

Connectors used with:

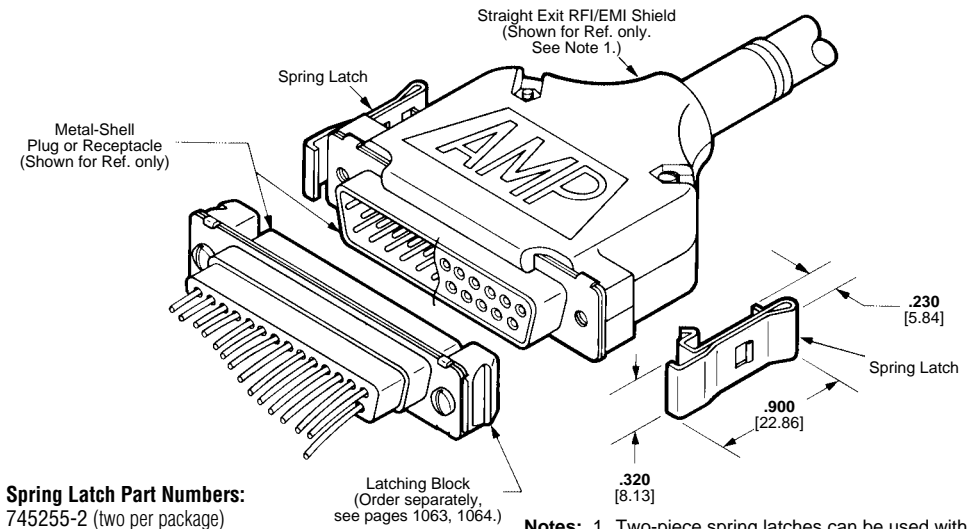
HDE Metal-Shell—page 1028

HDP Metal-Shell (Tin plated only)—page 1040

Technical Documents:

Instruction Sheet

408-9130



Spring Latch Part Numbers:

745255-2 (two per package)

745255-3 (bulk packed)*

*Two-piece spring latches are individually bulk packed for multiple part orders.

Notes: 1. Two-piece spring latches can be used with RFI/EMI shields (page 1054).

2. Two-piece spring latches mate with latching blocks (pages 1063, 1064).

Spring Latches (Two-Piece)

Material:

Stainless steel

Related Product Data:

Connectors used with:

HDE Metal-Shell—page 1028

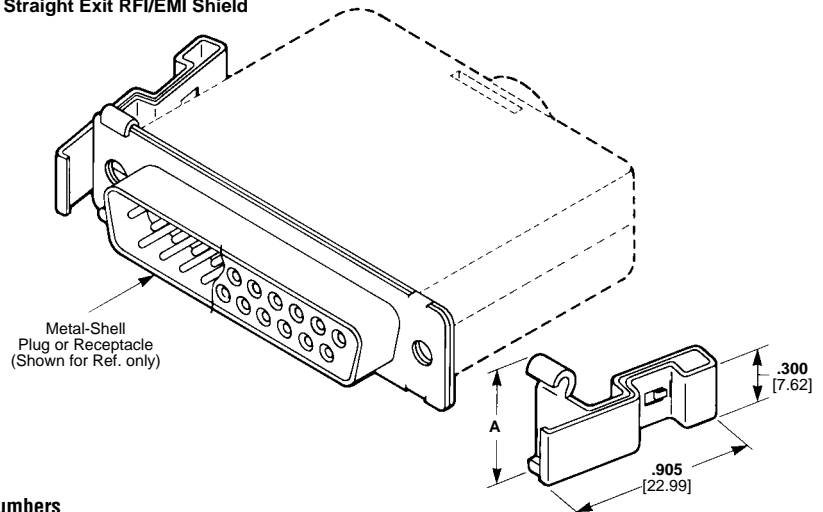
HDP Metal-Shell—pages 1040

Technical Documents:

Instruction Sheet

408-9131

Typical Application of Two-Piece Spring Latches with Straight Exit RFI/EMI Shield



Spring Latch Part Numbers

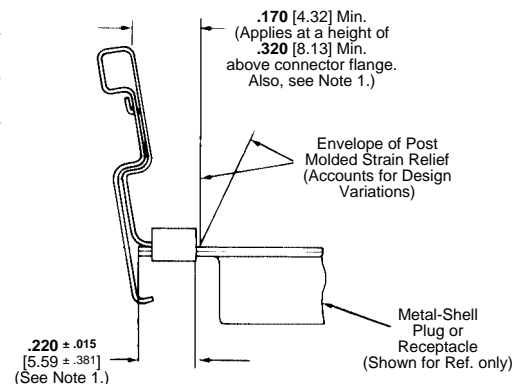
Size	Dimension A	Part Numbers	
		Two Per Package	Bulk Packed*
1-4	.540 13.72	745779-2	745779-3
5	.650 16.51	745779-5	—

*Two-piece spring latches are individually bulk packed for multiple part orders.

Notes: 1. These dimensions must be maintained to assure satisfactory operation of the spring latches.

2. Two-piece spring latches mate with latching blocks (pages 1063, 1064).

Typical Application of Two-Piece Spring Latches with Post Molded Strain Relief



For complete product information, order Catalog 82068

Hardware

Latching Blocks with Threaded Hole

Material and Finish:

Latching Blocks—Zinc

Pan Head Screws—Steel, zinc plated

Related Product Data:

Connectors used with:

HDE Metal-Shell or All-Plastic—pages 1027, 1028

HDF Metal-Shell or All-Plastic—pages 1034-1038

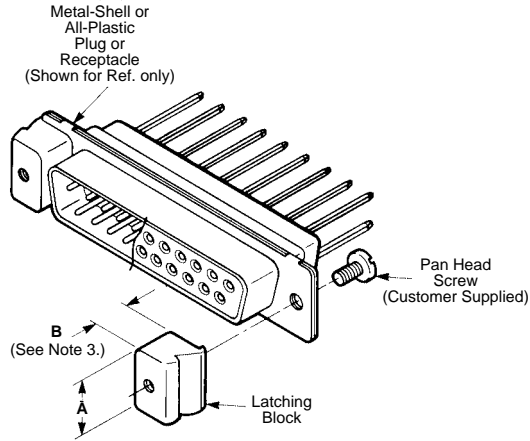
HDP Metal-Shell—page 1040

HD Board Mount—pages 1069-1094

Technical Documents:

Instruction Sheet

408-9128



Shell (No. of Contact Positions)	Dimensions		Thread Size	Rear-Panel Latching Block Part Numbers		Front-Panel Latching Block Part Numbers	
	A	B		Individual	Bulk Packed*	Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.400	.190	M3 (Metric)	745403-1	745403-2	—	—
	10.16	4.83	4-40	745403-8	745403-9	—	—
	.400	.220	4-40	747717-2	747717-3	—	—
	10.16	5.59	4-40	—	—	208101-1	208101-2
5 (50)	.400	.250	M3 (Metric)	—	—	208101-8	208101-9
	10.16	6.35	4-40	—	—	1-208101-1	—

*Bulk packed for multiple part orders.

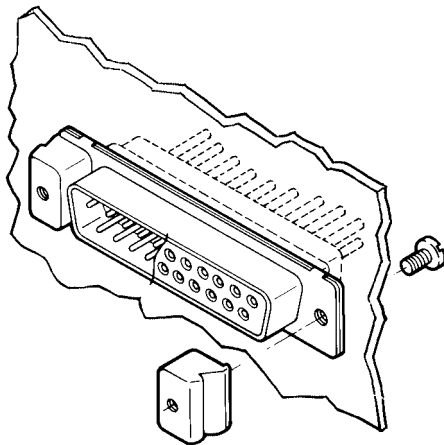
**Individual kits contain two latching blocks per package.

Notes: 1. All parts are packaged unassembled.

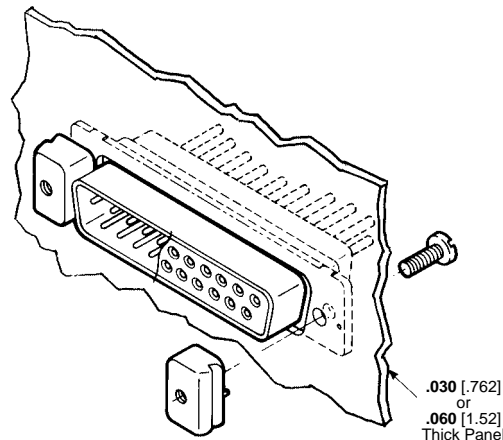
2. Each front panel latching block kit is comprised of two latching blocks. Two pan head screws of the appropriate length and thread size to be supplied by customer.

3. B dimension .250 [6.35] is for connector flange mounting, .220 [5.59] is for use with .030 [0.76] thick panels, and .190 [4.83] is for use with .060 [1.52] thick panels.

4. Latching blocks mate with spring latches (page 1062).



Typical Application of Front-Panel Mounted Subminiature D Connector using Front-Panel Latching Blocks



Typical Application of Rear-Panel Mounted Subminiature D Connector using Rear-Panel Latching Blocks

For complete product information, order Catalog 82068

Hardware

Latching Blocks with Slot Recess and Thru Hole

Material:

Latching Blocks—Zinc

Related Product Data:

Connectors used with:

HDE Metal-Shell or All-Plastic—
pages 1027, 1028

HDF Metal-Shell or All-Plastic—
pages 1034-1038

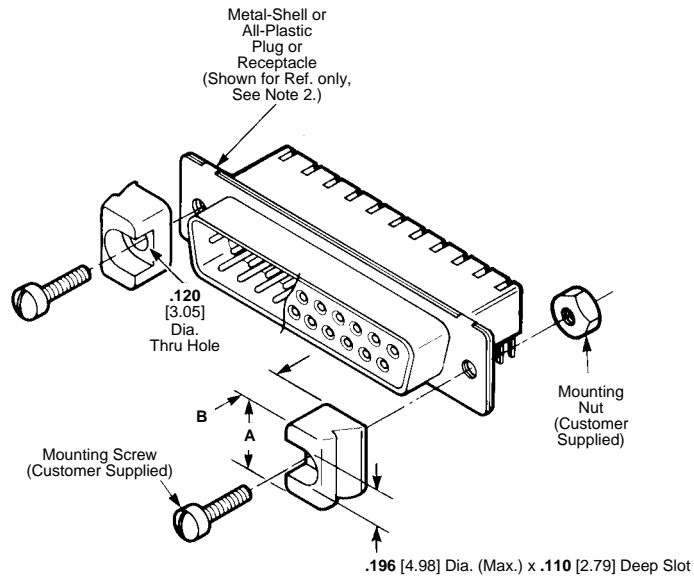
HDP Metal-Shell—page 1040

HD Board Mount—pages 1069-1094

Technical Documents:

Instruction Sheet

408-9128

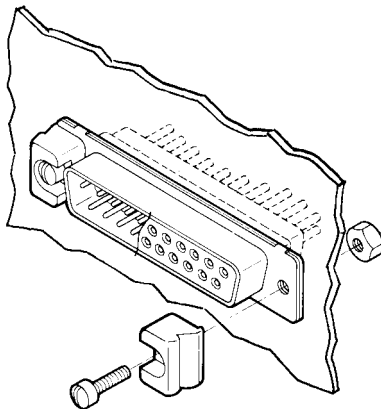


Shell (No. of Contact Positions)	Dimensions		Panel Thickness	Rear-Panel Latching Block Part Numbers		Front-Panel Latching Block Part Numbers	
	A	B		Individual	Bulk Packed*	Individual	Bulk Packed*
1 thru 4 (9 thru 37)	.400 10.16	.160 4.06	.090 2.29	747080-2	—	—	—
		.190 4.83	.060 1.52	745245-2	745245-3	—	—
		.250 6.35	—	—	—	745286-2	745286-3

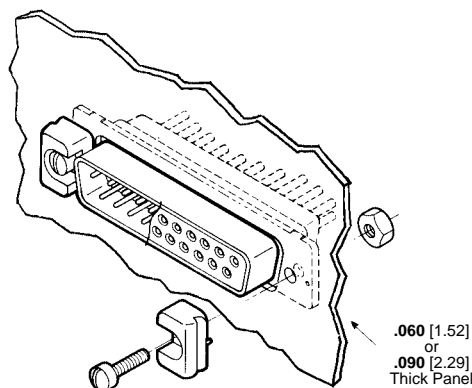
*Bulk packed for multiple part orders.

**Individual kits contain two latching blocks per package.

- Notes:**
1. Mounting screws and nuts are to be supplied by Customer.
 2. These latching blocks allow mounting screws to be installed thru the front of the block and to be screwed into the bracket of a right-angle connector, a fixed insert in a connector mounting flange, or a nut behind the connector mounting flange (as illustrated above).
 3. Latching blocks mate with spring latches (page 1062).



**Typical Application of Front-Panel Mounted
Subminiature D Connector using Front-Panel Latching Blocks**



**Typical Application of Rear-Panel Mounted
Subminiature D Connector using Rear-Panel Latching Blocks**

For complete product information, order Catalog 82068

Hardware

Standoff Bushings

Material:

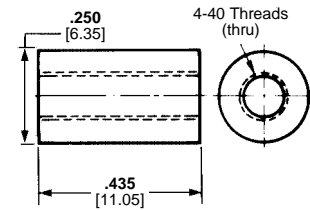
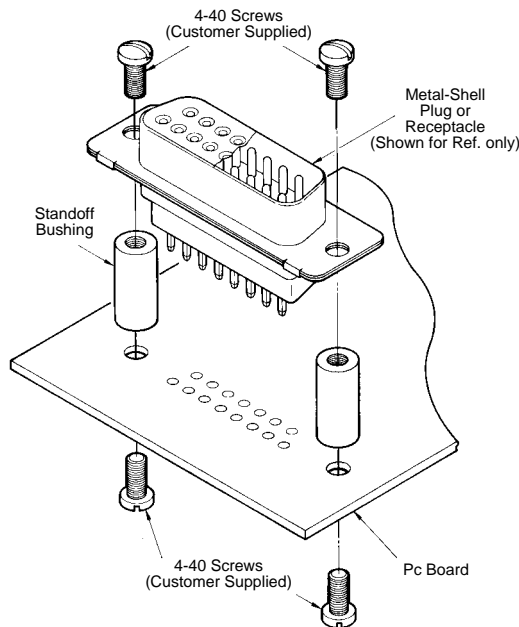
Aluminum

Related Product Data:

Connectors used with:
HD Straight Posted—
 pages 1085-1094

Technical Documents:

Product Specification
 108-40032



Kit Numbers:

205933-3 (two bushings per package)
 205933-4 (bulk packed)*

*Parts are individually bulk packed for multiple part orders.

Keying Plug (for Size 20 Socket Contacts)

Material:

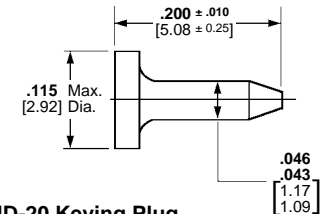
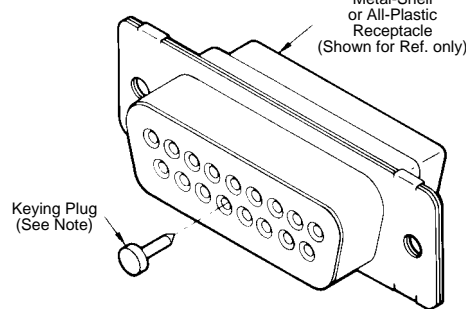
Polyphenylene oxide

Related Product Data:

Connectors used with:
All HDE, HDP and HD Receptacles with Socket Contacts

Technical Documents:

Product Specification
 108-40032



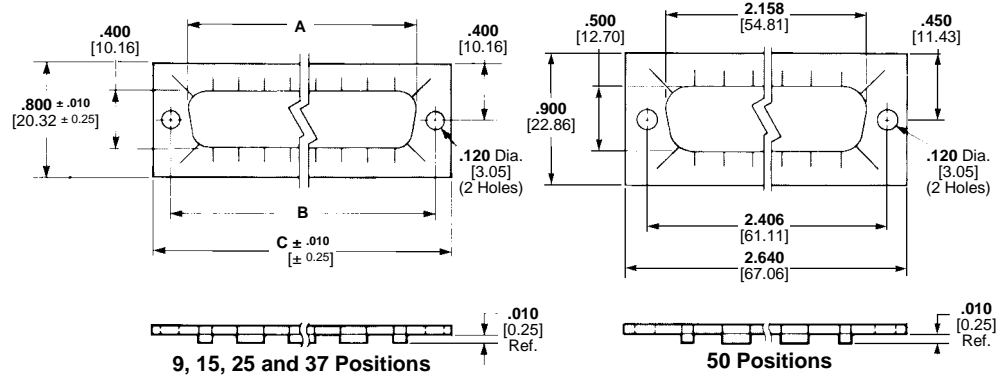
HD-20 Keying Plug
Part Number 206509-1

Notes: 1 Keying plug is installed taper-end first into front of receptacle.
 2 Sold individually.

EMI/RFI Gaskets

Material and Finish:



Brass, .006 [0.15] thick; bright tin plated



Shell Size (No. of Contact Positions)	Dimensions			Gasket Part Numbers
	A	B	C	
1 (9)	.746 18.95	.984 24.99	1.220 30.99	747024-3
2 (15)	1.074 27.28	1.312 33.32	1.555 39.50	747025-3
3 (25)	1.614 41.00	1.852 47.04	2.100 53.34	745776-3
4 (37)	2.266 57.56	2.500 63.50	2.730 69.34	745777-3
5 (50)	2.158 54.81	2.406 61.11	2.640 67.06	747412-3

For complete product information, order Catalog 82068

Right-Angle Posted PCB Connectors**Product Facts:**

- Flame retardant thermoplastic housing material, UL 94V-0 rated
- HD-20 right-angle connectors are available in 9, 15, 25 and 37 positions (Shell Sizes 1 thru 4) in both plug and receptacle versions; some versions available in 50 position, (Shell Size 5)
- HD-22 right angle receptacle connectors are available in 15, 26, 44, 62 and 78 positions (Shell Sizes 1 thru 5)
- Low cost front metal-shell design compatible with full metal-shell connectors
- Integral boardlock versions secure posted connectors to pc boards prior to soldering
- HD-20 and HD-22 connector contacts are available in plating types to satisfy different applications
- HD-22 right-angle posted connectors are designed for robotic and high temperature applications
- Integral fixed 4-40 threaded inserts and screwlocks are available in both HD-20 and HD-22 connectors
- Connectors are intermateable with any size 20 or 22 subminiature D connectors dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association, File No. LR 164196 



For complete product information, order Catalog 82068

HD-22 Front Metal-Shell Right-Angle Posted PCB Connectors 350 Mount

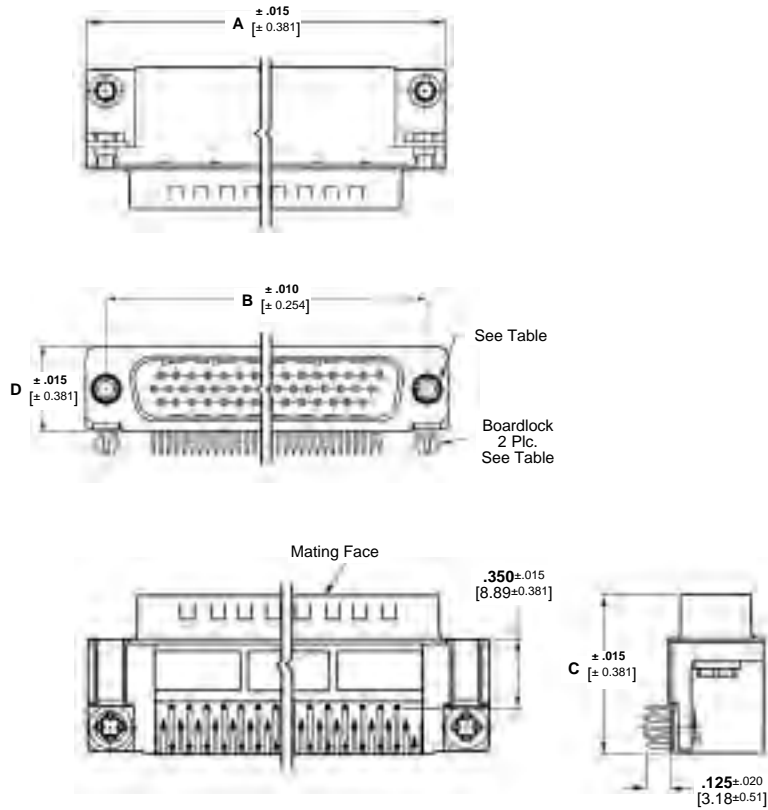
Plug



With Boardlock and Threaded Insert



With Boardlock and Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin or tin-lead plated

Threaded Inserts—Zinc

Female Screwlocks—Zinc

Pin Contacts (Posted)—Copper alloy

Contact Finish—Duplex plated:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with the entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDP-22—pages 1020-1023

Technical Documents:

Product Specification

108-1092

Application Specification

114-40021

Shell Size	No. of Contact Positions	Dimensions				Contacts Finish (Plating Code)	Part Numbers	
		A	B	C	D		Boardlocks	
							Threaded Inserts	Female Screwlocks
1	15	1.222 31.04	.984 24.99	.836 21.23	.494 12.55	A	749767-1	749768-1
2	26	1.550 39.37	1.312 33.33	.836 21.23	.494 12.55	A	749769-1	—
3	44	2.090 53.09	1.852 47.04	.836 21.23	.494 12.55	A	749771-1	—
4	62	2.738 69.55	2.500 63.50	.836 21.23	.494 12.55	A	749639-1	—

- Notes:**
1. All plug connectors are preloaded with size 22 DF posted pin contacts
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.

For complete product information, order Catalog 82068

HD-22 Front Metal-Shell Right-Angle Posted PCB Connectors 350 Mount

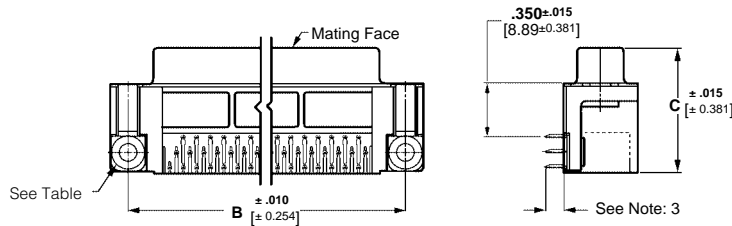
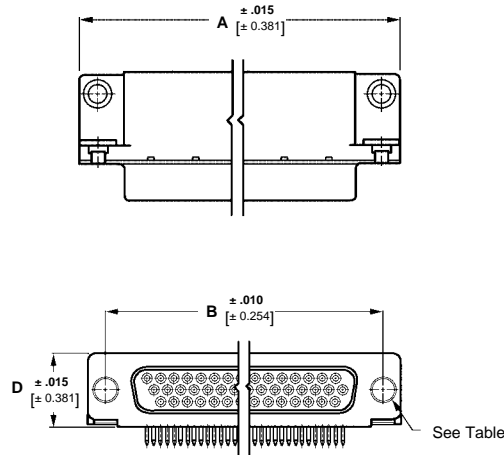
Receptacle



With Boardlock and Threaded Insert



With Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin or tin-lead plated
- Threaded Inserts**—Zinc
- Female Screwlocks**—Zinc
- Socket Contacts (Posted)**—Phosphor bronze
- Contact Finish**—Duplex plated:
 - A**—.00030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin-lead on termination end, with the entire contact nickel underplated

Related Product Data:

Mateable Connectors:
HDP-22—pages 1020-1023

Technical Documents:

- Product Specification**
108-1092
- Application Specification**
114-40021

Shell Size	No. of Contact Positions	Dimensions				Contacts Finish (Plating Code)	Part Numbers		
		A	B	C	D		Boardlocks	Female Screwlocks	.125 [3.18] Dia. Holes Threaded Inserts
1	15	1.222	.984	.836	.494	A	748390-5	748390-6	—
		31.04	24.99	21.23	12.55	B	1-748390-1	1-748390-2	—
						A	3-748390-8	4-748390-2	—
						B	4-748390-1	—	—
2	26	1.550	1.312	.836	.494	A	748481-5	748481-6	1-748481-9
		39.37	33.33	21.23	12.55				
3	44	2.090	1.852	.836	.494	A	748482-5	—	—
		53.09	47.04	21.23	12.55				
4	62	2.738	2.500	.836	.494	A	748394-5	748394-6	—
		69.55	63.50	21.23	12.55				
5	78	2.644	2.406	.936	.605	A	748483-5	748483-6	—
		67.16	61.11	23.77	15.37				

- Notes:**
1. All receptacle connectors are preloaded with size 22 DF posted socket contacts
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Tail Length .125±.020 [3.18±0.51] except Part Nos. 3-748390-8, 4-748390-1 and 4-748390-2 tail length .085±.010 [2.16±2.54]

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 318 Mount

Plug

Post Size—.026 [0.66] Dia.



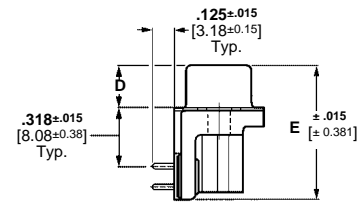
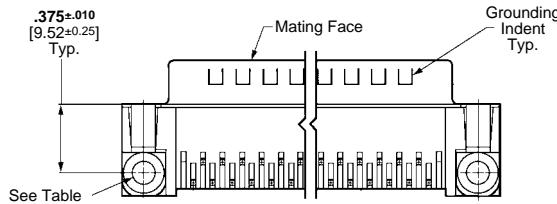
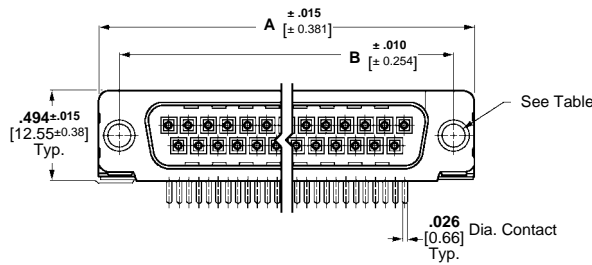
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin-lead plated

- Pin Contacts (Posted)**—Brass, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

- Mateable Connectors:**
 - HDE**—pages 1027-1032
 - HDF**—pages 1034-1038
 - HDP**—page 1042

Technical Documents:

- Product Specification**
108-40025
- Application Specification**
114-40010

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers					
							Without Boardlocks			With Boardlocks		
		A	B	D	E		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	.733 18.62	A	747250-2	747250-4	747250-6	747840-2	747840-4 788792-1*	747840-6 788793-1*
						B	—	747250-3	—	—	747840-3 788792-2*	747840-5 788793-2*
2	15	1.541 39.14	1.312 33.33	.235 5.97	.733 18.62	A	747236-2	747236-4	747236-6	747841-2	747841-4	747841-6
						B	—	747236-3	—	—	747841-3	—
3	25	2.088 53.04	1.852 47.04	.230 5.84	.738 18.75	A	747238-2	747238-4	747238-6	747842-2	747842-4 788794-1*	747842-6 788795-1*
						B	747238-1	747238-3	—	—	747842-3 788794-2*	747842-5
4	37	2.729 69.32	2.500 63.50	.230 5.84	.740 18.80	A	747252-2	747252-4	—	747843-2	747843-4	747843-6
						B	—	—	—	—	747843-3	—

- Notes:**
- All plug connectors are preloaded with size 20 DF posted pin contacts.
 - Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

*SMT Process Compatible Version—Housings are 94V-0 rated, compatible with standard wave, vapor phase, infrared reflow, and convection ovens used in surface mount processing (SMT).

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 318 Mount

Receptacle

Post Size—.026 [0.66] Dia.



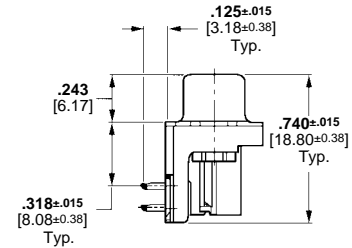
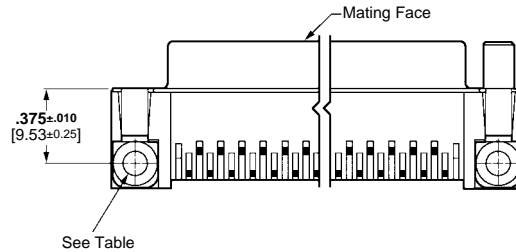
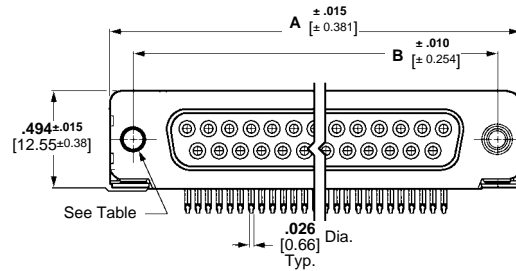
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlocks—Copper alloy, tin-lead plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027-1032

HDF—pages 1034-1038

HDP—page 1042

Technical Documents:

Product Specification
108-40025

Application Specification
114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers					
		A	B		Without Boardlocks			With Boardlocks		
					With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	A	745781-2	745781-4	745781-6 788803-1	747844-2	747844-4 788796-1*	747844-6 788797-1*
				B	—	745781-3	—	—	747844-3 788796-2*	747844-5 788797-2*
2	15	1.541 39.14	1.312 33.33	A	745782-2	745782-4	745782-6	747845-2	747845-4 788798-1*	747845-6 788799-1*
				B	—	—	—	—	747845-3 788798-2*	747845-5
3	25	2.088 53.04	1.852 47.04	A	745783-2	745783-4	745783-6	747846-2	747846-4 788800-1*	747846-6 788801-1*
				B	—	745783-3	745783-5	—	747846-3 788800-2*	747846-5 788801-2*
4	37	2.729 69.32	2.500 63.50	A	—	745784-4	745784-6	—	747847-4 788802-1*	747847-6

- Notes:** 1. All plug connectors are preloaded with size 20 DF posted pin contacts.
2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

*SMT Process Compatible Version—Housings are 94V-0 rated, compatible with standard wave, vapor phase, infrared reflow, and convection ovens used in surface mount processing (SMT).

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 318 Mount

Plug— With Boardlocks



With Threaded Insert

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

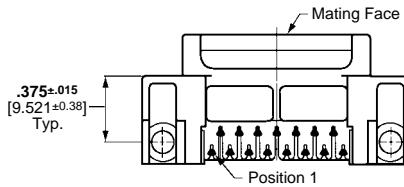
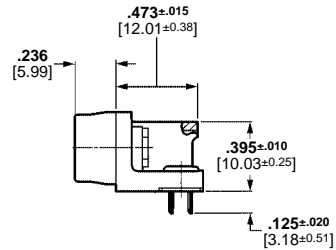
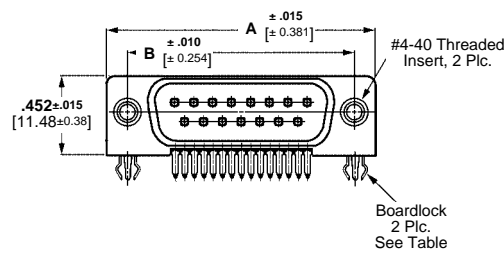
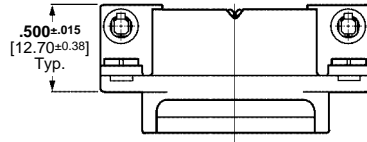
Threaded Inserts—Zinc

Boardlock—Copper alloy, tin-lead plated

Pin Contacts (Posted)—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—.000010 [0.00025] min. gold on mating end, tin-lead on termination end, with entire contact nickel underplated



Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification

108-1226

Application Specification

114-40027

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers With Threaded Inserts	
		A	B		With Boardlocks	Without Boardlocks
2	15	1.550	1.312	A	748904-1	—
		39.37	33.32			
3	25	2.090	1.852	B	—	748865-3
		53.09	47.04			

Consult Tyco Electronics for availability.

Notes: 1. All plug connectors are preloaded with size 20 DF posted pin contacts.

2. Recommended pc board thickness is .062 [1.58].

3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 All Plastic Right-Angle Posted PCB Connectors 318 Mount

Receptacle— With Boardlocks



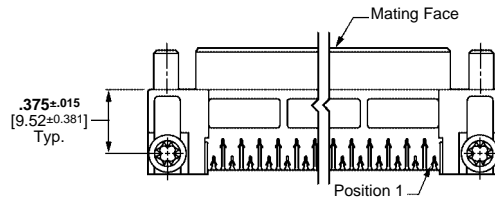
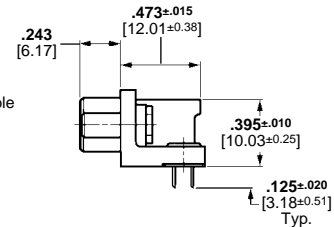
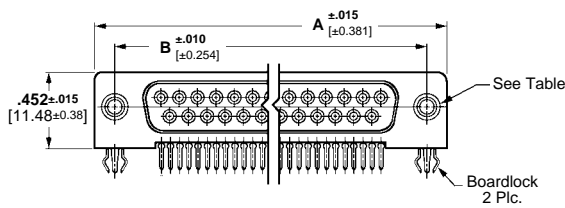
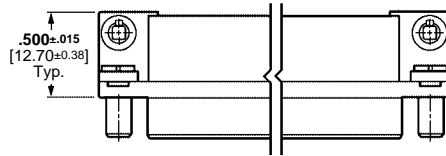
With Threaded Insert



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlock—Copper alloy, tin-lead plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification
108-1226

Application Specification
114-40027

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.222	.984	A	—	748979-1
		31.04	24.99	B	—	748979-2
3	25	2.090	1.852	A	748901-1	748981-1
		53.09	47.04			

Consult Tyco Electronics for availability.

Notes: 1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.

2. Recommended pc board thickness is .062 [1.58].

3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 All-Plastic Right-Angle Posted PCB Connectors 318 Mount

Receptacle— Without Boardlocks

Post Size—.026 [0.66] Dia.



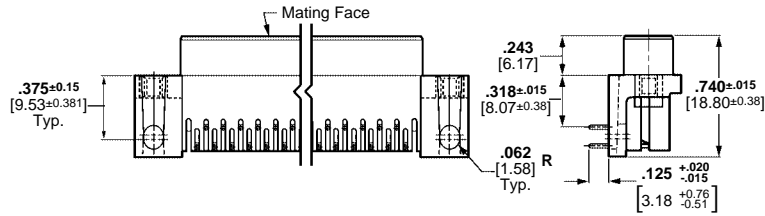
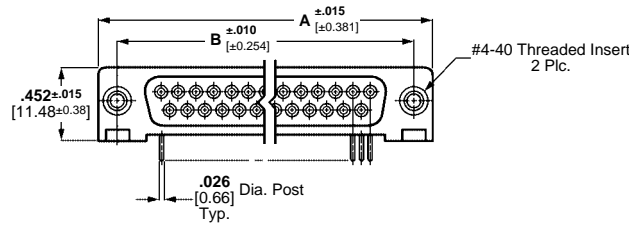
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification

108-40025

Application Specification

114-40015

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes
1	9	1.213	.984	A	745394-2	745395-2	—
		30.81	24.99	B	—	—	745131-1
2	15	1.541	1.312	A	745393-2	745396-2	745271-2
3	25	2.088	1.852	A	745392-2	745397-2	745132-2
		53.04	47.04				

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .093 [2.36].
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Full Metal-Shell Right-Angle Posted PCB Connectors 454 Mount

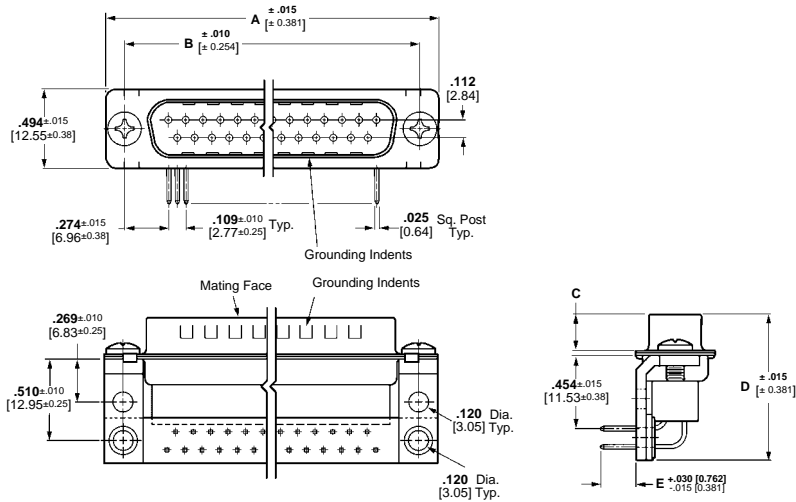
Plug



Plug Without Grounding Indents



Plug With Grounding Indents



Receptacle



Receptacle

Post Size—.025 [0.64] Sq.

Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

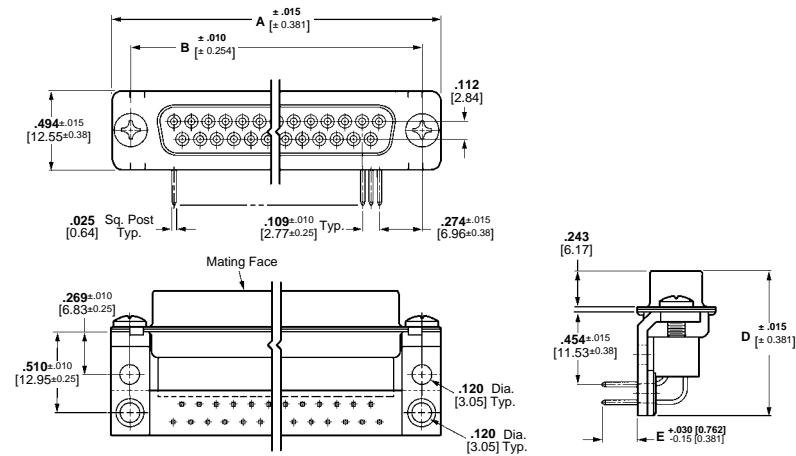
Contacts (Posted):

Pin—Brass
Socket—Phosphor bronze

Contact Plating:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated



Shell Size	No. of Contact Positions	Dimensions					Contact Finish (Plating Code)	Part Numbers	
		A	B	C*	D	E		Plug With Grounding Indents	Receptacle
1	9	1.213	.984	.235	.915	.125	A	745434-8	745438-4
		30.81	24.99	5.97	23.24	3.18	B	—	745438-3
		—	—	—	—	.220	A	—	745438-2
		—	—	—	—	5.59	B	—	745438-1
2	15	1.541	1.312	.235	.915	.125	A	745435-8	745439-4
		39.14	33.33	5.97	23.24	3.18	A	—	745439-2
		—	—	—	—	.220	A	—	745439-1
		—	—	—	—	5.59	B	—	745439-2
3	25	2.088	1.852	.230	.919	.125	A	745436-8	745440-4
		53.04	47.04	5.84	23.34	3.18	B	—	—
		—	—	—	—	.220	A	—	745440-2
		—	—	—	—	5.59	B	745436-3	745440-1
4	37	2.729	2.500	.230	.919	.125	A	745437-8	745441-4
		69.32	63.50	5.84	23.34	3.18	A	—	—
		—	—	—	—	.220	B	745437-3	—
		—	—	—	—	5.59	B	—	—

*Plug only

Notes: 1. All connectors are preloaded with size 20 DF posted contacts; plugs with pin contacts and receptacles with socket contacts.

2. .125 [3.18] post length is recommended for pc board thickness of .093 [2.36] max.; .220 [5.59] post length is recommended for pc board thickness of .125 [3.18] max.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 478 Mount

Plug

Post Size—.026 [0.66] Dia.



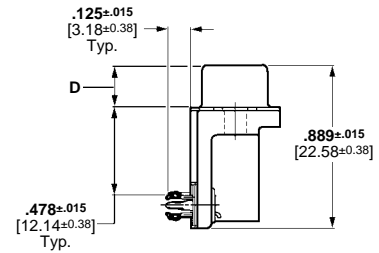
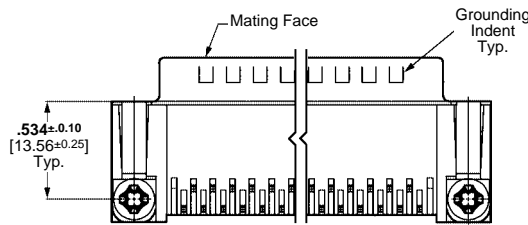
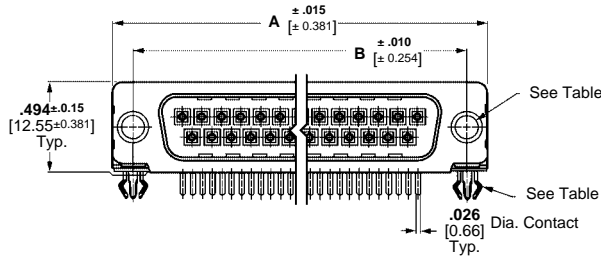
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlocks—Copper alloy, tin-lead plated

Pin Contacts (Posted)—Brass, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027-1032

HDF—pages 1034-1038

HDP—page 1040-1042

Technical Documents:

Product Specification

108-40025

Application Specification

114-40010

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers With Boardlocks	
		A	B	D		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	A	747848-4	—
2	15	1.541 39.14	1.312 33.33	.235 5.97	A	747849-4	—
3	25	2.088 53.04	1.852 47.04	.230 5.84	A	—	747850-6

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 478 Mount

Receptacle

Post Size—.026 [0.66] Dia.



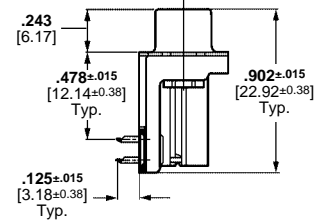
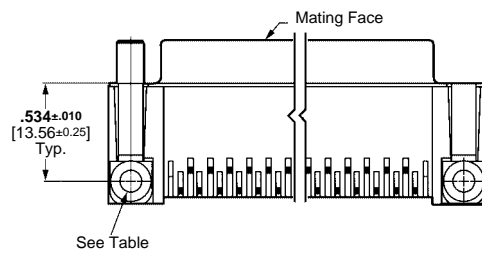
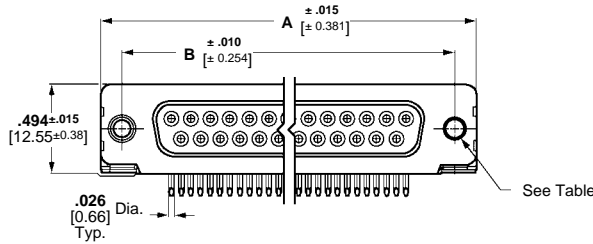
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlocks—Copper alloy, tin-lead plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027-1032

HDF—pages 1034-1038

HDP—page 1040-1042

Technical Documents:

Product Specification

108-40025

Application Specification

114-40010

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		Without Boardlocks	With Boardlocks
1	9	1.213 30.81	.984 24.99	A	747418-4	747852-4
2	15	1.541 39.14	1.312 33.33	A	—	747853-4
3	25	2.088 53.04	1.852 47.04	A	—	747854-4

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Full Metal-Shell Right-Angle Posted PCB Connectors 545 Mount

Plug

Post Size—.025 [0.64] Sq.



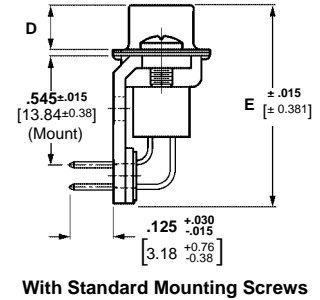
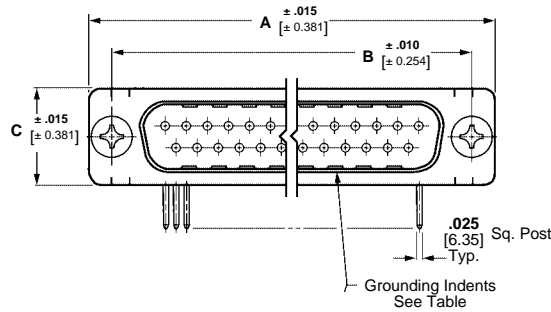
Without Grounding Indents



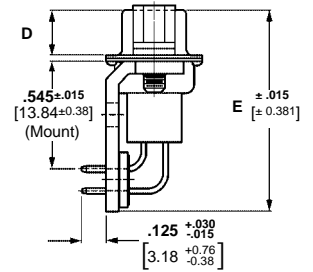
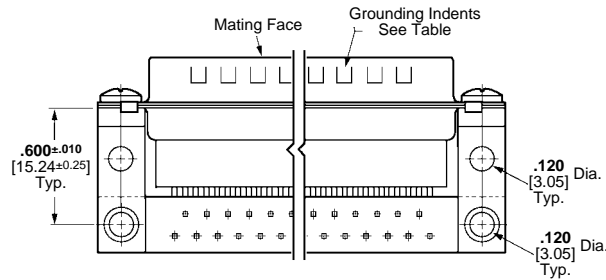
With Grounding Indents



With 4-40 Female Screwlocks



With Standard Mounting Screws



With 4-40 Female Screwlocks

Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Female Screwlock—Steel, zinc plated

Pin Contacts (Posted)—Brass, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

HDP—page 1040

Technical Documents:

Product Specification

108-40025

Application Specification

114-40013

Shell Size	No. of Contact Positions	Dimensions					Contact Finish (Plating Code)	Part Numbers		
		A	B	C	D	E		Without Grounding Indents	With Grounding Indents	
								With Standard Mounting Screws*	With Standard Mounting Screws	With Female Screwlocks
1	9	1.213	.984	.494	.235	1.025	A	745351-2	745351-4	747197-4
		30.81	24.99	12.55	5.99	26.04	B	—	—	—
2	15	1.541	1.312	.494	.235	1.025	A	—	745352-4	—
		39.14	33.33	12.55	5.99	26.04	B	745352-1	—	—
3	25	2.088	1.852	.494	.230	1.029	A	—	745353-4	747022-2
		53.04	47.04	12.55	5.84	26.14	B	745353-1	745353-3	—
4	37	2.729	2.500	.494	.230	1.029	A	—	745354-4	747444-2
		69.32	63.50	12.55	5.84	26.14	B	—	745354-3	—
5	50	2.635	2.406	.605	.230	1.149	A	—	745355-4	747497-4
		66.93	61.11	15.37	5.84	29.19	B	—	—	747497-3

*These plugs can be made available with female screwlocks, consult Tyco Electronics.

Notes: 1. All plugs are preloaded with size 20 DF posted pin contacts.

2. Recommended pc board thickness is .093 [2.36] max.

3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

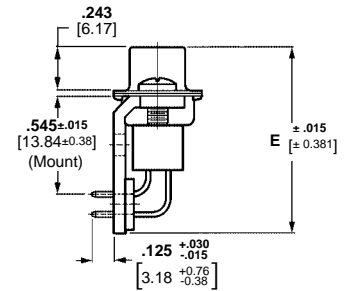
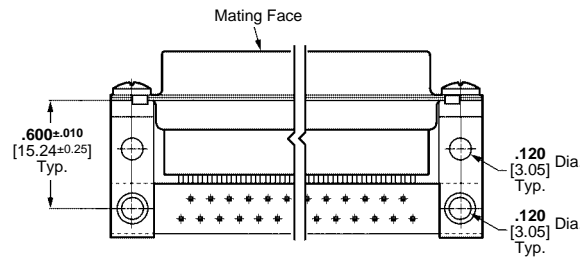
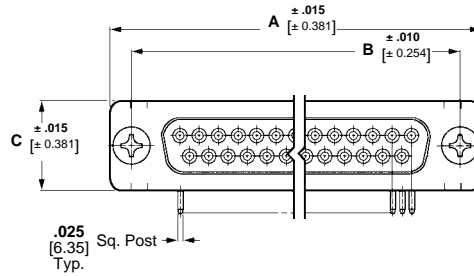
HD-20 Full Metal-Shell Right-Angle Posted PCB Connectors 545 Mount

Receptacle

Post Size—.025 [0.64] Sq.



With 4-40 Female Screwlocks



Material and Finish:

Shell—Steel, tin plated
Insert—94V-0 rated thermoplastic, black

Female Screwlock—Steel, zinc plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

HDP—page 1040-1042

Technical Documents:

Product Specification
108-40025

Application Specification
114-40013

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers	
		A	B	C	E		With Standard Mounting Screws	With Female Screwlocks
1	9	1.213	.984	.494	1.033	A	745112-2	747020-2
		30.81	24.99	12.55	26.24	B	—	747020-1
2	15	1.541	1.312	.494	1.033	A	745113-2	747021-2
		39.14	33.33	12.55	26.24	B	—	—
3	25	2.088	1.852	.494	1.033	A	745114-2	745536-2
		53.04	47.04	12.55	26.24	B	—	745536-1
4	37	2.729	2.500	.494	1.033	A	745115-2	745964-2
		69.32	63.50	12.55	26.24	B	745115-1	—
5	50	2.635	2.406	.605	1.153	A	745116-2	747193-2
		66.93	61.11	15.37	29.29	B	745116-1	747193-1

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .093 [2.36] max.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 590 Mount

Plug

Post Size—.026 [0.66] Dia.



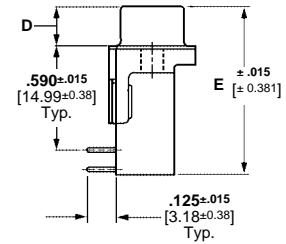
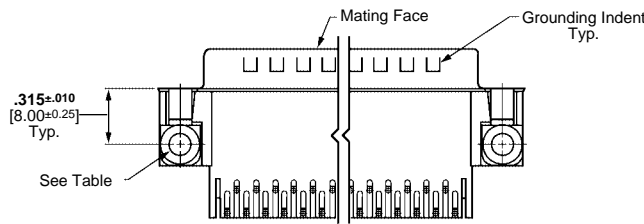
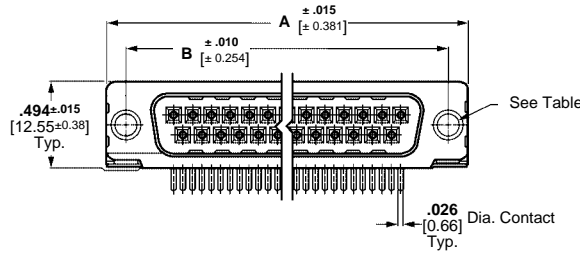
With Grounding Indents and Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

- Front Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Eyelets**—Brass, tin plated
- Threaded Inserts**—Zinc
- Female Screwlock**—Zinc
- Boardlocks**—Copper alloy, tin-lead plated
- Pin Contacts (Posted)**—Brass, duplex plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated
 - B**—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

- Mateable Connectors:**
- HDE**—pages 1027-1032
- HDF**—pages 1034-1038
- HDP**—page 1040-1042

Technical Documents:

- Product Specification**
108-40025
- Application Specification**
114-40010

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers		
		A	B	D	E		Without Boardlocks		With Boardlocks
							With Threaded Inserts	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	.235 5.97	.965 24.51	A	745990-4	747832-4	747832-6
						B	745990-3	747832-3	—
2	15	1.541 39.14	1.312 33.33	.235 5.97	.965 24.51	A	—	747833-4	747833-6
						A	745994-4	747834-4	747834-6
3	25	2.088 53.04	1.852 47.04	.230 5.84	.970 24.64	A	745994-4	747834-4	747834-6
						A	—	747835-4	747835-6
4	37	2.729 69.32	2.500 63.50	.230 5.84	.972 24.69	A	—	747835-4	747835-6

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Right-Angle Posted PCB Connectors 590 Mount

Receptacle

Post Size—.026 [0.66] Dia.



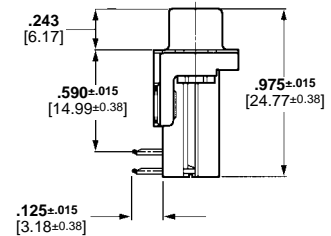
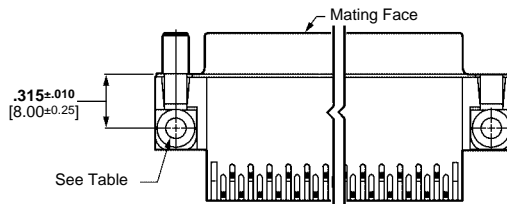
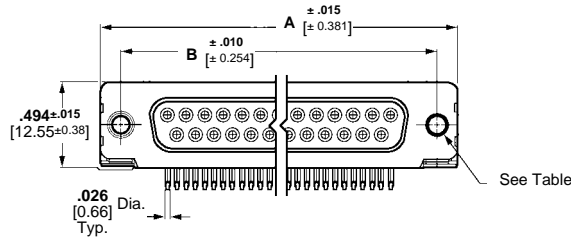
With Grounding Straps



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlocks—Copper alloy, tin-lead plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027-1032

HDF—pages 1034-1038

HDP—page 1040-1042

Technical Documents:

Product Specification

108-40025

Application Specification

114-40010

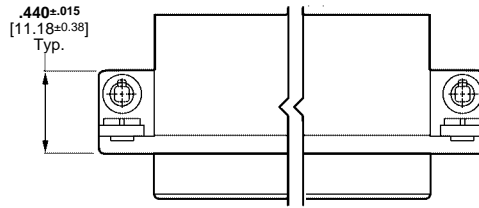
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers			
		A	B		Without Boardlocks		With Boardlocks	
					With Threaded Inserts	With Fixed Female Screwlocks	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213	.984	A	745988-4	745988-6	747836-4	747836-6
		30.81	24.99	B	—	—	747836-3	—
2	15	1.541	1.312	A	745984-4	—	747837-4	—
		39.14	33.33	B	—	—	—	—
3	25	2.088	1.852	A	745992-4	745992-6	747838-4	747838-6
		53.04	47.04	B	745992-3	—	747838-3	—
4	37	2.729	2.500	A	745996-4	—	747839-4	—
		69.32	63.50					

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .062 [1.58] for connectors with boardlocks and .093 [2.36] max. for all others.
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

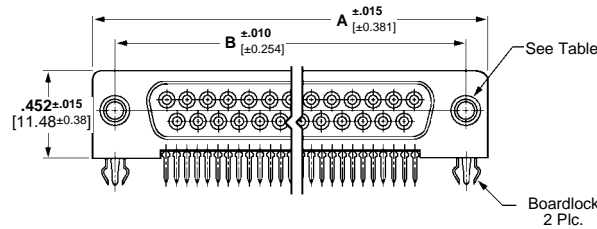
For complete product information, order Catalog 82068

HD-20 All-Plastic Right-Angle Posted PCB Connectors 590 Mount

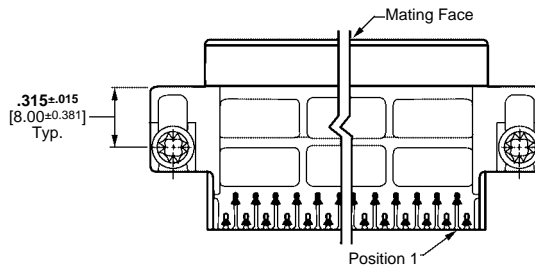
Receptacle— With Boardlocks



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

Female Screwlock—Zinc

Boardlock—Copper alloy, tin-lead plated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification

108-1226

Application Specification

114-40027

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers	
		A	B		With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.213 30.81	.984 24.99	B	748907-2	—
3	25	2.088 53.04	1.852 47.04	A	748909-1	748989-1

- Notes:**
- All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 - Recommended pc board thickness is .062 [1.58].
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female

For complete product information, order Catalog 82068

HD-20 All-Plastic Right-Angle Posted PCB Connectors 590 Mount

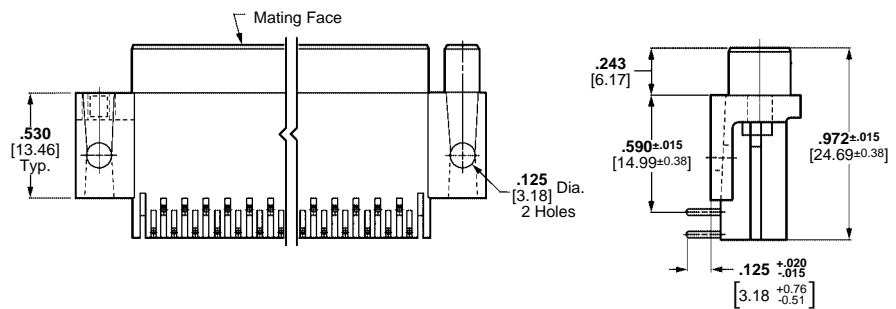
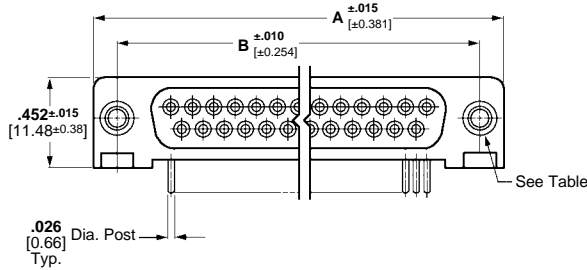
**Receptacle—
Without Boardlocks**
Post Size—.026 [0.66] Dia.



With Threaded Insert



With Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Socket Contacts (Posted)—Phosphor bronze, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification
108-40025

Application Specification
114-40015

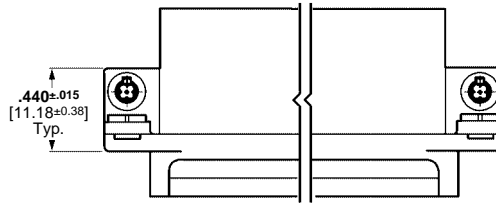
Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes
1	9	1.213	.984	A	747459-4	747459-6	747459-2
		30.81	24.99	B	747459-3	747459-5	747459-1
2	15	1.541	1.312	A	747460-4	748948-1	747460-2
		39.14	33.32	B	747460-3	747460-5	747460-1
3	25	2.088	1.852	A	747461-4	747461-6	747461-2
		53.04	47.04	B	747461-3	747461-5	747461-1
4	37	2.729	2.500	A	747462-4	747462-6	747462-2
		69.32	63.50				

- Notes:**
1. All receptacle connectors are preloaded with size 20 DF posted socket contacts.
 2. Recommended pc board thickness is .093 [2.36] max.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

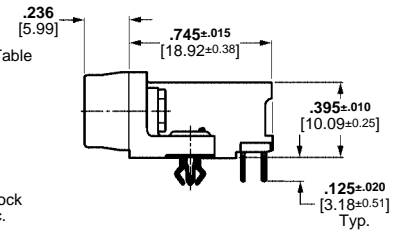
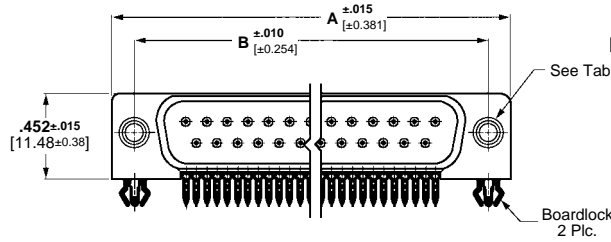
For complete product information, order Catalog 82068

HD-20 All-Plastic Right-Angle Posted PCB Connectors 590 Mount

Plug—With Boardlocks



With Female Screwlocks



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Eyelets—Brass, tin plated

Threaded Inserts—Zinc

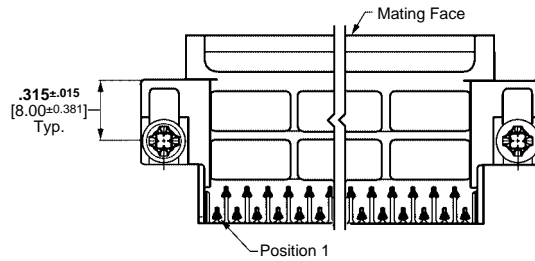
Female Screwlock—Zinc

Boardlock—Copper alloy, tin-lead plated

Pin Contacts (Posted)—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated



Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification
108-1226

Application Specification
114-40027

Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers With Fixed Female Screwlocks
		A	B		
3	25	2.090 53.09	1.852 47.04	B	748993-2

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .062 [1.58].
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 All-Plastic Right-Angle Posted PCB Connectors 590 Mount

Plug—Without Boardlocks

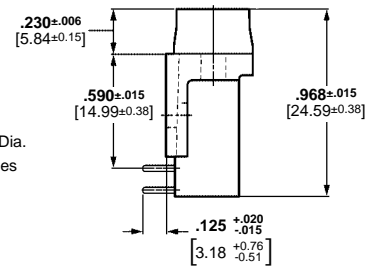
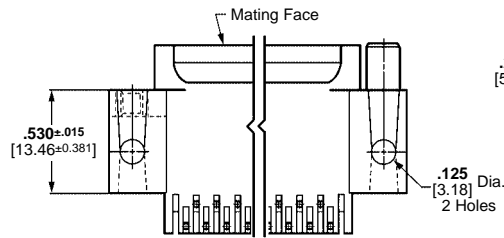
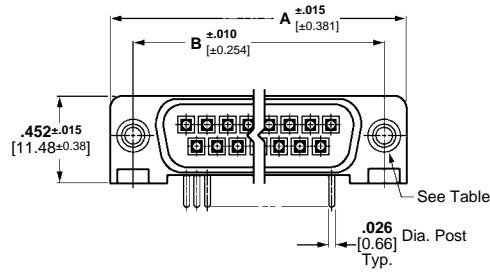
Post Size—.026 [0.66] Dia.



With Threaded Insert



With Female Screwlocks



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Zinc, chromate coated

Female Screwlocks—Zinc, chromate coated

Pin Contacts (Posted)—Brass, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification

108-40025

Application Specification

114-40015



Shell Size	No. of Contact Positions	Dimensions		Contact Finish (Plating Code)	Part Numbers		
		A	B		With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes
1	9	1.213	.984	A	747467-4	—	747467-2
		30.81	24.99	B	—	—	747467-1
2	15	1.541	1.312	A	748872-1	748952-1	747468-2
		39.14	33.32	B	—	747468-5	—
3	25	2.090	1.852	A	748873-1	748953-1	748826-1
		53.09	47.04	B	—	—	748826-2
4	37	2.729	2.500	A	—	—	747470-2
		69.32	63.50				

- Notes:**
1. All plug connectors are preloaded with size 20 DF posted pin contacts.
 2. Recommended pc board thickness is .093 [2.36] max.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

Straight Posted PCB Connectors

Product Facts:

- Flame retardant thermoplastic housing material, UL 94V-0 rated
- HD-20 straight posted connectors are available in 9, 15, 25, 37 and 50 positions (Shell Sizes 1 thru 5)
- HD-20 straight posted connectors in Full Metal-Shell, Front Metal-Shell and All-Plastic versions
- HD-20 connectors with ACTION PIN contacts are available in low, medium and high profiles with integral standoffs
- ACTION PIN contact connectors for both .093 [2.36] and .062 [1.58] min. thick pc board application
- Various straight posted connectors offer a choice of through-holes, 4-40 threaded inserts or 4-40 fixed female screwlocks
- Choice of contact platings
- Integral boardlock feature secures connector to pc board prior to soldering
- Connectors are intermateable with any size 20 or 22 subminiature D connectors dimensionally complying with MIL-C-24308
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 164196 



For complete product information, order Catalog 82068

HD-20 Full Metal-Shell Straight Posted PCB Connectors

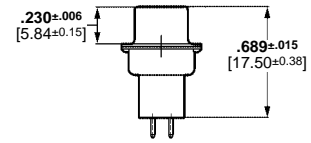
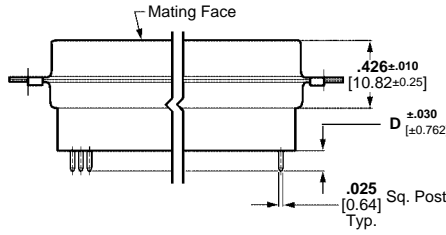
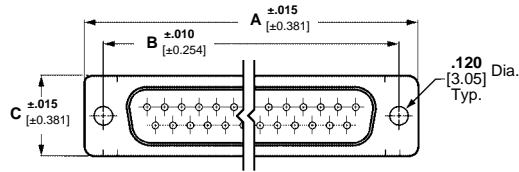
Plug



Without Grounding Indents



With Grounding Indents



Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Pin Contacts (Posted)—Brass, plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

HDP—page 1040-1042

Standoff Bushings—page 1065

Technical Documents:

Product Specification

108-40025

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers		
		A	B	C	D*		Without Grounding Indents	With Grounding Indents	With Clinch Nuts
1	9	1.213 30.81	.984 24.99	.494 12.55	.125 3.18	A	—	745410-1	749014-1
					.188 4.78	B	745182-2	—	—
2	15	1.541 39.14	1.312 33.33	.494 12.55	.125 3.18	A	—	745411-1	—
					.188 4.78	B	745186-2	—	745412-1
3	25	2.088 53.04	1.852 47.04	.494 12.55	.125 3.18	A	—	745412-7	—
					.188 4.78	B	—	745413-1	—
4	37	2.729 69.32	2.500 63.50	.494 12.55	.125 3.18	A	—	745414-1	—
					.188 4.78	B	—	745414-7	—

*.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.58-2.36] max.; .188 [4.78] post length is for recommended pc board thickness of .125 [3.18].

Notes: 1 All plugs are preloaded with size 20 DF posted pin contacts.

2 Special loading of contacts can be arranged upon request.

3 Longer post lengths available, consult Tyco Electronics.

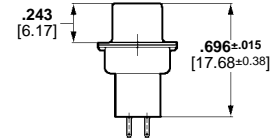
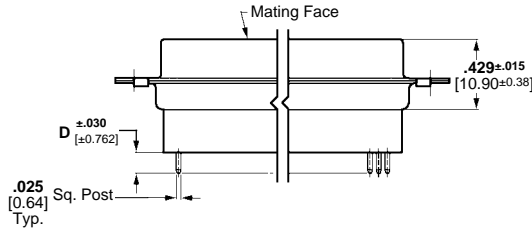
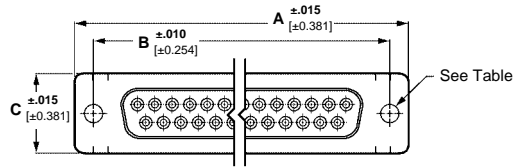
For complete product information, order Catalog 82068

HD-20 Full Metal-Shell Straight Posted PCB Connectors

Receptacle



With Clinch Nuts



Material and Finish:

Shell—Steel, tin plated

Insert—94V-0 rated thermoplastic, black

Clinch Nuts—Steel, zinc plated

Socket Contacts (Posted)—Phosphor bronze, plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

HDP—page 1040-1042

Standoff Bushings—page 1065

Technical Documents:

Product Specification

108-40025

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers	
		A	B	C	D*		With .120 [3.05] Mounting Holes	With Clinch Nuts
1	9	1.213 30.81	.984 24.99	.494 12.55	.125 3.18	A	745183-1	747190-2
					.188 4.78	B	745183-2	747190-1
					.125 3.18	A	745183-7	747190-4
					.188 4.78	B	745183-7	747190-4
2	15	1.541 39.14	1.312 33.33	.494 12.55	.125 3.18	A	745185-1	745820-1
					.188 4.78	B	—	745820-2
					.125 3.18	A	745185-7	745820-7
					.188 4.78	B	745185-7	745820-7
3	25	2.088 53.04	1.852 47.04	.494 12.55	.125 3.18	A	745187-1	745886-1
					.188 4.78	B	—	745886-2
					.125 3.18	A	745187-7	—
					.188 4.78	B	745187-8	—
4	37	2.729 69.32	2.500 63.50	.494 12.55	.125 3.18	A	745189-1	747315-1
					.188 4.78	A	745189-7	—
5	50	2.635 66.93	2.406 61.11	.605 15.37	.125 3.18	A	745191-1	747302-1
					.188 4.78	A	745191-7	—

*.125 [3.18] post length is for recommended pc board thickness of .062-.093 [1.58-2.36] max.; .188 [4.78] post length is for recommended pc board thickness of .093-.125 [2.36-3.18].

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. Special loading of contacts can be arranged upon request.
 3. Longer post lengths available, consult Tyco Electronics.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Straight Posted PCB Connectors

Plug



With Grounding Indents



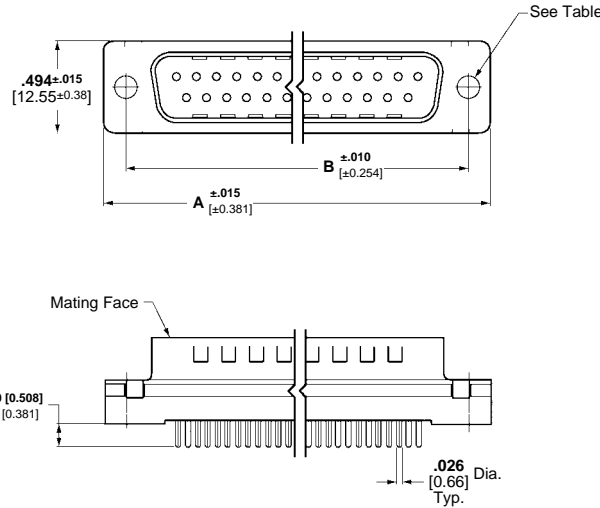
With Threaded Insert



With Fixed Female Screwlock



With Retention



Material and Finish:

- Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Threaded Inserts**—Brass, unplated
- Female Screwlocks**—Zinc
- Pin Contacts (Posted)**—Brass, plated as follows:
 - A**—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
 - B**—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

- Mateable Connectors:**
 - HDE**—pages 1027, 1028
 - HDF**—pages 1034-1038
 - HDP**—page 1040-1042

Technical Documents:

- Product Specification** 108-40025
- Application Specification** 114-40023

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers				
		A	B	C*		With Standard Mounting Holes	With 4-40 Threaded Inserts	With Retention 4-40 Inserts (for .062 [1.58] PCB)	With Fixed Female Screwlocks	With Retention 4-40 Screwlocks (for .062 [1.58] PCB)
1	9	1.213 30.81	.984 24.99	.125 3.18	A	747871-2	747871-8	2-748003-0	1-747871-4	—
				B	—	—	—	1-747871-3	—	
				.170 4.32	A	747871-4	—	—	1-747871-6	—
2	15	1.541 39.14	1.312 33.33	.125 3.18	A	—	747872-8	—	—	748026-1
				.170 4.32	A	747872-4	—	—	1-747872-6	—
3	25	2.090 53.09	1.852 47.04	.125 3.18	A	745968-2	745968-8	2-747704-0	1-745968-4	748027-1
				B	—	745968-7	—	1-745968-3	—	
				.170 4.32	A	745968-4	—	—	1-745968-6	—
B	—	—	—	1-745968-5	—					
4	37	2.732 69.39	2.500 63.50	.125 3.18	A	747375-2	747375-8	—	—	787686-1

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications

- Notes:**
- All plugs are preloaded with size 20 DF posted pin contacts.
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.
 - PC board hole size is $.121 \pm .002$ [3.07 ± 0.0508] for all retention inserts and screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Straight Posted PCB Connectors

Receptacle



With Standard Mounting Holes



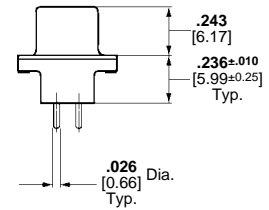
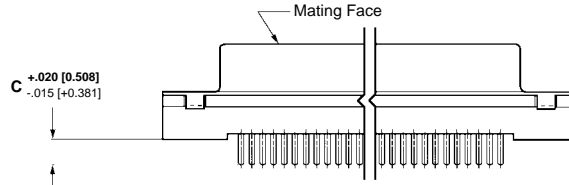
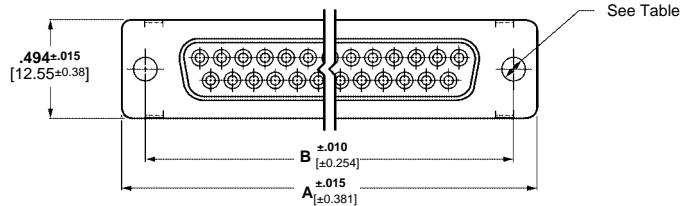
With Threaded Insert



With Fixed Female Screwlock



With Retention



Material and Finish:

- Shell**—Steel, tin plated
- Housing**—94V-0 rated thermoplastic, black
- Threaded Inserts**—Brass, unplated
- Female Screwlocks**—Zinc

Socket Contacts (Posted)—

- Phosphor bronze, plated as follows:
- A**—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated
 - B**—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

- Mateable Connectors:**
- HDE**—pages 1027, 1028
- HDF**—pages 1034-1038
- HDP**—page 1040-1042

Technical Documents:

- Product Specification**
108-40025
- Application Specification**
114-40023

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers				
		A	B	C*		With Standard Mounting Holes	With 4-40 Threaded Inserts	With Retention 4-40 Inserts (for .062 [1.58] PCB)	With Fixed Female Screwlocks	With Retention 4-40 Screwlocks (for .062 [1.58] PCB)
1	9	1.216 30.89	.984 24.99	.125 3.18	A	747150-2	747150-8	2-747706-0	1-747150-4	750678-1
				B	—	747150-7	—	1-747150-3	—	
				.170 4.32	A	747150-4	1-747150-0	—	1-747150-6	—
				B	—	747150-9	—	—	—	
2	15	1.541 39.14	1.312 33.33	.125 3.18	A	747299-2	747299-8	2-747707-0	1-747299-4	787683-1
				B	—	747299-7	—	1-747299-3	—	
				.170 4.32	A	747299-4	1-747299-0	—	1-747299-6	—
				B	—	—	—	—	—	
3	25	2.090 53.09	1.852 47.04	.125 3.18	A	745967-2	745967-8	2-747708-0	1-745967-4	748612-1
				B	—	745967-7	1-747708-9	—	—	
				.170 4.32	A	745967-4	1-745967-0	—	1-745967-6	—
				B	—	—	—	1-745967-5	—	
4	37	2.732 69.39	2.500 63.50	.125 3.18	A	747301-2	747301-8	2-747709-0	1-747301-4	787685-1
				B	—	747301-7	—	—	—	
				.170 4.32	A	—	—	—	1-747301-6	—
				B	—	—	—	—	—	

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications

- Notes:**
- All receptacles are preloaded with size 20 DF posted socket contacts.
 - Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.
 - Pc board hole size is .121±.002 [3.07±0.0508] for all retention inserts and screwlocks.

For complete product information, order Catalog 82068

HD-20 All-Plastic Straight Posted PCB Connectors

Plug



With Standard Mounting Hole



With Threaded Insert



With Fixed Female Screwlock

Material and Finish:

Housing—94V-0 rated thermoplastic, black

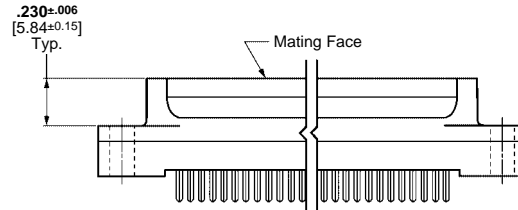
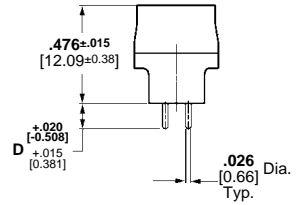
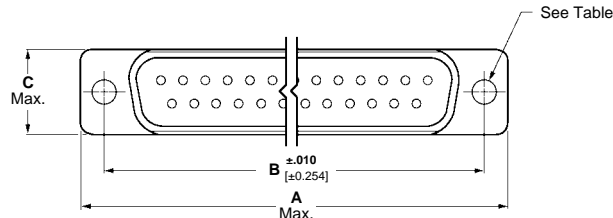
Threaded Inserts—Brass, unplated

Female Screwlocks—Brass, nickel plated

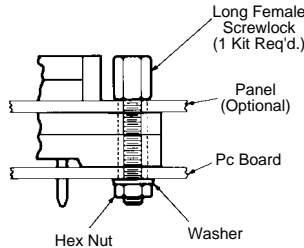
Pin Contacts (Posted)—Brass, plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

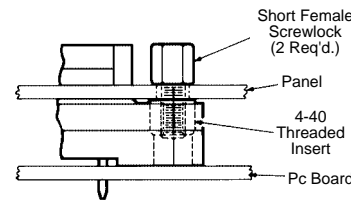
B—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated



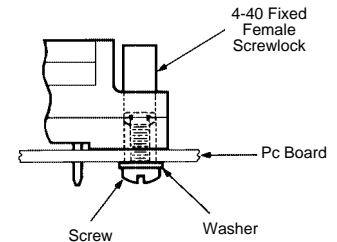
Typical Applications



Application of connector with standard mounting holes using Long Female Screwlock Kit Part Number 207719 (page 1059).



Application of connector with 4-40 Threaded Inserts using Short Female Screwlocks included in Kit Part Number 207952 (page 1059).



Application of connector with 4-40 Fixed Female Screwlocks.

Note: Hardware parts in illustrations above are not included with the connectors listed in this table. They are to be supplied by the Customer or, where applicable, purchased separately from AMP using the part nos. specified.

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification
108-40025

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers		
		A	B	C	D*		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.228 32.72	.984 24.99	.420 10.67	.125	A	208006-2	745051-2	745071-2
					3.18	B	208006-1	745051-1	745071-1
					.170	A	—	745051-4	745071-4
					4.32	B	—	—	—
2	15	1.546 39.27	1.312 33.33	.420 10.67	.125	A	208007-2	745052-2	745072-2
					3.18	B	—	745052-1	745072-1
					.170	A	208007-4	—	745072-4
					4.32	B	—	—	—
3	25	2.095 53.21	1.852 47.04	.420 10.67	.125	A	208008-2	745053-2	745073-2
					3.18	B	208008-1	745053-1	745073-1
					.170	A	208008-4	—	—
					4.32	B	—	—	745073-3
4	37	2.737 69.52	2.500 63.50	.420 10.67	.125	A	—	—	745074-2
					3.18	B	208009-1	—	745074-1
					.170	A	—	745054-4	745074-4
					4.32	B	208009-3	—	—
5	50	2.643 67.13	2.406 61.11	.527 13.39	.125	A	208010-2	—	—
					3.18	B	208010-1	745055-1	—
					.170	A	—	—	—
					4.32	B	—	—	745075-3

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications.

Notes: 1. All plugs are preloaded with size 20 DF posted pin contacts.

2. It is recommended that these connectors be secured with appropriate hardware to a pc board and/or panel.

3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 All-Plastic Straight Posted PCB Connectors

Receptacle



With Standard Mounting Hole



With Threaded Insert



With Fixed Female Screwlock

Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Brass, nickel plated

Socket Contacts (Posted)—Phosphor bronze, plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on termination end, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

Mateable Connectors:

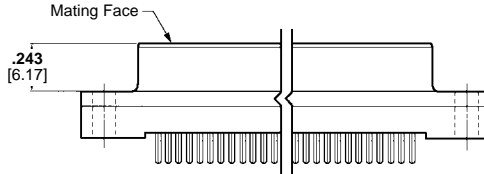
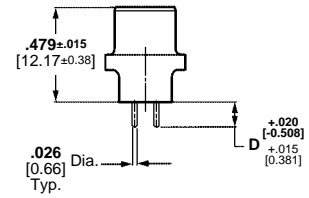
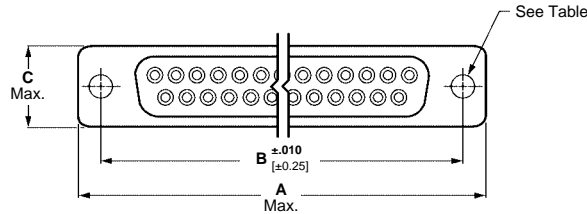
HDE—pages 1027, 1028

HDF—pages 1034-1038

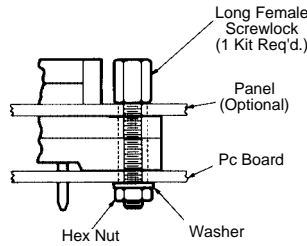
Technical Documents:

Product Specification

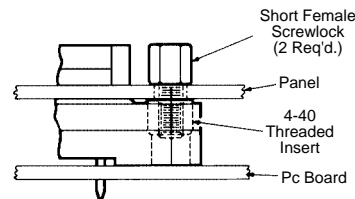
108-40025



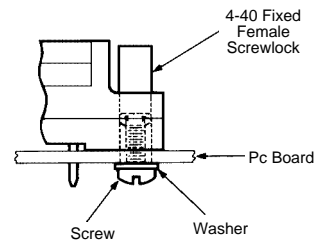
Typical Applications



Application of connector with standard mounting holes using Long Female Screwlock
Kit Part Number 207719
(page 1059).



Application of connector with 4-40 Threaded Inserts using Short Female Screwlocks included in Kit Part Number 207952
(page 1059).



Application of connector with 4-40 Fixed Female Screwlocks.

Note: Hardware parts in illustrations above are not included with the connectors listed in this table. They are to be supplied by the Customer or, where applicable, purchased separately from Tyco Electronics using the part nos. specified.

Shell Size	No. of Contact Positions	Dimensions				Contact Finish (Plating Code)	Part Numbers		
		A	B	C	D*		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks
1	9	1.228 32.72	.984 24.99	.420 10.67	.125	A	207826-4	207841-4	745076-4
					3.18	B	207826-3	207841-3	745076-3
					.170	A	—	—	745076-6
					4.32	B	—	—	745076-5
2	15	1.546 39.27	1.312 33.33	.420 10.67	.125	A	207827-4	745057-4	745077-4
					3.18	B	207827-3	745057-3	745077-3
					.170	A	207827-6	—	745077-6
					4.32	B	—	—	745077-5
3	25	2.095 53.21	1.852 47.04	.420 10.67	.125	A	207828-4	745058-4	745078-4
					3.18	B	207828-3	745058-3	745078-3
					.170	A	207828-6	745058-6	745078-6
					4.32	B	207828-5	—	745078-5
4	37	2.737 69.52	2.500 63.50	.420 10.67	.125	A	207829-4	—	745079-4
					3.18	B	207829-3	745059-3	—
					.170	A	207829-6	—	745079-6
					4.32	B	—	—	—
5	50	2.643 67.13	2.406 61.11	.527 13.39	.125	A	—	—	745080-4
					3.18	B	207830-3	745060-3	745080-3
					.170	A	—	745060-6	745080-6
					4.32	B	—	—	—

*.125 [3.18] post length is recommended for pc board thickness of .062-.093 [1.58-2.36] max.; .170 [4.32] post length is recommended for pc board thickness of .093-.125 [2.36-3.18]; .250 [6.35] post length is for special applications.

- Notes:**
1. All receptacles are preloaded with size 20 DF posted socket contacts.
 2. It is recommended that these connectors be secured with appropriate hardware to a pc board and/or panel.
 3. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Straight Posted PCB Connectors with ACTION PIN Contacts

Receptacle



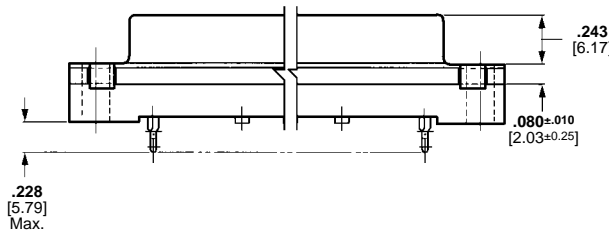
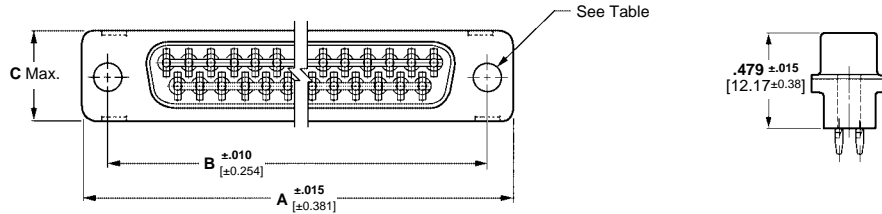
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



For .062 [1.57] min. Thick Pc Boards

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers		Seating Tool Part Numbers
		A	B	C		With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.509 12.93	A	748650-1	—	91164-2
3	25	2.088 53.04	1.852 47.04	.509 12.93	B	—	748688-1	91168-2
5	50	2.635 66.93	2.406 61.11	.620 15.75	A	748485-2	—	91167-2

Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Zinc

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

For .093 [2.36] min. Thick Pc Boards

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers			Seating Tool Part Numbers
		A	B	C		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.509 12.93	A	747089-2	747090-2	747091-2	91164-2
					B	—	—	747091-1	
2	15	1.541 39.14	1.312 33.32	.509 12.93	A	747140-2	747141-2	747142-2	91165-2
					B	—	—	—	
3	25	2.088 53.04	1.852 47.04	.509 12.93	A	745922-2	745925-2	745928-2	91168-2
					B	—	745925-1	745928-1	
4	37	2.729 69.32	2.500 63.50	.509 12.93	A	747713-2	747714-2	747715-2	91166-2
					B	—	747714-1	747715-1	
5	50	2.635 66.93	2.406 61.11	.620 15.75	A	747143-2	747144-2	747145-2	91167-2
					B	—	747144-1	—	

- Notes:**
1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
 2. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

HD-20 Front Metal-Shell Straight Posted PCB Connectors with ACTION PIN Contacts

Plug



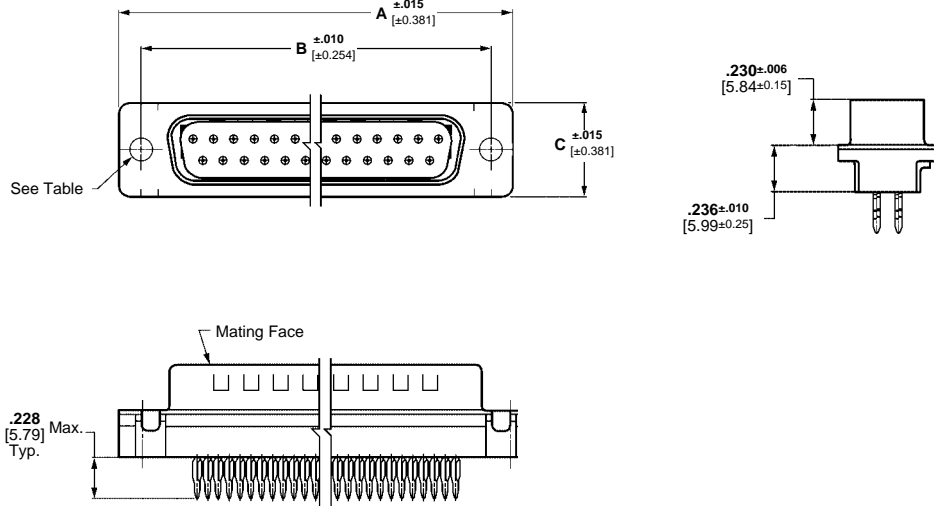
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Front Shell—Steel, tin plated

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Zinc

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

For .093 [2.36] min. Thick Pc Board

Shell Size	No. of Contact Positions	Dimensions			Contact Finish (Plating Code)	Part Numbers			Seating Tool Part Numbers
		A	B	C		With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	
1	9	1.213 30.81	.984 24.99	.494 12.55	A	—	786830-1	787176-1	58274-3
2	15	1.541 39.14	1.312 33.32	.494 12.55	A	—	786831-1	787177-1	58274-6
3	25	2.088 53.04	1.852 47.04	.494 12.55	A	748146-2	748146-4	748146-6	58274-1
4	37	2.732 69.39	2.500 63.50	.494 12.55	A	788458-1	786534-1	750060-1	58274-5
5	50	2.635 66.93	2.406 61.11	.605 15.37	A	748090-2	749892-1	—	58273-1

- Notes:** 1. All plugs are preloaded with straight posted ACTION PIN pin contacts.
2. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

HDP—page 1040

Technical Documents:

Product Specification

108-40014

Application Specification

114-40026

For complete product information, order Catalog 82068

HD-20 All-Plastic Straight Posted PCB Connectors with ACTION PIN Contacts

**Receptacles
(Low and High Profile)**



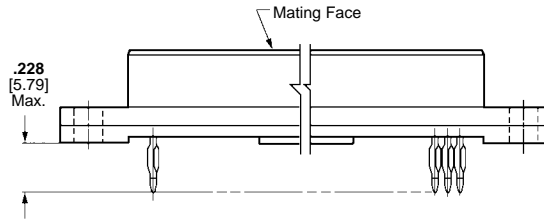
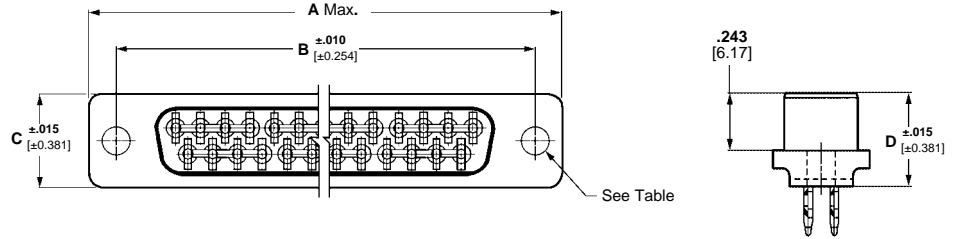
With Standard Mounting Holes



With Threaded Insert



With Fixed Female Screwlock



Material and Finish:

Housing—94V-0 rated thermoplastic, black

Threaded Inserts—Brass, unplated

Female Screwlocks—Brass, nickel plated

ACTION PIN Contacts—Copper alloy, duplex plated as follows:

A—.000030 [0.00076] gold on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

B—Gold flash on mating end, tin-lead on ACTION PIN post surface, with entire contact .000050 [0.00127] (min.) nickel underplated

Related Product Data:

Mateable Connectors:

HDE—pages 1027, 1028

HDF—pages 1034-1038

Technical Documents:

Product Specification

108-40014

Shell Size	No. of Contact Positions	Dimensions				Profile	Contact Finish (Plating Code)	Part Numbers					Seating Tool Part Numbers
		A	B	C	D			For .093 [2.36] (min.) Thick Pc Boards			For .062 [1.57] (min.) Thick PC Boards		
								With Standard Mounting Holes	With Threaded Inserts	With Fixed Female Screwlocks	With Standard Mounting Holes	With Threaded Inserts	
1	9	1.221 31.01	.984 24.99	.410 10.41	.395 10.03	Low	A	—	—	745454-2	—	—	91164-1
					.695 17.65	High	A	—	745463-2	745455-2	—	—	91164-3
2	15	1.546 39.27	1.312 33.32	.410 10.41	.395 10.03	Low	A	—	—	745456-2	—	—	91165-1
					.695 17.65	High	A	—	—	—	745612-2	91165-3	
3	25	2.095 53.21	1.852 47.04	.410 10.41	.395 10.03	Low	A	208069-2	—	745458-2	745588-2	—	91168-1
					.695 17.65	High	A	—	745458-1	—	—	—	91168-1
					.395 10.03	Low	B	—	745465-2	745031-2	—	—	91168-3
					.695 17.65	High	B	208089-1	—	745031-1	—	—	—
4	37	2.737 69.52	2.500 63.50	.410 10.41	.395 10.03	Low	A	745337-2	—	745459-2	745589-2	—	91166-1
					.695 17.65	High	B	745337-1	—	—	—	745599-2	—
5	50	2.643 67.13	2.406 61.11	.517 13.13	.395 10.03	Low	A	—	—	745461-2	—	—	91167-1

- Notes:** 1. All receptacles are preloaded with straight posted ACTION PIN socket contacts.
2. Male screw retainers (page 1058) are used as mating hardware for connectors with 4-40 female screwlocks.

For complete product information, order Catalog 82068

Features

- Military qualified connectors conform to the latest amendments of MIL-C-24308
- MIL-C-39029 contacts offer reliability and economies of high speed termination by automatic machine
- Choice of sizes—Size 1 through 5 for Series 109, standard density with 9, 15, 25, 37 and 50 contacts; Size 1 through 6 for Series 90, high density with 15, 26, 44, 62, 78 and 104 contacts
- Series 109 standard density connectors are available with cavities for power or coaxial contacts mixed with size 20 signal contacts
- Right-angle and straight PC board connectors in Series 109, standard density
- Preloaded, straight-posted connectors available in Series 90, high density
- Preloaded, solder cup connectors available in Series 109, standard density



Connectors for crimp, snap-in contacts are available in both series.



Straight posted versions available in both (Series 109) standard density and (Series 90) high density connectors.



Coax or power contacts can be mixed with signal contacts.



Right-angle connectors board mount for Series 109, standard density connections.



A broad range of accessories accommodate many applications.

Standard Density Connectors

Crimp, Series 109

Material and Finish:

Shell—Steel, cadmium plated

Insert—Approved material per MIL-C-24308

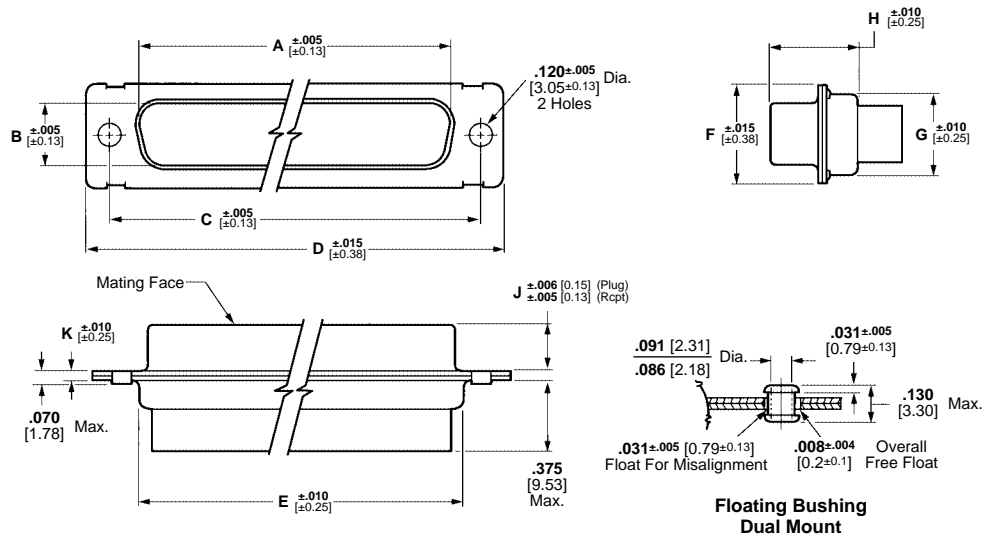
Retention Clips—Stainless steel

Related Product Data:

Contacts—page 1102

Attention: Connector marking

Connector marking may differ from package marking. All connectors marked per MIL-C-24308.



Series 109 Plugs per MIL-C-24308

No. of Contact Positions (Shell Size)	Dimensions										Standard Mount		Floating Bushing Mount	
	A ¹	B ¹	C	D	E	F	G	H	J	K	Military Part Numbers M24308/	AMP Part Numbers	Military Part Numbers M24308/	AMP Part Numbers
9 (1)	.666 16.92	.329 8.36	.984 24.99	1.213 30.81	.759 19.28	.494 12.55	.422 10.72	.422 10.72	.235 5.97	.030 0.76	4-259F	205162-1	4-324F	205412-1
15 (2)	.994 25.25	.329 8.36	1.312 33.32	1.541 39.14	1.083 27.51	.494 12.55	.422 10.72	.422 10.72	.235 5.97	.030 0.76	4-260F	205164-1	4-325F	205408-1
25 (3)	1.534 38.96	.329 8.36	1.852 47.04	2.088 53.04	1.625 41.3	.494 12.55	.422 10.72	.426 10.82	.230 5.84	.039 0.99	4-261F	205166-1	4-326F	205413-1
37 (4)	2.182 55.42	.329 8.36	2.500 63.5	2.729 69.32	2.272 57.71	.494 12.55	.422 10.72	.426 10.82	.230 5.84	.039 0.99	4-262F	205168-1	4-327F	205414-1
50 (5)	2.079 52.81	.441 11.2	2.406 61.11	2.635 66.93	2.178 55.32	.605 15.37	.534 13.56	.426 10.82	.230 5.84	.039 0.99	4-263F	205170-1	4-328F	205415-1

¹ Inside dimension

Series 109 Receptacles per MIL-C-24308

No. of Contact Positions (Shell Size)	Dimensions										Standard Mount		Floating Bushing Mount	
	A ¹	B ¹	C	D	E	F	G	H	J	K	Military Part Numbers M24308/	AMP Part Numbers	Military Part Numbers M24308/	AMP Part Numbers
9 (1)	.643 16.33	.311 7.9	.984 24.99	1.213 30.81	.759 19.28	.494 12.55	.422 10.72	.429 10.9	.243 6.17	.030 0.76	2-281F	205161-1	2-292F	205416-1
15 (2)	.971 24.66	.311 7.9	1.312 33.32	1.541 39.14	1.083 27.51	.494 12.55	.422 10.72	.429 10.9	.243 6.17	.030 0.76	2-282F	205163-1	2-293F	205417-1
25 (3)	1.511 38.38	.311 7.9	1.852 47.04	2.088 53.04	1.625 41.3	.494 12.55	.422 10.72	.429 10.9	.243 6.17	.039 0.99	2-283F	205165-1	2-294F	205418-1
37 (4)	2.159 54.84	.311 7.9	2.500 63.5	2.729 69.32	2.272 57.71	.494 12.55	.422 10.72	.429 10.9	.243 6.17	.039 0.99	2-284F	205167-1	2-295F	205419-1
50 (5)	2.064 52.43	.423 10.74	2.406 61.11	2.635 66.93	2.178 55.32	.605 15.37	.534 13.56	.429 10.9	.243 6.17	.039 0.99	2-285F	205169-1	2-296F	205420-1

¹ Outside dimension

Notes: 1. Size 20 contacts supplied with connectors are loose piece.

2. "F" is stamped on connectors following M24308 Part Number as required. "F" designates cadmium shell plating.

Standard Density Connectors

Straight PCB, Series 109

Material and Finish:

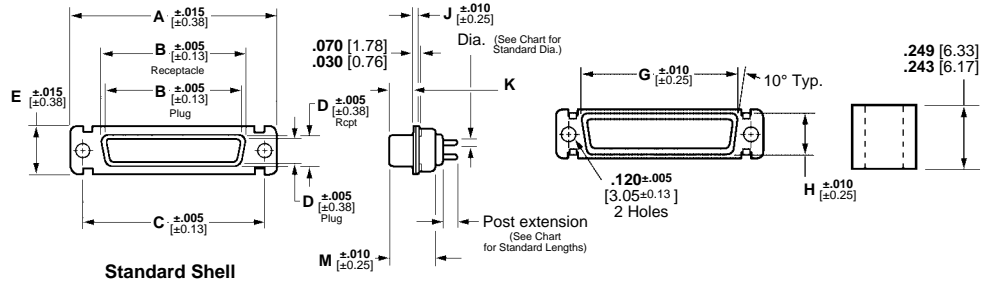
Shell—Steel, cadmium plated

Insert—Approved material per MIL-C-24308

Contact—Copper alloy plated gold over nickel underplate

Socket body: .000050 [0.00127] min. gold over .000050 [0.00127] min. nickel
Mating area: .000050 [0.00127] min. gold over .000050 [0.00127] min. nickel

Spacer—Aluminum alloy, Iridite finish



MS Shell Size	Connector Style	Dimensions									
		A	B	C	D	E	G	H	J	K	M
1	Plug	1.213 30.81	.666 16.92	.984 24.99	.329 8.36	.494 12.55	.759 19.28	.422 10.72	.030 0.76	.238/.229 6.04/5.81	.422 10.72
	Receptacle	1.213 30.81	.643 16.33	.984 24.99	.311 7.90	.494 12.55	.759 19.28	.422 10.72	.030 0.76	.248/.238 6.29/6.04	.429 10.90
2	Plug	1.541 39.14	.994 25.25	1.312 33.32	.329 8.36	.494 12.55	1.083 27.51	.422 10.72	.030 0.76	.238/.229 6.04/5.81	.422 10.72
	Receptacle	1.541 39.14	.971 24.66	1.312 33.32	.311 7.90	.494 12.55	1.083 27.51	.422 10.72	.030 0.76	.248/.238 6.29/6.04	.429 10.90
3	Plug	2.088 53.04	1.534 38.96	1.852 47.04	.329 8.36	.494 12.55	1.625 41.28	.422 10.72	.039 0.99	.236/.224 5.99/5.68	.426 10.82
	Receptacle	2.088 53.04	1.511 38.38	1.852 47.04	.311 7.90	.494 12.55	1.625 41.28	.422 10.72	.030 0.76	.248/.238 6.29/6.04	.429 10.90
4	Plug	2.729 69.32	2.182 55.42	2.500 63.5	.329 8.36	.494 12.55	2.272 57.71	.422 10.72	.039 0.99	.236/.224 5.99/5.68	.426 10.82
	Receptacle	2.729 69.32	2.159 54.84	2.500 63.5	.311 7.90	.494 12.55	2.272 57.71	.422 10.72	.030 0.76	.248/.238 6.29/6.04	.429 10.90
5	Plug	2.635 66.93	2.079 52.81	2.406 61.11	.441 11.20	.605 15.37	2.178 55.32	.534 13.56	.039 0.99	.236/.224 5.99/5.68	.426 10.82
	Receptacle	2.635 66.93	2.064 52.43	2.406 61.11	.423 10.74	.605 15.37	2.178 55.32	.534 13.55	.030 0.76	.248/.238 6.29/6.04	.429 10.90

Receptacle Assemblies

Shell Size	No. Positions	Post Dia.	Post Ext. $\pm .020$	Military Part Numbers M24308/	AMP Part Numbers
1	9	.030 0.76	.156 3.96	23-1F	443975-1
2	15	.030 0.76	.156 3.96	23-2F	443975-2
3	25	.030 0.76	.156 3.96	23-3F	443975-3
4	37	.030 0.76	.156 3.96	23-4F	443975-4
5	50	.030 0.76	.156 3.96	23-5F	443975-5
1	9	.030 0.76	.188 4.78	23-7F	443976-1
2	15	.030 0.76	.188 4.78	23-8F	443976-2
3	25	.030 0.76	.188 4.78	23-9F	443976-3
4	37	.030 0.76	.188 4.78	23-10F	443976-4
5	50	.030 0.76	.188 4.78	23-11F	443976-5
1	9	.040 1.02	.156 3.96	23-13F	443977-1
2	15	.040 1.02	.156 3.96	23-14F	443977-2
3	25	.040 1.02	.156 3.96	23-15F	443977-3
4	37	.040 1.02	.156 3.96	23-16F	443977-4
5	50	.040 1.02	.156 3.96	23-17F	443977-5
1	9	.040 1.02	.188 4.78	23-19F	443978-1
2	15	.040 1.02	.188 4.78	23-20F	443978-2
3	25	.040 1.02	.188 4.78	23-21F	443978-3
4	37	.040 1.02	.188 4.78	23-22F	443978-4
5	50	.040 1.02	.188 4.78	23-23F	443978-5

Plug Assemblies

Shell Size	No. Positions	Post Dia.	Post Ext. $\pm .020$	Military Part Numbers M24308/	AMP Part Numbers
1	9	.030 0.76	.156 3.96	24-1F	1218124-1
2	15	.030 0.76	.156 3.96	24-2F	1218124-2
3	25	.030 0.76	.156 3.96	24-3F	1218124-3
4	37	.030 0.76	.156 3.96	24-4F	1218124-4
5	50	.030 0.76	.156 3.96	24-5F	1218124-5
1	9	.030 0.76	.188 4.78	24-7F	1218125-1
2	15	.030 0.76	.188 4.78	24-8F	1218125-2
3	25	.030 0.76	.188 4.78	24-9F	1218125-3
4	37	.030 0.76	.188 4.78	24-10F	1218125-4
5	50	.030 0.76	.188 4.78	24-11F	1218125-5
1	9	.040 1.02	.156 3.96	24-13F	1218126-1
2	15	.040 1.02	.156 3.96	24-14F	1218126-2
3	25	.040 1.02	.156 3.96	24-15F	1218126-3
4	37	.040 1.02	.156 3.96	24-16F	1218126-4
5	50	.040 1.02	.156 3.96	24-17F	1218126-5
1	9	.040 1.02	.188 4.78	24-19F	1218127-1
2	15	.040 1.02	.188 4.78	24-20F	1218127-2
3	25	.040 1.02	.188 4.78	24-21F	1218127-3
4	37	.040 1.02	.188 4.78	24-22F	1218127-4
5	50	.040 1.02	.188 4.78	24-23F	1218127-5

Standard Density Connectors

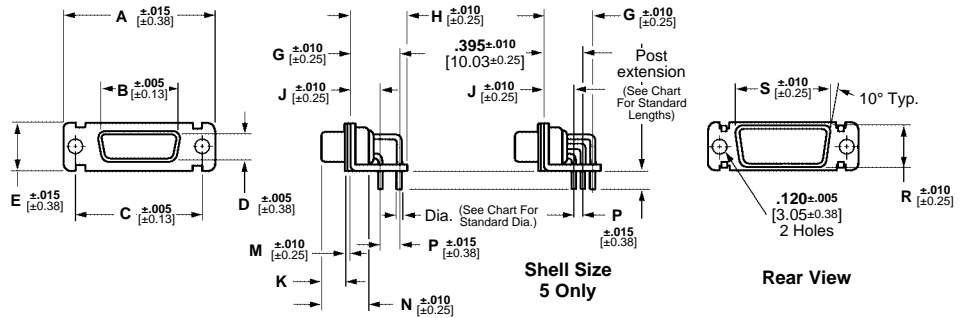
Right-Angle, PCB Plugs, Series 109

Material and Finish:

Shell—Steel, cadmium plated

Insert and Post Spacer—Approved material per MIL-C-24308

Contact—Copper alloy plated gold .000050 [0.00127] min. over nickel underplate .000050 [0.00127] min.



MS Shell Size	Connector Style	Dimensions													
		A	B	C	D	E	G	H	J	K	M	N	P	R	S
1	Plug	1.213	.666	.984	.329	.494	.395	.484	.283	.238/.229	.030	.422	.112	.422	.759
		30.81	16.92	24.99	8.36	12.55	10.03	12.29	7.19	6.04/5.81	0.76	10.72	2.84	10.72	19.28
2	Plug	1.541	.994	1.312	.329	.494	.395	.484	.283	.238/.229	.030	.422	.112	.422	1.083
		39.14	25.25	33.33	8.36	12.55	10.03	12.29	7.19	6.04/5.81	0.76	10.72	2.84	10.72	27.51
3	Plug	2.088	1.534	1.852	.329	.494	.395	.484	.283	.236/.224	.039	.426	.112	.422	1.625
		53.04	38.96	47.04	8.36	12.55	10.03	12.29	7.19	5.99/5.68	0.99	10.82	2.84	10.72	29.59
4	Plug	2.729	2.182	2.500	.329	.494	.395	.484	.283	.236/.224	.039	.426	.112	.422	2.272
		69.32	55.42	63.5	8.36	12.55	10.03	12.29	7.19	5.99/5.68	0.99	10.82	2.84	10.72	57.71
5	Plug	2.635	2.079	2.406	.441	.605	.507	.594	.283	.236/.224	.039	.426	.112	.534	2.178
		66.93	52.81	61.11	10.44	15.37	12.88	15.09	7.19	5.99/5.68	0.99	10.82	2.84	13.56	55.32

Plug Assemblies

Shell Size	No. Positions	Post Dia.	Post Ext. ±.020	Military Part Numbers M24308/	AMP Part Numbers
1	9	.030 0.76	.125 3.18	24-25F	1218440-1
2	15	.030 0.76	.125 3.18	24-26F	1218440-2
3	25	.030 0.76	.125 3.18	24-27F	1218440-3
4	37	.030 0.76	.125 3.18	24-28F	1218440-4
5	50	.030 0.76	.125 3.18	24-29F	1218440-5
1	9	.030 0.76	.156 3.96	24-31F	1218441-1
2	15	.030 0.76	.156 3.96	24-32F	1218441-2
3	25	.030 0.76	.156 3.96	24-33F	1218441-3
4	37	.030 0.76	.156 3.96	24-34F	1218441-4
5	50	.030 0.76	.156 3.96	24-35F	1218441-5
1	9	.040 1.02	.125 3.18	24-37F	1218442-1
2	15	.040 1.02	.125 3.18	24-38F	1218442-2
3	25	.040 1.02	.125 3.18	24-39F	1218442-3
4	37	.040 1.02	.125 3.18	24-40F	1218442-4
5	50	.040 1.02	.125 3.18	24-41F	1218442-5

Plug Assemblies

Shell Size	No. Positions	Post Dia.	Post Ext. ±.020	Military Part Numbers M24308/	AMP Part Numbers
1	9	.040 1.02	.156 3.96	24-43F	1218443-1
2	15	.040 1.02	.156 3.96	24-44F	1218443-2
3	25	.040 1.02	.156 3.96	24-45F	1218443-3
4	37	.040 1.02	.156 3.96	24-46F	1218443-4
5	50	.040 1.02	.156 3.96	24-47F	1218443-5
1	9	.030 0.76	.188 4.78	24-49F	1218444-1
2	15	.030 0.76	.188 4.78	24-50F	1218444-2
3	25	.030 0.76	.188 4.78	24-51F	1218444-3
4	37	.030 0.76	.188 4.78	24-52F	1218444-4
5	50	.030 0.76	.188 4.78	24-53F	1218444-5
1	9	.040 1.02	.188 4.78	24-55F	1218445-1
2	15	.040 1.02	.188 4.78	24-56F	1218445-2
3	25	.040 1.02	.188 4.78	24-57F	1218445-3
4	37	.040 1.02	.188 4.78	24-58F	1218445-4
5	50	.040 1.02	.188 4.78	24-59F	1218445-5

Note: The suffix "F" on M24308 Part Numbers designates cadmium shell plating.

Standard Density Connectors

Right-Angle, PCB Receptacles, Series 109

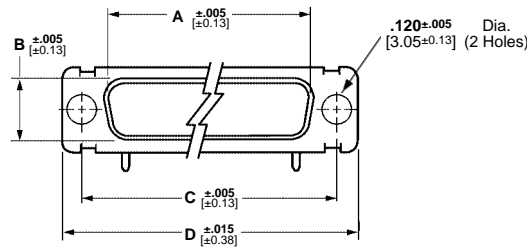
Material and Finish:

Shell—Steel, cadmium plated

Insert and Post Spacer: Approved material per MIL-C-24308

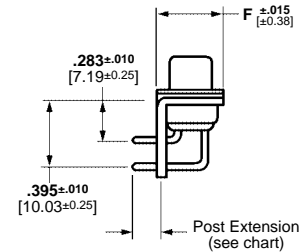
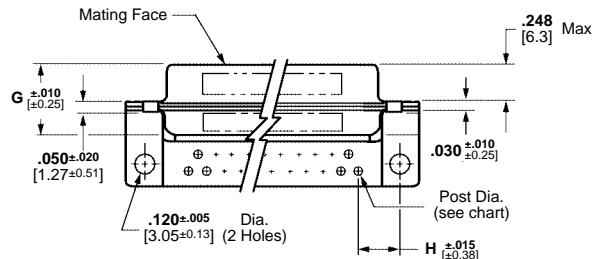
Contacts:

Socket Body - copper alloy with gold .000050 [0.00127] min. plate over nickel underplate .000050 [0.00127] min. Mating area: Copper alloy with gold plate .000050 [0.00127] min. over nickel underplate .000050 [0.00127] min.

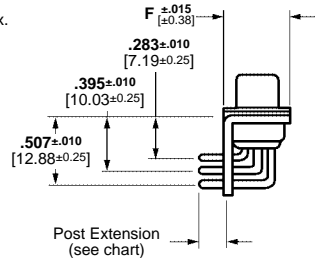
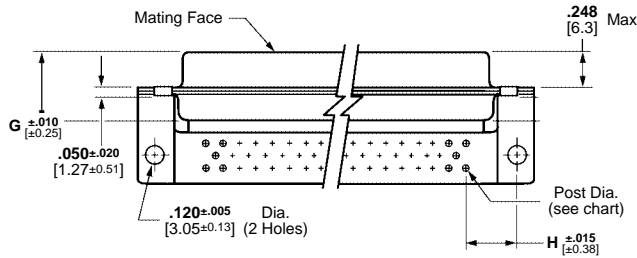


Note: for lettered dimensions see chart on page 1098.

9, 15, 25 and 37 Positions



50 Positions



Plug Assemblies

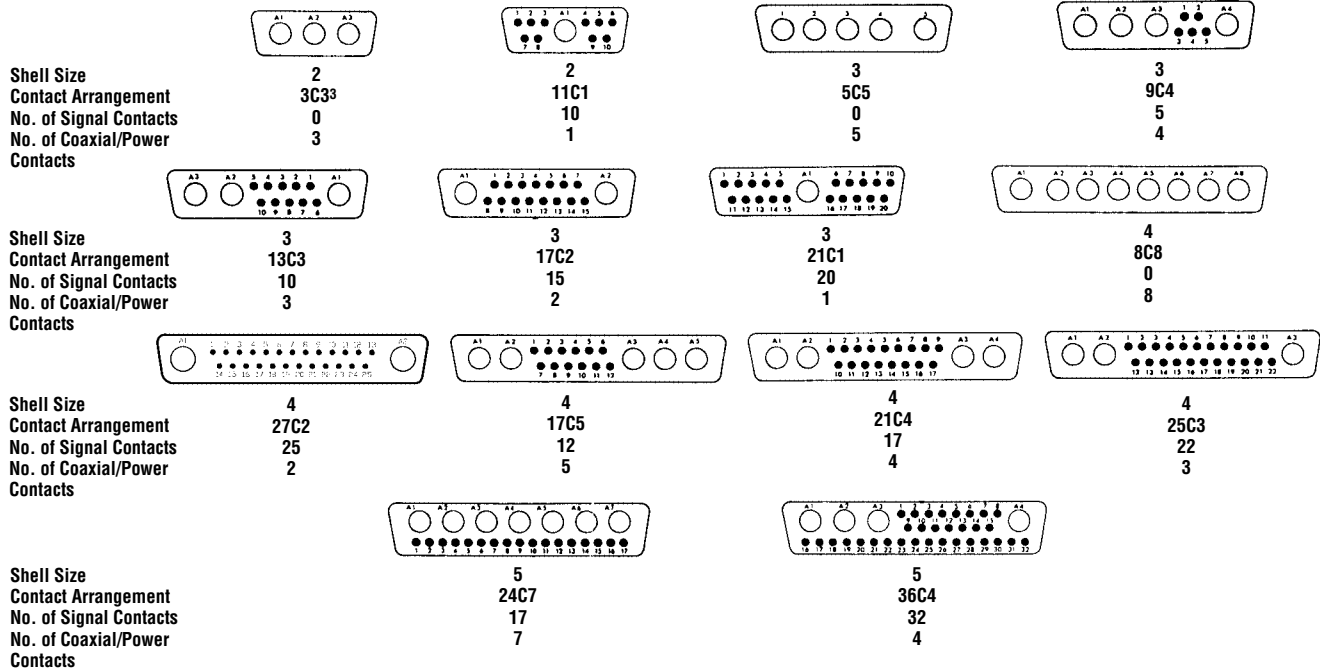
Shell Size	No. Positions	Post Dia.	Post Ext. ±.020	Military Part Numbers M24308/	AMP Part Numbers
1	9	.030 0.76	.125 3.18	23-25F	1218434-1
2	15	.030 0.76	.125 3.18	23-26F	1218434-2
3	25	.030 0.76	.125 3.18	23-27F	1218434-3
4	37	.030 0.76	.125 3.18	23-28F	1218434-4
5	50	.030 0.76	.125 3.18	23-29F	1218434-5
1	9	.030 0.76	.156 3.96	23-31F	1218408-1
2	15	.030 0.76	.156 3.96	23-32F	1218408-2
3	25	.030 0.76	.156 3.96	23-33F	1218408-3
4	37	.030 0.76	.156 3.96	23-34F	1218408-4
5	50	.030 0.76	.156 3.96	23-35F	1218408-5
1	9	.040 1.02	.125 3.18	23-37F	1218435-1
2	15	.040 1.02	.125 3.18	23-38F	1218435-2
3	25	.040 1.02	.125 3.18	23-39F	1218435-3
4	37	.040 1.02	.125 3.18	23-40F	1218435-4
5	50	.040 1.02	.125 3.18	23-41F	1218435-5

Receptacle Assemblies

Shell Size	No. Positions	Post Dia.	Post Ext. ±.020	Military Part Numbers M24308/	AMP Part Numbers
1	9	.040 1.02	.156 3.96	23-43F	1218436-1
2	15	.040 1.02	.156 3.96	23-44F	1218436-2
3	25	.040 1.02	.156 3.96	23-45F	1218436-3
4	37	.040 1.02	.156 3.96	23-46F	1218436-4
5	50	.040 1.02	.156 3.96	23-47F	1218436-5
1	9	.030 0.76	.188 4.78	23-49F	1218437-1
2	15	.030 0.76	.188 4.78	23-50F	1218437-2
3	25	.030 0.76	.188 4.78	23-51F	1218437-3
4	37	.030 0.76	.188 4.78	23-52F	1218437-4
5	50	.030 0.76	.188 4.78	23-53F	1218437-5
1	9	.040 1.02	.188 4.78	23-55F	1218438-1
2	15	.040 1.02	.188 4.78	23-56F	1218438-2
3	25	.040 1.02	.188 4.78	23-57F	1218438-3
4	37	.040 1.02	.188 4.78	23-58F	1218438-4
5	50	.040 1.02	.188 4.78	23-59F	1218438-5

Note: The suffix "F" on M24308 Part Numbers designates cadmium shell plating.

Crimp, Power / Coax / Signal / Combination, Series 109 Connectors



Material and Finish:

- Shell**—Steel or copper alloy
- Plating**—Cadmium, tin or gold
- Insert**—Approved material per MIL-C-24308
- Retention Clips**—Stainless steel or copper alloy

Contact Selection:

- Standard:**
- Size 8 power: page 1101
- Size 20 signal: page 1102

Insert Arrangement	Cad Plated Steel Shell (.120 Mounting Hole)		Tin Plated Steel Shell (.120 Mounting Hole)	
	Plug (Pin)	Receptacle (Socket)	Plug (Pin)	Receptacle (Socket)
3C3	448153-1	445705-4	448153-4	445705-1
11C1	211111-1	211112-1	211111-4	211112-4
5C5	212491-1	212059-1	212491-3	212059-3
9C4	212498-1	212502-1	212498-4	212502-5
13C3	208810-1	208811-1	208810-2	208811-2
17C2	212506-1	212510-1	212506-5	212510-4
21C1	212522-1	212526-1	212522-2	212526-2
8C8	446405-1	445730-1	446405-4	445730-5
27C2	212538-1	212542-1	212538-4	212542-4
17C5	212514-1	212518-1	212514-5	212518-5
21C4	212530-1	212534-1	212530-4	212534-4
25C3	208742-1	208551-1	208742-4	208551-4
24C7	208743-1	208552-1	208743-4	208552-4
36C4	208744-1	208550-1	208744-5	208550-4

- Notes:** 1 Plug insert arrangements shown. Receptacle arrangement is mirror image.
- 2 Cable clamp/strain relief hardware cannot be used with these arrangements.
- 3 The 3C3 arrangement can be mated 180°. Consult Tyco Electronics for keyed part numbers.

Size 8 Contacts (Power) for Standard Density, Series 109 Power/Coax/ Signal Connectors

Input/Output Connectors

Crimp Contacts

Material and Finish:

Copper alloy, plated gold over nickel underplate

Retention Clips—Stainless steel or phosphor bronze

Note: clip may differ from view shown

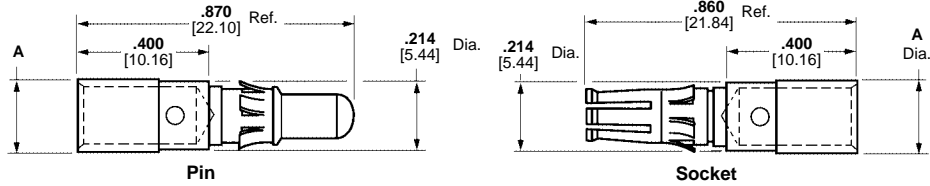
Technical Documents:

Product Specification

108-10045 (current rating and wire size)

Hand Crimp Tool 608651-1 with positioner 608651-2

Extraction Tool 318813-1

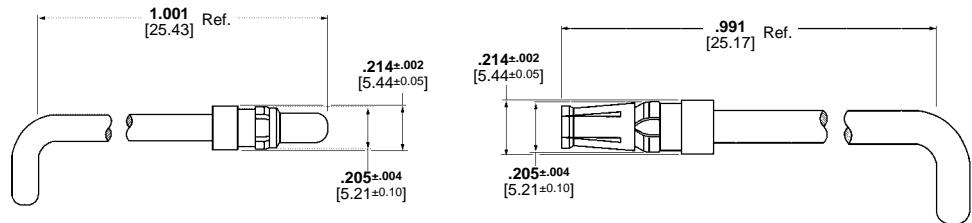


Wire Size Range		Dimension A	Part Numbers	
AWG	mm ²		Pin	Socket
8 ²	8	.230 5.84	211159-1	211161-1
10 ²	5	.185 4.69	211159-2	211161-2
12-14	2-3	.150 3.81	212007-1	212008-1
16-18	0.8-1.4	.102 2.59	212013-1	212014-1 ¹

Notes: 1 16-18 size use 608668-1 with Positioner 608668-2.
2 Retention clip shown is for 12-14, 16-18 Awg. See AMP customer drawing for 8, 10 Awg Retention Clip.
3 Use these contacts only with the **Standard** connectors on page 1100. Do not use with **Blindmate** connectors.

Printed Circuit Board Contacts

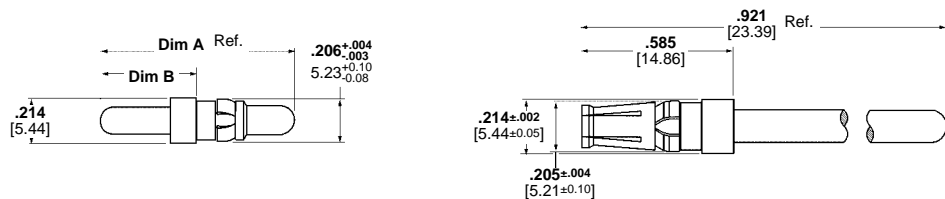
Right-Angle



Pin
Part Number 213062-12
213062-2³

Socket
Part Number 445548-12
445548-2³

Vertical



Pin
See Table

Socket
Part Number 445798-1²
445798-2³

Part Numbers	Dimension A	Dim B
449379-1	.931 [23.65]	.461 [11.71]
449379-2	.845 [21.46]	.375 [9.52]
1-449379-0 ³	.931 [23.65]	.461 [11.71]
1-449379-1 ³	.845 [21.46]	.375 [9.52]

Note: 1 Use these contacts only with the **Standard** connectors on page 1100. Do not use with **Blindmate** connectors.
2 Standard Connector, .000050 [0.00127] gold plating.
3 Standard Connector, .000030 [0.00076] gold plating.

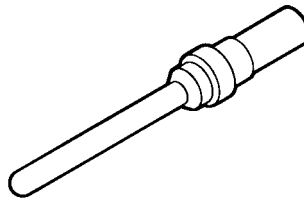
Size 20 Crimp Contacts for Series 109 Connectors

Size 20 Crimp, Snap-In Contacts .040 [1.02] Pin Diameter

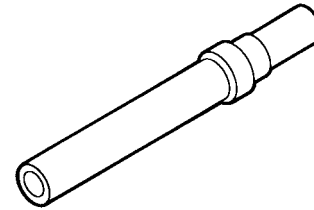
Material and Finish:

Pin and Socket body — Copper alloy, plated gold over nickel underplate

Socket Hood — Passivated stainless steel



Pin
M39029/64-369
(Supersedes M24308/11-1)



Socket
M39029/63-368
(Supersedes M24308/10-1)

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Contact Configuration	Tape Mounted Contacts AMP Part Numbers	Loose Piece Contacts		Hand Tool		Contact Color Band
				Military Part Numbers (M39029)	AMP Part Numbers	Tool No. (M22520/)	Positioner No. (M22520/)	
20-24	0.6-0.2	Pin	205089-2	64-369	205089-1	02-01	02-08	orange, blue, white
			Socket	205090-2	63-368	205090-1	02-01	02-08

¹ Tape mounted contacts are used in the AMP-TAPEMATIC Stripper/Crimper Machine Part Number **599406-7** (below).

Notes: ¹ These contacts are used in Series 109 military connectors.

² Insertion/Extraction Tool Part Number **91067-2** (Military Part Number **M81969/1-02**) is used to install and remove pin and socket contacts.

³ See AMP Instruction Sheet 408-7516 for wire length, tool and selector settings.

⁴ Color bands are read in the direction of terminal (wire barrel) end to mating end.

Application Tools for MIL-C-39029 Contacts



Pin and Socket Insertion/Extraction Tool

Part Number 91067-2 or
MIL Number M81969/1-02

Insertion tip, for replacement

Part Number 126195-3

Extraction tip, for replacement

Part Number 126195-4



AMP-TAPEMATIC Stripper/Crimper Machine Part Number 599406-7

Funnel Part Number 125905-1 for
Size 20 Contacts

The AMP-TAPEMATIC Stripper/Crimper Machine strips wire and applies an 8-indent crimp termination per MIL-C-22520. The machine terminates pin and socket contacts which are tape mounted and reel fed. It offers production rates of up to 1200 finished leads per hour, provides overall lower applied costs and maintains a high degree of termination reliability.



Hand Crimping Tool AMP Part Number 601966-1 or
MIL number M22520/2-01

Positioner AMP Part Number 601966-5 or
MIL number M22520/2-08

This standard military-type hand tool terminates pins and sockets to wire with an 8-indent, M22520/2 crimp. It is ideally suited for prototype, field maintenance and other applications where volume production is not a factor.

Product Facts

- Designed for both military and commercial applications
- Low engaging force is achieved by the manner in which Twist/Con Twist Pin Contacts are designed
- The metal shell and plastic shell are available with solder cup and solid or stranded wire terminations
- Mating force maximum is 10 oz. times the number of contacts
- Durability — No detrimental mechanical or electrical function of the connectors after 500 cycles of mating and unmating
- Current Rating — 3 amps max per contact



MICRODOT Connectors MCK and MCD High Density Microminiature "D" Connectors described in this catalog comprise a complete connector system, which is adaptable to a numerous variety of form factors. Low engaging force is achieved by the manner in which the Twist/Con twist pin contacts are designed. By constructing the male contact as a breathing helical spring, electrical contact is achieved at many points around the periphery of the pin bundle rather than at a few discrete points, as in conventional pin designs. Normal twist

pin engagement force is 6 ounces typically and 8 ounces maximum. The low force twist pins exhibit an engaging force of 4 oz. typically and 5 oz. maximum. Low force twist pins are standard in MIL-PRF-83513 configurations of MCK and MCD connectors and may be supplied as an option in all other configurations.

The MCK and MCD Series of connectors featured in this catalog are designed to meet the applicable requirements of MIL-PRF-83513, for intermateability, interchangeability, and performance. Designed for

both military and commercial applications, the MCK's and MCD's are especially well suited for use in miniaturized airborne and space electronics, computers, and test equipment. The metal shell MCK's and plastic shell MCD's are available with solder cup, and solid or stranded wire terminations. MCK transition blocks are standard for printed circuit board mounting. Custom termination configurations for both MCK and MCD can be accommodated. Micro D's are also supplied in wired harness assemblies.

For complete product information, order Catalog 1308638

Product Facts

- Designed for both military and commercial application
- Well suited for external conditions
- Precise contact alignment with extremely low engaging forces
- Product offering consist of metal shell, plastic shell, panel mount, printed circuit board and strip connectors
- Metal shell connector promotes high durability and reliability



TWIST/CON High Density Microminiature Connectors described in this catalog comprise a complete contact system which is adaptable to a numerous variety of form factors. Precise contact alignment, with extremely low engaging forces, results from the manner in which the TWIST/CON contacts system is packaged — by constructing the male contact as a breathing helical spring, electrical contact is achieved at many points around the periphery of the pin bundle — instead of a few discrete points, as in conventional design.

For complete product information, order Catalog 1308638

Featured in this catalog is the TWIST/CON line, which accommodates roundwire and Flat Conductor Cable (FCC), Edgeboard Connectors.

Applications requiring frequent mating and disconnect call for the metal shell connector version. This style connector promotes high durability and reliability.

Designed for both military and commercial applications, this latest innovation is especially well suited to use in external conditions.

This catalog also features light weight plastic connectors in a strip (MCS) format as well as JACKMATE (MCJ) format for small package application requiring high reliability.

Edgeboard applications are covered in this catalog with a special High Density Standard Module (HDSM) Connector as well as MIL-C-55302 (MCEM) Connectors. The high mating forces of these larger connectors are greatly reduced with the use of the low force twist pins and sockets which are standard for this product line.

CHAMP .050 Series II Connectors

Series II Connectors for Shielded I/O Applications

Product Facts

- Cable plug connectors terminate 28–30 AWG [.08–.09 mm²] wire
- 180° cable exit
- PC board mounting receptacle connectors with rugged zinc die cast body and stamped metal shield
- Double-spring contact design to ensure intermateability and conformance to standards
- 14 through 100 selected positions available



1

Input/Output Connectors

Performance Specifications:

Series II Connector:

Operating Temperature Range —
–55°C to +85°C for Standard
–55°C to +105°C for High Temp

Current Rating — 1 Ampere
Maximum—28 AWG [0.08 mm²]

Voltage Rating — 250 VAC Maximum

Termination Resistance —
35 Milliohms Maximum Initial

Insulation Resistance —
500 Megohms Minimum Initial

Mating Force — 75 Grams Maximum
Per Contact

Rated Cycle Life — 500 Cycles

Technical Documents:

Product Specification
102-5288

Application Specifications
114-5166 — Integral Cable Clamp
114-5124 — Wire Terminations

For complete product information, order Catalog 82244

CHAMP .050 Series II Connectors

Plug Cable Connectors

Materials and Finish:

Housing, Covers — Glass-filled PBT, rated 94V-0, black

Contacts — Phosphor bronze, selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in termination area

Performance Specifications — Page 1105

Wire Accommodation — 28 AWG [0.08mm²] 7 Strand with .020–.028 [0.51–0.71]* insulation diameter. Most UL Type 2789 wires meet these dimensional requirements

*Depending on type of insulation and applicator tooling.

Mating Receptacle Connectors —
Right-Angle — Page 1108
Vertical — Page 1108

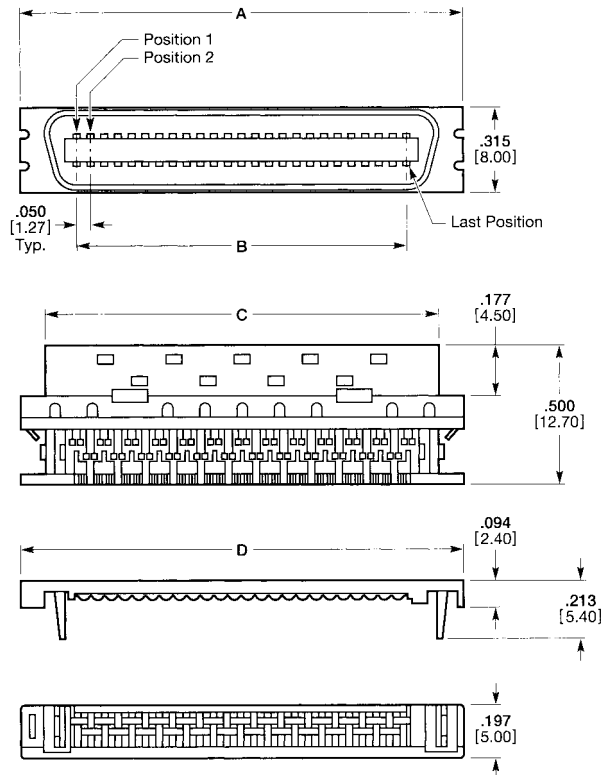
Technical Documents:

Product Specification
108-5288

Application Specification
114-5166 — integral clamp
114-5124 — wire terminations

Recommended Cable

Montrose/CDT —
Part Number CBL-7334
Phone: 1-800-346-6626



No. of Positions	Dimensions				Part Numbers 28 AWG [0.08mm ²]
	A	B	C	D	
26	1.024 26.00	.600 15.24	.843 21.40	1.020 25.90	2-175677-4
36	1.276 32.40	.850 21.59	1.091 27.70	1.272 32.30	2-175677-5
50	1.626 41.30	1.200 30.48	1.441 36.60	1.622 41.20	2-175677-7
68	2.075 52.70	1.650 41.91	1.890 48.00	2.071 52.60	2-175677-8
80	2.374 60.30	2.450 62.23	2.693 68.40	2.870 72.90	3-175677-0
100	2.874 73.00	1.950 49.53	2.193 55.70	2.370 60.20	2-175677-9

For complete product information, order Catalog 82244

CHAMP .050 Series II Connectors

Enclosure Kits

Materials and Finish:

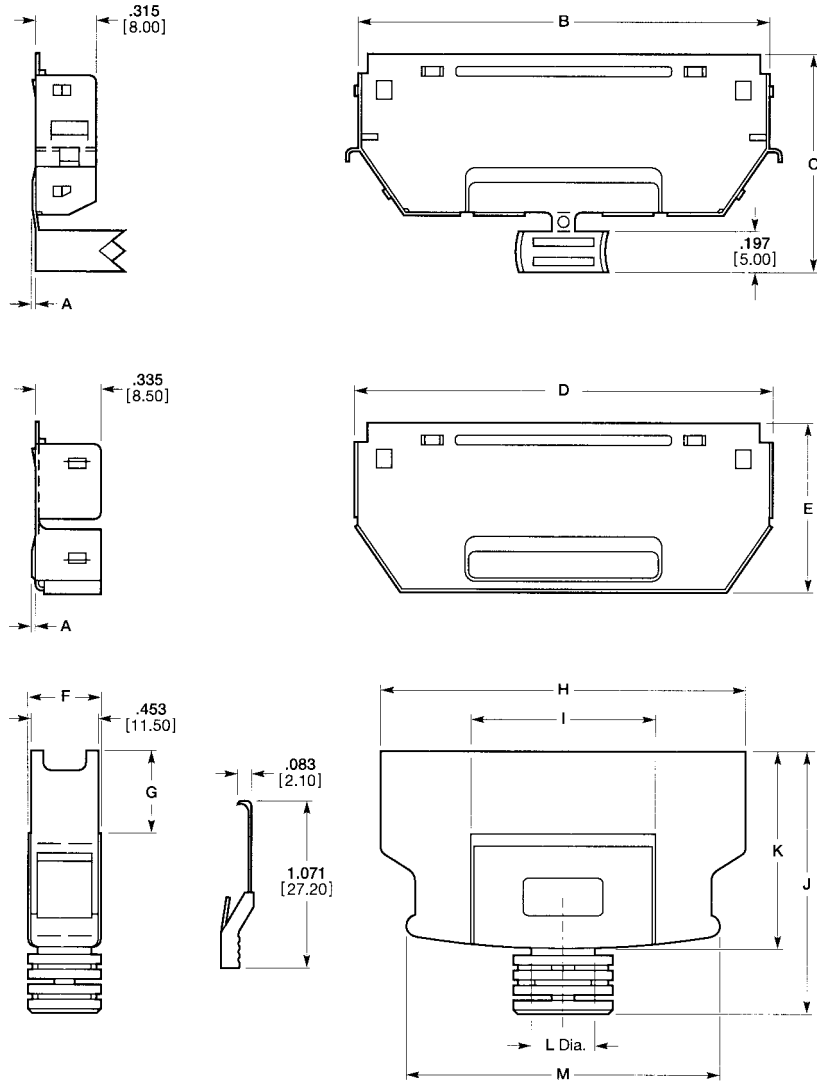
Enclosure — PBT, rated 94V-0, beige white (other colors available, contact Tyco Electronics)

Shields — Steel, plated nickel over copper underplating

Locking Spring — Stainless steel, overmolded with PBT, rated UL 94V-0, beige white

Performance Specifications — Page 1105

Cable Connectors — Plug — Page 1106



No. of Positions	Cable Dia.	Dimensions													Part Numbers
		A	B	C	D	E	F	G	H	I	J	K	L	M	
26	.232-.272 5.89-6.91	—	1.083	1.102	1.134	.866	.453	—	1.317	.512	1.654	1.260	.280	0.975	176793-4
36	.252-.311 6.40-7.90	—	1.333	1.102	1.384	.866	.453	—	1.567	.512	1.654	1.260	.319	1.225	176793-5
50	.283-.335 7.18-8.51	—	1.683	1.102	1.734	.866	.453	—	1.917	.512	1.654	1.260	.343	1.575	176793-7
68	.319-.378 8.10-9.60	.024	2.133	1.102	2.184	.866	.472	.563	2.367	1.181	1.654	1.260	.386	2.025	176793-8
80	.335-.401 8.51-10.19	.024	2.433	1.220	2.484	.984	.465	.614	2.667	1.338	1.772	1.378	.406	2.325	1-176793-0
100	.390-.433 9.91-11.00	.051	2.933	1.299	2.984	1.063	.531	.492	3.167	1.496	1.850	1.457	.441	2.825	176793-9

For complete product information, order Catalog 82244

CHAMP .050 Series II Connectors

Right-Angle Receptacles, with Boardlocks

Materials and Finish:

Housing — Glass-filled nylon, rated 94V-0, black

Contacts — Phosphor bronze, selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in solder tail area

Retention Leg (Boardlock) — Phosphor bronze, tin-lead over nickel underplate

Shield — Steel, nickel plated over copper underplate

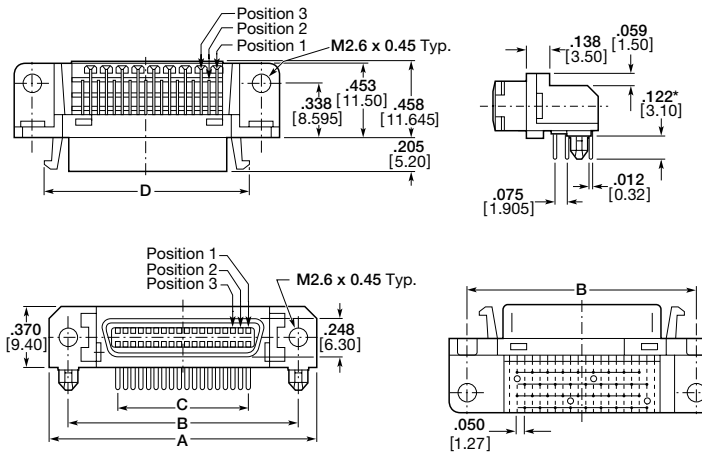
Frame — Die cast zinc, nickel plated

Performance Specifications — Page 1105

PC Board Accommodation — .062 [1.60]–.093 [2.36] nominal thickness

Panel Accommodation — .079 [2.00] maximum thickness

Mating Plug Connectors — Cable — Page 1106



No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
26	.600 15.24	1.231 31.26	.797 20.24	1.073 27.26	1.463 37.16	917738-4
36	.850 21.59	1.481 37.61	1.047 26.59	1.323 33.61	1.713 43.51	917738-5 1-917738-5
	1.200 30.48	1.831 46.50	1.397 35.48	1.673 42.50	2.063 52.40	917738-7 1-917738-7
68	2.513 63.83	2.281 57.93	1.650 41.91	2.123 53.93	2.134 54.20	2-178238-8
	2.813 71.45	2.581 65.55	1.950 49.53	2.423 61.55	2.437 61.90	3-178238-0
100	3.313 84.15	3.081 78.25	2.450 62.23	2.923 74.25	2.937 74.60	2-178238-9

*Alternate tail lengths: .153 [3.90] and .087 [2.20] available.

Vertical Receptacle

Materials and Finish:

Housing — Glass-filled nylon, rated 94V-0, black

Contacts — Phosphor bronze, selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in solder tail area

Shield — Steel, plated nickel over copper underplate

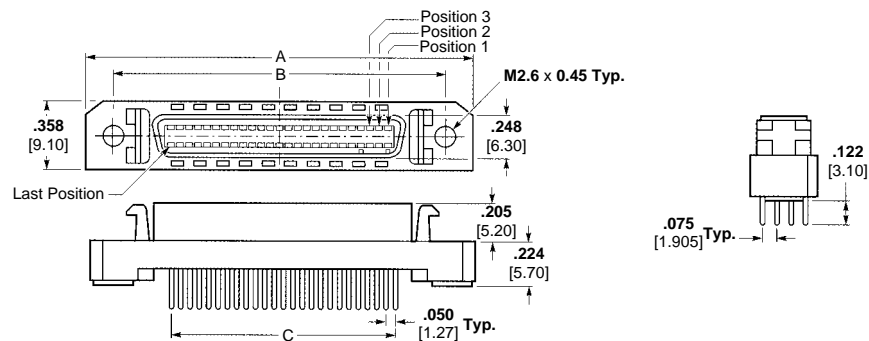
Frame — Die cast zinc, plated nickel over copper underplate

Performance Specifications — Page 1105

PC Board Accommodation — .062 [1.60]–.093 [2.40] nominal thickness

Panel Accommodation — .079 [2.0] maximum thickness

Mating Plug Connectors — Cable — Page 1106



No. of Positions	Dimensions				Part Numbers
	A	B	C	D	
26	1.463 37.16	1.231 31.26	0.600 15.24	1.087 27.60	2-175887-4
36	1.713 43.51	1.481 37.61	0.850 21.59	1.335 33.90	2-175887-5
	2.063 52.40	1.831 46.50	1.200 30.48	1.685 42.80	2-175887-7
68	2.513 63.83	2.281 57.93	1.650 41.91	2.134 54.20	2-175887-8
	2.813 71.45	2.581 65.55	1.950 49.53	2.437 61.90	3-175887-0
100	3.313 84.15	3.081 78.25	2.450 62.23	2.937 74.60	2-175887-9

For complete product information, order Catalog 82244

CHAMP .050 Series II Connectors

Discrete Wire Application Tooling

For Terminating Cable to Series II Plug Connectors
(Base Part Number 175677)
(for low to medium volume production)

CHAMPOMATOR 2.5 Terminating Machine
Part Number 354786-6
(less accessories)**Controller**
Part Number
852423-1 (USA/120 VAC)
852423-3 (Europe/230 VAC)

Accessories available separately; contact sales engineer or Technical Support Center
1-800-522-6752.

Series II Tooling Package
Part Number 768900-5

Instruction Sheet — 408-4054
Connector Size — 14 through 100

Hand Applicator, Series II
Part Number 911123-1

Connector Sizes — 14 through 50 positions
Instruction Sheet — 411-5389



Arbor Tool & Tooling Package

Connector Sizes —
14 through 68 positions — 911149-6
14 through 120 positions — 911149-7
Extra Lacing Stations available. Order Wire Comb Kit
14 through 68 positions — 911432-6
14 through 120 positions — 911432-7
Instruction Sheet — 411-5547



For Crimping Integral Ferrules of Enclosure Kits
(Base Part Number 176793)

Toggle Bench Tool
Part Number 919620-1
Instruction Sheet — 411-5628



Manual Arbor Tool
Part Number 915697-2
Instruction Sheet — 411-5558



For complete product information, order Catalog 82244

CHAMP IDC Cable Connectors

Product Facts

- Wide wire range
- Connectors available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods: screw lock type, bail lock type and locking latch type
- Self-extinguishing thermoplastic housings and accessories
- Contacts on .085 [2.16] centers in dual position arrangements
- Optional dust covers and snap-on strain relief covers



CHAMP Insulation Displacement Concept (IDC) Connectors provide a low cost method of terminating unstripped solid or stranded copper wires and cables to connectors. Application for the CHAMP IDC Connectors are widely diversified and are designed for specific field and industrial applications.

Connectors and Housing

Plug and receptacle connectors are furnished pre-loaded with contacts on .085 [2.16] centers. Connectors are available in 14, 24, 36, 50 and 64 positions, in standard black housings and molded from self-extinguishing plastic material for high impact and dielectric strength. Housing material is rated at an Oxygen Index Rating of 28% minimum.

Terminals

The terminal is precision formed of high conductivity, high strength copper alloy with 30 microinch gold minimum over 50

microinch nickel plating in contact area. The wire terminating area (rear of terminal) is stamped like a slotted reversed "U" and each leg contains a wire slot and strain relief slot with precisely controlled dimensions.

Wire Range and Types

The terminal is designed to accept 26-22 AWG [0.4-0.64 mm] solid wire and 28-22 AWG [0.08-0.4 mm²] stranded wire (7 strands). The terminal is designed to accommodate most types of insulation—PVC, polyethylene, irradiated polyethylene and polypropylene.

Covers and Strain Relief

Several types of accessories are available to complete the connector assembly and to provide strain relief and protection. Made of high impact strength thermoplastic materials, all covers and strain relief have inner ribs that confine each wire in the wire termination slots.

Testing

Extensive testing, both laboratory and actual application have been conducted on this entire product line. These tests included heat aging, temperature cycling as well as shock and vibration. Both electrical and mechanical test results have met or exceeded performance objectives and copies of these test results are available from Tyco Electronics.

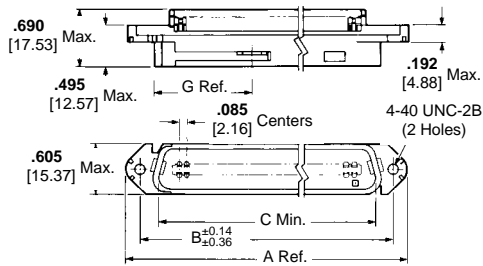
Applicator Tooling

Since your specific application will determine the degree of tooling required, consult pages 1134 thru 1136 in the application tooling section.

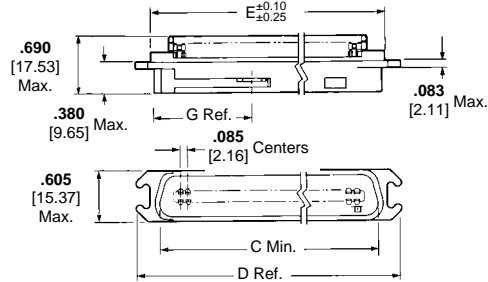
CHAMP IDC Cable Connectors

Plug

Style PS—Plug, Screw Lock (Thick Flange)¹

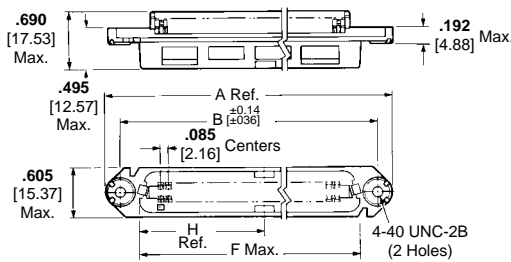


Style PB—Plug, Bail Lock

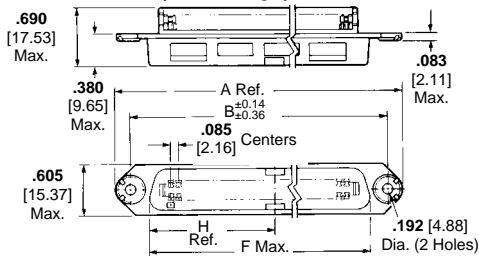


Receptacle

Style RS—Receptacle, Screw or Bail Lock (Thick Flange)¹



Style RP—Receptacle, Panel Mount, Screw or Bail Lock (Thin Flange)²



¹ Thick flange connectors are typically for cable-to-cable screw lock applications.

² Thin flange connectors are typically for panel mount applications.

Color Code	Letter Code	Wire Range (AWG)
Blue	B	(1) 24-26 Solid or 24 Stranded
Green	C	(1) 22 Solid or Stranded
Yellow	E	(1) 26, 27 or 28 Stranded

No. of Positions	Dimensions									
	A	B	C	D	E	F	G	H		
14	1.750 44.45	1.416 35.97	1.001 25.43	1.526 38.76	1.196 30.38	1.000 25.40	.644 16.36	.401 10.19		
24	2.175 55.25	1.842 46.79	1.426 36.22	1.951 49.56	1.621 41.17	1.425 36.20	.646 16.41	.825 20.96		
36	2.685 68.20	2.352 59.74	1.936 49.17	2.462 62.53	2.132 54.15	1.935 49.15	1.118 28.40	.854 21.69		
50	3.280 83.31	2.946 74.83	2.531 64.29	3.056 77.62	2.726 69.24	2.530 64.26	1.123 28.52	1.461 37.11		
64	3.875 98.43	3.542 89.97	3.126 79.40	3.651 92.74	3.321 84.35	3.125 79.38	1.608 40.84	1.562 39.67		

Note: These dimensions apply to all mating faces of all types of CHAMP Connectors.

No. of Positions	Wire Size				Housing Color Dot Des.	Contact Letter Code	Part Numbers			
	Solid		7 Strand				Plug		Receptacle	
	AWG	mm	AWG	mm ²			Style PS	Style PB	Style RS	Style RP
24						552301-1	552317-1	552305-1	—	
36						—	552318-1	—	—	
50	22	0.65			Green	552173-1	552319-1	552064-1	—	
64						552303-1	—	552307-1	—	
14						552282-1	552270-1	552312-1	2-552271-1	
24						552283-1	552272-1	552313-1	2-552273-1	
36	24-26	0.51-0.40	24	0.20	Blue	552284-1	552274-1	552314-1	2-552275-1	
50						229974-1	552032-1	229975-1	2-552001-1	
64						552285-1	552276-1	552315-1	2-552277-1	
50						552390-1	552471-1	552391-1	2-552476-1	
64			26-27-28	0.09	Yellow	552488-1	—	—	—	

Notes: 1. A panel mount 50 position plug connector is available in thin flange with .187 [4.75] diameter mounting hole, **Part Number** 552686-1, which has B slot contacts.

2. Style RP is not compatible with integral locking latch receptacle. For thin flange panel mount plug connectors all standard mounting hardware may be utilized with the exception of bail lock mounting hardware.

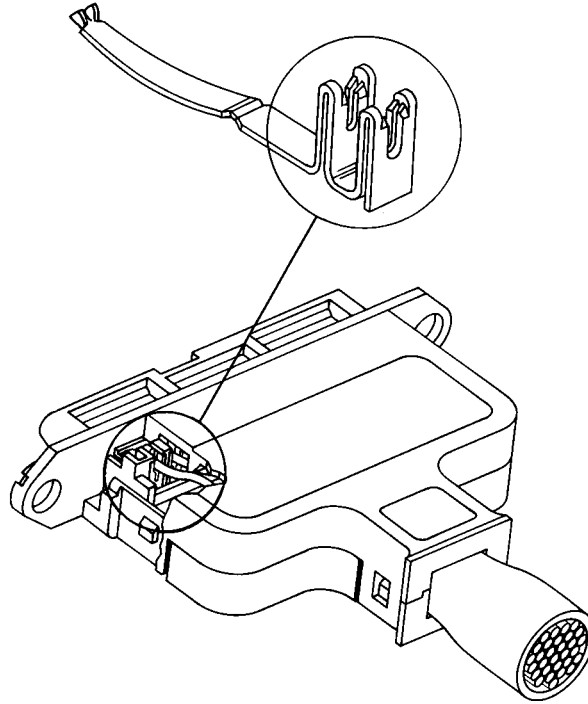
3. Acceptable conductor insulations are polyvinyl chloride (PVC), polyethylene, irradiated polyethylene, polypropylene and TEFLON. **Maximum insulation diameter .045 [1.14] for tools that mass terminate conductors on one side at a time. For tools that insert one conductor per side at a time, .043 [1.09] insulation diameter is the maximum.** As a rule, harder insulations require smaller conductor insulation diameters.

CHAMP IDC Cable Connectors

Large Insulation Wire Connectors

Miniature Ribbon IDC Connectors that can accommodate 22 AWG wire with insulation diameters up to .056 [1.42]. The F-slot contacts handle large insulation diameter conductors using a folded beam contact design.

Only connector supplied. 180° Cover and Cable shown for reference



No. of Positions	Wire Size				Housing Color Dot Description	Part Numbers			
	Solid		7 Strand			Plug		Receptacle	
	AWG	mm	AWG	mm ²		Style PS	Style PB	Style RS	Style RP
50	22	0.64	22	0.40	Brown	556039-1	—	555227-1	—
64						556409-1	555753-1	—	555151-1

Integral Locking Latch Receptacle

These special CHAMP connectors are designed with an integral latching system that eliminates the need for additional locking hardware. Receptacle assemblies are preassembled with two plated steel spring latches (one at each end) that latch into cutout slots in mating plug connectors. To release a mated pair, simply depress latches into recessed areas and disengage. Note, however, that integral latches are not repairable nor replaceable. Integral-latch connectors are presently available in 50 and 64 position sizes.



No. of Positions	Housing Color Dot Des.	Contact Letter Code	Part Numbers
50	Blue	B	553921-1
64			554381-2

Cable-to-Cable Applications for 50 Position Connector Kits

Cable-to-Cable Plug and Receptacle with Tapered Cover and Screw



Wire Size		Housing Color Dot Des.	Contact Letter Code	Cable Diameter Range	Dust Cover	Kit Part Numbers					
Solid	7 Strand					Plug		Receptacle			
AWG	mm					AWG	mm ²	Black	Gray	Black	Gray
22	0.64	22	0.4	Green	C	Up to .550 13.97	No	552382-1	—	552383-1	—
24-26	0.51-0.40	24	0.20	Blue	B	.350-.425 8.89-10.80	No	229912-1	229912-4	229913-1	229913-4
							No	*6-229912-1	—	*6-229913-1	—
							Yes	1-229912-1	1-229912-4	1-229913-1	—
							Yes	*6-229912-3	*6-229912-4	*6-229913-3	—
—	—	26, 27, 28	0.14-0.10, 0.09	Yellow	E	.425-.500 10.80-12.70	No	2-229912-1	—	—	—
							Yes	3-229912-1	—	3-229913-1	—
—	—	—	—	—	—	.350-.425 8.26-10.80	No	552402-1	—	—	—

*Note: Part Numbers with prefix of "6" are bulk packed in quantities of 500.

Cable-to-Cable Hardware Kits



Bent Bail Lock Hardware Kit
Part Number 552561-4
(For use with 90° Strain Relief Cover— One kit required per assembly)

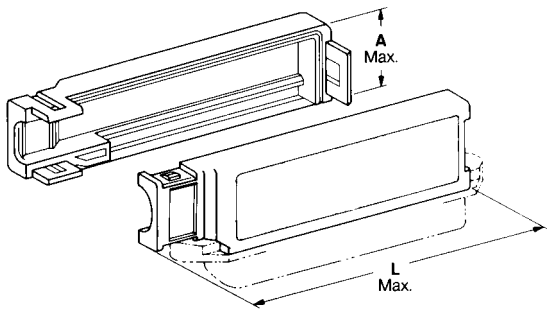


CHAMP-LOK Connector Hardware Kit
(One locking latch required per assembly)
Part Number 552723-3 (64 Position Locking Latch)

Notes: Only fastening hardware supplied, other items shown for reference purposes.

Cable-to-Cable Accessories

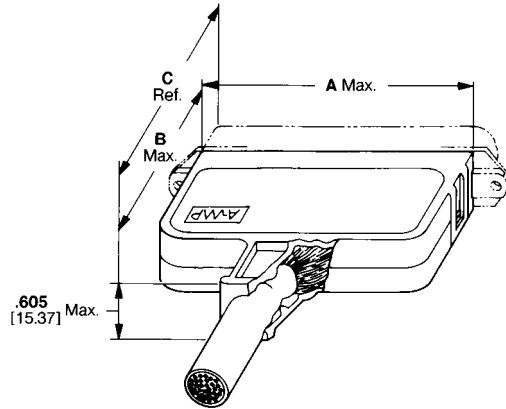
90° Snap-On Strain Relief Cover



No. of Positions	Dimensions		Cable Range Diameter*	Part Numbers
	A	L		
14	.684	1.863	.185-.230 4.70-5.84	552412-1
	17.37	47.32	.250-.300 6.35-7.62	1-552412-1
24	.684	2.288	.250-.300 6.35-7.62	552413-1
	17.37	58.12	.305-.360 7.75-9.14	1-552413-1
36	.684	2.798	.330-.380 8.38-9.65	3-552414-1
	17.37	71.07	.340-.400 8.64-10.16	552014-1
50	.922	3.388	.315-.415 8.00-10.54	1-552011-1
	23.42	86.06	.415-.465 10.54-11.81	552011-1
64	1.127	3.590	.475-.540 12.07-13.72	552731-1
	28.63	91.19	.410-.475 10.41-12.07	552496-1
64	1.127	4.183	.475-.540 12.07-13.72	1-552496-1
	28.63	106.25	.540-.605 13.72-15.37	2-552496-1

*Strain relief cover cable diameter range is a guideline. The appropriate strain relief cover depends on cable stiffness, cable packing and fillers.

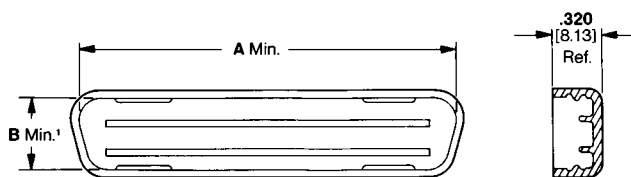
180° Snap-On Strain Relief Cover



No. of Positions	Dimensions			Cable Range Diameter*	Part Numbers
	A	B	C		
14	.994	1.455	1.824	.175-.220 4.45-5.59	552079-1
	25.25	36.96	46.33	.220-.265 5.59-6.73	1-552079-1
24	1.419	1.455	1.824	.265-.310 6.73-7.87	2-552079-1
	36.04	36.96	46.33	.230-.280 5.84-7.11	552076-1
36	1.934	1.455	1.824	.280-.320 7.11-8.13	1-552076-1
	49.12	36.96	46.33	.320-.380 8.13-9.65	2-552076-1
50	2.520	1.555	1.924	.290-.360 7.37-9.14	552073-1
	64.01	39.50	48.87	.360-.430 9.14-10.92	552073-5
64	3.119	1.655	2.024	.430-.500 10.92-12.70	552073-6
	79.22	42.04	51.41	.330-.380 8.38-9.65	3-552008-1
64	3.119	1.655	2.024	.380-.430 9.65-10.92	2-552008-1
	79.22	42.04	51.41	.430-.490 10.92-12.45	552008-1
64	3.119	1.655	2.024	.480-.550 12.19-13.97	4-552008-1
	79.22	42.04	51.41	.430-.500 10.92-12.70	552003-1 ¹
64	3.119	1.655	2.024	.480-.540 12.19-13.72	552082-1

¹ With probe holes.

Dust Cover

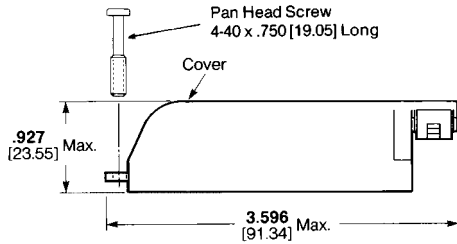


¹ B Dimension—.610 [15.49]
Plug and .478 [12.14] Receptacles

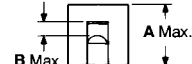
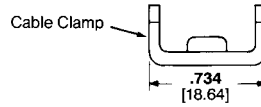
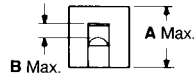
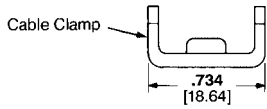
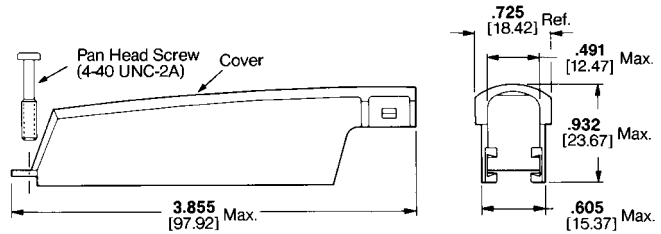
No. of Positions	Plug Cover (Blue)		Receptacle Cover (Red)	
	A	Part Numbers	A	Part Numbers
24	1.575 40.01	—	1.421 36.09	229969-4
36	2.085 52.96	229968-3	1.931 49.05	229969-3
50	2.700 68.58	229968-1	2.526 64.16	229969-1
64	3.275 83.19	229968-2	3.121 79.27	229969-2

Cable-to-Cable Accessories

90° Standard Slide-On Strain Relief Cover Kit (for 50 Position Only)



90° Tapered Slide-On Strain Relief Cover Kit (for 50 Position Only)

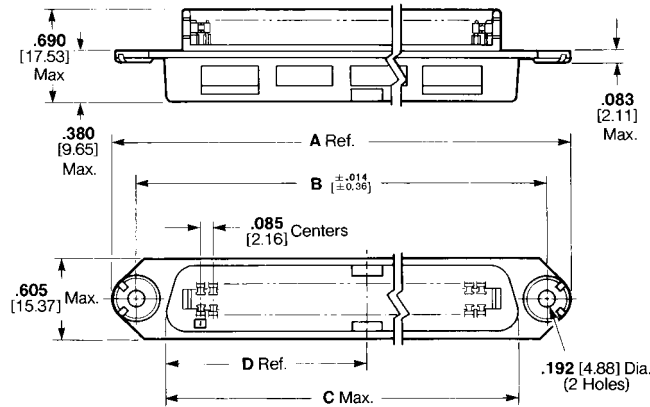


Cable Range Diameter	Dimensions		Kit Part Numbers		Component Part Numbers				
	A	B	Standard Cover	Tapered Cover	Cable Clamp	Screw	90° Tapered Cover	90° Slide-On Cover	
.425-.500 10.80-12.70	.475 12.07	.202 5.13	552960-1	552560-5	1-229910-1	229911-1	229909-1	552617-1	
.350-.425 8.89-10.80	.380 9.65	.107 2.72	552960-2	552560-1	229910-1	229911-1	229909-1	552617-1	
.500-.550 12.70-13.97	.540 13.72	.267 6.78	552960-5	—	4-229910-1	229911-1	229909-1	552617-1	

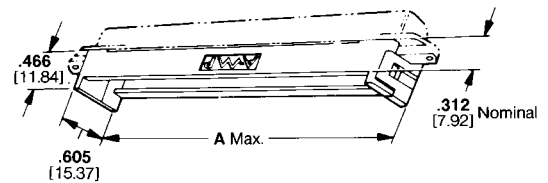
Cable-to-Panel Accessories

Style RP—Receptacle, Panel Mount, Screw or Bail Lock (Thin Flange)

Note: See page 1111 for Style RP part numbers.



Snap-On Strain Relief



Note: Two required per connector assembly.

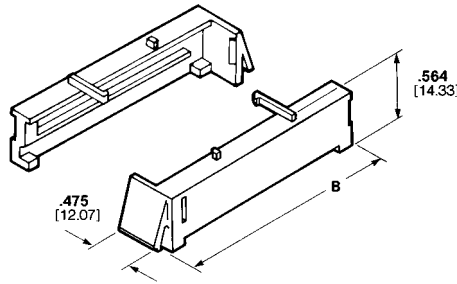
No. of Positions	Dimensions			
	A	B	C	D
14	1.750 44.45	1.416 35.97	1.000 25.40	.401 10.19
24	2.175 55.25	1.842 46.79	1.425 36.20	.825 20.96
36	2.685 68.20	2.352 59.74	1.935 49.15	.854 21.69
50	3.280 83.31	2.946 74.83	2.530 64.26	1.461 37.11
64	3.875 98.43	3.542 89.97	3.125 79.38	1.562 39.67

No. of Positions	Dimensions	Low Profile Part Numbers
	A	
24	1.467 37.26	1-552298-1
36	1.977 50.22	1-552297-1
50	2.572 65.33	1-552027-1
64	3.167 80.44	1-552296-1

Cable-to-Panel Accessories

Snap-In Panel Mount Strain Relief

No additional panel mounting hardware required.



Note: Two required per assembly.

No. of Positions	Dimension	Panel Thickness	Color	Part Number
	B			
50	2.514	.090	Black	552962-3
	63.86	2.29		

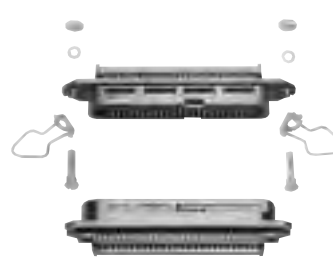
Note: 1. For use with thin flange connectors only.
 2. Recommended for use with CHAMP-LOK Connector Assembly Hardware. No panel mounting hardware necessary when utilized.
 3. Strain Relief recommended for installation of Panel Mount Connectors to prevent inadvertent contact or conductor damage.

Cable-to-Panel Hardware Kits

(One kit required per assembly)



**Screw Lock Hardware Kit
 For Rear Panel Mount
 Applications
 Part Number 552568-1**



**Bail Lock Hardware Kit
 Part Number 552567-1**



**Bent Bail Lock Hardware Kit
 For 90° Strain Relief Cover
 Part Number 552567-2**

Shielded Cable Connectors

Product Facts

- Designed for shielding, NOT just as metal shell connector
- Available in 24-, 36- and 50-position plugs and receptacles
- Available in bail and screw lock plug and thru-hole receptacle styles with pre-loaded insulation displacement contacts in a choice of two wire slot sizes
- Capable of using any standard CHAMP connector applicator tooling
- Unique, high tensile strain relief with adjustable ratchet
- Conductive to post molding simply by deleting 180° cover kit
- No outer crimp ferrule required
- Fully compatible with all die cast, metal shell panel mount CHAMP connectors in a variety of termination styles, and interchangeable with all those of a similar design



The CHAMP Connector product line continues to expand, fulfilling the needs of the various industries. The Shielded CHAMP Cable Connectors have been specifically designed to produce the optimum in shielding effectiveness while still offering low initial cost and ease of assembly with the applied-cost-savings of a proven insulation displacement system.

Shielded CHAMP Cable Connectors are available in 24, 36 and 50 position plugs and receptacles with either bail lock or screw lock plug and thru-hole receptacle styles. Connectors are shipped with contacts preloaded and are ready for termination in all standard CHAMP Connector applicator tooling. Two different contact sizes are available—B-slot, 24 AWG [0.51 mm] and 26 AWG [0.04 mm] (solid) or 24 AWG [0.20 mm²]

(7-strand); and E-slot, 26-27-28 AWG [0.14-0.10-0.09 mm²] (7-strand) wire.

Superior shielding performance is achieved due to minimal leakage from a specially designed two-piece, precision formed shield. Positive contact with the panel mounted connector is obtained by the interface of metal “spring fingers” which protrude through small openings around the perimeter of the plug and contact plate on receptacle. Highly effective braid termination is achieved with an outstanding stored energy design incorporated into the two-piece shield.

In addition to the superior shielding effectiveness, another important feature of the connector is the design of the outer plastic strain relief cover, which uses a ratcheting wedge that pro-

vides greater strain relief as more tension is applied to the cable. Should post molding be desired, the 180° cover kit may be deleted.

Shielded Cable Connector Kits

Material and Finish:

- Housing and Cover** — Thermoplastic, black
- Terminals** — Gold over nickel plated high strength copper alloy
- Shield** — Bright nickel plated carbon steel
- Strain Relief** — Flame retardant NYLON, black
- Ferrule** — Copper alloy
- Hardware** — Zinc plated steel

Specifications:

Insulation Diameter — .045 [1.14] max.

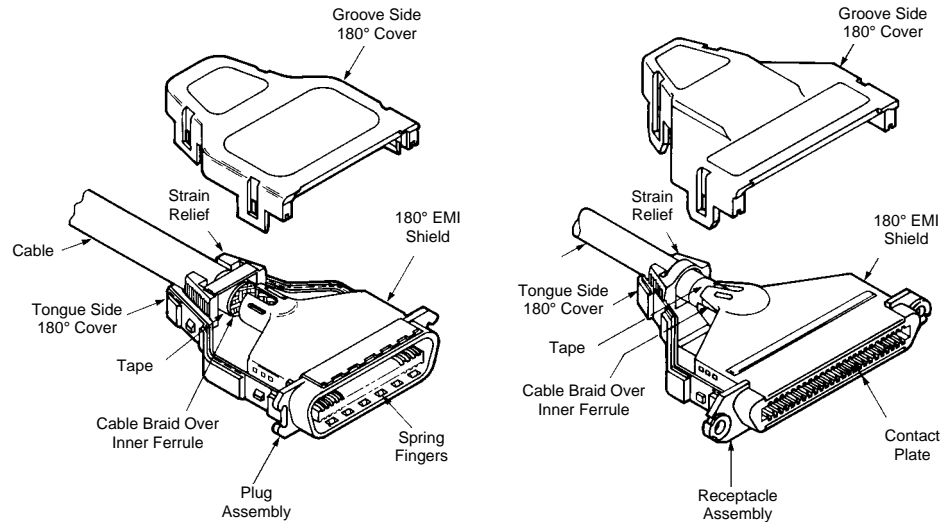
Terminal Center-to-Center Spacing — .085 [2.16]

Slot Designation stamped on contacts which are preloaded in housing.

B-Slot — 24 AWG [0.51 mm] and 26 AWG [0.40 mm] (solid) or 24 AWG [0.20 mm²] (7 strand)

E-Slot — 26-27-28 AWG [0.12-0.10-0.09 mm²] (7 strand) wire

Note: Connector kits shipped unassembled.



Plug Connector Kit

Receptacle Connector Kit

Inner Ferrule



Inside Diameter	Inner Ferrule Part Number	Inside Diameter	Inner Ferrule Part Number
.350 8.89	554725-3	.450 11.43	554725-5
.400 10.16	554725-4	.500 12.70	554725-6

No. of Positions	Cable Range	Part Numbers						
		Shielded Plug Kit				Shielded Receptacle Kit		
		Screw Lock		Bail Lock		Screw or Bail Lock		Cover Kits
		B Slot	E Slot	B Slot	E Slot	B Slot	E Slot	
24	.250-.500 6.35-12.70	—	554948-3 ⁴	—	—	—	—	554944-1
36	.250-.500 6.35-12.70	—	—	554950-2	554950-1	—	—	554945-1
50	.350-.625 8.89-15.88	554954-2	554954-1	554953-2 ¹	554953-1 ¹	554955-2 ²	554955-1 ²	554946-1 ³ 554946-2

¹ SCSI applicable.

² SCSI applicable with Hardware Kit Part Number 552561-6.

³ For cable diameter of .500 [12.70] or less use -1 kit. For cable diameter greater than .500 [12.70] use -2 kit.

⁴ Connector with M3.5 threads kits includes M3.5 x 2.00 [50.80] standoff stud.

CHAMP Latch Low Profile Connectors

Product Facts

- Ready to use connectors—strain relief covers preassembled to connector bodies
- Overall assembled dimension of .820 [20.83]
- Simple one-step termination operation
- May be used in “dead-end” or “daisy-chain” applications
- Hardware kits available for Cable-to-Cable or Cable-to-Panel applications
- Available in 24, 36 and 50 positions
- Capable of mass termination without time consuming soldering and prestripping of wire
- Terminates .050 [1.27] centerline 26 AWG [0.40 mm] (solid); 28 AWG [0.08-0.09 mm²] (stranded); 28 AWG [0.32 mm] (solid) or 30 AWG [0.25 mm] (solid) copper ribbon cable, including certain twisted pair types from .032-.045 [0.81-1.14] thick
- Available in standard connectors, preassembled and loose-piece shielded



The CHAMP Latch Low-Profile Connector comes ready to use—just slide the cable in and squeeze. The underside of the strain relief cover is fluted to assist in proper cable orientation. Plastic “barbs” sticking up from the connector body act as guides for proper cable alignment during insertion. When terminated, these “barbs” pierce the cable insulation between the conductors and lock on to the strain relief cover.

Another advantage to this connector is its overall assembled dimension (.820 [20.83]), which takes up less space inside or outside of the equipment.

Standard connectors are available in 14, 24, 36 and 50 position plugs or receptacles. Shielded CHAMP Latch Connector version receptacles are available loose piece and preassembled in 24, 36, and 50 positions. A 64 position plug or receptacle can be supplied with an assembled height of 1.130 [28.70]. For 64 position plug and

receptacle part numbers and specifications, contact AMP. CHAMP Latch Connectors provide a fast, reliable means of mass terminating .050 [1.27] centerline ribbon cable without time-consuming soldering and prestripping of wire. They are capable of terminating 26 AWG [0.40 mm] (solid); 28 AWG [0.08-0.09 mm²] (stranded) 28 AWG [0.32 mm] (solid) or 30 AWG [0.25 mm] (solid) copper ribbon cable.

Termination of CHAMP Latch Low Profile Connectors is accomplished in a simple onestep operation using the appropriate CHAMP Latch tooling. The ability to make “daisy chain” terminations requires nothing more than depressing the stop bar on the hand tool or repositioning the stop bar provided on the base plate for the manual applicator.

The housings and covers are constructed of black thermoplastic. The terminals are gold over nickel plated high strength copper alloy on the mating face and gold flash

over nickel plate on the terminating side. The mating face consists of 2 rows of terminals on .085 [2.16] centers. Terminating side consists of terminals on .100 [2.54] centers for an effective .050 [1.27] staggered termination. EMI Shield, for Shielded Connectors, are die cast zinc with nickel plating.

Connector hardware kits are available for Cable-to-Cable (Screw Lock, Bail Lock and CHAMP-LOK connectors) applications, and Cable-to-Panel (Screw Lock, Bail Lock, Metric Screw Lock for IEEE-488 Applications and CHAMP-LOK connector) applications.

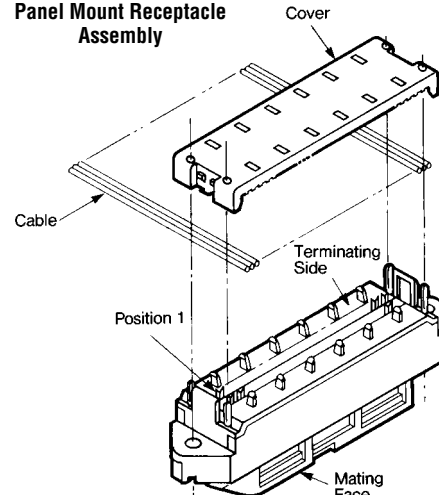
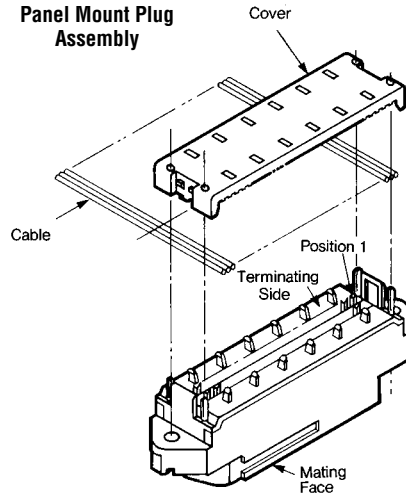
Note: CHAMP Latch connectors have been tested on a wide variety of .050 [1.27] centerline cables conforming to AMP drawings 746395, 746396 and 86901. If cables other than those specified are used, forward sample of cable for approval to Tyco Electronics. Contact Technical Support Center 1-800-522-6752 for address.

CHAMP Latch Low Profile Connectors

Material and Finish:

Housing and Covers — Thermoplastic (black)

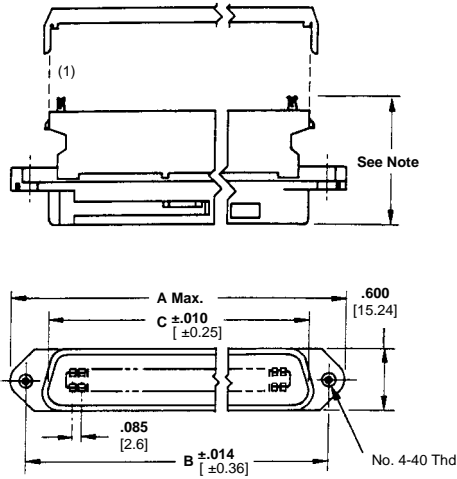
Terminals — Gold over nickel plated high strength copper alloy on mating face and gold flash over nickel plate on terminating side



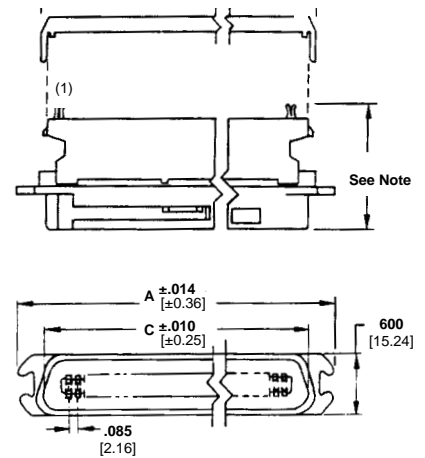
No. of Positions	Part Numbers				
	Bail Lock Plug Assembly	Screw Lock Plug Assembly	Screw Lock Receptacle Assembly	Panel Mount Plug Assembly	Panel Mount Receptacle Assembly
14	—	553596-1	553597-1	—	—
24	—	553598-1	553599-1	554103-1	554088-1
36	554084-1	553600-1	553601-1	—	554089-1
50	554085-1	553602-1	553603-1	554105-1	554090-1

CHAMP Latch Connectors 64 Position

Style PS



Style PB

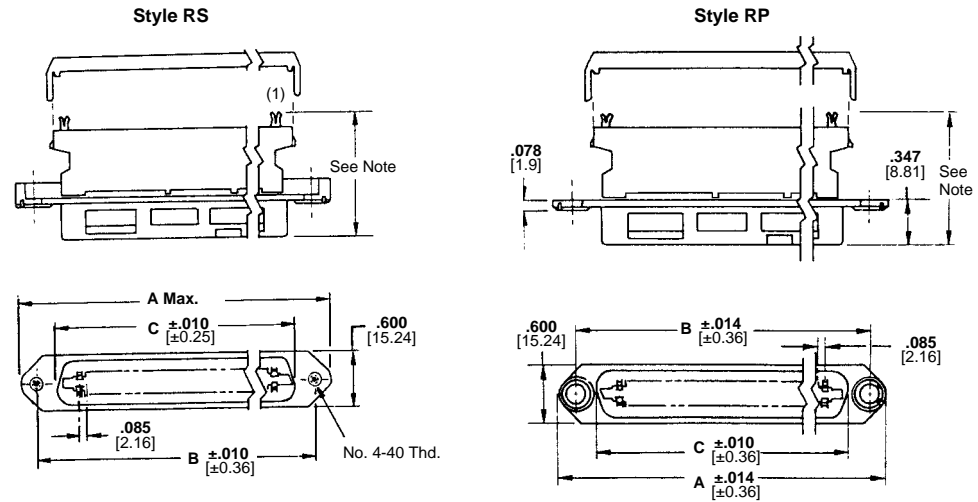


Connector Code:
PS=Plug, Screw Lock
PB=Plug, Bail Lock

Style	Dimension			Part Numbers
	A	B	C	
PS	3.875	3.542	3.135	552837-1
	98.43	89.97	79.63	
PB	3.651	—	3.135	552933-1
	92.74	—	79.63	

Note: 1.130 [28.7] without strain relief cover, 1.168 [29.67] with strain relief cover

CHAMP Latch Connectors 64 Position



Connector Code:

RS=Receptacle, Screw or Bail Lock
 RP=Receptacle, Panel Mount,
 Screw or Bail Lock

Style	Dimension			Part Numbers
	A	B	C	
RS	3.875 98.43	3.542 89.97	3.115 79.12	552838-1
RP	3.875 98.43	3.542 89.97	3.115 79.12	552843-1

Note: 1.130 [28.7] without strain relief cover, 1.168 [29.67] with strain relief cover

CHAMP Latch Low Profile Connectors



Shielded CHAMP Latch Connectors

Product Facts

- Ready to use strain relief covers preassembled to connectors
- Simple one-step termination
- Dead end or daisy-chain applications
- Hardware kits available for panel mounting
- Terminates conductors without time-consuming soldering
- Terminates .050 [1.27] centerline 26 AWG [0.40 mm], 28 AWG [0.32 mm] and 30 AWG [0.25 mm] (solid) or 28 AWG [0.08-0.09 mm²] (stranded) wire



Shielded CHAMP Latch panel mount connectors are designed to provide the optimum in EMI protection at the chassis and still permit mating with CHAMP Connectors and other compatible connectors in 24, 36 and 50 position sizes.

The housing and covers are constructed of black thermoplastic. The terminals are gold over nickel plated high strength copper alloy on the mating

face and gold flash over nickel plate on the terminal side. The mating face consists of 2 rows of terminals on .085 [2.16] centers. Terminating side consists of terminals on .100 [2.54] centers for an effective .050 [1.27] staggered termination. Die cast shields are die cast zinc with nickel plating. Hardware kits are available for panel mount in standard or IEEE metric screw lock.

Shielded CHAMP Latch Panel Mount Connectors

CHAMP Latch Connectors for .050 [1.27] Ribbon Cable

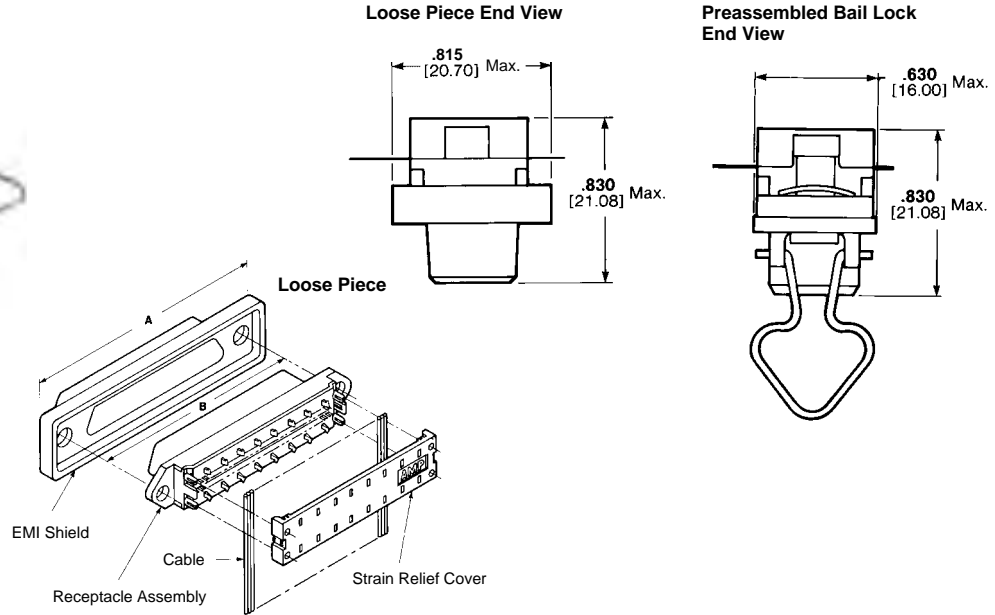


Material and Finish:

Housing and Strain Relief Clip — thermoplastic (black)

Terminals — gold over nickel plated high strength copper alloy on mating face and gold flash over nickel plate on terminating side

EMI Shield — nickel plated die casting



No. of Positions	Loose Piece			Preassembled				
	Dimension		Part Numbers	Dimensions		Bail Lock Part Number	Screw Lock Part Numbers	
	A	B		A	B		4-40 Hole	6-32 Hole
24	2.380 60.45	1.842 46.79	—	2.205 56.01	1.842 46.79	—	554434-1 ³	—
36	2.380 60.45	2.352 59.74	554348-1	2.715 68.96	2.352 59.74	554346-2	—	—
50	3.475 88.27	2.946 74.83	554350-1	3.310 84.07	2.947 74.85	—	—	554436-21.2

¹ SCSI applicable with Bail Lock Hardware Kit Part Number 554818-2.

² SCSI applicable.

³ Can be used with Interface Bus Applications per IEEE-488.

CHAMP Latch Hardware Kits

Material and Finish:

Mounting Stud — Bright zinc plated carbon steel

Pan Head Screw — Passivated stainless steel

Metric Standoff Stud — Black oxide coated carbon steel

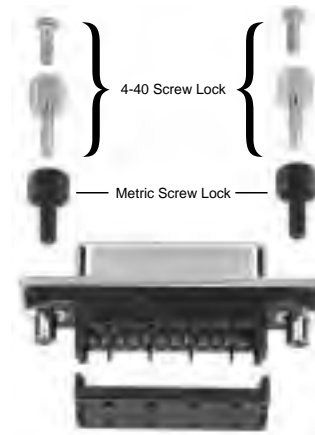
Only fastening hardware supplied, other items shown for reference purposes.

Loose Piece Shield



Metric Screw Lock Hardware Kit per IEEE-488 Application For Front Panel Mount Part Number 553636-2 For Rear Panel Mount Part Number 553636-3

Preassembled Shield



Part Number 554272-1 (for use with 4-40 Screw Lock, Rear Panel Mount Only) Metric Screw Lock Hardware Kit for 24-Position IEEE-488, Preassembled, Part Number 554808-1 Rear Panel Mount Only

CHAMP PCB Connectors

Product Facts

- Capable of being used with single- or double-sided printed circuit boards
- Eliminates the need to hand solder, except for Edge Mount Connectors
- Connectors fully intermateable with others of similar design
- UL 94V-0 self-extinguishing thermoplastic housings and accessories
- Connectors available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods: screw, bail mount, or locking latch types
- Capable of accommodating printed circuit board thicknesses of .062 [1.57], .093 [2.36] or .125 [3.18]
- Diversified applications throughout the following markets—medical equipment, data control systems, telephone interconnect systems and electronic instrumentation (commercial and industrial)
- Operating temperature range of -40°C to +105°C



CHAMP Printed Circuit Board Connectors are fully intermateable with existing connectors of a similar design. They are capable of accommodating printed circuit board thicknesses from .062-.125 [1.57-3.18].

Applications for this type of connector are widely diversified and are used in the following markets:

- Medical Equipment
- Data Control Systems
- Telephone Interconnect Systems
- Electronic Instrumentation (Commercial and Industrial)

The connector is designed for high density wave solderable applications,

eliminating the need for hand soldering, except for Edge Mount Connectors and can be applied to either single- or double-sided boards. The surface mounting area is minimal and allows full usage of available printed circuit land area.

These connectors are available in 14, 24, 36, 50 and 64 positions with a choice of mounting methods for your specific needs, i.e. screw, bail mount or locking latch types. Board mounting for Right-Angle Connectors is accomplished by nut and bolt, pop riveting or an optional self-tapping screw arrangement. Edge and Vertical Mount Connectors

are board mounted by a wide choice of hardware applicable to your specific applications.

The connector requires minimum hardware and installation time and is compatible with conventional printed circuit mass production soldering processes, thereby providing cost savings.

For additional information concerning the CHAMP Printed Circuit Board Connectors, consult Tyco Electronics.

CHAMP PCB Connectors

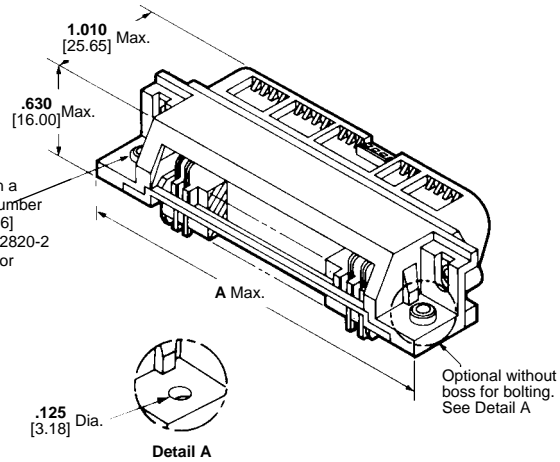
Right-Angle Connectors

Material and Finish:

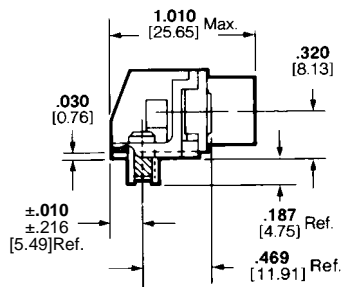
Housing, bracket, plate and comb — black thermoplastic, 94V-0 rated

Terminal — selectively plated gold over nickel plated high strength copper alloy, tin plated tails

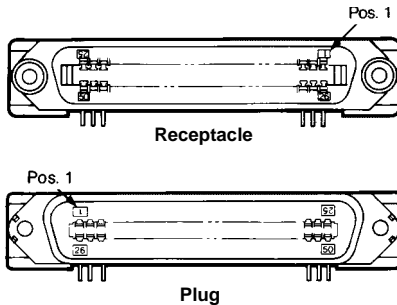
.102 [2.59] Dia. Ref. (for use with a No. 4 self-tapping screw) Part Number 552820-1 for .062-.093 [1.57-2.36] board thickness Part Number 552820-2 for .125 [3.18] board thickness (for thru-bolt mounting).



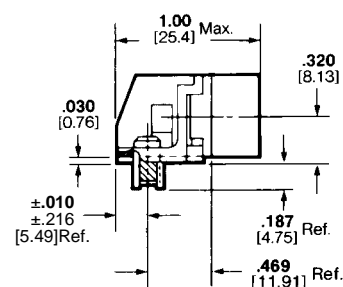
Receptacle-Side View



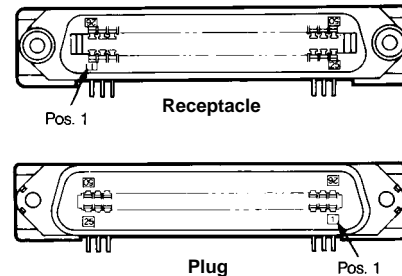
Standard Orientation



Plug-Side View



Reverse Orientation



Self-Tapping

No. of Positions	Dimension A	Part Numbers			
		Standard Orientation		Reverse Orientation	
		Receptacle	Plug	Receptacle	Plug
14	1.750 44.45	552738-1	—	—	—
24	2.175 55.25	552740-1	552741-1	552791-2 ¹	—
36	2.685 68.20	552742-1	552743-1	—	—
50	3.280 83.31	552725-1	552726-1	552725-3	552726-3
64	3.875 98.43	552744-1	—	552744-2	—

¹ For IEEE-488 applications.

Thru-Bolt Mounting (See Detail A)

No. of Positions	Dimension A	Part Numbers	
		Standard Orientation	Reverse Orientation
		Receptacle	Receptacle
24	2.175 55.25	—	552791-4 ¹
50	3.280 83.31	552725-2	—

¹ For IEEE-488 applications.

Right-Angle Connector Hardware Kits

Only fastening hardware supplied, other items shown for reference purposes



Screw Lock Hardware Kit
Part Number 552631-1
Rear Panel Mount Only
(One kit required per assembly)
For pc board-to-panel applications
(Panel thickness .062 [1.57] max.)



Bail Lock Hardware Kit
Part Number 552561-3
(For use with 180° Strain Relief Cover)
(One kit required per assembly)
For pc board-to-cable applications



Bent Bail Lock Hardware Kit
Part Number 552561-4
(For use with 90° Strain Relief Cover)
(One kit required per assembly)
For pc board-to-cable applications



CHAMP-LOK Connector Kit
Part Numbers 552723-1 (36 and 50 Position),
552723-2 (14 and 24 Position)
and 552723-3 (64 Position Only)
(One latch required per assembly)
For pc board-to-cable applications



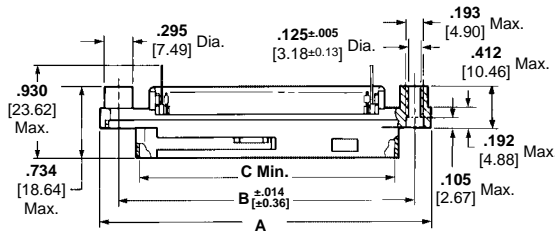
Screw Lock Hardware Kit
Part Number 229911-1
(two required per assembly)
For pc board-to-cable applications

- Notes:**
1. Recommended right-angle connector pc board mounting hardware to be a No. 4 self-tapping screw, **Part Number 552820-1** for .062-.093 [1.57-2.36] and **Part Number 552820-2** for .125 [3.18] board thickness.
 2. Metric hardware is also available for use with the 24 Position Right-Angle Receptacle per IEEE-488 **Part Number 552791-1** or -2.
 - For Standard Mount—**Part Number 552633-3**
 - For Rear Panel Mount—**Part Number 552633-4**

Vertical Connectors

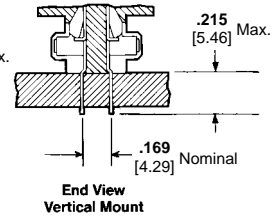
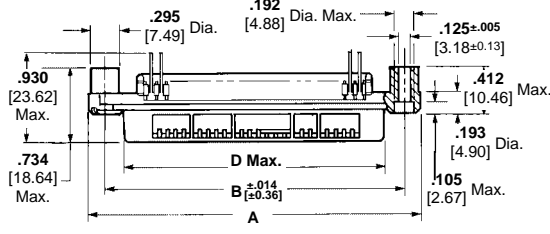
Plug

Vertical Mount Style PV—Plug, Screw Lock



Receptacle

Style RV—Receptacle, Screw or Bail Lock

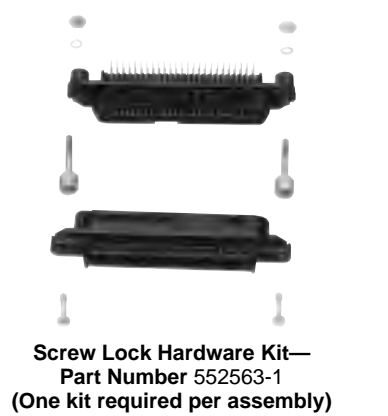


No. of Positions	Dimensions				Part Numbers	
	A	B	C	D	Plug	Receptacle
					Style PV Vertical Mount	Style RV Vertical Mount
24	2.175 55.25	1.842 46.79	1.426 36.22	1.425 36.20	—	552224-11
36	2.685 68.20	2.352 59.74	1.936 49.17	1.935 49.15	—	552235-1
50	3.280 83.31	2.946 74.83	2.531 64.29	2.530 64.26	552116-1	552118-1

1. 1.189 [4.80] Diameter Mounting Hole, for IEEE Application.
Notes: 1. Printed circuit board material—glass-filled polyester 94V-0 rated.
 2. Order all hardware required separately.

Vertical Mount Hardware Kits

Only fastening hardware supplied, other items shown for reference purpose



ACTION PIN (Compliant Pin) PCB Connectors



ACTION PIN connectors for printed circuit board applications combine the high reliability of the CHAMP Insulation Displacement connector interface with the utilization and cost savings of ACTION PIN terminals. They are available in both plug and receptacles in 14, 24, 36, 50 and 64 position sizes.

The connectors are supplied preloaded with contacts and a plastic cover which serves as the bearing surface to press the connector into the board. Rapid assembly is made possible by use of a simple arbor tool. The

plastic cover also serves as a dust cover which may be left in place until ready to use.

The connectors may be mounted on pc boards with a thickness of .062 [1.57] to .125 [3.18]. They are designed for interface with standard CHAMP IDC cable-to-panel plugs or receptacles and are available for use with screw lock, bail lock or unique CHAMP-LOK connector locking clip hardware.

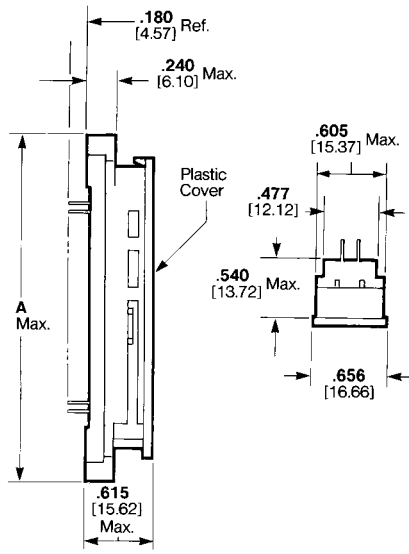
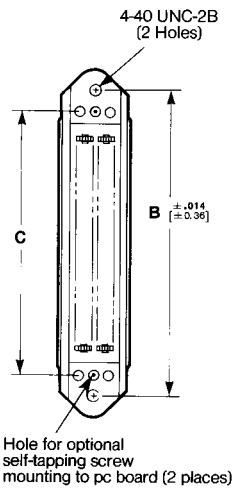
The design of the ACTION PIN terminal permits insertion into printed circuit boards having either plated-thru or unplated

holes. In plated-thru holes, completely reliable termination may be accomplished either by press fit of the pins or by both press fitting and subsequent conventional soldering. In unplated holes, the pins must be soldered in place.

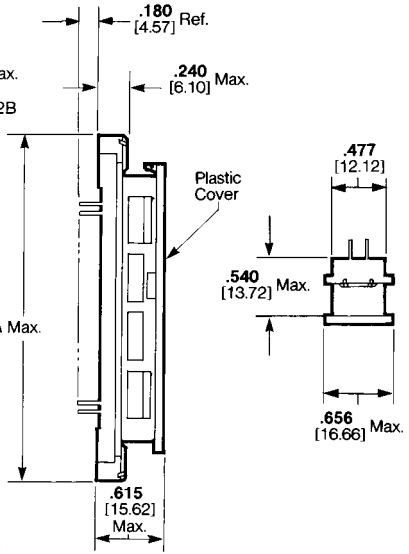
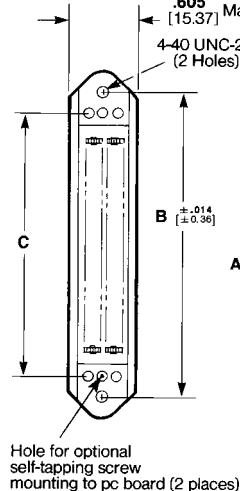
For the connectors with self-retained contacts, hardware to secure connector to the pc board may not be required if unmating force of mating connectors does not exceed 1 lb. [4.45 N] per terminal (50 lbs. [222.4 N] for 50 positions.)

ACTION PIN (Compliant Pin) PCB Connectors

Plug¹



Receptacle¹



Hole for optional self-tapping screw mounting to pc board (2 places)

Hole for optional self-tapping screw mounting to pc board (2 places)

¹ Position 1 identification on mating side of housing flange.



No. of Positions	Dimensions			Part Numbers	
	A	B	C	Plug	Receptacle
14	1.750 44.45	1.416 35.97	1.016 25.81	—	553443-1
24*	2.175 55.25	1.842 46.79	1.442 36.63	553444-2	553443-2
36	2.685 68.20	2.352 59.74	1.952 49.58	553444-3	553443-3
50	3.280 83.31	2.946 74.83	2.546 64.67	553444-4 554758-11	553443-4 554753-11 557984-12
64	3.875 98.43	3.542 89.97	3.142 79.81	553444-5 554759-11	553443-5

*For IEEE-488 Applications use Part Number 553609-1.

¹ Connector contains self retained terminals.

² Shielded for screw lock application.

Hardware on page 1124 is compatible with the ACTION PIN Connectors on this page.

Shielded PCB Connectors

Product Facts

- Excellent protection from electromagnetic interference or electrostatic discharge to sensitive circuitry
- Connectors compatible and intermateable with all others of similar design
- Available in three different panel-mount styles
- The shielded right-angle, edge-mount and vertical-mount CHAMP connectors for pc board application are rear panel-mounted
- Choice of fastening hardware—standard screw lock, bail lock, metric screw locks per IEEE-488 applications
- Connectors available in kit form or preassembled versions
- Thick die-cast metal shell offers superior shielding over a wide frequency range
- Shell protects equipment from inadvertent electrostatic discharge
- Housings are stackable
- Applied cost savings
- Available in 24, 36 and 50 positions



Shielded CHAMP Connectors afford excellent protection from electromagnetic interference or electrostatic discharge to sensitive circuitry. These connectors are completely compatible and intermateable with all others of a similar design, yet they are unique because of their superior construction.

They are available in three different panel-mount styles. Each style consists of an appropriate CHAMP connector and a rugged die-cast metal shell. The shielded right-angle, edge mount and vertical mount CHAMP connector versions for pc board applications must be rear panel-mounted.

A choice of fastening hardware is available in each of

the styles noted above. They include standard screw lock, bail lock or metric screw lock as required by IEEE-488.

Each connector is shipped in bulk or individual kit form and consists of the die cast metal shell and appropriate style connector. After pc board mounting, it is easily installed to the panel with the appropriate hardware kit, which is ordered separately.

The thick die-cast metal shell offers superior shielding over a wider frequency range than drawn sheet metal or plated/filled plastics. This shell also protects the equipment from inadvertent electrostatic discharge because the die-casting, together with the fastening hardware,

assures a reliable chassis ground connection.

Due to its inherent rigidity, the die-cast housing may be stacked without distortion or bending of connector flanges and panel. This advantage contributes to the overall effectiveness of the system.

The Shielded CHAMP right-angle pc board connector offers a low-cost transition to or from double-sided circuitry, the Shielded CHAMP edge-mount and vertical-mount connectors also allow accessibility to both sides of double-sided boards. All three of these styles are available in 24, 36 and 50 position sizes.

Shielded Right-Angle Connectors

Preassembled Bail Lock



Material and Finish:

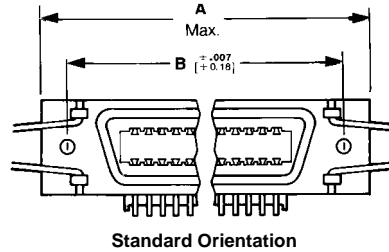
Housing, Bracket Adaptor Comb and Terminal Support Plate — polyester, black

Bail-Clip — passivated stainless steel

Receptacle Shield — bright nickel over copper plated die casting

Terminals — selectively plated gold over nickel plated high strength copper alloy, tin plated tails

Ground Bracket — zinc plated carbon steel



No. of Positions	Dimensions		Screw Size	Part Numbers Standard	
	A	B		Standard	Reverse
36	2.710 68.83	2.352 59.74	4-40	555233-1	
50	3.305 83.95	2.946 74.83	4-40	554901-11	

¹ SCSI applicable

Preassembled Screw-Lock

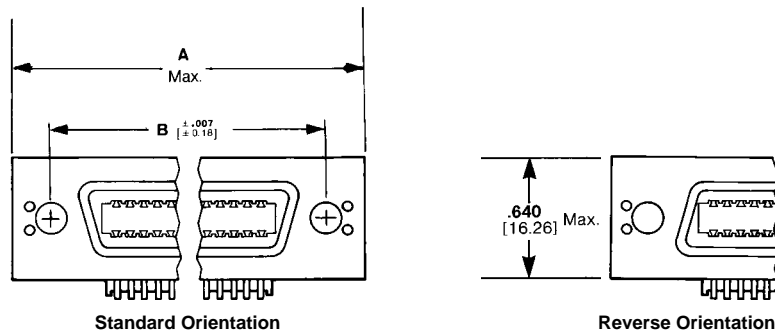


Material and Finish:

Housing, bracket, connector comb and terminal support plate — thermoplastic (black)

Terminals — selectively plated gold over nickel plated high strength copper alloy, tin plated tails

EMI Shield — Nickel plated die casting



No. of Positions	Dimensions		Screw Size	Part Numbers	
	A	B		Standard	Reverse
24	2.205 56.01	1.842 46.79	6-32	553811-12	553811-22
50	3.305 83.95	2.946 74.83	4-40	553813-3 ¹	553813-4 ¹

¹ SCSI applicable with use of bail lock hardware kit Part Number 554818-2.

² Can be used with Interface Bus Application per IEEE-488.

Shielded Right-Angle Connectors

Board Locking Grounding

Material and Finish:

Housing, Bracket Adapter Comb and Terminal Support Plate — polyester, black

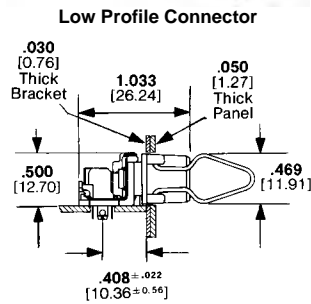
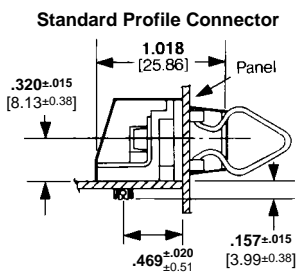
Bail-Clip — passivated stainless steel

Receptacle Shield — bright nickel over copper plated die casting

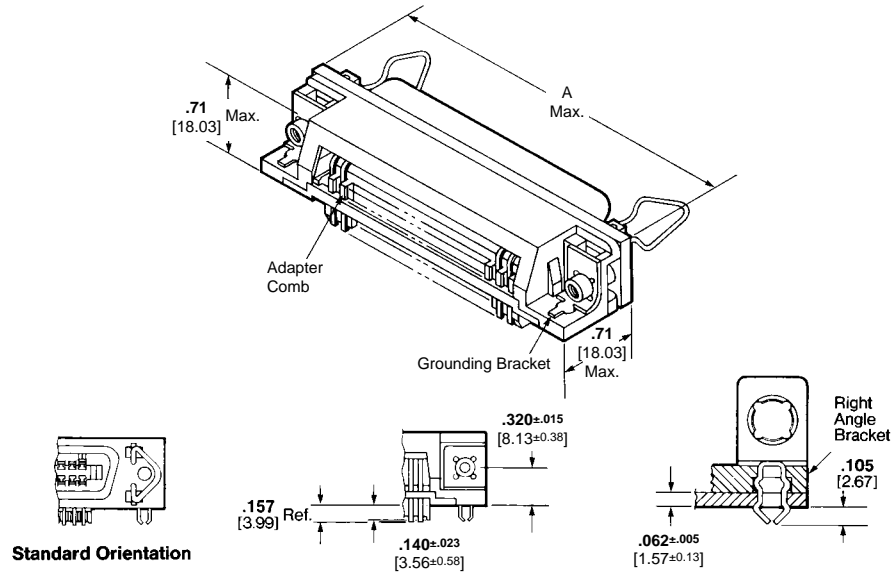
Terminals — selectively plated gold over nickel plated high strength copper alloy, tin plated tails

Ground Bracket — tin-lead plated carbon steel

Rear Panel Mounting Detail (Shown for reference only)



(See chart footnotes)



No. of Positions	Dimension A	Hardware Type	Screw Size	Part Numbers		
				Standard	Reverse	Low-Profile
24	2.205 56.01	Screw Lock	6-32	554923-2 ¹	554923-1 ¹	555139-1 ⁴ 555139-2 ⁴
36	2.715 68.96	Bail Lock	4-40	555119-1 ¹ 555520-2 ^{1,3}	—	—
50	3.320 84.33	Bail Lock	4-40	555057-1 ^{1,2}	—	—
50	3.320 84.33	Screw Lock	4-40	557932-2 ⁵	557932-1 ⁵	—

- ¹ Maximum Pc board thickness is .062 [1.57]
- ² SCSI applicable
- ³ Has drawn metal shield
- ⁴ Shielded with ground bracket 4-40 thread (low profile)
- ⁵ Plated Backshell

Shielded Right-Angle Connector Hardware Kits

(Only fastening hardware supplied; other items shown for reference purposes.)

Material and Finish:

Bracket — Zinc plated carbon steel

Pan Head Screw — passivated stainless steel

Screw Lock — zinc plated with yellow chromate over steel

Metric Screw Lock — black oxide coated carbon steel

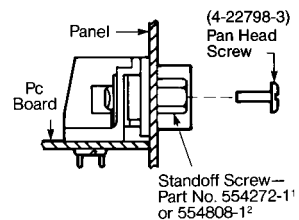


Screw Lock Hardware Kit
Part Number 554272-1
(one kit required per assembly)



Metric Screw Lock Hardware Kit for 24-Pos. IEEE-488 Application
Only Part Number 554808-1
(one kit required per assembly)

Preassembled Shield Hardware Mounted View



- ¹ Contains two 4-40 X .65 [16.51] long standoff screws, plus two 4-40 X .312 [7.92] long pan head screws.
- ² Contains two metric standoff screws with M 3.5 X 0.6-6H (internal threads) and 6-32 UNC-2A (external threads), for IEEE-488 applications.

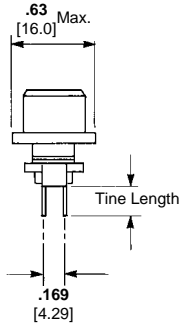
Shielded Vertical Mount Connectors

Material and Finish:

Housing — thermoplastic (black)

Terminals — selectively plated gold over nickel plated high strength copper alloy, tin plated tails

EMI Shield — nickel plated die casting



Screw Lock



Bail Lock

No. of Positions	Tine Length	Part Numbers		
		Screw Lock		Bail Lock
		6-32 Hole	4-40 Hole	4-40 Hole
24	.115	554501-1 ³	—	—
	2.92	—	—	—
36	.100	—	—	555757-2 ⁴
	2.54	—	—	554145-4
50	.215	—	—	554216-3 ²
	2.92	—	554217-4 ¹	—
	.215	—	—	—
	5.46	—	—	—

¹ SCSI applicable with use of Bail Lock Hardware Kit Part Number 554818-2.

² SCSI applicable.

³ Can be used with Interface Bus Applications per IEEE-488.

⁴ Low-profile, stamped shield.

Shielded Vertical Mount Connector Hardware Kits

Only fastening hardware supplied, other items shown for reference purposes.

Material and Finish:

Pan Head Screw—zinc plated steel

Metric Standoff Screw—black oxide coated steel

Screw Lock

Part Number 554043-2
(Screw)



Metric
Part Number 554858-1 (Kit)

Recommended Pc Board Mounting Hardware Screw Length for PC Board Thickness

Screw Length (Maximum)	PC Board Thickness
.260	.062
6.60	1.57
.290	.093
7.37	2.36

Application Tooling

Portable Hand Operated Tool (MI-1)
Refer to IS 408-7559



Lacing Fixture
Refer to IS 408-7559

Standard Tool Part Number 229378-1

The standard portable hand-operated tool (MI-1) is designed for field applications and medium volume production and is capable of terminating all connectors up to 50 positions with 90° wire dress.

Lacing Fixture Part Number 230328-3

90° or 180° wire dress can be obtained with the MI-1 tool by using the removable lacing combs and placing them in the lacing fixture (shown above and ordered separately) all connectors up to 50 positions. Will not accommodate 64 positions.

Comb Kit* (6 per kit) Part Number 230327-1

For greater productivity, additional operators can use additional comb sets and lacing fixtures with a single tool.

*50-position Comb No. 231619-1 is for small conductor diameter insulation (less than .035 [0.89]) and two are required per MI-1 Tool.

Note: Best results obtained with conductor diameter to .045 [1.14] Max. with PVC insulation.

Half-Tap Tool Part Number 229378-3

For half-tap (daisy chain), 90° wire dress applications.

Multiple Wire Tool (90° wire dress) Part Number 2-229378-0

Multiple Wire Conversion Kit Part Number 230596-1

If required, the standard tool may be converted to multiple wire termination capability by use of separate multiple wire tools or a simple conversion kit.

50-Position Tool Part Number 231925-1

64-Position Tool Part Number 231880-2

F-Slot conversion tool for existing MI-1 Part Number 231928-1

For termination of F-Slot Cable Connectors.

64-Position Tool Part Number 231880-1 Reference IS 408-9412

The 64-position Comb Kit No. 231619-3 for small conductor diameter insulation (less than .035 [0.89]).

For termination of 64-position, 90° wire dress connectors only.

Palm Grip Hand Tool Kit
Part Number 229764-2, 14-64 Positions
Part Number 229451-2, 50 Position Only
Refer to IS 408-7642



The Palm Grip Hand Tool Kit is recommended for field application and low volume production. The kit includes the items listed in the chart below.

Item	Part Number
Palm Grip Tool	229451-1
Index Slides for:	
14 positions	229706-1
24 Positions	229707-1
36 Positions	229708-1
50 Positions	229621-1
64 Positions	229709-1
Cable Clamp	229622-1
Ratchet Release	229765-1
Insertion/Extraction Tool	230238-1
Tool Carrying Case	229710-1

T-Handle Wire Insertion Tool
Part Number 229384-1
Refer to IS 408-7558



The T-Handle Wire Insertion Tool is designed for minor repair work on all CHAMP connectors. It does not have the capacity of shearing the wire in the termination process.

Terminal Insertion/Extraction Tool
Part Number 230238-1
Refer to IS 408-7787



The Insertion/Extract tool is designed to replace damaged contacts in the CHAMP plug and receptacle connectors.

Application Tooling

Product Facts

- Terminates discrete wire and laminated cable using the insulation displacement termination technique
- Accepts 14, 24, 36, 50 or 64 Position CHAMP Connectors
- Contains tooling assembly and conversion kits for each position
- Designed to terminate laminated cable with 28-24 AWG [0.08-0.2mm²] (stranded) or 28-24 AWG [0.32-0.51mm] (solid) conductors on .085 [2.16] centerline spacing
- Produces reliable electrical path between conductor and contact
- Able to terminate most conductors up to .045 [1.14] insulation diameter



90° Dress CHAMP Applicator and Manual Arbor Tool



180° Dress CHAMP Applicator and Manual Arbor Tool

Description	Connector Positions	Part Numbers	
		Laminated Cable on .085 [2.16] Centerline	Discrete Wire Cable 90°/180° Dress
CHAMP Applicator Only	14 thru 64	231592-2 ¹	231593-2 ²
CHAMP Applicator with Manual Arbor Tool for large wire (.058 [1.47]Max.)	24 thru 64	—	820805-1 ³

Use with Manual Arbor Tool **Part Number** 91085-2 refer to Instruction Sheet 408-7777

¹ Refer to Instruction Sheet 408-3137

² Refer to Instruction Sheet 408-3133

³ Refer to Instruction Sheet 408-9856

Arbor Tooling

CHAMP Miniature Applicator System

The CHAMP Arbor Tool System is capable of terminating approved laminated cables on .085 [2.16] centers without cable preparation and discrete wires in 14, 24, 36,

50 and 64 position CHAMP insulation displacement connectors.

The system consists of a manual Arbor Tool and Applicator.

Applicators are compatible with Arbor Tooling currently applying other AMP products.

The Arbor Tool offers speed gained by true mass termination and a production oriented system offering maximum flexibility and efficiency. Connector and cable size conversions can be accomplished with a minimum of downtime.

Application Tooling

CHAMPOMATOR 2.5 Terminating Machine

See page 13018

Controller (Required)

Part Number 852423-X

-1 120V - USA

-2 100V - Far East

-3 230V - Europe

CM 409-5791

CHAMPOMATOR 3A Terminating Machine

See page 13019

Part Number 1-761420-3

CM 409-5771

Note: Consult Tyco Electronics for appropriate part numbers.

Line Detwister

Part Number 852725-1 (electric)

Part Number 852725-2 (pneumatic)

CHAMP Latch Tooling

Semi-Automatic Bench Tooling



Controller

Applicator

CHAMPOMATOR 2.5 Terminating Machine

Part No.	Customer Description	Manual	IS
354786-2	180° Wire Dress	409-5839	408-9867
354786-3	90° Wire Dress		

Automatic Tooling



CHAMP Latch Hand Tool
Part Number 231561-1
IS 408-3135



CHAMP Latch Applicator (only)
Part Number 231576-1
IS 408-3134

Shown installed in Manual Arbor Tool
Part Number 91085-2
IS-408-7777

This tool is capable of terminating ribbon cable with 26 AWG [0.46 mm] (solid); 28 AWG [0.32 mm] (solid) and 28 AWG [0.08-0.09 mm²] (stranded) or 30 AWG [0.25 mm] (solid) conductors to 24, 36 and 50 position low profile connectors.

If using other AMP-LATCH Ribbon Cable Connectors, use Hand Tool Kit **Part Number** 768340-1 (IS 408-9828) and Locator Kit **Part Number** 768351-1 (IS 408-9839). Tool Kit includes bench mount for increased productivity. This provides the most versatile and economical tooling.



This tooling is capable of terminating the same solid or stranded conductors as the hand tool. The tooling is a two-piece kit that includes a locator and a cable stop insert.

The locator features a connector track to support the connector, a connector stop to position the

connector and a cable guide to align the cable with the connector.

The reversible cable stop insert accommodates dead-end (flush) or daisy-chain (feed-thru) terminations with .200 [5.08] minimum spacing between connectors.

If using other AMP-LATCH Ribbon Cable Connectors use Arbor Tool **Part Number** 91085-2 or Pneumatic Auto-Cycle Tool, **Part Number** 91112-3 (IS 408-6732) with base tool **Part Number** 768338-1 (IS 408-9827), and Locator Kit, **Part Number** 768351-1 (IS 408-9839).

For 64 Position CHAMP Latch use Applicator, **Part Number** 230537-1 (includes tooling). Tooling Only, **Part Number** 230536-1. IS 408-6504

Product Facts

- Cost-effective shielded connector for data, communication and medical system interconnections
- Plug has insulation displacement contacts for mass termination of cable for 28 to 24 AWG [0.08 to 0.2 mm²] 7-strand wire
- Integral wire guidance system provides effortless conductor indexing and seating prior to mass termination of the plug (round cable only)
- Durability, 3000 cycles
- Available in 4, 6, 8 and 16 position plug and receptacle styles
- Compatible with shielded flat, round and coiled cables
- Plug supplied with preloaded contacts on .050 [1.27] centerlines
- Variety of keying options available for each size
- Dual strain reliefs—one for conductors and one for the cable jacket
- Low insertion force receptacle design
- Plug and receptacle assemblies and most cable assemblies are recognized under the Component Program of Underwriters Laboratories Inc. and are certified by the Canadian Standards Association



The SDL (Shielded Data Link) connector meets industry's demand for a cost-effective shielded connector. This connector provides EMI/RFI protection for a wide range of applications from critical medical systems to point-of-sale equipment, including computers, computer peripherals, video games and process control equipment. This connector is also compatible with flat, round and coil cables that use 28 to 24 AWG [0.08 to 0.2 mm²] 7-strand wire.

The SDL plug can be mass terminated using a proven reliable insulation displacement wire termination technique. Mass termination dramatically reduces the labor cost of attaching a connector to a cable. Design enhancements have yielded effortless wire indexing and seating prior to the mass termination.

The SDL connector mates smoothly and effortlessly because of its low force contact design. It locks in place with a tactile feel and an audible click which is caused by the action of the two plastic latches.

Each connector size is available with a choice of several standard molded-in keying arrangements. The geometry of the plug and receptacle eliminates the possibility of inserting the plug upside down.

The gold-to-gold contact configuration of the SDL connector has been proven in the data systems and telecommunications markets after years of successful service.

Need more information?

Call the Technical Support Center:
1-800-522-6752

The Technical Support Center is staffed with specialists well versed in all AMP products. The Center can provide you with:

- Engineering Support
- Catalogs
- Technical Documents
- Product Samples
- AMP FAX Service—Product Information faxed to you immediately
- Authorized Distributor Locations

Performance Specifications:

Current/Voltage Rating — 30 VAC/42 VDC at 1.5 amps max.

Operating Temperature — -20°C to +80°C

Shielding Effectiveness — 20 dB min. from 30 MHz to 500 MHz and 10 dB min. from 500 MHz to 1 GHz

Mating Force — 8.5 lbs [37.81 N] max.

Unmating Force — 7 lbs [31.14 N] max.

Current Cycling — 500 min.

Note: Above testing was conducted utilizing an 8-conductor flat aluminum, polyester shielded cable.

For complete product information, order Catalog 82101

Plug Assemblies for Flat Cables

50 Series Plug Assemblies for Flat Cable (24 AWG or 26 AWG [0.2 mm² or 0.12-0.15 mm²] Cable)

Material and Finish:

Housings—Smoke gray, polycarbonate, 94V-2 rated

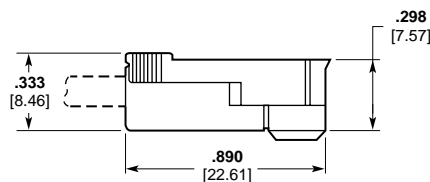
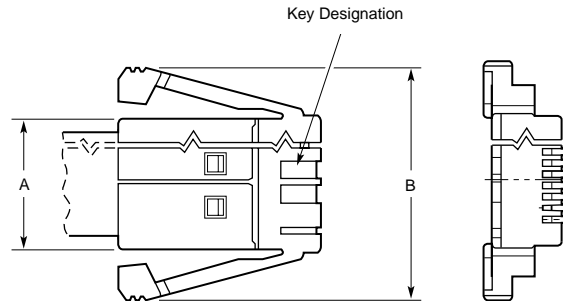
Contacts—Copper alloy, plated .000050 [0.00127] min. gold on mating area over nickel underplating

Shield—Copper alloy, plated bright tin-lead

Cable Requirements

These parts are for termination of flat cable with individual conductor insulation diameters of .045/.050 [1.14/1.27] (50 Series).

For Cable Preparation and Material Restrictions see Application Specification 114-2086.



Note: One plug assembly required for each flat cable termination.

Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Certified by Canadian Standards Association File No. LR35510



Number of Conductors	Dimensions		Key ¹	Part Numbers ²	Die Sets for Connectors
	A	B			
4	.375	.664	A	1-520423-1	58261-1
	9.52	16.87	C	3-520423-1	

¹ Other keying options are available; contact Tyco Electronics for information.

² Prefix number of plug assemblies designates key configuration. Suffix number of plug assemblies is a code for the number of conductors. Prefix and suffix numbers of plug assemblies must match prefix and suffix numbers of the intended mating receptacles. Keys are molded in as an integral part of the plug and receptacle.

Application Tooling

Die sets for connectors listed in the table on the next page fit into the following:

Hand Tool Frame Number 58194-1

Pneumatic Machine Number 312522-1

(Requires Die Holder Number 58201-1)

For complete product information, order Catalog 82101

Plug Assemblies for Round Cable

50 Series (24 AWG or 26 AWG [0.2 mm² or 0.12–0.15 mm²]) Plug Components for Round Cable

Material and Finish:

Housing—smoke gray, polycarbonate, 94V-2 rated

Contacts—Copper alloy, plated .000050 [0.00127] min. gold on mating area over nickel underplating

Shield—Steel, plated bright tin

Cable Requirements

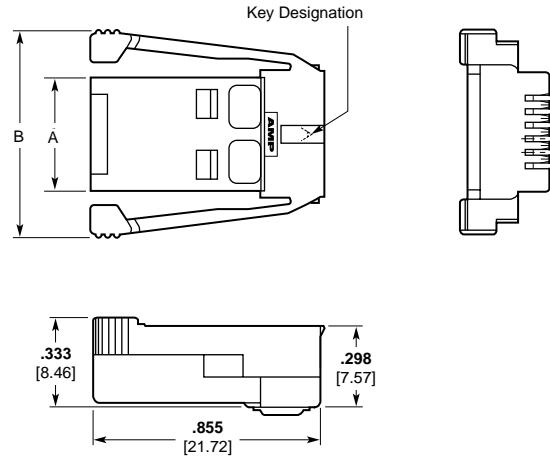
These parts are for termination of round cable with individual conductor insulation diameters of .045/.050 [1.14/1.27] (50 Series) or .035/.038 [0.89/0.97] (36 Series).

For Cable Preparation and Material Restrictions see Application Specification 114-2090.

Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Certified by Canadian Standards Association File No. LR35510

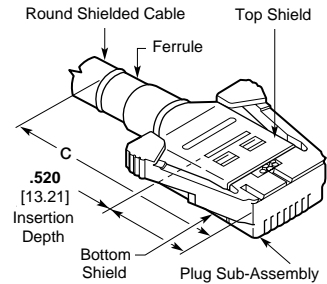
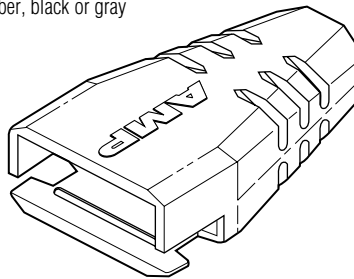


Boot (for round cable only)

(Slides over cable and completed plug assembly)

Material

Thermoplastic rubber, black or gray



Note: Plug sub-assembly—top shield, bottom shield and ferrule are required for each round cable termination.

Application Tooling

Die sets for connectors and ferrules listed in the table below fit into the following

Hand Tool Frame Number 58194-1

Pneumatic Machine Number

312522-1 (Requires Die Holder Number 58201-1)

Number of Conductors	Dimensions			Key ¹	Sub-assemblies		Die Sets for Connectors	Part Numbers ²			Die Sets for Ferrules	Boot	Cable O.D.
	A	B	C		50 Series	36 Series		Top Shield	Bottom Shield	Ferrule			
6	.440 11.18	.764 19.41	1.670 42.42	A	1-520424-2	—	58195-2	520462-1	520463-1	—	—	520852-1	.211–.225 5.36–5.73
				C	943010-2	—							
8	.540 13.72	.864 21.95	1.850 46.99	A	1-520424-3	1-520532-3	58195-3	520464-1	520465-1	520436-1	58166-5	520853-1	.179–.212 4.55–5.38
				C	3-520424-3	3-520532-3				520437-1	1-58166-2		.224–.244 5.69–6.20
16	.940 23.88	1.264 32.11	2.020 51.31	A	1-520424-6	—	58195-6	520466-1	520467-1	520440-1	58166-7	520854-1	.229–.272 5.82–6.91
										520441-1	1-58166-3		.288–.308 7.32–7.83

¹ Other keying options are available; contact Tyco Electronics for information.

² Prefix number designates key configuration. Suffix number is a code for the number of conductors. Prefix and suffix numbers of plug assemblies must match prefix and suffix numbers of the intended mating receptacles. Keys are molded in as an integral part of the plug and receptacle.

³ Connector for Medical Information Bus (M.I.B.). Special polarization will not mate with standard product. Mates with No. 943013-2 only.

For complete product information, order Catalog 82101

Side Entry Receptacles

Panel Ground and PCB Ground

Material and Finish

Contacts—Copper alloy, plated .000050 [0.00127] min. gold on mating area with tin-lead plated solder tails over nickel underplating on entire contact

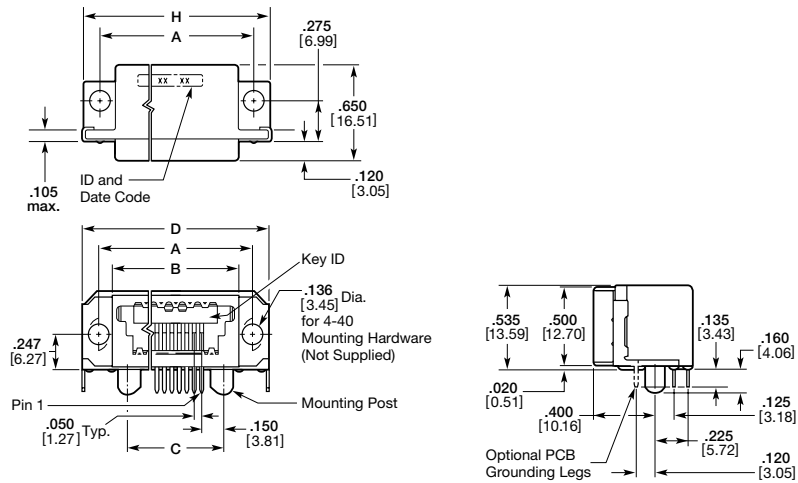
Shield—Copper alloy, plated bright tin-lead

Housing—Black, polyester or polysulfone, 94V-0 rated

Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Certified by Canadian Standards Association File No. LR35510



Number of Conductors	Dimensions					Key ¹	Part Numbers ²	
	A	B	C	D	H		Side Entry Panel Ground	Side Entry PCB Ground
4	.850	.659	.450	1.100	1.050	A	—	1-520459-1
	21.59	16.74	11.43	27.94	26.67	E	—	5-520459-1
6	.950	.759	.550	1.200	1.150	A	—	1-520459-2
	24.13	19.28	13.97	30.48	29.21	—	—	943013-2 ³
8	1.050	.859	.650	1.300	1.250	A	—	1-520459-3
	26.67	21.82	16.51	33.02	31.75	C	—	3-520459-3
16	1.450	1.259	1.050	1.700	1.650	E	5-520421-6	—
	36.83	31.98	26.67	43.18	41.91	—	—	—

³ Connector for Medical Information Bus (M.I.B.) special polarization—will not mate with standard product. Mates with Number 943010-2 only.

Side Entry Boardlock Receptacles, Panel Ground and PCB Ground

Material and Finish

Contacts—Copper alloy, plated .000050 [0.00127] min. gold on mating area with tin-lead plated solder tails over nickel underplating on entire contact

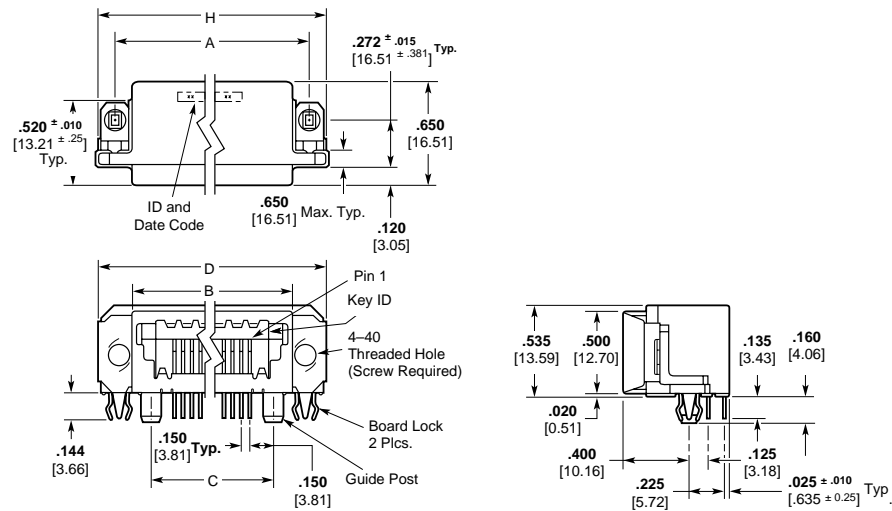
Shield—Copper alloy, plated bright tin-lead

Housing—Black, polyester or polysulfone, 94V-0 rated

Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Certified by Canadian Standards Association File No. LR35510



Number of Conductors	Dimensions					Key ¹	Part Numbers ²
	A	B	C	D	H		
4	.850	.660	.450	1.100	1.050	D	4-943036-1
	21.59	16.76	11.43	27.94	26.67	E	5-943036-1
8	1.050	.860	.650	1.300	1.250	A	1-943036-3
	26.67	21.84	16.51	33.02	31.75	—	—
16	1.450	1.260	1.050	1.700	1.650	A	1-943036-6
	36.83	32.00	26.67	43.18	41.91	—	—

¹ Other keying options are available; contact Tyco Electronics for information.

² Prefix number designates key configuration. Suffix number is a code for the number of conductors. Prefix and suffix numbers of plug assemblies must match prefix and suffix numbers of the intended mating receptacles. Keys are molded in as an integral part of the plug and receptacle.

Notes 1 and 2 apply to above chart also.

For complete product information, order Catalog 82101

Top Entry Receptacles

Panel Ground

Material and Finish

Contacts—Copper alloy, plated .000050 [0.00127] min. gold on mating area with tin-lead plated solder tails over nickel underplating on entire contact

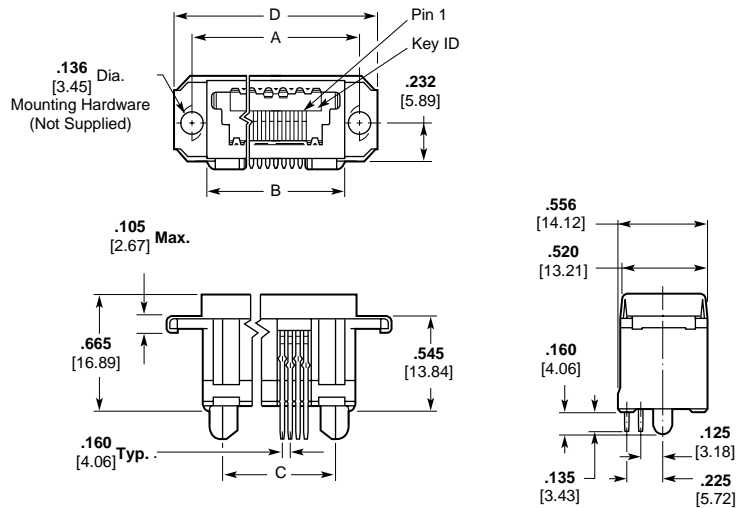
Shield—Copper alloy, plated bright tin-lead

Housing—Black, polyester or polysulfone, 94V-0 rated

Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476



Certified by Canadian Standards Association File No. LR35510



1
Input/Output Connectors

Number of Conductors	Dimensions				Key ¹	Part Numbers ²
	A	B	C	D		
4	.850	.660	.450	1.100	A	1-520422-1
	21.59	16.76	11.43	27.94	D	4-520422-1
					E	5-520422-1
6	.950	.760	.550	1.200	E	5-520422-2
	24.13	19.30	13.97	30.48		
8	1.050	.860	.650	1.300	C	3-520422-3
	26.67	21.84	16.51	33.02	E	5-520422-3
16	1.450	1.260	1.050	1.700		
	36.83	32.00	26.67	43.18	A	1-520422-6

¹ Other keying options are available; contact Tyco Electronics for information.

² Prefix number designates key configuration. Suffix number is a code for the number of conductors. Prefix and suffix numbers of plug assemblies must match prefix and suffix numbers of the intended mating receptacles. Keys are molded in as an integral part of the plug and receptacle.

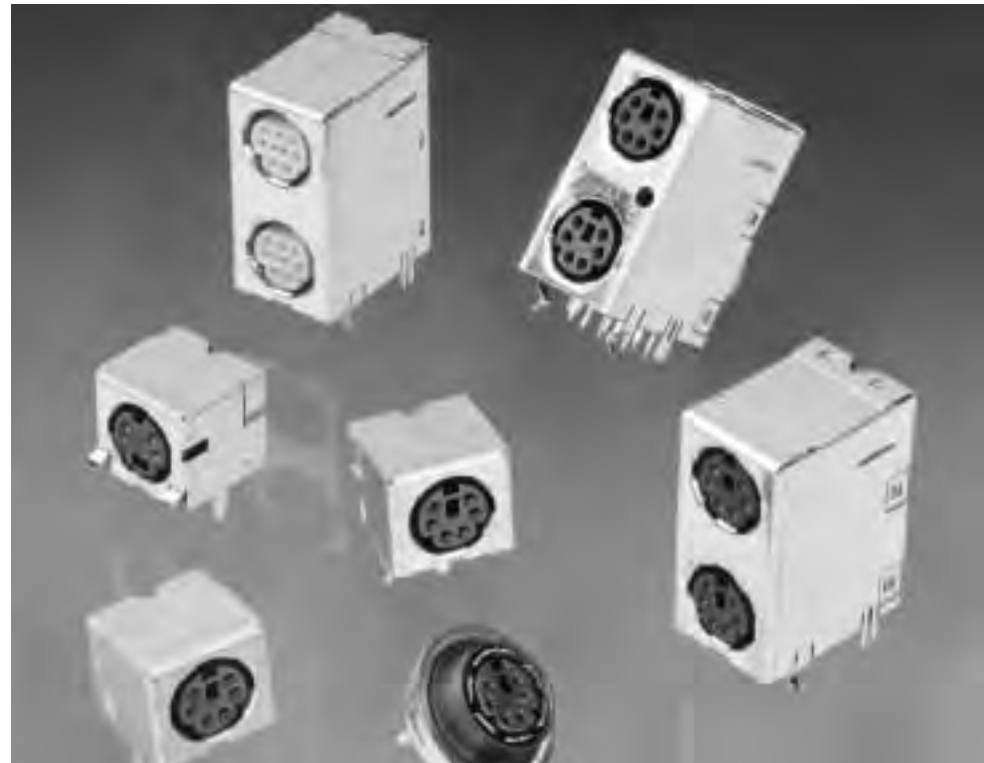
For complete product information, order Catalog 82101

Product Facts

- Compact size, same envelope dimension for all sizes — 4 through 8
- Available in stacked configurations
- Stacked visual keying available
- Right-angle and vertical receptacles incorporate one-piece shield for excellent shielding effectiveness
- Polarized and keyed to prevent mismatching
- Housings made of 94V-0 rated thermoplastic, IR reflow compatible
- Right-angle receptacles compatible with robotic pick-and-place assembly
- Receptacles with fully formed socket contacts with proven retention system
- Receptacles accept plug connectors with or without latches

Commercial Approvals

- Recognized under the Component Program of the Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR 7189 
- Produced under a Quality Management System certified to ISO 9001 



Shielded Miniature Circular DIN printed circuit board receptacles are ideal I/O connectors where board real estate is at a premium.

Miniature Circular DIN, pcb thru-hole receptacles are available in a choice of right-angle or vertical mount designs.

Right-angle receptacles are designed for automated assembly. They incorporate registration notch controlled datum surfaces and contact locations needed for robotic pick-up and placement. The housings, made of 94V-0 rated material, are designed to withstand the rigors of IR reflow soldering. The right-angle design incorporates a one-piece copper alloy shield and features optional front panel grounding fingers which ensure direct grounding.

Super VHS Shields are available — contact Tyco Electronics.

Thru-hole contacts are tin-lead plated for easy soldering, while the receptacle's stand-off design prevents shield damage to the pc board traces, and enhances cleaning after soldering.

Vertical mount receptacles are offered in unshielded and two shielded configurations — with or without front panel screw-down.

Performance Specifications:

Voltage Rating — 30 VAC rms, or 30 VDC

Current Rating — 1 ampere, max.

Dielectric Withstanding Voltage — 500 VAC rms

Termination Resistance — 30 milliohms, max.

Mating Force — 9 lbs [40 N], max.

Unmating Force — 2 lbs [8.9 N], min.

Durability — 100 mating cycles for gold flash plating

250 mating cycles for .000015

[0.00038] gold plating

500 mating cycles for .000030

[0.00076] gold plating

Application Temperature —

Max. 255°C for 4 min.

Operating Temperature Range —

-55°C to +105°C

For complete product information, order Catalog 82212

Right-Angle Board-Mount Receptacles, Thru-Hole

Material and Finish:

Housing — Thermoplastic, 94V-0 rated, black

Contacts — Copper alloy, duplex plated as follows:

A — Gold flash in mating area, .000120 [0.00305] min. tin-lead on solder tail, all over .000050 [0.00127] min. nickel underplating

B — .000030 [0.00076] gold min. in mating area, .000120 [0.00305] min. tin-lead on solder tail, all over .000050 [0.00127] min. nickel underplating

Shield — Copper alloy, plated .000059 -.000158 [1.50-4.00µm] thick bright tin

Technical Documents:

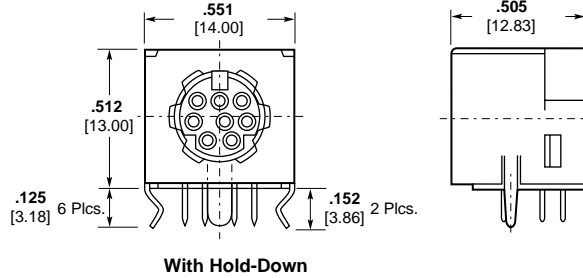
Product Specification
108-1225

Application Specification
114-40031

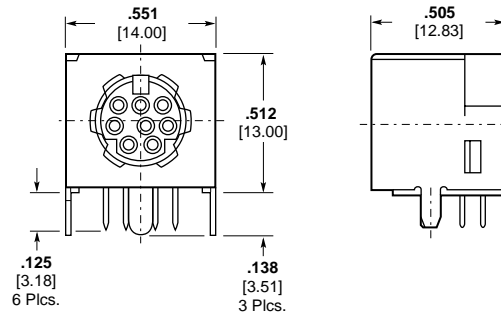
Notes:

1. Recommended pc board thickness is .062 [1.57].

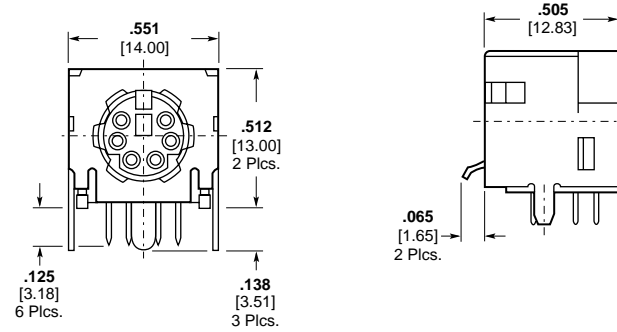
Part Number 749231-1



Part Number 749265-1



Part Number 750071-1



No. of Positions	Duplex Plating Code	Part Numbers		
		With Hold-Down	Without Hold-Down	With Front Panel Grounding Fingers
4	A	749230-1	—	—
	B	749181-1	749264-1	750069-1 ¹
5	B	749274-1	—	—
	A	749231-1	749265-1	—
6	B	749180-1	749266-1	750071-1 ¹
	B	—	749270-1	—
8	A	749232-1	749268-1	—
	B	—	—	750073-1 ¹

¹ This connector ensures grounding to the front panel when the gap between the pc board edge and the panel is no greater than .060 [1.52].

For complete product information, order Catalog 82212

6-Position Over 6-Position Stacked Receptacles, Thru-Hole

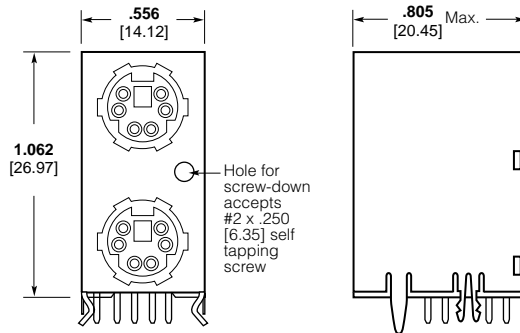
Material and Finish:

Housing — Thermoplastic, 94V-0 rated, black

Contacts — Copper alloy, duplex plated

A — .000030 [0.00076] gold min. in mating area, .000120 [0.00305] min. tin-lead on solder-tail, all over .000050 [0.00127] min. nickel underplating

Shield — Copper alloy, plated .000100 [0.00254] min. tin-lead over .000030 [0.00076] min. nickel



Part Number 786580-1



Technical Documents:

Product Specification

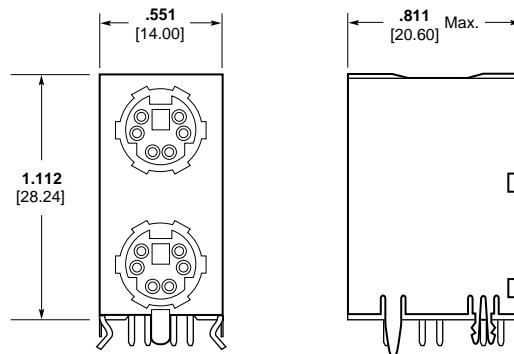
108-51010

Application Specification

114-51004

Notes:

1. Recommended pc board thickness is .062 [1.57].



Part Number 84405-1



For complete product information, order Catalog 82212

Vertical Mount Receptacles, Thru-Hole

Material and Finish:

Housing — Thermoplastic, 94V-0 rated, black

Outer Shield — Copper alloy, plated .000100 [0.00254] min. tin-lead over .000100 [0.00254] min. copper

Inner Shield — Copper alloy, plated .000100 [0.00254] min. tin-lead over .000050 [0.00127] min. nickel

Contacts — Copper alloy, duplex plated as follows:

B — .000030 [0.00076] gold min. in mating area, .000050 [0.00127] min. nickel underplating

C — .000015 [0.00038] gold min. in mating area, .000120 [0.00305] min. tin-lead on solder tail, all over .000050 [0.00127] min. nickel underplating

Technical Documents:

Product Specification

108-1225

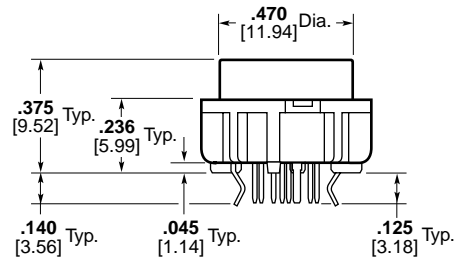
Application Specification

114-40031

Notes:

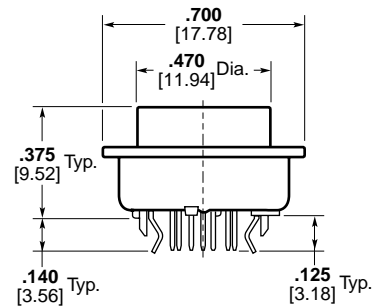
1. Recommended pc board thickness is .062 [1.57].

Part Number 750337-2



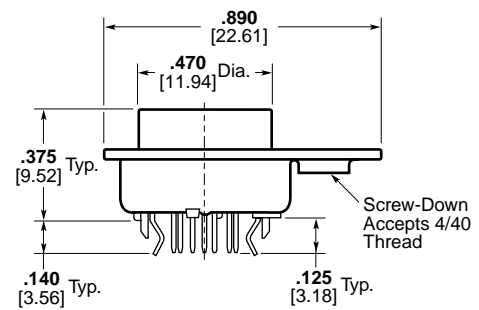
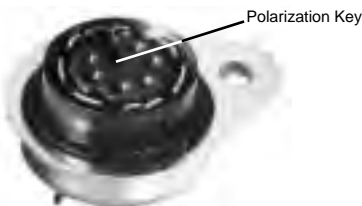
Unshielded

Part Number 750329-2



Shielded

Part Number 750131-2



Shielded with Front Panel Screw-Down

No. of Positions	Duplex Plating Code	Part Numbers		
		Unshielded	Shielded	Shielded With Front Panel Screw-Down
4	C	750315-1	750317-1	—
	B	750315-2	—	750319-2
	C	750327-1	—	—
6	B	750327-2	750329-2	750131-2
	B	—	—	750730-2*
	C	—	750338-1	—
8	C	—	—	—
	B	750337-2	—	750340-2

* Screw-Down hole aligns with polarization key on side closet to key.

For complete product information, order Catalog 82212

Product Facts

- True mass displacement termination of jacketed cable with tinsel, solid or stranded conductors
- Available for round or flat oval cable
- One-piece construction with preloaded contacts
- FCC and EIA/TIA industry standard size and performance
- Selectively gold plated terminals
- Plugs supplied in loose piece form, some available in strip form
- Various positions and housing styles available
- Semiautomatic and manual termination capabilities
- Recognized by Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association Certificate No. LR 7189A 
- Produced under a Quality Management System certified to ISO 9001 

A copy of the certificate is available upon request

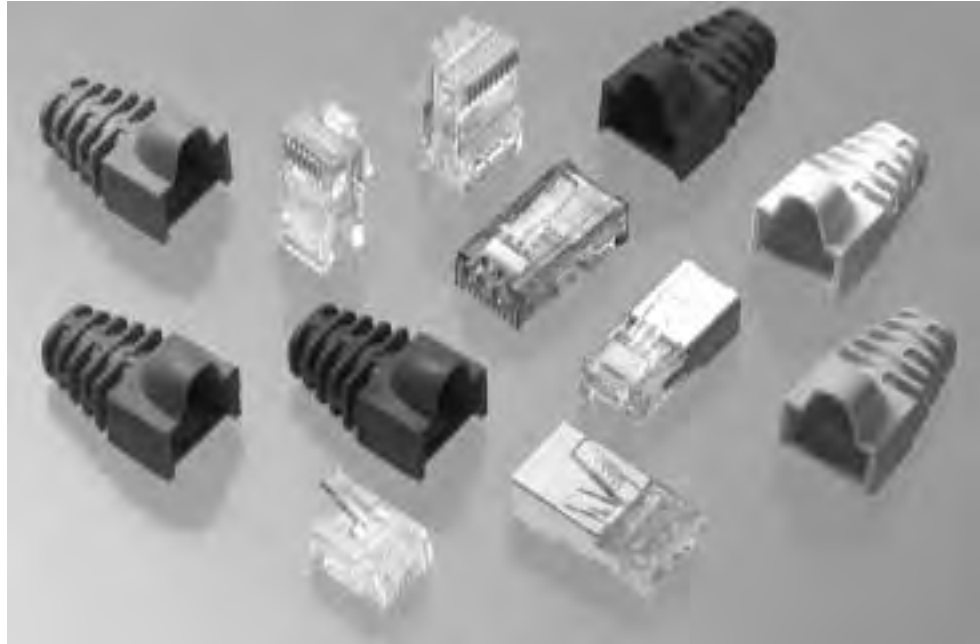


Photo-109887

The Modular Plugs consist of unshielded and shielded varieties. They offer compact size, high reliability and will meet FCC Rules and Regulations, Part 68; and the high performance Category 5 plugs exceed TIA/EIA-568A requirements.

Mass termination of the plugs provide a low applied cost. A variety of application tooling is available.

Modular Plugs

accommodate both single or multicore tinsel, solid and stranded wire for telephone or non-telephone applications. Modular Plugs are produced and sold under license from AT&T and mate with FCC accepted jacks, shielded or unshielded.

Application Tooling for Modular Plugs

is available in a wide variety from hand tools to more sophisticated automated tools. These tools give fast and accurate termination of Modular Plugs onto cable.

Specifications:

Electrical:

Applications — 150 VAC max. at 15 A @ 25°C, derated to 2A @ 70°C

Dielectric Withstanding Voltage — 1000 Volts AC

Insulation Resistance — 500 Megohms

Mechanical:

Cable-to-Plug Tensile Strength — 17 lbs [76N] min.

Durability — 750 mating cycles

Temp. Rating — 40° C to +60° C

Material and Finish:

Housing — Polycarbonate, UL 94V-0 Flammability Rating

Terminal — .014 [.36] thick, phosphor bronze; underplated with 100 µin Nickel, and plated with 50 µin Gold in contact region and gold flash on remainder of terminal.

Technical Documents:

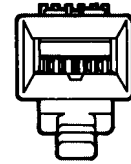
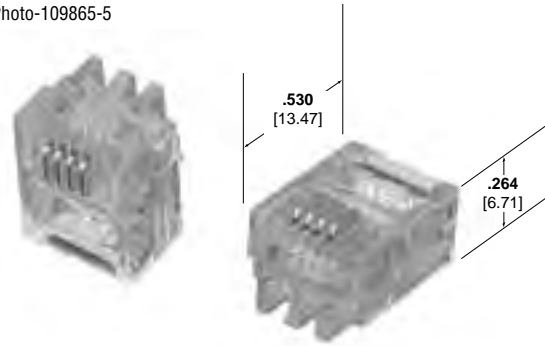
Product Specification
108-1163

For complete product information, order Catalog 1307282

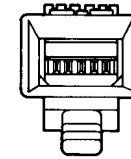
Unshielded Modular Plugs

2-, 4-, 6-Position

Photo-109865-5



Flat Oval Cable



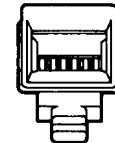
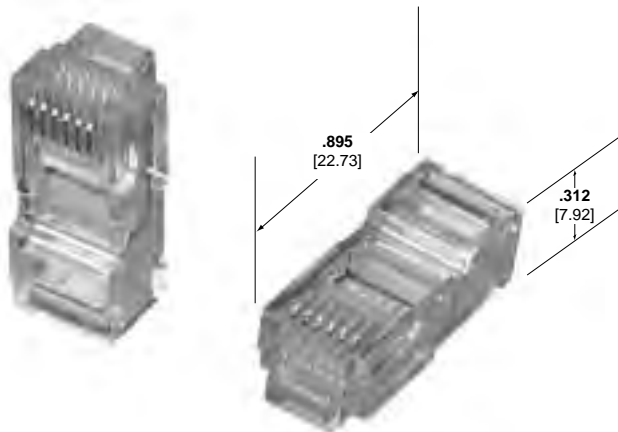
Round Cable

Description	Plug Part Numbers			
	10,000/Box	1,000/Box	100/Box	25/Bag
6/2-Position Flat Oval Stranded Line	—	5-641333-2	—	—
6/4-Position Flat Oval Solid Line	—	5-556384-2	5-556384-3	—
6/4-Position Flat Oval Stranded Line	5-641335-1	5-641335-2	5-641335-3	—
6/6-Position Flat Oval Solid Line	—	5-555042-2	5-555042-3	5-555042-4
6/6-Position Flat Oval Stranded Line	5-641337-1	5-641337-2	5-641337-3	—
6/6-Position Round Stranded Line	—	5-554710-2	5-554710-3	5-554710-4
6/6-Position Flat Oval Small Solid Conductor Line*	—	5-557970-2	—	—

*Small conductor products are for .029 - .034 [.737 - .864] OD conductors. Small Conductor product housings are tinted blue to differentiate from Standard Product. Standard products cover .029 - .039 [.737 - .991] when a small conductor product does not exist.

6-Position Long Body

Photo-109865-4



Flat Oval Cable

Description	Plug Part Numbers
	100/Box
6/6-Position Long Flat Oval Solid Line	5-555426-3
6/6-Position Long Flat Oval Stranded	5-555176-3

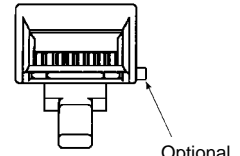
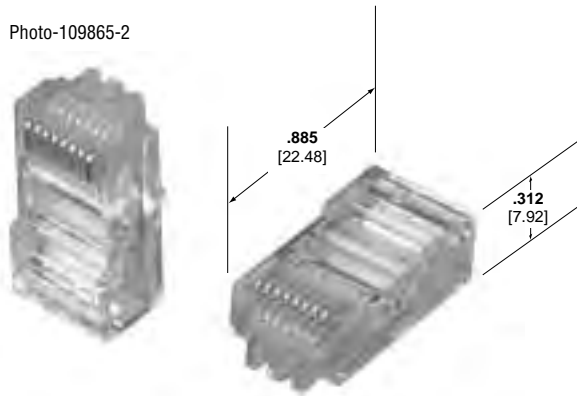
- Note:**
1. On any modular plug, Terminal No. 1 is the terminal to the extreme left as you face the cable opening, latch tab down.
 2. For appropriate cable specifications and termination procedures, refer to Application Specifications 114-6016 & 114-6053

For complete product information, order Catalog 1307282

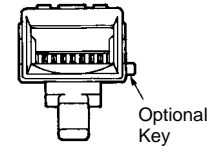
Unshielded Modular Plugs

8-Position

Photo-109865-2



Flat Oval Cable



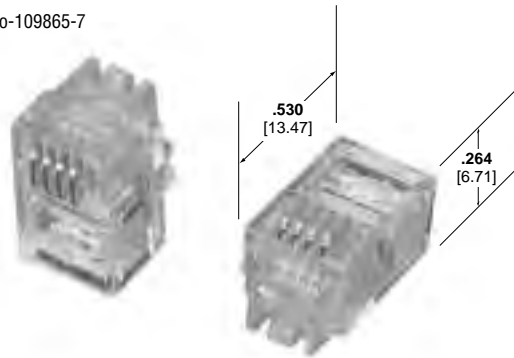
Round Cable

Description	Plug Part Numbers			
	10,000/Box	500/Box	100/Box	25/Bag
8/8-Position Flat Oval Solid	5-554720-1	5-554720-2	5-554720-3	5-554720-4
8/8-Position Flat Oval Stranded	5-554739-1	5-554739-2	5-554739-3	5-554739-4
8/8-Position Round Solid	—	5-557315-2	5-557315-3	5-557315-4
8/8-Position Round Stranded	5-554169-1	5-554169-2	5-554169-3	5-554169-4
8/8-Position Flat Oval Small Solid Conductor	—	5-557972-2	5-557972-3	—
8/8-Position Flat Oval Small Stranded	—	5-557973-2	—	—
8/8-Position Round Cable Small Stranded	5-557961-1	5-557961-2	—	—
8/8-Position Keyed Flat Oval Solid	—	5-555417-2	—	—
8/8-Position Keyed Flat Oval Stranded	—	5-554743-2	—	—
8/8-Position Keyed Round Stranded	—	—	5-554170-3	—

*Small conductor products are for .029 - .034 [.737 - .864] OD conductors. Small Conductor product housings are tinted blue to differentiate from Standard Product. Standard products cover .029 - .039 [.737 - .991] when a small conductor product does not exist.

4-Position Handset

Photo-109865-7



Flat Oval Cable

Description	Plug Part Numbers		
	1,000/Box	100/Box	25/Bag
4-Position Flat Oval Stranded	5-641334-2	5-641334-3	5-641334-7

For complete product information, order Catalog 1307282

Unshielded Modular Plugs

6-Position with Offset Latch

Photo-109865-6

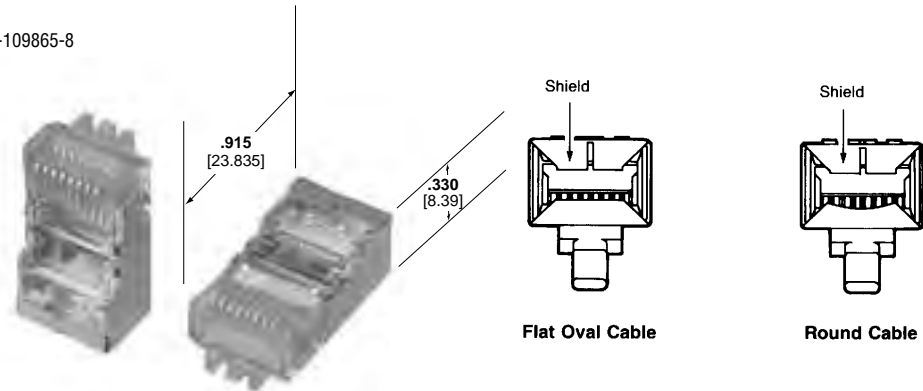


Description	Plug Part Numbers		
	1,000/Box	100/Box	25/Bag
6-Position Round Stranded Offset	—	5-555238-2	—
6-Position Flat Oval Solid Offset	—	5-555236-2	5-555236-3
6-Position Flat Oval Stranded Offset	5-555237-1	5-555237-2	5-555237-3

Note: Offset latch product conforms to FCC requirements except for latch location.

8-Position Long Body

Photo-109865-8



Description	Style	Plug Part Numbers		
		500 pcs/Box	100 pcs/Box	25 pcs/Bag
8/8-Position Small Stranded	Round Cable	5-406342-2	5-406342-3	—
8/8-Position Line, Stranded	Round Cable	5-569532-2	5-569532-3	—
8/8-Position Line, Solid	Round Cable	5-569530-2	5-569530-3	5-569530-4
8/4-Position Line, Stranded	Flat Oval Cable	5-569542-2	5-569542-3	—

For complete product information, order Catalog 1307282

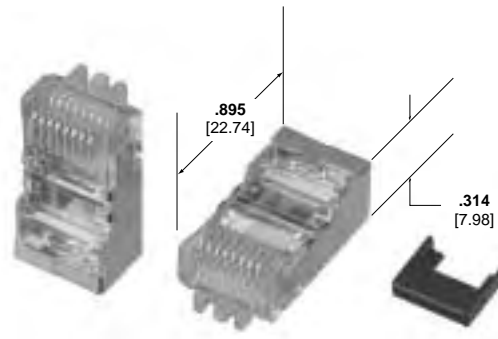


High Performance Modular Plugs

Product Facts

- Exceeds EIA/TIA 568A and TSB-40A Requirements for Category 5, 4-Pair (RJ45) UTP Applications
- Utilizes a load bar for easier cable preparation and termination
- Load bar aids in maintaining 1/2" twist requirements
- Field or factory terminated
- For stranded or solid cable
- Quicker and easier terminations

Photo-109865-9



Description	Plug Part Numbers		
	500/Box	100/Box	25/Bag
8-Position, Unshielded, Stranded	5-558530-2	5-558530-3	5-558530-4
8-Position, Unshielded, Solid	5-569278-2	5-569278-3	5-569278-4
8-Position, Shielded, Stranded	5-569552-2	5-569552-3	5-569552-4
8-Position, Shielded, Solid	5-569550-2	5-569550-3	5-569550-4

For complete product information, order Catalog 1307282

Application Tooling for Modular Plugs

Economy Hand Tool

- Strips and terminates cable
- Light weight
- Low cost

Photo-70411A

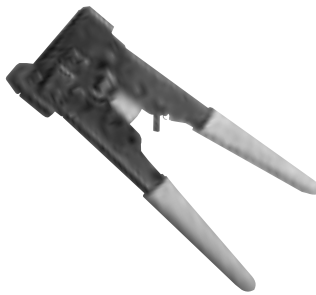


Terminates	Economy Hand Tool
2-, 4- and 6-Position Plugs	231648-1
4-Position Handset Plugs	231649-1

Professional Hand Tool

- Cuts, strips and terminates cable
- Ratchet control provides complete termination cycle
- All plug sizes, except 10-Position, are accommodated using interchangeable die sets

Photo-89755-1



IS 408-9767

Terminating Tool w/ die	Corresponding Die Set		
	Description	Color	Die Numbers
2-231652-1	8-Position Line	Black	853400-1
2-231652-2*			
2-231652-3	4-Position Handset	Green	853400-3
2-231652-6	6-Position Offset-Latch	Orange	853400-6
2-231652-7	6-Position Long Body	Violet	853400-7
2-231652-4*	4-,6-Position Line	Blue	853400-8
2-231652-8			
3-231652-0	8-Position	White	1-853400-0
3-231652-1*	High Performance		

*Packaged in a clear, plastic clamshell for point-of-purchase display.

PRO-CRIMPER II Hand Tool

- Ratchet control provides complete termination cycle
- Die sets are interchangeable
- Contact insertion height easily adjusted

IS 408-4093

(for use with 10 position plugs only)

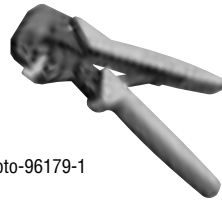


Photo-96179-1

Part Number 58560-1

Tool Assembly with Die Set

Part Number 58560-2

Die Set Only

Contact the Technical Support Center (1-800-522-6752) for specific modular plug part numbers.

Photo-89756-2



Professional Hand Tool Kits

Description	Kit Numbers
Carrying Case with Set of Replacement Strip Blades and Small Screwdriver	231666-9
Carrying Case with Frame, 4-, 6- and 8-Position Die Sets, Set of Replacement Strip Blades and Small Screwdriver	1-231666-0
Carrying Case with Frame, 4-Position Handset, 4-, 6- and 8-Position Die Sets, Set of Replacement Strip Blades and Small Screwdriver	1-231666-1
Blade Replacement Kit (5 cutter blades and 5 sets of strip blades)	231662-4
[1] Cutter Blade	856727-1
[1] Set of Strip Blades	231662-5

For complete product information, order Catalog 1307282

Application Tooling for Modular Plugs

Modular Plug Single Terminator

- Compact, low-cost, air-powered bench unit
- Interchangeable tooling for different size plugs
- Contact insertion height easily adjusted
- Up to 250 terminations per hour

IS 408-9919



Photo-91950-2

Plug Style	Tooling Kit (only shipped with terminator)	Terminator Numbers
NONE	—	354711-1
Line Plug	354714-1	354711-2
8-Position	354714-2	354711-3
Handset	354714-3	354711-4
Long Body	354714-4	354711-5
10-Position	354714-5	354711-6
6 Offset	354714-6	354711-7
8-Position High Performance	354714-7	354711-8

Modular Plug Dual Terminator

- Tests both ends for shorts and opens
- Can be programmed to test individual positions and crossovers
- Terminates up to 200 dual-ended cables per hour

IS 408-9743



Termination Module

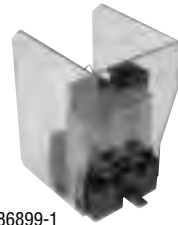


Photo-86899-1

Power Unit/Tester Tool No.
1320840-1 (-2, CE Approved)
(termination modules ordered
separately; see chart below)

Modular Plug Applied	Termination Module
4- and 6-Position Line	856196-1
8-Position Long Body	856196-2
4-Position Handset	856196-3
6-Position Long Body	856196-4
6-Position Offset	856196-5
8-Position High Performance	1-856196-1

AMP-O-LECTRIC Termination Machine Model "G"

Part Number 354500-1

Refer to tooling section for specific information on AMP-O-LECTRIC machine

Modular Plug Applicators

Terminates	Applicator Part Numbers for Model "G"
2-Position Plugs	1-469268-4
4-Position Handset Plugs	1-469268-1
4-Position Plugs	1-469268-2
6-Position Plugs	1-469268-5
6-Position Offset Latch Plugs	1-469268-6

Note: ¹ For flat cable only

For complete product information, order Catalog 1307282

Modular Jacks consist of single, multi-port, and high performance pc board mount jacks in shielded and unshielded varieties. They offer compact size, high reliability and meet FCC Rules and Regulations, Part 68. The housing materials are available in polyester for wave solder applications and high temperature Nylon, PCT or SPS for IR reflow applications. All housing materials are UL 94V-0 flame retardant. All shields consist of copper alloy base metal with tin-lead plating over copper underplate. All contacts are overall nickel plated phosphor bronze, with selectively plated gold in the contact area, and tin-lead in the solder area.

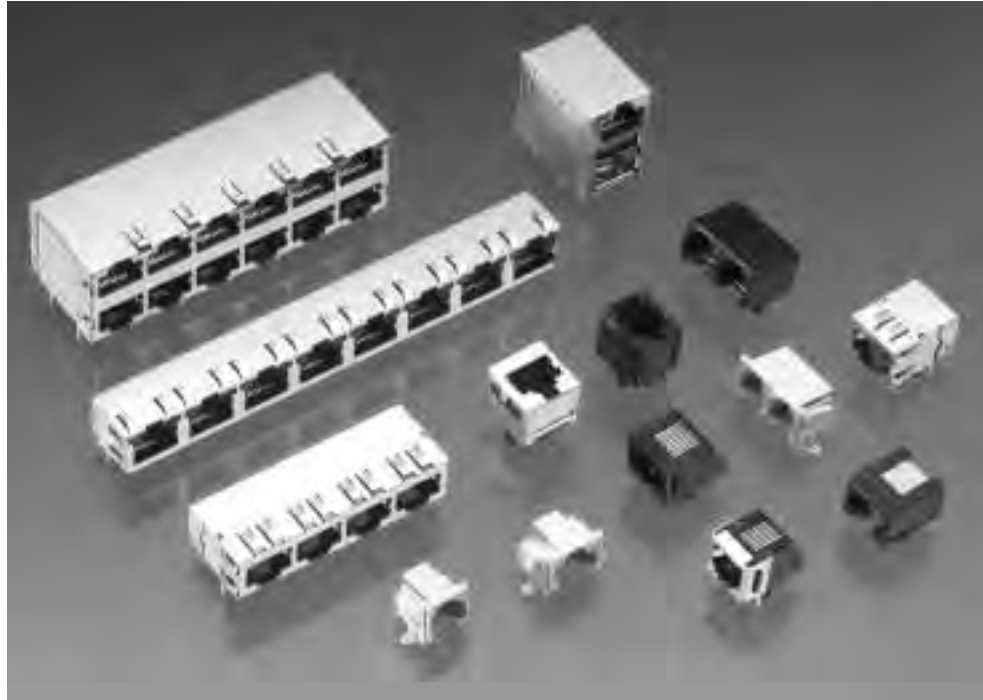


Photo 109381

Single Port Modular Jacks

are available in both side or top entry and shielded or unshielded. The side entry additionally comes in a variety of heights from 17.4mm to 11.5mm. They are designed for direct mounting on pc boards and ease of soldering and board cleaning. The shielded mod jacks are available with and without panel grounds.

Multi-Port Modular Jacks

are for applications requiring printed circuit board mounted, shielded and unshielded, ganged modular jacks. These 8-position right angle jacks incorporate an industry pc board footprint.

High Performance

Modular Jacks exceed Near End Crosstalk (NEXT) requirements of -40dB at 100 MHz, on all 4-pair combinations and meet requirements of FCC, Part 68. They are available in single or multi-port configurations, shielded or unshielded. The need for customized printed circuit boards to achieve high performance is eliminated.

For complete product information, order Catalog 82066

Single Port Modular Jacks

Product Facts

- Meets or exceeds FCC Part 68 rules and regulations; REA PE-76; and UL 1863, Communication Circuit Accessories
- Meets 1000 volt dielectric requirement
- Available in both top and side entry
- Designed for direct mounting on pc boards
- Designed for ease of soldering and board cleaning
- Available in both shielded and unshielded versions
- Shielded jack available with two grounding paths - pc board and panel
- 20 dB shielding effectiveness from 30 MHz to 400 MHz
- Selectively gold plated contacts for lower cost
- All jacks are UL 94V-0 flame retardant polyester, standard color black, unless specified otherwise
- Listed by Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association, File No. LR 7189A 
- Produced under a Quality Management System Certified to ISO 9001 

A copy of the certificate is available upon request

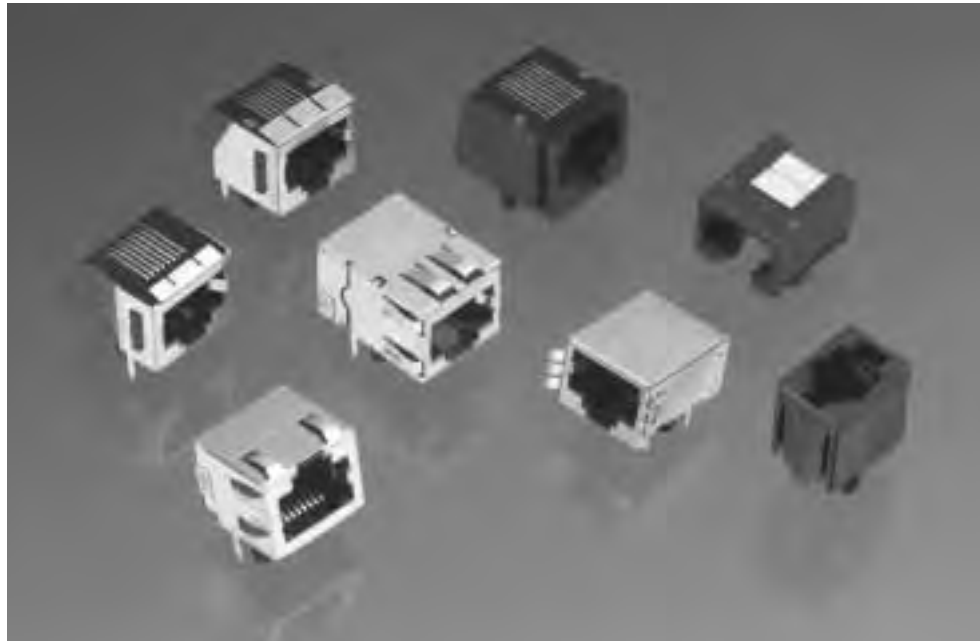


Photo 109387

Specifications:

Electrical:

Current Rating — 1.5 amp max. @ 25°C, derated to 0.2 amp max. @ 70°C ambient

Voltage Rating — 150 volts AC max.

Dielectric Withstanding Voltage — 1000 VAC, RMS, 60 Hz, 1 min.

Surge Test — to 1000 volts

Mechanical:

PC Board Retention — will not dislodge from pc board when subjected to 1 lb. [4.4N] pull before soldering and 10 lb. [44N] pull after soldering

Durability — 750 mating cycles

Material and Finish:

Housing — Through-hole: Polyester (wave solder compatible), UL 94V-0 rated; Surface Mount: Polyphenylene Sulfide, UL 94V-0 rated

Contact — .014 [0.36] thk. Phosphor bronze; plated .000050 [0.00127] gold in contact area and .000150 [0.00381] tin-lead on solder tails, over .000050 [0.00127] nickel underplate

Technical Documents:

Product Specification
108-01163

Application Specification
114-02048

For complete product information, order Catalog 82066

Single Port Modular Jacks

Side Entry, Unshielded

17.4mm Height

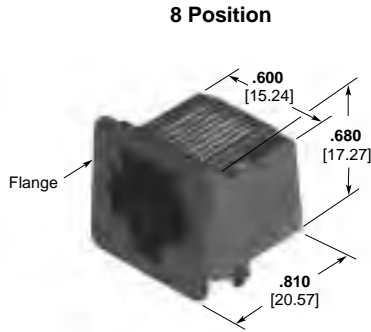


Photo 109319-7

Positions/Contacts	Flanged	Tray Packaging Part Numbers
4/4	Y	520241-2
6/4	Y	520242-2
6/6	Y	520242-3
8/8	Y	520243-4

16.2mm Height

4 Position

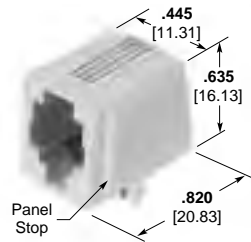


Photo 109321-2

6 Position

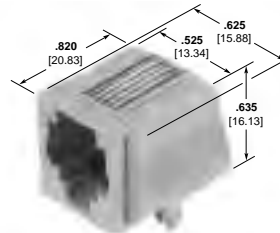


Photo 109321-3

8 Position

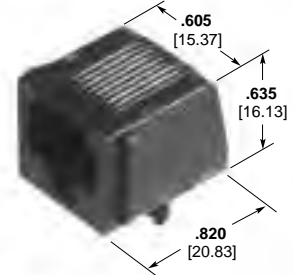


Photo 109319-4

Positions/Contacts	Panel Stops	Notes	Keyed	Tray Packaging Part Numbers
4/4	Y		—	520249-2
4/4	—		—	555980-1
6/2	Y		—	520250-1
6/2	—		—	520470-4
6/4	Y		—	520250-2
6/4	Y	Gray color	—	520250-4
6/4	—		—	555979-1
6/6	Y		—	520250-3
6/6	—		—	520470-3
6/6	Y	Off set latch, gray color	Y	555003-1
8/8	Y		—	520251-4
8/8	—		—	520426-4
8/8	Y		Y	520252-4
8/8	—		Y	554517-1

For complete product information, order Catalog 82066

Single Port Modular Jacks

Side Entry, Unshielded

13.4mm Height

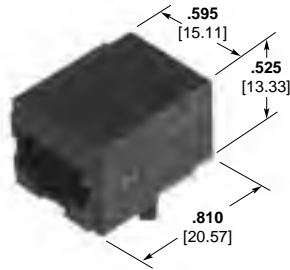


Photo 109319-5

Position/Contact	(IR) Reflow Compatible	Keyed	Tray Packaging Part Numbers
8/8	Y	—	557785-1
10/10	Y	—	558065-1
10/10	Y	Y	558066-1

12.6mm Height

6 Position

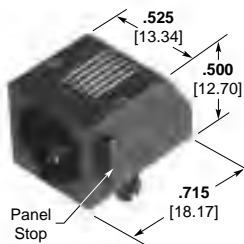


Photo 109319-9

8 Position

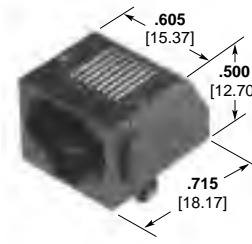


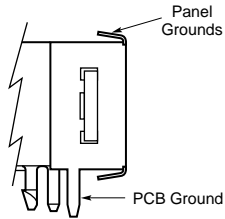
Photo 109320-2

Positions/ Contacts	(IR) Reflow Compatible	Panel Stops	Keyed	Notes	Tray Packaging Part Numbers	Tube Packaging Part Numbers
6/2	—	—	—		555165-5	—
6/4	—	Y	—		555163-2	—
6/4	—	—	—		555165-2	—
6/6	—	Y	—		555163-1	555163-4
6/6	Y	—	—		569026-1	—
6/6	—	—	—		555165-1	555165-4
8/8	—	Y	—		555162-1	—
8/8	—	—	—		555164-1	555164-4
8/8	—	Y	Y		555166-1	—
8/8	—	—	Y		555167-1	555167-3
8/8	Y	—	Y		569118-1	—
8/8	—	—	Y	0.110 solder tail length	—	555167-4

For complete product information, order Catalog 82066

Side Entry, Shielded

Low Profile, Face Shield



Single Port Modular Jacks

6 Position

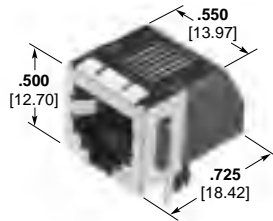


Photo 109320-1

8 Position

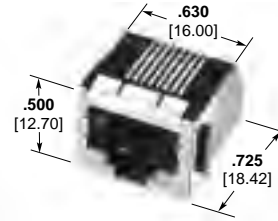


Photo 109264-8

Positions/ Contacts	(IR) Reflow Compatible	Panel Ground	Keyed	Notes	Tray Packaging Part Numbers	Tube Packaging Part Numbers
6/4	—	Y	—		555140-2	—
6/4	—	—	—		555154-2	—
6/6	—	—	—		555154-1	—
6/6	—	Y	—		555140-1	—
6/6	—	Y	—	0.100 solder tail length	555140-4	—
8/8	—	—	—		555153-1	555153-3
8/8	—	—	—	0.110 solder tail length	555153-5	—
8/8	—	—	—	0.090 solder tail length	555153-6	—
8/8	—	Y	—		555141-1	—
8/8	—	—	Y		556591-1	—
8/8	—	Y	Y	0.110 solder tail length	558382-1	—
8/8	Y	—	—		406429-1	—
8/8	—	Y	—	Special shield, — .120 PCB ground	556926-1	—

Note: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS

Low Profile, Full Shield

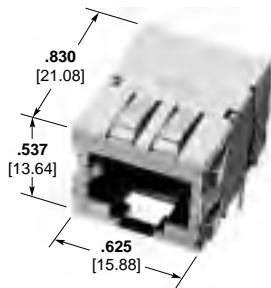


Photo 109264-3

Positions/ Contacts	(IR) Reflow Compatible	Panel Ground	PCB GRD LOC.*	Notes	Tray Packaging Part Numbers
8/8	Y	Y	0.180		1116614-1
8/8	Y	Reverse	-0.120		569942-1
8/8	Y	PCB Tabs Only	-0.120		406017-1
8/8	Y	PCB Tabs Only	-0.120	Keyed	558310-1

Note: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS

*Hole location varies among modular jack assemblies and is determined by the dimension from the center of the boardlock or guide pin mounting legs to the center of the shield tab solder tine. See page 1163.

Surface Mount, Inverted Latch

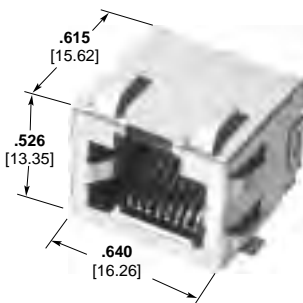


Photo 110731-1

Positions/ Contacts	(IR) Reflow Compatible	Panel Ground	Tape Packaging Part Numbers
6/6	Y	Y	1339212-1
8/8	Y	Y	1339160-1

For complete product information, order Catalog 82066

Single Port Modular Jacks

Top Entry Unshielded

4 Position

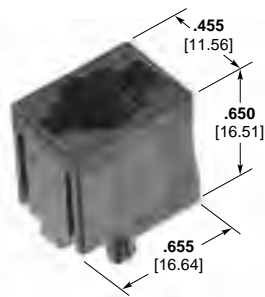


Photo 109864-5

6 Position

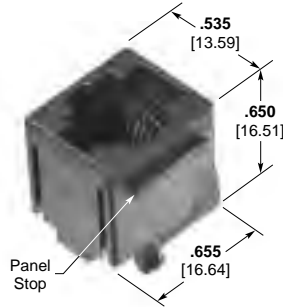


Photo 109864-4

8 Position

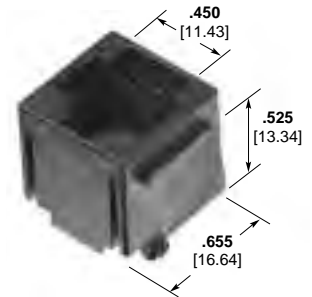


Photo 109864-3

Positions/ Contacts	(IR) Reflow Compatible	Panel Stops	Keyed	Notes	Tray Packaging Part Numbers	Tube Packaging Part Numbers
4/4	—	Y	—		520257-2	—
4/4	—	—	—		558872-1	—
6/4	—	—	—		520425-2	—
6/6	—	Y	—		520258-3	—
6/6	—	—	—		520425-3	—
6/6	—	Y	Y	Offset latch, gray color	554990-1	—
6/6	Y	—	—		569984-1	—
8/8	Y	—	—		569284-1	—
8/8	—	—	—		556416-1	556416-2
8/8	—	Y	—		520259-4	—
8/8	—	Y	Y		520260-4	—
8/8	—	—	Y		555799-1	—

Shielded

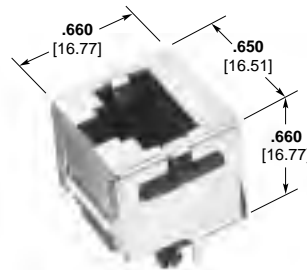


Photo 109864-7




Positions/Contacts	Keyed	Notes	Tray Packaging Part Numbers
8/8	—	Panel Stop .525 from PCB	557969-1
8/8	Y		557730-1
8/8	—	Panel Stop .241 from PCB	557484-1
8/8	—	0.120 solder tail length	557969-2
8/8	—	0.135 solder tail length	406436-1

Note: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS.
See Page 1163 Schematic.

For complete product information, order Catalog 82066

Multi-Port Modular Jacks

Product Facts

- Meets or exceeds FCC Part 68 rules and regulations with standard pc board footprints
- Low profile and narrow width allow more ports to be packed into less space
- Unshielded and shielded versions in popular size configurations
- Positive connection throughout life of equipment with insert molded contacts
- Accurately positioned solder tails reduce assembly labor while selectively deposited gold plating results in lower cost
- Center mounting leg available on 8 port shielded and unshielded versions
- Available with two grounding paths; pc board & panel
- Listed by Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association, File No. LR 7189A 
- Produced under a Quality Management System Certified to ISO 9001 

A copy of the certificate is available upon request

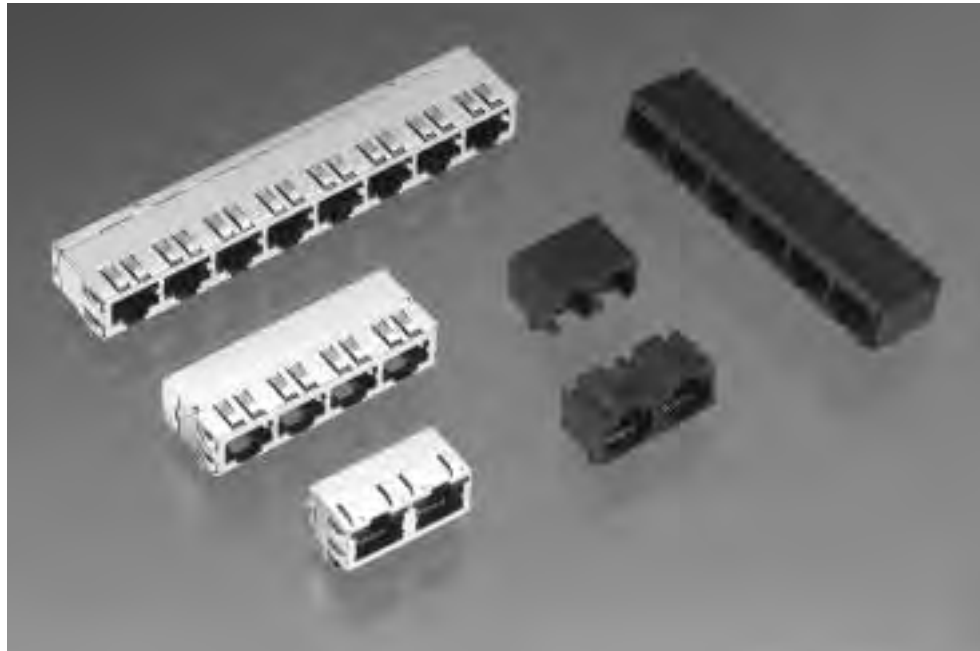


Photo 109383

Specifications:

Electrical:

Current Rating — 1.5 amp max. @ 25°C

Voltage Rating — 150 VAC max.

Dielectric Withstanding Voltage — 1000 VAC

Insulation Resistance — 500 megohms min.

Shielding Effectiveness — 20dB min., 10 to 200 MHz

Mechanical:

Durability — 750 mating cycles

Mating/Unmating Forces — 5 lbs. max.

Operating Temperature — 40°C to 70°C

Material and Finish:

Housing — High temperature nylon, black UL 94V-0 rated

Contact — .013 [0.33] Phosphor bronze; plated .000050 [0.00127] gold in localized area and .000150 [0.00381] tin-lead on solder tails, over .000050 [0.00127] nickel underplate

Shield — .010 [0.25] or .0077 [0.20] copper alloy tin-lead plated

Technical Documents:

Product Specification
108-01163

Application Specification
114-02048

For complete product information, order Catalog 82066

Multi-Port Modular Jacks

Unshielded Standard Latch

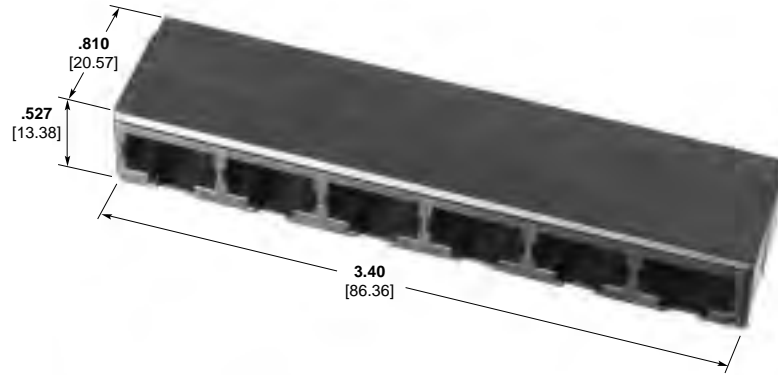


Photo 109265-6

No. of Ports	Positions/Contacts	IR Reflow Compatible	Tray Packaging Part Numbers
1X2	8/8	Y	406014-1
1X4	8/8	Y	557562-1
1X5	8/8	Y	557563-1
1X6	8/8	Y	557564-1
1X8	8/8	Y	557566-1

Shielded Standard Latch

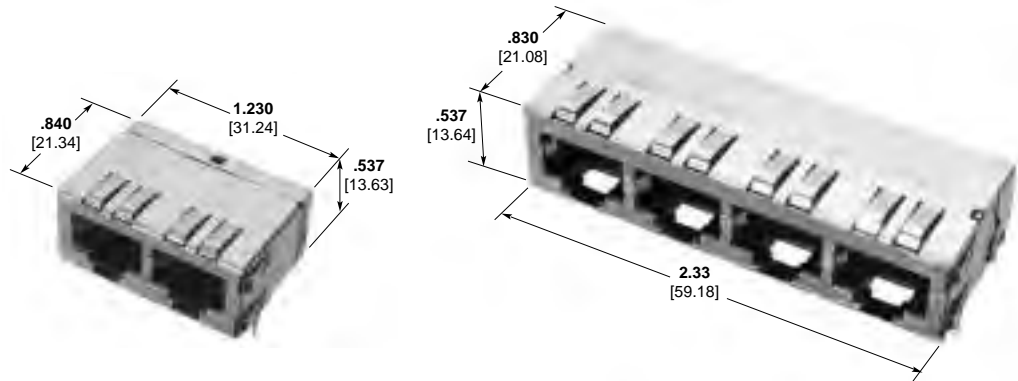


Photo 109263-2

Photo 109262-7

No. of Ports	Positions/Contacts	Panel Ground	No. of Rear PCB Grounds	PCB Ground Location*	Tray Packaging Part Numbers
1X2	8/8	—	0	0.180	406016-2
1X2	8/8	—	1	0.180	406016-1
1X2	8/8	Y	1	0.180	569941-1
1X4	8/8	Y	0	0.180	1339167-1
1X4	8/8	Y	3	0.180	1339167-2
1X4	8/8	Y	1	0.180	1339167-3
1X4	8/8	Y	3	0.145	1339167-4
1X4	8/8	Y	3	0.145	1116589-1
1X4	8/8	—	1	0.180	406135-1
1X6	8/8	—	1	0.180	557572-1
1X6	8/8	Y	1	0.180	406205-2

Note: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS

*Hole location varies among modular jack assemblies and is determined by the dimension from the center of the boardlock or guide pin mounting legs to the center of the shield tab solder tine. See page 1163.

For complete product information, order Catalog 82066

High Performance Modular Jacks

Product Facts

- Performance exceeds Near End Crosstalk (NEXT) requirements of -40dB on all pair combinations at 100 MHz per EIA/TIA 568A
- Meets all dimensional, tolerance and metallic plating requirements of FCC Part 68
- Available in single port or multiple port configurations, shielded or unshielded
- Accurately positioned solder tails reduce assembly labor while selectively deposited gold plating results in lower cost
- Eliminate need for customized printed circuit board compensation to achieve high performance
- Listed by Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association, File No. LR 7189A 
- Produced under a Quality Management System Certified to ISO 9001 

A copy of the certificate is available upon request

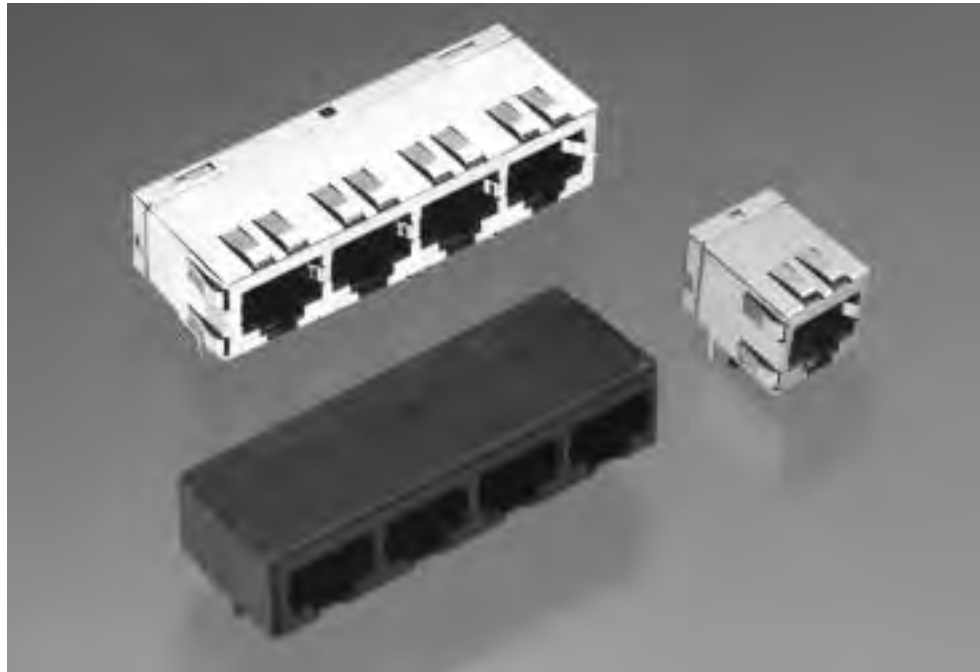


Photo 109384

Specifications:

Electrical:

Current — 1.5 amp maximum @ 25°C

Voltage — 150 VAC maximum

Operating Temperature — -40°C to 70°C

Insulation Resistance — 500 megohms min.

Dielectric Withstanding Voltage — 1000 VAC, RMS

Mating/Unmating Forces — 5 pounds maximum

Durability(Mating Cycles) — 750 minimum

Material and Finish:

Housing — High temperature Nylon, Black, UL 94V-0 rated, IR reflow compatible

Contact — Phosphor bronze, gold over nickel in contact area, tin-lead over nickel in solder area

Shield — Brass, bright tin-lead plated

Technical Documents:

Product Specification
108-01163-2

Application Specification
114-02048

For complete product information, order Catalog 82066

Single Port, Side Entry

Unshielded

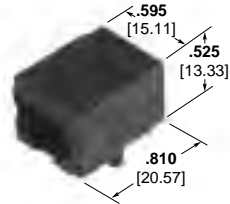


Photo 109319-5

Positions/Contacts	Keyed	Tray Packaging Part Numbers
8/8	—	1116518-1

Shielded

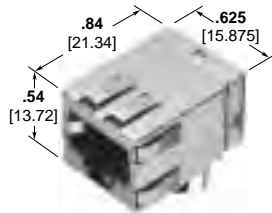


Photo 110056

Positions/Contacts	Panel Ground	No. of Rear PCB Grounds	PCB Ground Location*	Tray Packaging Part Numbers
8/8	0	Y	0.180	406217-1
8/8	Y	0	-0.120	406299-1
8/8	N	0	-0.120	1116526-1

Note: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS

*Hole location varies among modular jack assemblies and is determined by the dimension from the center of the boardlock or guide pin mounting legs to the center of the shield tab solder tine. See page 1163.

Multi-Port

Unshielded

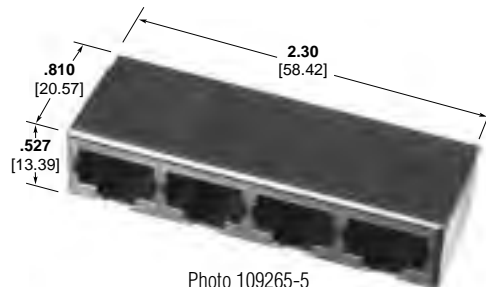


Photo 109265-5

No. of Ports	Positions/Contacts	Tray Packaging Part Numbers
1X4	8/8	1116523-1
1X6	8/8	1116524-1
1X8	8/8	1116525-1

Shielded

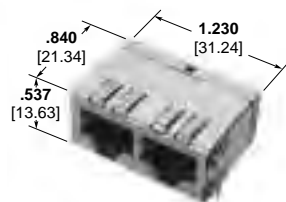


Photo 109263-2

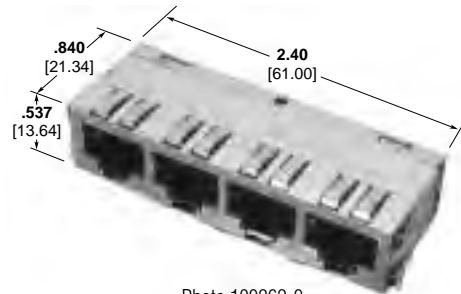


Photo 109262-9

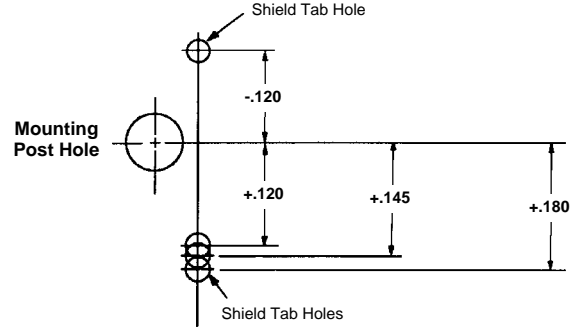
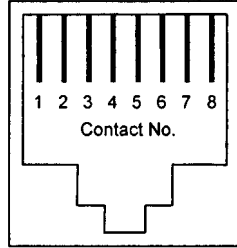
No. of Ports	Positions/Contacts	Panel Ground	No. of Rear PCB Grounds	PCB Ground Location*	Tray Packaging Part Numbers
1X2	8/8	Y	0	0.180	406566-1
1X2	8/8	—	1	0.180	406566-2
1X2	8/8	—	0	0.180	406443-1
1X4	8/8	—	0	0.180	1116528-1
1X4	8/8	Y	0	0.180	406203-1
1X4	8/8	Y	3	0.180	406203-3

NOTE: SHIELDED PRODUCT WITH PANEL GROUNDS ALWAYS CONTAINS PCB GROUNDS

*Hole location varies among modular jack assemblies and is determined by the dimension from the center of the boardlock or guide pin mounting legs to the center of the shield tab solder tine. See page 1163.

For complete product information, order Catalog 82066

Contact Numbering/Shield PCB Ground Tab Location



For complete product information, order Catalog 82066

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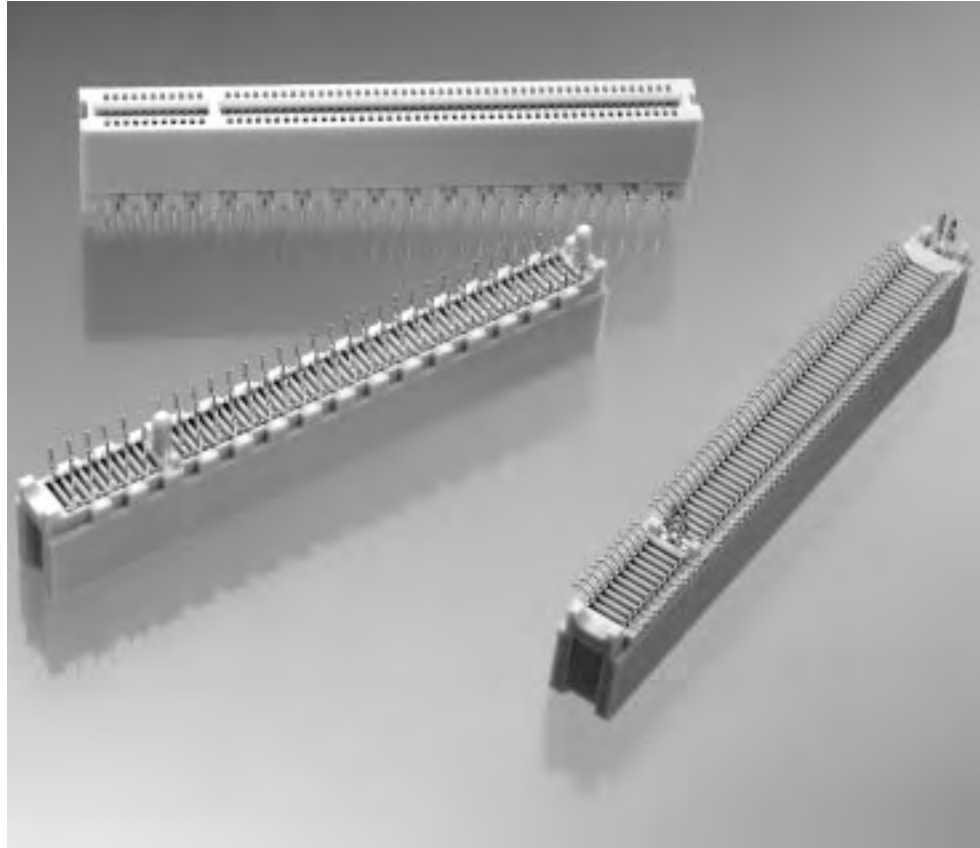


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Product Facts

- High density .050 [1.27] centerline contact spacing
- Easy mating of high circuit count daughter boards
- Polarizing web for positive board-to-connector registration
- Choice of plastic pylons or metal holddowns



Connectors that support PCI expansion cards are derived from those on the MC bus. The MC connectors are well defined and have proven value and reliability.

There are four connectors that can be used depending upon the PCI implementation. The differences between these connectors are 32 bit and 64 bit, and the 5 volt and 3.3 volt signaling environments. PCI-X is a version of PCI at 133 MHz which is under development and employs standard PCI connectors. PCI-X is limited to 1 slot versus 4 slots of PCI.

A key differentiates the signaling environment voltages. The same physical connector is used for the 32 bit signaling environments. In one orientation, the key accepts 5 volt boards. When rotated 180°, the connector accepts 3.3 volt signaling boards. The pin numbering of the connector changes for the different signaling environments to maintain the same relative position of signals on the connector.

Performance Specifications:

- Durability**—Tested to 100 mating cycles
- Mating Force**—8 oz [2.22 N] max. per contact pair
- Unmating Force**—.5 oz [0.14 N] min. per contact pair
- Contact Resistance**—20 milliohms max. (initial) 30 milliohms max. (final)
- Insulation Resistance**—1000 megohms min.
- Dielectric Withstanding Voltage**—500 VAC (at sea level)
- Capacitance**—2 picofarads max.
- Current Rating**—1 ampere max.
- Voltage Rating**—203 VAC
- Thermal Shock**—-55°C to +85°C for 5 cycles
- Mixed Flowing Gas**—Class II with mated board for 20 days

Technical Documents:

- Product Specification**
108-14034
- Application Specification**
114-26012
- Qualification Test Report**
501-203

For complete product information, order Catalog 82619

32 Bit, 3.3 and 5 Volt Signaling

60 Dual Positions with 2 Plastic Pylons or 2 Metal Holddowns

Material and Finish:

Housing Y—High temperature thermoplastic 94V-0 rated, white

Housing Z—Nylon 6/6, white

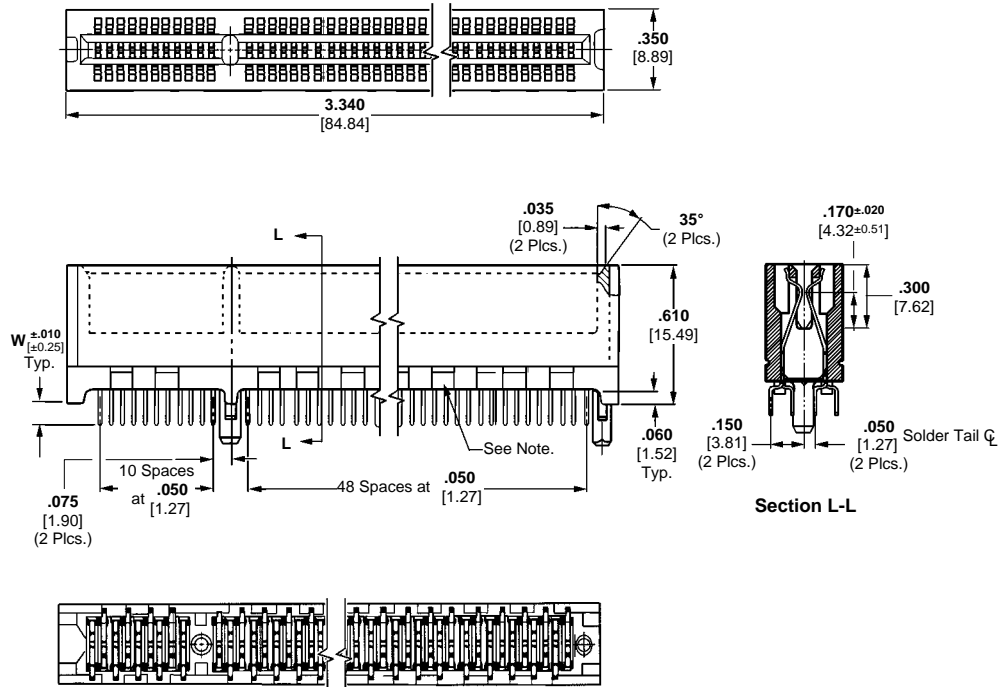
Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated gold flash in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plating B—Duplex plated .000015 [0.00038] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—Duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plastic Pylons



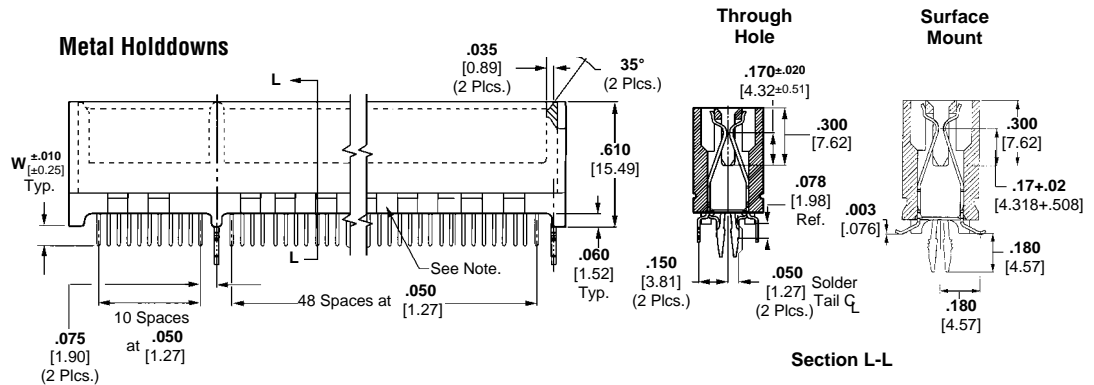
Related Product Data:

Performance Specifications—
page 2003

Technical Documents:

Product Specification
108-14034

Application Specification
114-26012



W (Post Length)	Housing Material	Contact Finish	Part Numbers	
			2 Plastic Pylons	2 Metal Holddowns
.100 2.54	Y	Plating A	145154-1	145167-1
		Plating B	145154-2	—
		Plating C	145154-4	145167-4
.118 3.00	Z	Plating A	11299-1	—
		Plating B	11299-6	—
.125 3.18	Y	Plating C	145154-8	—
Surface Mount	Y	Plating C	—	145098-1

Notes: 1. Connectors are supplied with either cored (shown above) or solid side walls.
2. Other connector sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

64 Bit, 3.3 Volt Signaling

92 Dual Positions with 3 Plastic Pylons or 3 Metal Holddowns

Material and Finish:

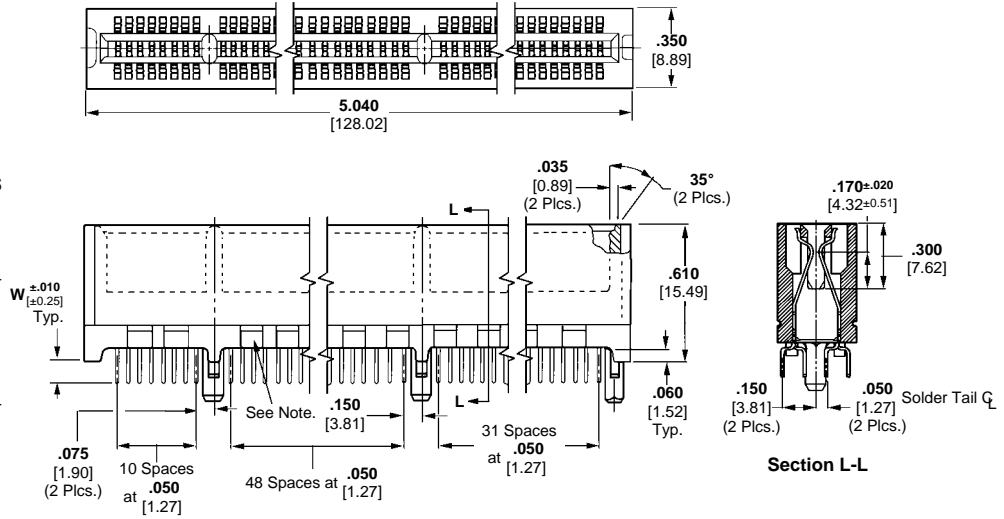
Housing—High temperature thermoplastic 94V-0 rated, white

Contacts—Phosphor bronze, plated as follows:

Plating B—Duplex plated .000015 [0.00038] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—Duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plastic Pylons



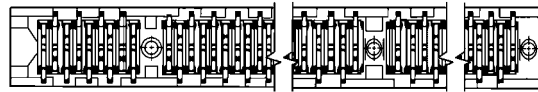
Related Product Data:

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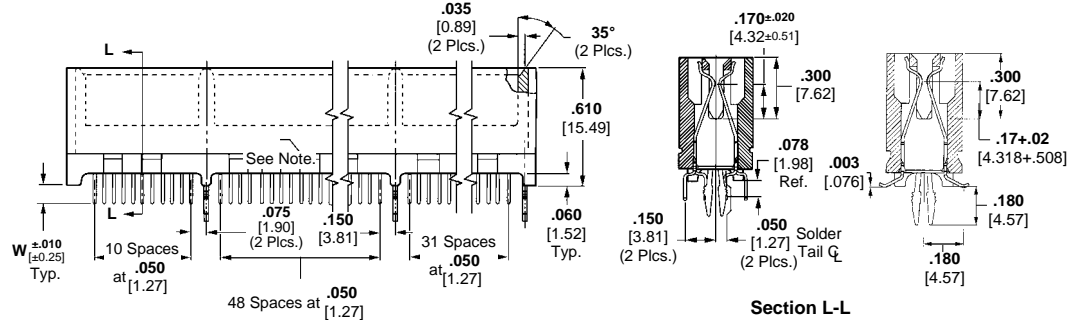
Technical Documents:

Product Specification
108-14034

Application Specification
114-26012



Metal Holddowns



W (Post Length)	Contact Finish	Part Numbers	
		3 Plastic Pylons	3 Metal Holddowns
.100 2.54	Plating B	—	145168-2
	Plating C	145165-4	145168-4
.125 3.18	Plating C	145165-8	—
Surface Mount	Plating C	—	145246-1

Notes: 1. Connectors are supplied with either cored (shown above) or solid side walls.
2. Other connector sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

64 Bit, 5 Volt Signaling

92 Dual Positions with 3 Plastic Pylons or 3 Metal Holddowns

Material and Finish:

Housing—High temperature thermoplastic 94V-0 rated, white

Contacts—Phosphor bronze, plated as follows:

Plating B—Duplex plated .000015 [0.00038] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—Duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data:

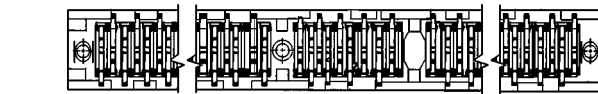
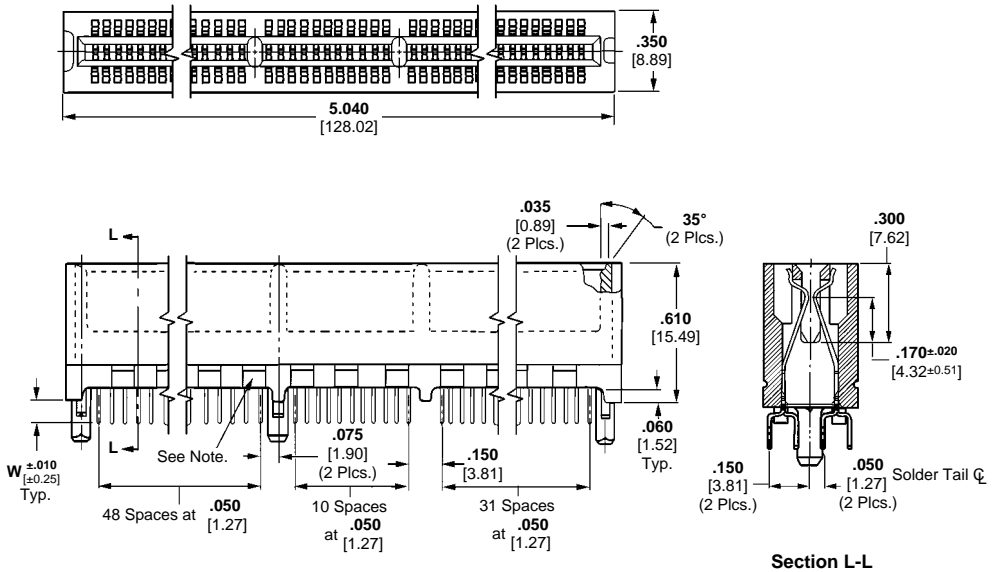
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Technical Documents:

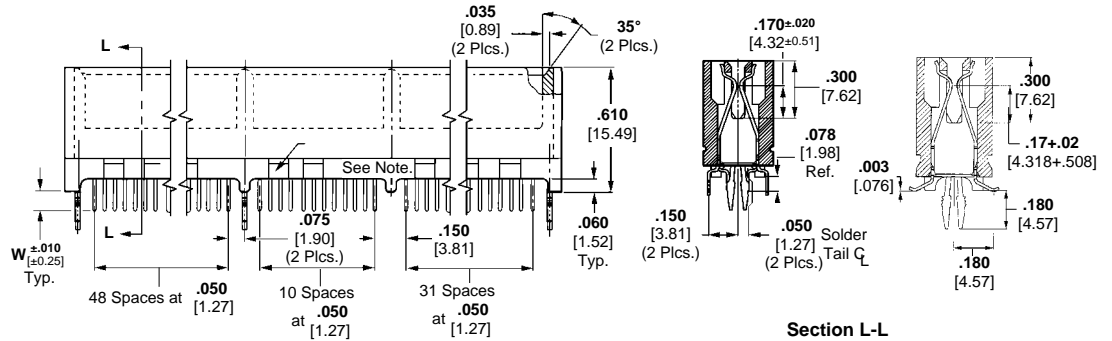
Product Specification
108-14034

Application Specification
114-26012

Plastic Pylons



Metal Holddowns





W (Post Length)	Contact Finish	Part Numbers	
		3 Plastic Pylons	3 Metal Holddowns
.100 2.54	Plating B	145166-2	—
	Plating C	145166-4	145169-4
.125 3.18	Plating C	145166-8	145169-8
Surface Mount	Plating C	—	145113-1

Notes: 1. Connectors are supplied with either cored (shown above) or solid side walls.
2. Other connector sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

Product Facts

- High density .050 [1.27] centerline spacing of contacts
- Easy mating of high-circuit count daughter boards
- Compatible with infrared reflow (IR) soldering techniques
- Polarizing web for positive board-to-connector registration
- Choice of plastic pylons or metal holddowns
- Recognized under the Component Program of Underwriter Laboratories Inc.  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189

Performance Specifications:

Contact Current Rating* — 1 ampere

Termination Resistance —
20 milliohms max. (initial)
30 milliohms max. (final)

Dielectric Withstanding Voltage —
500 VAC min.

Insulation Resistance — 1000 megohms min.

Mating Force — .5 oz. [0.14 N] per contact pair

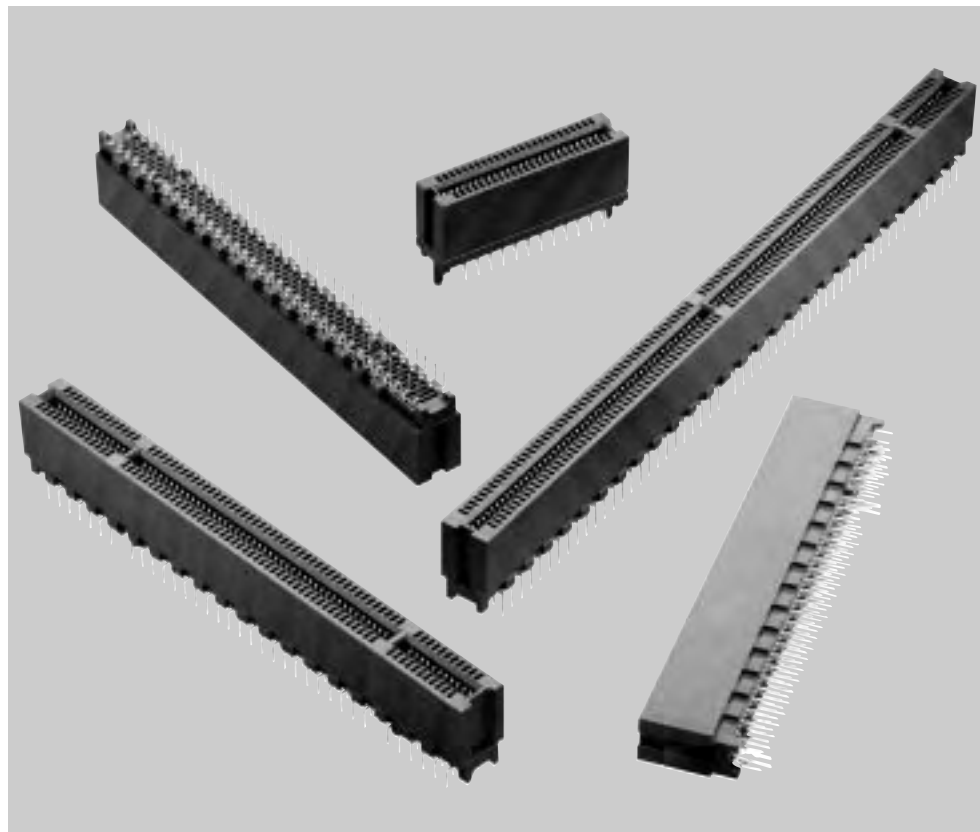
Unmating Force — 1 oz. [0.3 N] per contact pair

Durability (Tested to) — 100 mating cycles

Application Temperature —
+215°C for 120 seconds max.

Temperature Range —
-55°C to +85°C

*Consult AMP engineering when paralleling contacts for power applications.

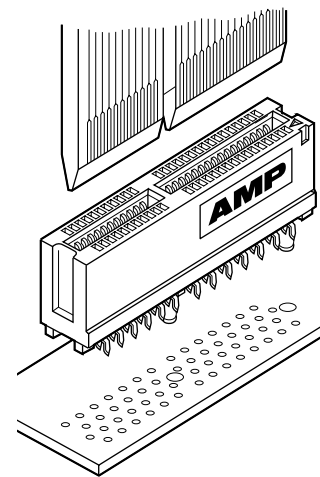


The need to conserve space and pack more function into a given area has demanded that .050 [1.27] centerline spacing become a reality. AMP Standard Edge .050 Series connectors are the ideal vehicle for mother/daughter board applications requiring this real estate.

These rugged connectors have two rows of contacts on .050 [1.27] centerlines. Polarizing webs provide positive board-to-connector registration, while insertion force allows even high circuit-count daughter boards to mate easily. The connectors accept .054 to .070 [1.37 to 1.78] thick daughter boards and feature an overstress protected contact design.

AMP Standard Edge .050 Series connectors are ideal for fast automated robotic assembly with registration features and dimensional tolerancing for more accurate pickup and placement, and are packaged in robotics-compatible trays.

Plastic guide posts or metal holddowns align the connector with the mother board and retain it for soldering. To make circuit routing easy, connector solder posts are arranged in a four-row .100 [2.54] staggered grid. High-temperature tolerant materials promote that these connectors withstand infrared reflow (IR) soldering, while standoffs ease flux cleaning.



High Density for DataBus Applications

For complete product information, order Catalog 82619

Configuration; 1 Key—2 Plastic Pylons

Material and Finish:

Housing—High temperature thermoplastic, brown

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data:

Performance Specifications—page 2007

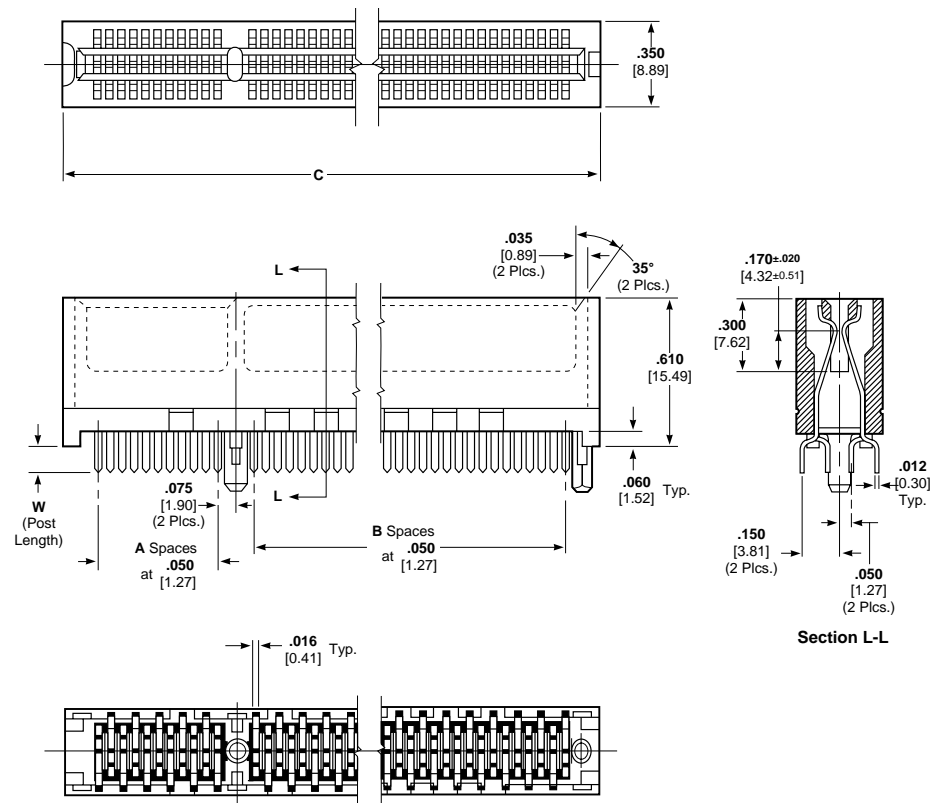
Technical Documents:

Product Specification

108-14034

Application Specification

114-26012



No. of Dual Positions	Dimensions			W (Post Length)	PC Board Hole Layout	Connector Part Numbers
	A	B	C			
23	10	11	1.490 37.85	.100 2.54	A	650090-7
30	10	18	1.840 46.74	.100 2.54	B	650090-6
40	10	28	2.340 59.44	.100 2.54	B	650090-3
				.140 3.56	B	650181-2
45	10	33	2.590 65.79	.100 2.54	A	650090-2
56	10	44	3.140 79.76	.100 2.54	B	650090-1 ¹
				.140 3.56	B	650181-1
80	37	41	4.340 110.24	.100 2.54	C	650090-9
91	41	48	4.890 124.21	.100 2.54	A	650092-1 ²
				.140 3.56	A	650092-2

¹ Connector used for VL Local Bus and MCA Bus applications.

² Connector used for MCA Bus applications.

- Notes:** 1. Other connector sizes can be made available, consult Tyco Electronics.
2. .125 [3.18] post length is available, consult Tyco Electronics.

For complete product information, order Catalog 82619

Configuration; 1 Key—2 Plastic Pylons

Material and Finish:

Housing—High temperature thermoplastic, brown

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

Related Product Data:

Performance Specifications—page 2007

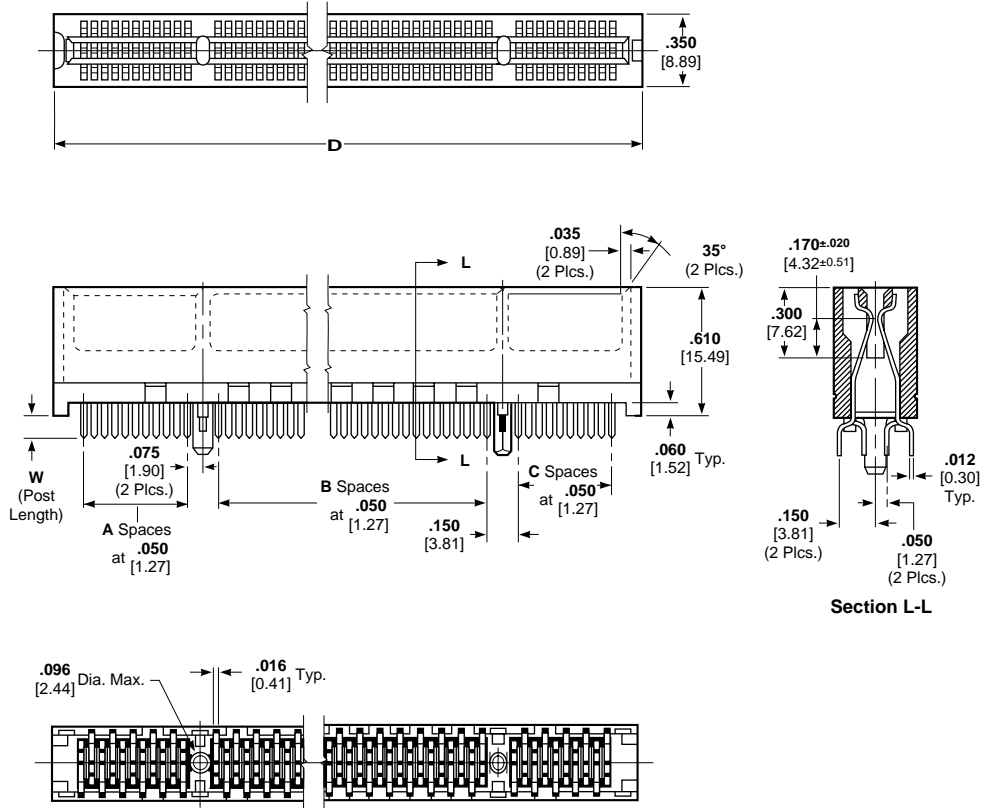
Technical Documents:

Product Specification

108-14034

Application Specification

114-26012



No. of Dual Positions	Dimensions				W (Post Length)	PC Board Hole Layout	Connector Part Numbers
	A	B	C	D			
66	10	44	9	3.740 95.00	.100 2.54	A	650091-1*
					.140 3.56	A	650091-2

*Connectors used for MCA Bus applications.

- Notes:**
- Other connector sizes can be made available, consult Tyco Electronics.
 - .125 [3.18] post length is available, consult Tyco Electronics.

For complete product information, order Catalog 82619

Configuration; 1 Key/1 Web —3 Metal Holddowns

120 Dual Positions

Material and Finish:

Housing—High temperature thermoplastic, brown

Holddowns—Brass, plated .000150 [0.00381] min. tin-lead over .000050 [0.00127] min. nickel

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

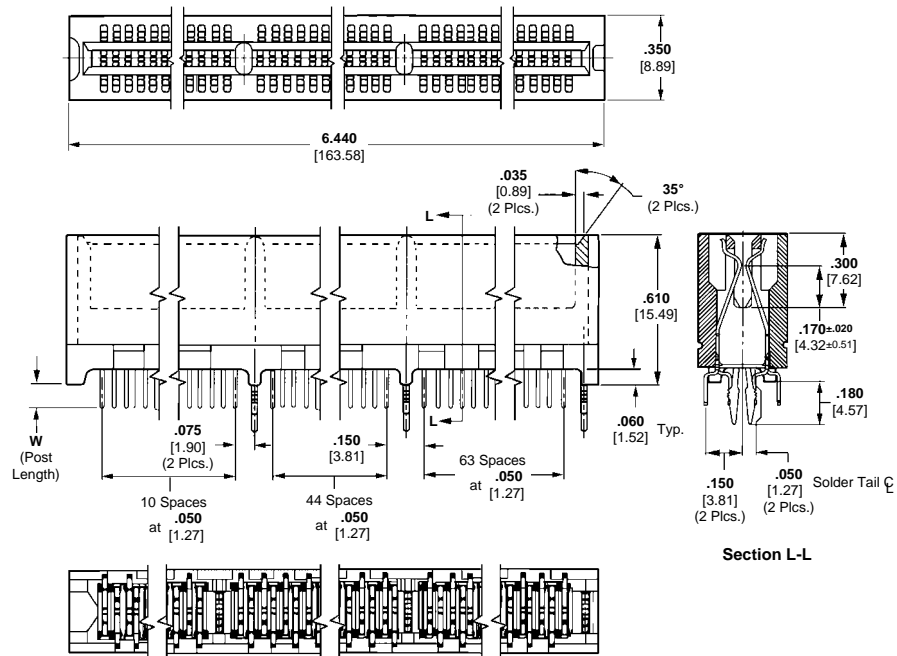
Related Product Data:

Performance Specifications—page 2007

Technical Documents:

Product Specification
104-14034

Application Specification
114-26012



No. of Dual Positions	W (Post Length)	Connector Part Numbers
120	.140 3.56	145031-3

Note: Other connector sizes can be made available, consult Tyco Electronics.

Configuration; End Key

Material and Finish:

Housing—High temperature thermoplastic, brown

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] min. gold in contact area, .000100 [0.00254] min. tin-lead on solder tails, with entire contact underplated .000050 [0.00127] min. nickel

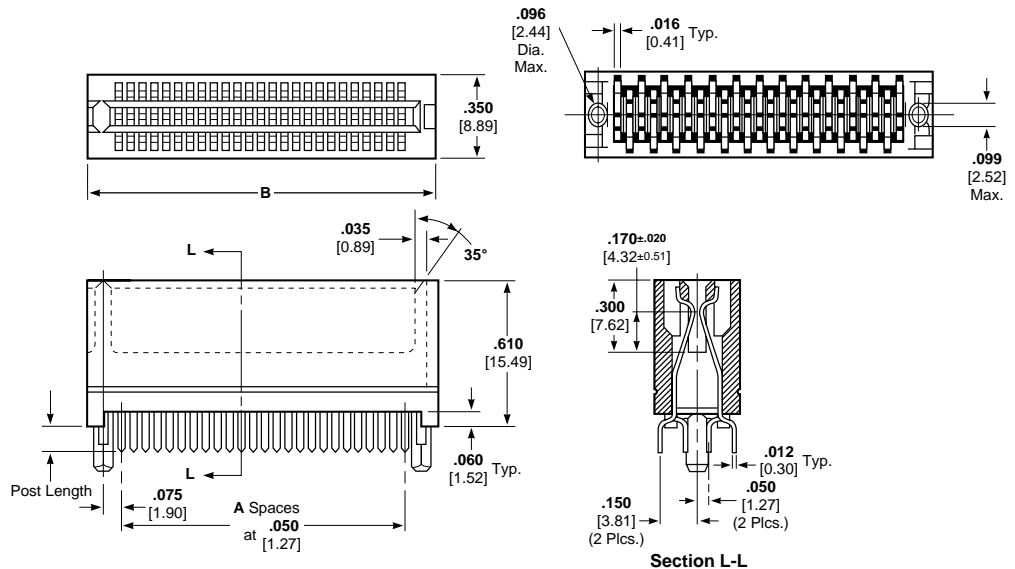
Related Product Data:

Performance Specifications—page 2007

Technical Documents:

Product Specification
108-14034

Application Specification
114-26012





No. of Dual Positions	Dimensions				Post Length	Connector Part Numbers
	A	B	C	D		
25	24	1.480 37.59	1.350 34.29	1.310 33.27	.100 2.54	650719-1

Note: Other connector sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

Product Facts

- **Maximum number of dual positions**
 .100 [2.54] Centerlines-70
 .125 [3.18] Centerlines-50
- **Selective gold plating of contacts for high performance at low cost**
- **.025 [0.64] square solid posts meet standard wrap-type specifications**
- **For flow solder applications**
- **Glass-filled polyester housing is 94V-0 rated**
- **Accepts double sided PC boards, .054-.070 [1.27-1.78] thick**
- **Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476** 
- **Certified by Canadian Standards Association, File No. LR 7189** 



Performance Specifications:

- Contact Rating*** — 3 amperes continuous (UL and CSA)
- Contact Resistance** — 10 milliohms max.
- Operating Temperature** — -55°C to +85°C
- Voltage Rating (Sea Level)** —
 .100 [2.54] centerline—1000 VAC (test)
 .125 [3.18] centerline—1500 VAC (test)
- Insulation Resistance** — 5000 megohms min., after exposure to humidity
- Vibration Tolerance** — 10 to 500 hertz
- Contact Engagement Force** — 12 oz [3.3 N] average per pair with .062 [1.57] PC board
- Contact Separation Force** — 2 oz [0.6 N] average per pair with .062 [1.57] PC board
- Humidity Tolerance** — 90%-95% for 96 hours

*Consult Tyco Electronics engineering when paralleling contacts for power applications.

AMP Standard Edge II Connectors provide high reliability and economy in packages compatible with industry standards for double sided printed circuit boards.

Tyco Electronics offers Standard Edge II Connectors with or without mounting ears, for rack mounting and soldering. Contacts are arranged on .100 [2.54] centers,

.200 [5.08] row-to-row; and .125 [3.18] centers, .250 [6.35] row-to-row.

Right-angle connectors are also available with contacts arranged on .100 [2.54] centers, .150 [3.81] row-to-row or .200 [5.08] row-to-row.

Card extenders with contacts on .100 [2.54] and .125 [3.18] centers also are available.

Precision formed phosphor bronze contacts are selectively gold plated. Phosphor bronze has excellent strength characteristics which help the connector absorb load deflection movement of a PC board while maintaining sufficient contact force for good electrical connection. Bifurcated cantilever beam contacts provide redundant contact.

For complete product information, order Catalog 82619

.100 [2.54] Centerline, Vertical Solder Posts, Without Mounting Ears

Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated

Contacts—Phosphor bronze, duplex plated as follows:

Plating A—.000030 [0.00076] gold in contact area, tin on posts, with entire contact nickel underplated

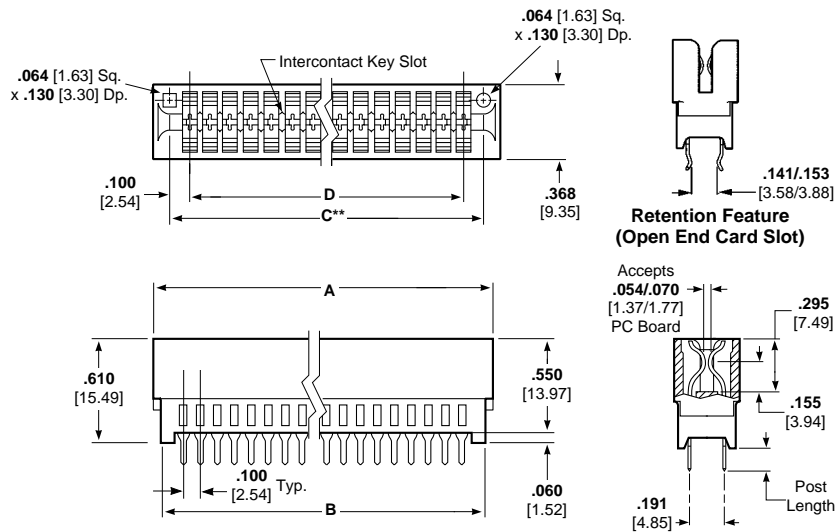
Plating B—.000015 [0.00038] gold in contact area, tin on posts, with entire contact nickel underplated

Plating C—Gold flash in contact area, tin on posts, with entire contact nickel underplated

Technical Documents:

Product Specification

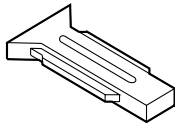
108-9039



Intercontact Keying Plug

Material:

Natural color polyester



Part Number 650025-2
(.100 [2.54] Centerline)

No. of Dual Positions	Dimensions				Post Length*	Part Numbers		
	A	B	C**	D		Plating A	Plating B	Plating C
3	.560 14.22	.450 11.43	Open End	.200 5.08	.125	650263-1 ¹	—	—
6	.860 21.84	.750 19.05	.700 17.78	.500 12.70	.125 .187	7-530843-5 7-530843-6	—	—
10	1.260 32.00	1.150 29.21	1.100 27.94	.900 22.86	.125 .187	5-530843-0 4-530843-9	—	—
12	1.460 37.08	1.350 34.29	1.300 33.02	1.100 27.94	.125	530843-1	—	—
15	1.760 44.70	1.650 41.91	1.600 40.64	1.400 35.56	.125	530843-2	—	—
17	1.960 49.78	1.850 46.99	1.800 45.72	1.600 40.64	.125	5-530843-3	—	—
18	2.060 52.32	1.950 49.53	1.900 48.26	1.700 43.18	.125	530843-3	2-530843-7	176137-1 ¹
20	2.260 57.40	2.150 54.61	2.100 53.34	1.900 48.26	.125	5-530843-4	—	—
22	2.460 62.48	2.350 59.69	2.300 58.42	2.100 53.34	.125	530843-4	—	—
25	2.760 70.10	2.650 67.31	2.600 66.04	2.400 60.96	.125	530843-5	—	—
28	3.060 77.72	2.950 74.93	2.900 73.66	2.700 68.58	.125	530843-6	—	—
30	3.260 82.80	3.150 80.01	3.100 78.74	2.900 73.66	.125 .187	530843-7 1-530843-8	—	—
31	3.360 85.34	3.250 82.55	3.200 81.28	3.000 76.20	.125	6-530843-5	7-530843-0	—
36	3.860 98.04	3.750 95.25	3.700 93.98	3.500 88.90	.125	530843-8	—	—
40	4.260 108.20	4.150 105.41	4.100 104.14	3.900 99.06	.187	2-530843-0	—	—
50	5.260 133.60	5.150 130.81	5.100 129.54	4.900 124.46	.125	1-530843-1	—	—

*Metric equivalent for post lengths are .125 = 3.18; .187 = 4.75.

**C dimension is card slot length.

¹ Connectors with Retention Feature.

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.

2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

.125 [3.18] Centerline, Vertical Solder Posts, Without Mounting Ears

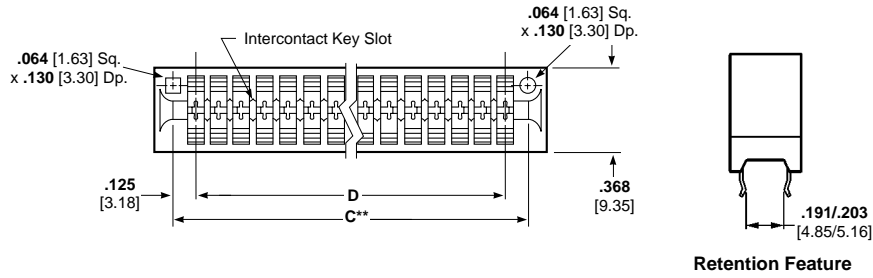
Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated

Contacts—Phosphor bronze, plated with .000030 [0.00076] gold in contact area, tin on posts, with entire contact nickel underplated

Technical Documents:

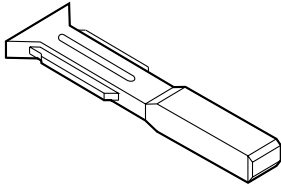
Product Specification
108-9039



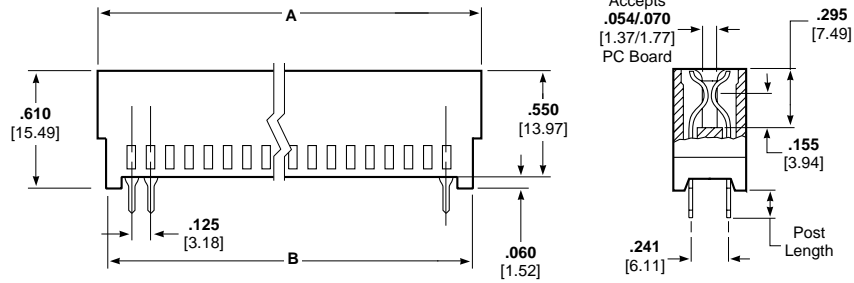
Intercontact Keying Plug

Material:

Natural color polyester



Part Number 650025-1
(.125 [3.18] Centerline)



No. of Dual Positions	Dimensions				Post Length*	Part Numbers
	A	B	C**	D		
6	1.035 26.29	.875 22.22	.875 22.22	.625 15.88	.125	650207-1 ¹
28	3.785 96.14	3.625 92.08	3.625 92.08	3.375 85.73	.187	1-530844-7

*Metric equivalent for post lengths are .125 = 3.18; .187 = 4.75

**C dimension is card slot length.

¹ Connector with Retention Feature.

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.
2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

.100 [2.54] and .125 [3.18] Centerline, Vertical Solder Posts, Low and Mid-High Mounting Ears

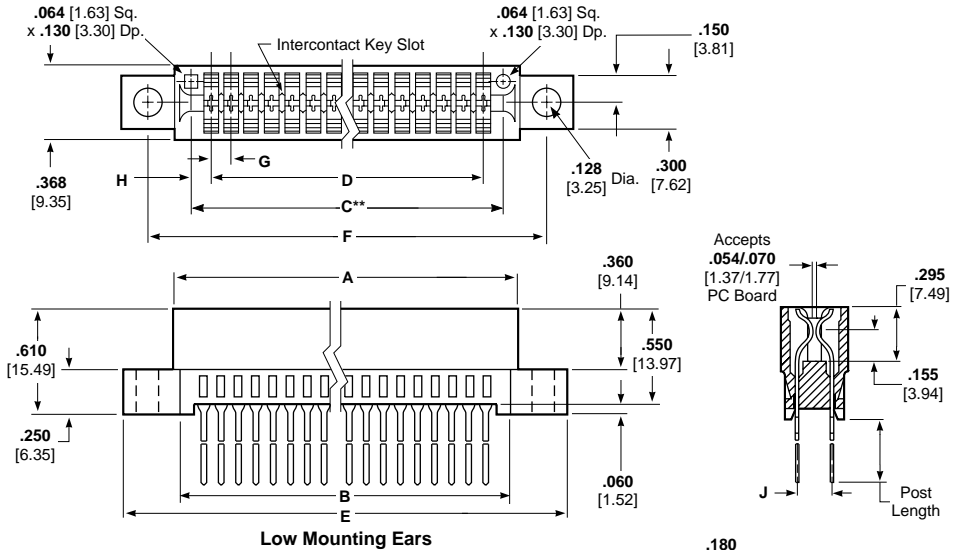
Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated

Contacts—Phosphor bronze, plated with .000030 [0.00076] gold in contact area, tin on posts, with entire contact nickel underplated

Technical Documents:

Product Specification
108-9039

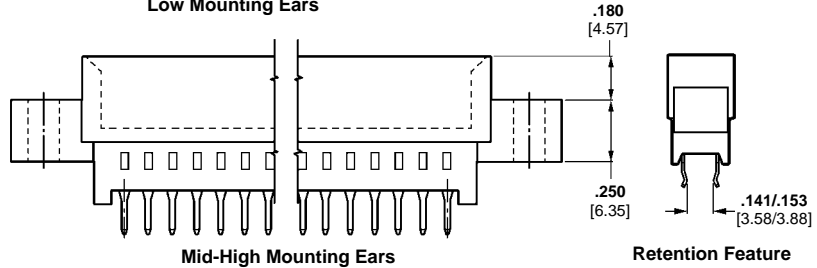
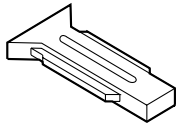


Low Mounting Ears

Intercontact Keying Plugs

Material:

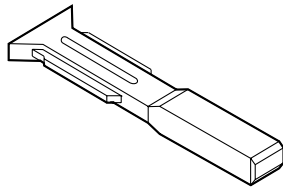
Natural color polyester



Mid-High Mounting Ears

Retention Feature

Part Number 650025-2
(.100 [2.54] Centerline)



.100 [2.54] Centerline

No. of Dual Positions	Dimensions									Post Length*	Part Numbers
	A	B	C**	D	E	F	G	H	J		
15	1.760	1.650	1.600	1.400	2.385	2.075	.100	.100	.191	.125	530841-2
	44.70	41.91	40.64	35.56	67.18	52.71	2.54	2.54	4.85		
25	2.760	2.650	2.600	2.400	3.345	3.075	.100	.100	.191	.125	530841-5
	70.10	67.31	66.04	60.96	84.96	78.11	2.54	2.54	4.85		
50	5.260	5.150	5.100	4.900	5.845	5.575	.100	.100	.191	.125	1-530841-1
	133.60	130.81	129.54	124.46	148.46	141.60	2.54	2.54	4.85		

*Metric equivalent for post lengths are .125 = 3.18; .187 = 4.75
**C dimension is card slot length.

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.
2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

Part Number 650025-1
(.125 [3.18] Centerline)

.125 [3.18] Centerline

No. of Dual Positions	Dimensions									Post Length*	Part Numbers
	A	B	C**	D	E	F	G	H	J		
28	3.785	3.505	3.625	3.375	4.305	4.045	.125	.125	.241	.187	3-531341-0 ²
	96.14	89.03	92.08	85.73	109.35	102.74	3.18	3.18	6.11		

*Metric equivalent for post lengths are .125 = 3.18; .187 = 4.75
**C dimension is card slot length.

¹ Connector with Retention Feature.
² Connector with Mid-High Mounting Ears.

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.
2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

.100 [2.54] Right-Angle Solder Posts, with Low and No Mounting Ears

Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated

Contacts—Phosphor bronze, duplex plated as follows:

Plating A—.000030 [0.00076] gold in contact area, tin on posts, with entire contact nickel underplated

Plating B—.000015 [0.00038] gold in contact area, tin on posts, with entire contact nickel underplated

Related Product Data:

Performance Specifications—page 2011

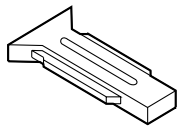
Technical Documents:

Product Specification
108-9039

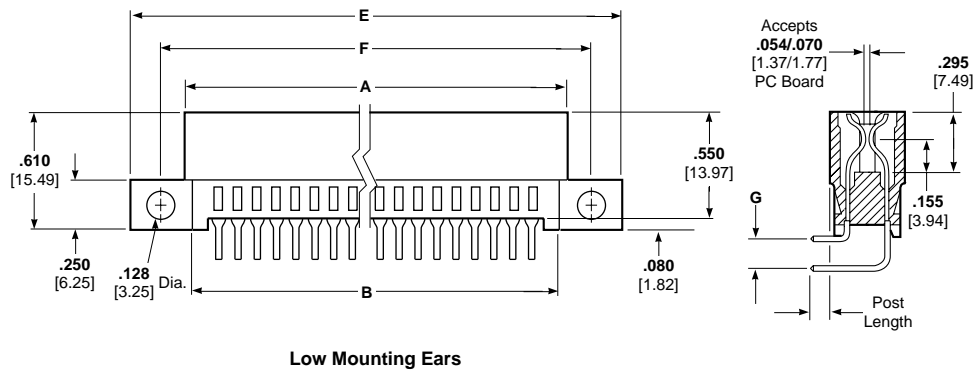
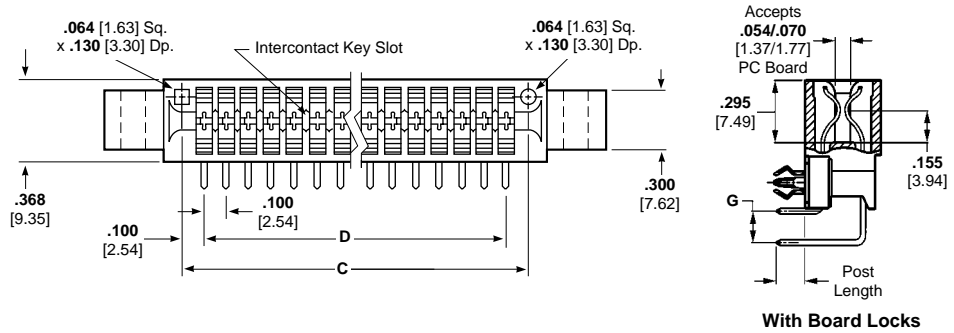
Intercontact Keying Plug

Material:

Natural color polyester



Part Number 650025-2
(.100 [2.54] Centerline)



Low Mounting Ears

No. of Dual Positions	Dimensions						Post Length ²	Part Numbers (Plating A)
	A	B	C*	D	E	F		
12	1.460 37.08	1.350 34.29	1.300 33.02	1.100 27.94	2.045 51.94	1.775 45.08	.100x .150	145089-1 ³
18	2.060 52.32	1.950 49.53	1.900 48.26	1.700 43.18	2.645 67.18	2.375 60.32	.100x .150	645384-1
20	2.260 57.40	2.150 54.61	2.100 53.34	1.900 48.26	2.845 72.30	2.575 65.40	.100x .150	645384-3

*C dimension is card slot length.

¹ Metric equivalent for .100 x .150 and .100 x .200 are [2.54 x 3.81] and [2.54 x 5.08].

² Metric equivalent for post length is .090 = [2.27].

³ Connector with Board Locks.

Note: Other connector sizes can be made available, consult Tyco Electronics.

No Mounting Ears

No. of Dual Positions	Dimensions					Post Length ²	Part Numbers	
	A	B	C*	D	G ¹		Plating A	Plating B
15	1.760 44.70	1.650 41.91	1.600 40.64	1.400 35.56	.100x .150	.090	650118-1	—
17	1.960 49.78	1.850 46.99	1.800 45.72	1.600 40.64	.100x .200	.090	650187-1	—
25	2.760 70.10	2.350 67.61	2.600 66.04	2.400 60.96	.100x .150	.090	—	532600-2
31	3.360 85.34	3.250 82.55	3.200 81.28	3.000 76.20	.100x .150	.090	—	532600-4
32	3.460 87.88	3.350 85.09	3.300 83.82	3.100 78.74	.100x .150	.090	—	532600-5
19	2.160 54.86	2.750 69.85	2.700 68.58	1.800 45.72	.100x .150	.090	—	532600-6

*C dimension is card slot length.

¹ Metric equivalent for .100 x .150 and .100 x .200 are [2.54 x 3.81] and [2.54 x 5.08].

² Metric equivalent for post length is .090 = [2.27].

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.

2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

2
PCB and Wire Connectors

.100 [2.54] Centerline Vertical Solder Posts, Retention Feature, Without Mounting Ears

Material and Finish:

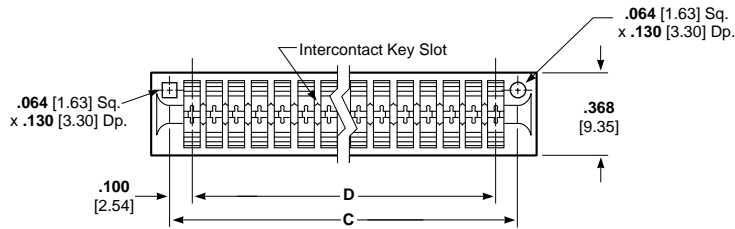
Housing—Black glass-filled polyester, 94V-0 rated

Contacts—Phosphor bronze, duplex plated as follows:

Plating A—.000030 [0.00076] gold in contact area, tin on posts, with entire contact nickel underplated

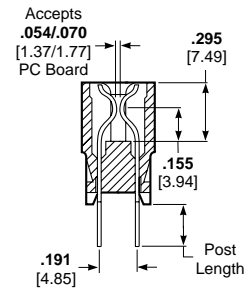
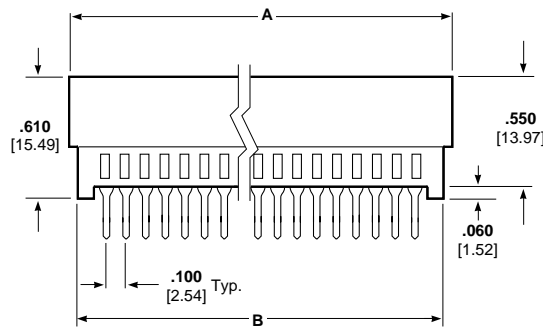
Plating B—.000015 [0.00038] gold in contact area, tin on posts, with entire contact nickel underplated

Plating C—Gold flash in contact area, tin on posts, with entire contact nickel underplated



Technical Documents:

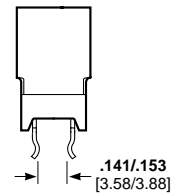
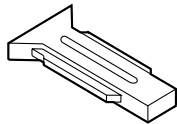
Product Specification
108-9039



Intercontact Keying Plug

Material:

Natural color polyester



Retention Feature

Part Number 650025-2
(.100 [2.54] Centerline)

No. of Dual Positions	Dimensions				Post Length*	Retention Feature	Part Numbers
	A	B	C**	D			
18	2.060	1.950	1.900	1.700	.125	3-6, 31-34	645235-4
	52.32	49.53	48.26	43.18			
31	3.360	3.250	3.200	3.000	.125	3-6, 29-32 or 31-34, 57-60	645235-1
	85.34	82.55	81.28	76.20			
50	5.260	5.150	5.100	4.900	.125	3-6, 49-52, 95-98	645235-3
	133.60	130.81	129.54	124.46			
60	6.260	6.150	6.100	5.900	.125	3-6, 55-58, 63-66, 115-118	645235-8
	159.00	156.21	154.94	149.86			

*Metric equivalent for post length is .125 = [3.18].

**C dimension is card slot length.

Notes: 1. Other connector sizes can be made available, consult Tyco Electronics.
2. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

.100 [2.54] Centerline, Special 18/31 Dual Combination Connector, Vertical Solder Posts, Without Mounting Ears

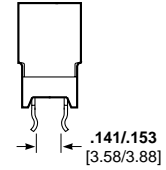
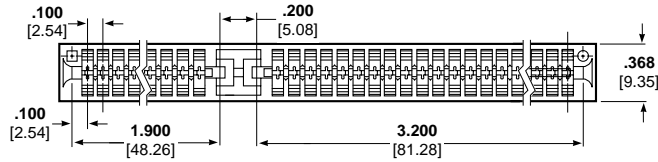
Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated, except where noted

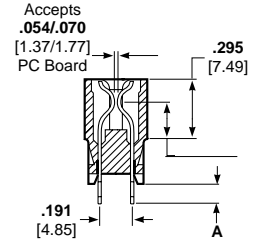
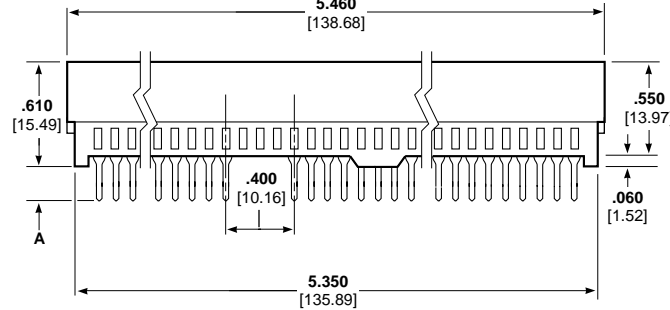
Contacts—Phosphor bronze, plated with .000030 [0.00076] gold in contact area (except where noted), tin on posts, with entire contact nickel underplated

Technical Documents:

Product Specification
108-9039



Retention Feature

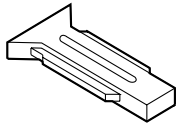


Solder Posts

Intercontact Keying Plug

Material:

Natural color polyester



Part Number 650025-2
(.100 [2.54] Centerline)

No. of Dual Positions	Post Type	Dimension A	Retention Feature	Part Numbers
52	Solder Posts	.125 3.18	3-6, 41, 42, 51, 52, 93-96	645169-2 536128-1 ¹
52	Solder Posts	.125 3.18	None	645169-3
52	Solder Posts	.125 3.18	3-14, 41, 42, 51, 52, 85-96	645169-4
52	Solder Posts	.125 3.18	5, 6, 31, 32, 41, 42, 93, 94	176139-1 ²
52	Solder Posts	.187 4.75	None	650616-1

¹ Housing material is high temperature glass-filled polyester, gray.

² Contact area is gold flash.

- Notes:**
1. Card slot length is 5.300 [134.62].
 2. Other connector sizes can be made available, consult Tyco Electronics.
 3. High temperature IR reflow compatible connectors can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

Product Facts

- Low profile housing is .460 [11.68] deep
- 6 through 43 dual positions on .156 [3.96] centerline; 6 through 50 dual positions on .125 [3.18] centerline
- Solder eyelet for wire-to-board or solder post for mother-daughter board application
- Selective gold plating of contact area for high performance at low cost
- Alternate platings are available on request
- Contacts bifurcated for redundancy
- Tin plate for high solderability of solder eyelets and posts
- Accepts .055-.070 [1.40-1.78] thick printed circuit boards
- Housings available with or without mounting ears
- Intercontact keying available
- UL 94V-0 rated, glass-filled polyester housings
- Variety of solder post lengths
- 5 ampere current rating per contact*
- Recognized under the Component Program of Underwriters Laboratories Inc.  File No. E28476



For printed circuit board packaging, AMP Low Profile Edge Connectors provide high performance, low cost connections on .125 [3.18] and .156 [3.96] centerline spacings. .100 [2.54] centerline connectors can be made available, consult Tyco Electronics.

Mounted connector housings extend only .460 [11.68] from the mother board to allow efficient use of available space.

These low profile connectors are available in 6 through 43 dual position sizes on .156 [3.96] centerline spacing and with 6 through 50 dual positions on .125 [3.18] centers. Connectors are supplied

with either solder posts for mother-daughter board applications or solder eyelet contacts for wire-to-board use.

Low Profile Edge Connectors feature clear slot entry and accept .055-.070 [1.40-1.78] thick double-sided printed circuit boards. Solder posts are available with .150 [3.18] and .180 [4.57] long tails on .140 [3.56] or .200 [5.08] row-to-row spacing.

Impact-resistant thermoplastic housing, UL rated 94V-0, have molded-in cavity identification and are available with or without mounting ears. Additional features of the housings include intercontact keying

provisions, probe slots and identification of number one position.

The precision formed contacts made of phosphor bronze are gold plated on the contact mating surface only. This selective plating provides high reliability while maintaining low cost. Solder eyelets and posts are tin plated for excellent solderability. The contact is bifurcated for redundancy. Shorting contacts are available.

All connector configurations are furnished preloaded. Selectively loaded connectors can be made available for added economy.

*Consult Tyco Electronics engineering when paralleling contacts for power applications.

For complete product information, order Catalog 82619

Low Profile Connectors, .125 [3.18] Centerline

Material and Finish:

Housing—Green, glass-filled polyester

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold in contact area; .000100 [0.00254] bright tin on posts, with entire contact under-plated .000030 [0.00076] nickel

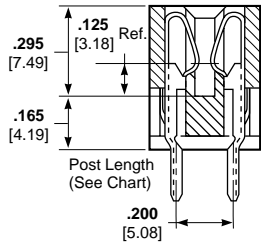
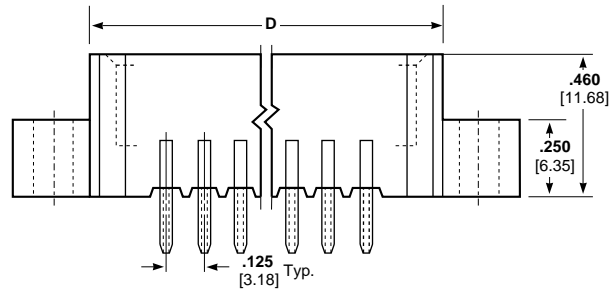
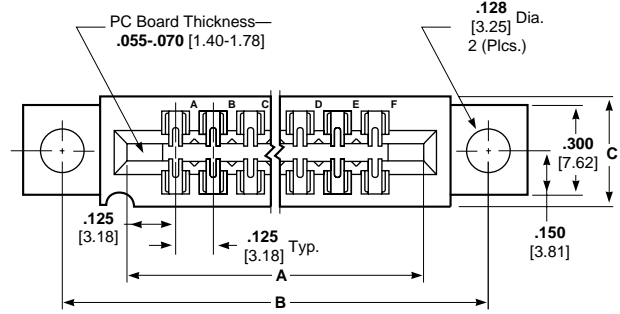
Technical Documents:

Product Specification

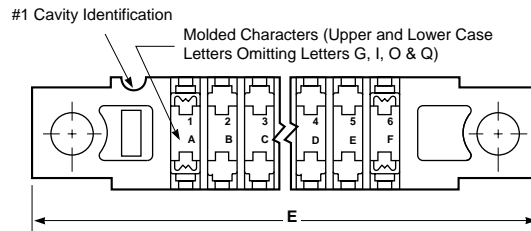
108-9044

Instruction Sheet

408-7772



Flow Solder Post
.200 [5.08] Row-to-Row Spacing



Flow Solder Post .200 [5.08] Row-to-Row Spacing

No. of Dual Positions	Dimensions					Post Length*	Without Mounting Ears
	A	B	C	D	E		
6	.875 22.23	—	.370 9.40	1.035 26.29	—	.150	2-530671-1
15	2.000 50.80	2.420 61.47	.370 9.40	2.160 54.86	2.680 68.07	.150	2-530671-3

For complete product information, order Catalog 82619

Low Profile Connectors, .156 [3.96] Centerline

Material and Finish:

Housing—Green, glass-filled polyester

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold in contact area; .000100 [0.00254] bright tin on posts, with entire contact under-plated .000030 [0.00076] nickel

Insert—Brass

Technical Documents:

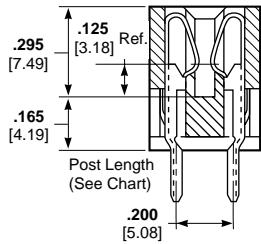
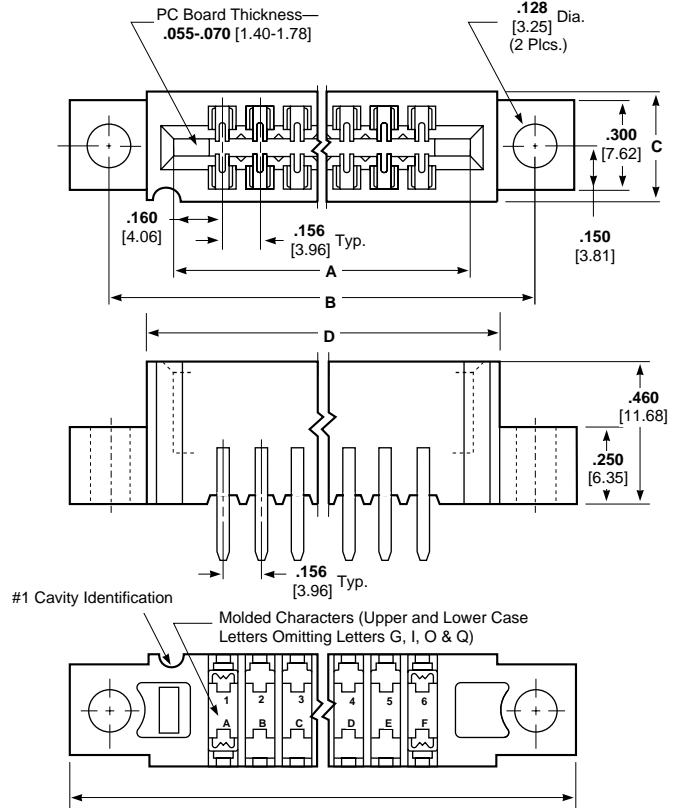
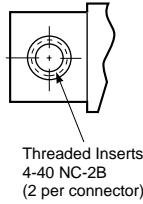
Product Specification

108-9044

Instruction Sheet

408-7772

Mounting Ear with Insert



Flow Solder Post

.200 [5.08] Row-to-Row Spacing

**Flow Solder Post
.200 [5.08] Row-to-Row Spacing**

No. of Dual Positions	Dimensions					Post Length*	With Mounting Ears	With Mounting Ears and Inserts	Without Mounting Ears
	A	B	C	D	E				
6	1.100 27.94	1.535 38.99	.370 9.40	1.240 31.50	1.785 45.34	.150	—	—	2-530666-1
10	1.724 43.79	2.159 54.84	.370 9.40	1.864 47.35	2.409 61.19	.150	2-530655-2	—	—
15	2.504 63.60	2.939 74.65	.370 9.40	2.644 67.16	3.189 81.00	.150	2-530655-4	—	—
22	3.596 91.34	4.031 102.39	.370 9.40	3.736 94.89	4.281 108.74	.150 .180	—	—	2-530666-6
43	6.872 174.55	7.307 185.60	.437 11.10	7.012 178.10	7.557 191.95	.150	—	—	3-530677-3

**Flow Solder Post
.140 [3.56] Row-to-Row Spacing
and
Solder Eyelet Contact
.235 [5.97] Row-to-Row Spacing**

No. of Dual Positions	Dimensions					Post Length*	Solder Eyelet Contact
	A	B	C	D	E		With Mounting Ears
18	2.972 75.49	3.407 86.54	.370 9.40	3.112 79.04	3.657 92.89	—	2-530654-5

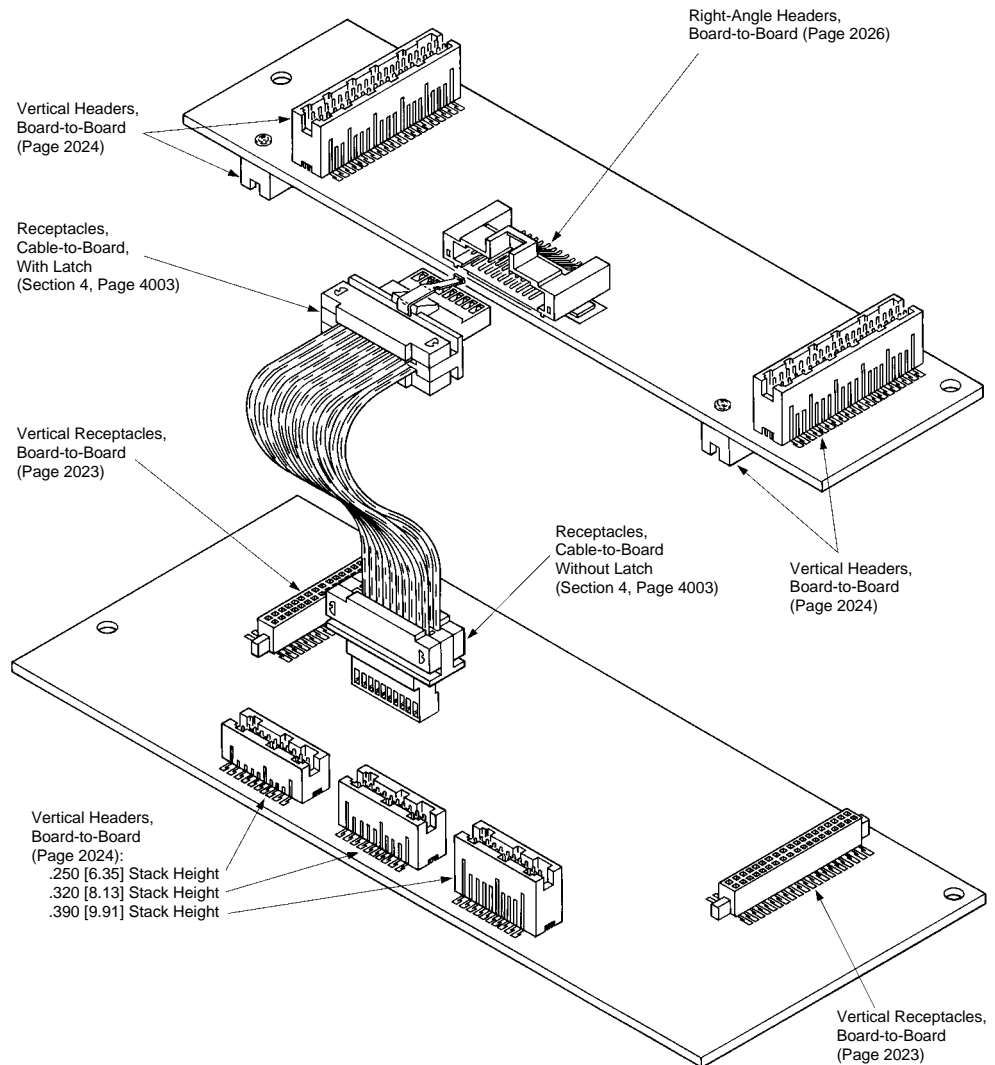
*Metric equivalents for post length are .150 = [3.81]; .180 = [4.57].

† For .040 [1.02] diameter hole.

Note: Other connector sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82619

AMPMODU 50/50 Grid Connectors



2
PCB and Wire Connectors

Performance Specifications:

- Board-to-Board Connectors, Vertical and Right-Angle** —
- Mating Force** — 6.4 oz [1.78 N] max. per contact
- Unmating Force** — 1.0 oz [0.28 N] min. per contact
- Durability** — Tested to 200 cycles min.
- Current Rating** — (30°C T rise): .5 ampere per contact
- Operating Temperature Range** — -65°C to +105°C
- Termination Resistance** — 16 milliohms max. (initial)
- Insulation Resistance** — 5000 megohms min. (initial)
- Dielectric Withstanding Voltage** — 300 VAC

Cable-to-Board Connectors:

- Mating Force** — 6.4 oz [1.78 N] max. per contact
- Unmating Force Without Latch** — .5 oz [0.14 N] min. per contact
- Durability** — Tested to 200 cycles min.
- Current Rating** — (10°C T rise): .5 ampere per contact
- Operating Temperature Range** — -65°C to +105°C
- Termination Resistance** — 25 milliohms max. (initial and final)
- Insulation Resistance** — 5000 megohms min. (initial)
- Dielectric Withstanding Voltage** — 300 VAC

Produced under a Quality Management System certified to ISO 9001



A copy of the certificate is available upon request.

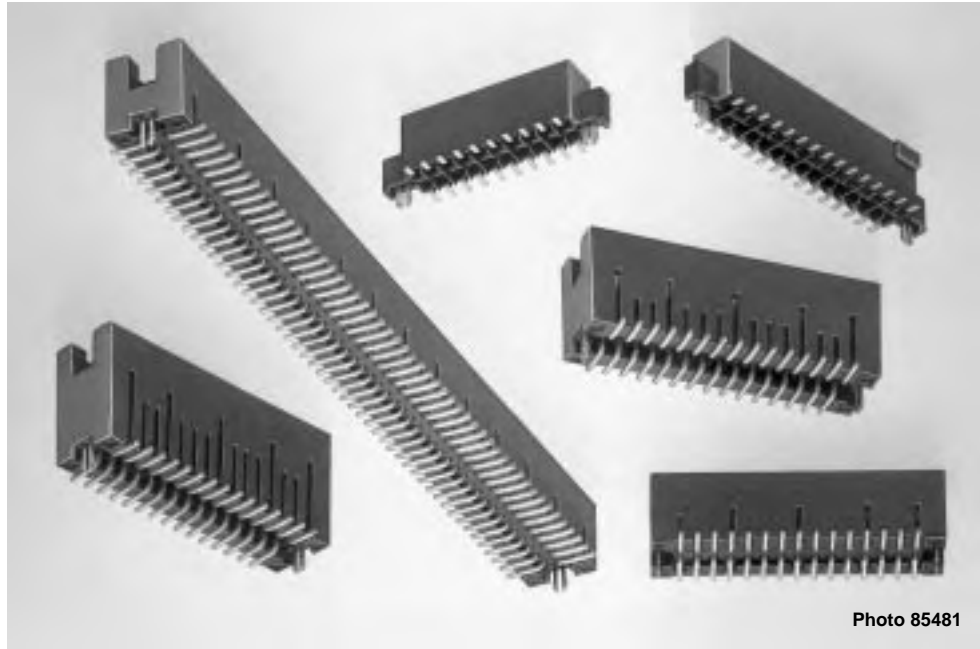


For complete product information, order Catalog 1307819

Board-to-Board Vertical Receptacles and Headers

Product Facts

- Surface-mount products for parallel board-to-board applications, as well as right-angle board-to-board and cable-to-board applications
- High density .050 x .050 [1.27x1.27] centerline grid
- Three board-to-board stack heights: .250 [6.35], .320 [8.13] and .390 [9.91]
- Non-protrusive metallic holddowns
- Reliable dual beam receptacle contacts for redundant contact
- Duplex plated receptacle and post contacts; gold plated on mating areas, tin-lead plated on tails
- Compatible with standard surface-mount processing (VPR and IR)
- Receptacle and header allow for drainage of processing fluids
- Tape and reel packaging available, contact AMP for details
- Polarized header and receptacle assemblies
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189 



AMPMODU 50/50 Grid Vertical Headers and Receptacles are designed for parallel board-to-board stacking in high density applications.

Right-angle board-to-board and cable-to-board applications are also possible, since the vertical receptacles also mate with non-latching right-angle headers (page 6) and the vertical headers also mate with non-latching cable connectors.

Available are double row, vertical shrouded headers and receptacles in sizes ranging from 10 through 100 positions (in 10 position increments).

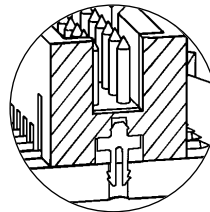
Parallel board-to-board stack heights of .250 [6.35], .320 [8.13] and .390 [9.91] are achievable by selection of the appropriate header. The receptacle is the same for all three stack height headers.

Non-protrusive metallic holddowns are designed for use in .062 [1.57] or thicker

PC boards and allow surface mounting to both sides of the board. In addition to providing retention during processing, the holddowns are soldered during reflow and therefore provide long term strain relief for the lead solder joints.

AMPMODU 50/50 Grid Vertical Headers and Receptacles are compatible with standard surface-mount processes; IR (infrared) and VPR (vapor phase reflow). The surface-mount connectors have been designed so that dimensioning, tolerances, referenced datums, holddown characteristics

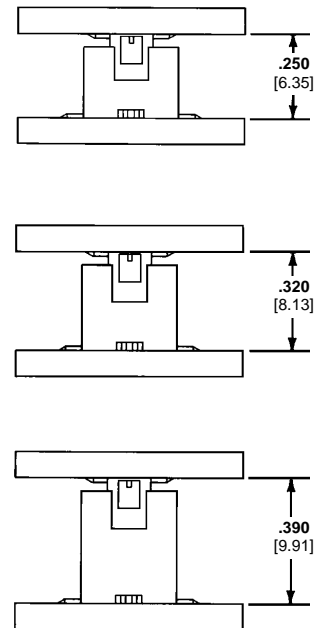
Non-Protrusive Metallic Holddowns



and packaging methods result in a system that is compatible with robotic assembly.

The headers and receptacles feature polarization to prevent misalignment.

Three Board Stack Heights



For complete product information, order Catalog 1307819

Board-to-Board Vertical Receptacles, Double Row, .050 x .050 [1.27 x 1.27] Centerline

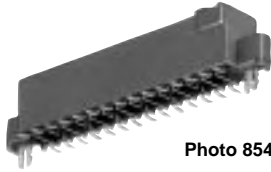


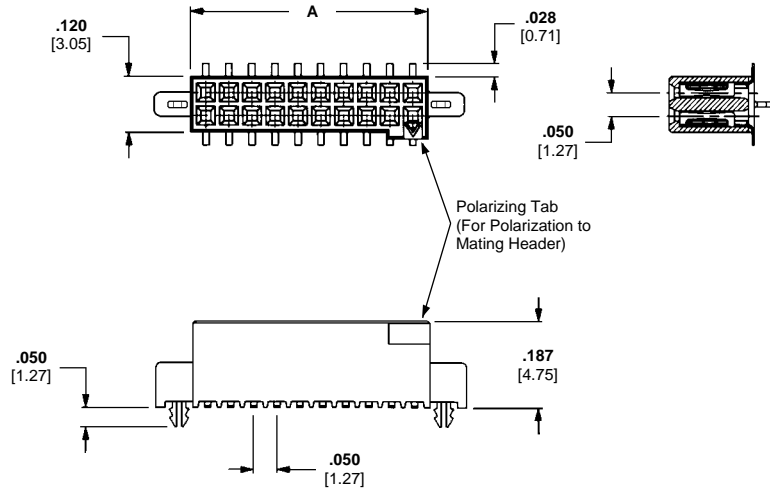
Photo 85482

Material and Finish:

Housing—Glass-filled thermoplastic, black, 94V-0 rated

Contacts—Beryllium copper; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin-lead over .000050 [0.00127] nickel



Related Product Data:

Mating Headers — pages 2024, 2026

Performance Specifications — page 2021

Technical Documents:

Product Specification
108-1332

Application Specification
114-7010

Packaging
Tube or Tape and Reel

No. of Positions	Dimension A	Receptacle Part Numbers	
		Tube	Tape and Reel*
10	.266 6.75	104652-1	147384-1
20	.516 13.11	104652-2	147384-2
30	.766 19.46	104652-3	147384-3
40	1.016 25.81	104652-4	147384-4
50	1.266 32.16	104652-5	147384-5
60	1.516 38.51	104652-6	147384-6
70	1.766 44.86	104652-7	147384-7
80	2.016 51.21	104652-8	147384-8
100	2.516 63.91	1-104652-0	147384-9

* Parts packaged in tape and reel have vacuum pick and place cover.

2
PCB and Wire Connectors

For complete product information, order Catalog 1307819

Board-to-Board Vertical Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline

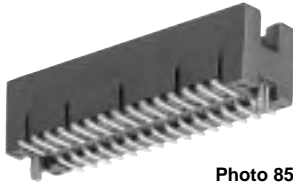


Photo 85480

For .250 [6.35] Mated Height

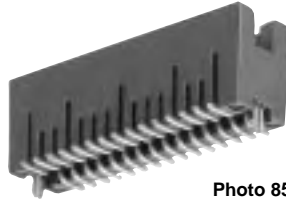


Photo 85479

For .320 [8.13] Mated Height

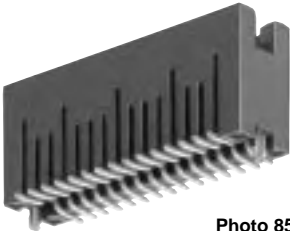
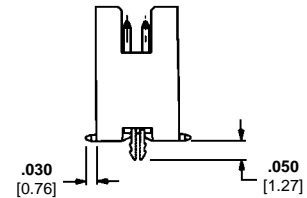
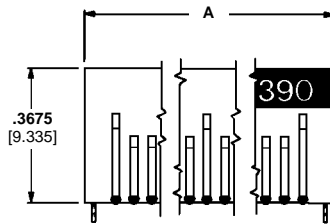
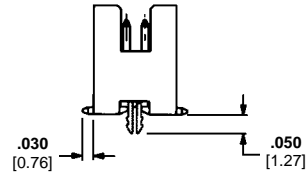
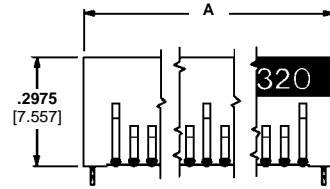
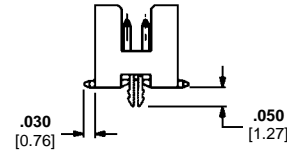
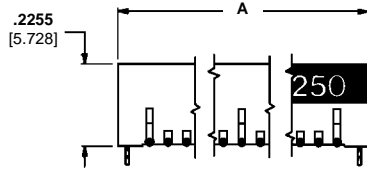
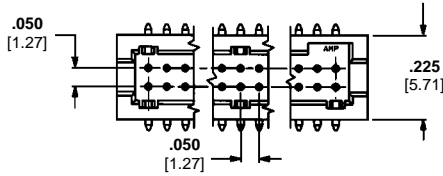


Photo 85478

For .390 [9.91] Mated Height



Material and Finish:

Housing—Glass-filled thermoplastic, black, 94V-0 rated

Contacts—Phosphor bronze; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin-lead over .000050 [0.00127] nickel

Related Product Data:

Mating Receptacles — page 2023

Performance Specifications — page 2021

Technical Documents:

Product Specification
108-1332

Application Specification
114-7010

Packaging
Tube or Tape and Reel



No. of Positions	Dimension A	Header Part Numbers					
		.250 [6.35] Mated Height		.320 [8.13] Mated Height		.390 [9.91] Mated Height	
		Tubes	Tape & Reel*	Tubes	Tape & Reel*	Tubes	Tape & Reel*
10	.372 9.44	104655-1	147381-1	104656-1	147382-1	104693-1	147383-1
20	.622 15.79	104655-3	147381-2	104656-2	147382-2	104693-2	147383-2
30	.872 22.14	104655-4	147381-3	104656-3	147382-3	104693-3	147383-3
40	1.122 28.49	104655-5	147381-4	104656-4	147382-4	104693-4	147383-4
50	1.372 34.84	104655-6	147381-5	104656-5	147382-5	104693-5	147383-5
60	1.622 41.19	104655-7	147381-6	104656-6	147382-6	104693-6	147383-6
70	1.872 47.54	104655-8	147381-7	104656-7	147382-7	104693-7	147383-7
80	2.122 53.89	104655-9	147381-8	104656-8	147382-8	104693-8	147383-8
100	2.622 66.59	1-104655-1	147381-9	1-104656-0	147382-9	1-104693-0	147383-9

*Parts packaged in tape and reel have vacuum pick and place cover.

For complete product information, order Catalog 1307819

Board-to-Board Right-Angle Headers

Product Facts

- Surface-mount products for right-angle board-to-board and cable-to-board applications
- Double-row, right-angle shrouded headers
- High density .050 x .050 [1.27 x 1.27] centerline grid
- Latching and non-latching versions available
- Non-protrusive metallic holddowns
- Metallic tabs, when soldered to PC board pad, provide added mechanical support
- Duplex plated post contacts; gold plated on mating area, tin plated on tails
- Compatible with standard surface-mount processing (VPR and IR)
- Standoffs on header housings allow for drainage of processing fluids
- All headers are polarized
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189 



AMPMODU 50/50 Grid Right-Angle Headers will accommodate a variety of high density packaging applications; right-angle board-to-board applications when mated with vertical receptacles (page 3) and right-angle cable-to-board applications when mated with cable connectors. The small .050 x .050 [1.27 x 1.27] centerline contact spacing allows efficient use of the PC board area.

Mechanical support of the headers to the PC board is provided by non-protrusive metallic holddowns designed for .062 [1.57] or thicker PC boards. These holddowns are of the same design as those used in the vertical headers (page 4)

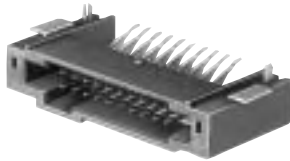
and receptacles (page 3). There are also metallic tabs that are soldered to the surfaces of the PC board pads for added support.

AMPMODU 50/50 Grid Right-Angle Headers are available in double-row, in either latching or non-latching versions, and in sizes ranging from 10 through 100 positions (in 10 position increments). The latching version provides positive retention when mated with the latching cable connector. All headers feature polarization to prevent misalignment during mating.

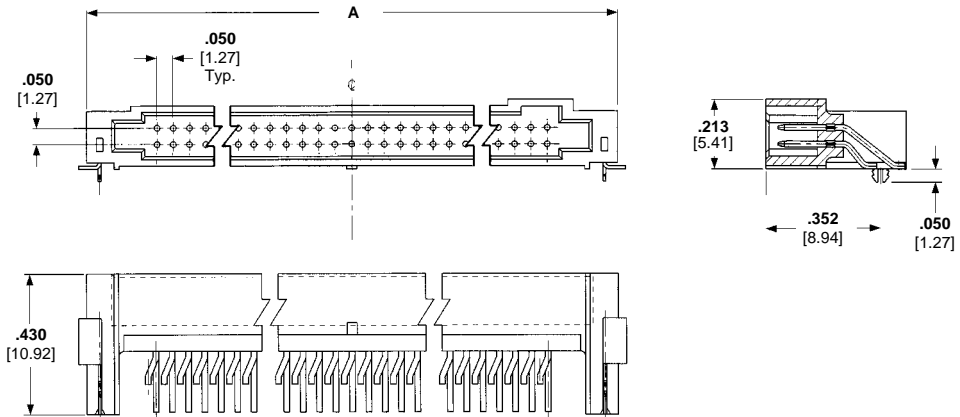
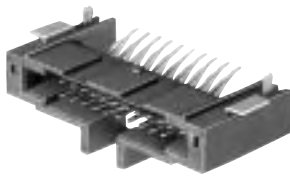
For complete product information, order Catalog 1307819

Board-to-Board Right-Angle Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline

Non-Latching Header



Latching Header



Material and Finish:

Housing — Liquid crystal polymer, black, 94V-0 rated

Contacts — Brass; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.000381] tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown — Copper alloy; plated .0000150 [0.000381] tin-lead over .000050 [0.00127] nickel

Related Product Data:

Mating Receptacles — page 2023

Performance Specifications — page 2021

No. of Positions	Dimension A	Header Part Numbers	
		Latching	Non-Latching
10	.630 16.00	104895-1	104894-1
20	.880 22.35	104895-2	104894-2
30	1.130 28.70	104895-3	104894-3
40	1.380 35.05	104895-4	104894-4
50	1.630 41.40	104895-5	104894-5
60	1.880 47.75	104895-6	104894-6
70	2.130 54.10	104895-7	104894-7
80	2.380 60.45	104895-8	104894-8
100	2.880 73.15	1-104895-0	1-104894-0

Technical Documents:

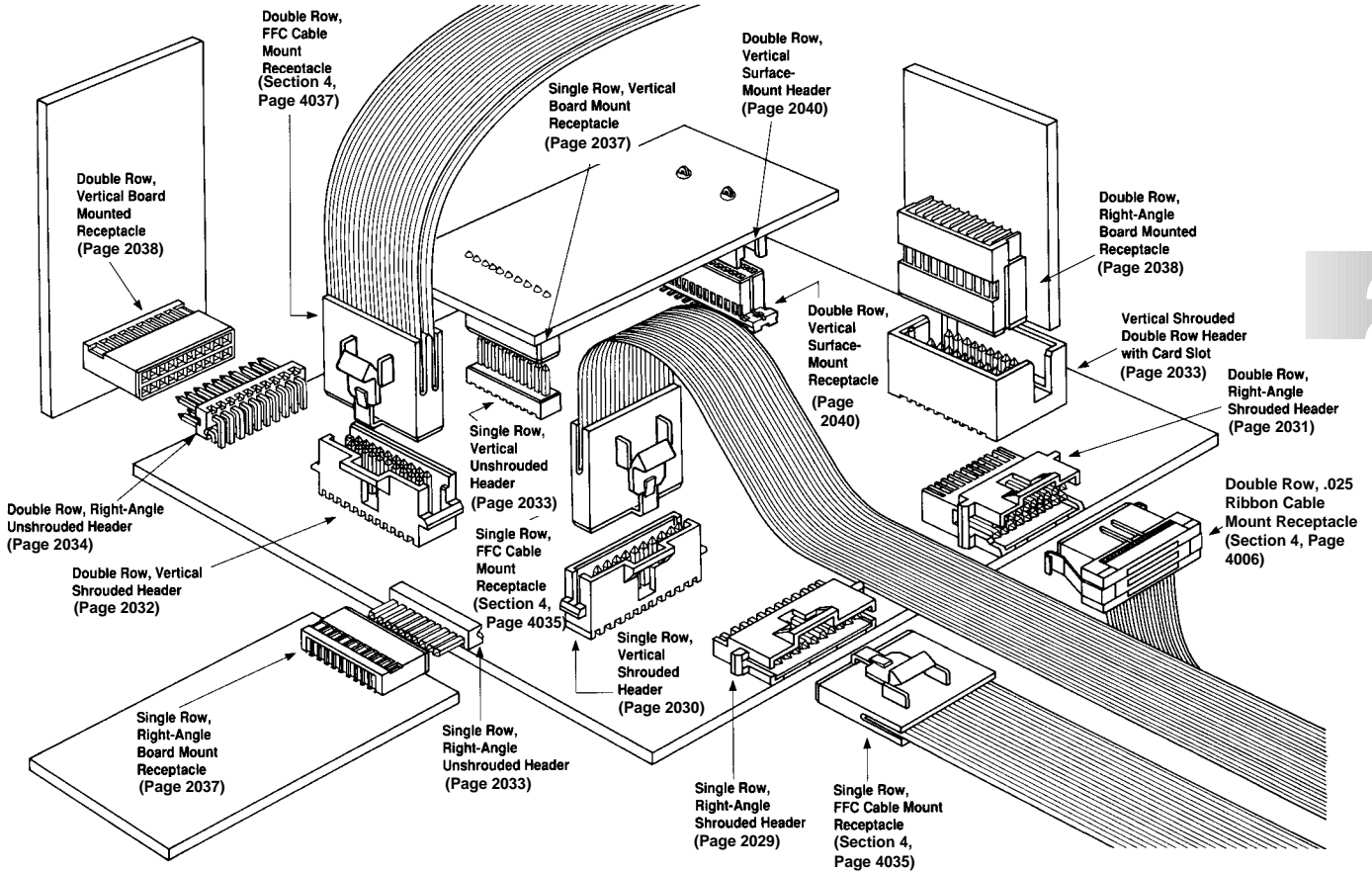
Product Specification
108-1443

Application Specification
114-7010

Packaging
Tube

Note: Refer to Tyco Electronics Customer Drawings for additional PC board layout information and dimensional tolerances.

For complete product information, order Catalog 1307819



2

PCB and Wire Connectors

■ **Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476**



■ **Certified by Canadian Standards Association*, File No. LR 7189**



*CSA certification pending on certain products, as noted.

Dimensioning:

Dimensions are in inches and millimeters. Values in brackets are metric equivalents. Metric symbols used are:

- mm (millimeter)
- cm (centimeter)
- m (meter)
- mm² (square millimeter)
- C (Celsius)
- N (newton)
- kg (kilogram)

■ **Produced under a Quality Management System certified to ISO 9001**



A copy of the certificate is available upon request.

The AMPMODU System 50 connector family includes a wide variety of high density board-to-board (thru-hole and surface-mount) and cable-to-board connectors. System 50 is composed of one- and two-row receptacles and post headers on .050 x .100 [1.27 x 2.54] spacing between contacts for extreme density and efficient use of printed circuit board area.

System 50 receptacles and header assemblies can be categorized in three groups: board-mount headers, board-mount receptacles and cable-to-board receptacles. Receptacle contacts and mating .015 [0.38] square posts are formed from high conductivity copper alloy and are selectively plated with gold for higher performance and reliability.

Board-mounted thru-hole post headers and receptacle connectors are available for right-angle and vertical mating configurations. Surface-mounted connectors are available in vertical, double row styles for parallel stacking applications. Shrouded post headers provide polarization to mating cable receptacles and aid alignment of mating connectors. Unshrouded headers allow close stacking of daughter cards. Vertical stacking connectors space parallel mated boards as shown in the illustration on page 58. Housings on all board-mount assemblies are made of high temperature tolerant materials and incorporate stand-offs for free drainage of flux cleaning solutions.

Cable-to-board connectors have integral latches for

positive locking to shrouded mating headers (thru-hole or surface-mount). Ribbon cable connectors mass terminate 30 AWG [0.05 mm²] solid and 32 AWG [0.03 mm²] stranded, .025 [0.64] centerline ribbon cable with PVC or TEFLON insulation. (See Section 4).

Connectors for mass termination to FFC cable or flexible etched circuitry have dual beam contacts; options include shielded cable and solder tabs. Both types of cable connectors are available as component parts and as completed assemblies. (See Section 4).

The variety of components and application possibilities, combined with small size and outstanding quality, make System 50 perfect for high density systems.

For complete product information, order Catalog 1307819

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- High density; contacts spaced on .050 x .100 [1.27 x 2.54] centers
- Single row; select sizes 4 thru 50 positions
- Double row; select sizes 10 thru 100 positions
- Stand-offs for ease of cleaning
- High temperature tolerant thermoplastic housings
- Shrouded and unshrouded headers available in single and double row, vertical and right-angle configurations

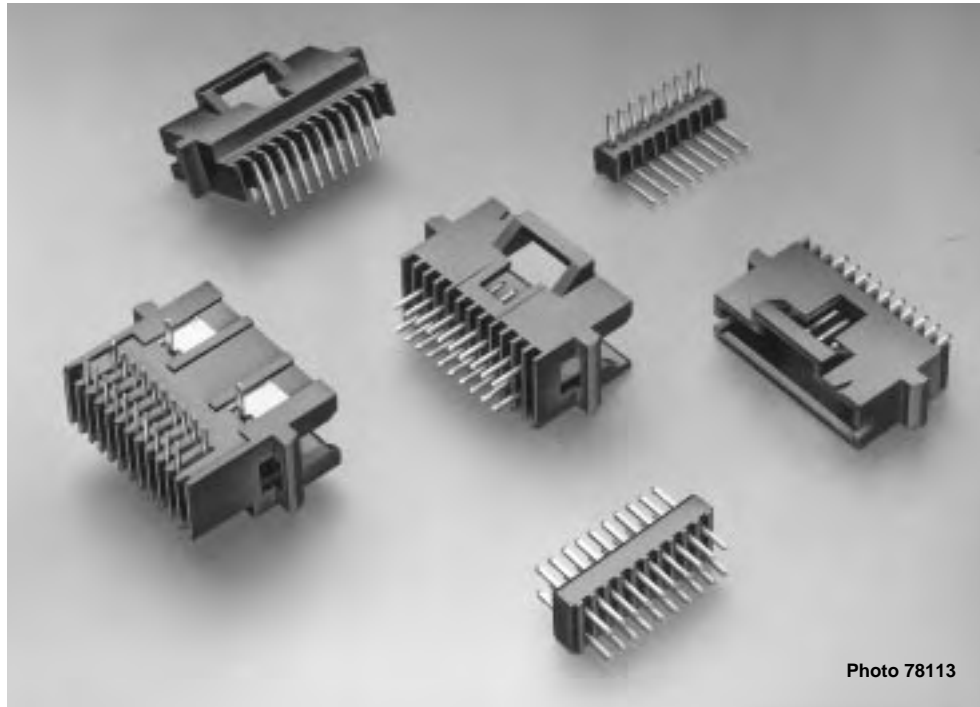


Photo 78113

The AMPMODU System 50 interconnection system is designed to meet industry's need for a high density interconnect system. The Board Mounted Thru-Hole Headers are available in shrouded and unshrouded versions. They are composed of single and double row post headers with .050 x .100 [1.27 x 2.54] spacing between contacts for extreme density and efficient use of printed

circuit board area. The headers are available in 4 through 50 positions, in a single row configuration, and 10 through 100 positions, in a double row design.

Board mounted post headers are available in right-angle and vertical configurations. Shrouded post headers provide polarization and alignment features for mating printed circuit boards and cable

connectors, while unshrouded headers allow close stacking of daughter cards. Housings for the headers are made of black thermoplastic material with a 94V-0 rating. The housings have stand-offs for free drainage of flux cleaning solutions.

For complete product information, order Catalog 1307819

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Right-Angle with Solder Clips

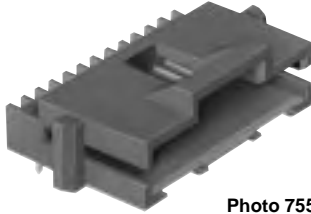
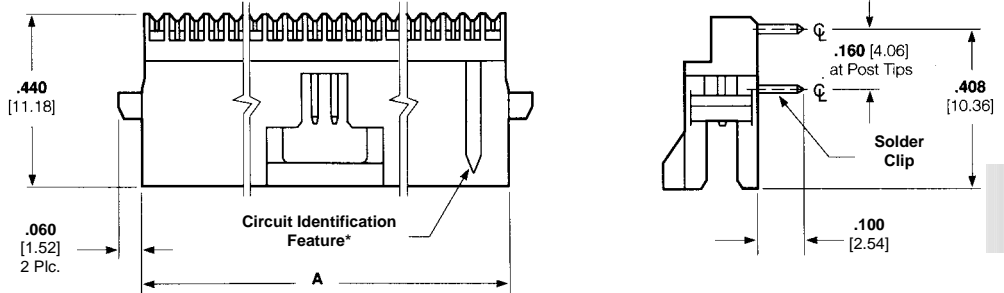


Photo 75572



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

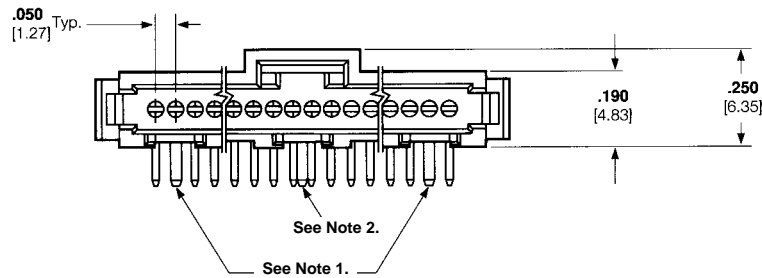
Performance Characteristics—page 2041

Mateable Connectors—page 2037

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031



No. of Positions	Dimension A	Part Numbers
4	.330 8.38	104074-7
5	.380 9.65	104074-2
6	.430 10.92	104074-8
8	.530 13.46	1-104074-0
10	.630 16.00	104074-1
12	.730 18.54	1-104074-1
15	.880 22.35	104074-3
20	1.130 28.70	104074-4
22	1.230 31.24	1-104074-4
25	1.380 35.05	104074-5
28	1.530 38.86	2-104074-0
30	1.630 41.40	104074-6
36	1.930 49.02	1-104074-6
40	2.130 54.10	1-104074-7
45	2.380 60.45	1-104074-8
50	2.630 66.80	1-104074-9

*Circuit identification feature omitted on 4, 5 and 6 position headers.

Notes: ¹ Solder Clips located as shown for 10 through 30 position headers.

² Solder Clips located as shown for 4 through 8 and 36 through 50 position headers.

For complete product information, order Catalog 1307819

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Vertical

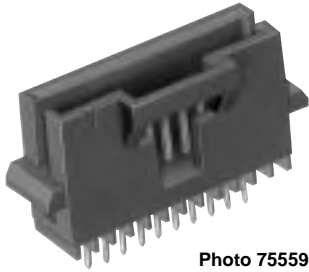
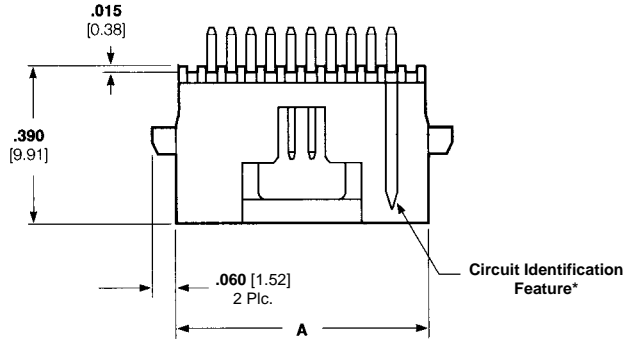


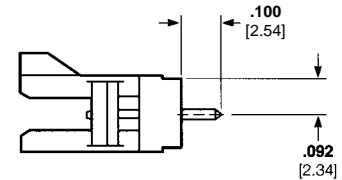
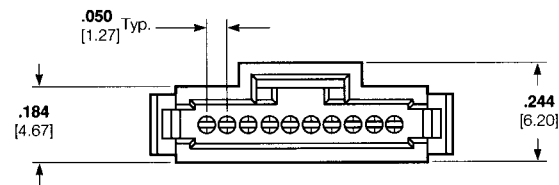
Photo 75559



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .00050 [0.00127] nickel



Related Product Data:

Performance Characteristics—page 2041

Mateable Connectors—page 2037

Board-to-Board Spacing—page 2041

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

No. of Positions	Dimension A	Part Numbers
4	.330 8.38	104071-7
5	.380 9.65	104071-2
6	.430 10.92	104071-8
8	.530 13.46	1-104071-0
10	.630 16.00	104071-1
12	.730 18.54	1-104071-1
15	.880 22.35	104071-3
17	.980 24.89	1-104071-3
20	1.130 28.70	104071-4
22	1.230 31.24	1-104071-4
25	1.380 35.05	104071-5
30	1.630 41.40	104071-6
36	1.930 49.02	1-104071-6
40	2.130 54.10	1-104071-7
50	2.630 66.80	1-104071-9

*Circuit identification feature omitted on 4, 5, and 6 position headers.

For complete product information, order Catalog 1307819

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Right-Angle with Solder Clips

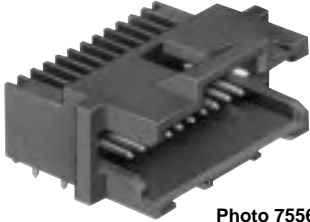
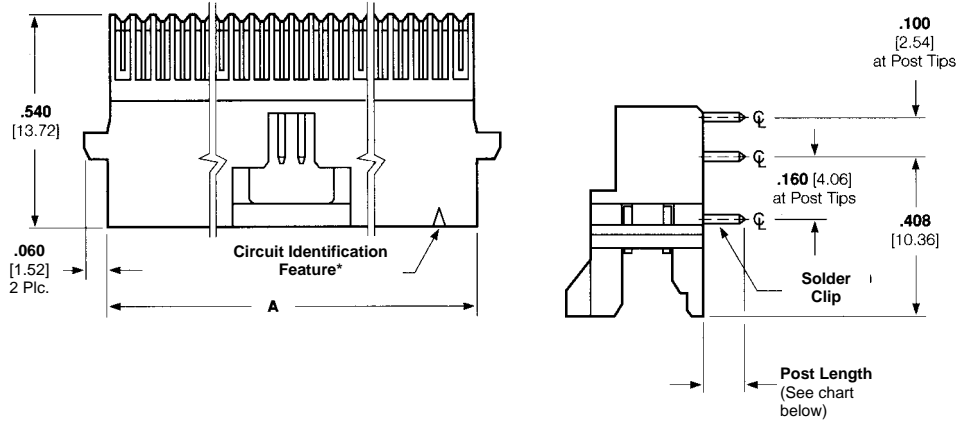


Photo 75561



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

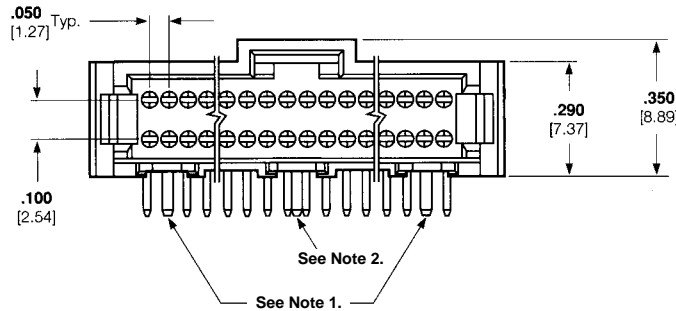
Performance Characteristics—page 2041

Mateable Connectors—pages 2038, 2040

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031



No. of Positions	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
10	.380 9.65	104069-4	—
20	.630 16.00	104069-1	—
24	.730 18.54	1-104069-2	1-104477-0
26	.780 19.81	1-104069-3	—
30	.880 22.35	104069-5	104477-3
34	.980 24.89	1-104069-4	—
40	1.130 28.70	104069-6	104477-4
50	1.380 35.05	104069-2	104477-5
60	1.630 41.40	104069-7	104477-9
68	1.830 46.48	1-104069-8	—
72	1.930 49.02	1-104069-6	104477-1
80	2.130 54.10	104069-3	104477-6
100	2.630 66.80	1-104069-7	104477-7

*Circuit identification feature omitted on 8, 10 and 12 position headers.

Notes: 1 Solder Clips located as shown for 16 through 100 position headers.

2 Solder Clips located as shown for 8 through 12 and 60 through 100 position headers.

For complete product information, order Catalog 1307819

2
PCB and Wire Connectors

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical

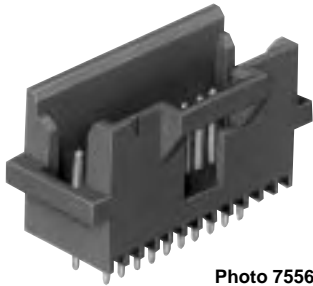
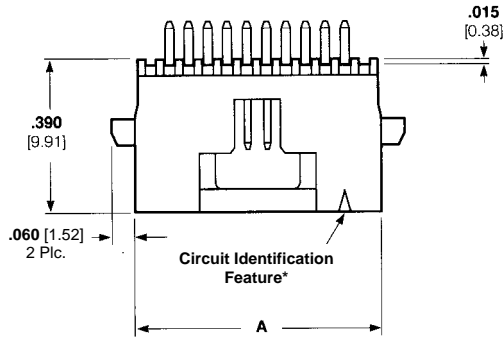


Photo 75560



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

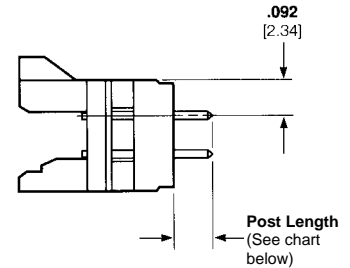
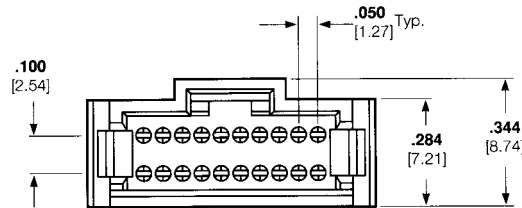
Contact—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Performance Specifications—page 2041

Mateable Connectors—pages 2038, 2040

Board-to-Board Spacing—page 2041



Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

No. of Positions	Dimension A	Part Numbers	
		.100 [2.54]	.145 [3.68]
10	.380 9.65	104068-2	—
12	.430 10.92	104068-8	—
14	.480 12.19	104068-9	—
16	.530 13.46	1-104068-0	—
20	.630 16.00	104068-1	104666-1
24	.730 18.54	1-104068-1	—
26	.780 19.81	1-104068-2	—
30	.880 22.35	104068-3	104666-2
34	.980 24.89	1-104068-3	—
40	1.130 28.70	104068-4	104666-3
44	1.230 31.24	1-104068-4	—
50	1.380 35.05	104068-5	104666-4
60	1.630 41.40	104068-6	104666-7
68	1.830 46.48	1-104068-8	104666-8
72	1.930 49.02	1-104068-5	—
80	2.130 54.10	1-104068-6	104666-5
100	2.630 66.80	1-104068-7	104666-6

*Circuit identification feature omitted on 10 and 12 position headers.

For complete product information, order Catalog 1307819

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical With Card Slots

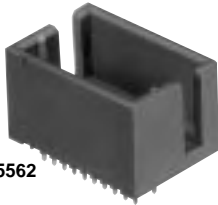


Photo 75562

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

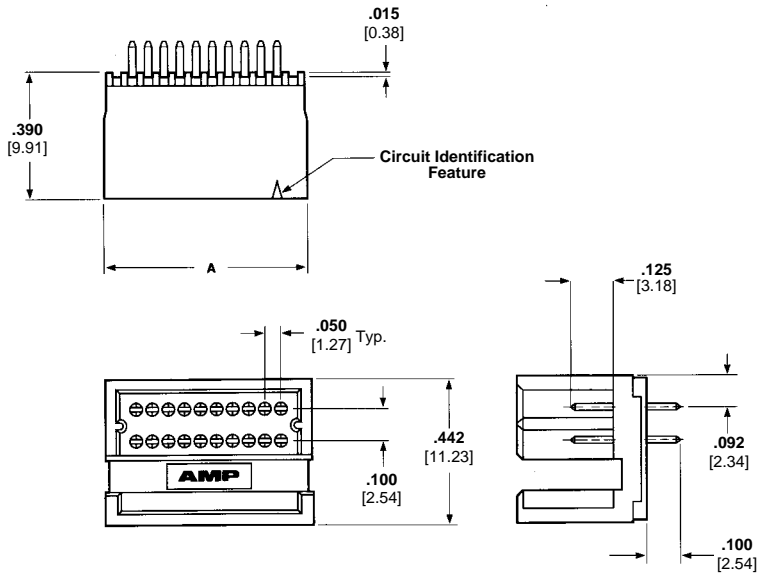
Performance Specifications—page 2041

Mateable Connectors—page 2038

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031



No. of Positions	Dimension A	Part Numbers
10	.394 10.01	104076-5
20	.644 16.36	104076-1
30	.894 22.71	104076-6
40	1.144 29.06	104076-3
50	1.394 35.41	104076-7
60	1.644 41.76	104076-2
100	2.644 67.16	104076-8

Single Row, Right-Angle

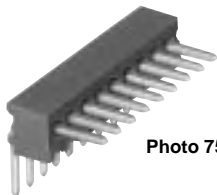


Photo 75575

Material and Finish:

Housing—Black thermoplastic, 94-V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Performance Characteristics—page 2041

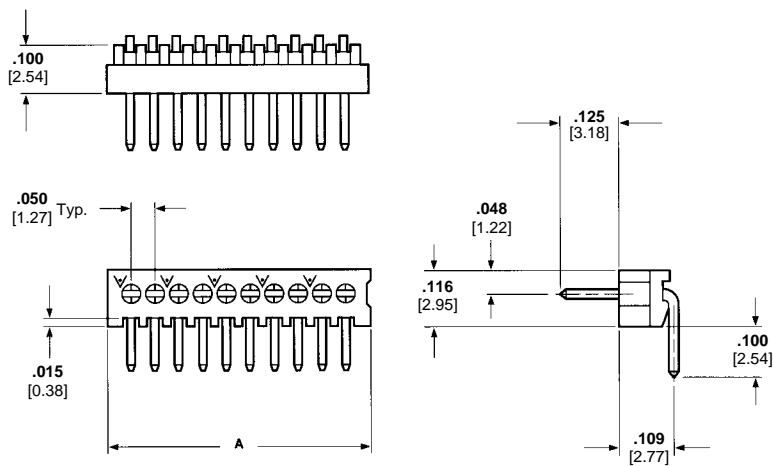
Mateable Connectors—page 2037

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54]



No. of Positions	Dimension A	Part Numbers
4	.215 5.46	104186-1
15	.765 19.43	104186-9
20	1.015 25.78	1-104186-1
25	1.265 32.13	1-104186-3
30	1.515 38.48	1-104186-5
31	1.565 39.75	2-104186-0
40	2.015 51.18	1-104186-7

For complete product information, order Catalog 1307819

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Vertical

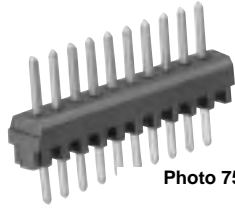
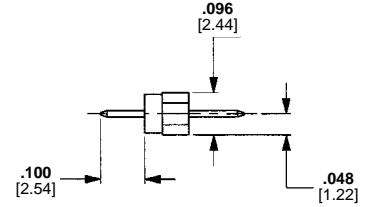
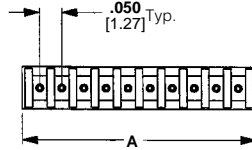
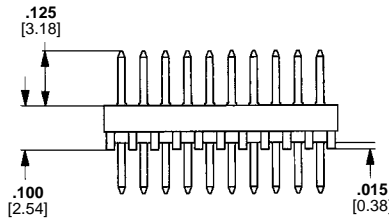


Photo 75574



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Performance Specifications—page 2041

Mateable Connectors—page 2037

Board-to-Board Spacing—page 2041

No. of Positions	Dimension A	Part Numbers
4	.215 5.46	104178-1
8	.415 10.54	104178-5
10	.515 13.08	104178-6
20	1.015 25.78	1-104178-1
25	1.265 32.13	1-104178-3

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

Double Row, Right-Angle

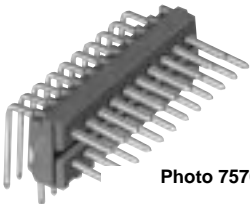
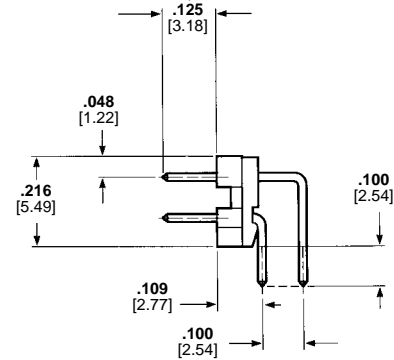
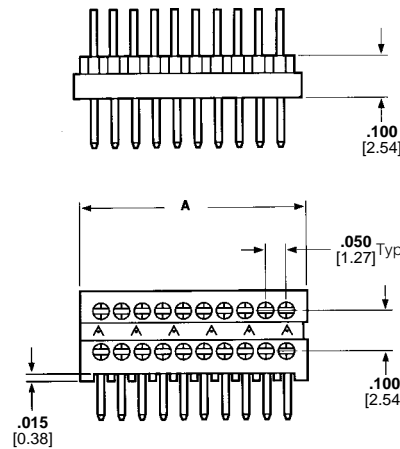


Photo 75706



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Performance Specifications—page 2041

Mateable Connectors—pages 2038, 2040

No. of Positions	Dimension A	Part Numbers
10	.265 6.73	104118-3
20	.515 13.08	104118-7
30	.765 19.43	1-104118-0
40	1.015 25.78	1-104118-2
50	1.265 32.13	104118-1
60	1.515 38.48	1-104118-4
80	2.015 51.18	1-104118-6
100	2.515 63.88	1-104118-7

Technical Documents:

Product Specification
108-1093

Application Specification

For complete product information, order Catalog 1307819

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical

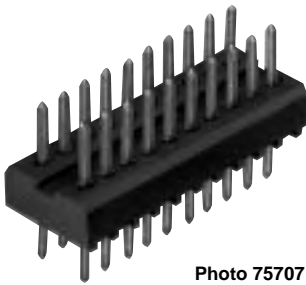
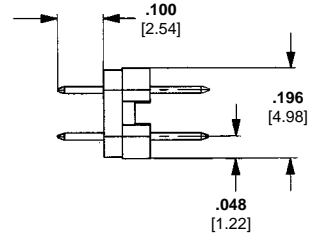
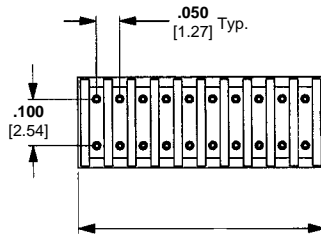
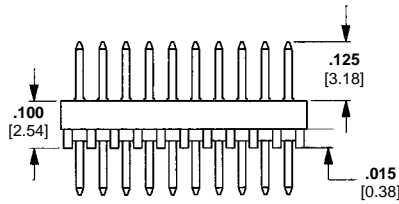


Photo 75707



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Performance Characteristics—page 2041

Mateable Connectors—pages 2038, 2040

Board-to-Board Spacing—page 2041

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

No. of Positions	Dimension A	Part Numbers
20	.515 13.08	103916-2
30	.765 19.43	103916-9
40	1.015 25.78	1-103916-1
50	1.265 32.13	1-103916-3
60	1.515 38.48	1-103916-4
80	2.015 51.18	1-103916-6
100	2.515 63.88	1-103916-7

2
PCB and Wire Connectors

For complete product information, order Catalog 1307819

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- High density; contacts spaced on .050 x .100 [1.27 x 2.54] centers
- Right-angle and vertical styles
- Single row; select sizes 5 thru 50 positions
- Double row; select sizes 10 thru 100 positions
- Contacts are selectively plated with gold
- Stand-offs for removal of solder flux

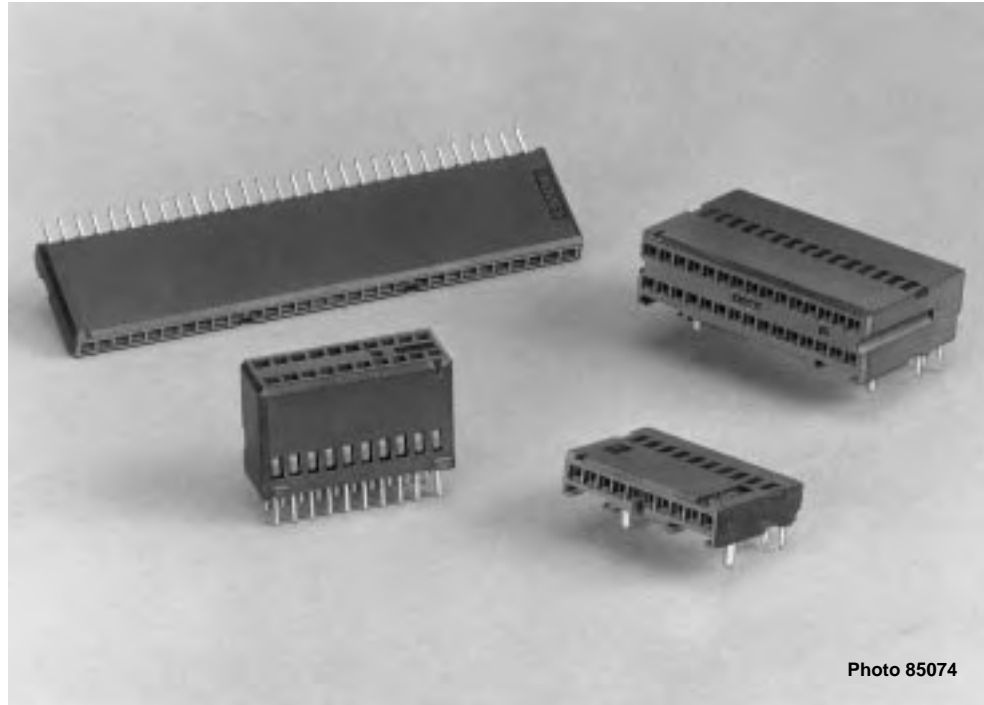


Photo 85074

The AMPMODU System 50 thru-hole receptacles offer a wide variety of high density board-to-board connectors. The .050 [1.27] spacing between each contact provides an extremely dense interconnect package and results in a more efficient use of the printed circuit board space.

AMPMODU System 50 thru-hole receptacles are available in right-angle and vertical configurations and are composed of single and double row versions. The single row versions are available in select sizes of 5 thru 50 positions and double row in positions from 10 thru 100.

Receptacle contacts and mating .015 [0.38] square posts are formed from high conductivity copper alloy and are selectively plated with gold for higher performance and reliability. The receptacle housings are made of black thermoplastic, with a 94V-0 rating to withstand high temperatures of reflow soldering and incorporate stand-offs for free drainage of flux cleaning solutions.

For complete product information, order Catalog 1307819

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Right-Angle With Solder Clips

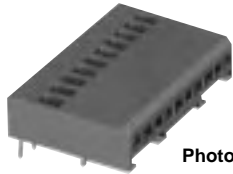


Photo 75570

Material and Finish:

Housing—Black thermoplastic
94V-0 rated

Contacts—Copper alloy, plated
.000030 [0.00076] gold in mating area,
.000150 [0.00381] tin-lead on solder
posts, with entire contact underplated
.000050 [0.00127] nickel

Related Product Data:

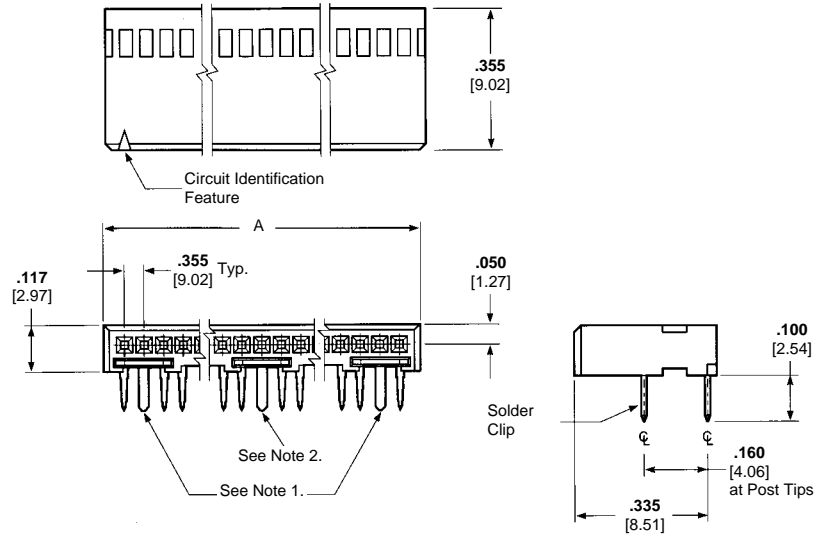
Performance Specifications—
page 2041

Mateable Connectors—page 2033,
2034

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031



No. of Positions	Dimension A	Part Numbers
10	.544 13.82	104196-2
15	.794 20.17	104196-4
20	1.044 26.52	104196-5

Notes: 1 Solder Clips located as shown for 10 through 25 position receptacles.
2 Solder Clips located as shown for 5 and 25 position receptacles.

Single Row, Vertical

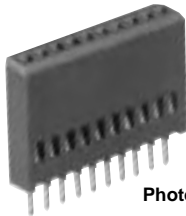


Photo 75576

Material and Finish:

Housing—Black thermoplastic,
94V-0 rated

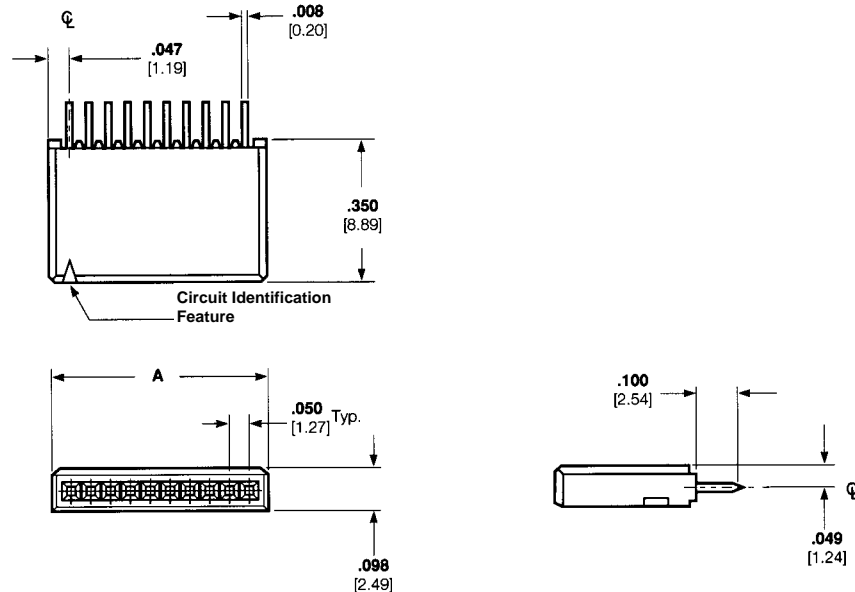
Contacts—Copper alloy, plated
.000030 [0.00076] gold in mating area,
.000150 [0.00381] tin-lead on solder
posts, with entire contact underplated
.000050 [0.00127] nickel

Related Product Data:

Performance Specifications—
page 2041

Mateable Connectors—
pages 2029, 2030, 2033, 2034

Board-to-Board Spacing—page 2041



No. of Positions	Dimension A	Part Numbers
10	.544 13.82	104192-2
15	.794 20.17	104192-4
30	1.544 39.22	104192-7

For complete product information, order Catalog 1307819

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Right-Angle

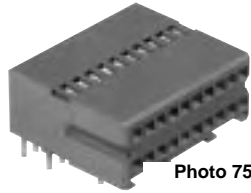
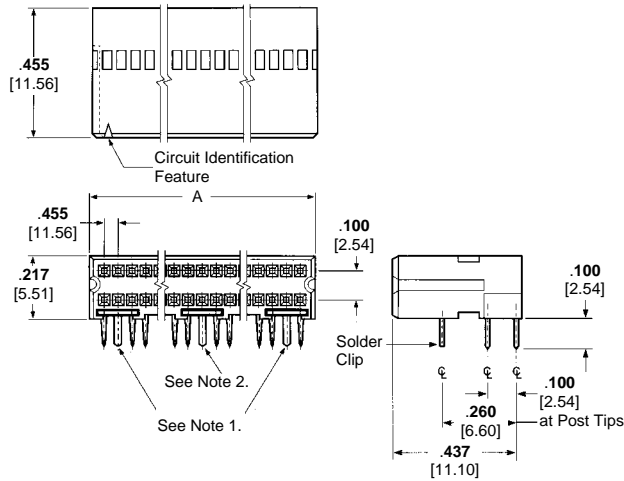


Photo 75571

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Performance Characteristics—page 2041

Mateable Connectors—page 2033-2035

Technical Documents:

Product Specification
108-1093

Application Specification
114-25031

No. of Positions	Dimension A	Part Numbers
10	.294 7.47	103911-1
20	.544 13.82	103911-2
30	.794 20.17	103911-7
40	1.044 26.52	103911-5
50	1.294 32.87	103911-4
60	1.544 39.22	103911-3
80	2.044 51.92	103911-6
100	2.544 64.62	103911-8

Notes: 1 Solder Clips located as shown for 20 through 100 position receptacles.
2 Solder Clips located as shown for 10, 60, 80 and 100 position receptacles.

Double Row, Vertical

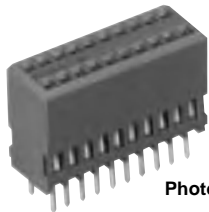
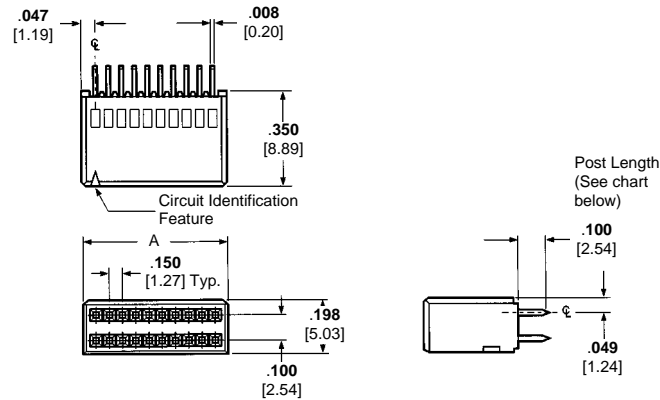


Photo 75558

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder posts, with entire contact underplated .000050 [0.00127] nickel



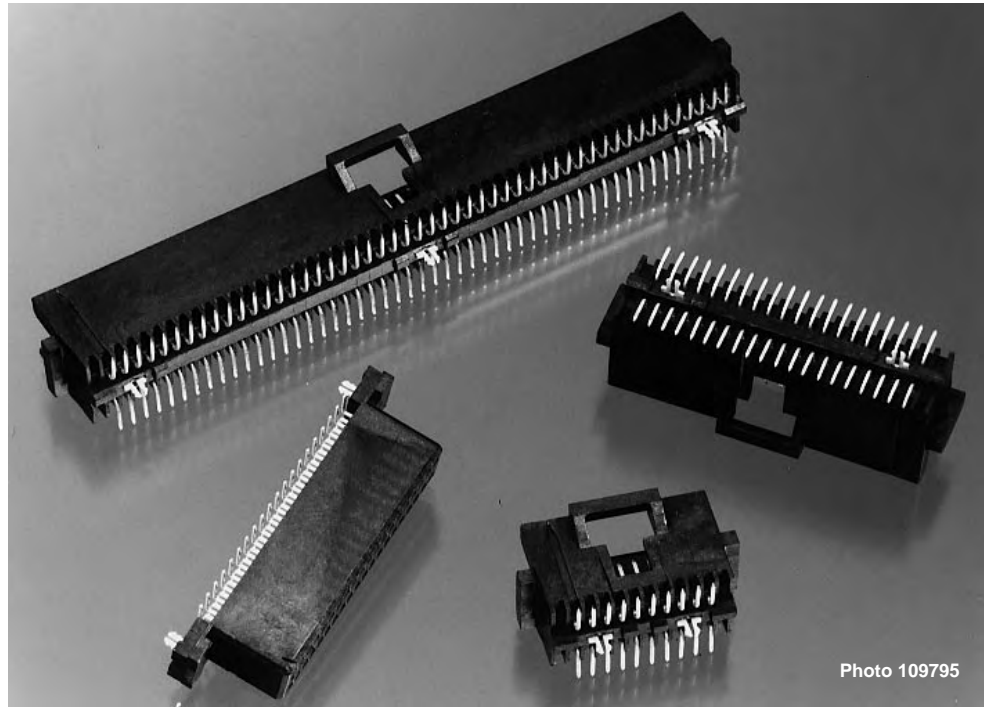
No. of Positions	Dimension A	Part Numbers Post Length	
		.100 [2.54]	.145 [3.68]
10	.294 7.47	104078-3	—
20	.544 13.82	104078-1	—
24	.644 16.36	104078-9	—
30	.794 20.17	104078-4	—
34	.894 22.71	1-104078-0	—
40	1.044 26.52	104078-2	—
50	1.294 32.87	104078-5	104744-7
60	1.544 39.22	104078-6	—
68	1.744 44.30	1-104078-3	—
80	2.044 51.92	104078-7	104744-4
100	2.544 64.62	104078-8	104744-5

For complete product information, order Catalog 1307819

Surface-Mount Connectors, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Product Facts

- Surface-mount option for parallel board-to-board applications; completely intermateable with AMPMODU System 50 through-hole board-to-board and cable-to-board systems
- Double row, vertical, shrouded header and receptacle assemblies
- Available in select sizes from 10 through 100 positions
- High Density; contacts spaced on .050 x .100 [1.27 x 2.54] centers; compact footprint
- Compatible with standard surface-mount processes
- Stand-offs for free drainage of flux cleaning solutions; visible solder joints for easy inspection
- Simple, low insertion-force holddown for process retention and long-term strain relief for solder joints
- Available in tape and reel packaging (with vacuum covers) for automatic placement.



The high-density surface-mount connector is another mounting option in the AMPMODU System 50 connector family.

This surface-mount system is fully intermateable with the AMPMODU System 50 thru-hole and cable-to-board connectors.

Additionally, the design of the mating interface has not been changed, maintaining the same high reliability as the thru-hole product.

The surface-mount system includes double row, vertical, shrouded header and receptacle assemblies in select sizes from 10 through 100 positions. It meets the tight dimensional requirements of surface-mount technology. The simple, low insertion-force holddown provides both processing retention and long-term strain relief for the solder joints in the headers and receptacles.

For complete product information, order Catalog 1307819

Surface-Mount Headers, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical

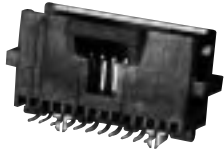


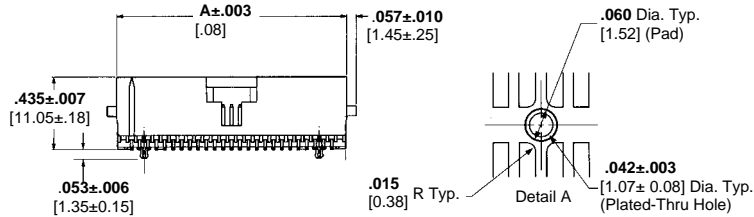
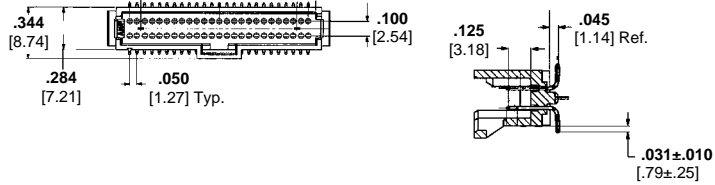
Photo 109793

Material and Finish:

Housing—Glass-filled, black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy, plated .000150 tin-lead over .000050 [0.00127] nickel



Related Product Data:

Performance Characteristics—page 2041

Mateable Connectors—pages 2038 and Below

Board-to-Board Spacing—page 2041

Technical Documents:

Product Specification
108-1093

Application Specification
114-25035

No. of Positions	Dimension A	Part Numbers	
		Pkg in Tube	Pkg in Tape & Reel*
10	.380 9.65	104549-1	147377-1
12	.430 10.92	1-104549-1	—
20	.630 16.00	104549-2	147377-2
24	.730 18.54	104549-3	147377-9
30	.880 22.35	104549-5	147377-3
40	1.130 28.70	104549-6	147377-4
50	1.380 35.05	104549-7	147377-5
60	1.630 41.40	104549-8	147377-6
80	2.130 54.10	104549-9	147377-7
100	2.630 66.80	1-104549-0	147377-8

*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

Double Row, Vertical



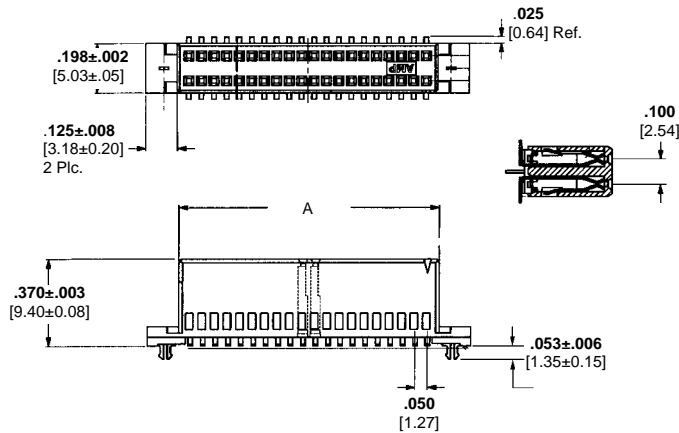
Photo 109794

Material and Finish:

Housing—Glass-filled, black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy, plated .000150 tin-lead over .000050 [0.00127] nickel



No. of Positions	Dimension A	Part Numbers	
		Pkg in Tube	Pkg in Tape & Reel*
10	.294 7.47	104550-1	147378-1
20	.544 13.82	104550-2	147378-2
24	.644 16.36	104550-3	147378-9
30	.794 20.17	104550-4	147378-3
40	1.044 26.52	104550-5	147378-4
50	1.294 32.87	104550-6	147378-5
60	1.544 39.22	104550-7	147378-6
80	2.044 51.92	104550-8	147378-7
100	2.544 64.62	104550-9	147378-8

*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

For complete product information, order Catalog 1307819

Related Product Data:

Performance Characteristics—page 2041

Mateable Connectors—pages 2031, 2032, 2034, 2035 and Above

Board-to-Board Spacing—page 2041

Technical Documents:

Product Specification
108-1093

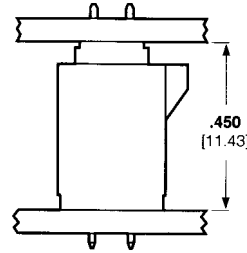
Application Specification
114-25035

Performance Specifications

Board-to-Board Spacing for Thru-Hole and Surface-Mount Connector Combinations

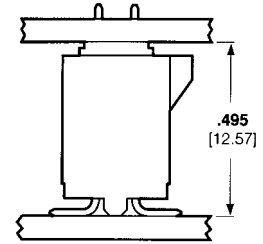
Thru-Hole Receptacle-Thru-Hole Header

(Single and Double Row, Shrouded and Unshrouded)



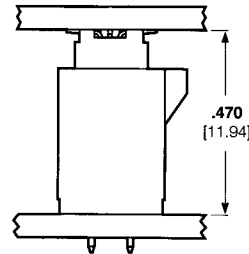
Thru-Hole Receptacle-Surface-Mount Header

(Double Row, Shrouded)



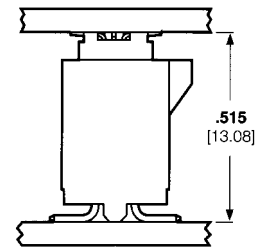
Surface-Mount Receptacle-Thru-Hole Header

(Double Row, Shrouded and Unshrouded)



Surface-Mount Receptacle-Surface-Mount Header

(Double Row, Shrouded)



Need more information?

Call the Technical Support Center: **1-800-522-6752**. The Technical Support Center is staffed with specialists well versed in all AMP products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- AMP Authorized Distributor Locations

Performance Specifications

Description	Board-to-Board, Thru-Hole Headers and Receptacles	Board-to-Board, Surface-Mount, Headers and Receptacles	Cable-to-Board, .050 [1.27] Centerline FFC Cable Receptacles	Cable-to-Board, .025 [0.64] Centerline Ribbon Cable Receptacles
Size Range-Single Row	4 thru 50	—	4 thru 50	—
Double Row	10 thru 100	10 thru 100	8 thru 100	10 thru 100
Current Rating (per contact)	1.0 amperes	1.0 amperes	1.5 amperes	0.5 amperes
Dielectric Withstanding Voltage	500 VAC	500 VAC	300 VAC	200 VAC
Insulation Resistance	5,000 Megohms	5,000 Megohms	5,000 Megohms	5,000 Megohms
Durability (tested to)	200 Cycles	200 Cycles	200 Cycles	150 Cycles
Mating Force (per contact)	5 oz. [1.38 N] Max.	5 oz. [1.38 N] Max.	8 oz. [2.22 N] Max.	4 oz. [1.11 N] Max.
Unmating Force (per contact)	0.8 oz. [0.22 N] Min.	0.8 oz. [0.22 N] Min.	1.0 oz. [0.27 N] Min.	0.5 oz. [0.13 N] Min.
Operating Temperature	-65°C to +105°C	-65°C to +105°C	-55°C to +105°C	-65°C to +105°C

For complete product information, order Catalog 1307819

AMPMODU .025 [0.64] Square Interconnection System

Introduction

The AMPMODU interconnection system provides interconnections with a unique modular concept, utilizing precision formed receptacle contacts and mating posts.

Mating of the post and receptacle contacts of this system is very tolerant. This is made possible by a post with a burr-free lead-in and a receptacle contact featuring double cantilever beams and anti-overstress stops.

AMPMODU receptacle contacts and posts categorically fall into three general classifications of products, which include: board mounted posts and receptacle assemblies, post headers and wire-applied contact

housings for crimp snap-in pin and receptacle contacts.

Board mounted receptacle assemblies are available in various geometries, offering packaging interconnections that include perpendicular, parallel and stacking capabilities.

Crimp snap-in pins for 26-22 AWG [0.12-0.4 mm²] wire and crimp snap-in receptacles for 32-20 AWG [0.03-0.6 mm²] wire provide excellent discrete wire terminations. Housings for these contacts provide ease of handling terminations in high density applications.

Machine applied terminations, through matched application equipment, are geared for virtually any production volume requirement, for low applied cost.

AMPMODU mating posts are supplied typically as headers. They are available in various populations to meet the interconnection and packaging requirements of your system. However, in instances where packaging configurations do not lend themselves to the economies of headers, AMP can provide application equipment for the discrete location of individual posts.

Looking at the electronic industry's standard "levels of packaging," the AMPMODU .025 [0.64] square interconnection system is primarily used in levels three and four.

In level three it is used as a connection between two or more printed circuits. A mother/daughter board connection is typical. In level four it is used as a

connection between two subassemblies, such as a power supply and an associated subassembly.

It is also important to note this product can serve as an interconnection in more than one level, depending on the application.

The .025 [0.64] square interconnection system offers the most complete line of post/receptacle packaging products available today. This system, rated at 3 amperes per contact, has been used by almost every industry and marketplace over the last decade and is one of the oldest, most versatile and reliable interconnection systems employing .025 [0.64] square packaging technology.

Terms Explained

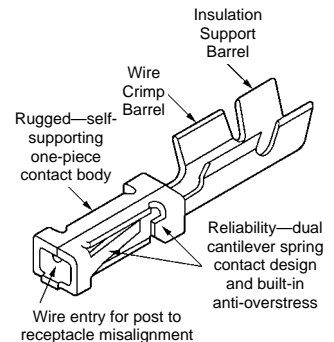
Receptacle Contacts

The AMPMODU receptacle cross-section is primarily rectangular, with rounded corners. Two integral cantilever beams contact the mating square or round male posts. Deflection of these spring members is limited by anti-overstress stops, and excessive permanent deformation is prevented. This feature allows a wide range for tolerance of misalignment of mating contacts.

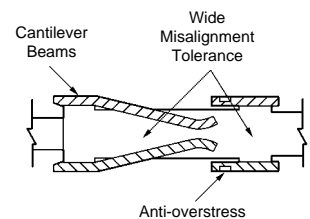
The configuration of the receptacle completely encloses the spring members

to help prevent damage during handling and assembly and makes the system compatible with automatic application techniques.

Note: Application of a contact lubricant is part of the manufacturing process of all AMPMODU tin-plated crimp products. However, it is not part of the manufacturing process of products that customers will solder, then clean. For these products, AMP recommends that customers use contact lubricant. See the Tyco Electronics web page for further information.

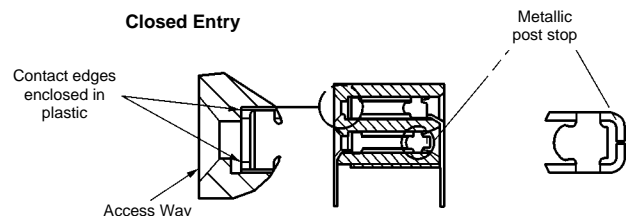
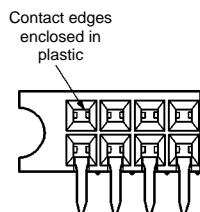


Offers standard, intermediate and high pressure contact forces



Receptacle-Closed Entry Housing Design

The closed entry housing style eliminates the likelihood of a mating post stubbing on the edges of the receptacle contact.



For complete product information, order Catalog 1307819

Wire-to-Board, .100 [2.54] Centerline Products

Wire Sizes

Wire Size		Product Family
AWG	[mm ²]	
20	0.5-0.6	Locking Clip, Mod. IV, IV.v, V, MT, Short Point
22-30	0.3-0.05	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point
32	0.03	Mod. IV, IV.v, V, Short Point

Contact Platings

Platings	Product Family
.00015 0.00038 Gold	Mod. IV, IV.v, V, MTE, MT, Short Point
.00030 0.00076 Gold	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point
.00050 0.00127 Gold	Locking Clip, Mod. IV, IV.v, V, MT
Tin	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point

Mating Post Lengths

Post Lengths	Product Family
.210-.283 5.33-7.19	Mod. IV (.600 15.24 Profile Height)
.205-.283 5.21-7.19	Mod. IV.v (.600 15.24 Profile Height)
.185-.283 4.70-7.19	Mod. V (.600 15.24 Profile Height)
.256-.323 6.50-8.20	Mod. IV (.645 16.38 Profile Height)
.251-.323 6.38-8.20	Mod. IV.v (.645 16.38 Profile Height)
.231-.323 5.87-8.20	Mod. V (.645 16.38 Profile Height)
.146-.283 3.71-7.19	Tandem Spring (.600 15.24 Profile Height)
.273-.350 6.93-8.89	Tandem Spring (.645 16.38 Profile Height)
.222-.273 5.64-6.93	MT Assembly with Standard Pressure Contacts
.200-.273 5.08-6.93	MT Assembly with High Pressure Contacts
.200-.250 5.08-6.35	MTE Assembly
.169-.259 4.29-6.58	Short Point Connector Assembly
.273-.350 6.93-8.89	Locking Clip (Connector Assembly)
.200-.277 5.08-7.04	Locking Clip (Single Contact)

Application Tooling

Application Tooling Description	Product Family					
	Mod. IV, IV.v, V	MT	Locking Clip	MTE	Short Point	Level V
Manual Hand Tools (Wire Crimp)	•		•	•	•	
Manual Hand Tools (IDC)		•		•		•
AMP-O-MATIC Stripper/Crimper Machines with Applicator	•		•		•	
CHAMPOMATOR Model 2.5 Machine		•				•
CHAMPOMATOR Model 3A Machine		•				
AMP-O-LECTRIC Machines with Applicator	•		•		•	
Pneumatic Hand Tools	•	•	•	•	•	•
IDC Electric Power Unit				•		
Tube-Fed Ribbon Cable Machine				•		
AMPOMATOR CLS Machines	•		•		•	
Discrete Wire Machine		•				•
Manual Arbor Tool		•				•
Pneumatic Arbor Tool		•				•

For complete product information, order Catalog 1307819

Board-to-Board Solutions Guide, .100 [2.54] Centerline Products

Problem or Concern	AMP Solution	Single-Row Vertical Headers and Receptacles (Page Ref.)	Single-Row Right-Angle Headers, Horizontal Receptacles (Page Ref.)	Double-Row Vertical Headers and Receptacles (Page Ref.)	Double-Row Right-Angle Headers, Horizontal Receptacles (Page Ref.)
Headers Float Off Board Soldering Operation	HEADERS Retention Feature: Unshrouded Shrouded	2065 —	2066 —	2110 2067, 2111	2061, 2112 2068, 2112
Header Contacts Damaged During Manufacturing Operation or In-Field Use	Shrouded HEADERS : Standard Profile	2071	2055	2073, 2075	2076, 2079
Board/Backplane Requires High Temperature Surface-Mount Compatibility	Press-Fit ACTION PIN POST HEADERS After Reflow: Unshrouded Shrouded	2082 —	— —	2083 2084, 2085, 2111	— —
	Surface-Mount Compatible Through-Hole: HEADERS : Unshrouded Shrouded (Low Profile) RECEPTACLES	2065* — —	2065* — —	2067* — 2109*	2068* — 2107*, 2108*
	Surface-Mount: HEADERS RECEPTACLES	2069* —	— —	2069* 2102*, 2103*	— —
	Two-Piece Family: w/Guide Posts: HEADERS RECEPTACLES	— —	— —	2110, 2111 2109*	2112 2107*, 2108*
Reduction in Parallel Board-to-Board Stack Height Necessary (Refer to Parallel Stack Guide on Page 2105.)	Mod IV Low Profile RECEPTACLES : TOP ENTRY : Through-Hole Surface-Mount BOTTOM ENTRY : Through-Hole Surface-Mount	2095 — — 2094 —	— — — — —	2096 2103 2097 2102*	— — — —
	RECEPTACLES : Bottom Entry Outrigger (Separate Holes for Receptacle Leads and Mating Leads)	—	—	2091	—
	Closed Entry Receptacles (Refer to Illustration on Page 2101.) Through-Hole Surface-Mount	2092, 2095 —	2089* —	2093, 2096, 2109* 2101*	2090*, 2107*, 2108* —
Application Requires Connectors to be End-to-End Stackable on .100 [2.54] Grid	End-to-End Stackable: HEADERS (Unshrouded): Through-Hole Through-Hole* Surface-Mount RECEPTACLES : Through-Hole	2048, 2054 2065* 2069* 2092, 2094, 2095	2049, 2054, 2055 2066* — 2089*	2050, 2056 2067* 2069* 2093, 2096, 2097*	2051, 2057, 2060 2068* — 2090

*High temperature compatible version, refer to page ref. listed.

Wire-to-Board Solutions Guide, .100 [2.54] Centerline Products

Customer Requirement	AMP Solution	Catalog Page(s)
Application Requires Guidance, Polarization	Mod IV Polarized Housing	2125
	MTE Latched Receptacle and Header	2132, 2140-2146
	MT with Polarizing Covers	2153-2155
Wire-to-Wire Application	Mod IV Receptacle Contacts and Pins	2117, 2118
Wire-to-Wire Application (Latched)	MTE Latched Receptacle and Shrouded Pin Assembly	2132
Printed Circuit Board Polarization	MTE Header with PC Board Orientation Peg	2143, 2144
Board Requires Surface Mount Capability	MTE Surface Mount Headers	2144, 2146
	MTE High Temperature Compatible Headers	
Need to mate to AMP-LATCH Eject Headers	Mod IV Ejection Housing	2125
Need to Minimize Strain to Cable	MT with Eject Covers	2153-2155
	Mod IV Housing with Strain Relief	2124
Header Secured to Board During/Prior to Soldering	MTE Headers with Post Retention or Holddowns	2140-2146
Mate to Unshrouded Header with Retention Requirements	MTE with High Pressure Contacts and Mod V Contacts	2119-2135
Multiple Cables to be Common to One Header	MTE Coupling Shroud, Double- or Single-Row	2138, 2139
Right-Angle Cable Dress	MT with Hermaphroditic Covers	2153, 2154, 2156
Application Requires Crimp Contacts and MTE Housings	Short Point Contacts and Tandem Spring Contacts	2127
Housings and End-to-End and Side-to-Side Stackable	Short Point Double-Row Housing, MTE Plain Housing	2128, 2131
Connector Must Mate to Post Lengths of .169 [4.29] Min.	Short Point Contacts	2127

For complete product information, order Catalog 1307819

Mating Post Selection Guide

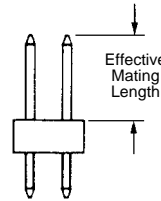
The following selection guide is provided to help in choosing a mating product after a receptacle, header or post has been selected.

In some instances references are given on the catalog page to specific mating connectors. In other instances the reader is referred here to the selection guide for mating product recommendations.

If your application requirement is not answered here, consult AMP for further recommendations.

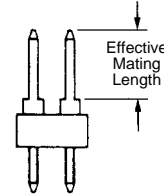
Posts Without Shoulders

For drawn wire products (ie, AMPMODU Breakaway and Low Profile Headers) and for products having the shoulder of the post below the housing or pc board surface (ie, AMPMODU MTE and Single Row Shrouded Headers) the effective mating length starts at the housing or pc board surface.



Posts With Shoulders

For product having the shoulder of the post extending above the housing or pc board surface (ie, Standard AMPMODU Shrouded and Unshrouded Headers) the effective mating length starts at the top of the shoulder.



2

PCB and Wire Connectors

Receptacle Type	Recommended Effective Mating Posts Lengths	
	Minimum	Maximum
AMPMODU Mod II Horizontal Board Mount Receptacle, Single and Double Row, Short Point-of-Contact—pages 2089, 2090	.230 5.84	.280 7.11
AMPMODU Mod II Vertical Board Mount Receptacle, Single Row, Standard Profile, Top Entry—page 2092	.207 5.26	.330 8.38
AMPMODU Mod II Vertical Board Mount Receptacle, Standard Profile, Double Row, Top Entry, 100 x .100 mt.—page 2093	.207 5.26	.330 8.38
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Top Entry, Single Tine—page 2095	.203 5.16	.255 6.48
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Bottom Entry—page 2094	.280 7.11	*
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Top Entry—page 2096	.203 5.16	.255 6.48
AMPMODU Surface-Mount Receptacle, Vertical Board Mount, Double Row, Bottom Entry—pages 2102, 2103	.280 7.11	*
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Bottom Entry—page 2097	.280 7.11	*
AMPMODU Surface-Mount Receptacle, Vertical Board Mount, Double Row, Top Entry—page 2104	.203 5.16	.255 6.48
AMPMODU .600 [15.24] Mod IV Housing with Standard Pressure Contacts—pages 2117-2125	.210 5.33	.283 7.19
AMPMODU .600 [15.24] Mod IV Housing with Intermediate Pressure Contacts—pages 2117-2125	.205 5.21	.283 7.19
AMPMODU .600 [15.24] Mod IV Housing with High Pressure Contacts—pages 2117-2125	.185 4.70	.283 7.19

Receptacle Type	Recommended Effective Mating Posts Lengths	
	Minimum	Maximum
AMPMODU .600 [15.24] Mod IV Housing with Tandem Spring Contacts—pages 2120-2125	.146 3.71	.283 7.19
Short Point Housing with Contacts—page 2127	.169 4.29	.259 6.58
AMPMODU MTE Unloaded Housing with Short Point Contacts—pages 2127, 2131-2134	.169 4.29	.259 6.58
AMPMODU MTE IDC Assemblies	.200 5.08	.250 6.35
AMPMODU MT IDC Assembly with Standard Pressure Contacts—page 2153	.222 5.64	.273 6.93
AMPMODU MT IDC Assembly with High Pressure Contacts—page 2154	.200 5.08	.273 6.93
Flexible Flat Conductor Cable Receptacle with Round Wire Crimp High Pressure Contact—Catalog 82007	Single Row	.267 6.78 .323 8.20
	Double Row	.282 7.16 .323 8.20
Flexible Flat Conductor Cable Receptacle with Multiple Wire Crimp High Pressure Contact—Catalog 82007	Single Row	.210 5.33 .323 8.20
	Double Row	.225 5.72 .323 8.20
Flexible Flat Conductor Cable Receptacle with Round Wire Crimp Standard Pressure Contact—Catalog 82007	Single Row	.267 6.78 .323 8.20
	Double Row	.282 7.16 .323 8.20
Flexible Flat Conductor Cable Receptacle with Multiple Crimp Standard Pressure Contact—Catalog 82007	Single Row	.220 5.59 .323 8.20
	Double Row	.235 5.97 .323 8.20
AMP-LATCH Novo Receptacle—Catalog 82012	.190 4.83	.245 6.22

*Maximum post length is determined by customer's application; (i.e., available space beyond rear of horizontal receptacle assembly, or above bottom entry vertical receptacle assembly).

For complete product information, order Catalog 1307819

Parallel Stacking Guide for Board-to-Board Applications

See Figure Below	Dimension Between PC Boards	Product Family Headers (See Note 1.)	Single-Row (Page Ref.)	Double-Row (Page Ref.)	Product Family Receptacles	Single-Row (Page Ref.)	Double-Row (Page Ref.)
	.020 0.50	Bandolier Posts	NA	NA	Mini Spring Sockets	Catalog 82172	Catalog 82172
	.060 1.52	Bandolier Posts	NA	NA	Bottom Entry, Mod IV	2094	2097
1	.090 2.29	Breakaway** (Unshrouded)	2054, 2065**	2056, 2067**	Bottom Entry, Mod IV	2094	2097
	.153 3.89	Surface Mount** Breakaway (Unshrouded)	NA	2069	Surface Mount**, Mod IV, Bottom Entry	NA	2102
	.265 6.73	Bandolier Posts	NA	NA	Top Entry, Mod IV	2095	2096
2	.355 9.02	Breakaway** (Unshrouded)	2054, 2065**	2056, 2067**	Top Entry, Mod IV	2095	2096
	.385 9.78	Low Profile Shrouded	NA	NA	Top Entry, Mod IV	NA	2096
3	.418 1.06	Surface Mount** Breakaway (Unshrouded)	NA	2069	Surface Mount**, Mod IV, Top Entry	NA	2103
2*	.430 10.92	Breakaway** (Unshrouded)	2054, 2065**	2056, 2067**	Top Entry, Mod II	2092	2093
4*	.440 11.18	Shrouded, Mod II	2071	2073, 2074	Top Entry, Mod II or Mod IV	2092, 2095	2093, 2096
	.528 13.41	Stacking Shroud (See Note 2.)	NA	NA	Inner Board Receptacle (See Note 2.)	NA	NA
	.547 13.89	Stacking Shroud (See Note 2.)	NA	NA	Outer Board Receptacle (See Note 2.)	NA	NA
4	.550 13.97	Two-Piece Header Connector System	NA	2110, 2111	Two-Piece Receptacle** Connector System	NA	2109**
	.748 19.00	Stacking Shroud (See Note 2.)	NA	NA	Inner Board Receptacle (See Note 2.)	NA	NA
	.768 19.51	Stacking Shroud (See Note 2.)	NA	NA	Outer Board Receptacle (See Note 2.)	NA	NA
	.785 19.94	Shrouded Stacking (Limited Sizes)	NA	NA	Stacking Receptacle (Limited Sizes)	NA	NA
	1.200 30.48	Shrouded Stacking (Limited Sizes)	NA	NA	Stacking Receptacle (Limited Sizes)	NA	NA
	Various	Stacking Unshrouded	NA	NA	Mod II/IV Receptacles, Top/Bottom Entry	Various	Various

**High temperature version available, see page ref. listed.

Notes: 1 Headers listed are standard through hole versions. Many headers are available with retention feature and ACTION PIN posts. See product specification pages in individual sections for option availability.

2 These headers and receptacles are Related Board-to-Board products. They are not part of the AMPMODU .025 [0.64] Square Product Family.

Board-to-Board Stacking Heights (By Receptacle/Header Combination)

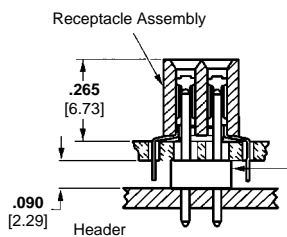


Figure 1
Double-Row, Mod IV, Bottom Entry, Breakaway Header

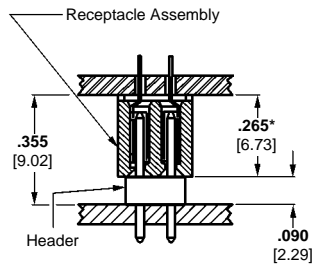


Figure 2
Double-Row, Mod IV, Top Entry, Breakaway Header

*Mod II Receptacle Height is .340 [8.64] for a total stack height of .430 [10.92]

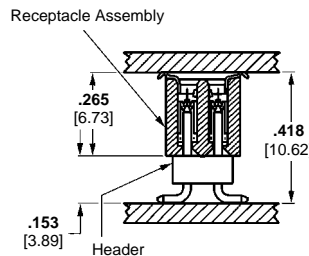


Figure 3
Double-Row, Mod IV, Surface-Mount, Top Entry, Receptacle and Surface-Mount Breakaway Header

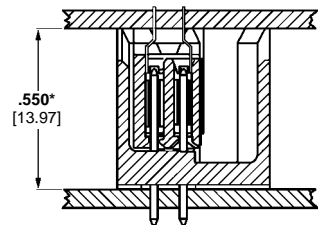




Figure 4
Double-Row, Two-Piece Receptacle and Two-Piece Shrouded Header

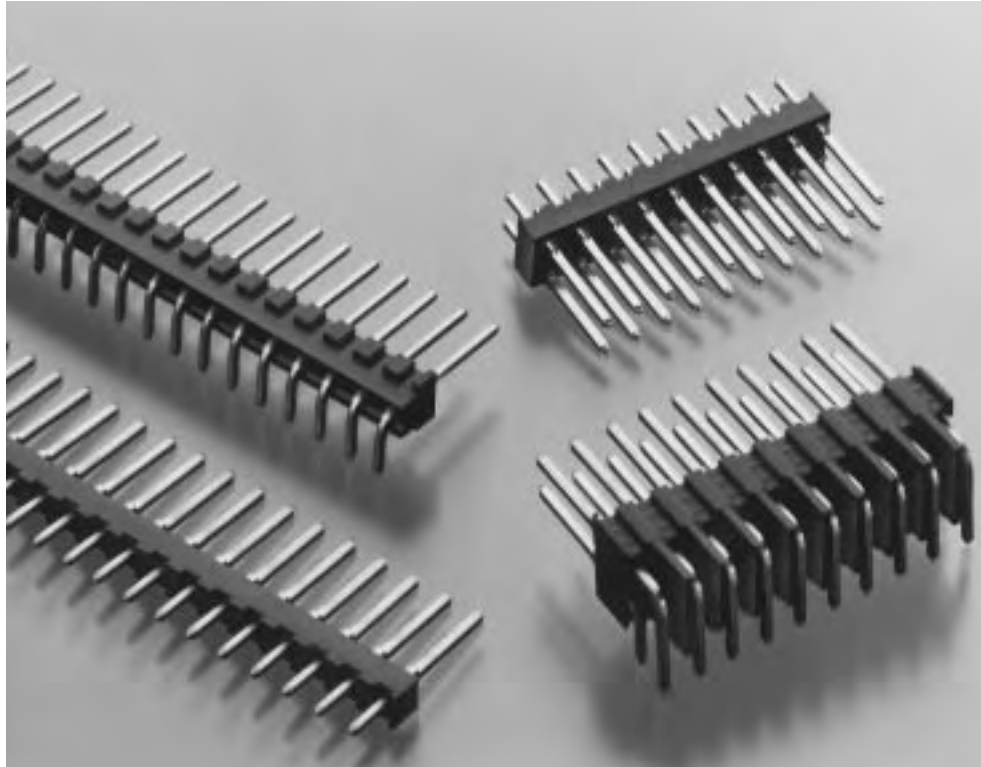
*Mod II Shrouded Header Height is .440 [11.18] for a total stack height of .440 [11.18]

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded

Product Facts

- Variety of popular sizes available
- Substantial time/labor savings—install all posts at one time
- Vertical and right-angle versions available in single- and double-row configurations
- Triple-row version available in vertical configuration with .230 [5.84] mating length
- Copper alloy posts
- Choice of select gold or tin-lead plated posts
- Mating length for single and double row is .318 [8.08]
- Flame retardant, black thermoplastic housings; 94V-0 rated
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Performance Characteristics:

Electrical:

Insulation Resistance—5,000 megohms minimum initial
Dielectric Withstanding Voltage—750 V rms at sea level

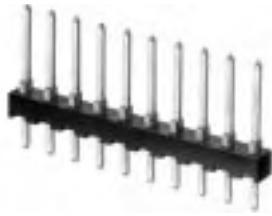
Environmental:

Operating Temperature—-65°C to +105°C (black thermoplastic housings)
Current—3 amperes maximum per contact

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish:

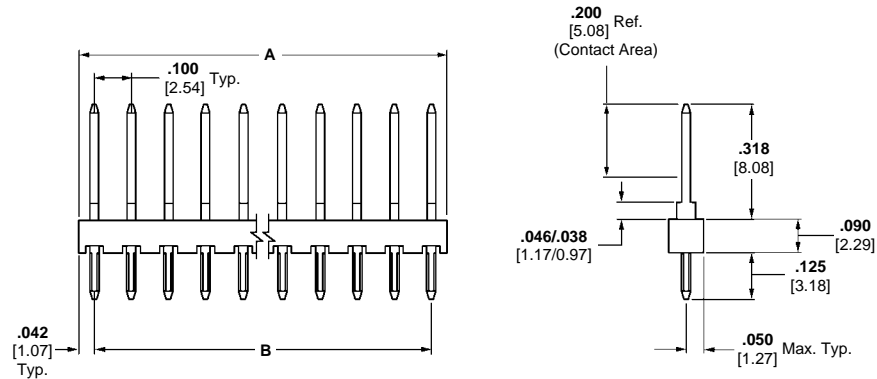
Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin-Lead/Nickel—Plating option available; minimum order quantities may apply. Consult AMP.



Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

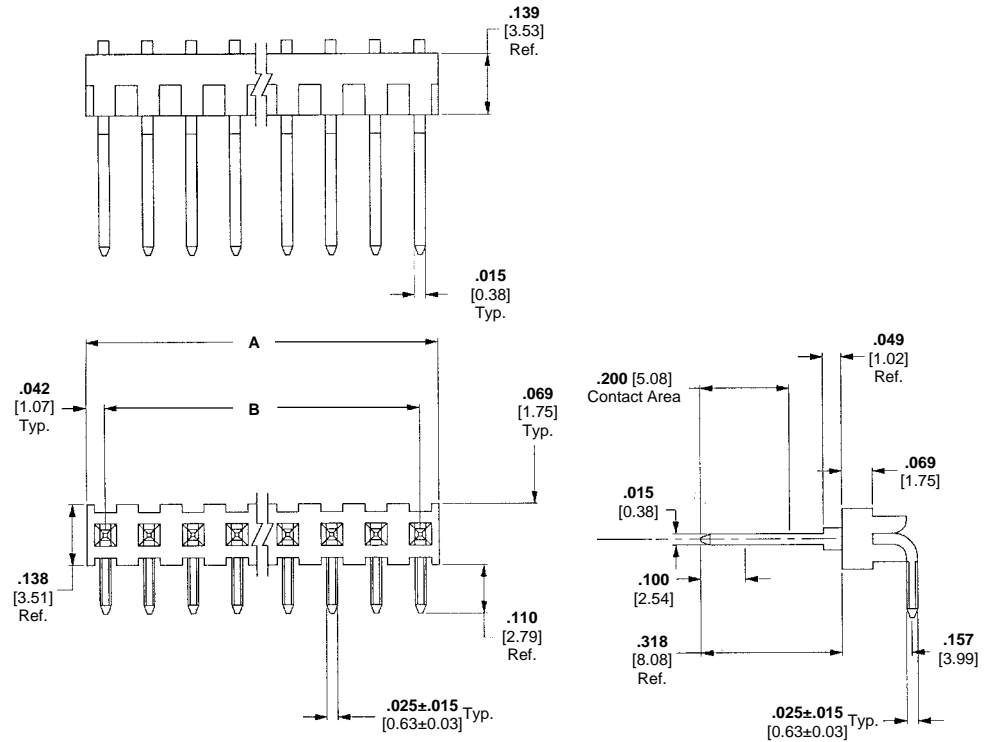
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions		Post Plating/Part Numbers	
	A	B	Plating A	Plating B
1	.084 2.13	—	87220-1	87224-1
2	.184 4.67	.100 2.54	87220-2	87224-2
3	.284 7.21	.200 5.08	87220-3	87224-3
4	.384 9.75	.300 7.62	87220-4	87224-4
5	.484 12.29	.400 10.16	87220-5	87224-5
6	.584 14.83	.500 12.70	87220-6	87224-6
7	.684 17.37	.600 15.24	87220-7	—
8	.784 19.91	.700 17.78	87220-8	87224-8
10	.984 24.99	.900 22.86	1-87220-0	1-87224-0
14	1.384 35.15	1.300 33.02	1-87220-4	1-87224-4
20	1.984 50.39	1.900 48.26	2-87220-0	2-87224-0
40	3.984 101.19	3.900 99.06	—	4-87224-0

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin-Lead/Nickel—Plating option available; minimum order quantities may apply. Consult AMP.

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

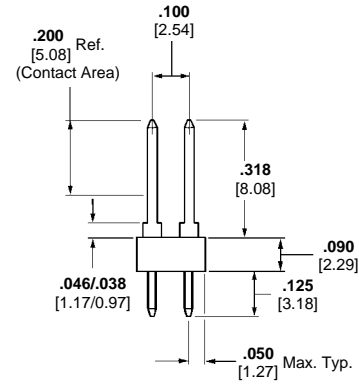
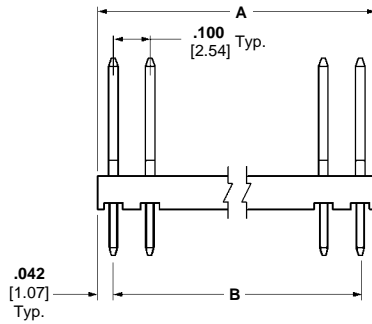
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions		Post Plating/Part Numbers	
	A	B	Plating A	Plating B
2	.184 4.67	.100 2.54	87232-2	87233-2
3	.284 7.21	.200 5.08	87232-3	—
4	.384 9.75	.300 7.62	87232-4	87233-4
6	.584 14.83	.500 12.70	—	87233-6
10	.984 24.99	.900 22.86	1-87232-0	—

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin-Lead/Nickel—Plating option available; minimum order quantities may apply. Consult AMP.

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

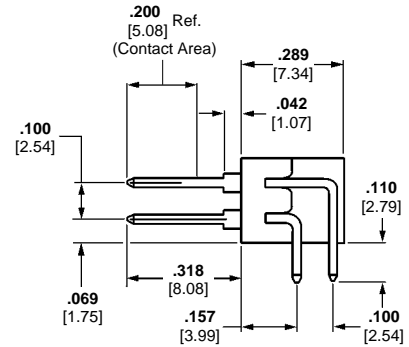
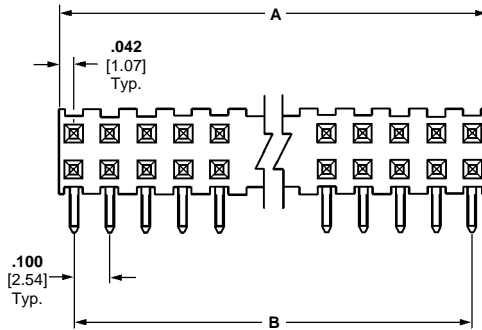
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions		Post Plating/Part Numbers	
	A	B	Plating A	Plating B
2	.084	2.13	1-87215-0	87227-1
4	.184	4.67	1-87215-1	87227-2
6	.284	7.21	1-87215-2	87227-3
8	.384	9.75	87215-1	87227-4
10	.484	12.29	87215-2	87227-5
12	.584	14.83	87215-3	87227-6
14	.684	17.37	87215-4	87227-7
16	.784	19.91	87215-5	87227-8
20	.984	24.99	87215-7	1-87227-0
26	1.284	32.61	87215-9	1-87227-3
34	1.684	42.77	1-87215-7	1-87227-7
40	1.984	50.39	2-87215-0	2-87227-0
80	3.984	101.19	4-87215-0	4-87227-0

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Tin-Lead/Nickel—Plating option available; minimum order quantities may apply. Consult AMP.

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

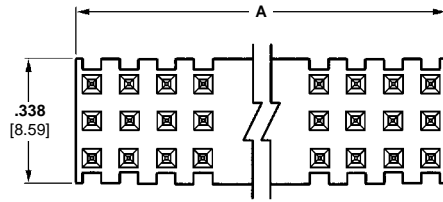
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions		Post Plating/Part Numbers	
	A	B	Plating A	Plating B
2	.084 2.13	—	1-86479-3	87230-1
6	.284 7.21	.200 5.08	1-86479-5	87230-3
8	.384 9.75	.300 7.62	1-86479-6	87230-4
10	.484 12.29	.400 10.16	86479-3	87230-5
12	.584 14.83	.500 12.70	86479-4	—
14	.684 17.37	.600 15.24	86479-5	87230-7
16	.784 19.91	.700 17.78	86479-2	87230-8
20	.984 24.99	.900 22.86	86479-1	1-87230-0
26	1.284 32.61	1.200 30.48	1-86479-0	1-87230-3
40	1.984 50.39	1.900 48.26	2-86479-4	2-87230-0
50	2.484 63.09	2.400 60.96	2-86479-9	—

For complete product information, order Catalog 1307819

Standard Headers—Unshrouded, Triple-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



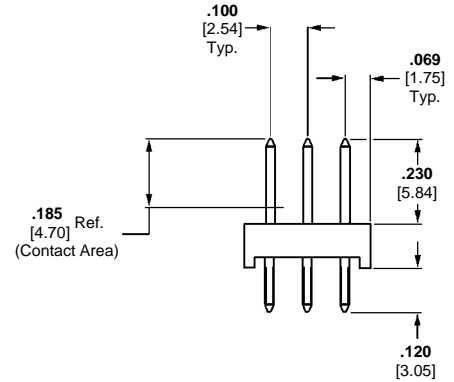
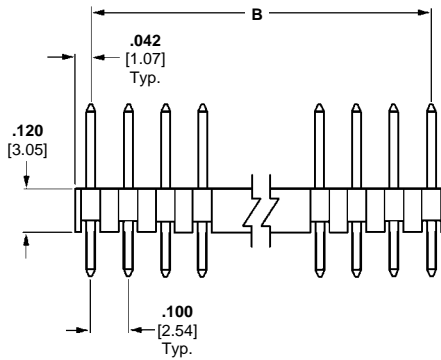
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, duplex plated 000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Technical Documents: page 2160

See mating connector for applicable product and application specifications.



No. of Positions	Dimensions		Part Numbers
	A	B	
12	.384 9.75	.300 7.62	103817-2
24	.784 19.91	.700 17.78	103817-6
30	.984 24.99	.900 22.86	103817-8

For complete product information, order Catalog 1307819

Breakaway and Retention Headers—Unshrouded

Product Facts



- Design and inventory versatility—headers can be broken into any size needed
- Variety of popular sizes available
- Substantial time/labor savings—install all posts at one time
- Vertical and right-angle versions available in single- and double-row configurations
- Phosphor bronze posts
- Choice of gold duplex or tin-lead plated posts
- Post lengths include .230 [5.84] and .318 [8.08] for connector mating
- Board retention feature available
- Flame retardant, black thermoplastic housings; 94V-0 rated
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Photo 98186

Performance Characteristics

Electrical:

Insulation Resistance—5,000 megohms minimum initial

Dielectric Withstanding Voltage—750 V rms at sea level

Environmental:

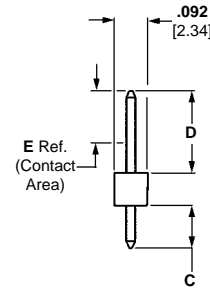
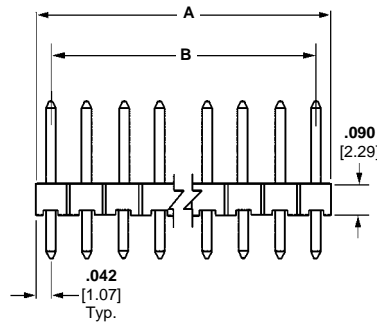
Operating Temperature—-65°C to +105°C (black thermoplastic housings)

Current—3 amperes maximum per contact

For complete product information, order Catalog 1307819

Breakaway Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

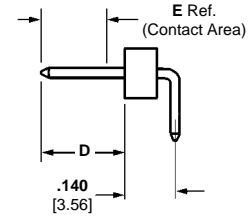
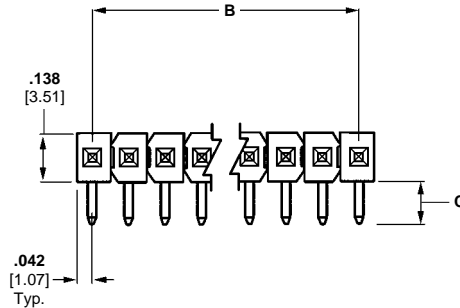
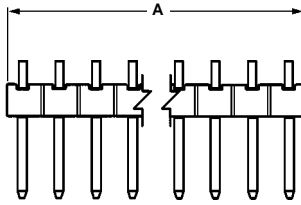
No. of Positions	Dimensions		C = .090 [2.29]		C = .120 [3.05]			C = .125 [3.18]				
			D = .230 [5.84]		D = .230 [5.84]			D = .318 [8.08]				
	A	B	E = .185 [4.70]		E = .185 [4.70]			E = .200 [5.08]				
				Post Plating/Part Numbers		Post Plating/Part Numbers			Post Plating/Part Numbers			
				Plating A	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
1	.084	2.13	—	103747-1	103741-1	103239-1	103185-1	103327-1	102976-1	—	103321-1	
2	.184	4.67	.100	2.54	103747-2	103741-2	—	103185-2	103327-2	102976-2	102972-2	103321-2
3	.284	7.21	.200	5.08	103747-3	103741-3	—	—	103327-3	102976-3	102972-3	103321-3
4	.384	9.75	.300	7.62	103747-4	—	103239-4	103185-4	103327-4	—	102972-4	103321-4
5	.484	12.29	.400	10.16	—	—	103239-5	103185-5	—	102976-5	—	103321-5
6	.584	14.83	.500	12.70	—	—	—	103185-6	—	102976-6	—	—
8	.784	19.91	.700	17.78	103747-8	—	—	103185-8	—	102976-8	102972-8	103321-8
10	.984	24.99	.900	22.86	—	—	—	—	1-103327-0	—	—	—
12	1.184	30.07	1.100	27.94	—	—	—	1-103185-2	—	—	—	—
14	1.384	35.15	1.300	33.02	—	—	—	1-103185-4	1-103327-4	—	—	1-103321-4
20	1.984	50.39	1.900	48.26	—	—	—	—	—	—	2-102972-0	—
36	3.584	91.03	3.500	88.90	—	—	—	3-103185-6	—	—	—	—
40	3.984	101.19	3.900	99.06	4-103747-0	—	4-103239-0	4-103185-0	4-103327-0	4-102976-0	4-102972-0	4-103321-0

Notes: 1 Headers may be broken to desired number of positions using **Tool Kit No. 314818-1** (not shown).
2 Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Breakaway Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions				C = .090 [2.29]		C = .120 [3.05]			C = .110 [2.79]	
					D = .230 [5.84]		D = .230 [5.84]		D = .318 [8.08]		D = .318 [8.08]
	A	B	E = .185 [4.70]		E = .185 [4.70]		E = .185 [4.70]		E = .200 [5.08]		
			Post Plating/Part Numbers		Post Plating/Part Numbers			Post Plating/Part Numbers		Post Plating/Part Numbers	
			Plating A	Plating C	Plating A	Plating B	Plating C	Plating B	Plating C	Plating B	Plating C
2	.184	4.67	.100	2.54	—	103759-2	—	—	—	—	—
4	.384	9.75	.300	7.62	—	103759-4	—	103325-4	—	—	—
6	.584	14.83	.500	12.70	—	—	103148-6	—	—	—	—
8	.784	19.91	.700	17.78	103765-8	—	—	—	103329-8	—	—
12	1.184	30.07	1.100	27.94	—	—	—	—	—	—	1-103323-2
36	3.584	91.03	3.500	88.90	—	—	—	—	—	—	3-103323-6
40	3.984	101.19	3.900	99.06	4-103765-0	—	—	4-103325-0	4-103329-0	4-102974-0	4-103323-0

Notes: 1 Headers may be broken to desired number of positions using **Tool Kit No. 314818-1** (not shown).
2 Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight-Angle Post



Material and Finish:

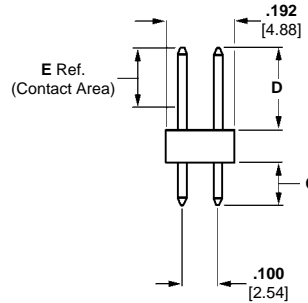
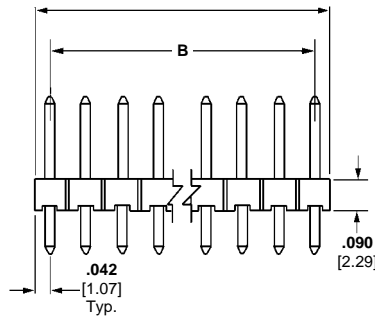
Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

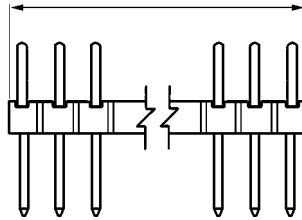
No. of Positions	Dimensions		C = .090 [2.29] D = .230 [5.84] E = .185 [4.70]			C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]					
			A		B	Post Plating/Part Numbers			Post Plating/Part Numbers					
	A	B	Plating A	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C				
2	.084	2.13	—	—	103783-1	—	—	103240-1	103186-1	103328-1	—	—	102973-1	—
4	.184	4.67	.100	2.54	—	103777-2	—	103240-2	103186-2	—	—	102977-2	102973-2	—
6	.284	7.21	.200	5.08	103783-3	—	—	103240-3	103186-3	103328-3	102977-3	102973-3	103322-3	—
8	.384	9.75	.300	7.62	—	—	—	103240-4	103186-4	103328-4	102977-4	102973-4	—	—
10	.484	12.29	.400	10.16	103783-5	103777-5	—	103240-5	103186-5	103328-5	102977-5	—	—	—
12	.584	14.83	.500	12.70	—	103777-6	—	—	103186-6	—	—	102977-6	—	—
14	.684	17.37	.600	15.24	103783-7	103777-7	—	103240-7	103186-7	103328-7	—	102973-7	103322-7	—
16	.784	19.91	.700	17.78	—	—	—	103240-8	103186-8	103328-8	102977-8	102973-8	—	—
18	.884	22.45	.800	20.32	—	—	—	—	—	—	—	—	—	—
20	.984	24.99	.900	22.86	1-103783-0	—	—	—	1-103186-0	1-103328-0	1-102977-0	1-102973-0	1-103322-0	—
24	1.184	30.07	1.100	27.94	1-103783-2	—	—	—	—	—	—	—	—	—
26	1.284	32.61	1.200	30.48	—	—	—	—	1-103186-3	1-103328-3	1-102977-3	1-102973-3	—	—
30	1.484	37.69	1.400	35.56	—	—	—	—	1-103186-5	—	—	—	—	—
32	1.584	40.23	1.500	38.10	—	—	—	—	1-103186-6	—	—	—	—	—
34	1.684	42.77	1.600	40.64	—	—	—	1-103240-7	1-103186-7	1-103328-7	—	—	—	—
40	1.984	50.39	1.900	48.26	—	—	—	2-103240-0	2-103186-0	—	2-102977-0	2-102973-0	—	—
50	2.484	63.09	2.400	60.96	—	—	—	—	—	—	—	2-102973-5	—	—
80	3.984	101.19	3.900	99.06	4-103783-0	4-103777-0	—	—	4-103186-0	4-103328-0	4-102977-0	4-102973-0	4-103322-0	—

Notes: ¹ Headers may be broken to desired number of positions using **Tool Kit No. 314818-1** (not shown).
² Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post



Material and Finish:

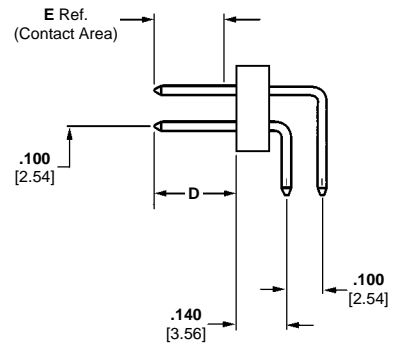
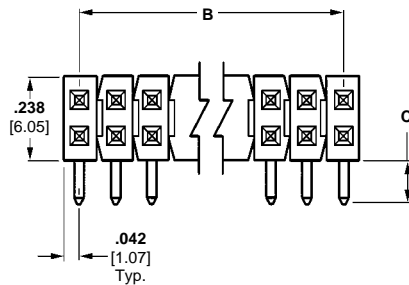
Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions		C = .090 [2.29] D = .230 [5.84] E = .185 [4.70]		C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .110 [2.79] D = .318 [8.08] E = .200 [5.08]			
	A		B		Post Plating/Part Numbers			Post Plating/Part Numbers			
	A	B	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
8	.384	9.75	.300	7.62	—	—	—	—	—	102975-4	—
10	.484	12.29	.400	10.16	103801-5	—	103326-5	—	—	—	—
20	.984	24.99	.900	22.86	—	—	—	—	—	—	1-103324-0
80	3.984	101.19	3.900	99.06	4-103801-0	4-103149-0	4-103326-0	4-103330-0	4-102979-0	4-102975-0	4-103324-0

Notes: ¹ Headers may be broken to desired number of positions using **Tool Kit No. 314818-1** (not shown).
² Other tail lengths are available, consult Tyco Electronics.

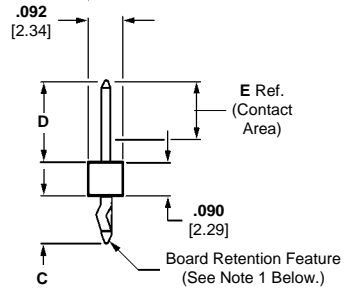
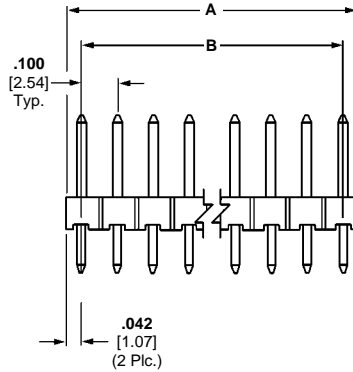
For complete product information, order Catalog 1307819

Breakaway Retention Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post (with Board Retention Feature)



Photo 98184-8



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Performance Characteristics:

Insertion Force—12 lb. [53.4N] maximum

Retention Force—25 lb. [1.11N] minimum

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions				C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]	
	A		B		Post Plating/Part Numbers			Post Plating/Part Numbers	
					Plating A	Plating B	Plating C	Plating B	
3	.284	7.21	.200	5.08	104344-1	104345-1	104346-1	104427-1	
4	.384	9.75	.300	7.62	104344-2	104345-2	—	—	
6	.584	14.82	.500	12.70	—	—	—	104427-4	

- Notes:** 1. Refer to the product drawing to determine the number and location of the board retention tails.
2. Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Breakaway Retention Headers—Unshrouded, Double Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Board Retention Feature)



Photo 98185-7

Material and Finish:

Housing—Black thermoplastic,
94V-0 rated

Posts—Phosphor bronze, plated as
follows:

Plating A—Duplex plated .000030
[0.00076] gold on contact area,
.000100-.000200 [0.00254-0.00508]
tin-lead on solder area, with entire post
underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015
[0.00038] gold on contact area,
.000100-.000200 [0.00254-0.00508]
tin-lead on solder area, with entire post
underplated .000050 [0.00127] nickel

Plating C—.000100-.000200
[0.00254-0.00508] tin-lead over
.000050 [0.00127] nickel on entire post

Performance Characteristics:

Insertion Force—12 lb. [53.4N]
maximum

Retention Force—.25 lb. [1.11N]
minimum

Related Product Data:

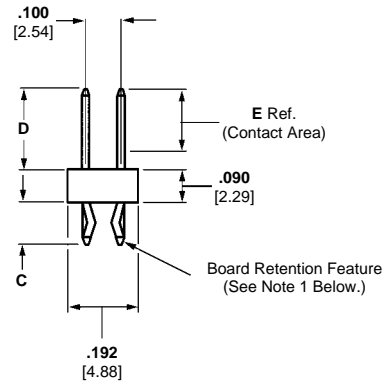
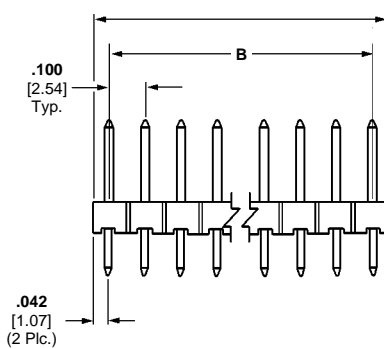
Mateable Connectors—Refer
to the Mating Post Selection Guide
(page 2045)

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable
product and application specifications.



No. of Positions	Dimensions		C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]		
	A	B	Post Plating/Part Numbers			Post Plating/Part Numbers		
			Plating A	Plating B	Plating C	Plating A	Plating B	
2	.084	2.13	—	104350-1	104351-1	104352-1	104432-1	104433-1
4	.184	4.67	.100 2.54	104350-2	—	—	—	—
6	.284	7.21	.200 5.08	—	—	—	104432-3	104433-3
8	.384	9.75	.300 7.62	104350-4	104351-4	—	104432-4	104433-4
10	.484	12.29	.400 10.16	104350-5	—	—	—	—
16	.784	19.91	.700 17.78	104350-8	104351-8	—	104432-8	104433-8
20	.984	24.99	.900 22.86	1-104350-0	—	—	—	1-104433-0

Notes: 1. Refer to the product drawing to determine the number and location of the board retention tails.
2. Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Breakaway Retention Headers—Unshrouded, Double Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Board Retention Feature)



Photo 98184-4

Material and Finish:

Housing—Black thermoplastic,
94V-0 rated

Posts—Phosphor bronze, plated as
follows:

Plating A—Duplex plated .000030
[0.00076] gold on contact area,
.000100-.000200 [0.00254-0.00508]
tin-lead on solder area, with entire post
underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015
[0.00038] gold on contact area,
.000100-.000200 [0.00254-0.00508]
tin-lead on solder area, with entire post
underplated .000050 [0.00127] nickel

Plating C—.000100-.000200
[0.00254-0.00508] tin-lead over
.000050 [0.00127] nickel on entire post

Performance Characteristics:

Insertion Force—12 lb. [53.4N]
maximum

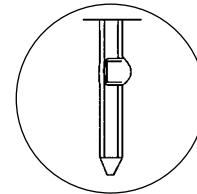
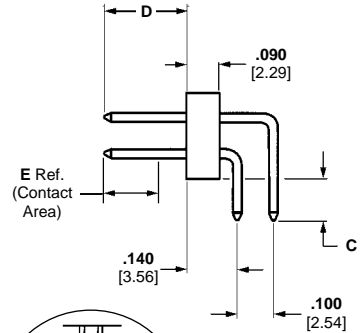
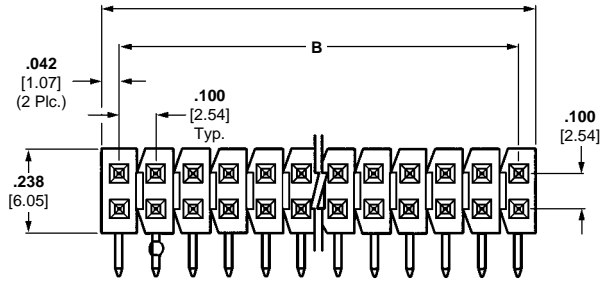
Retention Force—.25 lb. [1.11N]
minimum

Related Product Data:

Mateable Connectors—Refer
to the Mating Post Selection Guide
(page 2045)

Technical Documents: page 2160

See mating connector for applicable
product and application specifications.



**Board Retention
using Swaged Tails
(All Header Sizes)**

No. of Positions	Dimensions				Post Plating/Part Numbers		
	A		B		Plating A	Plating B	Plating C
	A	B	A	B			
8	.384	9.75	.300	7.62	—	104354-4	—
10	.484	12.29	.400	10.16	104353-5	104354-5	—
20	.984	24.99	.900	22.86	—	—	1-104355-0

- Notes:**
1. Refer to the product drawing to determine the number and location of the board retention tails.
 2. Other tail lengths are available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

AMPMODU Reeled Breakaway Headers

Features of Breakaway Headers

- Design and inventory versatility - headers can easily be made into any size
- High Temperature Compatible
- Reduced part number base
- Reduced inventory burden

Applications

- Desktops & workstations
- Set-top boxes
- Televisions
- Automotive instrument panels & radios
- Medical and test equipment

Benefits

- Off the shelf availability
- Various header length capability using the same reel
- Reduction of inventory costs
- Economy version of the standard breakaway headers

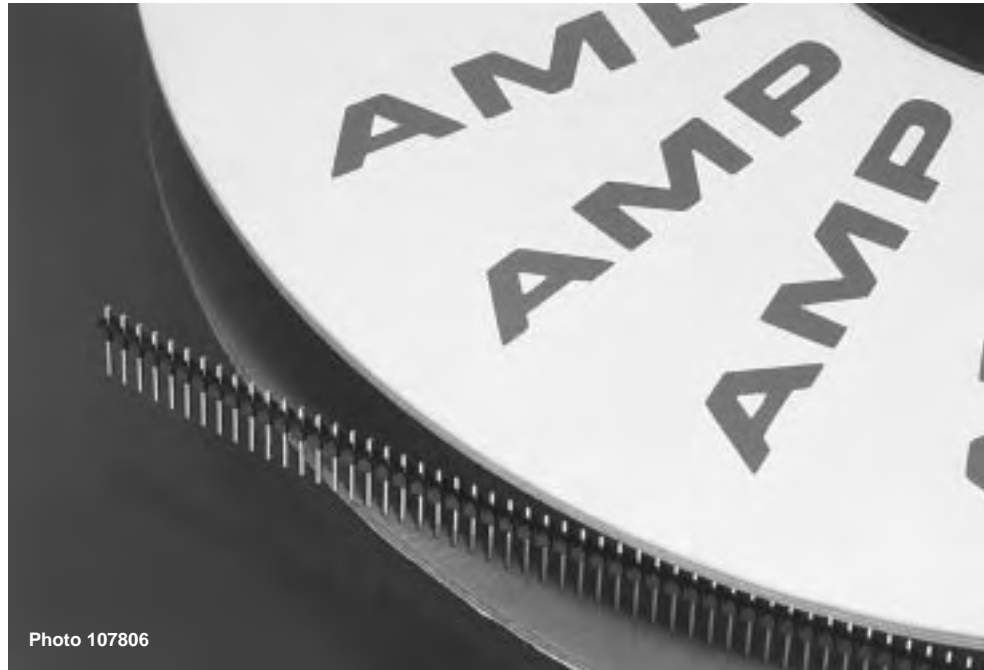


Photo 107806

AMP now offers AMPMODU reeled breakaway headers, which are used for board-to-board interconnections, on a continuous reel. The reeled breakaway headers are an economy version of the standard breakaway headers, and continue to provide the same high quality standards that AMP is known for in the connector industry.

Reeled breakaway headers provide the flexibility to be able to cut the headers to many different lengths, while only having to stock one part number. As a result, the amount of part numbers that need to be purchased and stored can be greatly reduced.

Reeled breakaway headers can be purchased in single and double rows with tin-lead, 5 Au, 15 Au, and 30 Au duplex plating. The lower applied cost also offers .230" and .318" mating lengths. (See standard breakaway-to-reeled header conversion chart for vertical headers on the reverse side of this sheet)

Potential industries include: computer peripherals, telecommunications equipment, consumer, automotive, medical and test equipment.

Tooling available from:
Robodyne Corporation
2818 Anthony Lane South
Minneapolis, MN 55418
USA

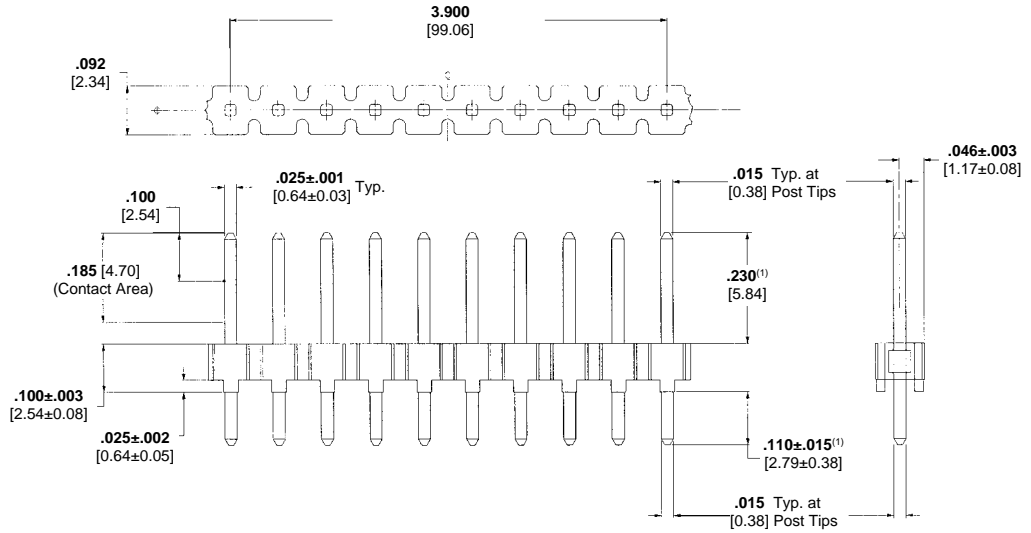
Phone: (612) 789-5277
Fax: (612) 789-6773

A pin retention and pin removal tooling option is also available in addition to cutting.

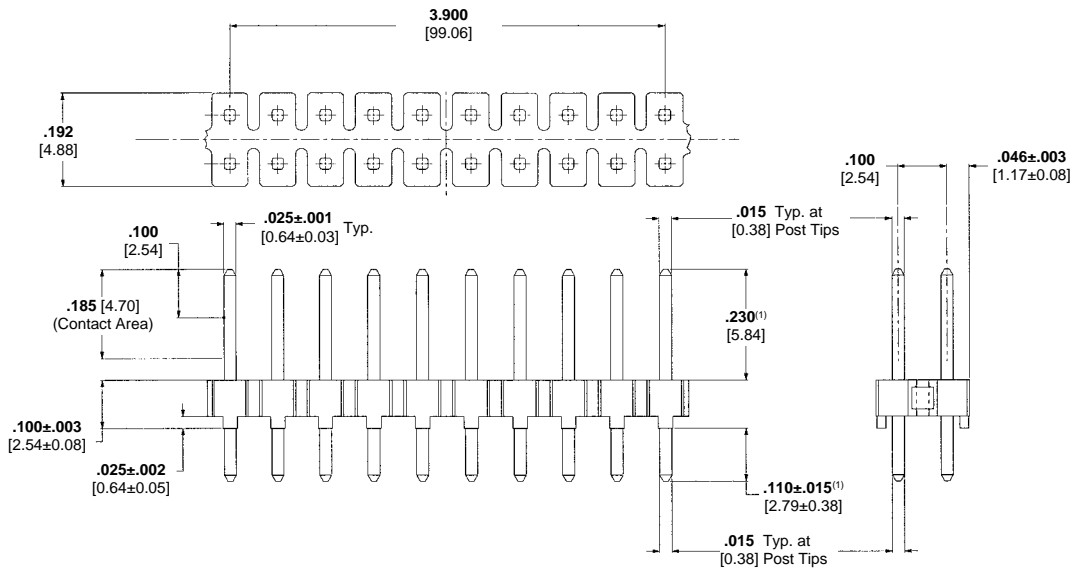
For complete product information, order Catalog 1307819

AMPMODU Reeled Breakaway Headers

Single Row



Double Row



(1) See table for other mate and tail lengths.

Standard Breakaway-to-Reeled Header Conversion Chart (Vertical)								
Plating Options	Double Row Headers				Single Row Headers			
	Existing AMP P/N	Make From Reeled P/N	Existing AMP P/N	Make From Reeled P/N	Existing AMP P/N	Make From Reeled P/N	Existing AMP P/N	Make From Reeled P/N
	Mate: .318 Tail: .125	Mate: .318 Tail: .115	Mate: .230 Tail: .120	Mate: .230 Tail: .110	Mate: .318 Tail: .125	Mate: .318 Tail: .115	Mate: .230 Tail: .120	Mate: .230 Tail: .110
Tin-Lead	103322	146853-1	103328	146851-1	103321	146852-1	103327	146850-1
	146250		146254		146274		146278	
5 Au Duplex	146251	146857-1	146090	146855-1	146275	146856-1	146089	146854-1
			146255				146279	
15 Au Duplex	102973	146861-1	103186	146859-1	102972	146860-1	103185	146858-1
	146252		146256		146276		146280	
30 Au Duplex	102977	146871-1	103240	146869-1	102976	146870-1	103239	146868-1
	146253		146257		146277		146281	

Note: Reeled Headers are a functional substitute for standard breakaways, however there are visual differences (i.e. housing appearance and bow due to reeling requirement).

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Compatible, High Temperature Headers—Unshrouded

Product Facts



- Variety of popular sizes available
- Substantial time/labor savings—install all posts at one time
- Vertical and right-angle versions available in single- and double-row configurations
- Phosphor bronze posts
- Gold duplex and tin plated posts
- Post lengths include .230 [5.84] and .318 [8.08] for connector mating
- Black, glass-filled thermoplastic housings
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Photo 51183

The AMPMODU interconnection system provides interconnections with a unique modular concept.

AMPMODU mating posts are supplied typically as header assemblies. They are available in various populations to meet the interconnection and packaging requirements of your system.

Performance Characteristics:

Electrical:

Insulation Resistance—5,000 megohms minimum initial

Dielectric Withstanding Voltage—750 V rms at sea level

Current—3 amperes maximum per single contact (dependent upon mating receptacle)

Environmental:

Operating Temperature— -65°C to $+105^{\circ}\text{C}$

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Compatible, High Temperature Headers— Unshrouded, Single-Row, .100 [2.54] Centerline with Special Stand-offs

.025 [0.64] Square Straight Posts



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C— .000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails):

Insertion Force—12 lb [53.4N] Max.

Retention Force—.25 lb [1.11N] Min.

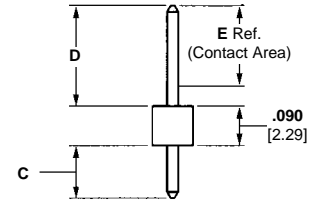
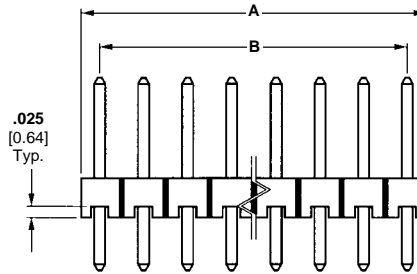
Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

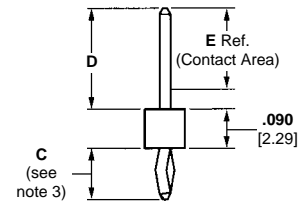
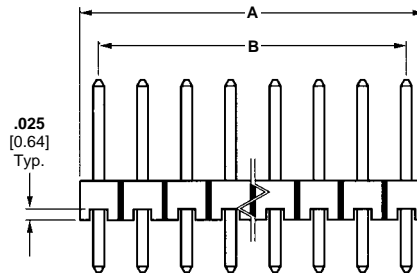
Technical Documents: page 2160

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



Header Style	No. of Positions	Dimensions		C = .090 [2.29]			C = .120 [3.05]			C = .125 [3.18]				
				D = .230 [5.84]			D = .230 [5.84]			D = .318 [8.08]				
		A	B	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers		
				Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C		
With Solder Tails (See Notes 1 and 2.)	1	.084	2.13	—	146285-1	146284-1	146282-1	146281-1	146280-1	146278-1	146277-1	146276-1	146274-1	
	40	3.984	101.19	3.900	99.06	4-146285-0	4-146284-0	4-146282-0	4-146281-0	4-146280-0	4-146278-0	4-146277-0	4-146276-0	4-146274-0
With Board Retention Tails (See Notes 2 and 3.)	3	.284	7.21	.200	5.08	146297-3	146296-3	146294-3	146293-3	146292-3	146290-3	146289-3	146288-3	146286-3
	40	3.984	101.19	3.900	99.06	4-146297-0	4-146296-0	4-146294-0	4-146293-0	4-146292-0	4-146290-0	4-146289-0	4-146288-0	4-146286-0

- Notes:**
- Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.
 - Headers are also available in sizes 2 thru 39 positions (with Solder Tails) and 4 thru 39 positions (with Board Retention Tails). When ordering, add the prefix and/or suffix (dash) numbers to the base part number that corresponds with the desired size. For example, the complete part number for an 8-position header with solder tails (C dimension .090 [2.29], post plating A) would be 146285-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 2-146292-6. This part numbering system applies only to this page.
 - For C dimensions .120 [3.05] and .125 [3.18], board retention using kinked tails are for headers 6 positions and smaller; headers 7 positions and larger use swaged tails. Headers with a C dimension of .090 [2.29] have swaged tails for all sizes.

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Compatible, High Temperature Headers— Unshrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Posts



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails):

Insertion Force—12 lb [53.4N] Max.

Retention Force—.25 lb [1.11N] Min.

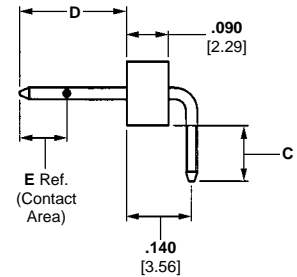
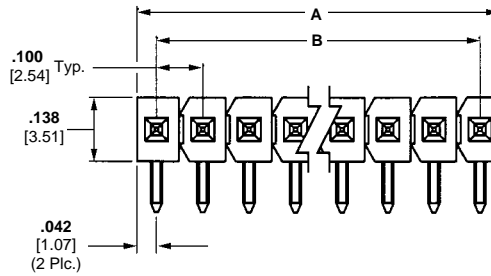
Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

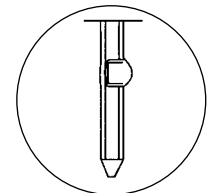
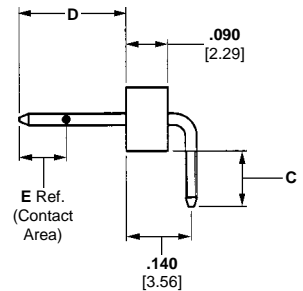
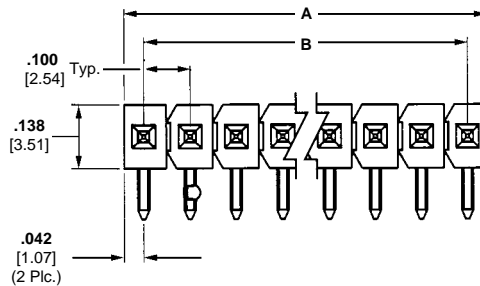
Technical Documents: page 2160

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



**Board Retention
using Swaged Tails
(All Header Sizes)**

Header Style	No. of Positions	Dimensions				C = .120 [3.05] D = .230 [5.84] E = .185 [4.70] Part Numbers		C = .110 [2.79] D = .318 [8.08] E = .200 [5.08] Part Numbers	
		A		B					
With Solder Tails (See Notes 1 and 2.)	1	.084	2.13	—		146304-1		146305-1	
	40	3.984	101.19	3.900	99.06	4-146304-0		4-146305-0	
With Board Retention Tails (See Note 2.)	1	.084	2.13	—		146306-1		146307-1	
	40	3.984	101.19	3.900	99.06	4-146306-0		4-146307-0	

Notes: 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.

2. Headers are also available in sizes 2 thru 39 positions (with Solder Tails) and 4 thru 39 positions (with Board Retention Tails). When ordering, add the prefix and/or suffix (dash) numbers to the base part number that corresponds with the number of positions. For example, the complete part number for an 8-position header with solder tails (C dimension .120 [3.05]) would be 146304-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05]) would be 2-146306-6. This part numbering system applies only to this page.

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Compatible, High Temperature Headers— Unshrouded, Double-Row, .100 [2.54] Centerline with Special Stand-offs

.025 [0.64] Square Straight Posts



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails):

Insertion Force—12 lb [53.4N] Max.
Retention Force—.25 lb [1.11N] Min.

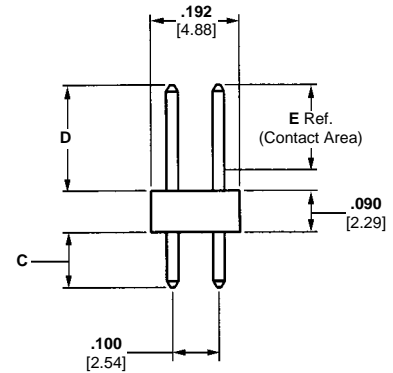
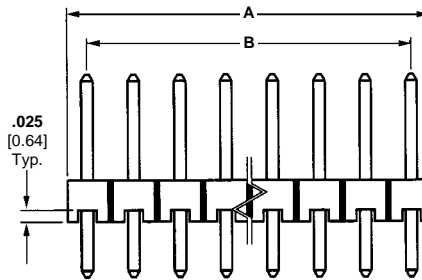
Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Technical Documents: page 2160

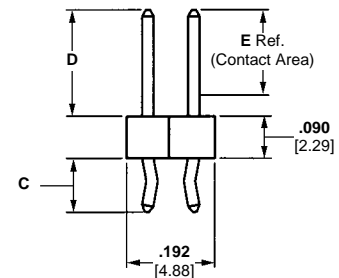
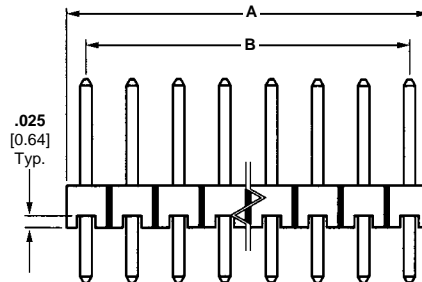
See mating connector for applicable product and application specifications.

Headers with Solder Tails



Recommended PC Board Mounting Pattern
(for .063 [1.60] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Header Style	No. of Positions	Dimensions			C = .090 [2.29] D = .230 [5.84] E = .185 [4.70]			C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]			C = .125 [3.18] D = .318 [8.08] E = .200 [5.08]		
		A	B		Post Plating/Part Numbers			Post Plating/Part Numbers			Post Plating/Part Numbers		
					Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
With Solder Tails (See Notes 1 and 2.)	2	.084	2.13	—	146261-1	146260-1	146258-1	146257-1	146256-1	146254-1	146253-1	146252-1	146250-1
	80	3.984	101.19	3.900	99.06	4-146261-0	4-146260-0	4-146258-0	4-146257-0	4-146256-0	4-146254-0	4-146253-0	4-146252-0
With Board Retention Tails (See Note 2.)	2	.084	2.13	—	146273-1	146272-1	146270-1	146269-1	146268-1	146266-1	146265-1	146264-1	146262-1
	80	3.984	101.19	3.900	99.06	4-146273-0	4-146272-0	4-146270-0	4-146269-0	4-146268-0	4-146266-0	4-146265-0	4-146264-0

Notes: 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.
2. Headers are also available in sizes 4 thru 78 positions. When ordering, add the prefix and/or suffix (dash) numbers to the base part number that corresponds with the number of positions per row. For example, the complete part number for a 16-position header with solder tails (C dimension .090 [2.29], post plating A) would be 146261-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 2-146268-0. This part numbering system applies only to this page.

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Compatible, High Temperature Headers— Unshrouded, Double-Row, .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Posts



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails):

Insertion Force—12 lb [53.4N] Max.

Retention Force—25 lb [1.11N] Min.

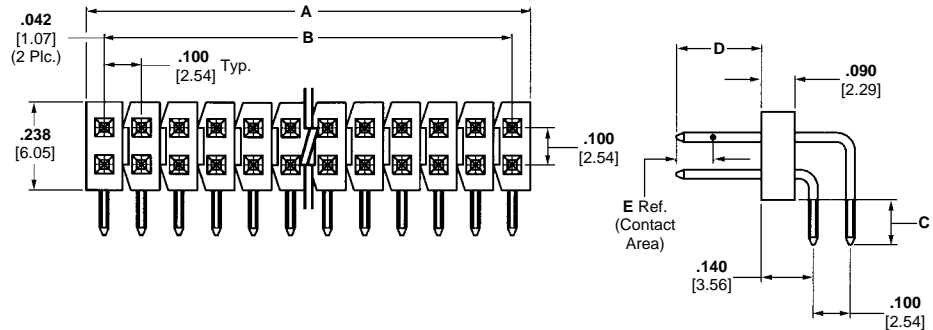
Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

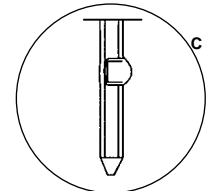
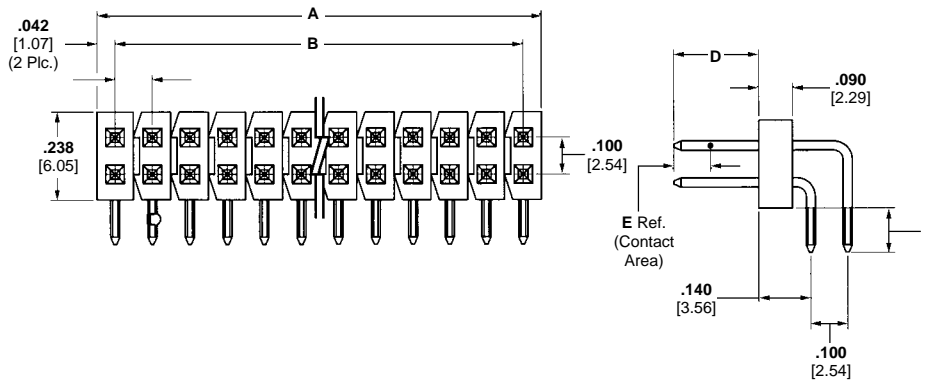
Technical Documents: page 2160

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



**Board Retention
using Swaged Tails
(All Header Sizes)**

Header Style	No. of Positions	Dimensions		C = .120 [3.05] D = .230 [5.84] E = .185 [4.70] Part Numbers	C = .110 [2.79] D = .318 [8.08] E = .200 [5.08] Part Numbers
		A	B		
With Solder Tails (See Notes 1 and 2.)	2	.084	2.13	146308-1	146309-1
	80	3.984	101.19	4-146308-0	4-146309-0
With Board Retention Tails (See Note 2.)	2	.084	2.13	146310-1	146311-1
	80	3.984	101.19	4-146310-0	4-146311-0

Notes: 1. Headers without retention tails may be broken to the desired number of positions using **Tool Kit No. 314818-1 (not shown)**.

2. Headers are also available in sizes 4 thru 78 positions. When ordering, add the prefix and/or suffix (dash) numbers to the base part number that corresponds with the number of positions per row. For example, the complete part number for a 16-position header with solder tails (C dimension .120 [3.05]) would be 146308-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05]) would be 2-146310-0. This part numbering system applies only to this page.

For complete product information, order Catalog 1307819

Breakaway Surface Mount Headers, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- **Surface Mount Leads**
- **Contact Material:**
phosphor bronze
- **High temperature, black thermoplastic housings, 94V-0 rated, capable of withstanding IR or vapor-phase reflow**
- **Recognized under the Component Program of Underwriters Laboratories Inc.**  File No. E28476
- **Certified by Canadian Standards Association, File No. LR 7189** 
- **Choice of gold duplex or tin lead plated posts**
- **Posts coplanar within .006 [0.15]**
- **Tape and reel packaging available in addition to single tube packaging. Contact Tyco Electronics.**
- **Pick-and-place cap available for vacuum placement. Contact Tyco Electronics.**

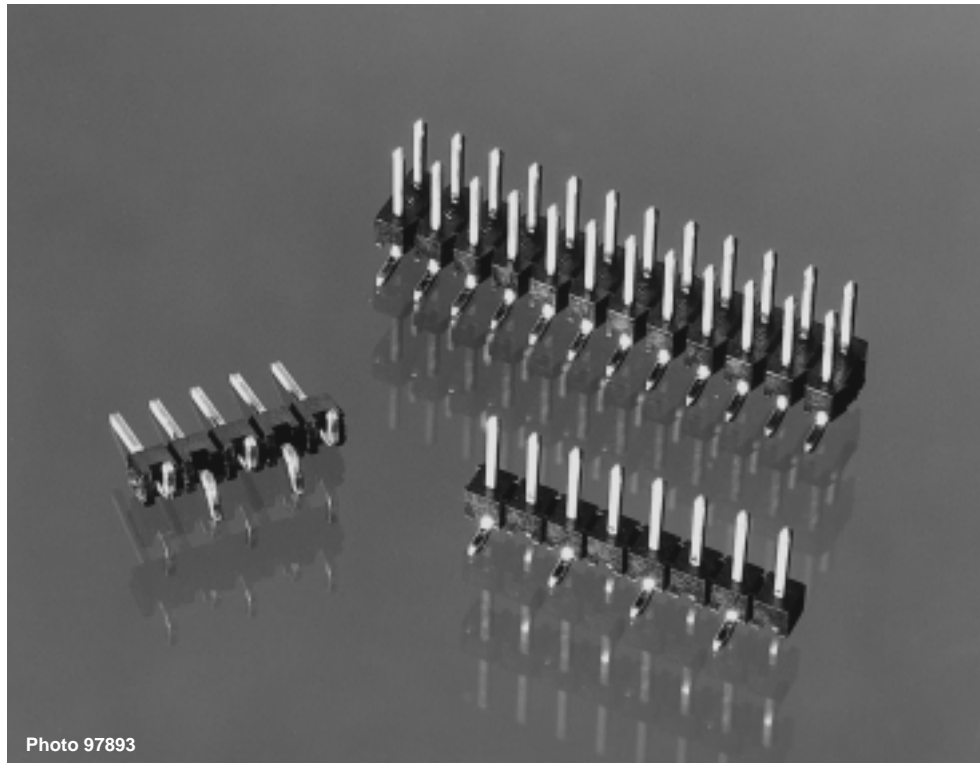


Photo 97893

An extension of the AMPMODU Breakaway Header product family is the surface mount, vertical breakaway headers. The AMPMODU surface-mount breakaway headers (Unshrouded) are available

in single- and double-row vertical configurations with mating lengths of .230 [5.84] and .320 [8.13]. Posts are offered with a choice of either .000030 [.0007] gold duplex or tin lead plating.

Current packaging is in a single tube but tape and reel is available for automatic pick-and-place. We also can provide a pick-and-place cap for vacuum placement if required.

For complete product information, order Catalog 1307819

Breakaway Surface-Mount Headers—Unshrouded Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Photo 98185-3

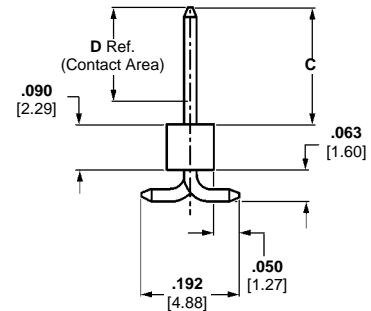
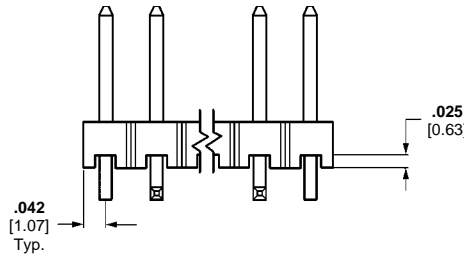
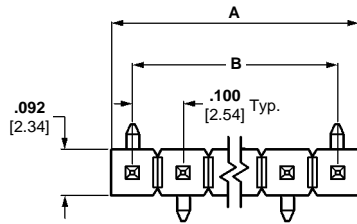
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel entire post



Related Product Data:

Mateable Receptacle—Refer to Mating Post Selection Guide (page 2045)

Performance Specifications—page 2101

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

.025 [0.64] Square Straight Post



Photo 98185-4

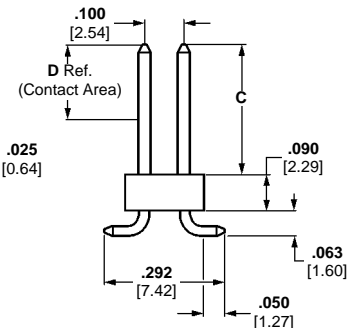
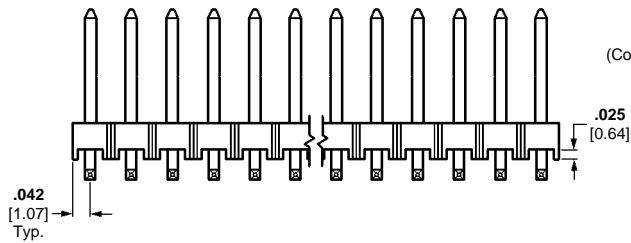
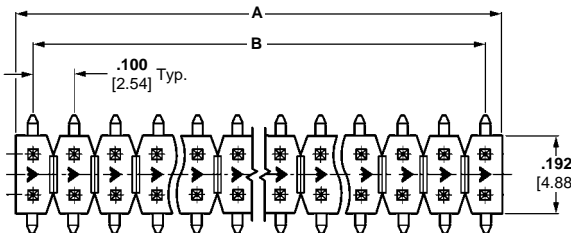
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Phosphor bronze, plated as follows:

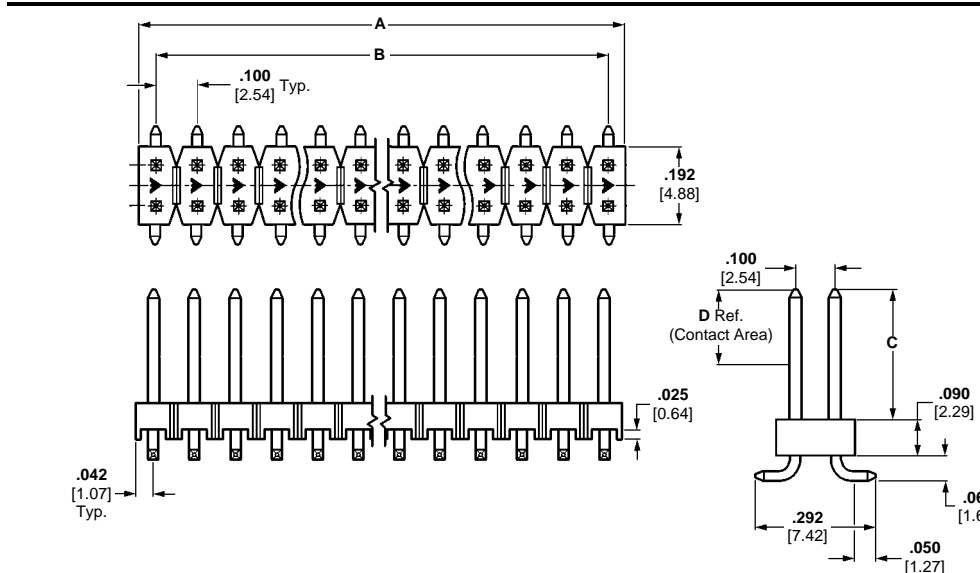
Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel entire post



No. of Positions	Dimensions		C = .230 [5.84] D = .185 [4.70]		Post Plating/Part Numbers	
	A	B	Plating A	Plating B	Plating A	Plating B
3	.284	7.21	.200	5.08	146128-1	146132-1
8	.784	19.91	.700	17.78	146128-6	146132-6

Breakaway Surface-Mount Headers—Unshrouded Double-Row, .100 x .100 [2.54 x 2.54] Centerline



No. of Positions	Dimensions		C = .230 [5.84] D = .185 [4.70]		C = .320 [8.13] D = .200 [5.08]	
	A	B	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers	Post Plating/Part Numbers
6	.284	7.21	.200	5.08	146130-2	—
10	.484	12.29	.400	10.16	146130-4	146134-4
14	.684	17.37	.600	15.24	146130-6	—
16	.784	19.91	.700	17.78	146130-7	—
20	.984	24.99	.900	22.86	146130-9	—
30	1.484	37.69	1.400	35.56	1-146130-4	1-146134-4

Related Product Data:

Mateable Receptacles—Refer to Mating Post Selection Guide (pages 2045)

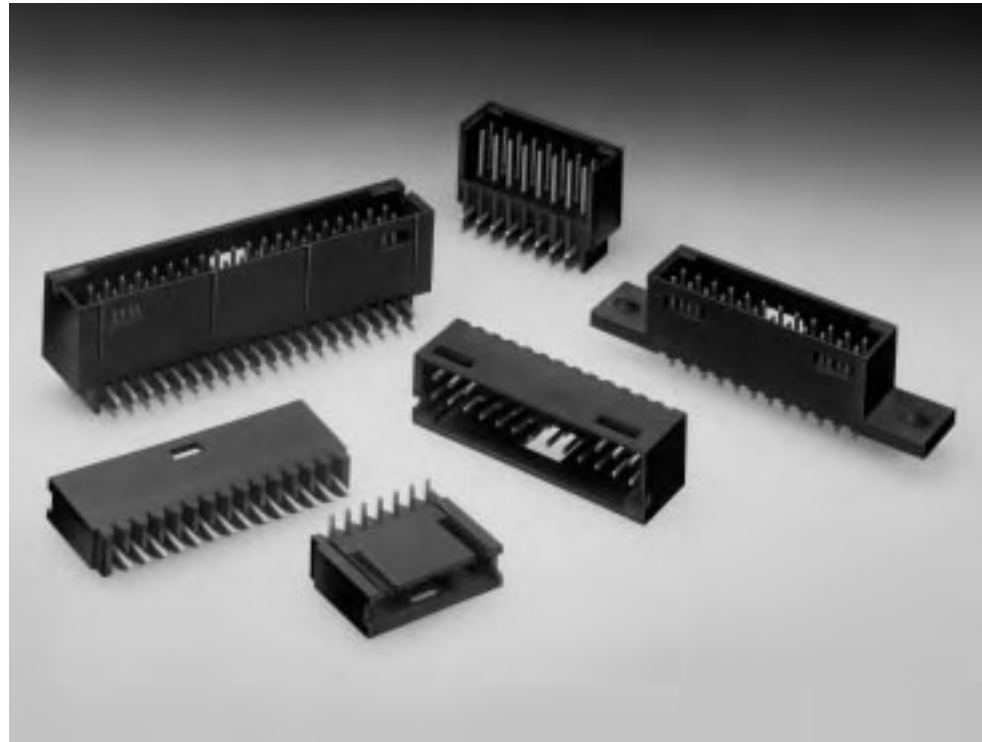
Performance Specifications—page 2101

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded

Product Facts

- Available in several styles—right-angle with three- and four-sided pin protection, and straight post with pin protection and mounting ears
- Post retention feature available
- Can be used for feed-to and feed-thru applications
- Housings are black thermoplastic, flame retardant 94V-0 rated
- Contacts are copper alloy
- Available in gold duplex, gold over nickel and tin-lead over nickel platings
- Headers with .066 [1.68] and .150 [3.81] end dimensions are available in select sizes up to 60 positions
- Can be select loaded, consult Tyco Electronics.
- Recognized under the Component Program of Underwriters Laboratories Inc. 
File No. E28476
- Certified by Canadian Standards Association, 
File No. LR 7189



Performance Characteristics:

Electrical:

Insulation Resistance—5,000 megohms minimum initial

Dielectric Withstanding Voltage—750 RMS at sea level

Environmental:

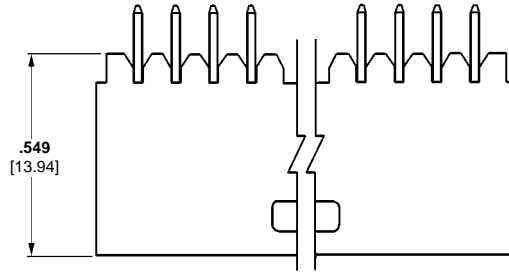
Operating Temperature—
-65°C to +105°C (black thermoplastic housings)

Current—3 amperes maximum per contact

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post (with Standoffs)



Material and Finish:

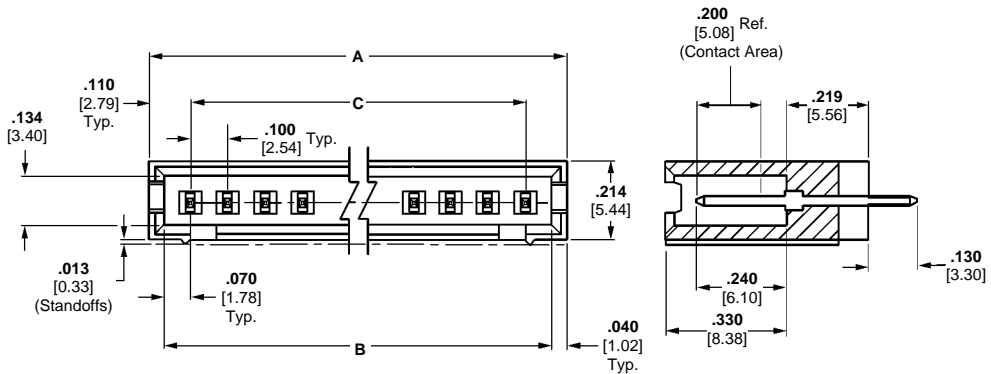
Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Connectors:

AMPMODU Wire-Applied

Receptacles—page 2121

AMPMODU MTE Receptacles—

pages 2131, 2135

Flexible Film Connectors—

Catalog 82007

Technical Documents: page 2160

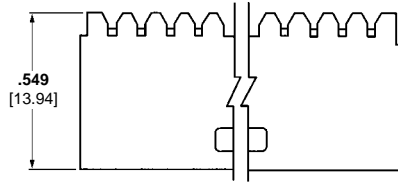
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions				Post Plating/Part Numbers				
	A	B	C		Plating A	Plating B	Plating C		
3	.420	10.67	.340	8.64	.200	5.08	103414-1	3-102202-4	103080-1
4	.520	13.21	.440	11.18	.300	7.62	103414-2	102202-1	103080-2
5	.620	15.75	.540	13.72	.400	10.16	103414-3	102202-2	103080-3
6	.720	18.29	.640	16.26	.500	12.70	103414-4	102202-3	—
7	.820	20.83	.740	18.80	.600	15.24	—	102202-4	103080-5
8	.920	23.37	.840	21.34	.700	17.78	103414-6	102202-5	103080-6
9	1.020	25.91	.940	23.88	.800	20.32	—	102202-6	—
10	1.120	28.45	1.040	26.42	.900	22.86	103414-8	102202-7	—
11	1.220	30.99	1.140	28.96	1.000	25.40	—	102202-8	—
12	1.320	33.53	1.240	31.50	1.100	27.94	1-103414-0	102202-9	1-103080-0
13	1.420	36.07	1.340	34.04	1.200	30.48	—	1-102202-0	—
14	1.520	38.61	1.440	36.58	1.300	33.02	—	1-102202-1	—
16	1.720	43.69	1.640	41.66	1.500	38.10	1-103414-4	1-102202-3	—
18	1.920	48.77	1.840	46.74	1.700	43.18	—	1-102202-5	—
20	2.120	53.85	2.040	51.82	1.900	48.26	1-103414-8	1-102202-7	—
24	2.520	64.01	2.440	61.98	2.300	58.42	2-103414-2	—	—

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Standoffs)



Material and Finish:

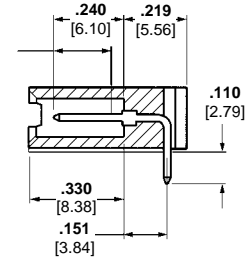
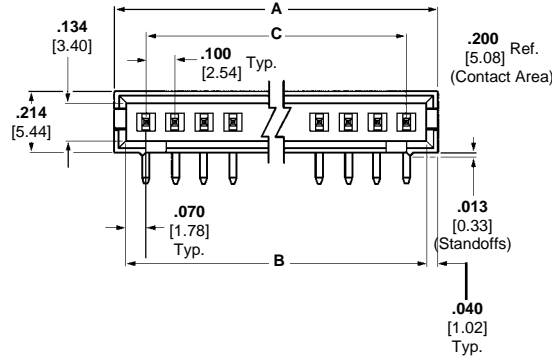
Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C— .000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Connectors:

AMPMODU Wire-Applied Receptacles—page 2121

AMPMODU MTE Receptacles—pages 2131, 2135

Flexible Film Connectors—Catalog 82007

Technical Documents: page 2160

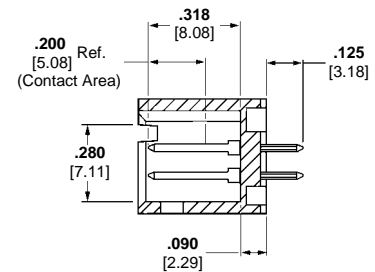
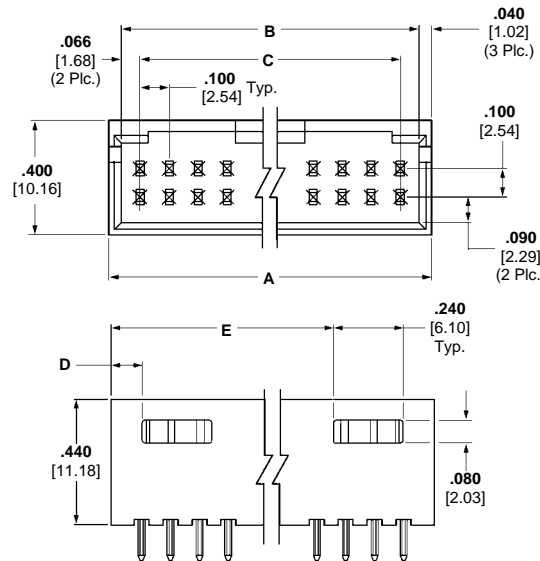
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions					Post Plating/Part Numbers			
	A	B	C	Plating A	Plating B	Plating C			
3	.420	10.67	.340	8.64	.200	5.08	103361-1	—	—
4	.520	13.21	.440	11.18	.300	7.62	103361-2	102203-1	—
5	.620	15.75	.540	13.72	.400	10.16	103361-3	102203-2	—
6	.720	18.29	.640	16.26	.500	12.70	103361-4	102203-3	—
7	.820	20.83	.740	18.80	.600	15.24	103361-5	102203-4	—
8	.920	23.37	.840	21.34	.700	17.78	103361-6	102203-5	102523-6
10	1.120	28.45	1.040	26.42	.900	22.86	103361-8	102203-7	—
12	1.320	33.53	1.240	31.50	1.100	27.94	1-103361-0	102203-9	—
14	1.520	38.61	1.440	36.58	1.300	33.02	—	1-102203-1	—
20	2.120	53.85	2.040	51.82	1.900	48.26	—	1-102203-7	—
24	2.520	64.01	2.440	61.98	2.300	58.42	2-103361-2	—	—

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows)



Material and Finish:

- Housing**—Black thermoplastic, 94V-0 rated
- Posts**—Copper alloy, plated as follows:
 - Plating A**—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel
 - Plating B**—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel
 - Plating C**—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Related Product Data:

- Mateable Connectors:**
- AMPMODU Board Mount Receptacles**—pages 2093, 2096
- AMPMODU Wire-Applied Receptacles**—pages 2122-2124
- AMPMODU MTE Receptacles**—pages 2131, 2135
- AMPMODU MT Receptacles**—pages 2153, 2154

Accessories:

- Barrier Insert**—page 2114

Technical Documents: page 2160

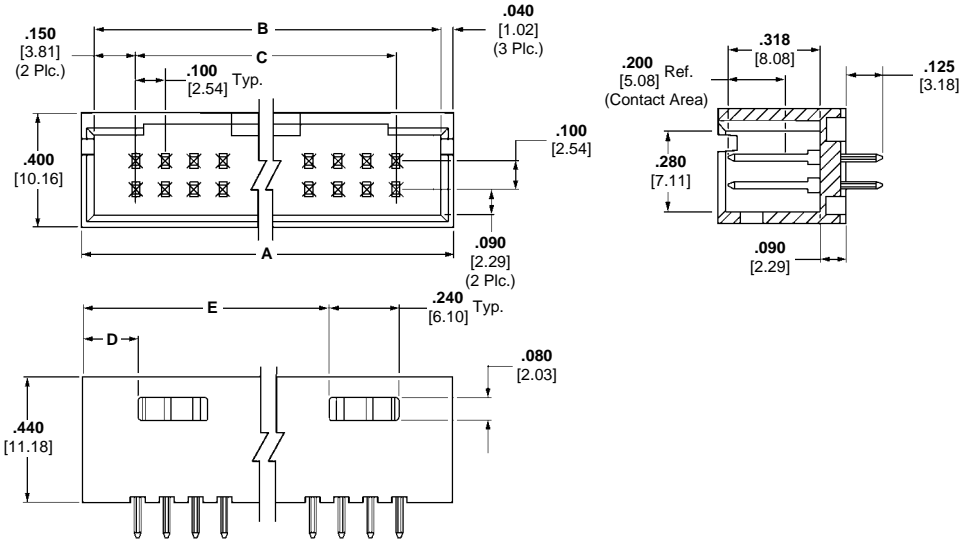
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions					Post Plating/Part Numbers		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.412 10.46	.332 8.43	.200 5.08	.106 2.69	—	103168-1	102618-1	3-87589-6
8	.512 13.00	.432 10.97	.300 7.62	.106 2.69	—	103168-2	102618-2	3-87589-5
10	.612 15.54	.532 13.51	.400 10.16	.206 5.23	—	103168-3	102618-3	87589-1
12	.712 18.08	.632 16.05	.500 12.70	.206 5.23	—	103168-4	102618-4	87589-2
14	.812 20.62	.732 18.59	.600 15.24	.306 7.77	—	103168-5	102618-5	87589-3
16	.912 23.16	.832 21.13	.700 17.78	.306 7.77	—	103168-6	102618-6	—
18	1.012 25.70	.932 23.67	.800 20.32	.406 10.31	—	103168-7	102618-7	—
20	1.112 28.24	1.032 26.21	.900 22.86	.106 2.69	.806 20.47	103168-8	102618-8	—
24	1.312 33.32	1.232 31.29	1.100 27.94	.106 2.69	1.006 25.55	1-103168-0	1-102618-0	—
26	1.412 35.86	1.332 33.83	1.200 30.48	.106 2.69	1.106 28.09	1-103168-1	1-102618-1	87589-9
30	1.612 40.94	1.532 38.91	1.400 35.56	.106 2.69	1.306 33.17	—	1-102618-3	—
32	1.712 43.48	1.632 41.45	1.500 38.10	.106 2.69	1.406 35.71	1-103168-4	—	—
34	1.812 46.02	1.732 43.99	1.600 40.64	.106 2.69	1.506 38.25	1-103168-5	1-102618-5	1-87589-3
40	2.112 53.64	2.032 51.61	1.900 48.26	.106 2.69	1.806 45.87	1-103168-8	1-102618-8	—
50	2.612 66.34	2.532 64.31	2.400 60.96	.106 2.69	2.306 58.57	2-103168-3	—	—
60	3.112 79.04	3.032 77.01	2.900 73.66	.106 2.69	2.806 71.27	2-103168-8	—	—

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows)



Material and Finish:

- Housing**—Black thermoplastic, 94V-0 rated
- Posts**—Copper alloy, plated as follows:
 - Plating A**—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel
 - Plating B**—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel
 - Plating C**—.000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Related Product Data:

- Mateable Connectors:**
- AMPMODU Wire-Applied Receptacles**—pages 2122-2124
- AMPMODU MTE Receptacles**—page 2134 (used with coupling shroud on page 2139)
- AMP-LATCH Connectors**—Catalog 82012
- Flexible Film Connectors**—Catalog 82007
- Ribbon Coaxial Connectors**—Catalog 82158

Accessories:

- Barrier Insert**—page 2114

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions					Post Plating/Part Numbers							
	A	B	C	D	E	Plating A	Plating B	Plating C					
6	.580	14.73	.500	12.70	.200	5.08	.190	4.83	—	103169-1	—	—	
8	.680	17.27	.600	15.24	.300	7.62	.190	4.83	—	103169-2	—	—	
10	.780	19.81	.700	17.78	.400	10.16	.290	7.37	—	103169-3	102619-3	87587-1	
12	.880	22.35	.800	20.32	.500	12.70	.290	7.37	—	103169-4	—	—	
14	.980	24.89	.900	22.86	.600	15.24	.390	9.91	—	103169-5	102619-5	—	
16	1.080	27.43	1.000	25.40	.700	17.78	.390	9.91	—	103169-6	102619-6	—	
18	1.180	29.97	1.100	27.94	.800	20.32	.490	12.45	—	103169-7	—	—	
20	1.280	32.51	1.200	30.48	.900	22.86	.190	4.83	.890	22.61	103169-8	102619-8	—
24	1.480	37.59	1.400	35.56	1.100	27.94	.190	4.83	1.090	27.69	—	1-102619-0	—
26	1.580	40.13	1.500	38.10	1.200	30.48	.190	4.83	1.190	30.23	1-103169-1	1-102619-1	—
34	1.980	50.29	1.900	48.26	1.600	40.64	.190	4.83	1.590	40.39	1-103169-5	1-102619-5	—
40	2.280	57.91	2.200	55.88	1.900	48.26	.190	4.83	1.890	48.01	1-103169-8	1-102619-8	—
50	2.780	70.61	2.700	68.58	2.400	60.96	.190	4.83	2.390	60.71	2-103169-3	2-102619-3	—

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Plastic Holddowns)



Photo 98185-8

Material and Finish:

Housing—Black thermoplastic,
94V-0 rated

Posts—Copper alloy, duplex plated
.000015 [0.00038] gold on contact area,
.000100-.000200 [0.00254-0.00508]
tin-lead on solder area, with entire post
underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors:

**AMPMODU Wire-Applied
Receptacles**—pages 2122, 2124

AMPMODU MTE Receptacles—
page 2134 (used with coupling shroud
on page 2139)

AMP-LATCH Connectors—
Catalog 82012

Flexible Film Connectors—
Catalog 82007

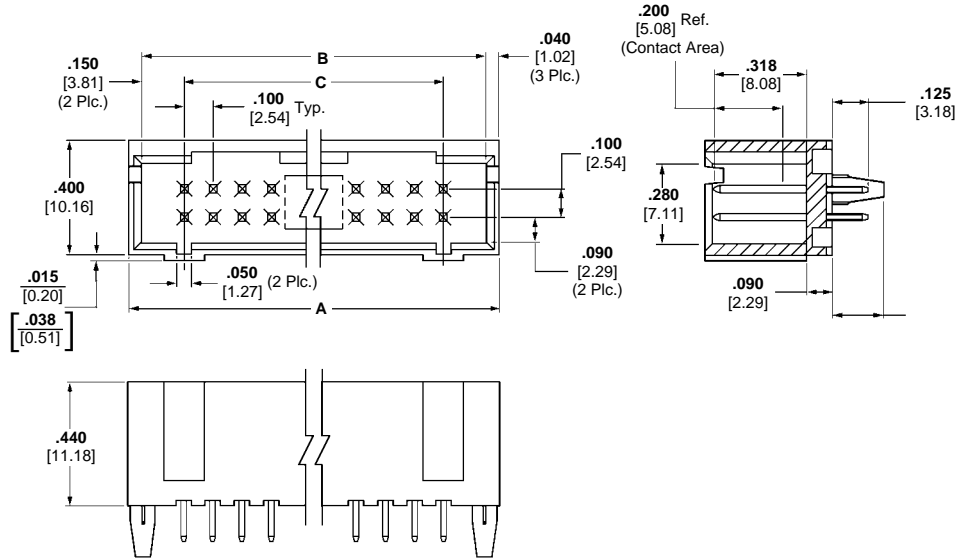
Ribbon Coaxial Connectors—
Catalog 82158

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable
product and application specifications.

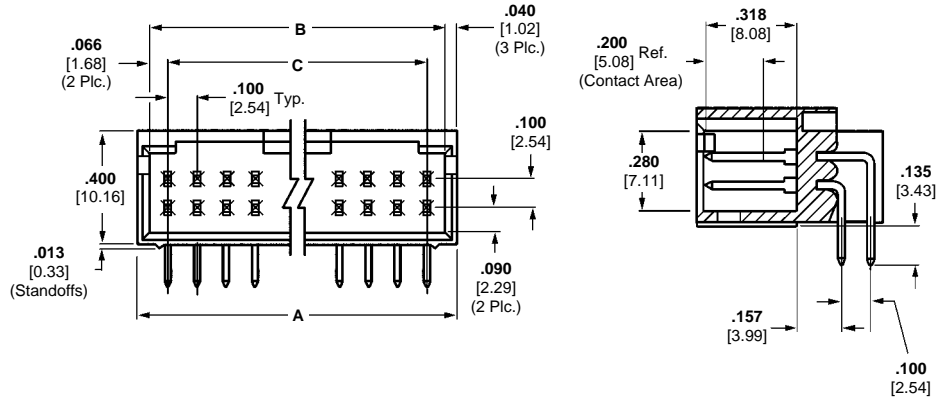


No. of Positions	Dimensions			Part Numbers Plating A
	A	B	C	
16	1.080 27.43	1.000 25.40	.700 17.78	1-104317-6
30	1.780 45.21	1.700 43.18	1.400 35.56	1-104317-0
40	2.280 57.91	2.200 55.88	1.900 48.26	1-104317-2

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Detent Windows)



Material and Finish:

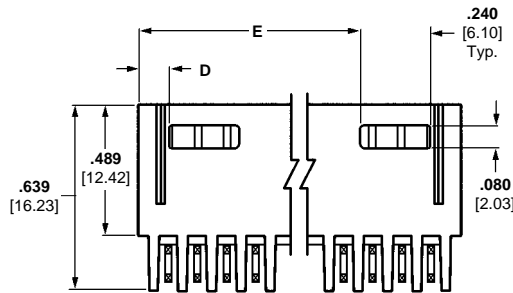
Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C— .000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Connectors:

AMPMODU Board Mount

Receptacles—pages 2093, 2096

AMPMODU Wire-Applied

Receptacles—pages 2122-2124

AMPMODU MTE Receptacles—

pages 2131, 2135

AMPMODU MT Receptacles—

pages 2153, 2154

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions						Post Plating/Part Numbers		
	A	B	C	D	E	Plating A	Plating B	Plating C	
6	.412 10.46	.332 8.43	.200 5.08	.106 2.69	—	103166-1	102617-1	—	
8	.512 13.00	.432 10.97	.300 7.62	.106 2.69	—	103166-2	102617-2	—	
10	.612 15.54	.532 13.51	.400 10.16	.206 5.23	—	103166-3	102617-3	87579-2	
12	.712 18.08	.632 16.05	.500 12.70	.206 5.23	—	103166-4	102617-4	—	
14	.812 20.62	.732 18.59	.600 15.24	.306 7.77	—	103166-5	102617-5	—	
16	.912 23.16	.832 21.13	.700 17.78	.306 7.77	—	103166-6	102617-6	—	
20	1.112 28.24	1.032 26.21	.900 22.86	.106 2.69	.806 20.47	103166-8	102617-8	—	
24	1.312 33.32	1.232 31.29	1.100 27.94	.106 2.69	1.006 25.55	1-103166-0	1-102617-0	—	
26	1.412 35.86	1.332 33.83	1.200 30.48	.106 2.69	1.106 28.09	1-103166-1	1-102617-1	—	
30	1.612 40.94	1.532 38.91	1.400 35.56	.106 2.69	1.306 33.17	1-103166-3	1-102617-3	—	
34	1.812 46.02	1.732 43.99	1.600 40.64	.106 2.69	1.506 38.25	1-103166-5	—	—	
40	2.112 53.64	2.032 51.61	1.900 48.26	.106 2.69	1.806 45.87	1-103166-8	—	—	
50	2.612 66.34	2.532 64.31	2.400 60.96	.106 2.69	2.306 58.57	—	2-102617-3	—	

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Detent Windows)



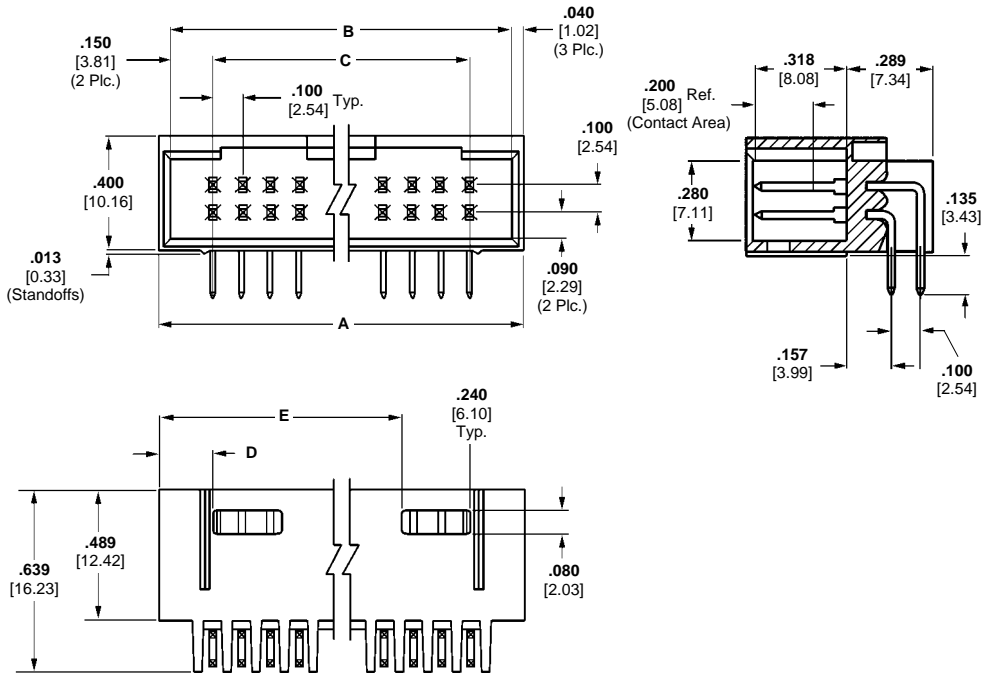
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Connectors:

AMPMODU Wire-Applied Receptacles—pages 2122, 2124

AMPMODU MTE Receptacles—page 2134 (used with coupling shroud on page 2139)

AMP-LATCH Connectors—Catalog 82012

Flexible Film Connectors—Catalog 82007

Ribbon Coaxial Connectors—Catalog 82158

Technical Documents: page 2160

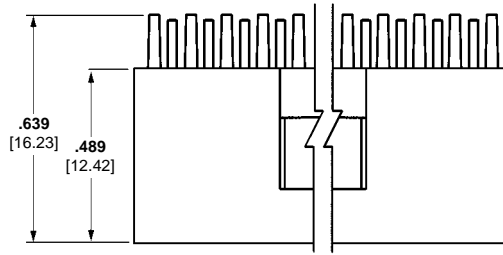
See mating connector for applicable product and application specifications.

No. of Positions	Dimensions					Post Plating/Part Numbers						
	A	B	C	D	E	Plating A	Plating B					
8	.680	17.27	.600	15.24	.300	7.62	.190	4.83	—	103167-1	—	
10	.780	19.81	.700	17.78	.400	10.16	.290	7.37	—	103167-2	102570-3	
12	.880	22.35	.800	20.32	.500	12.70	.290	7.37	—	103167-3	—	
16	1.080	27.43	1.000	25.40	.700	17.78	.390	9.91	—	103167-5	—	
20	1.280	32.51	1.200	30.48	.900	22.86	.190	4.83	.890	22.61	103167-7	102570-8
24	1.480	37.59	1.400	35.56	1.100	27.94	.190	4.83	1.090	27.69	—	1-102570-0
26	1.580	40.13	1.500	38.10	1.200	30.48	.190	4.83	1.190	30.23	1-103167-0	1-102570-1
34	1.980	50.29	1.900	48.26	1.600	40.64	.190	4.83	1.590	40.39	1-103167-4	1-102570-5
40	2.280	57.91	2.200	55.88	1.900	48.26	.190	4.83	1.890	48.01	1-103167-7	102570-1

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Pin Protection on 3 Sides)



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors:

AMPMODU Board Mount Receptacles—pages 2093, 2096

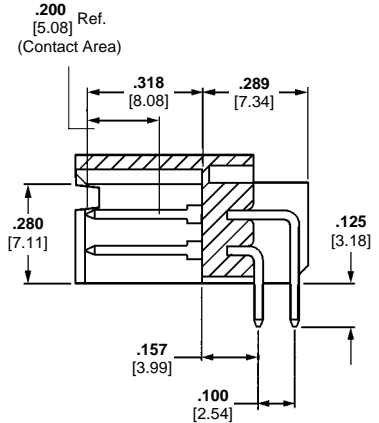
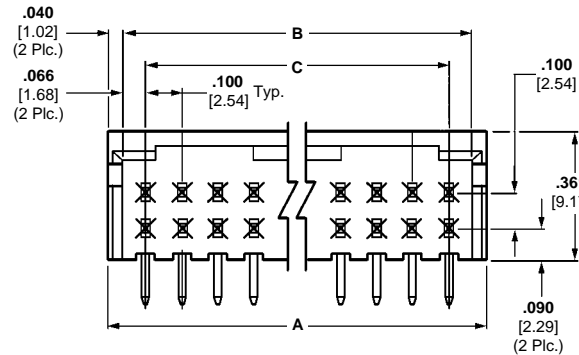
AMPMODU Wire-Applied Receptacles—pages 2122, 2124

AMPMODU MTE Receptacles—pages 2131, 2135

AMPMODU MT Receptacles—pages 2153, 2154

Technical Documents: page 2160

See mating connector for applicable product and application specifications.



No. of Positions	Dimensions			Post Plating/Part Numbers
	A	B	C	
8	.512 13.00	.432 10.97	.300 7.62	103164-2
10	.612 15.54	.532 13.51	.400 10.16	103164-3
12	.712 18.08	.632 16.05	.500 12.70	103164-4
16	.912 23.16	.832 21.13	.700 17.78	103164-6
20	1.112 28.24	1.032 26.21	.900 22.86	103164-8

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Right-Angle Post (with Plastic Holddowns)

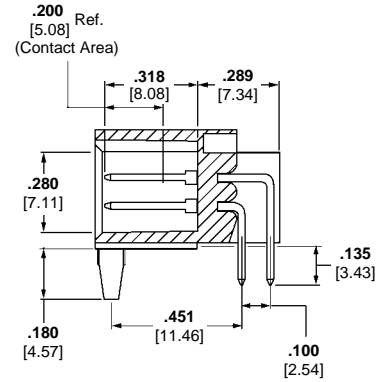
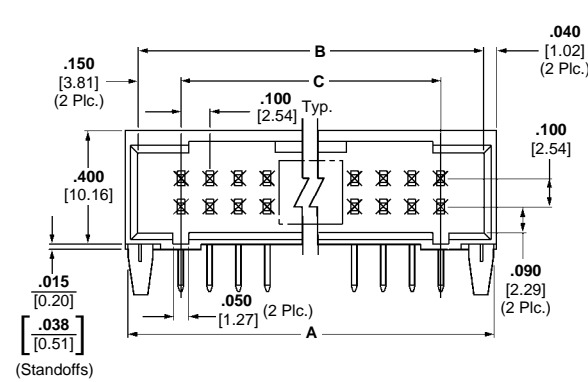
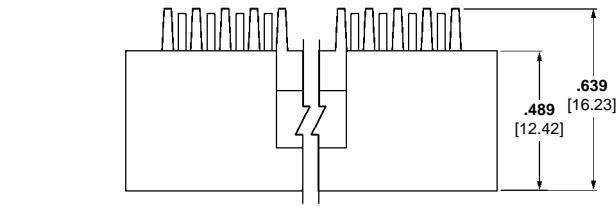


Photo 98185-9

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Connectors:

AMPMODU Wire-Applied Receptacles—pages 2122, 2124

AMPMODU MTE Receptacles—page 2134 (used with coupling shroud on page 2139)

AMP-LATCH Connectors—Catalog 82012

Flexible Film Connectors—Catalog 82007

Ribbon Coaxial Connectors—Catalog 82158

Technical Documents: page 2160

See mating connector for applicable product and application specifications.

No. of Positions	Dimensions			Part Numbers
	A	B	C	
10	.780 19.81	.700 17.78	.400 10.16	104319-7
20	1.280 32.51	1.200 30.48	.900 20.86	104319-2

For complete product information, order Catalog 1307819

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post (with Detent Windows and Mounting Ears)



Material and Finish:

Housing—Black thermoplastic,
94V-0 rated

Posts—Copper alloy, plated .000030
[0.00076] gold over .000050 [0.00127]
nickel on entire post

Related Product Data:

Mateable Connectors:

**AMPMODU Wire-Applied
Receptacles**—pages 2122, 2124

AMPMODU MTE Receptacles—
pages 2134 (used with coupling shroud
on page 2139)

AMP-LATCH Connectors—
Catalog 82012

Flexible Film Connectors—
Catalog 82007

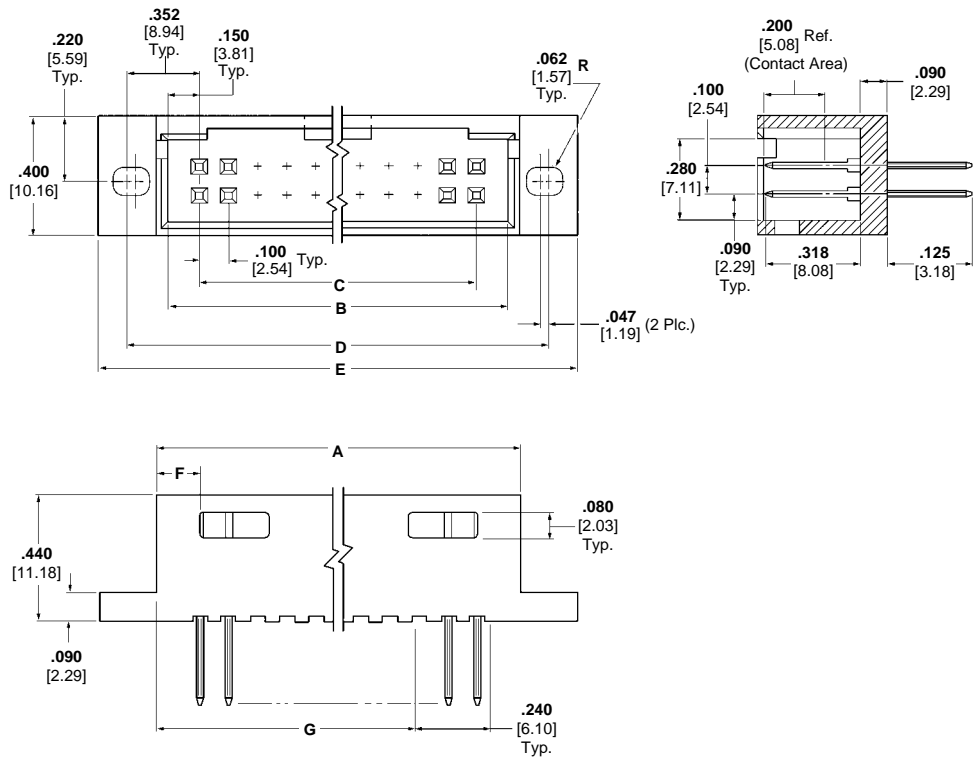
Ribbon Coaxial Connectors—
Catalog 82158

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable
product and application specifications.





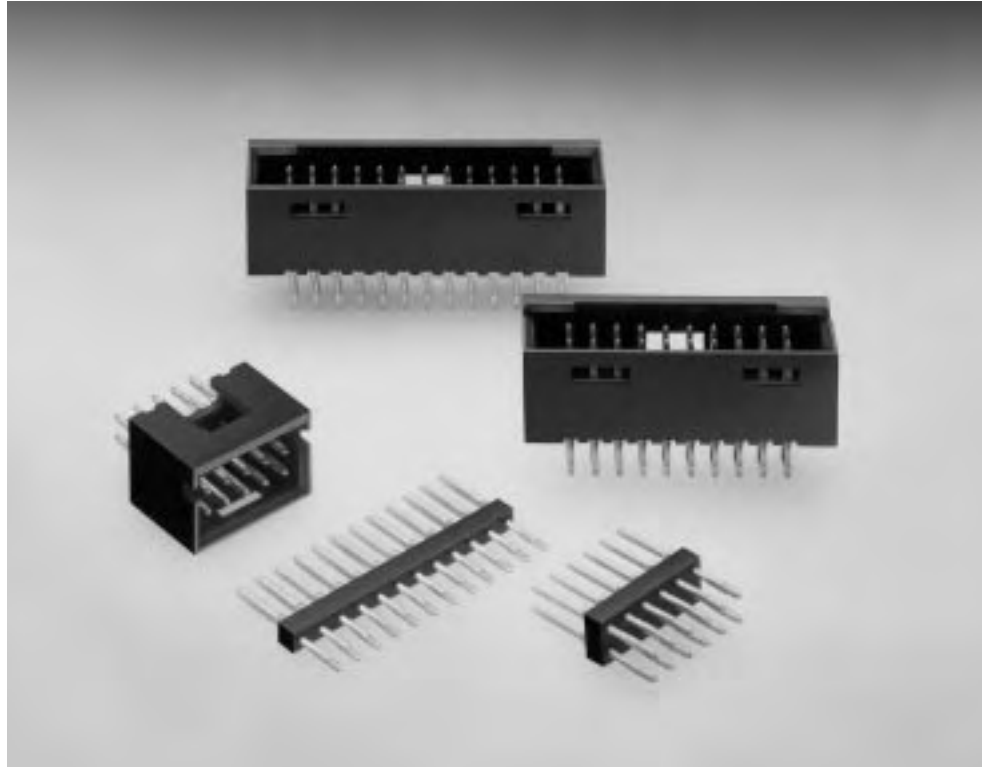
No. of Positions	Dimensions										Part Numbers				
	A	B	C	D	E	F	G								
10	.780	19.81	.700	17.78	.400	10.16	1.104	28.04	1.304	33.12	.290	7.37	—	87474-1	
20	1.280	32.51	1.200	30.48	.900	22.86	1.604	40.74	1.804	45.82	.190	4.83	.890	22.61	87474-2

For complete product information, order Catalog 1307819

ACTION PIN Headers—Shrouded and Unshrouded

Product Facts

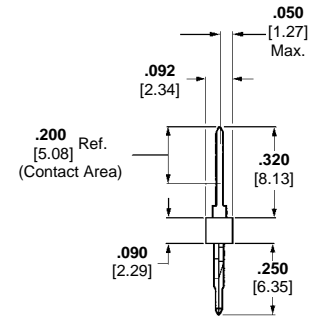
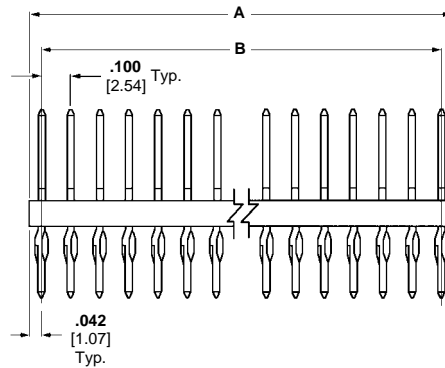
- Straight posted unshrouded and shrouded versions
- .025 [0.64] square ACTION PIN posts
- Compatible with high temperature surface-mount applications, with press-fit ACTION PIN post insertion after reflow process
- ACTION PIN posts make a gas-tight, press-fit connection in plated-through holes
- Does not damage plated-through holes
- Unshrouded headers available in selected sizes 1 through 40 positions (single-row) and 4 through 80 positions (double-row)
- Shrouded headers (double-row) available in selected sizes of 6 through 60 positions
- Flame retardant, black thermoplastic housings, 94V-0 rated
- Available in .100 [2.54] Centerline spacing in an insulator header that is directly mounted on a printed circuit board
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 16455 



For complete product information, order Catalog 1307819

ACTION PIN Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Application Tooling—page 2086

Technical Documents: page 2160

See mating connector for applicable product and application specifications

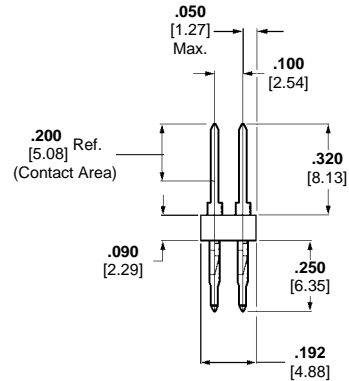
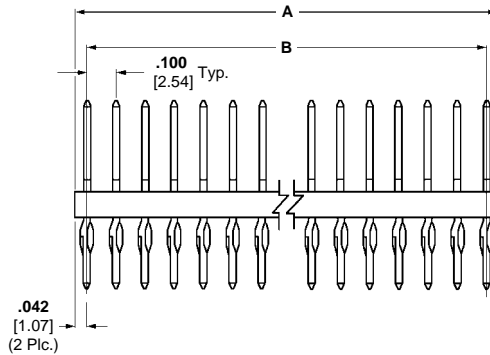
No. of Positions	Dimensions		Part Numbers	
	A	B	For .093-.125 [2.36-3.18] Thick PC Boards	
2	.184 4.67	.100 2.54	3-102898-4	
3	.284 7.21	.200 5.08	4-102898-0	
5	.484 12.29	.400 10.16	3-102898-8	
8	.784 19.91	.700 17.78	102898-1	

Note: To insert header into PC board, use seating tool with arbor tool or air powered machine—page 2086.

For complete product information, order Catalog 1307819

ACTION PIN Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors—Refer to the Mating Post Selection Guide (page 2045)

Application Tooling—page 2087

Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable product and application specifications

No. of Positions	Dimensions				Part Numbers For .093-.125 [.236-3.18] Thick PC Boards
	A		B		
4	.184	4.67	.100	2.54	103233-1
8	.384	9.75	.300	7.62	103233-3
10	.484	12.29	.400	10.16	103233-4
16	.784	19.91	.700	17.78	103233-7
18	.884	22.45	.800	20.32	103233-8
22	1.084	27.53	1.000	25.40	1-103233-0
24	1.184	30.07	1.100	27.94	1-103233-1
26	1.284	32.61	1.200	30.48	1-103233-2
34	1.684	42.77	1.600	40.64	1-103233-6
40	1.984	50.39	1.900	48.26	1-103233-9
60	2.984	75.79	2.900	73.66	2-103233-9

For complete product information, order Catalog 1307819

**.025 [0.64] Square
Straight Post (with Detent
Windows, for .093-.125
[.236-3.18] Thick PC Board)**



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors:

AMPMODU Board Mount Receptacles—pages 2093, 2096

AMPMODU Wire-Applied Receptacles—pages 2123, 2124

AMPMODU MT Receptacles—pages 2153, 2154

Application Tooling—page 2087

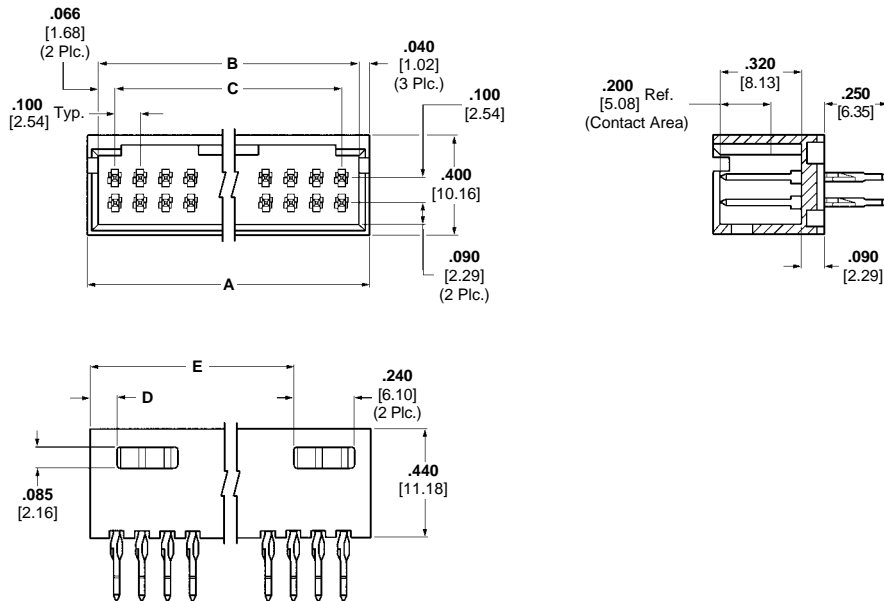
Accessories:

Barrier Insert—page 2114

Technical Documents: page 2160

See mating connector for applicable product and application specifications

**ACTION PIN Headers—Shrouded with .066 [1.68] End Dimension,
Double-Row, .100 x .100 [2.54 x 2.54] Centerline**

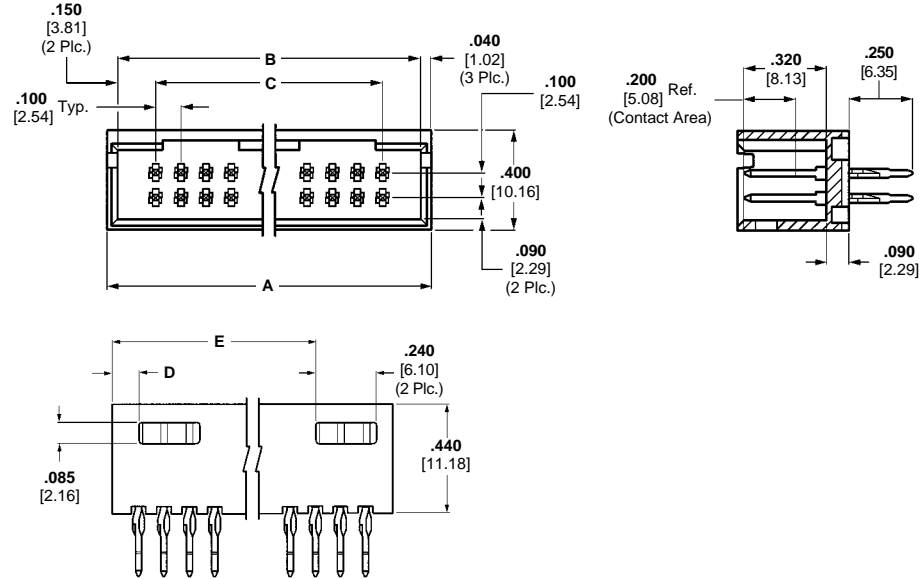


No. of Positions	Dimensions						Header Part Numbers				
	A	B	C	D	E						
6	.412	10.46	.332	8.43	.200	5.08	.106	2.69	—	102699-2	
8	.512	13.00	.432	10.97	.300	7.62	.106	2.69	—	102699-3	
10	.612	15.54	.532	13.51	.400	10.16	.206	5.23	—	102699-4	
12	.712	18.08	.632	16.05	.500	12.70	.206	5.23	—	102699-5	
14	.812	20.62	.732	18.59	.600	15.24	.306	7.77	—	102699-6	
20	1.112	28.24	1.032	26.21	.900	22.86	.106	2.69	.806	20.47	102699-9
26	1.412	35.86	1.332	33.83	1.200	30.48	.106	2.69	1.106	28.09	1-102699-2

For complete product information, order Catalog 1307819

ACTION PIN Headers—Shrouded with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**.025 [0.64] Square
Straight Post (with Detent
Windows, for .093-.125
[.236-3.18] Thick PC Board)**



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Posts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors:

AMPMODU Wire-Applied Receptacles—pages 2123, 2124

AMPMODU MTE Receptacles—page 2134

Flexible Film Connectors—Catalog 82007

Application Tooling—page 2087

No. of Positions	Dimensions					Header Part Numbers
	A	B	C	D	E	
10	.780 19.81	.700 17.78	.400 10.16	.290 7.37	—	102557-9
20	1.280 32.51	1.200 30.48	.900 22.86	.190 4.83	.890 22.61	102557-2
26	1.580 40.13	1.500 38.10	1.200 30.48	.190 4.83	1.190 30.23	102557-3
40	2.280 57.91	2.200 55.88	1.900 48.26	.190 4.83	1.890 48.01	102557-1
50	2.780 70.61	2.700 68.58	2.400 60.96	.190 4.83	2.390 60.71	102557-6

Accessories:

Barrier Insert—Page 2114

Technical Documents: page 2160

See mating connector for applicable product and application specifications

For complete product information, order Catalog 1307819

Application Tooling for AMPMODU Headers with ACTION PIN Posts

ACTION PIN Post Replacement Tooling



Rear Insertion/Extraction Tool
No. 265871-7 (Ref. 408-2036)

Includes:

Impact Tool No. 380392-8
Removal Tool No. 265964-1
Replacement Tip No. 308554-1

Pin headers with ACTION PIN posts allow high speed, solderless back-plane construction through reliable press-fit application. Press fitting connectors to printed circuit boards requires special seating tools which transfer application force directly to the contacts.

Force applied to the tool to seat the connectors can be provided by the AMP seating machines shown on this page, or by commercially available arbor presses such as Greenerd 3A or 3B. The selected press must have a seating pressure capacity of 40 lb. [178 N] per contact.

For tooling information, call the Technical Support Center 1-800-522-6752.

Single-Row Connector Seating Tools

Tooling Assembly No. 91171-1 is used to install single-row AMPMODU headers with ACTION PIN posts into PC boards.

Double-Row Connector Seating Tools

Header Size (Number of Positions)	Tool Assembly Numbers
4	91170-1
6	91170-1
8	91170-2
12	91170-5
14	91170-6
16	91170-7
20	91170-9
24	1-91170-1
30	1-91170-4
36	1-91170-7
40	1-91170-9
50	2-91170-4
60	2-91170-9
80	3-91170-2
96	3-91170-5
100	3-91170-6
120	3-91170-8
140	4-91170-0
200	4-91170-2

Triple-Row Connector Seating Tools

Header Size (Number of Positions)	Tool Assembly Numbers
96	91169-8
105	91169-6
120	91169-7
150	91169-3
195	91169-2
204	91169-1
210	91169-5
300	91169-9

SM-10/20 Machine No. 803880-6

This machine is hydraulically operated with a capacity of 40,000 lb. [178,000 N]. Each contact requires 40 lb. [178 N] for insertion. Cycling time is 2 to 2½ seconds. All connectors in this catalog are compatible with the SM-10/20 machine.



SM-3 Machine No. 814700-2

This machine is air powered with a capacity of 6,000 lb. [26,700 N]. Each contact requires 40 lb. [178 N] for insertion. It utilizes .750 [19.05] thick board support fixtures and has adjustable seating force. It also has a board sensing feature to compensate for board thickness variations. The machine has the capability of processing boards up to 20 [508] wide and all but the largest connectors. Connectors up to 150 positions can be seated using the SM-3 machine. Cycling time is 4 seconds.



For complete product information, order Catalog 1307819

Application Tooling for Post Insertion**Comp-U-Sertor II Insertion Machine No. 122300-1**

This machine has a compact, microprocessor-controlled X-Y positioning table for inserting a variety of AMP posts, sockets and receptacles at rates up to 14,000 contacts per hour. It is programmed and operated with an easy-to-use, menu-driven touchscreen. Programs are stored in a battery-backed Random Access Memory. A 3.5" floppy disk drive is provided for off-line programming and storage. Insertion heads are interchangeable. The insertable area is 12 x 18 [305 x 457]. The power requirement is 120 VAC, 50-60 Hz, 7 A; the air requirement is 90 psi [6.21 bar] at 2-15 scfm [0.00094-0.00708 m³/s], depending upon application.

For further information, request AMP Customer Manual 409-5863.



Photo 96187-1

Modular Insertion System Bench Machine No. 217600-1

This machine uses AMP insertion heads to install a variety of printed circuit board products at rates of 2,000 per hour. The printed circuit board is placed in a Board Holding Fixture which is attached to a two-hand controlled mechanism. The operator moves the board over the machine anvil; a switch in the anvil actuates the machine when the printed circuit board is placed on the anvil. A spotlight illuminates the insertion area.

Consult AMP for further information on this machine and the insertion heads.



Photo 98731

For complete product information, order Catalog 1307819

Receptacle Assemblies, Horizontal Mount

Product Facts

- All receptacle assemblies are end stackable
- Contact design employs dual cantilever beams with built-in anti-overstress feature
- Closed entry housings help prevent post stubbing
- Wide range of sizes available
- Other versions available upon request
- Housings made of high temperature, surface mount compatible thermoplastic material, 94V-0 rated
- Duplex gold and bright tin-lead plated contacts have full nickel underplate
- Housings feature PC board standoffs
- Solder tails accommodate a PC board thickness of .062 [1.57]
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189

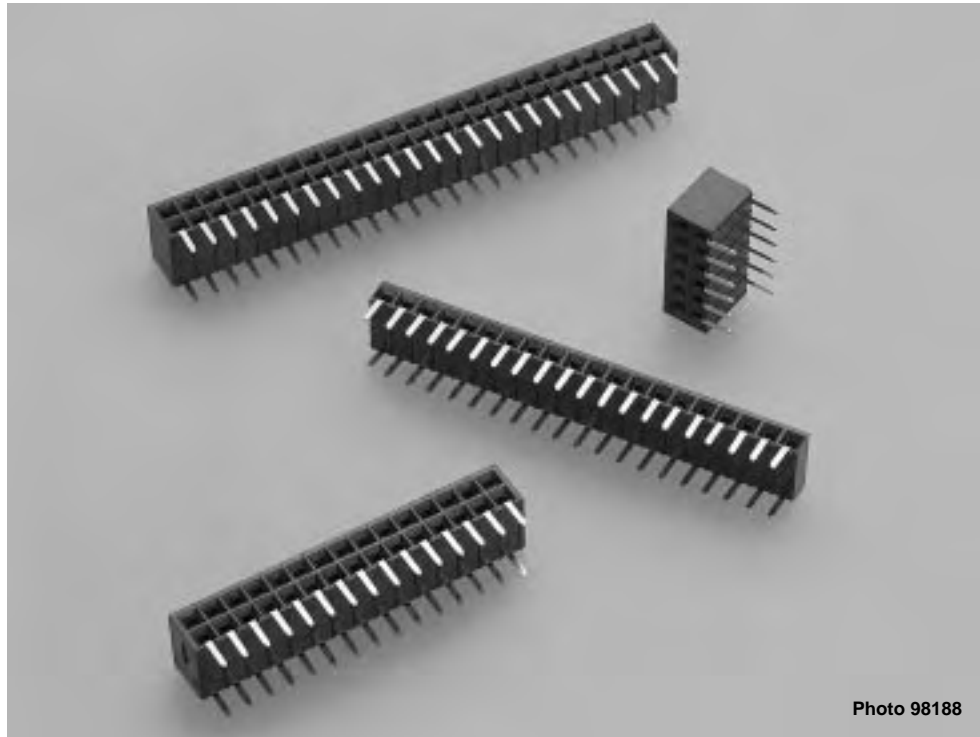


Photo 98188

Horizontal Mount receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry, generally for applications using the mother/daughter board arrangement.

This product line is offered in both single and double row configurations. The .100 [2.54] centerline assemblies are available in a wide range of position sizes. They have end stacking capability which give the added advantage of flexibility.

The housings are made of high temperature, surface mount compatible thermoplastic material that is 94V-0 rated. Contacts are phosphor bronze, fully underplated with nickel to prevent corrosion and are available in three plating options.

The receptacle contact is an established design with a fully enclosed, one-piece "box" to protect the contact area. In addition, the receptacle contact has dual cantilever beams with a built-in anti-overstress feature. Standard solder tails accommodate a board thickness of .062 [1.57].

Performance Characteristics:

Mechanical Characteristics:

- Mating Force**—8.0 oz. [2.22N] per contact (max.)
- Unmating Force**—1.0 oz. [0.28N] per contact (min.) during third mating cycle
- Durability**—200 cycles

Environmental Characteristics:

- Operating Temperature**—
-65°C to +125°C

Electrical Characteristics:

- Current Rating**—3.0 amperes (max.) for single contact; 2.0 amperes (max.) per contact when connector is fully energized
- Contact Resistance**—12 milliohms (max.)
- Insulation Resistance**—5000 megohms (min.) between adjacent contacts
- Dielectric Withstanding Voltage (at sea level)**—750 V rms

For complete product information, order Catalog 1307819

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



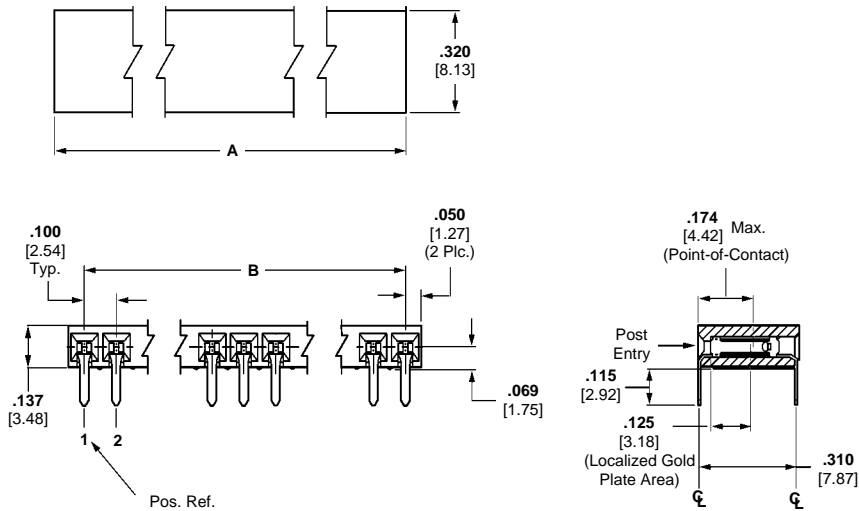
Photo 98185-5

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature, surface mount compatible

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

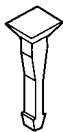
Technical Documents: page 2160

Product Specification
108-25026

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon



No. of Positions	Dimensions		Contact Plating/Part Numbers		
	A	B	Plating A		
2	.200	5.08	.100	2.54	535676-1
3	.300	7.62	.200	5.08	535676-2
4	.400	10.16	.300	7.62	535676-3
5	.500	12.70	.400	10.16	535676-4
6	.600	15.24	.500	12.70	535676-5
8	.800	20.32	.700	17.78	535676-7
9	.900	22.86	.800	20.32	535676-8
10	1.000	25.40	.900	22.86	535676-9
11	1.100	27.94	1.000	25.40	1-535676-0
12	1.200	30.48	1.100	27.94	1-535676-1
13	1.300	33.02	1.200	30.48	1-535676-2
14	1.400	35.56	1.300	33.02	1-535676-3
15	1.500	38.10	1.400	35.56	1-535676-4
16	1.600	40.64	1.500	38.10	1-535676-5
17	1.700	43.18	1.600	40.64	1-535676-6
18	1.800	45.72	1.700	43.18	1-535676-7
19	1.900	48.26	1.800	45.72	1-535676-8
20	2.000	50.80	1.900	48.26	1-535676-9
40	4.000	101.60	3.900	99.06	3-535676-9

Note: Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.

For complete product information, order Catalog 1307819

Receptacle Assemblies, Vertical Mount

Product Facts

- Dual-cantilever beam contact with box design and anti-overstress protection
- Single-row assemblies have .100 [2.54] centerline contact spacing; double-row assemblies have .100 x .100 [2.54 x 2.54] centerline contact spacing
- 3 through 40 positions in single-row assemblies; 2 through 80 positions in double-row assemblies
- Mod. II Standard .340 [8.64] and Mod. IV low .265 [6.73] profiles
- Mod. II standard profile available in top entry
- Mod. IV low profile available in top and bottom entry
- Duplex gold and bright tin-lead plated contacts have full nickel underplate
- Thermoplastic housings, 94V-0 rated
- Standoffs for easy flux cleaning
- All assemblies are end stackable
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 

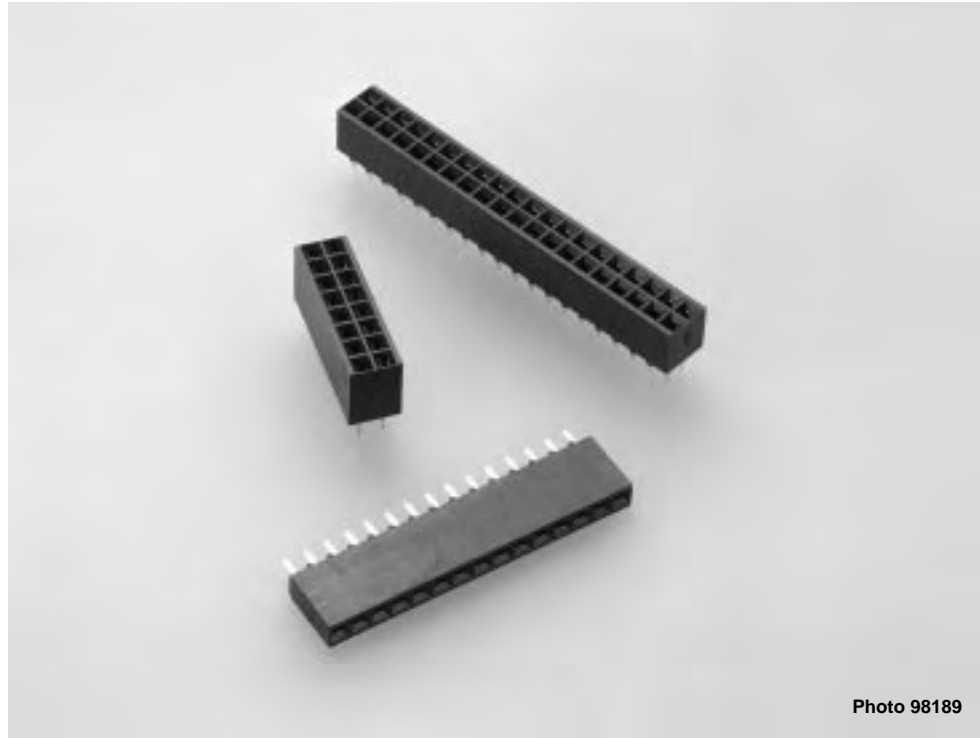


Photo 98189

Vertical receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronic industry.

This broad product line offers a wide variety of assembly styles and features. They are available in top and bottom entry styles, in both single and double row configurations. The .100 [2.54] centerline assemblies are available in 3-40 (single row) positions and 2-80 (double row) positions. Low profile housings also enhance the product line by being end stackable, which gives the advantage of added flexibility.

The housings are made of flame retardant material that is 94 V-0 rated. Contacts are phosphor bronze, fully underplated with nickel to minimize corrosion and are available in three plating options.

The receptacle contact is an established design, with a fully enclosed one-piece "box" to protect the contact beams, with a built-in anti-overstress feature. These assemblies are offered in .265 [6.73] (Mod II) and .340[8.64] (Mod IV) high profiles. Standard solder tails accommodate board thickness of .062 [1.57].

Performance Characteristics:

Mechanical Characteristics:

- Mating Force**—8.0 oz. [2.22N] per contact (max.)
- Unmating Force**—1.0 oz. [0.28N] per contact (min.)
- Durability (Tested to)**—200 cycles

Environmental Characteristics:

- Operating Temperature**—
-65°C to +105°C

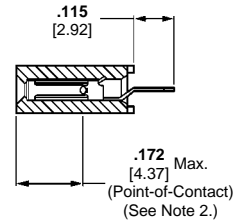
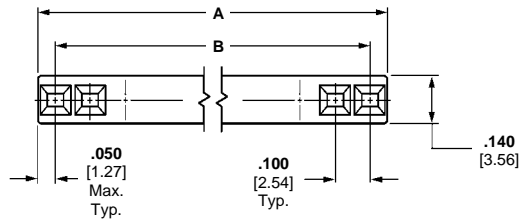
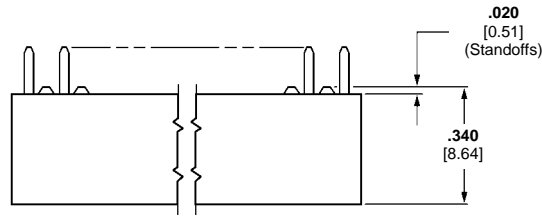
Electrical Characteristics:

- Current Rating**—3.0 amperes (max.) for single contact; 2.0 amperes (max.) per contact when connector is fully energized
- Contact Resistance**—12 milliohms (max.)
- Insulation Resistance**—5000 megohms (min.) between adjacent contacts
- Dielectric Withstanding Voltage (at sea level)**—750 V rms

For complete product information, order Catalog 1307819

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Closed Top Entry, End Stackable, with Single Tine Contacts



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification
108-25026

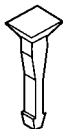
Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions				Contact Plating/Part Numbers
	A		B		Plating A
3	.300	7.62	.200	5.08	534237-1
4	.400	10.16	.300	7.62	534237-2
5	.500	12.70	.400	10.16	534237-3
6	.600	15.24	.500	12.70	534237-4
8	.800	20.32	.700	17.78	534237-6
10	1.000	25.40	.900	22.86	534237-8
11	1.100	27.94	1.000	25.40	534237-9
12	1.200	30.48	1.100	27.94	1-534237-0
13	1.300	33.02	1.200	30.48	1-534237-1
14	1.400	35.56	1.300	33.02	1-534237-2
15	1.500	38.10	1.400	35.56	1-534237-3
16	1.600	40.64	1.500	38.10	1-534237-4
17	1.700	43.18	1.600	40.64	1-534237-5
18	1.800	45.72	1.700	43.18	1-534237-6
19	1.900	48.26	1.800	45.72	1-534237-7
20	2.000	50.80	1.900	48.26	1-534237-8
30	3.000	76.20	2.900	73.66	2-534237-8
40	4.000	101.60	3.900	99.06	3-534237-8

- Notes:** 1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

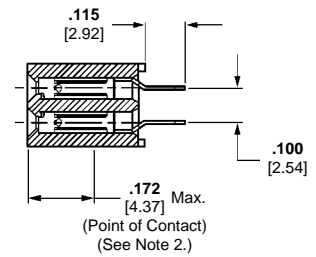
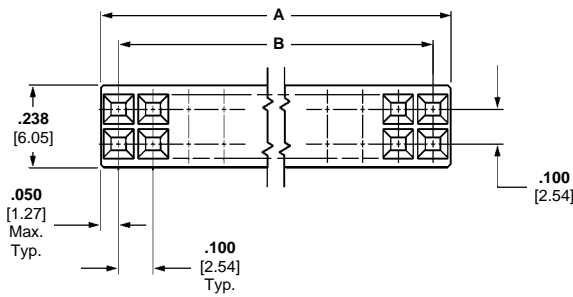
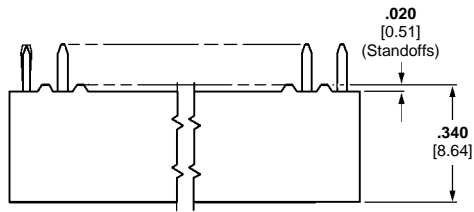
Material:

Natural color nylon

For complete product information, order Catalog 1307819

Mod II Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Closed Top Entry,
End Stackable
.100 x .100 [2.54 x 2.54]
Centerline, .100 [2.54]
Tine Spacing**



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated
Contacts—Phosphor bronze, plated as follows:
Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2058

Technical Documents: page 2160

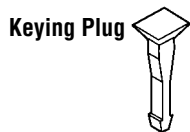
Product Specification
108-25026

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Contact Plating/Part Numbers	
	A	B	Plating A	
2	.100 2.54	—	534206-1	
4	.200 5.08	.100 2.54	534206-2	
6	.300 7.62	.200 5.08	534206-3	
8	.400 10.16	.300 7.62	534206-4	
10	.500 12.70	.400 10.16	534206-5	
12	.600 15.24	.500 12.70	534206-6	
14	.700 17.78	.600 15.24	534206-7	
16	.800 20.32	.700 17.78	534206-8	
18	.900 22.86	.800 20.32	534206-9	
20	1.000 25.40	.900 22.86	1-534206-0	
22	1.100 27.94	1.000 25.40	1-534206-1	
24	1.200 30.48	1.100 27.94	1-534206-2	
26	1.300 33.02	1.200 30.48	1-534206-3	
30	1.500 38.10	1.400 35.56	1-534206-5	
32	1.600 40.64	1.500 38.10	1-534206-6	
34	1.700 43.18	1.600 40.64	1-534206-7	
36	1.800 45.72	1.700 43.18	1-534206-8	
40	2.000 50.80	1.900 48.26	2-534206-0	

Notes: 1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.



Part Number 86286-1
(Plugs into receptacle contact)

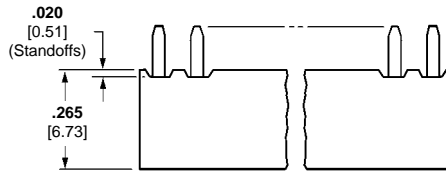
Material:

Natural color nylon

For complete product information, order Catalog 1307819

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Bottom Entry, End Stackable, Low Profile with Dual Tine Contacts

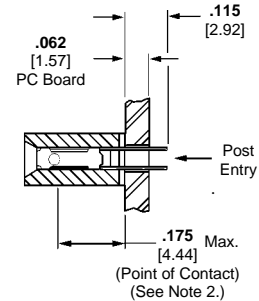
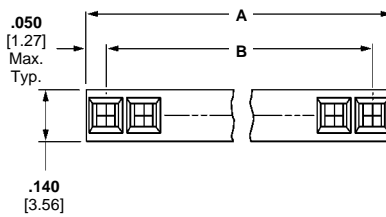


Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification

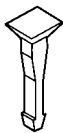
108-25022

Application Specification

114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon

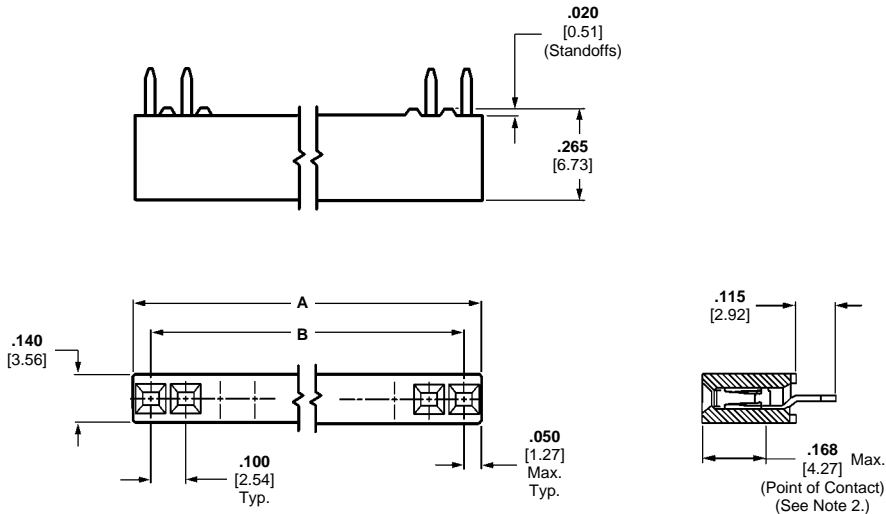
No. of Positions	Dimensions		Contact Plating/Part Numbers
	A	B	
3	.300 7.62	.200 5.08	3-87879-7
4	.400 10.16	.300 7.62	3-87879-6
5	.500 12.70	.400 10.16	3-87879-8
6	.600 15.24	.500 12.70	87879-3
7	.700 17.78	.600 15.24	87879-4
8	.800 20.32	.700 17.78	87879-1
9	.900 22.86	.800 20.32	87879-5
10	1.000 25.40	.900 22.86	87879-2
11	1.100 27.94	1.000 25.40	87879-6
12	1.200 30.48	1.100 27.94	87879-7
13	1.300 33.02	1.200 30.48	87879-8
14	1.400 35.56	1.300 33.02	87879-9
15	1.500 38.10	1.400 35.56	1-87879-0
16	1.600 40.64	1.500 38.10	1-87879-1
17	1.700 43.18	1.600 40.64	1-87879-2
18	1.800 45.72	1.700 43.18	1-87879-3
19	1.900 48.26	1.800 45.72	1-87879-4
20	2.000 50.80	1.900 48.26	1-87879-5
30	3.000 76.20	2.900 73.66	2-87879-5
40	4.000 101.60	3.900 99.06	3-87879-5

- Notes:**
1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension, and .062 for recommended board thickness.

For complete product information, order Catalog 1307819

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

**Closed Top Entry,
End Stackable, Low Profile
with Single Tine Contacts**



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Contact Plating/Part Numbers		
	A	B	Plating A		
3	.300	7.62	.200	5.08	535541-1
4	.400	10.16	.300	7.62	535541-2
5	.500	12.70	.400	10.16	535541-3
6	.600	15.24	.500	12.70	535541-4
7	.700	17.78	.600	15.24	535541-5
8	.800	20.32	.700	17.78	535541-6
9	.900	22.86	.800	20.32	535541-7
10	1.000	25.40	.900	22.86	535541-8
11	1.100	27.94	1.000	25.40	535541-9
12	1.200	30.48	1.100	27.94	1-535541-0
13	1.300	33.02	1.200	30.48	1-535541-1
14	1.400	35.56	1.300	33.02	1-535541-2
15	1.500	38.10	1.400	35.56	1-535541-3
16	1.600	40.64	1.500	38.10	1-535541-4
17	1.700	43.18	1.600	40.64	1-535541-5
18	1.800	45.72	1.700	43.18	1-535541-6
19	1.900	48.26	1.800	45.72	1-535541-7
20	2.000	50.80	1.900	48.26	1-535541-8
30	3.000	76.20	2.900	73.66	2-535541-8
40	4.000	101.60	3.900	99.06	3-535541-8

- Notes:**
1. Tyco Electronics recommends mating gold or duplex plated headers with select gold plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.

For complete product information, order Catalog 1307819

Mod IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Closed Top Entry,
End Stackable, Low Profile,
.100 x .100 [2.54 x 2.54]
Centerline, .100 [2.54] Tine
Spacing**

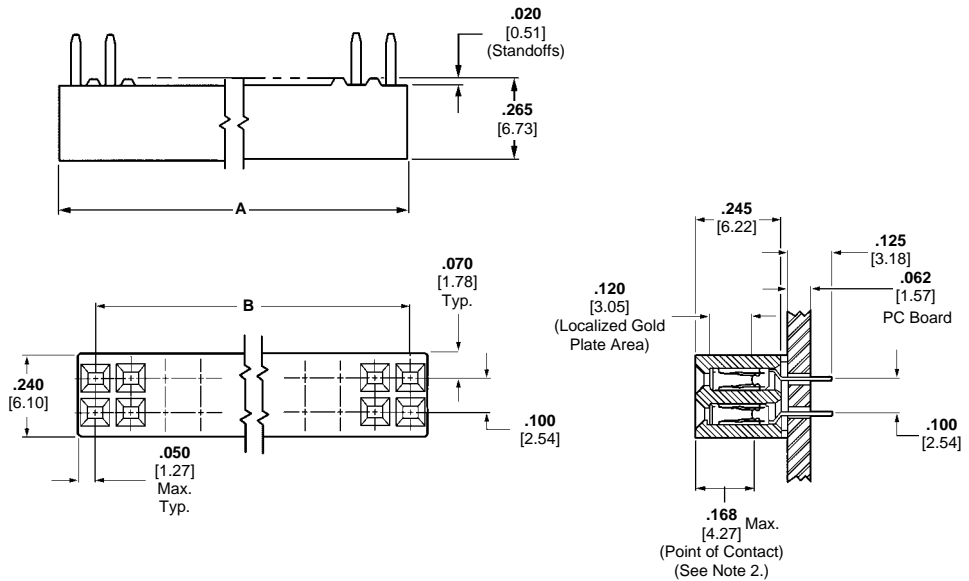


Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

No. of Positions	Dimensions		Contact Plating/Part Numbers	
	A	B	Plating A	
2	.100 2.54	—	534998-1	
4	.200 5.08	.100 2.54	534998-2	
6	.300 7.62	.200 5.08	534998-3	
8	.400 10.16	.300 7.62	534998-4	
10	.500 12.70	.400 10.16	534998-5	
12	.600 15.24	.500 12.70	534998-6	
14	.700 17.78	.600 15.24	534998-7	
16	.800 20.32	.700 17.78	534998-8	
18	.900 22.86	.800 20.32	534998-9	
20	1.000 25.40	.900 22.86	1-534998-0	
22	1.100 27.94	1.000 25.40	1-534998-1	
24	1.200 30.48	1.100 27.94	1-534998-2	
26	1.300 33.02	1.200 30.48	1-534998-3	
28	1.400 35.56	1.300 33.02	1-534998-4	
30	1.500 38.10	1.400 35.56	1-534998-5	
32	1.600 40.64	1.500 38.10	1-534998-6	
34	1.700 43.18	1.600 40.64	1-534998-7	
36	1.800 45.72	1.700 43.18	1-534998-8	
38	1.900 48.26	1.800 45.72	1-534998-9	
40	2.000 50.80	1.900 48.26	2-534998-0	

- Notes:**
1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.

For complete product information, order Catalog 1307819

Mod IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Bottom Entry, End Stackable, Low Profile, .100 x .100 [2.54 x 2.54] Centerline, .300 [7.62] Tine Spacing



Photo 98185-6

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

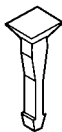
Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

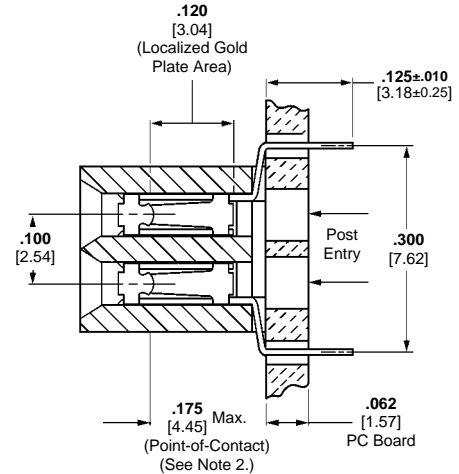
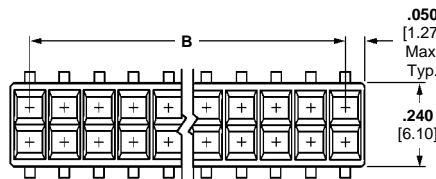
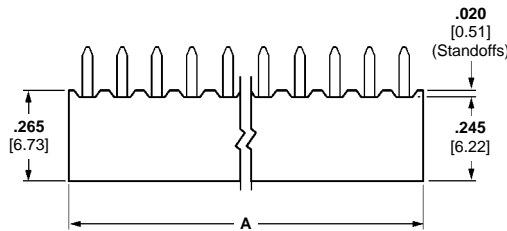
Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon



No. of Positions	Dimensions		Contact Plating/Part Numbers	
	A	B	Plating A	
2	.100 2.54	—	1-534267-3	
4	.200 5.08	.100 2.54	1-534267-7	
6	.300 7.62	.200 5.08	1-534267-4	
8	.400 10.16	.300 7.62	534267-5	
14	.700 17.78	.600 15.24	534267-1	
18	.900 22.86	.800 20.32	1-534267-0	
20	1.000 25.40	.900 22.86	534267-2	
24	1.200 30.48	1.100 27.94	534267-9	
30	1.500 38.10	1.400 35.56	1-534267-2	
36	1.800 45.72	1.700 43.18	1-534267-5	
40	2.000 50.80	1.900 48.26	534267-7	
48	2.400 60.96	2.300 58.42	1-534267-1	
50	2.500 63.50	2.400 60.96	1-534267-8	
60	3.000 76.20	2.900 73.66	534267-8	
76	3.800 96.52	3.700 93.98	1-534267-6	
80	4.000 101.60	3.900 99.06	534267-4	

- Notes:**
1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension, and .062 for recommended board thickness.

For complete product information, order Catalog 1307819

Mod. IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Closed Top Entry,
Low Profile, .100 x .100
[2.54 x 2.54] Centerline,
.150 [3.81] Tine Spacing**

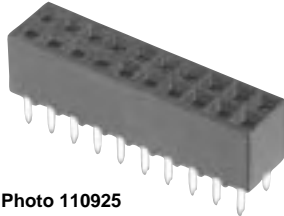


Photo 110925

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

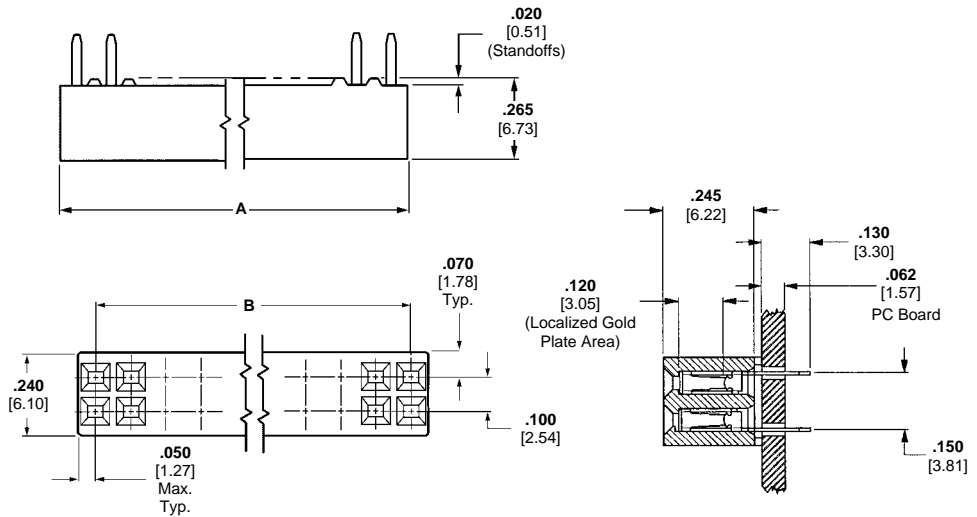
Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018



No. of Positions	Dimensions		Contact Plating/Part Numbers
	A	B	
2	.100 2.54	—	Plating A 535542-1
4	.200 5.08	.100 2.54	535542-2
6	.300 7.62	.200 5.08	535542-3
8	.400 10.16	.300 7.62	535542-4
10	.500 12.70	.400 10.16	535542-5
12	.600 15.24	.500 12.70	535542-6
14	.700 17.78	.600 15.24	535542-7
16	.800 20.32	.700 17.78	535542-8
18	.900 22.86	.800 20.32	535542-9
20	1.000 25.40	.900 22.86	1-535542-0
22	1.100 27.94	1.000 25.40	1-535542-1
24	1.200 30.48	1.100 27.94	1-535542-2
26	1.300 33.02	1.200 30.48	1-535542-3
28	1.400 35.56	1.300 33.02	1-535542-4
30	1.500 38.10	1.400 35.56	1-535542-5
32	1.600 40.64	1.500 38.10	1-535542-6
34	1.700 43.18	1.600 40.64	1-535542-7
36	1.800 45.72	1.700 43.18	1-535542-8
38	1.900 48.26	1.800 45.72	1-535542-9
40	2.000 50.80	1.900 48.26	2-535542-0
50	2.500 63.50	2.400 60.96	2-535542-5
60	3.000 76.20	2.900 73.66	3-535542-0

- Notes:**
1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.

For complete product information, order Catalog 1307819

Mod. IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Bottom Entry,
Low Profile, .100 x .100
[2.54 x 2.54] Centerline,
.150 [3.81] Tine Spacing**

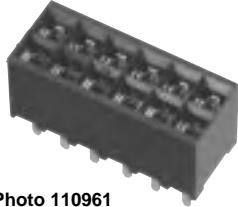
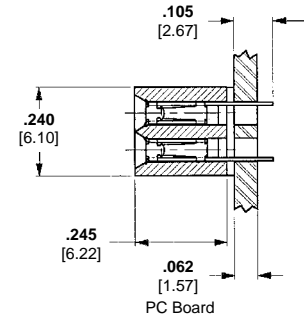
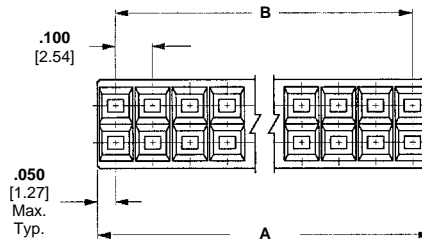
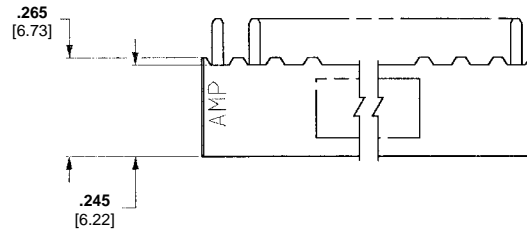


Photo 110961

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated
Contacts—Phosphor bronze, plated as follows:
Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—Refer to the Mating Post Selection Guide (page 2045)

Performance Characteristics—page 2088

Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.



No. of Positions	Dimensions		Contact Plating/Part Numbers	
	A	B	Plating A	
2	.100	2.54	147327-1	
4	.200	5.08	.100	2.54
6	.300	7.62	.200	5.08
8	.400	10.16	.300	7.62
14	.700	17.78	.600	15.24
18	.900	22.86	.800	20.32
20	1.000	25.40	.900	22.86
24	1.200	30.48	1.100	27.94
30	1.500	38.10	1.400	35.56
36	1.800	45.72	1.700	43.18
40	2.000	50.80	1.900	48.26
48	2.400	60.96	2.300	58.42
50	2.500	63.50	2.400	60.96
60	3.000	76.20	2.900	73.66
76	3.800	96.52	3.700	93.98
80	4.000	101.60	3.900	99.06

- Notes:** 1. Tyco Electronics recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension, and .062 for recommended board thickness.

For complete product information, order Catalog 1307819

Mod IV Surface-Mount Vertical Receptacle Assemblies, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- Surface Mount Leads
- Contact Material:
phosphor bronze
- High temperature, black thermoplastic housings, 94V-0 rated, capable of withstanding IR or vapor-phase reflow
- Gold/tin-lead duplex plating for reliable mating interconnection and solder interface
- Metallic hold downs provide retention in the PC board prior to and during the reflow process . . . and strain relief after soldering
- Hold downs provide for proper lead-to-pad registration
- Closed-entry receptacle housings provide lead-in ramp for positive mating
- Receptacle contacts employ dual cantilever beams and built-in anti-overstress for reliable connections
- Recognized under the Component Program of Underwriters Laboratories Inc.  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189

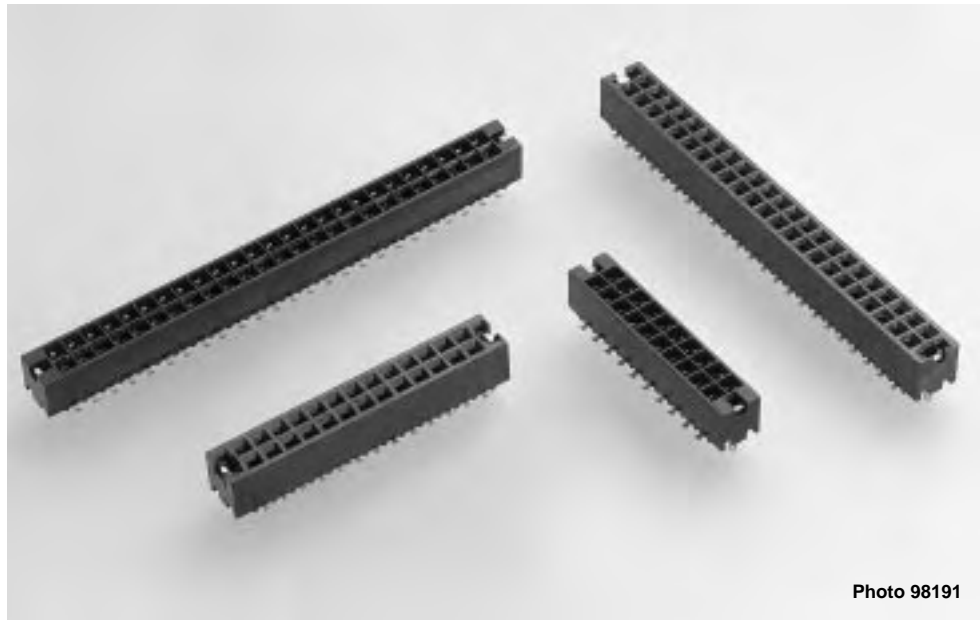


Photo 98191

The AMPMODU 0.025 [0.64] square interconnection system is an industry standard that has provided level III and IV through-hole interconnections to almost every industry and marketplace for years. As technology advances, so has the AMPMODU product line.

Surface mount vertical receptacle assemblies are available to meet your level II packaging needs as process technologies evolve from wave soldering to surface-mount reflow (infrared and vapor-phase) processes. AMPMODU surface-mount receptacle assemblies are offered in vertical top entry and vertical bottom entry configurations. These receptacles are double-row with a contact centerline spacing of .100 x .100 [2.54 x 2.54].

AMPMODU surface-mount vertical receptacle assemblies continue to provide the proven features and benefits of the through-hole counterparts in the AMPMODU product family. Closed-entry style housing design on the vertical top entry product provides a lead-in ramp for positive mating of contacts, virtually eliminating the possibility of stubbing. The dual-beam receptacle contact design, coupled with gold plating in the contact area, provides a reliable interface. The contacts also provide built-in anti-overstress protection. Tin-lead plating on the solder tails also enhances solderability.

The incorporation of compliant metallic hold downs on receptacle assemblies offers multiple benefits. The hold downs provide for proper lead-to-pad registration and provide retention to the PC

board prior to and during processing. Used with a plated through-hole, the hold downs are soldered during the reflow process and serve as a strain relief for the solder joints during mating/unmating.

The design of the hold downs results in an excellent ratio of insertion/extraction forces (into the PC board); 20 lb. [89 N] maximum insertion force per pair and 10 lb. [44.5 N] minimum extraction force per pair (unsoldered). No tools are required for insertion.

For complete product information, order Catalog 1307819

**Mod IV Surface-Mount Vertical Receptacle Assemblies,
.100 x .100 [2.54 x 2.54] Centerline**

**Performance
Specifications****Voltage Rating:** 250 VAC**Current Rating:** 3.0 amperes (max.) for single contact;
2.0 amperes (max.) per contact when connector is fully energized**Operating Temperature Range (Receptacle Assemblies):** -65°C to +125°C**Operating Temperature Range (Headers):** -65°C to +105°C**Dielectric Withstanding Voltage:** 750 VAC**Termination Resistance:** 12 milliohms (max.)**Insulation Resistance:** 5000 megohms (min.)**Mating Force (Receptacle Assemblies):** 9.0 oz. [2.50N] (max.) per contact**Unmating Force (Receptacle Assemblies):** 1.5 oz. [0.42N] (min.) per contact**Durability:** Tested to 200 cycles (min.) for .000030 [0.00076] gold plated contacts

For complete product information, order Catalog 1307819

Mod IV Surface-Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Vertical Mount, Bottom Entry with Holddowns



Photo 98185-2

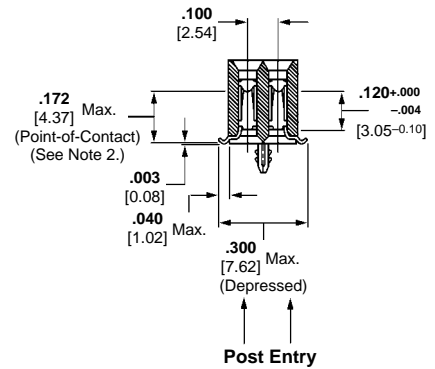
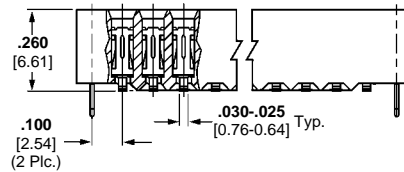
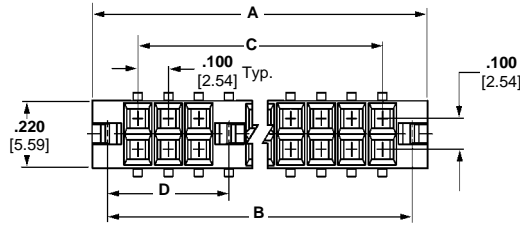
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Contacts—Phosphor bronze, plated as follows:

Holddowns—Copper alloy, plated .000150 [0.00381] minimum tin-lead over .000050 [0.00127] nickel

Plating A—.000030 Gold contact area, .000150 tin-lead on solder area all over .000050 nickel



Related Product Data:

Mateable Headers—Refer to Mating Post Selection Guide (page 2045)

Performance Specifications—page 2101

Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

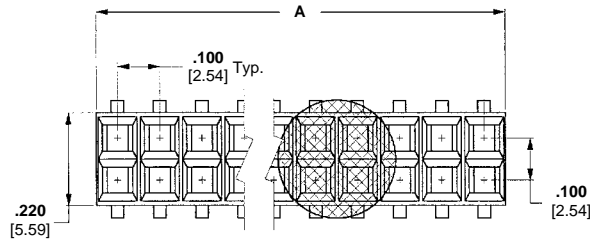
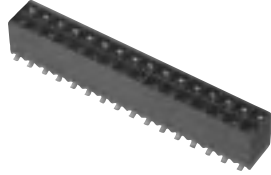
No. of Positions	Dimensions							Contact Plating/Part Numbers	
	A	B	C	D	Plating A	Part Numbers			
10	.700	17.78	.600	15.24	.400	10.16	See Note 1	535959-1	
12	.800	20.32	.700	17.78	.500	12.70	See Note 1	1-535959-2	
16	1.000	25.40	.900	22.86	.700	17.78	See Note 1	535959-9	
20	1.200	30.48	1.100	27.94	.900	22.86	See Note 1	535959-3	
24	1.400	35.56	1.300	33.02	1.100	27.94	See Note 1	1-535959-0	
26	1.500	38.10	1.400	35.56	1.200	30.48	See Note 1	535959-2	
30	1.700	43.18	1.600	40.64	1.400	35.56	See Note 1	535959-4	
40	2.200	55.88	2.100	53.34	1.900	48.26	See Note 1	535959-5	
50	2.700	68.58	2.600	66.04	2.400	60.96	See Note 1	535959-6	
60	3.200	81.28	3.100	78.74	2.900	73.66	See Note 1	535959-7	
64	3.400	86.36	3.300	83.82	3.100	78.74	See Note 1	1-535959-1	
80	4.300	109.22	4.200	106.68	4.000	101.60	2.100	53.34	535959-8

- Notes:**
- No center holddown.
 - To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension, and .062 for recommended board thickness.
 - .100±.003 [2.54±0.08] diameter holes required for 535605 series parts.

For complete product information, order Catalog 1307819

Mod IV Surface-Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Vertical Mount,
Bottom Entry
with No Holddowns,
End to End Stackable**

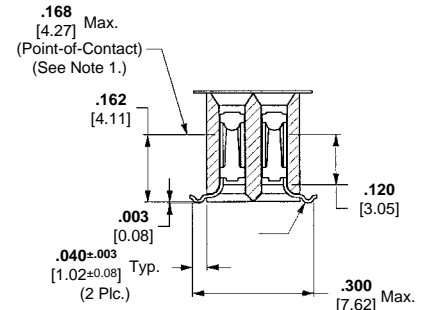
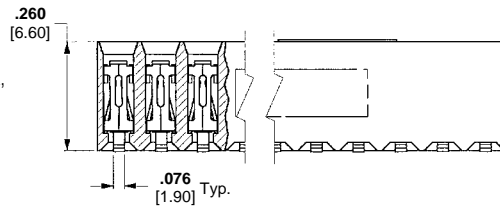


Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Contacts—Phosphor bronze, plated as follows:

Plating A—.000030 Gold contact area, .000150 tin-lead on solder area all over .000050 nickel



Related Product Data:

Mateable Headers—Refer to Mating Post Selection Guide (pages 2045)

Performance Specifications—page 2101

Technical Documents: page 2160

Product Specification
108-25022

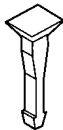
Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Contact Plating/Part Numbers
	A	B	
10	.500 12.70	.400 10.16	Plating A 147109-3
12	.600 15.24	.500 12.70	147109-4
16	.800 20.32	.700 17.78	147109-6
20	1.000 25.40	.900 22.86	147109-8
24	1.200 30.48	1.100 27.94	1-147109-0
26	1.300 33.02	1.200 30.48	1-147109-1
30	1.500 38.10	1.400 35.56	1-147109-3
40	2.000 50.80	1.900 48.26	1-147109-8
50	2.500 63.50	2.400 60.96	2-147109-3
60	3.000 76.20	2.900 73.66	2-147109-8
64	3.200 81.28	3.100 78.74	3-147109-0
80	4.000 101.60	3.900 99.06	3-147109-8

Notes: 1. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension, and .062 for recommended board thickness.
2. Tape and Reel Packaging.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon

For complete product information, order Catalog 1307819

Mod IV Surface-Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centers

Vertical Mount, Closed Top Entry with Holddowns



Photo 98185-1

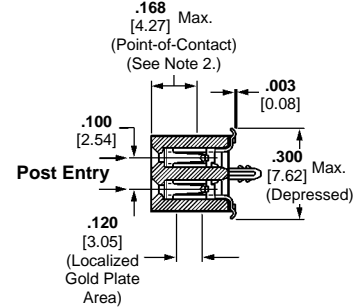
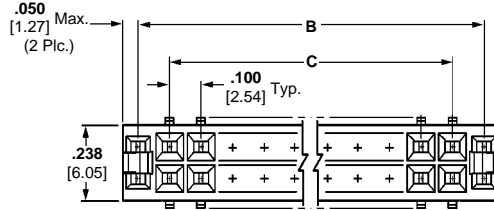
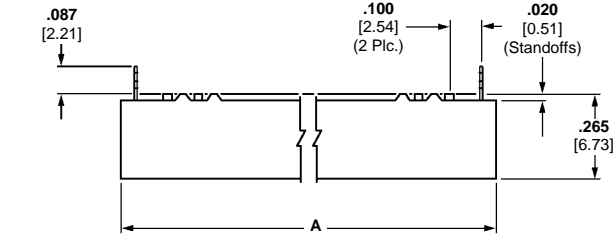
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

Contacts—Phosphor bronze, plated as follows:

Plating A—.000030 Gold contact area, .000150 tin-lead on solder area all over .000050 nickel

Holddowns—Copper alloy, plated .000150 [0.00381] minimum tin-lead over .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—Refer to Mating Post Selection Guide (page 2045)

Performance Specifications—page 2101

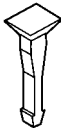
Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon

No. of Positions	Dimensions						Contact Plating/Part Numbers
	A	B	C	D	Plating A		
10	.700 17.78	.600 15.24	.400 10.16	See Note 1	147102-5		
14	.900 22.86	.800 20.32	.600 15.24	See Note 1	147102-7		
20	1.200 30.48	1.100 27.94	.900 22.86	See Note 1	1-147102-0		
22	1.300 33.02	1.200 30.48	1.000 25.40	See Note 1	1-147102-1		
26	1.500 38.10	1.400 35.56	1.200 30.48	See Note 1	1-147102-3		
30	1.700 43.18	1.600 40.64	1.400 35.56	See Note 1	1-147102-5		
34	1.900 48.26	1.800 45.72	1.600 40.64	See Note 1	1-147102-7		
36	2.000 50.08	1.900 48.26	1.700 43.18	See Note 1	1-147102-8		
40	2.200 55.88	2.100 53.34	1.900 48.26	See Note 1	2-147102-0		
46	2.500 63.50	2.400 60.96	2.200 55.88	See Note 1	2-147102-3		
50	2.700 68.58	2.600 66.04	2.400 60.96	See Note 1	2-147102-5		
62	3.300 83.82	3.200 81.28	3.000 76.20	See Note 1	3-147102-1		
64	3.400 86.36	3.300 83.82	3.100 78.74	See Note 1	3-147102-2		
66	3.500 88.90	3.400 86.36	3.200 81.28	See Note 1	3-147102-3		
70	3.700 95.98	3.600 91.44	3.400 86.36	See Note 1	3-147102-5		
80	4.200 106.68	4.100 104.14	3.900 99.06	2.100 53.34	4-147102-0		

Notes: 1. No center holddown.
2. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.

For complete product information, order Catalog 1307819

Mod IV Surface-Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Vertical Mount,
Top Entry
with No Holddowns,
End to End Stackable**

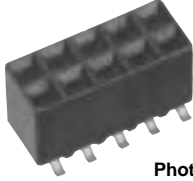
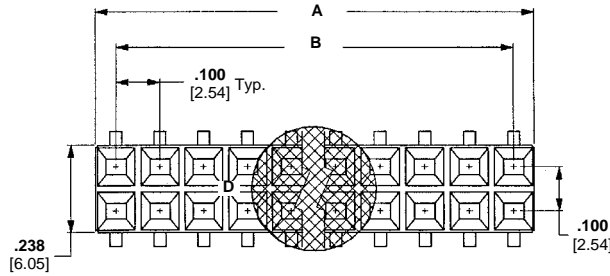


Photo 110962



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, high temperature compatible

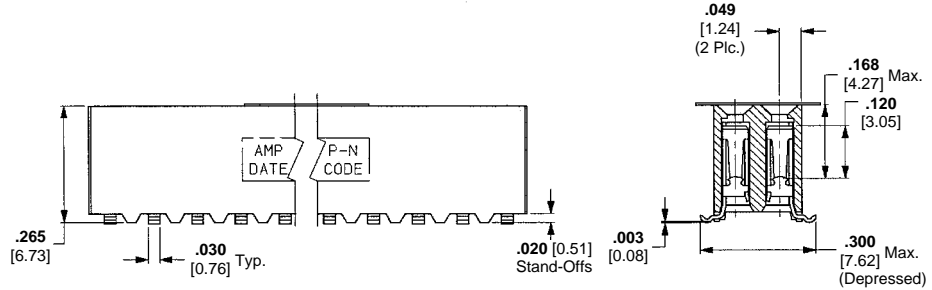
Contacts—Phosphor bronze, plated as follows:

Plating A—.000030 Gold contact area, .000150 tin-lead on solder area all over .000050 nickel

Related Product Data:

Mateable Headers—Refer to Mating Post Selection Guide (page 2045)

Performance Specifications—page 2101



Technical Documents: page 2160

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Contact Plating/Part Numbers
	A	B	Plating A
10	.495 12.57	.400 10.16	147105-5
14	.695 17.65	.600 15.24	147105-7
20	.995 25.27	.900 22.86	1-147105-0
22	1.095 27.81	1.000 25.40	1-147105-1
26	1.295 32.89	1.200 30.48	1-147105-3
30	1.495 37.97	1.400 35.56	1-147105-5
34	1.695 43.05	1.600 40.64	1-147105-7
36	1.795 45.59	1.700 43.18	1-147105-8
40	1.995 50.67	1.900 48.26	2-147105-0
46	2.295 58.29	2.200 55.88	2-147105-3
50	2.495 63.37	2.400 60.96	2-147105-5
62	3.095 78.61	3.000 76.20	3-147105-1
64	3.195 81.15	3.100 78.74	3-147105-2
66	3.295 83.69	3.200 81.28	3-147105-3
70	3.495 88.77	3.400 86.36	3-147105-5
80	3.995 101.47	3.900 99.06	4-147105-0

- Notes:** 1. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension.
2. Tape and Reel Packaging.

For complete product information, order Catalog 1307819

Product Facts

- Two-Piece reliability
- Two- and three-row systems available
- Short signal path for VLSI applications
- Receptacles employ dual cantilever beams and built-in anti-overstress to provide reliable connections
- Built-in guides provide alignment before contact engagement
- Closed entry receptacle housings provide lead-in ramp for positive mating of contacts
- Shrouded headers provide full pin protection
- Polarized headers
- Vertical headers available with ACTION PIN posts or .025 [0.64] square solder posts
- Repairable ACTION PIN posts
- Simple seating tooling for headers with ACTION PIN posts
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 

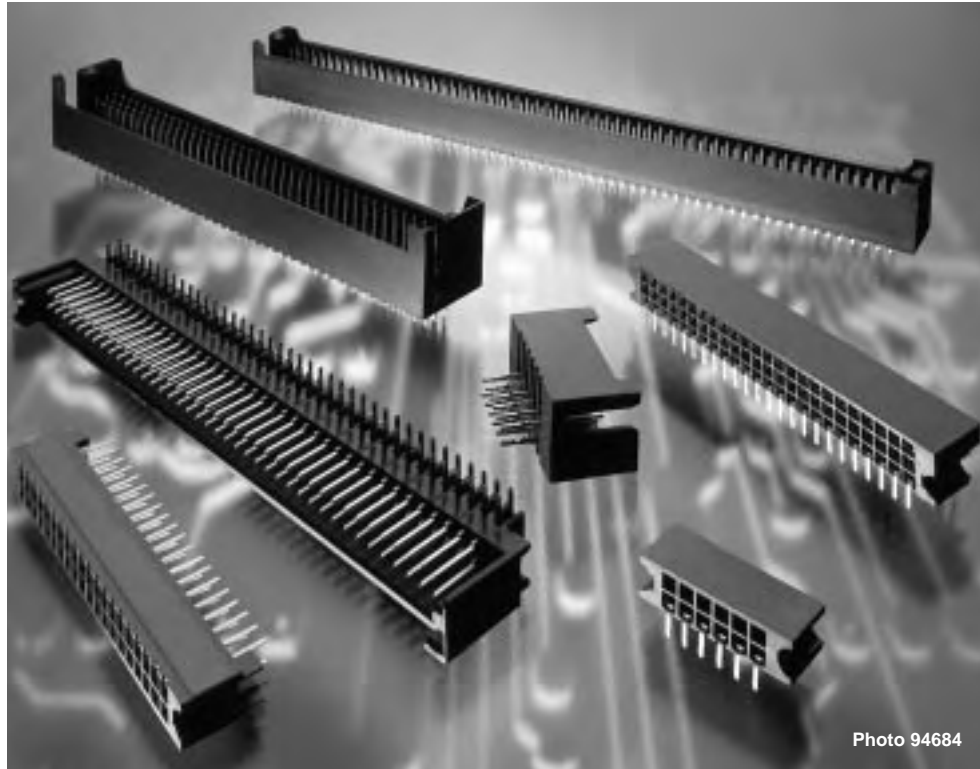


Photo 94684

AMPMODU Two-Piece Printed Circuit Board connectors are designed to reliably and economically satisfy the packaging and interconnection requirements of today's sophisticated electronics.

The double row system is produced in 10 thru 200 positions in the vertical headers and horizontal receptacles, and 10 thru 160 positions in the right angle headers and vertical receptacles.

The AMPMODU three-row connector system is produced in 30 through 300 positions (straight post headers and mating horizontal receptacles).

Both two- and three-row vertical headers are available with press-fit ACTION PIN posts or standard .025 [0.64] square solder posts. There is a simple seating tool for headers with ACTION PIN posts.

A board retention feature is offered in the two-row horizontal receptacles, two-row right angle headers and two- and three-row vertical headers. Built-in guides promote accurate header and receptacle alignment before contact engagement.

Closed entry receptacle housings provide a lead-in ramp for positive mating of contacts.

Performance Specifications:

Current Rating — 3 amperes max. for single contact; 2 amperes max. per contact for fully energized connector

Voltage Rating — 250 VAC

Dielectric Rating — 750 VAC rms between contacts for one minute

Termination Resistance — 12 milliohms max. at 100 milliamperes test current, and 50 millivolts open circuit voltage

Insulation Resistance — 1000 megohms after temperature/humidity cycling

Temperature Rating — Headers; -65°C to +105°C (black thermoplastic housings) Receptacle Assemblies; -65°C to +125°C (brown thermoplastic housings)

Durability (Tested to) — 200 cycles for .000030 [0.00076] gold plating; 75 cycles for .000015 [0.00038] gold plating

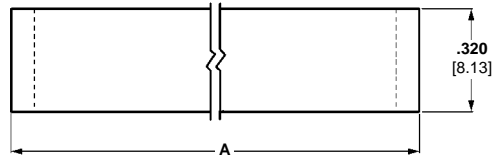
Mating Force — 8 oz. [2.22N] maximum per contact

Unmating Force — .75 oz. [0.2N] minimum per contact during third mating cycle

For complete product information, order Catalog 1307819

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

Horizontal Mount (with Guide Pin Slots and Standoffs)



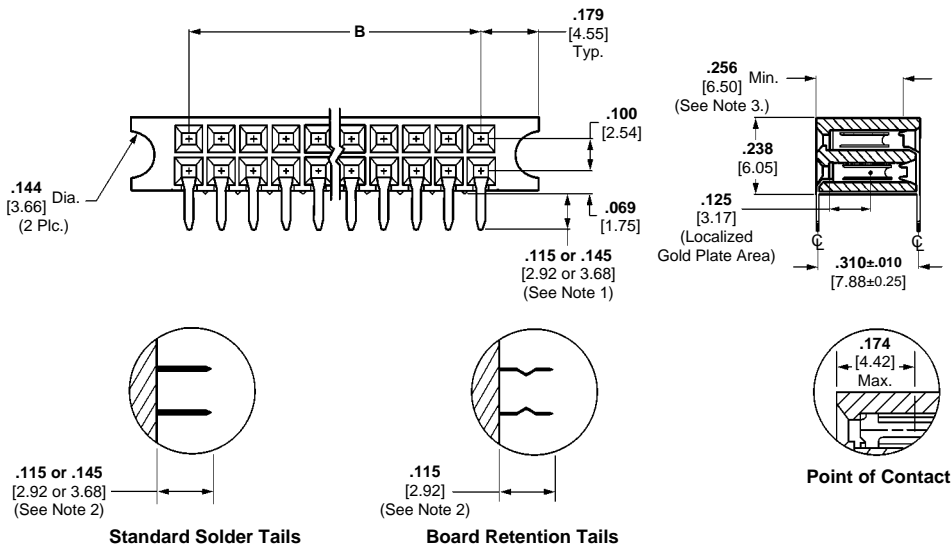
Material and Finish:

Housing—Brown thermoplastic, 94V-0 rated, high temperature compatible

Contacts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—pages 2110-2112

Performance Specifications—page 2106

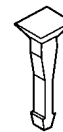
Technical Documents: page 2160

Product Specification
108-25017

Application Specification
114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult Tyco Electronics.

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material: Natural color nylon

No. of Positions	Dimensions		Receptacle Assembly Part Numbers with .115 [2.92] Solder Tail Lengths			
	A	B	Standard Solder Tails		Board Retention Tails	
			Plating A	Plating B	Plating A	Plating B
12	.858 21.79	.500 12.70	532956-1	532955-1	534204-2	—
14	.958 24.33	.600 15.24	—	2-532955-5	—	—
16	1.058 26.87	.700 17.78	532956-2	—	1-534204-0	1-534975-5
20	1.258 31.95	.900 22.86	532956-3	532955-3	534204-9	—
24	1.458 37.03	1.100 27.94	532956-4	532955-4	1-534204-1	534975-7
30	1.758 44.65	1.400 35.56	532956-5	532955-5	534204-4	—
36	2.058 52.27	1.700 43.18	532956-6	532955-6	534204-3	—

- Notes:** 1. .115 [2.92] tail length is for use with .062 [1.57] PC boards; .145 [3.68] tail length is for use with .093 [2.36] PC boards.
2. Receptacle assemblies with low force contacts are available, consult Tyco Electronics.
3. .256 [6.50] minimum positive pin stop to prevent shorting between rows.

For complete product information, order Catalog 1307819

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

No. of Pos.	Dimensions				Receptacle Assembly Part Nos. with .115 [2.92] Solder Tail Lengths			
	A		B		Standard Solder Tails		Board Retention Tails	
					Plating A	Plating B	Plating A	Plating B
40	2.258	57.35	1.900	48.26	532956-7	532955-7	1-534204-2	—
50	2.758	70.05	2.400	60.96	532956-8	532955-8	534204-1	1-534975-1
60	3.258	82.75	2.900	73.66	532956-9	—	534204-5	—
70	3.758	95.45	3.400	86.36	—	1-532955-0	1-534204-3	—
72	3.858	97.99	3.500	88.90	—	—	1-534204-4	—
80	4.258	108.15	3.900	99.06	1-532956-2	—	534204-8	—
100	5.258	133.55	4.900	124.46	1-532956-6	—	534204-6	—
120	6.258	158.95	5.900	149.86	1-532956-8	1-532955-8	—	—
130	6.758	171.65	6.400	162.56	2-532956-0	—	—	—

Notes: 1. .115 [2.92] tail length is for use with .062 [1.57] PC boards; .145 [3.68] tail length is for use with .093 [2.36] PC boards.

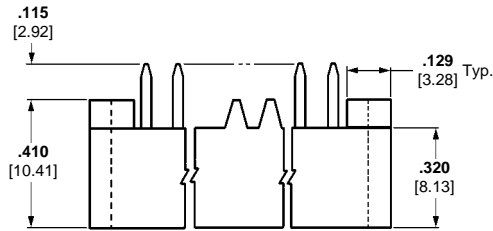
2. Receptacle assemblies with low force contacts are available, consult Tyco Electronics.

3. .256 [6.50] minimum positive pin stop to prevent shorting between rows.

For complete product information, order Catalog 1307819

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

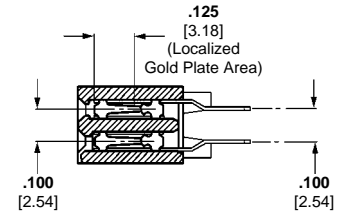
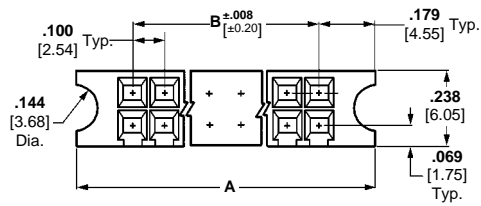
Vertical Mount (with Guide Pin Slots and Standoffs)



Material and Finish:

Housing—Brown thermoplastic, 94V-0 rated, high temperature compatible

Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] bright tin-lead on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Mateable Headers—pages 2110-2112

Performance Specifications—page 2106

Technical Documents: page 2160

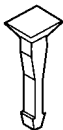
Product Specification
108-25017

Application Specification
114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Receptacle Assembly Part Numbers
	A	B	
50	2.758 70.05	2.400 60.96	534972-3

Keying Plug



Part Number 86286-1
(Plugs into receptacle contact)

Material:

Natural color nylon

For complete product information, order Catalog 1307819

Headers, Straight Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Solder Posts and ACTION PIN Posts (with Pin Protection and Guide Pins)



Material and Finish:

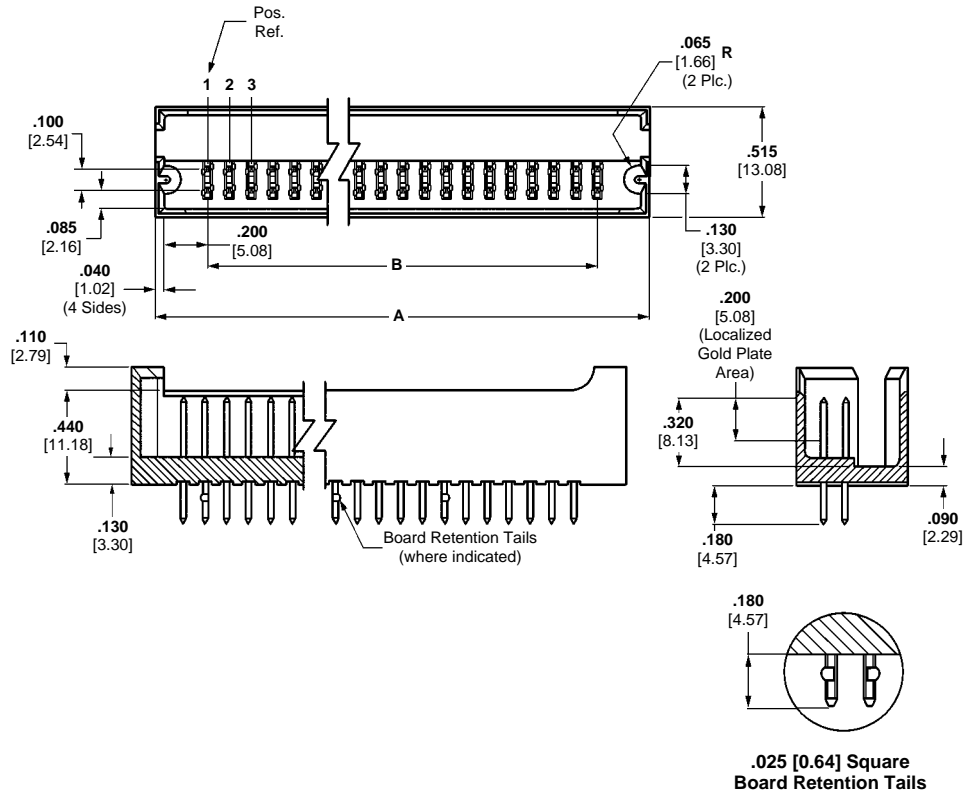
Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Plating C—Selectively plated .000030 [0.00076] gold on contact area and .000015 [0.00038] gold on termination end, with gold flash over .000050 [0.00127] nickel on entire post



Related Product Data:

Mateable Receptacles—pages 2107-2109

Performance Specifications—page 2106

Application Tooling—pages 2086

Technical Documents: page 2160

Product Specification 108-25016, 108-25017

Application Specification 114-9009

Additional header sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Header Part Numbers with .180 [4.57] Tail Length					
	A	B	Standard Solder Tails		Board Retention Tails			
			Plating A	Plating B	Plating A	Plating B		
12	.980	24.89	.500	12.70	102692-1	102567-1	—	534257-5
14	1.080	27.43	.600	15.24	—	2-102567-3	—	—
16	1.180	29.97	.700	17.78	1-102692-5	—	—	—
20	1.380	35.05	.900	22.86	—	1-102567-1	534978-3	—
24	1.580	40.13	1.100	27.94	102692-2	102567-2	534978-4	—
30	1.880	47.75	1.400	35.56	1-102692-7	1-102567-3	534978-5	—
36	2.180	55.37	1.700	43.18	102692-3	102567-3	534978-6	—
40	2.380	60.45	1.900	48.26	1-102692-3	1-102567-2	534978-7	—
50	2.880	73.15	2.400	60.96	—	102567-6	534978-8	—
60	3.380	85.85	2.900	73.66	102692-5	102567-4	534978-9	—
70	3.880	98.55	3.400	86.36	—	—	1-534978-5	—
80	4.380	111.25	3.900	99.06	—	102567-8	1-534978-1	—

Note: Headers with make first/break last posts can be made available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Headers, Straight Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Solder Posts and ACTION PIN Posts (with Pin Protection and Guide Pins)



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Receptacles—pages 2107-2109

Performance Specifications—page 2106

Application Tooling—pages 2086

Technical Documents: page 2160

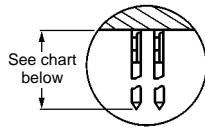
Product Specification
108-25016, 108-25017

Application Specification
114-9009

Additional header sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

No. of Positions	Dimensions		Header Part Numbers with .180 [4.57] Tail Length	
	A	B	Standard Solder Tails	Board Retention Tails
			Plating A	Plating A
100	5.380 136.65	4.900 124.46	102692-8	—
110	5.880 149.35	5.400 137.16	—	1-534978-2

Note: Headers with make first/break last posts can be made available, consult Tyco Electronics.



.025 [0.64] Square ACTION PIN Tails

ACTION PIN Post Replacement Part Nos.

.250 [6.35] Tail Length
Plating A 102824-9
Plating B 1-102824-0

.480 [12.19] Tail Length

Plating A 102824-6
Plating B 102824-2
Plating C 102824-3

.680 [17.27] Tail Length
Plating C 102824-7

No. of Positions	Dimensions		Header Part Numbers with ACTION PIN Posts	
	A	B	.250 [6.35] Tail Length	
			Plating A	
12	.980 24.89	.500 12.70	102690-1	
60	3.380 85.85	2.900 73.66	102690-5	
80	4.380 111.25	3.900 99.06	102690-6	
100	5.380 136.65	4.900 124.46	102690-8	

- Notes:**
- Other header sizes can be made available upon request.
 - Headers with ACTION PIN posts are for use with .093 [2.36] nominal or thicker PC boards.
 - Application tooling for installing headers with ACTION PIN posts is shown on pages 110 and 111.
 - Headers with .250 [6.35] tail length can be made available with make first/break last contacts, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Headers, Right-Angle Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Card Extender (with Pin Protection and Guide Pins)



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] bright tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Receptacles—
pages 2107-2109

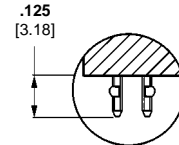
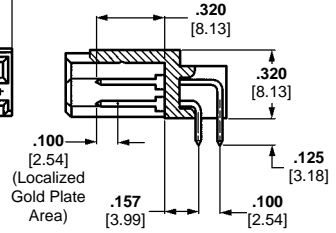
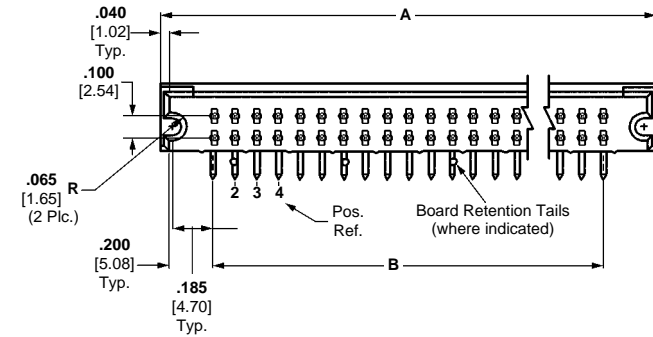
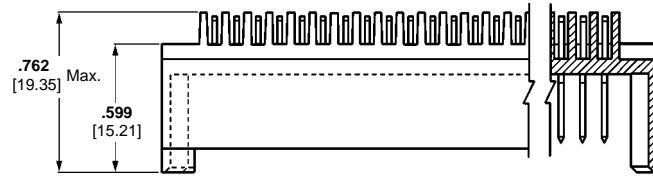
Performance Specifications—
page 2106

Technical Documents: page 2160

Product Specification
108-25017

Application Specification
114-9009

Additional header sizes are available; minimum order quantities may apply. Consult Tyco Electronics.



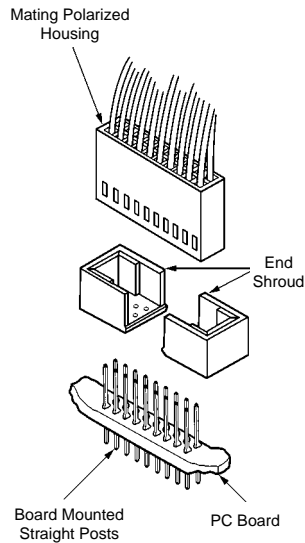
.025 [0.64] Square Board Retention Tails

No. of Positions	Dimensions		Header Part Numbers with .125 [3.18] Tail Length				
	A	B	Standard Solder Tails		Board Retention Tails		
			Plating A	Plating B	Plating A		
16	1.180	29.97	.700	17.78	1-102802-4	—	534245-4
20	1.380	35.05	.900	22.86	1-102802-5	1-102589-2	—
24	1.580	40.13	1.100	27.94	1-102802-3	102589-6	—
30	1.880	47.75	1.400	35.56	1-102802-6	—	534245-2
40	2.380	60.45	1.900	48.26	102802-8	1-102589-3	—
50	2.880	73.15	2.400	60.96	102802-4	102589-5	—

Note: Headers with make first/break last posts can be made available, consult Tyco Electronics.

For complete product information, order Catalog 1307819

Accessories: End Shrouds for Machine-Applied Posts



Typical Assembly

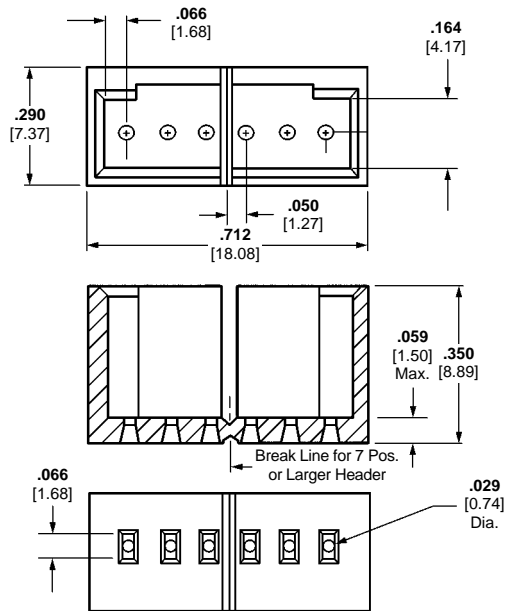
Technical Documents: page 2160

Single-Row, .100 [2.54] Centers

Part Number 102338-1

Material:

Black thermoplastic, flame retardant

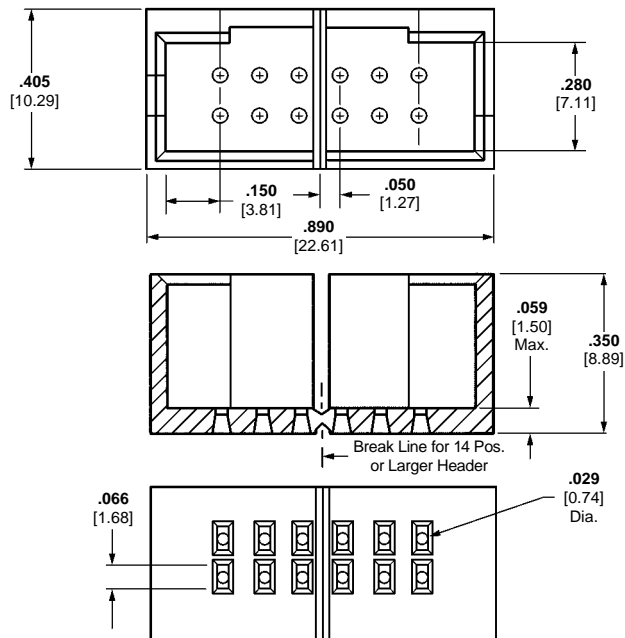


Double-Row, .100 x .100 [2.54 x 2.54] Centers

Part Number 102114-1

Material:

Black glass-filled polyester



For complete product information, order Catalog 1307819

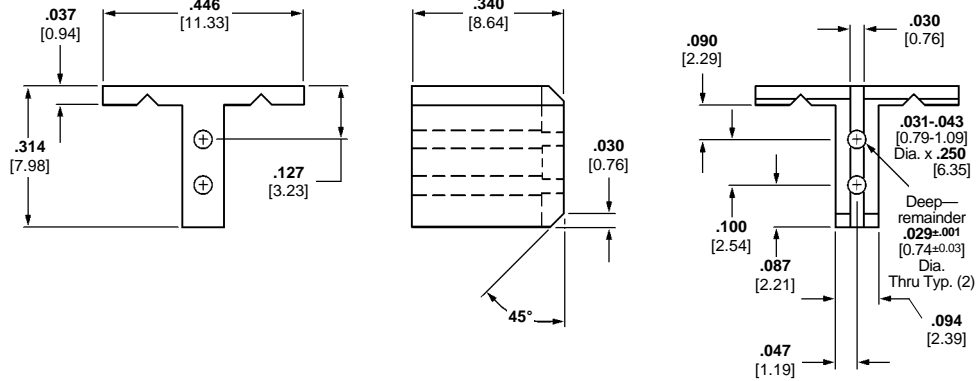
Accessories: Barrier Insert, Part Number 87743-1

Material:

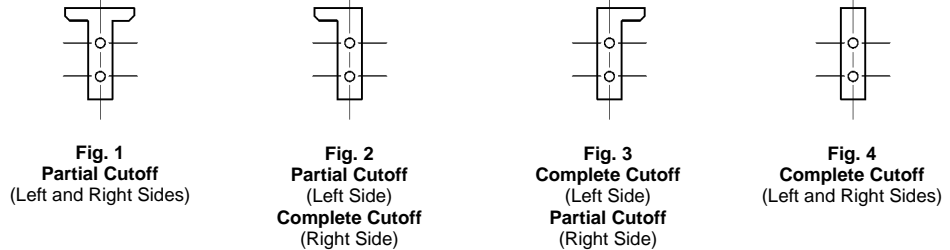
Black polyester

The barrier insert can be used on double row headers (.100 x .100 [2.54 x 2.54] centers), including shrouded versions—3 and 4 sides, as well as unshrouded straight post headers. With one barrier insert several configurations can be obtained, providing headers with capabilities of accepting various combinations of polarized and non-polarized AMPMODU connectors.

For unshrouded headers, the barrier insert is used to establish polarization and to compartmentalize the header. For shrouded headers, the barrier insert is used to compartmentalize the header, while maintaining polarization. The barrier insert itself is notched to facilitate cutting off the ends with a simple tool such as tin snips or scissors to achieve the desired configuration.

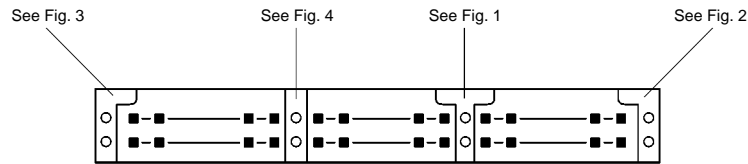


Barrier Insert Cutoffs



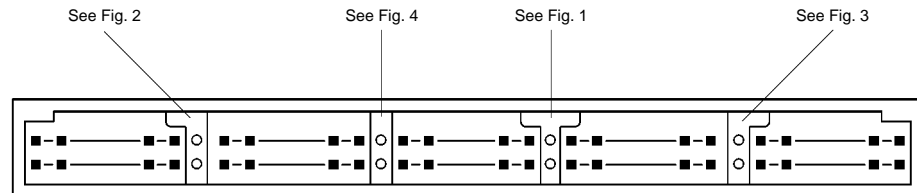
Typical Barrier Insert Applications

For Unshrouded Double-Row, Straight Post Headers, .100 x .100 [2.54 x 2.54] Centers



Note: All configurations of barrier inserts compartmentalize headers and maintain polarization, except bar (Fig. 4) configuration, which is used primarily for compartmentalizing headers.

For Shrouded Double-Row, 3 and 4 Sided Headers, .100 x .100 [2.54 x 2.54] Centers



Note: Right-angle (Figs. 2 and 3) and "T" (Fig. 1) configurations of barrier insert establish polarization; bar (Fig. 4) configuration of barrier insert compartmentalizes header.

For complete product information, order Catalog 1307819

Accessories: Snap-In Polarizer for Low Profile Headers

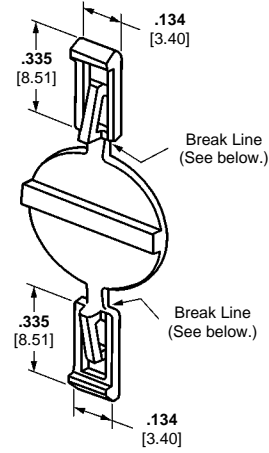
Material:

Black thermoplastic, flame retardant

Part Numbers

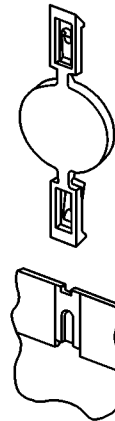
499991-2 (Packaged 50 per bag)

499991-3 (Packaged 1000 per bag)

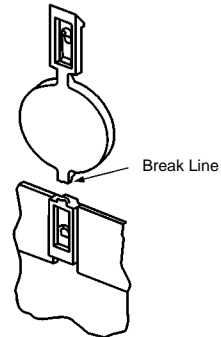


The snap-in polarizer provides military polarization for low profile headers. Installation of the polarizer is as follows:

Orient the polarizer so that the polarizer latch is on the same side as the inner wall (post side) of the header housing.



Slide the polarizer over the polarizing slot of the housing until the latch engages the hole. Snap off the tab at the break line next to the housing. Using the remaining polarizer, repeat the process for the other housing location.





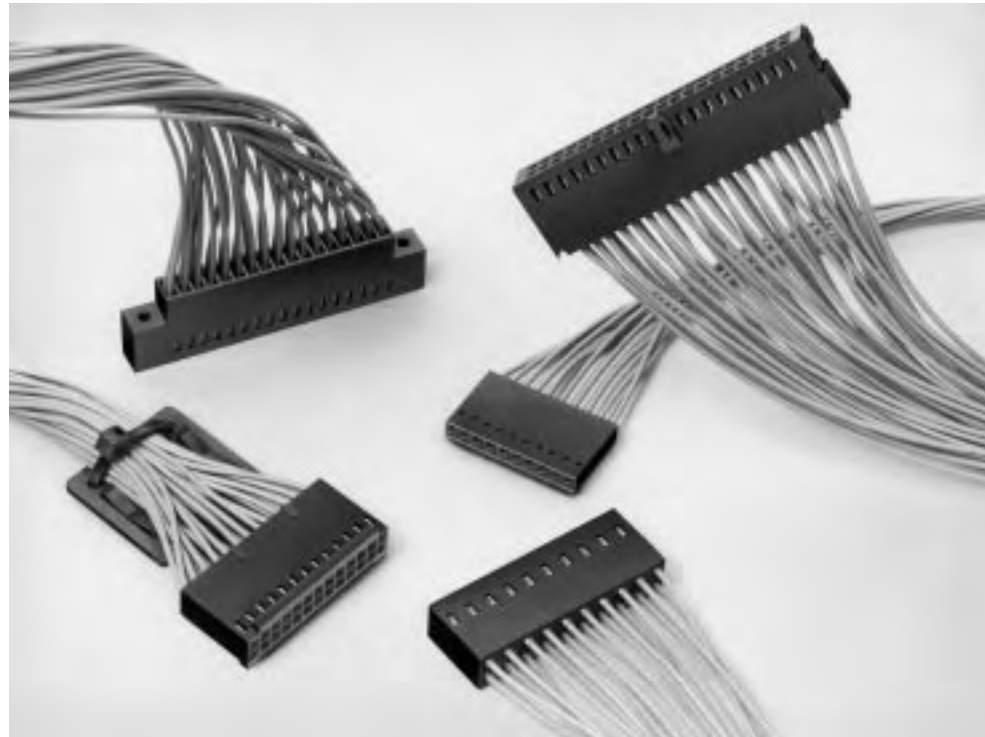
Note: For Post Shunts, contact Tyco Electronics.

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Contacts and Housings

Product Facts

- Terminates 32-20 AWG [0.03-0.6mm²] discrete wire
- Contacts have insulation support
- Choice of three contact mating pressures
- Available in a variety of gold and tin platings
- Receptacles mate with .025 [0.64] square or round posts
- Dual cantilever contact beam with built-in anti-overstress feature for reliable matings
- Housings accept a variety of receptacle and pin contacts
- Housing sizes range up to 100 positions
- Housing configurations include single- and double-rows on .100 [2.54] centerlines
- Housing options include detent latching, polarization and bonded strain relief/pull tabs
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Performance Characteristics:

Contact Current Rating—3 amperes

Termination Resistance:

12 milliohms (max.)—Beryllium copper contacts

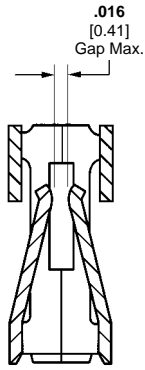
20 milliohms (max.)—Copper-tin-phosphor bronze contacts

Durability—Ref. AMP Product Specification 108-25020

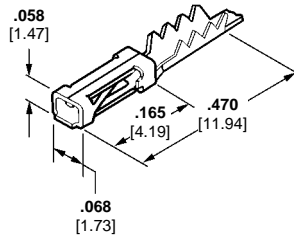
For complete product information, order Catalog 1307819

Mod IV Pin and Receptacle Contacts

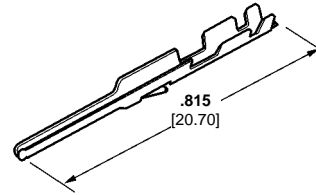
Crimp Snap-In (No-strip) Receptacles and Crimp Snap-In Pins with Insulation Support (Standard Pressure)



Standard Pressure Configuration



No-Strip Receptacle



Pin with Insulation Support

Crimp Snap-In (No-strip) Receptacles

Ins. Dia. Range	Finish	Part Numbers		Heavy Duty Miniature Applicator No. for AMP-O-LECTRIC Machine*	Hand Tool Part Number
		Strip Form	Loose Piece		
.040-.055 1.02-1.40	Plating A	—	102348-2	567307-2	90381-1
	Plating C	87107-6	102348-3		

Crimp Snap-In Pins with Insulation Support

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Finish	Part Numbers		Heavy Duty Miniature Applicator No. for AMP-O-LECTRIC Machine*	Hand Tool Part Number	
			Strip Form	Loose Piece		Premium	Commercial
26-22 0.12-0.4	.061 1.55	Plating A	—	102107-2	466812-2	90418-1	58641-1†
		Plating B	102095-2	102107-1			
		Plating C	102095-4	102107-3			

*For use with Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the Model "G" machines (shown on page 261), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

†PRO-CRIMPER II hand tool frame with die set assembly.
Die Set Part Number 58641-2

Material and Finish:

Beryllium copper or phosphor bronze (see charts), plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating C—.000100-.000200 [0.00254-0.00508] bright tin-lead over .000030 [0.00076] nickel on entire contact

Related Product Data:

Housings Used With—
pages 2120-2125

Performance Characteristics—
page 2117

Application Tooling—
page 2159

Technical Documents: pages 2160, 2161

Product Specification
108-25007, 208-25019, 108-25020, 108-25021

Application Specification
114-25003, 114-25016

Additional header sizes are available; minimum order quantities may apply. Consult Tyco Electronics.

For complete product information, order Catalog 1307819

Mod IV Receptacle Contacts

Crimp Snap-In Receptacles with Insulation Support (Standard, Intermediate and High Pressure)

Material and Finish:

Beryllium copper, phosphor bronze or copper-tin-phosphor bronze (see charts, page 139), plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—Selectively plated .000075 [0.00191] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating D—Selectively plated .000050 [0.00127] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating E—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating F—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating G—.000100-.000200 [0.00254-0.00508] bright tin-lead over .000030 [0.00076] nickel on entire contact

Related Product Data:

Housings Used With—
pages 2120-2125

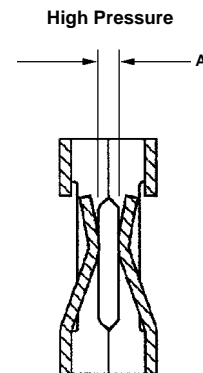
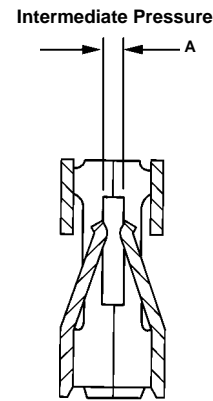
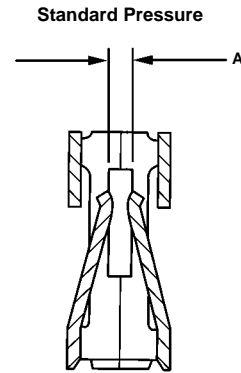
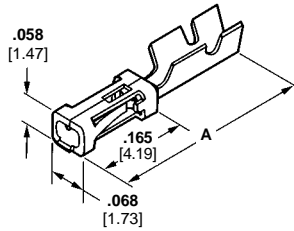
Performance Characteristics—
page 2117

Application Tooling—
page 2159

Technical Documents: pages
2160, 2161

Product Specification
108-25007, 208-25019, 108-25020,
108-25021

Application Specification
114-25003, 114-25016



	Mating Force	Unmating Force	A-Gap Dimension
Standard Pressure	9 oz. Max.	1.5 oz. Min.	.008/.014
Intermediate Pressure	16 oz. Max.	2 oz. Min.	.008/.014
High Pressure	20 oz. Max.	3 oz. Min.	.013±.002

For complete product information, order Catalog 1307819

Mod IV Receptacle Contacts

Standard Pressure (Mod IV)

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Dimension A	Material	Finish	Part Numbers		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for Stripper/Crimper Machine	Hand Tool Part Numbers	
					Strip Form	Loose Piece			Premium	Commercial
32-27 0.03-0.1	.040 1.02	.445 11.30	Cu-Sn-Ph Bz	Plating A	102316-8	1-102316-4	466655-2	466921-1	90417-1	—
			Cu-Sn-Ph Bz	Plating B	102316-6	1-102316-3				
			Be Cu	Plating D	1-102917-1	1-102917-2				
			Be Cu	Plating E	102917-1	102917-2				
			Be Cu	Plating F	102917-5	—				
26-22 0.12-0.4	.061 1.55	.445 11.30	Cu-Sn-Ph Bz	Plating G	102316-5	—	466571-2	466918-1	90418-1	58641-1†
			Cu-Sn-Ph Bz	Plating F	87523-4	—				
			Cu-Sn-Ph Br	Plating G	87756-6	87756-7				
			Be Cu	Plating D	1-87666-6	87667-5				
			Be Cu	Plating E	87666-2	87667-2				
24-20 0.2-0.6	.069 1.75	.470 11.94	Be Cu	Plating F	87666-5	87667-5	466562-2	466905-1	90202-2	—
			Be Cu	Plating G	87666-3	87667-3				
			Cu-Sn-Ph Bz	Plating A	1-87523-8	1-87523-9				
			Cu-Sn-Ph Bz	Plating B	1-87523-5	1-87523-6				
			Be Cu	Plating E	85969-8	86016-2				
			Be Cu	Plating F	85969-6	86016-5				
			Be Cu	Plating G	85969-9	86016-3				

Intermediate Pressure (Mod IV.v)

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Dimension A	Material	Finish	Part Numbers		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for Stripper/Crimper Machine	Hand Tool Part Numbers	
					Strip Form	Loose Piece			Premium	Commercial
26-22 0.12-0.4	.061 1.55	.445 11.30	Cu-Sn-Ph Bz	Plating B	103171-1	103171-2	466571-2	466918-1	90418-1	58641-1†
			Be Cu	Plating F	102548-1	102548-3				
			Be Cu	Plating E	—	87046-2				
24-20 0.2-0.6	.069 1.75	.470 11.94	Cu-Sn-Ph Bz	Plating A	2-87195-0	2-87195-1	466562-2	466905-1	90202-2	—
			Be Cu	Plating F	86492-2	87046-1				
			Be Cu	Plating G	86492-9	87046-4				

High Pressure (Mod V)**

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Dimension A	Material	Finish	Part Numbers		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Part Numbers
					Strip Form	Loose Piece			
32-27 0.03-0.1	.040 1.02	.445 11.30	Ph Bz	Plating E	103455-1	103455-2	466655-2	466921-1	90417-1
26-22 0.12-0.4	.061 1.55	.445 11.30	Ph Bz	Plating E	87809-1	102128-1	466571-2	466918-1	90418-1
24-20 0.2-0.6	.069 1.75	.470 11.94	Ph Bz	Plating G	87309-8	1-87309-3	466562-2	466905-1	90202-2

*For use with Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part numbers of applicators for use with the Model "G" machines (shown on page 2159), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

**Contact material is phosphor bronze.

†PRO-CRIMPER II hand tool frame with die set assembly.

Die Set Part Number 58641-2

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Single-Row, .100 [2.54] Centerline

Non-Polarized



Material:

Black thermoplastic, flame retardant

Related Product Data:

Contacts—pages 2117-2119
Mateable Headers and Posts—
pages 2048, 2049, 2053-2055

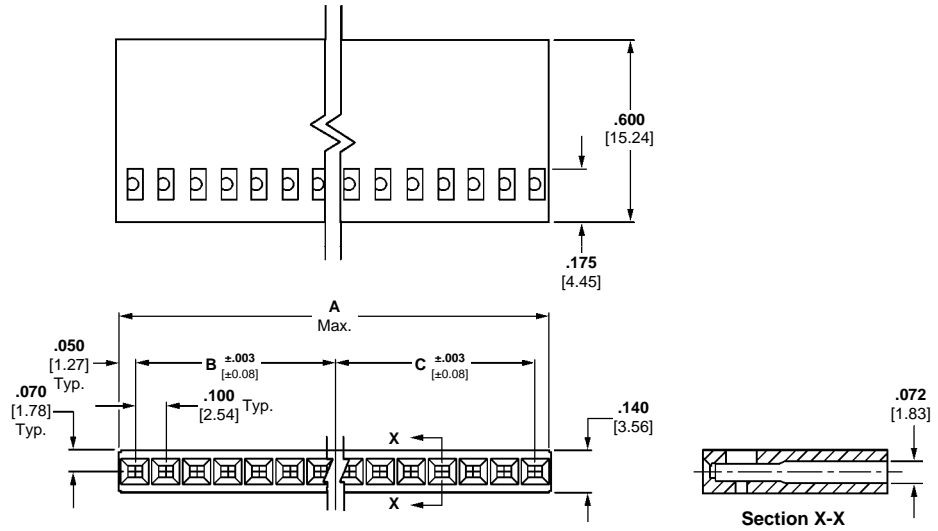
Technical Documents: page 2160

Product Specification

108-25007, 208-25019, 108-25020,
108-25021

Application Specification

114-25003, 114-25016



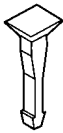
No. of Positions	Dimensions				Part Number	
	A	B	C	Stamped*	Unstamped**	
1	.105 2.67	—	—	—	7-87499-2	
2	.205 5.21	.100 2.54	—	—	87499-4	
3	.305 7.75	.100 2.54	.100 2.54	—	87499-6	
4	.405 10.29	.200 5.08	.100 2.54	—	87499-8	
5	.505 12.83	.200 5.08	.200 5.08	87499-9	1-87499-0	
6	.605 15.37	.300 7.62	.200 5.08	1-87499-1	—	
7	.705 17.91	.300 7.62	.300 7.62	87499-1	87499-2	
8	.805 20.45	.400 10.16	.300 7.62	1-87499-3	—	
9	.905 22.99	.400 10.16	.400 10.16	1-87499-5	1-87499-6	
10	1.005 25.53	.500 12.70	.400 10.16	1-87499-7	1-87499-8	
11	1.105 28.01	.500 12.70	.500 12.70	1-87499-9	—	
12	1.205 30.61	.600 15.24	.500 12.70	2-87499-1	—	
13	1.305 33.15	.600 15.24	.600 15.24	2-87499-3	—	
14	1.405 35.69	.700 17.78	.600 15.24	2-87499-5	—	
15	1.505 38.23	.700 17.78	.700 17.78	2-87499-7	—	
16	1.605 40.77	.800 20.32	.700 17.78	2-87499-9	—	
20	2.005 50.93	1.000 25.40	.900 22.86	3-87499-7	—	
36	3.600 91.44	1.800 45.72	1.700 43.18	—	7-87499-0	

*Cavity identification, part number and date code stamped on housing where size permits.

**No marking on housing.

Notes: 1. Strain reliefs are available and may be purchased separately. Consult Tyco Electronics.
2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

Keying Plugs

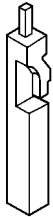


Part Number 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material:

Natural color nylon



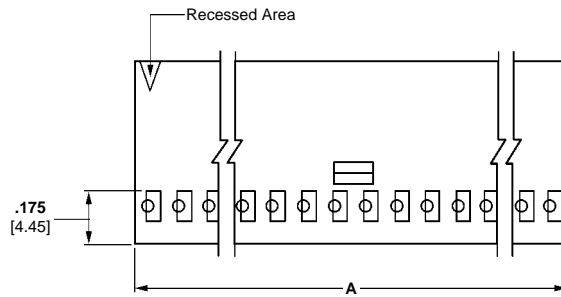
Part Number 87077-2

(Plugs directly into housing)

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Single-Row, .100 [2.54] Centerline

Polarized (with Detent Latching)



Material:

Black thermoplastic, flame retardant

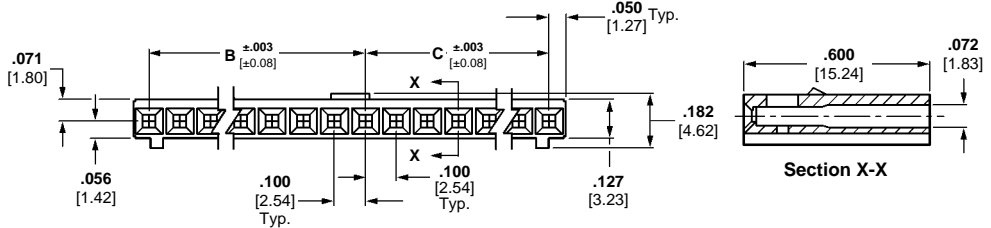
Related Product Data:

Contacts—pages 2117-2119
Mateable Headers and Posts—
 pages 2071, 2072
**Flexible Film Connectors,
 Single-Row Pin Assemblies**—
 Catalog 82007

Technical Documents: pages
2160, 2161

Product Specification
108-25007, 208-25019, 108-25020,
108-25021

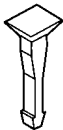
Application Specification
114-25003, 114-25016



No. of Position	Dimensions						Part Numbers Unstamped*
	A		B		C		
3	.300	7.62	.100	2.54	.100	2.54	102241-1
4	.400	10.16	.200	5.08	.100	2.54	102241-2
5	.500	12.70	.200	5.08	.200	5.08	102241-3
6	.600	15.24	.300	7.62	.200	5.08	102241-4
7	.700	17.78	.300	7.62	.300	7.62	102241-5
8	.800	20.32	.400	10.16	.300	7.62	102241-6
9	.900	22.86	.400	10.16	.400	10.16	102241-7
10	1.000	25.40	.500	12.70	.400	10.16	102241-8
12	1.200	30.48	.600	15.24	.500	12.70	1-102241-0
14	1.400	35.56	.700	17.78	.600	15.24	1-102241-2
16	1.600	40.64	.800	20.32	.700	17.78	1-102241-4
18	1.800	45.72	.900	22.86	.800	20.32	1-102241-6
20	2.000	50.80	1.000	25.40	.900	22.86	1-102241-8
36	3.600	91.44	1.800	45.72	1.700	43.18	3-102241-4

*No marking on housing.
Note: Contact Extraction/Lance Reset Tool No. 843996-3.

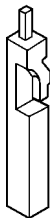
Keying Plugs



Part Number 86286-1
 (Plugs into standard or intermediate
 pressure receptacle contact)

Material:

Natural color nylon

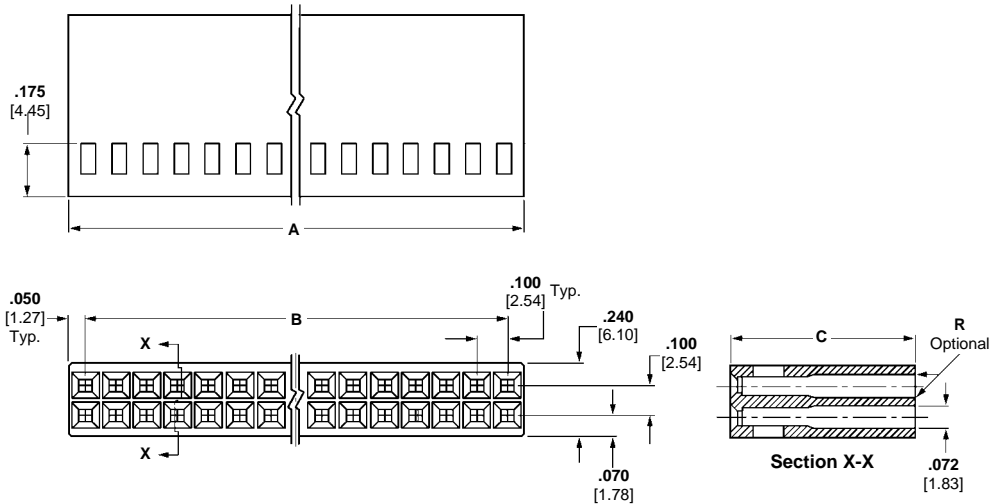


Part Number 87077-2
 (Plugs directly into housing)

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Non-Polarized



Material:

Black thermoplastic, flame retardant

Related Product Data:

Contacts—pages 2117-2118

Mateable Headers and Posts—
pages 2050, 2051, 2056-2058, 2073,
2074

Technical Documents: pages
2160, 2161

Product Specification
108-25007, 208-25019, 108-25020,
108-25021

Application Specification
114-25003, 114-25016

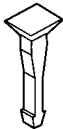
No. of Positions	Dimensions		Part Numbers	
	A	B	C = .600 [15.24]	
			Stamped*	Unstamped**
2	.100	2.54	—	5-87456-3
4	.200	5.08	—	4-87456-9
6	.300	7.62	87456-2	87456-1
8	.400	10.16	—	87456-3
10	.500	12.70	87456-6	—
12	.600	15.24	87456-8	—
14	.700	17.78	1-87456-0	—
16	.800	20.32	—	1-87456-1
18	.900	22.86	1-87456-4	1-87456-3
20	1.000	25.40	1-87456-6	—
24	1.200	30.48	2-87456-0	1-87456-9
26	1.300	33.02	2-87456-2	2-87456-1
30	1.500	38.10	2-87456-6	2-87456-5
40	2.000	50.80	3-87456-6	—

*Cavity identification, AMP, part number and date code stamped on housing where size permits.

**No marking on housing.

Notes: 1. Strain reliefs are available and may be purchased separately. Consult Tyco Electronics.
2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

Keying Plugs

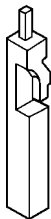


Part Number 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material:

Natural color nylon



Part Number 87077-1

(for .645 high housings)

Part Number 87077-2

(for .600 high housings)

(Plugs directly into housing)

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Polarized



Material:

Black thermoplastic, flame retardant

Related Product Data:

Contacts—pages 2117, 2119

Mateable Headers and Posts—
pages 2073-2080

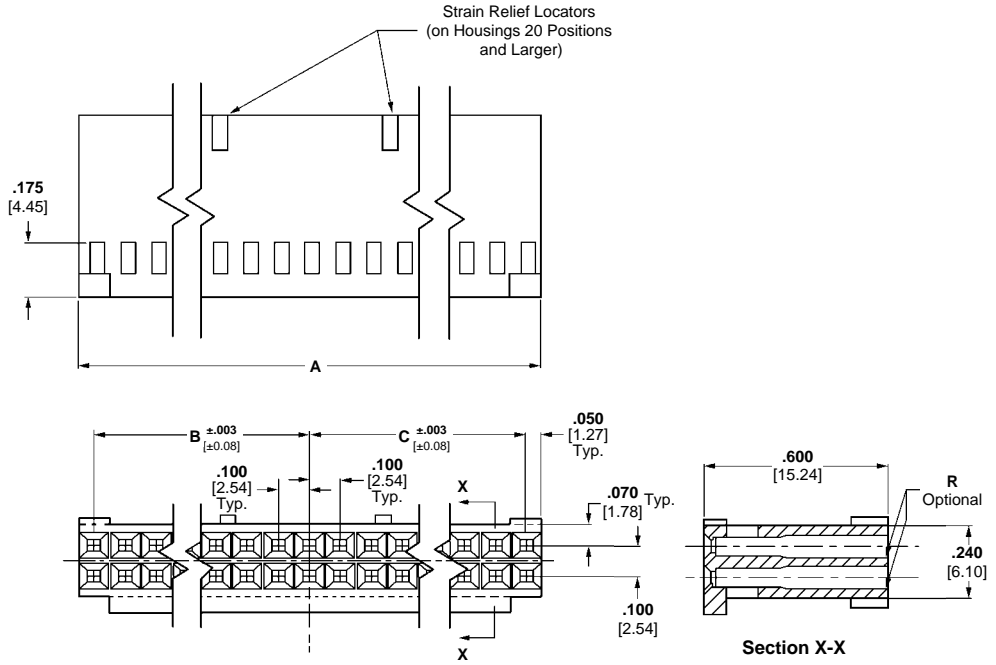
Technical Documents: pages
2160, 2161

Product Specification

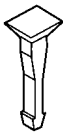
108-25007, 208-25019, 108-25020,
108-25021

Application Specification

114-25003, 114-25016



Keying Plugs

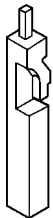


Part Number 86286-1

(Plugs into standard or intermediate
pressure receptacle contact)

Material:

Natural color nylon



Part Number 87077-2

(Plugs directly into housing)

No. of Positions	Dimensions						Part Numbers	
	A		B		C		Stamped*	Unstamped**
6	.300	7.62	.100	2.54	.100	2.54	87977-1	2-87977-8
8	.400	10.16	.200	5.08	.100	2.54	—	2-87977-9
10	.500	12.70	.200	5.08	.200	5.08	87977-3	3-87977-0
12	.600	15.24	.300	7.62	.200	5.08	87977-4	—
14	.700	17.78	.300	7.62	.300	7.62	—	3-87977-2
16	.800	20.32	.400	10.16	.300	7.62	—	3-87977-3
20	1.000	25.40	.500	12.70	.400	10.16	87977-8	3-87977-5
24	1.200	30.48	.600	15.24	.500	12.70	1-87977-0	—

*Cavity identification, AMP, part number and date code stamped on housing where size permits.

**No marking on housing or strain relief.

Notes: 1. Strain reliefs are available and may be purchased separately. Consult Tyco Electronics.
2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Polarized (with Detent Latching, with and without Strain Relief/Pull Tab)



Material:

Black thermoplastic, flame retardant

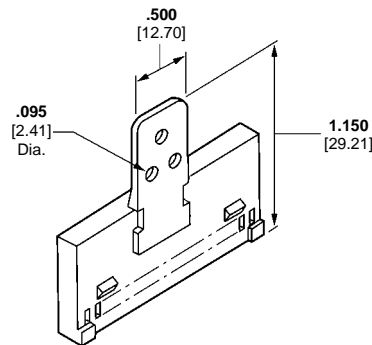
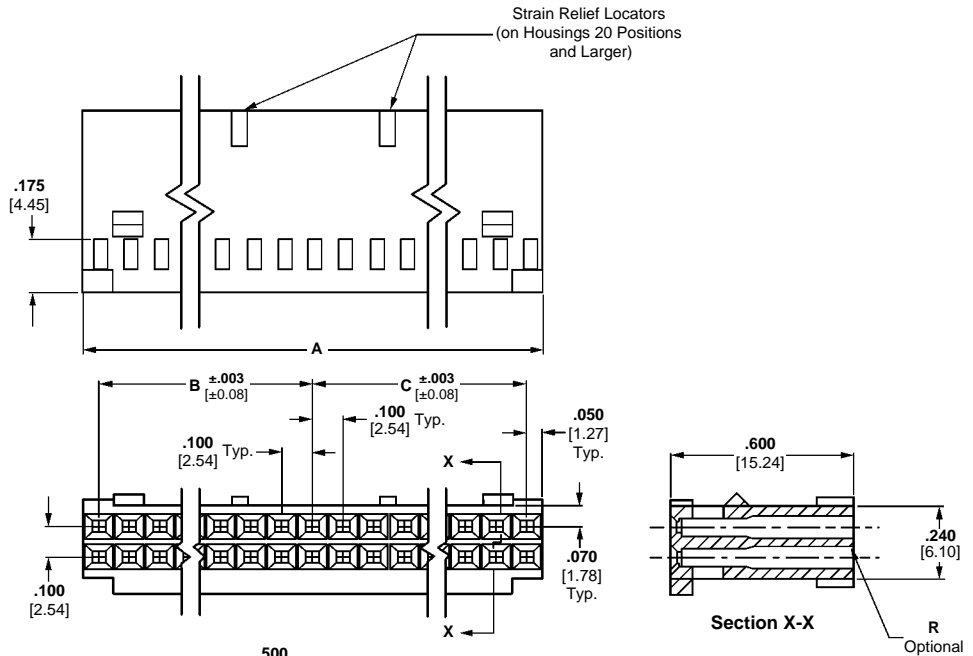
Related Product Data:

Contacts—pages 2117, 2119
Mateable Headers and Posts—
pages 2073-2077

Technical Documents: pages
2160, 2161

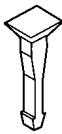
Product Specification
108-25007, 208-25019, 108-25020,
108-25021

Application Specification
114-25003, 114-25016



Housing with Strain Relief/Pull Tab
Strain Relief Part Number 87921-1
(10 thru 18 positions)

Keying Plugs



Part Number 86286-1
(Plugs into standard or intermediate pressure receptacle contact)

Material:

Natural color nylon



Part Number 87077-2
(Plugs directly into housing)

No. of Positions	Dimensions						No. of Detents	Part Numbers		
	A		B		C			Without Strain Relief		With Strain Relief
	Stamped*	Unstamped**	Stamped*	Unstamped**	Stamped*	Unstamped**		Stamped*		
6	.300	7.62	.100	2.54	.100	2.54	1	87631-2	87631-1	—
8	.400	10.16	.200	5.08	.100	2.54	1	87631-4	87631-3	—
10	.500	12.70	.200	5.08	.200	5.08	1	87631-6	87631-5	87922-1
12	.600	15.24	.300	7.62	.200	5.08	1	87631-8	87631-7	87922-2
14	.700	17.78	.300	7.62	.300	7.62	1	1-87631-0	87631-9	87922-3
16	.800	20.32	.400	10.16	.300	7.62	1	1-87631-2	1-87631-1	87922-4
18	.900	22.86	.400	10.16	.400	10.16	1	1-87631-4	1-87631-3	87922-5
20	1.000	25.40	.500	12.70	.400	10.16	2	—	1-87631-5	87733-1
24	1.200	30.48	.600	15.24	.500	12.70	2	—	1-87631-9	—
26	1.300	33.02	.600	15.24	.600	15.24	2	2-87631-2	2-87631-1	—
30	1.500	38.10	.700	17.78	.700	17.78	2	2-87631-6	—	—
34	1.700	43.18	.800	20.32	.800	20.32	2	3-87631-0	2-87631-9	—
40	2.000	50.80	1.000	25.40	.900	22.86	2	—	3-87631-5	—
50	2.500	63.50	1.200	30.48	1.200	30.48	2	—	4-87631-1	1-87733-4

*Cavity identification, AMP, part number and date code stamped on housing and/or strain relief where size permits.

**No marking on housing or strain relief.

Notes: 1. The Strain Relief/Pull Tab can be bonded to any thermoplastic connector housing.

2. Strain reliefs may be purchased separately.

3. Contact **Extraction/Lance Reset Tool No. 843996-3**.

For complete product information, order Catalog 1307819

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Center Polarized



Material:

Black thermoplastic, flame retardant

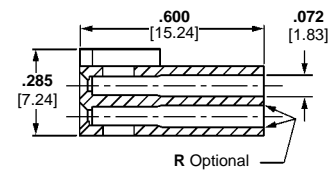
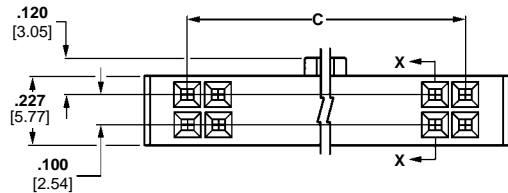
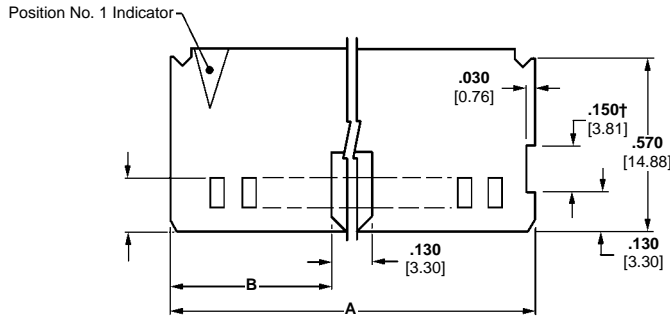
Related Product Data:

Contacts—pages 2069-2119
Mateable Headers and Posts:
AMP-LATCH Ejection Headers with .576 [14.63] Ejection Latches—Catalog 82012, Part Nos. 102186-1 & 102320-1

Technical Documents: pages 2160, 2161

Product Specification
 108-25007, 208-25019, 108-25020, 108-25021

Application Specification
 114-25003, 114-25016



Section X-X

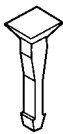
No. of Positions	Dimensions			Part Numbers (Stamped*)
	A	B	C	
10	.680 17.27	.275 6.98	.400 10.16	102387-1
14	.880 22.35	.375 9.53	.600 15.24	102387-2
16	.980 24.89	.425 10.80	.700 17.78	102387-3
20	1.180 29.97	.525 13.34	.900 22.86	102387-4
24	1.380 35.05	.625 15.88	1.100 27.94	102387-5
26	1.480 37.59	.675 17.15	1.200 30.48	102387-6
30	1.680 42.67	.775 19.69	1.400 35.56	102387-7
34	1.880 47.75	.875 22.23	1.600 40.64	102387-8
40	2.180 55.37	1.025 26.04	1.900 48.26	102387-9
44	2.380 60.45	1.125 28.58	2.100 53.34	1-102387-3
50	2.680 68.07	1.275 32.39	2.400 60.96	1-102387-0
60	3.180 80.77	1.525 38.74	2.900 73.66	1-102387-1
64	3.380 85.85	1.625 41.28	3.100 78.74	1-102387-2

*Cavity identification and AMP stamped on housing.

†Non-functional slot is used for gating purposes during injection molding process. This gating feature is not inherent in all production molds. Therefore, the depicted slot will only be present on housings produced on mold tooling requiring this gating feature.

Note: Contact Extraction/Lance Reset Tool No. 843996-3.

Keying Plugs

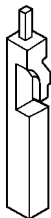


Part Number 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material:

Natural color nylon




Part Number 87077-2

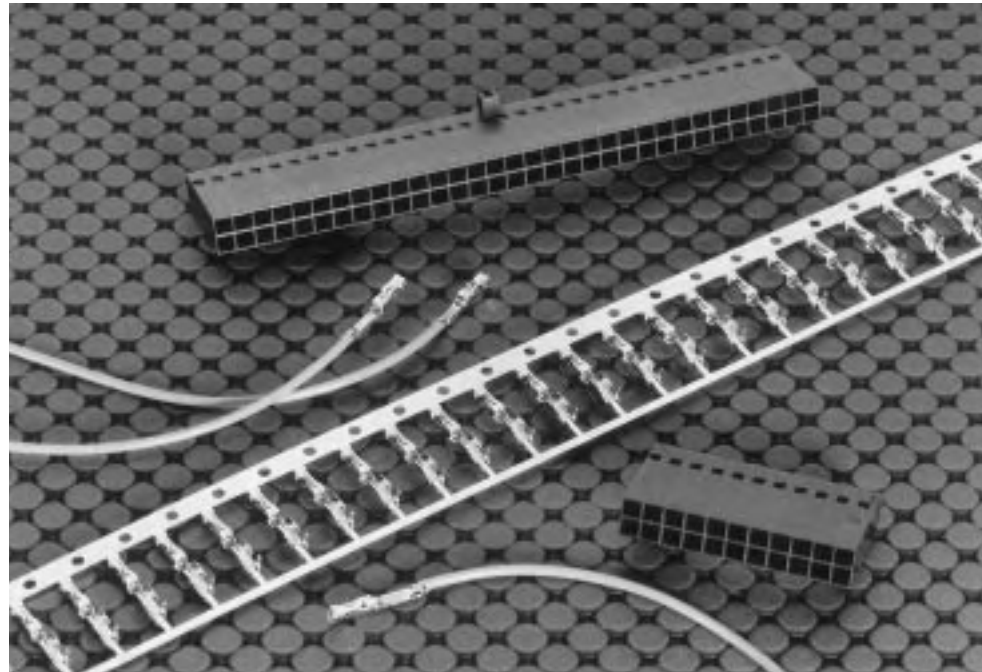
(Plugs directly into housing)

For complete product information, order Catalog 1307819

Short Point, Crimp Snap-In Wire-Applied Contacts and Housings

Product Facts

- Short point of contact mates with .169 [4.29] to .259 [6.58] long post
- Double-row housings are end-to-end and side-to-side stackable
- Terminates 32-20 AWG [0.03-0.6 mm²] discrete wire
- Contacts have insulation support to accept a maximum insulation diameter of .060 [1.52]
- Available with .000015 [0.00038] or .000030 [0.00076] gold duplex, or bright tin-lead plating
- Mates with .025 [0.64] square posts
- Dual cantilever contact beams for reliable matings
- Locking retention latch provides 3 lb [13.34 N] of retention force
- Unique locking latch design prevents latch from protruding through latch window
- Contacts snap into AMPMODU MTE single-row housings
- Double-row housing configurations include .100 [2.54] centerline, plain and polarized
- Housing sizes range from 4 to 52 positions
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR7189
- Produced under a Quality Management System certified to ISO 9001



AMP Short Point receptacle contacts are designed to mate with .025 [0.64] square posts. They will mate with posts as short as .169 [4.29].

Short Point double-row housings are end-to-end and side-to-side stackable on .100 [2.54] centers. Contacts also can be used in single-row AMPMODU MTE housings to provide a complete wire-crimp system, or to serve as replacement contacts.

Performance Characteristics:

Contact Current Rating—3 amperes

Termination Resistance—12 milliohms (max.)

Durability—Ref. AMP Product Specification 108-1472

A copy of the certificate is available upon request



For complete product information, order Catalog 1307819

Short Point Crimp Snap-In Receptacle Contacts

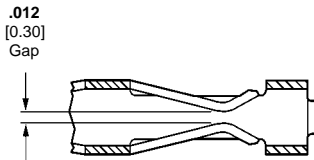
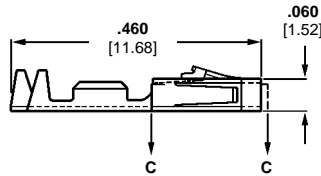
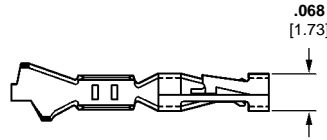
Material and Finish:

Copper alloy C7025, plated as follows:

Plating A—Duplex plated .000030 [0.00076] min. gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating B—Duplex plated .000015 [0.00038] min. gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000100 [0.00254] min. bright tin-lead over .000050 [0.00127] min. nickel on entire contact



Section C - C

Related Product Data:

Performance Characteristics—
page 2126

Housings used in—
Short Point—page 2128

AMPMODU MTE Unloaded Housings—pages 2131-2134

Application Tooling—
page 2159

Technical Documents: page 2160

Product Specification
108-1472, 108-25027

Application Specification
114-25038



Keying Plug

Part Number 104072-1

Ten plugs are supplied per strip.
Order quantity reflects the number
of strips required.



Photo 4857

Extraction/Lance Reset
Tool No. 843477-1

Wire Size Range		Ins. Dia. Range	Finish	Contact Part No. (Standard Pressure)		Quick-Change Applicator for AMP-O-ELECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Nos.	
AWG	[mm ²]			Strip Form	Loose Piece				
32-28	0.03-0.08	.025-.060	0.64-1.52	Plating A	104481-4	104481-8	567296-2	466980-1	58438-1
				Plating B	104481-3	104481-7			
				Plating C	104481-2	104481-6			
26-22	0.13-0.3	.025-.060	0.64-1.52	Plating A	104480-4	104480-9	567297-2	466981-1	58438-1
				Plating B	104480-3	104480-8			
				Plating C	104480-2	104480-7			
24-20	0.2-0.5	.025-.060	0.64-1.52	Plating A	104479-4	104479-7	567298-2	466982-1	58437-1
				Plating B	104479-3	104479-6			
				Plating C	104479-2	104479-5			

*For use with Model "K" machines. Call the Tooling/Technical Assistance Center (1-800-522-6752) for part nos. of applicators for use with the Model "G" machines, as well as other bench machines and fully automatic AMPOMATOR lead making machines.

For complete product information, order Catalog 1307819

Short Point Wire-Applied Housings, Double-Row, Non-Polarized, .100 x .100 [2.54 x 2.54] Centerline



Material:

Black thermoplastic, flame retardant,
94V-0 rated

Related Product Data:

Performance Characteristics—
page 2126

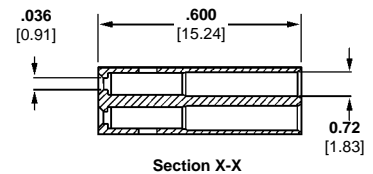
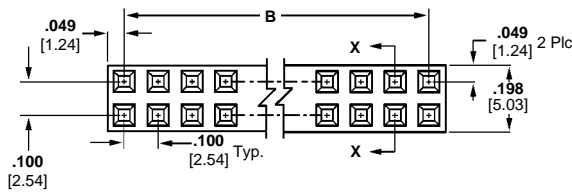
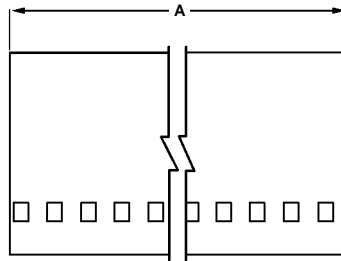
Contacts—page 2127

Mateable Headers—pages 2056,
2057

Technical Documents: page 2160

Product Specification
108-1472, 108-25027



Application Specification
114-25038

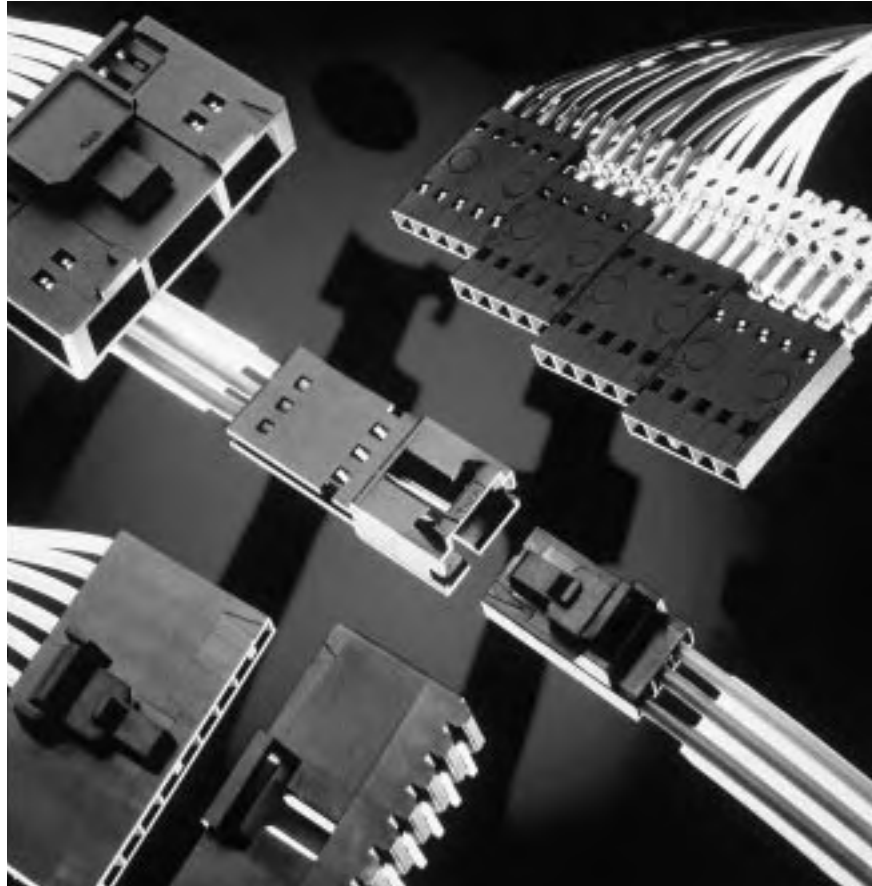


No. of Positions	Dimensions				Housing Part Number
	A		B		
4	.198	5.03	.100	2.54	104482-1
6	.298	7.57	.200	5.08	104482-2
8	.398	10.11	.300	7.62	104482-3
10	.498	12.65	.400	10.16	104482-4
12	.598	15.19	.500	12.70	104482-5
14	.698	17.73	.600	15.24	104482-6
16	.798	20.27	.700	17.78	104482-7
18	.898	22.81	.800	20.32	104482-8
20	.998	25.35	.900	22.86	104482-9
22	1.098	27.89	1.000	25.40	1-104482-0
26	1.298	32.97	1.200	30.48	1-104482-1
28	1.398	35.51	1.300	33.02	1-104482-2
30	1.498	38.05	1.400	35.56	1-104482-3
32	1.598	40.59	1.500	38.10	1-104482-4
34	1.698	43.13	1.600	40.64	1-104482-5
36	1.798	45.67	1.700	43.18	1-104482-6
38	1.898	48.21	1.800	45.72	1-104482-7
40	1.998	50.75	1.900	48.26	1-104482-8
44	2.198	55.83	2.100	53.34	1-104482-9
52	2.598	65.99	2.500	63.50	2-104482-0

For complete product information, order Catalog 1307819

Product Facts

- Receptacle assemblies mate with .025 [0.64] sq. posts; mating post length is .200 [5.08] min., .250 [6.35] max.
- Proven AMPMODU receptacle contact design; dual cantilever beams, built-in anti-overstress, completely enclosed "box" design, standard or high-pressure
- Insulation displacement technology
- Two contact sizes for terminating 30-22 AWG [0.05-0.3 mm²] wire range; .054 [1.37] max. insulation diameter with an insulation wall thickness of .015 [0.38] max.
- Choice of gold duplex or tin plated contacts
- Interchangeable crimp snap-in pin and receptacle contacts available
- Housing sizes 2 through 25 positions, single-row .100 [2.54] centers
- Colors also available
- Plain housings are end-to-end and/or back-to-back stackable for open pin field applications
- Optional header with "swaged tail" feature prevents movement prior to flow soldering
- Integral latch provides positive retention between header and receptacle housing
- Coupling shrouds permit ganging of smaller connectors with guide ribs to form larger single- or double-row latching connectors
- Mass terminating tooling provides lowest applied cost for most production needs
- SMT and SMT compatible, high-temp headers available
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR7189 



The AMPMODU MTE Interconnection System offers both wire-to-board and wire-to-wire connectors using .025 [0.64] sq. post technology.

The AMPMODU MTE Interconnection System consists of single-row housings with contacts preloaded on .100 [2.54] centers. Housings are furnished with contacts partially inserted, leaving the termination areas exposed. Final contact insertion is accomplished automatically by AMP application equipment, and manually when terminated with the AMP pistol grip hand tool.

The heart of the system is the insulation displacement contact design, featured in both pin and receptacle contacts. The receptacle

contact, available in either standard or high-pressure, features dual cantilever beams in an enclosed "box." The post stop prevents a mating post from disturbing the wire termination and also limits the mating depth of a long post to protect a wrap-type termination at the base of the post. The forward contact stop helps prevent contact overinsertion prior to termination. All contacts are furnished on carrier strips which are interlocked for stability and positive location during termination.

Single-row housings are available in sizes 2 through 25 positions. Included are three styles of receptacle housings—plain, polarized/latching and ribbed and two styles of pin housings, shrouded with polarizing/latching feature and ribbed.

Performance Specifications:**Electrical Characteristics:**

Contact Current Rating—3 amperes for single contact in free air (Amperage could vary due to ambient temperature, wire size and duty cycles.)

Contact Termination Resistance—15 milliohms (max.)

Dielectric Withstanding Voltage—At Sea Level—600 VAC, rms
At 70,000 Ft. [21 336 m]—225 VAC, rms

Insulation Resistance—5,000 megohms (min.)

Environmental Characteristics:

Operating Temperature—-65°C to +105°C

Vibration—15 G's (gold), 10 G's (tin)

Physical Shock—50 G's

Industrial Mixed Flow Gasing—Class 1 (20 days) (gold)

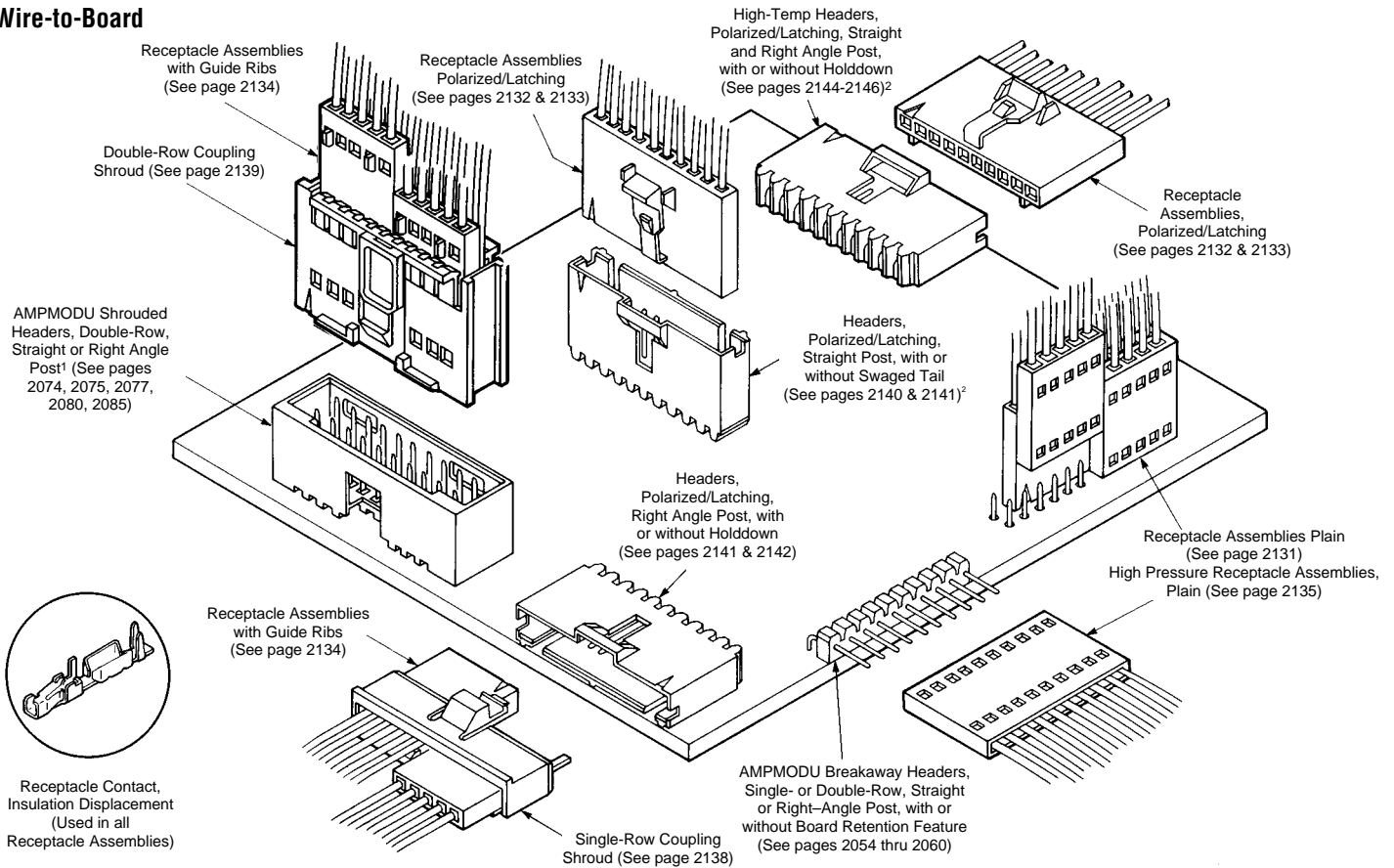
Product Specification
108-25034

Application Specification
114-25026

For complete product information, order Catalog 1307819

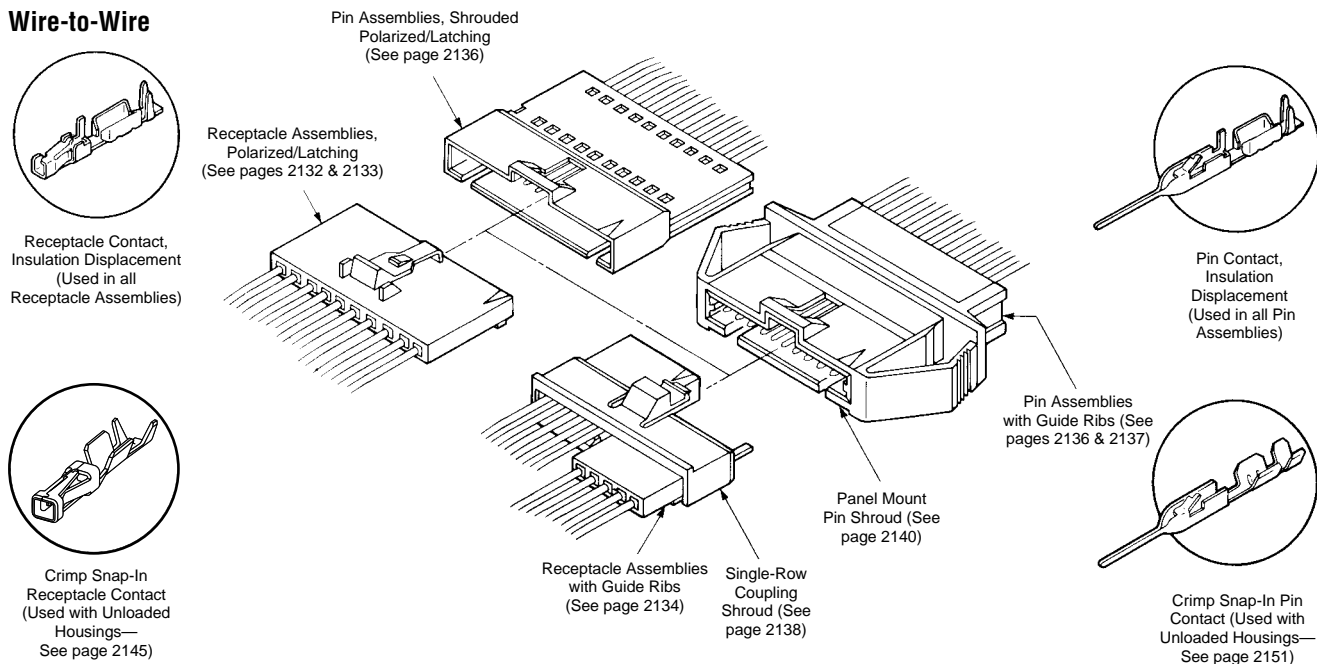
MTE Interconnection System

Wire-to-Board



- 1 Mating AMPMODU Double-Row Shrouded Header Assemblies must have .318 [8.08] mating post length and .150 [3.81] dimension from centerline of last post to inside of end shroud wall.
- 2 Surface Mount Right-Angle and Vertical Headers are also available (see pages 2147 and 2148)

Wire-to-Wire



Note: For wire-to-wire applications shown above, all pin and receptacle assembly combinations are intermateable.

For complete product information, order Catalog 1307819

MTE Receptacle Assemblies—Plain, Single-Row, .100 [2.54] Centerline



Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor Bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] bright tin-lead over .000050 [0.00127] nickel on entire contact

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max. Mating post length for preloaded housings is .200 [5.08] min., .250 [6.35] max.

Related Product Data:

Mateable AMPMODU Products:

Breakaway Headers—pages 2054-2060, 2063-2069

Reeled Breakaway Headers—pages 2061-2062

Single- or Double-Row Shrouded Headers with .066 [1.68] End Dimension—pages 2064, 2067, 2071-2073, 2076, 2078, 2081-2084

Interchangeable Crimp Contacts (Short Point)—page 2150

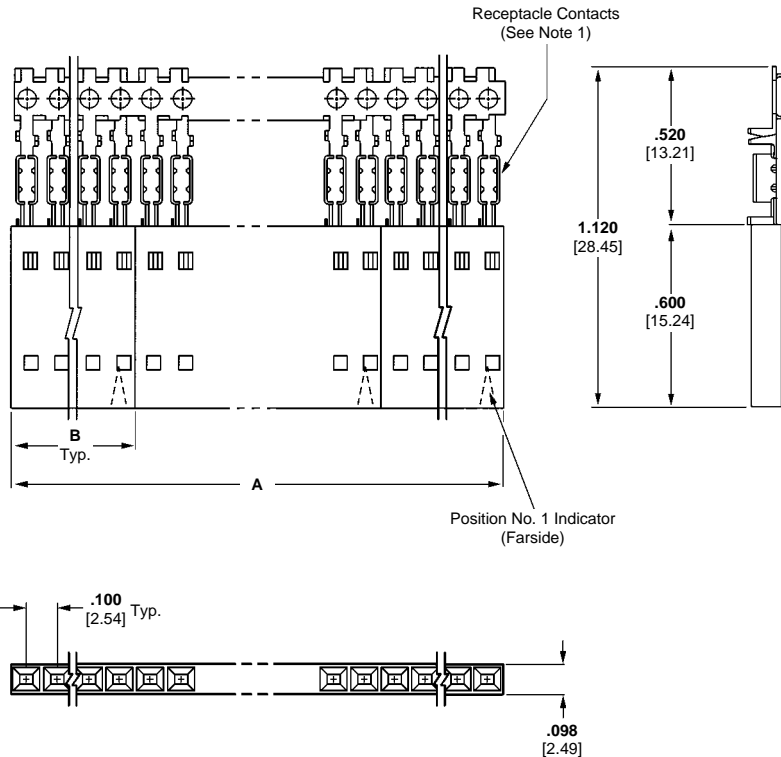
Application Tooling—pages 2158, 2159

Performance Specifications—page 2129

Technical Documents: page 2161, 2162

Product Specification 108-25034

Application Specification 114-25026

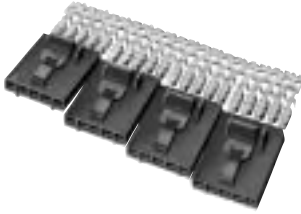


No. of Pos.	Dimensions				Housing Quantities Per Strip Segment	Strip Form Receptacle Assembly 26-22 AWG [0.12-0.3mm ²] Wire		Unloaded Housings
	A	B				Plating B	Plating C	
2	2.000	50.80	.198	5.03	10	103975-1	103974-1	103688-1
3	2.400	60.96	.298	7.57	8	—	103974-2	—
4	1.990	50.55	.398	10.11	5	—	103974-3	103688-3
5	1.990	50.55	.498	12.65	4	103975-4	103974-4	—
6	2.390	60.71	.598	15.19	4	103975-5	—	—

These receptacle assemblies with plain housings can be stacked end-to-end and/or side-to-side for single or double-row connections to an open pin field with a .100 [2.54] centerline grid.

For complete product information, order Catalog 1307819

MTE Receptacle Assemblies Strip Form—Polarized/Latching, Single-Row, .100 [2.54] Centerline



Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor Bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] bright tin-lead over .000050 [0.00127] nickel on entire contact

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max. Mating post length for preloaded housings is .200 [5.08] min., .250 [6.35] max.

Related Product Data:

Mateable AMPMODU Products:

Pin Assemblies

(Polarized/Latching)—page 2136

Pin Assemblies with Guide Ribs (installed in Panel Mount Pin Shroud)—page 2137

Headers (Polarized/Latching)—pages 2140-2148

Interchangeable Crimp Contacts (Short Point)—page 2150

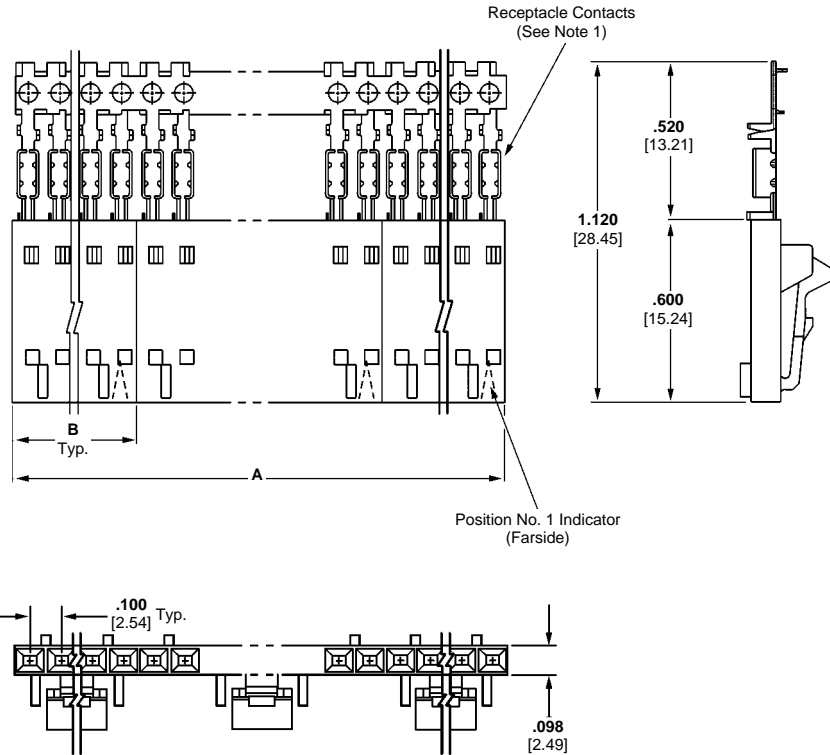
Application Tooling—pages 2158, 2159

Performance Specifications—page 2129

Technical Documents: pages 2161, 2162

Product Specification 108-25034

Application Specification 114-25026



For complete product information, order Catalog 1307819

MTE Receptacle Assemblies—Strip Form Polarized/Latching, Single-Row, .100 [2.54] Centerline

No. of Positions	Dimensions A B		Housing Quantities Per Strip Segment	Part Numbers								
				Strip Form Receptacle Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Strip Form Receptacle Assembly 26-22 AWG [0.12-0.3mm ²] Wire			Unloaded Housings		
				Plating A	Plating B	Plating C	Plating A	Plating B	Plating C			
2	2.000	50.80	.198	5.03	10	103961-1	103960-1	103959-1	103958-1	103957-1	103956-1	104257-1
3	2.400	60.96	.298	7.57	8	103961-2	103960-2	—	103958-2	103957-2	103956-2	104257-2
4	1.990	50.55	.398	10.11	5	103961-3	103960-3	103959-3	103958-3	103957-3	103956-3	104257-3
5	1.990	50.55	.498	12.65	4	—	103960-4	103959-4	103958-4	103957-4	103956-4	104257-4
6	2.390	60.71	.598	15.19	4	—	103960-5	103959-5	103958-5	103957-5	—	104257-5
7	1.400	35.56	.698	17.73	2	—	103960-6	—	103958-6	103957-6	—	104257-6
8	1.600	40.64	.798	20.27	2	—	—	103959-7	103958-7	103957-7	103956-7	104257-7
9	1.800	45.72	.898	22.81	2	—	—	—	—	103957-8	—	104257-8
10	2.000	50.80	.998	23.35	2	103961-9	103960-9	—	103958-9	103957-9	—	104257-9
11	2.200	55.88	1.098	27.89	2	—	—	—	—	—	—	1-104257-0
12	2.400	60.96	1.198	30.43	2	—	—	—	1-103958-1	—	—	1-104257-1

2

PCB and Wire Connectors

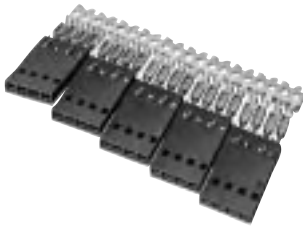
MTE Receptacle Assemblies—Individual Form Polarized/Latching, Single-Row, .100 [2.54] Centerline

No. of Positions	Dimensions B		Part Numbers		Unloaded Housings
			Individual Receptacle Assembly 26-22 AWG [0.12-0.3mm ²] Wire		
			Plating B	Plating C	
13	1.298	32.96	1-103644-2	—	—
15	1.498	38.05	—	—	1-104257-4
16	1.598	40.59	—	1-103645-5	—
17	1.698	43.13	—	—	1-104257-6
18	1.798	45.67	—	—	1-104257-7
24	2.398	60.91	—	—	2-104257-3

- Notes:**
1. Receptacle assemblies are furnished with strip contacts partially inserted into housing—contacts latched into "preload" windows. Contacts are fully inserted into housings automatically when terminated with AMP application machines, or manually when terminated with AMP pistol grip hand tool.
 2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove receptacle contacts.
 3. Keying plugs are available, see page 2150.

For complete product information, order Catalog 1307819

MTE Receptacle Assemblies—Guide Ribs, Single-Row, .100 [2.54] Centerline



Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor Bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] bright tin-lead over .000050 [0.00127] nickel on entire contact

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max. Mating post length for preloaded housings is .200 [5.08] min., .250 [6.35] max.

Related Product Data:

Coupling Shrouds used with:

Single-Row—page 2138

Double-Row—page 2139

Mateable AMPMODU Products (with Receptacle Assemblies Installed in Single-Row Coupling Shrouds):

Pin Assemblies (Polarized/Latching)—page 2136

Pin Assemblies with Guide Ribs (installed in Panel Mount Pin Shroud)—page 2137

Headers (Polarized/Latching)—pages 2140-2148

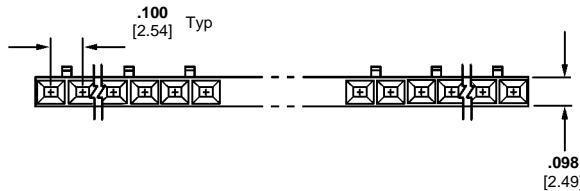
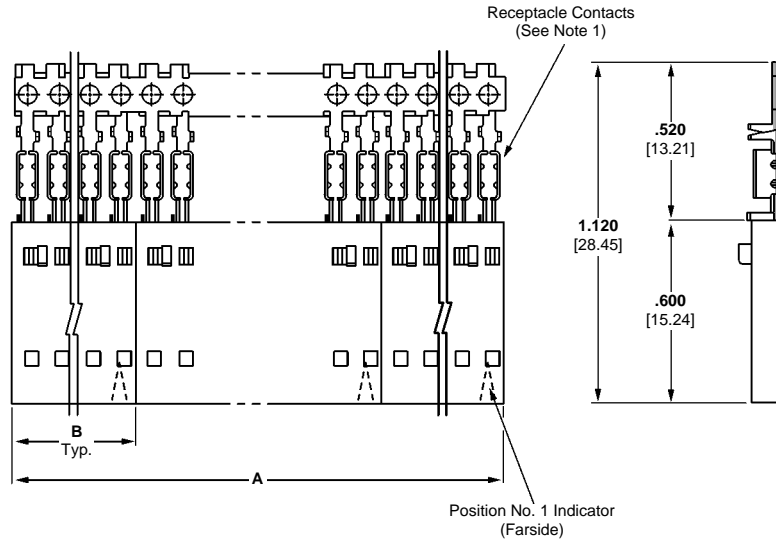
Mateable AMPMODU Products (with Receptacle Assemblies Installed in Double-Row Coupling Shrouds):

Headers, Shrouded, Double-Row (.318 [8.08] mating post length, .150 [3.81] end dimension)—pages 2074, 2075, 2077, 2079, 2080, 2085

Interchangeable Crimp Contacts—(Short Point)—page 2150

Application Tooling—pages 2158, 2159

Performance Specifications—page 2129



No. of Positions	Dimensions		Housing Quantities Per Strip Segment	Part Numbers		Unloaded Housings		
	A	B		Strip Form Receptacle Assembly	Plating C			
2	2.000	50.80	.198	5.03	10	103969-1	103968-1	103648-1
3	2.400	60.96	.298	7.57	8	—	103968-2	103648-2
4	1.990	50.55	.398	10.11	5	103969-3	103968-3	103648-3
5	1.990	50.55	.498	12.65	4	103969-4	103968-4	103648-4
8	1.600	40.64	.798	20.27	2	—	103968-7	103648-7
10	2.000	50.80	.998	23.35	2	103969-9	103968-9	103648-9

Technical Documents: pages 2161, 2162

Product Specification 108-25034

Application Specification 114-25026

For complete product information, order Catalog 1307819

MTE High Pressure Receptacle Assemblies—Plain, Single-Row, .100 [2.54] Centerline



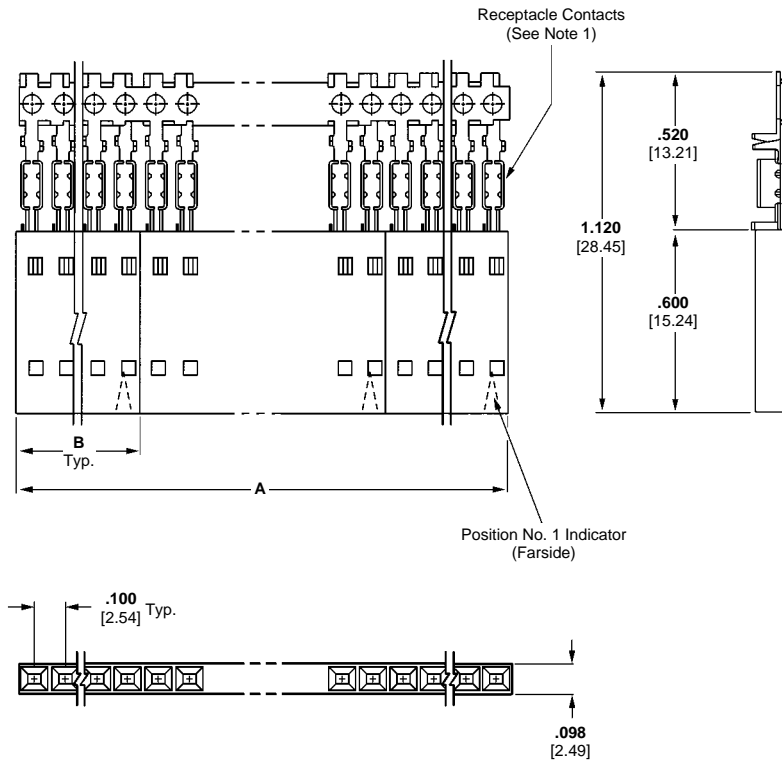
Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Phosphor Bronze, duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max. Mating post length for preloaded housings is .200 [5.08] min., .250 [6.35] max.



Related Product Data:

Mateable AMPMODU Products:

Breakaway Headers—pages 2054-2060, 2063-2068

Reeled Breakaway Headers—pages 2061-2062

Single- or Double-Row Shrouded Headers with .066 [1.68] End Dimension—pages 2064-2067, 2071-2073, 2076, 2081-2083

Application Tooling—pages 2158, 2159

Performance Specifications—page 2129

Technical Documents: pages 2161, 2162

Product Specification
108-25034

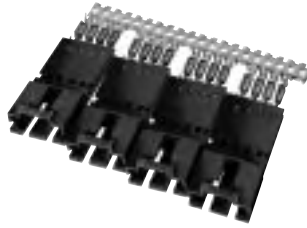
Application Specification
114-25026

No. of Positions	Dimensions		Housings Quantites Per Strip Segment	Part Numbers
	A	B		Strip Form Receptacle Assembly 26-22 AWG [12-.30mm] Wire
2	1.980 50.29	.198 5.03	10	104439-1
3	1.490 37.85	.298 7.57	5	104439-2
4	1.990 50.55	.398 10.11	5	104439-3
5	1.990 50.55	.498 12.65	4	104439-4
8	1.600 40.64	.798 20.27	2	104439-7

- Notes:**
1. Receptacle assemblies are furnished with strip contacts partially inserted into housing—contacts latched into "preload" windows. Contacts are fully inserted into housings automatically when terminated with AMP application machines, or manually when terminated with AMP pistol grip hand tool.
 2. High pressure receptacle contacts can be made available in other housing styles and position sizes. Contact your Tyco Electronics sales representative.

For complete product information, order Catalog 1307819

MTE Pin Assemblies, Shrouded—Polarized/Latching, Single-Row, .100 [2.54] Centerline



Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

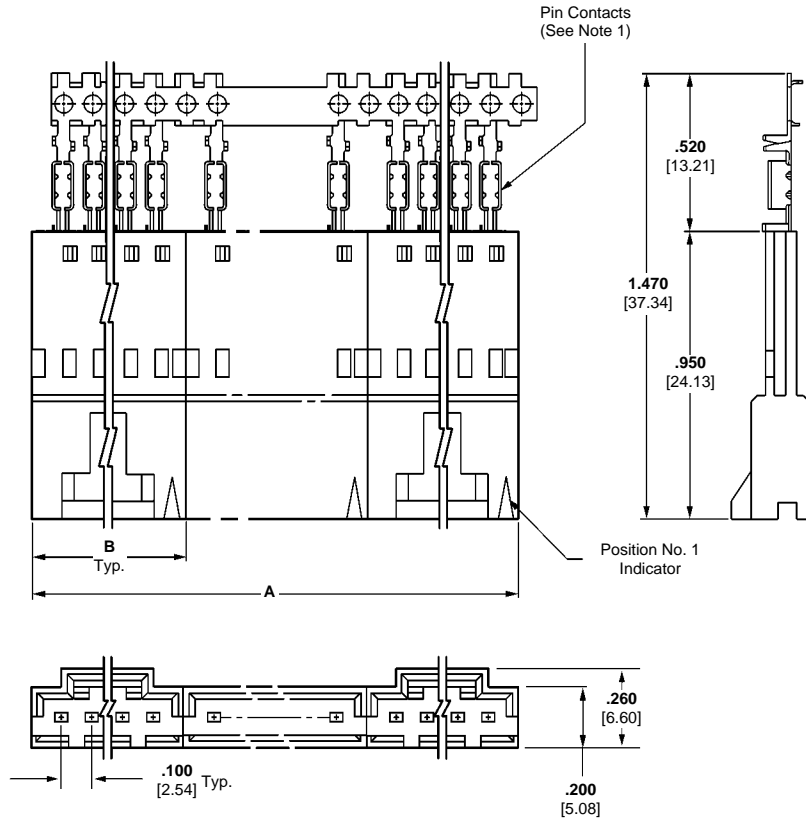
Contacts—Phospor Bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] bright tin-lead over .000050 [0.00127] nickel on entire contact

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max.



Related Product Data:

Mateable AMPMODU Products:

Receptacle Assemblies (Polarized/Latching)—

pages 2132, 2133

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud)—pages 2134, 2138

Interchangeable Crimp Contacts—page 2157

Application Tooling—pages 2158, 2159

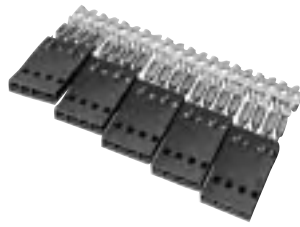
Performance Specifications—page 2129

Technical Documents: pages 2161, 2162

No. of Positions	Dimensions		Housing Quantities Per Strip Segment	Part Numbers						Unloaded Housings		
	A	B		Strip Form Receptacle Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Strip Form Receptacle Assembly 26-22 AWG [0.12-0.3mm ²] Wire					
				Plating A	Plating B	Plating C	Plating A	Plating B	Plating C			
2	2.360	59.94	.295	7.49	8	103949-1	103948-1	103947-1	103946-1	—	—	—
3	1.980	50.29	.395	10.03	5	103949-2	103948-2	—	—	—	103944-2	—
4	1.980	50.29	.495	12.57	4	—	103948-3	—	103946-3	103945-3	103944-3	—
5	2.380	60.45	.595	15.11	4	—	—	—	103946-4	103945-4	103944-4	103653-4
6	1.390	35.31	.695	17.65	2	—	—	—	—	103945-5	103944-5	—
7	2.390	60.71	.795	20.19	3	—	—	—	—	—	—	103653-6
8	1.790	45.47	.895	22.73	2	—	—	—	—	—	—	103653-7
9	1.990	50.57	.995	25.27	2	—	—	—	—	—	—	103653-8
10	2.190	55.63	1.095	27.81	2	—	—	—	—	—	—	103653-9

For complete product information, order Catalog 1307819

MTE Pin Assemblies—Guide Ribs, Single-Row, .100 [2.54] Centerline



Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the AMP Manual Pistol Grip Tool.

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

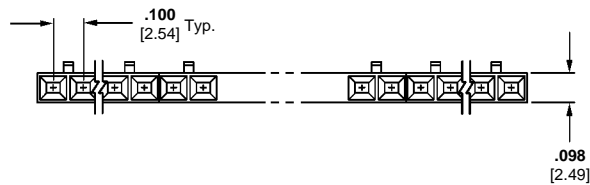
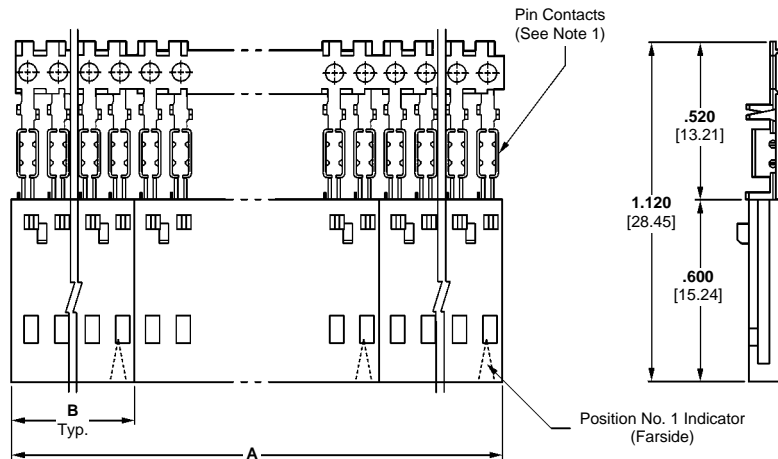
Contacts—Phosphor Bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] bright tin-lead over .000050 [0.00127] nickel on entire contact

Note: Insulation displacement contacts accept an insulation diameter of .030 [0.76] min. to .054 [1.37] max. with an insulation wall thickness of .015 [0.38] max.



No. of Positions	Dimensions		Housing Quantities Per Strip Segment	Part Numbers			
	A	B		Strip Form Receptacle Assembly 26-22 AWG [0.12-0.3mm ²] Wire	Unloaded Housings		
2	1.980	50.29	0.198	5.03	10	103951-1	—
3	1.490	37.85	0.298	7.57	5	103951-2	—
4	1.990	50.55	0.398	10.11	5	103951-3	104503-3

Related Product Data:

Receptacle Assemblies (Polarized/Latching)—pages 2132, 2133

Receptacle Assemblies with Guide Ribs (installed in Single Coupling Shroud)—pages 2134, 2138

Interchangeable Crimp Contacts—page 2151

Application Tooling—pages 2158, 2159

Performance Specifications—page 2129

Technical Documents: pages 2161, 2162

Product Specification 108-25034

Application Specification 114-25026

For complete product information, order Catalog 1307819

Coupling Shrouds for MTE Receptacle Assemblies with Guide Ribs

Single-Row

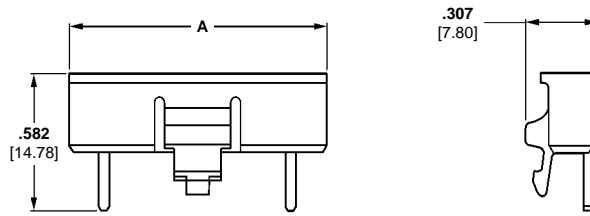
Material:

Black thermoplastic, 94V-0 rated

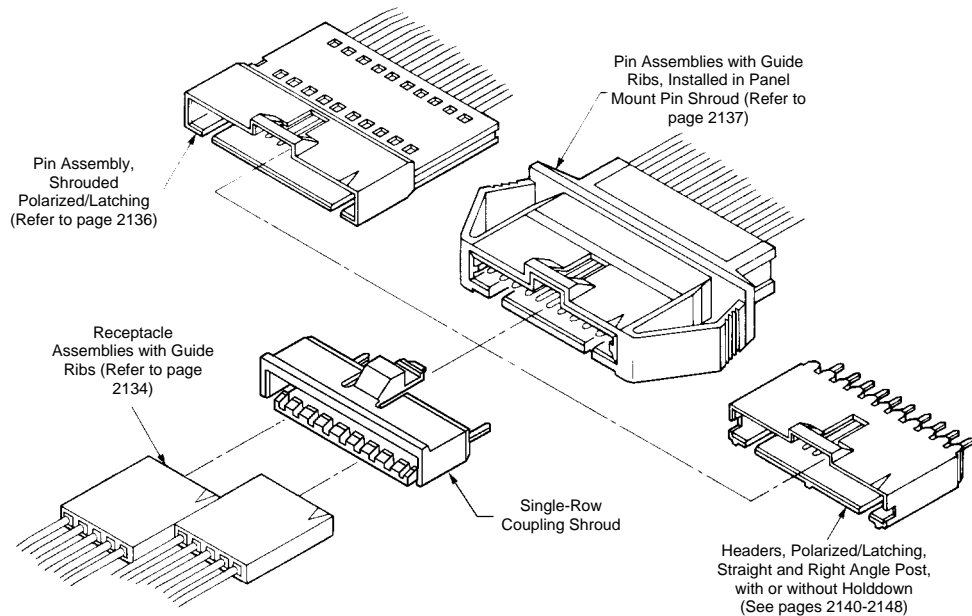
Technical Documents: pages 2161, 2162

Product Specification
108-25034

Application Specification
114-25026



No. of Positions	Dimension A	Part Numbers Single-Row Coupling Shroud
4	.485 12.32	103680-1
8	.885 22.48	103680-5



Typical Application of Single-Row Coupling Shroud and Mating AMPMODU MTE Products

For complete product information, order Catalog 1307819

Coupling Shrouds for MTE Receptacle Assemblies with Guide Ribs

Double-Row

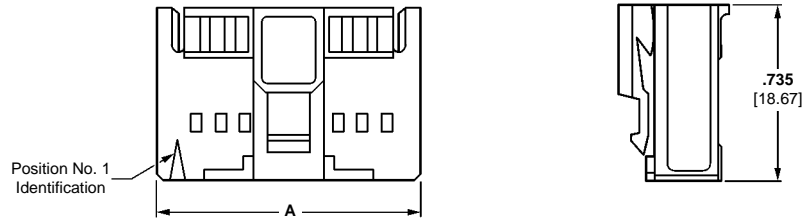
Material:

Black thermoplastic, 94V-0 rated

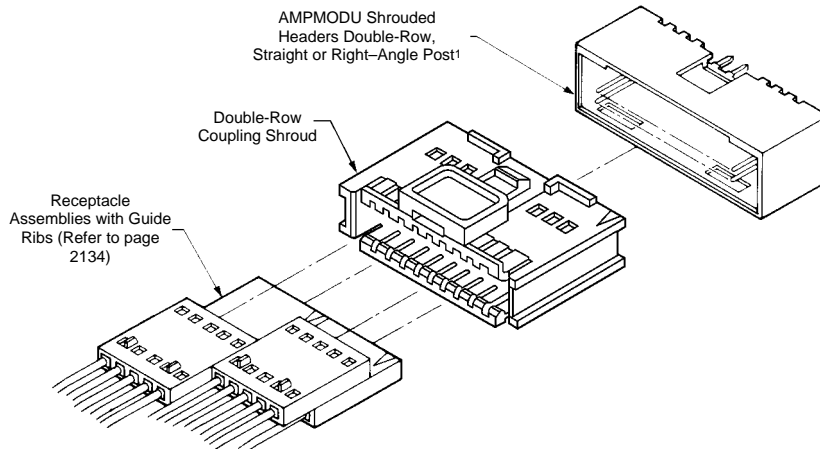
Technical Documents: pages 2161, 2162

Product Specification
108-25034

Application Specification
114-25026



No. of Positions	Dimension A	Part Numbers Double-Row Coupling Shroud
20	1.185 30.10	104500-2



¹ Mating AMPMODU Double-Row Shrouded Headers must have .318 [8.08] mating post length and .150 [3.81] dimension from centerline of last post to inside of end shroud wall.

Typical Application of Double-Row Coupling Shroud and Mating AMPMODU Products

For complete product information, order Catalog 1307819

MTE Headers, Shrouded Polarized/Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With or Without Swaged Tail)



Photo 98184-9

Material and Finish:

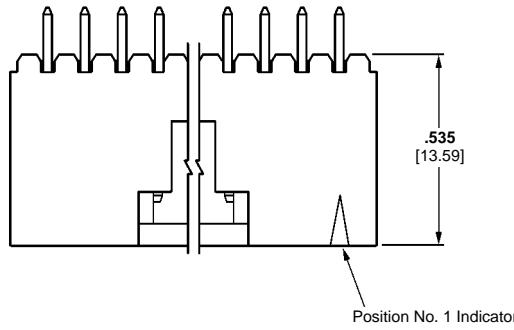
Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

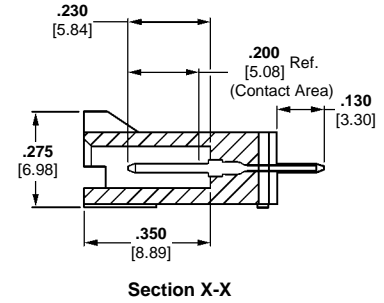
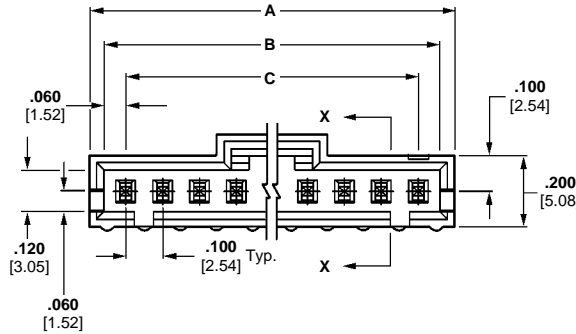
Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100 [0.00254] min. tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100 [0.00254] min. tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C— .000100 [0.00254] tin-lead over .000050 [0.00127] nickel on entire post



Swaged Retention Tail (See Note)



Related Product Data:

Mateable AMPMODU MTE Products:

Receptacle Assemblies (Polarized/Latching)— pages 2132, 2133

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud)— pages 2134, 2138

Technical Documents: pages

2161, 2162

Product Specification

108-25034

Application Specification

114-25026

No. of Positions	Dimensions						Part Numbers								
	A		B		C		Polarized/Latching Header With Swage			Polarized/Latching Header Without Swage					
	A	B	A	B	A	C	Plating A	Plating B	Plating C	Plating A	Plating B	Plating C			
2	.300	7.62	.220	5.59	.100	2.54	103908-1	—	103669-1	103735-1	—	103639-1			
3	.400	10.16	.320	8.13	.200	5.08	103908-2	—	103669-2	103735-2	—	103639-2			
4	.500	12.70	.420	10.67	.300	7.62	103908-3	—	103669-3	103735-3	103638-3	103639-3			
5	.600	15.24	.520	13.21	.400	10.16	—	—	103669-4	103735-4	103638-4	103639-4			
6	.700	17.78	.620	15.75	.500	12.70	—	103670-5	103669-5	103735-5	103638-5	103639-5			
7	.800	20.32	.720	18.29	.600	15.24	103908-6	103670-6	103669-6	103735-6	103638-6	103639-6			
8	.900	22.86	.820	20.83	.700	17.78	103908-7	103670-7	—	103735-7	103638-7	103639-7			
9	1.000	25.40	.920	23.37	.800	20.32	103908-8	103670-8	103669-8	—	103638-8	—			
10	1.100	27.94	1.020	25.91	.900	22.86	103908-9	—	103669-9	103735-9	103638-9	103639-9			
11	1.200	30.48	1.120	28.45	1.000	25.40	—	1-103670-0	—	—	—	—			
12	1.300	33.02	1.220	30.99	1.100	27.94	1-103908-1	1-103670-1	1-103669-1	1-103735-1	1-103638-1	1-103639-1			
14	1.500	38.10	1.420	36.07	1.300	33.02	—	1-103670-3	—	1-103735-3	1-103638-3	—			
15	1.600	40.64	1.520	38.61	1.400	35.56	1-103908-4	1-103670-4	—	—	1-103638-4	—			
16	1.700	43.18	1.620	41.15	1.500	38.10	—	1-103670-5	—	—	1-103638-5	—			
18	1.900	48.26	1.820	46.23	1.700	43.18	1-103908-7	1-103670-7	—	—	—	—			
20	2.100	53.34	2.020	51.31	1.900	48.26	1-103908-9	—	—	—	1-103638-9	—			
24	2.500	63.50	2.420	61.47	2.300	58.42	—	2-103670-3	—	—	—	—			
25	2.600	66.04	2.520	64.01	2.400	60.96	—	2-103670-4	—	—	—	—			

Notes: 1. Selectively loaded headers are available, consult Tyco Electronics.
2. Use **Keying Tool No. 91417-1** to remove post for keying.

For complete product information, order Catalog 1307819

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated as follows:

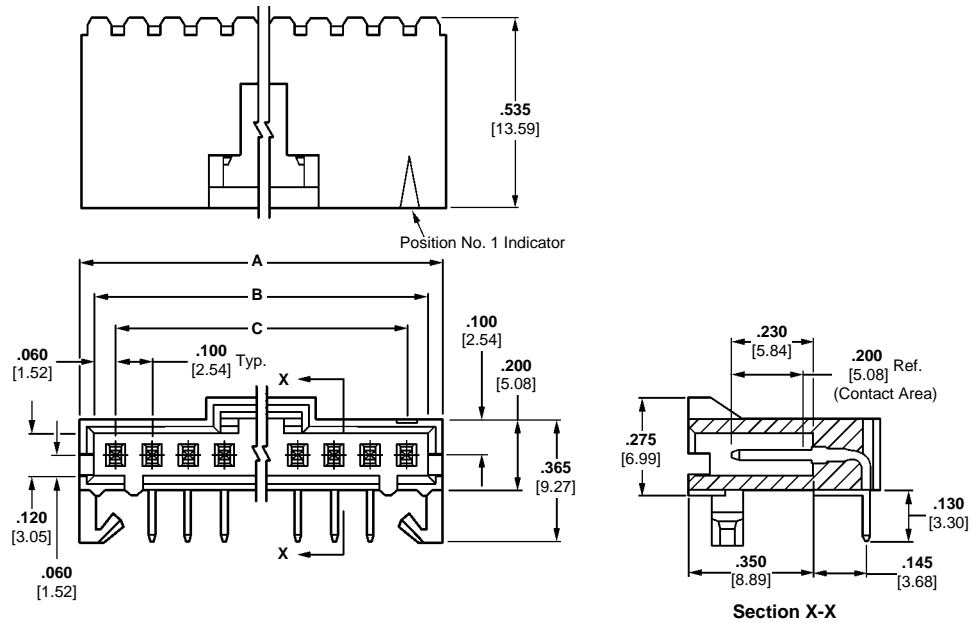
Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000100 [0.00254] min. tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000100 [0.00254] min. tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

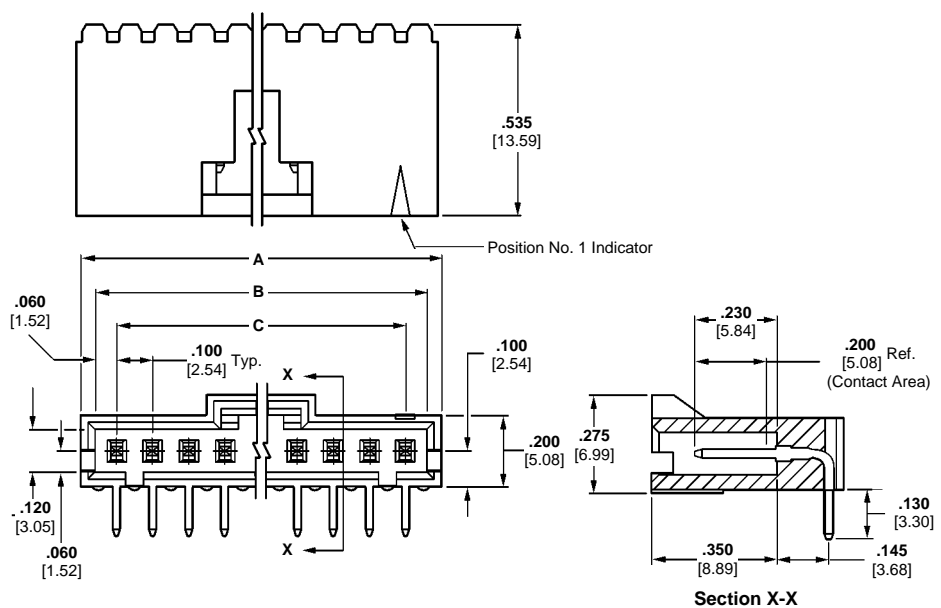
Plating C—.000100 [0.00254] tin-lead over .000050 [0.00127] nickel on entire post

MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline

With Holddown



Without Holddown



Related Product Data:

Mateable AMPMODU MTE Products:

Receptacle Assemblies (Latching)—pages 2132, 2133

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud)—pages 2134, 2138

Technical Documents: pages 2161, 2162

Product Specification
108-25034

Application Specification
114-25026

For complete product information, order Catalog 1307819

MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline

No. of Positions	Dimensions						Part Numbers					
							Latching Header With Hold Down			Latching Header Without Hold Down		
	A	B		C		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	.300	7.62	.220	5.59	.100	2.54	103904-1	103673-1	103672-1	103906-1	103635-1	103634-1
3	.400	10.16	.320	8.13	.200	5.08	103904-2	103673-2	103672-2	103906-2	103635-2	—
4	.500	12.70	.420	10.67	.300	7.62	103904-3	103673-3	103672-3	103906-3	103635-3	103634-3
5	.600	15.24	.520	13.21	.400	10.16	103904-4	103673-4	—	103906-4	103635-4	103634-4
6	.700	17.78	.620	15.75	.500	12.70	103904-5	—	103672-5	103906-5	103635-5	103634-5
7	.800	20.32	.720	18.29	.600	15.24	—	103673-6	—	103906-6	103635-6	—
8	.900	22.86	.820	20.83	.700	17.78	103904-7	103673-7	103672-7	103906-7	—	103634-7
9	1.000	25.40	.920	23.37	.800	20.32	—	103673-8	—	103906-8	103635-8	103634-8
10	1.100	27.94	1.020	25.91	.900	22.86	—	103673-9	103672-9	103906-9	103635-9	103634-9
12	1.300	33.02	1.220	30.99	1.100	27.94	—	1-103673-1	—	1-103906-1	1-103635-1	1-103634-1
14	1.500	38.10	1.420	36.07	1.300	33.02	—	1-103673-3	—	—	1-103635-3	—
15	1.600	40.64	1.520	38.61	1.400	35.56	—	1-103673-4	—	—	1-103635-4	—
16	1.700	43.18	1.620	41.15	1.500	38.10	—	1-103673-5	—	—	—	—
20	2.100	53.34	2.020	51.31	1.900	48.26	—	1-103673-9	—	—	—	—

Notes: 1. Selectively loaded headers are available, consult Tyco Electronics.
 2. Use Keying Tool No. 91417-1 to remove post for keying.

For complete product information, order Catalog 1307819

MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With Swaged Tails and PC Board Orientation)



Photo 98184-5

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Copper alloy, plated .000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire post

Related Product Data:

Mateable AMPMODU MTE Products:

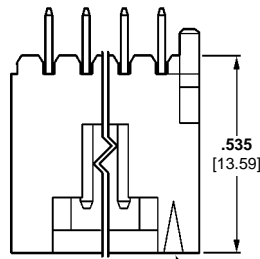
Receptacle Assemblies (Polarized/Latching)—pages 2132, 2133

Receptacle Assemblies with Guide Ribs (Installed in Single-Row Coupling Shroud)—pages 2134, 2138

Technical Documents: pages 2161, 2162

Product Specification
108-25034

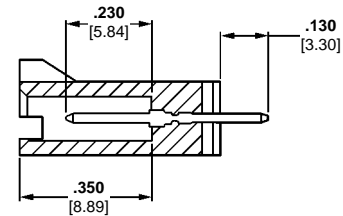
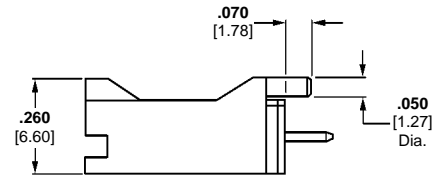
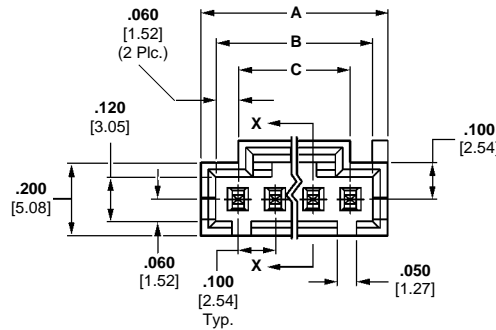
Application Specification
114-25026



Position No. 1 Indicator



Swaged Retention Tail (See Note)



Section X-X

No. of Positions	Dimensions			Part Numbers Latching Header
	A	B	C	
2	.300 7.62	.220 5.59	.100 2.54	104450-1
3	.400 10.16	.320 8.13	.200 5.08	104450-2
4	.500 12.70	.420 10.67	.300 7.62	104450-3
5	.600 15.24	.520 13.21	.400 10.16	104450-4

For complete product information, order Catalog 1307819

MTE Headers, Shrouded High-Temp, Polarized/Latching (Thru-Hole, SMT Compatible) Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With or Without Swaged Tail)



Material and Finish:

Housing—Black thermoplastic, high temperature, 94V-0 rated

Posts—Copper alloy, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Mateable AMPMODU MTE Products:

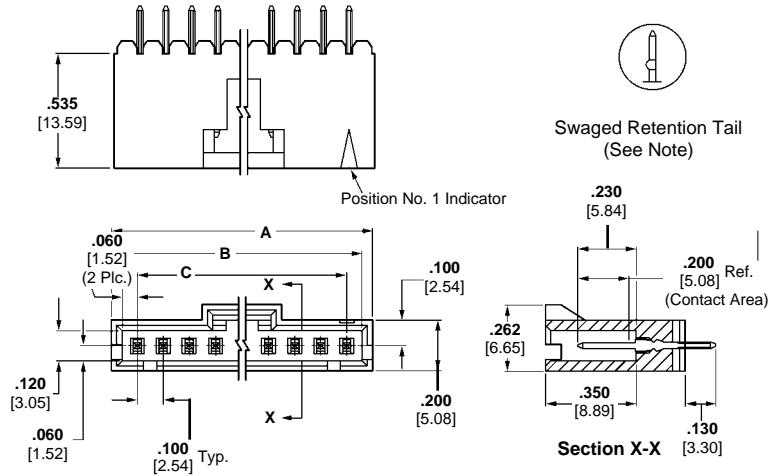
Receptacle Assemblies (Polarized/Latching)—
pages 2132, 2070

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud)—pages 2134, 2138

Technical Documents: pages 2161, 2162

Product Specification
108-25034

Application Specification
114-25026



2
PCB and Wire Connectors

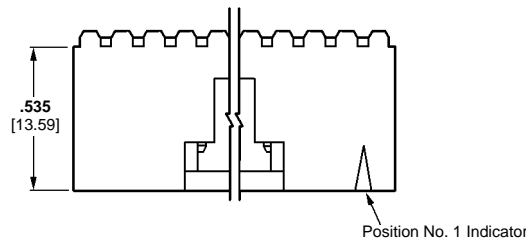
No. of Positions	Dimensions						Straight Header Part Numbers	
	A		B		C		With Swage	Without Swage
2	.300	7.62	.220	5.59	.100	2.54	104362-1	—
3	.400	10.16	.320	8.13	.200	5.08	104362-2	104363-2
4	.500	12.70	.420	10.67	.300	7.62	104362-3	104363-3
5	.600	15.24	.520	13.21	.400	10.16	104362-4	104363-4
6	.700	17.78	.620	15.75	.500	12.70	104362-5	104363-5
7	.800	20.32	.720	18.29	.600	15.24	104362-6	—
8	.900	22.86	.820	20.83	.700	17.78	104362-7	104363-7
10	1.100	27.94	1.020	25.91	.900	22.86	—	104363-9
12	1.300	33.02	1.220	30.99	1.100	27.94	1-104362-1	—

Note: Use Keying Tool No. 91417-1 to remove post for keying.

For complete product information, order Catalog 1307819

MTE Headers, Shrouded High-Temp, Polarized/Latching (Thru-Hole, SMT Compatible) Single-Row, .100 [2.54] Centerline

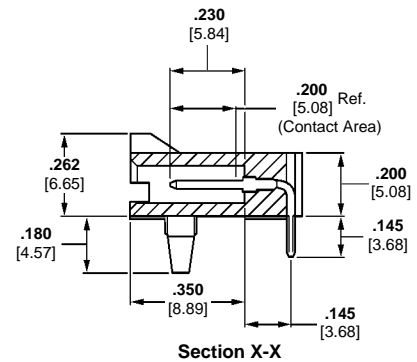
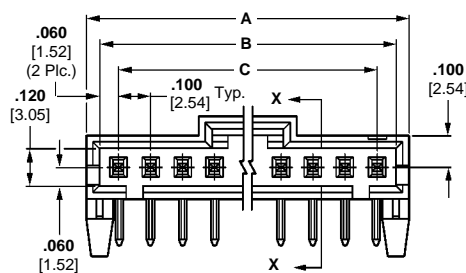
.025 [0.64] Square Right-Angle Post (With Holddown)



Material and Finish:

Housing—Black thermoplastic, high temperature, 94V-0 rated

Posts—Copper alloy, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin-lead on solder tail, with entire post underplated .000050 [0.00127] nickel



Related Product Data:

Mateable AMPMODU MTE Products:

Receptacle Assemblies (Polarized/Latching)—pages 2132, 2133

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud)—pages 2134, 2138

Technical Documents: pages 2161, 2162

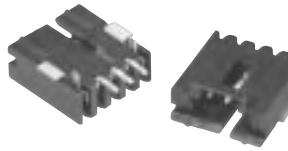
Product Specification 108-25034

Application Specification 114-25026

No. of Positions	Dimensions			Right-Angle Header with Swage Part Numbers
	A	B	C	
2	.300 7.62	.220 5.59	.100 2.54	104361-1
3	.400 10.16	.320 8.13	.200 5.08	104361-2
4	.500 12.70	.420 10.67	.300 7.62	104361-3
5	.600 15.24	.520 13.21	.400 10.16	104361-4
6	.700 17.78	.620 15.75	.500 12.70	104361-5
8	.900 22.86	.820 20.83	.700 17.78	104361-7
9	1.000 25.40	.920 23.37	.800 20.32	104361-8
10	1.100 27.94	1.020 25.91	.900 22.86	104361-9

For complete product information, order Catalog 1307819

MTE Headers, Right-Angle, Polarized/Latching, Surface Mount



Material and Finish:

Housing—High temperature thermoplastic, Color - Black

Posts—Copper Alloy, plated as follows:

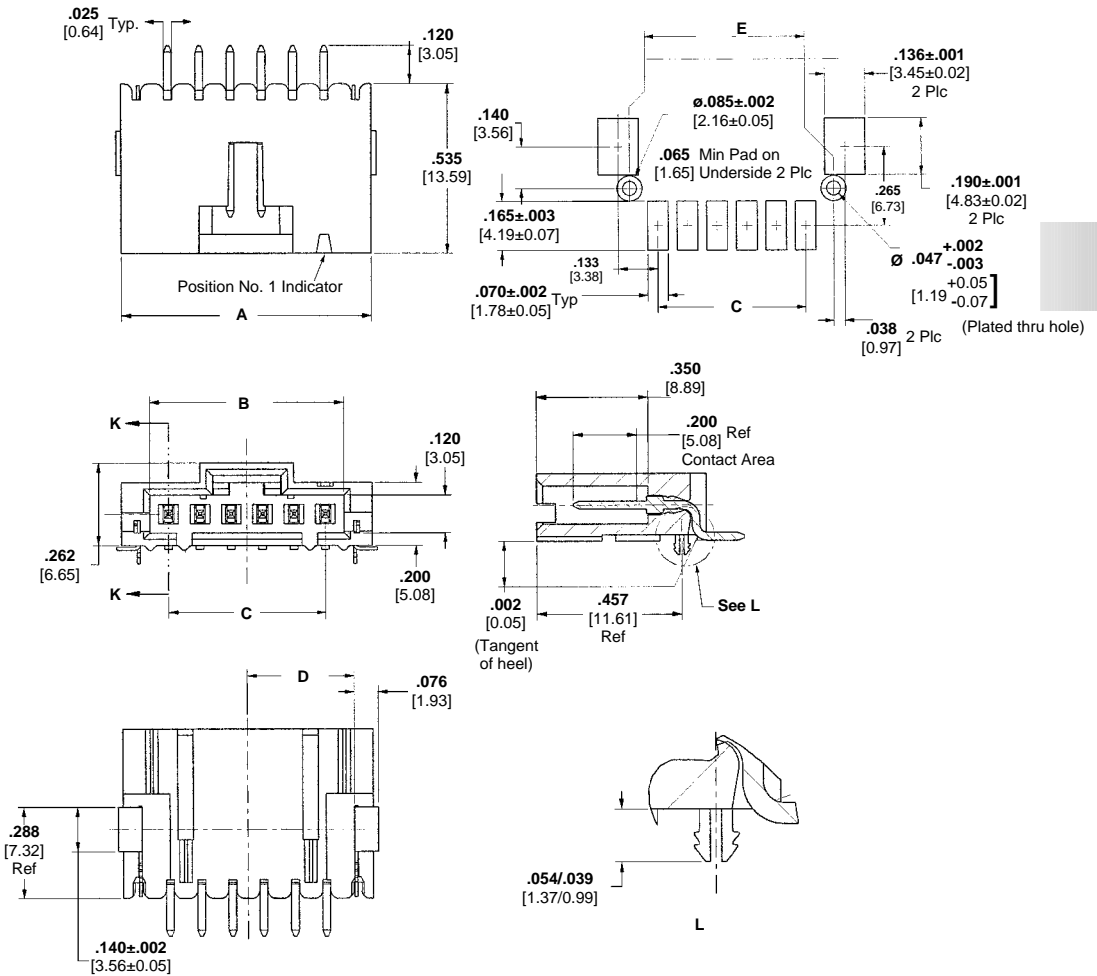
Plating A—Duplex plated .000030 [.00076] gold on contact area, .000100 [.00254] min. tin-lead on solder area, with entire post underplated .000050 [.00127] nickel.

Plating B—Duplex plated .000015 [.00038] gold on contact area, .000100 [.00254] min. tin-lead on solder area, with entire post underplated .000050 [.00127] nickel.

Plating C— .000100 [.00254] tin lead over .000050 [.00127] nickel on entire post

Recommended PC Board Layout

(Refer to MTE Application Spec. 114-25026 for Stencil Aperture Layout Using .006 [0.152] or .008 [0.203] Stencil Thickness)



2
PCB and Wire Connectors

Technical Documents: pages 2161, 2162

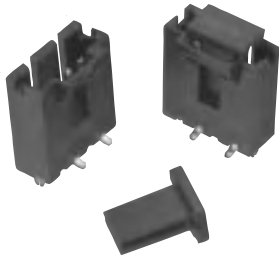
Product Specification
108-25034

Application Specification
114-25026

No. of Positions	Dimensions								Part Numbers					
	A		B		C		D		E		Right-Angle Latching SMT Headers	Plating A	Plating B	Plating C
2	.400	10.16	.220	5.59	.100	2.54	.140	3.56	.290	7.37	147323-1	147278-1	147324-1	
3	.500	12.70	.320	8.13	.200	5.08	.190	4.83	.390	9.91	147323-2	147278-2	147324-2	
4	.600	15.24	.420	10.67	.300	7.62	.240	6.10	.490	12.45	147323-3	147278-3	147324-3	
5	.700	17.78	.520	13.21	.400	10.16	.290	7.37	.590	14.99	147323-4	147278-4	147324-4	
6	.800	20.32	.620	15.75	.500	12.70	.340	8.64	.690	17.53	147323-5	147278-5	147324-5	
7	.900	22.86	.720	18.29	.600	15.24	.390	9.91	.790	20.07	147323-6	147278-6	147324-6	
8	1.000	25.40	.820	20.83	.700	17.78	.440	11.18	.890	22.61	147323-7	147278-7	147324-7	
9	1.100	27.94	.920	23.37	.800	20.32	.490	12.45	.990	25.15	147323-8	147278-8	147324-8	
10	1.200	30.48	1.020	25.91	.900	22.86	.540	13.72	1.090	27.69	147323-9	147278-9	147324-9	
11	1.300	33.02	1.120	28.45	1.000	25.40	.590	14.99	1.190	30.23	1-147323-0	1-147278-0	1-147324-0	
12	1.400	35.56	1.220	30.99	1.100	27.94	.640	16.26	1.290	32.77	1-147323-1	1-147278-1	1-147324-1	
13	1.500	38.10	1.320	33.53	1.200	30.48	.690	17.53	1.390	35.31	1-147323-2	1-147278-2	1-147324-2	
14	1.600	40.64	1.420	36.07	1.300	33.02	.740	18.80	1.490	37.85	1-147323-3	1-147278-3	1-147324-3	
15	1.700	43.18	1.520	38.61	1.400	35.56	.790	20.07	1.590	40.39	1-147323-4	1-147278-4	1-147324-4	
16	1.800	45.72	1.620	41.15	1.500	38.10	.840	21.34	1.690	42.93	1-147323-5	1-147278-5	1-147324-5	
17	1.900	48.26	1.720	43.69	1.600	40.64	.890	22.61	1.790	45.47	1-147323-6	1-147278-6	1-147324-6	
18	2.000	50.80	1.820	46.23	1.700	43.18	.940	23.88	1.890	48.01	1-147323-7	1-147278-7	1-147324-7	
19	2.100	53.34	1.920	48.77	1.800	45.72	.990	25.15	1.990	50.55	1-147323-8	1-147278-8	1-147324-8	
20	2.200	55.88	2.020	51.31	1.900	48.26	1.040	26.42	2.090	53.09	1-147323-9	1-147278-9	1-147324-9	
21	2.300	58.42	2.120	53.85	2.000	50.80	1.090	27.69	2.190	55.63	2-147323-0	2-147278-0	2-147324-0	
22	2.400	60.96	2.220	56.39	2.100	53.34	1.140	28.96	2.290	58.17	2-147323-1	2-147278-1	2-147324-1	
23	2.500	63.50	2.320	58.93	2.200	55.88	1.190	30.23	2.390	60.71	2-147323-2	2-147278-2	2-147324-2	
24	2.600	66.04	2.420	61.47	2.300	58.42	1.240	31.50	2.490	63.25	2-147323-3	2-147278-3	2-147324-3	
25	2.700	68.58	2.520	64.01	2.400	60.96	1.290	32.77	2.590	65.79	2-147323-4	2-147278-4	2-147324-4	

For complete product information, order Catalog 1307819

MTE Headers, Vertical, Polarized/Latching, Surface Mount



Material and Finish:

Housing—High temperature thermoplastic, Color - Black, 94V-0 rated

Posts—Brass, plated as follows:

Plating A—Duplex plated .00030 [.00076] gold on contact area, .000100 [.00254] min. tin-lead on solder area, with entire post underplated .000050 [.00127] nickel.

Plating B—Duplex plated .000015 [.00038] gold on contact area, .000100 [.00254] min. tin-lead on solder area, with entire post underplated .000050 [.00127] nickel.

Plating C—.000100 [.00254] tin lead over .000050 [.00127] nickel on entire contact/post

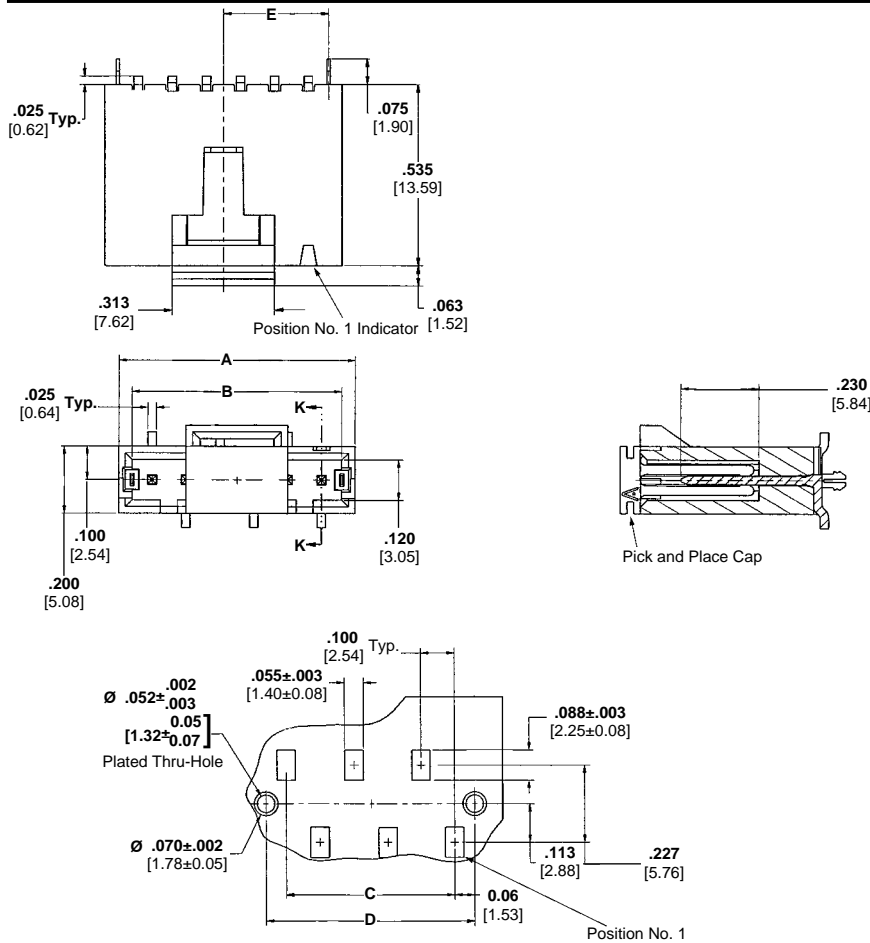
Recommended PC Board Layout

(Refer to MTE Application Spec. 114-25026 for Stencil Aperture Layout using .006 [0.152] or .008 [0.203] stencil thickness

Technical Documents: pages 2161, 2162

Product Specification
108-25034

Application Specification
114-25026



No. of Positions	Dimensions										Vertical SMT Headers Part Numbers		
	A	B	C	D	E	Plating A	Plating B	Plating C					
2	.300	7.62	.220	5.59	.100	2.54	.220	5.60	.110	2.80	1375583-1	1375582-1	1375549-1
3	.400	10.16	.320	8.13	.200	5.08	.320	8.14	.160	4.07	1375583-2	1375582-2	1375549-2
4	.500	12.70	.420	10.67	.300	7.62	.420	10.68	.210	5.34	1375583-3	1375582-3	1375549-3
5	.600	15.24	.520	13.21	.400	10.16	.520	13.22	.260	6.61	1375583-4	1375582-4	1375549-4
6	.700	17.78	.620	15.75	.500	12.70	.620	15.76	.310	7.88	1375583-5	1375582-5	1375549-5
7	.800	20.32	.720	18.29	.600	15.24	.720	18.30	.360	9.15	1375583-6	1375582-6	1375549-6
8	.900	22.86	.820	20.83	.700	17.78	.820	20.84	.410	10.42	1375583-7	1375582-7	1375549-7
9	1.000	25.40	.920	23.37	.800	20.32	.920	23.38	.460	11.69	1375583-8	1375582-8	1375549-8
10	1.100	27.94	1.020	25.91	.900	22.86	1.020	25.92	.510	12.96	1375583-9	1375582-9	1375549-9
11	1.200	30.48	1.120	28.45	1.000	25.40	1.120	28.46	.560	14.23	1-1375583-0	1-1375582-0	1-1375549-0
12	1.300	33.02	1.220	30.99	1.100	27.94	1.220	31.00	.610	15.50	1-1375583-1	1-1375582-1	1-1375549-1
13	1.400	35.56	1.320	33.53	1.200	30.48	1.320	33.54	.660	16.77	1-1375583-2	1-1375582-2	1-1375549-2
14	1.500	38.10	1.420	36.07	1.300	33.02	1.420	36.08	.710	18.04	1-1375583-3	1-1375582-3	1-1375549-3
15	1.600	40.64	1.520	38.61	1.400	35.56	1.520	38.62	.760	19.31	1-1375583-4	1-1375582-4	1-1375549-4
16	1.700	43.18	1.620	41.15	1.500	38.10	1.620	41.16	.810	20.58	1-1375583-5	1-1375582-5	1-1375549-5
17	1.800	45.72	1.720	43.69	1.600	40.64	1.720	43.70	.860	21.85	1-1375583-6	1-1375582-6	1-1375549-6
18	1.900	48.26	1.820	46.23	1.700	43.18	1.820	46.24	.910	23.12	1-1375583-7	1-1375582-7	1-1375549-7
19	2.000	50.80	1.920	48.77	1.800	45.72	1.920	48.78	.960	24.39	1-1375583-8	1-1375582-8	1-1375549-8
20	2.100	53.34	2.020	51.31	1.900	48.26	2.020	51.32	1.010	25.66	1-1375583-9	1-1375582-9	1-1375549-9
21	2.200	55.88	2.120	53.85	2.000	50.80	2.120	53.86	1.060	26.93	2-1375583-0	2-1375582-0	2-1375549-0
22	2.300	58.42	2.220	56.39	2.100	53.34	2.220	56.40	1.110	28.20	2-1375583-1	2-1375582-1	2-1375549-1
23	2.400	60.96	2.320	58.93	2.200	55.88	2.320	58.94	1.160	29.47	2-1375583-2	2-1375582-2	2-1375549-2
24	2.500	63.50	2.420	61.47	2.300	58.42	2.420	61.48	1.210	30.74	2-1375583-3	2-1375582-3	2-1375549-3
25	2.600	66.04	2.520	64.01	2.400	60.96	2.520	64.02	1.260	32.01	2-1375583-4	2-1375582-4	2-1375549-4

For complete product information, order Catalog 1307819

Colored MTE Interconnection System-4 position only

Colored Polarized Latching Receptacle Mates to Colored Vertical Header with PC Board orientation:

Material and Finish:

Housing – Color Thermoplastic, 94V-0 rated

Contact/post – Copper alloy, plated .000100-.000200 [0.00254-0.00508] tin-lead over .000050 [0.00127] nickel on entire contact/post.

Technical Documents: pages 2161, 2162

Product Specification 108-25034

Application Specification 114-25026

Refer to pages 2132 and 2143 for line art and customer drawings for specific dimensions.

Note: The .065+/-0.003 [1.65+/-0.08] diameter hole, used for PCB orientation, changes in position for headers listed below.

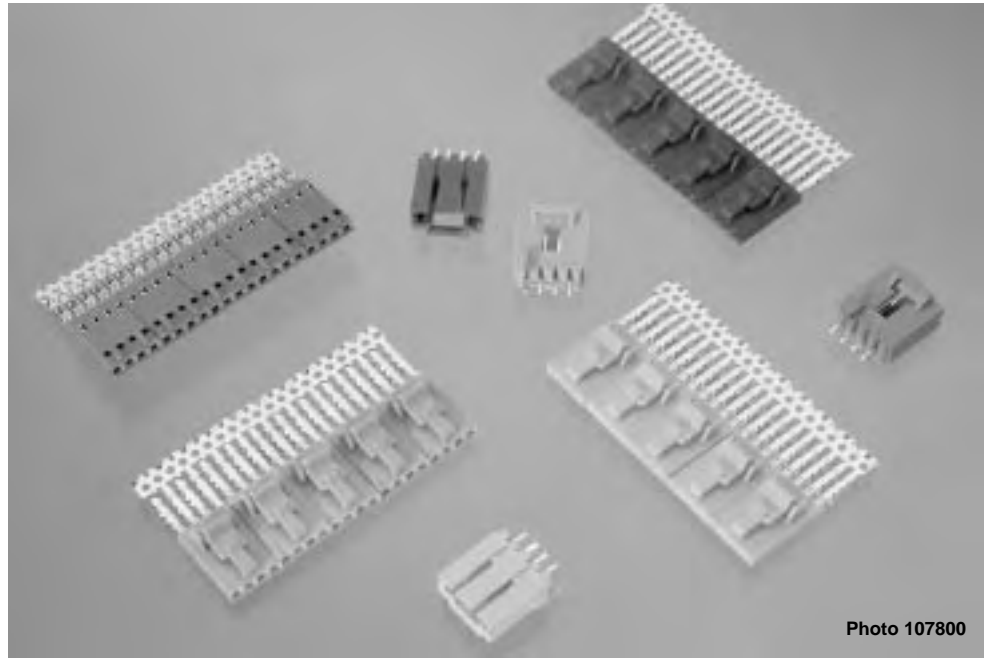
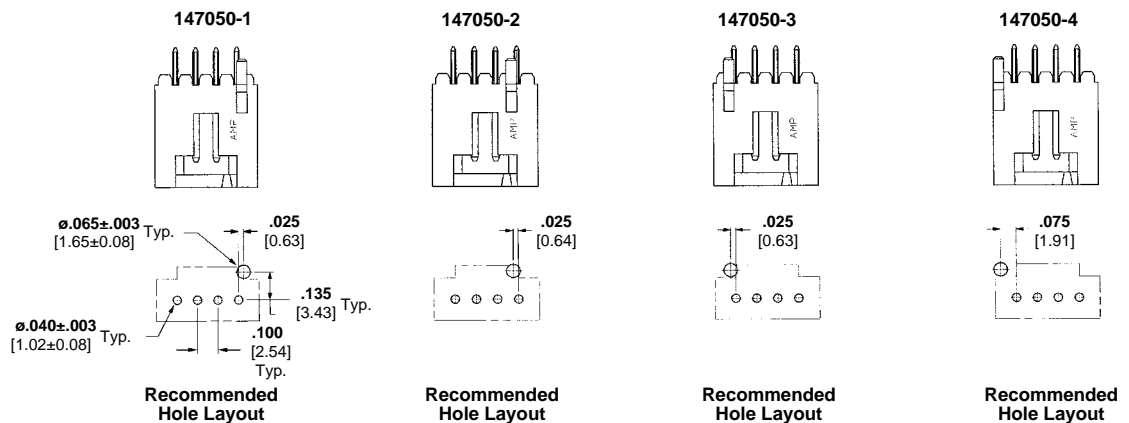


Photo 107800

Color	Strip Form Housing Quantities	Receptacle 30-26 AWG [0.05-0.15mm ²] Wire	Header	Unloaded Receptacle Housing
Natural/ Beige	5	147048-1	147050-1	147047-1
Green	5	147048-2	147050-2	147047-2
Blue	5	147048-3	147050-3	147047-3
Yellow	5	147048-4	147050-4	147047-4



PC Board Orientation Feature

For complete product information, order Catalog 1307819

Interchangeable Contacts, Wire Crimp (Snap-In)

Material and Finish:

Copper alloy C7025, plated as follows:

Plating A—Duplex plated .00030 [0.00076] min. gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating B—Duplex plated .00015 [0.00038] min. gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C—.000100 [0.00254] min. bright tin-lead over .000050 [0.00127] min. nickel on entire contact



**Keying Plug
Part Number 104072-1**

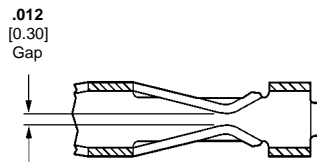
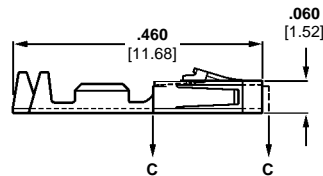
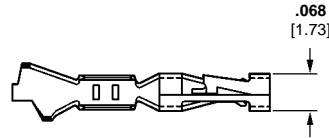
Ten plugs are supplied per strip.
Order quantity reflects the number of strips required.



Photo 4857

**Extraction/Lance Reset
Tool No. 843477-1**

Short Point Receptacles



Section C - C

Related Product Data:

Performance Characteristics—
page 2178

Housings used in—
Short Point—pages 2128

**AMPMODU MTE Unloaded
Housings**—pages 2131, 2132

Application Tooling—
pages 2158

Technical Documents: page
2161, 2162

Product Specification
108-1472, 108-25027

Application Specification
114-25038

Wire Size Range		Ins. Dia. Range	Finish	Contact Part Number (Standard Pressure)		Heavy Duty Miniature Applicator for AMP-O-ELECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Numbers
AWG	[mm ²]			Strip Form	Loose Piece			
32-28	0.03-0.08	.025-.060 0.64-1.52	Plating A	104481-4	104481-8	567296-2	466980-1	58438-1
			Plating B	104481-3	104481-7			
			Plating C	104481-2	104481-6			
26-22	0.13-0.3	.025-.060 0.64-1.52	Plating A	104480-4	104480-9	567297-2	466981-1	58438-1
			Plating B	104480-3	104480-8			
			Plating C	104480-2	104480-7			
24-20	0.2-0.5	.025-.060 0.64-1.52	Plating A	104479-4	104479-7	567298-2	466982-1	58437-1
			Plating B	104479-3	104479-6			
			Plating C	104479-2	104479-5			

*For use with Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the Model "G" machines, as well as other bench machines and fully automatic AMPOMATOR lead making machines.

Note: These wire crimp contacts can be intermixed with insulation displacement crimp contacts.

For complete product information, order Catalog 1307819

Interchangeable Contacts, Wire Crimp (Snap-In)

Material and Finish:

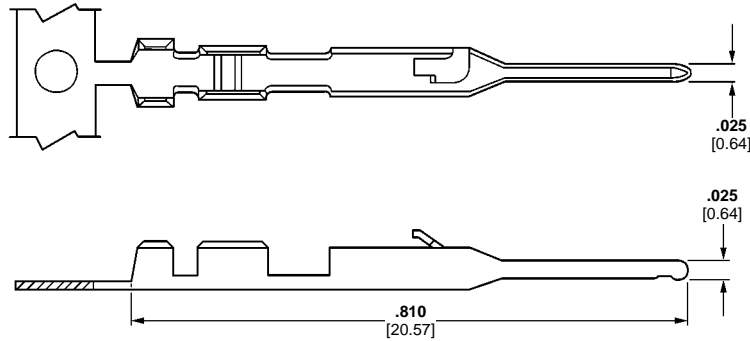
Phosphor bronze, plated as follows:

Plating A—Duplex plated .000030 [0.00076] gold on contact area, .000030 [0.00076] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B—Duplex plated .000015 [0.00038] gold on contact area, .000030 [0.00076] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C—.000100 [0.00254] min. bright tin-lead over .000050 [0.00127] nickel on entire contact

Pins



Keying Tool

Part Number 91417-1

This keying tool is used to remove posts from a header assembly, either before or after the header assembly is mounted to a pc board. The removal of posts is necessary when keying plugs are used in mating AMPMODU connectors.



Extraction/Lance Reset Tool No. 843477-1



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Number (Standard Pressure)		Heavy Duty Miniature Applicator for AMP-O-ELECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Numbers
			Strip Form	Loose Piece			
32-28 0.03-0.08	.025-.054 0.64-1.37	Plating A	104506-6	104506-7	—	—	58342-2
		Plating B	104506-4	104506-5	—	—	58342-2
		Plating C	104506-2	104506-3	—	—	58342-2
26-22 0.14-0.32	.036-.054 0.91-1.37	Plating A	104505-6	104505-7	567239-2	466983-1	58342-1
		Plating B	104505-4	104505-5	567239-2	466983-1	58342-1
		Plating C	104505-2	104505-3	567239-2	466983-1	58342-1

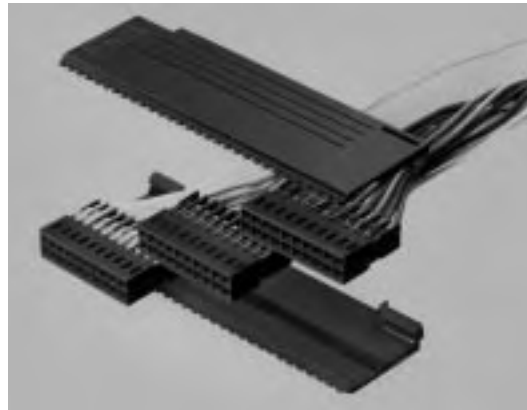
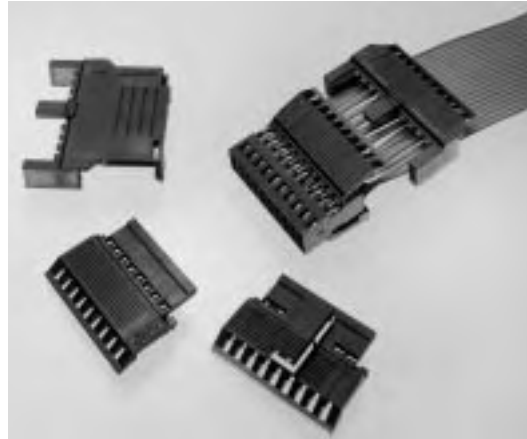
*For use with Model "K" machines. Call Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the Model "G" machines, as well as other bench machines and fully automatic AMPOMATOR lead making machines.

Note: These wire crimp contacts can be intermixed with insulation displacement crimp contacts.

For complete product information, order Catalog 1307819

Product Facts

- Full line of mass termination tooling offers lowest installed cost for most production needs
- Dual cantilever beams with anti-overstress features provide redundant contact of mating post and limit beam deflection, preventing deformation
- Redundant insulation displacement slots provide for maximum reliability
- Integral wire strain relief on contact prevents wire motion from being transmitted to wire termination areas
- Built-in contact post stop protects terminated wire from being disturbed by over-insertion of mating post, helps prevent wire from entering contact area and positively limits mating connector depth
- Insulation displacement contacts and crimp, snap-in contacts are interchangeable
- Complete serviceability with replacement contacts
- Cover styles include low profile (polarized, non-polarized, latching and ejection) and standard profile (hermaphroditic and ejection)
- Connector housings may be stacked end-to-end within one pair of covers. All varieties of covers in this catalog are suitable for multiple housing stacking applications similar to the example illustrated in the photograph to the right
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Typical Application of End-to-End Stacking

The AMPMODU MT and Shielded MT Interconnection System offers labor and cost savings through mass termination technology, while maintaining the time-proven reliability of the AMPMODU product family. The MT system is comprised of preloaded, double-row receptacle assemblies with snap-on covers and a variety of shielding hardware and accessories. The system is supported by a full line of mass termination tooling to meet virtually most production needs.

The insulation displacement contact, the heart of the MT system, features a mating interface that is the same as

the conventional AMPMODU crimp, snap-in contact, featuring dual cantilever beams, built-in overstress protection and a completely enclosed "box" design.

To reduce EMI/ESD (electromagnetic interference/electrostatic discharge) at the input-output interface, add-on metal shields can be used to convert standard MT connectors to shielded MT connectors.

Performance Characteristics:

Contact Current Rating—3 amperes for single contact in free air. (Amperage could vary due to ambient temperature, wire size and duty cycles.)

Operating Temperature—
-65°C to +105°C

Termination Resistance—
12 milliohms max.

Max. Mating Force—
High pressure - 26 oz. [7.23 N]
Standard pressure - 9 oz. [2.50 N]

Min. Unmating Force—
High pressure - 5 oz. [1.39 N]
Standard pressure - 1.5 oz. [0.417 N]

Contact Retention in Housing—
5 lb. [22.24 N] per contact min.

For complete product information, order Catalog 1307819

MT Receptacle Assemblies, Double-Row .100 x .100 [2.54 x 2.54] Centerline

Housings Preloaded with Standard Pressure Contacts



Material and Finish:

Housing—Black thermoplastic, flame retardant

Contacts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors—pages 2073, 2076-2078

Cable Insulation Wall Thickness—
.015 [0.39] max.

Cable Insulation Diameter—
.050 [1.27] max.

Mating Post Length—
.222-.273 [5.64-6.94] max.

Performance Characteristics—
page 2152

Replacement Contacts—page 2157

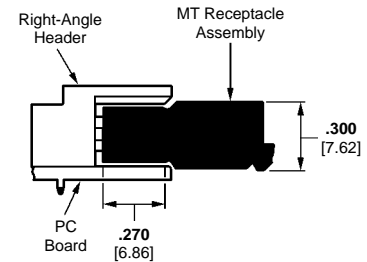
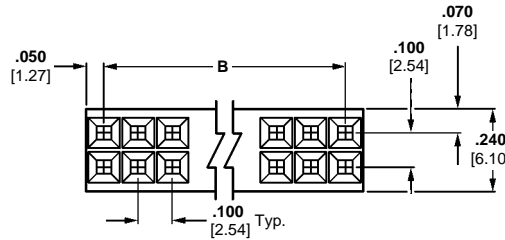
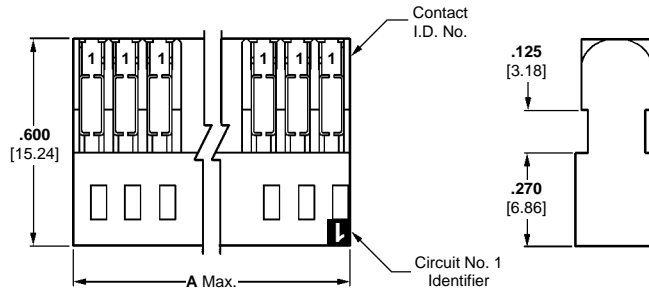
Connector Covers—
pages 2155, 2156

Application Tooling—
pages 2158, 2159

Technical Documents: pages
2161, 2162

Product Specification
108-25015, 108-25018, 108-25030

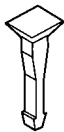
Application Specification
114-25032



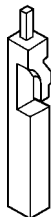
No. of Positions	Dimensions				Part Numbers (Stamped)			Unloaded Housings
					Wire Size Range			
	A	B	30-26 AWG [0.05-0.15 mm ²]	26-22 AWG [0.12-0.3 mm ²]	22-20 AWG [0.3-0.6 mm ²]			
6	.300	7.62	.200	5.08	—	102398-1	—	—
8	.400	10.16	.300	7.62	—	102398-2	—	—
10	.500	12.70	.400	10.16	102393-3	102398-3	—	—
12	.600	15.24	.500	12.70	—	102398-4	—	—
14	.700	17.78	.600	15.24	—	102398-5	—	—
16	.800	20.32	.700	17.78	—	102398-6	—	102394-6
18	.900	22.86	.800	20.32	—	102398-7	102448-7	102394-7
20	1.000	25.40	.900	22.86	—	—	102448-8	102394-8
24	1.200	30.48	1.100	27.94	—	1-102398-0	1-102448-0	—
26	1.300	33.02	1.200	30.48	—	1-102398-1	—	1-102394-1
34	1.700	43.18	1.600	40.64	—	1-102398-5	—	—
40	2.000	50.80	1.900	48.26	—	1-102398-8	1-102448-8	—
50	2.500	63.50	2.400	60.96	2-102393-3	—	—	—

Note: Contact Extraction/Lance Reset Tool No. 843477-3, see page 2151.

Keying Plugs



Part Number 86286-1
(Plugs into receptacle contact)



Part Number 87077-2
(Plugs directly into housing)

Material:

Natural color nylon

For complete product information, order Catalog 1307819

MT Receptacle Assemblies, Double-Row .100 x .100 [2.54 x 2.54] Centerline

Housings Preloaded with High Pressure Contacts



Material and Finish:

Housing—Black thermoplastic, flame retardant

Contacts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Mateable Connectors—pages 2073, 2076, 2078

Cable Insulation Wall Thickness— .015 [0.39] max.

Cable Insulation Diameter— .050 [1.27] max.

Mating Post Length— .200-.273 [5.64-6.94] max.

Performance Characteristics— page 2152

Replacement Contacts—page 2157

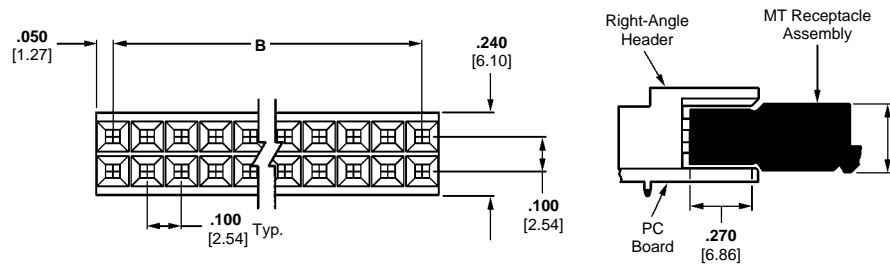
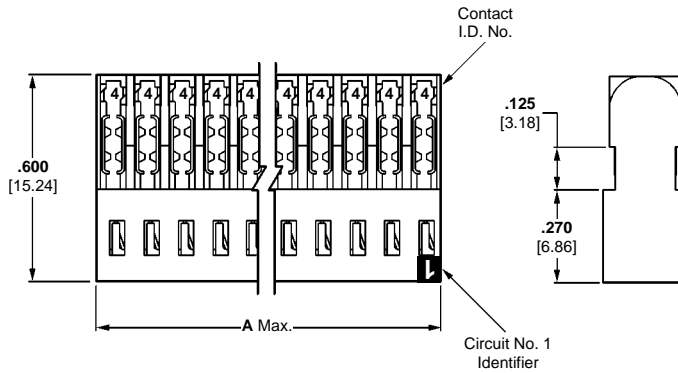
Connector Covers— pages 2155, 2156

Application Tooling— pages 2158, 2159

Technical Documents: pages 2161, 2162

Product Specification 108-25015, 108-25018, 108-25030

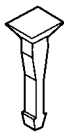
Application Specification 114-25032



No. of Positions	Dimensions				Part Numbers (Stamped*)	
	A		B		Wire Size Range	
					26-22 AWG [0.12-0.3 mm ²]	
6	.300	7.62	.200	5.08	102694-1	
8	.400	10.16	.300	7.62	102694-2	
10	.500	12.70	.400	10.16	102694-3	
12	.600	15.24	.500	12.70	102694-4	

*Cavity identification — first cavity (one side); AMP Part No. and date code stamped on housing where size permits.
Note: Contact Extraction/Lance Reset Tool No. 843477-3, see page 2157.

Keying Plugs



Part Number 86286-1
(Plugs into receptacle contact)



Part Number 87077-2
(Plugs directly into housing)

Material:

Natural color nylon

For complete product information, order Catalog 1307819

Low Profile Covers for Double-Row MT Receptacle Assemblies

Material:

Black thermoplastic, flame retardant

Related Product Data:

For use on Double-Row MT Receptacle Assemblies—pages 2153, 2154

Technical Documents: pages 2161, 2162

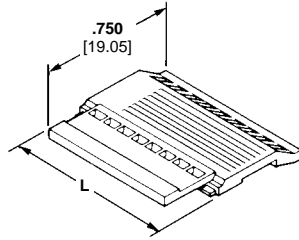
Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

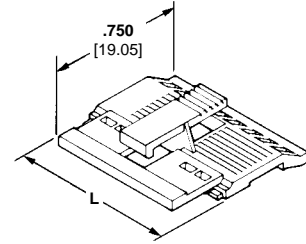
Note: See page 2156 for Low Profile Cover Part Nos.

Front Covers

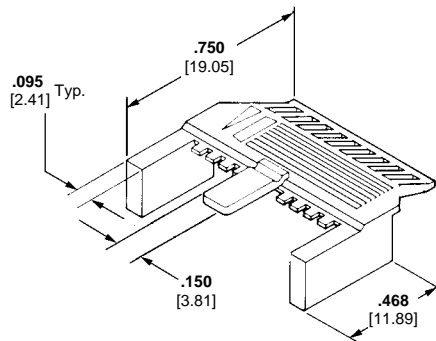
A - Polarizing Cover
(Mates with AMPMODU 4-sided shrouded headers. Refer to pages 2073-2076, 2078.)



B - Latching Cover
(Mates with AMPMODU 4-sided shrouded headers with extraction slot. Refer to pages 2073, 2076, 2078.)

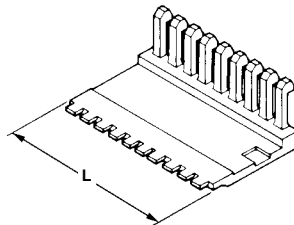


C - Ejection Cover
(Mates with AMP-LATCH universal ejection style pin headers equipped with latching ears, Part Number 102185-2 (with push tabs) or Part Number 102312-2 (without push tabs), see AMP Catalog 82012.)

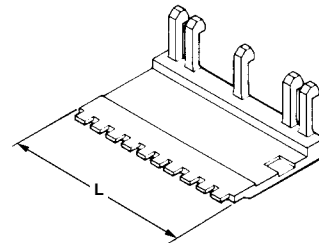


Back Covers

E - For Shielding and Non-Shielding Applications
(For use with any low profile cover.)



F - For Shielding Applications
(For use with Non-Polarizing Cover only.)



For complete product information, order Catalog 1307819

Standard Profile Covers for Double-Row MT Receptacle Assemblies

Material:

Black thermoplastic, flame retardant

Related Product Data:

For use on Double-Row MT Receptacle Assemblies—pages 2153, 2154

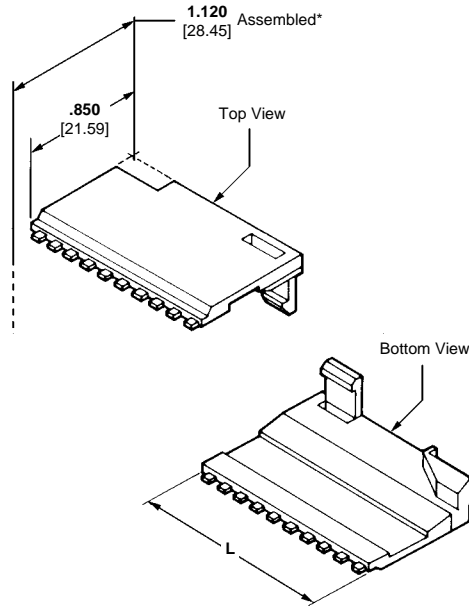
Technical Documents: pages 2161, 2162

Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

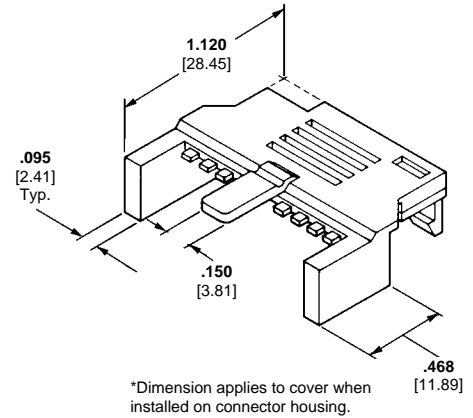
G - Hermaphroditic Cover

(Two hermaphroditic covers can be used or one hermaphroditic cover can be used with an H Ejection Cover.)



H - Ejection Cover

(Mates with AMP-LATCH universal ejection style pin headers equipped with latching ears, Part Number 102185-2 (with push tabs) or Part Number 102312-2 (without push tabs), see AMP Catalog 82012.)



No. of Positions	Dimension L		Low Profile Covers		Standard Profile Covers	
			Front Covers		Back Covers	G Hermaphroditic
			B Latching	C Ejection	E Shielding and Non-Shielding Applications	
6	.300	7.62	—	—	102536-1	—
8	.400	10.16	—	—	102536-2	—
10	.500	12.70	—	102537-3	102536-3	—
12	.600	15.24	102681-1	—	102536-4	—
14	.700	17.78	—	—	102536-5	102396-5
16	.800	20.32	102681-3	102537-6	102536-6	102396-6
18	.900	22.86	—	—	102536-7	—
20	1.000	25.40	102681-5	102537-8	102536-8	—
24	1.200	30.48	102681-7	1-102537-0	1-102536-0	—
26	1.300	33.02	102681-8	1-102537-1	1-102536-1	—
34	1.700	43.18	—	—	1-102536-5	—
50	2.500	63.50	2-102681-0	2-102537-3	2-102536-3	—

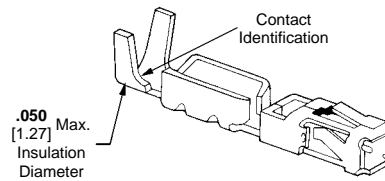
For complete product information, order Catalog 1307819

Replacement MT Receptacle Contacts

Insulation Displacement Contacts

Material and Finish:

Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead in crimp area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data:

Performance Characteristics—page 2152

Application Tooling—pages 2158, 2159

Technical Documents: pages 2161, 2162

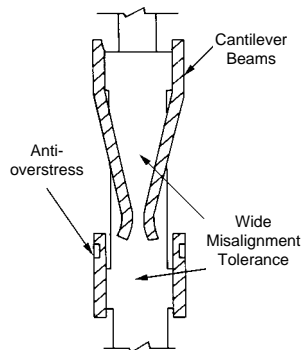
Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

Wire Size Range		Standard Pressure Receptacle		High Pressure Receptacle	
AWG	[mm ²]	Contact Ident.	Part Numbers	Contact Ident.	Part Numbers
30-26	0.05-0.15	1	102395-3	4	102641-3
26-22	0.12-0.3	2	102399-3	5	102642-3
22-20	0.3-0.6	3	102449-3	—	—

Note: Termination tooling for MT receptacle insulation displacement contacts is shown on page 2158.

MT receptacle contacts incorporate the following features.



The MT receptacle contact cross-section is primarily rectangular, with rounded corners. Two integral cantilever beams contact the mating square male posts. Deflection of these spring members is limited by anti-overstress and excessive deformation is prevented. This feature allows a wide range for tolerance of misalignment of mating contacts.

The configuration of the receptacle completely encloses the spring members preventing damage during handling and assembly, and makes the system compatible with automatic application techniques.



**Extraction/Lance Reset Tool
No. 843477-3**

For complete product information, order Catalog 1307819

Application Tooling for Wire Crimp Contacts

Tooling shown on this page is designed to terminate wire crimp contacts used in various AMPMODU wire-to-board connectors. Refer to page 2043 to determine the applicable connectors.

Hand Tools

PRO-CRIMPER II Hand Tool — Part Number 354940-1
See Page 13003

CERTI-CRIMP Straight Action Hand Tool — (SAHT)
See Page 13012

Semi-automatic Bench Tooling

AMP-O-LECTRIC Model "G" Terminating Machines —
Part Number 354500-1, -9, -11
See Page 13005

AMP-O-MATIC Stripper-Crimper Machines — **Part Number**
1320895-1, -2
See Page 13011

Crimp Quality Monitor (CQM) — **Part Number** 1320420-1, -2
See Page 13027

Automatic Tooling

AMP-O-MATOR CLS IV+ Lead-Making Machines — **Part Number**
356500-1, -2
See Page 13008

Crimp Quality Monitor (CQM) — **Part Number** 1320420-1, -2
See Page 13027

Tooling shown on this page is designed to terminate IDC contacts for various AMPMODU wire-to-board connectors. Refer to page 2043 to determine the applicable connectors.



**Manual Pistol Grip
Tool No. 58074-1**



**Pneumatic Pistol Grip
Tool No. 58075-1**



**Bench Mounted Pneumatic Power Assembly
No. 58338-1**

Pistol Grip Manual and Air Powered Tools

The manual pistol grip tool features an interchangeable modular terminating head which also can be used in the pneumatic version, the Bench Mount Pneumatic Power Assembly and the IDC Electric Power Unit. The head terminates one unstripped wire per cycle and indexes the connector to the next terminating position. The head rotates to permit optimum access to the wiring area.

The Bench Mount Pneumatic Power Assembly is air actuated with either a foot or knee switch. This capability frees the operator's hands for optimum positioning.

Modular Heads:

58062-1 (for MT connectors)

58336-1 (for MTE connectors)

58395-1 (for Level V IDC connectors)

58540-1 (for MTE connectors, discrete wire or flat ribbon cable)

For complete product information, order Catalog 1307819

Application Tooling for Insulation Displacement Crimp (IDC) Contacts and Connectors

Tooling shown on this page is designed to terminate IDC contacts for various AMPMODU wire-to-board connectors. Refer to page 2043 to determine the applicable connectors.

This modular head tool can be used on any pistol grip tool. It was designed for discrete wire or flat ribbon cable applications.



**Modular Head
Tool No. 58540-1**



Photo 94594

IDC Electric Power Unit

This electrically powered semiautomatic bench machine is designed for applying AMPMODU MTE and MT connectors to discrete wires. It is portable and compact and uses existing pistol grip modular heads. The heads are easily interchanged to run different products. *The IDC Electric Power Unit's cycle rate is approximately 7,200 cycles per hour, with exact production rates depending upon operator dexterity.

Modular Heads:

58062-1 (for MT connectors)

58336-1 (for MTE connectors)



**IDC Electric Power Unit
No. 931800-1**

*A tube-fed track assembly, Part No. 856675-1, also can be used with MTE Connectors.

Tooling shown on this page is designed to terminate IDC contacts for various AMPMODU wire-to-board connectors. Refer to page 2043 to determine the applicable connectors.

Bench Mount Arbor Tools

Manual Arbor Tool

Tool Components:

Tool Frame — Part Number 91085

Applicator — Part Number 91415-1

Wire Organizer Assembly, for Discrete Wire — Part Number 527085-1

See Page 13015

Pneumatic Arbor Tool

Tool Components:

Tool Frame — Part Number 91112-3

Applicator — Part Number 91415-1

Upper Tool Mount — Part Number 507145-1

Wire Organizer Assembly, for Discrete Wire — Part Number 527085-1

See Page 13015

Semi-automatic Machines for Discrete Wire

Electric Discrete Wire Terminating Machines — Part Number

58020-1, -2, -4, -5

See Page 13017

Semi-automatic Machines for Ribbon Cable

Ribbon Cable Terminator (Tube-Fed) — Part Number 856002-1

See Page 13017

2700-lb Pneumatic Power Units (for end-notching ribbon cable —

Part Number 312522-1, -2, -3, -4

Notching Dies:

Part Number 854449-1 (for 24-22 AWG [0.2-0.6mm²] Wire)

Part Number 854449-2 (for 28-26 AWG [0.8-0.15mm²] Wire)

See Page 13015

Semi-automatic Machines for Jacketed Cable

CHAMPOMATOR Model 2.5 Terminating Machine —

Part Number 354786

Series Controller — Part Number 852423-1, -3

See Page 13018

Automatic Machines for Jacketed Cable

CHAMPOMATOR Model 3A Terminating Machine —

Part Number 662600 Series

See Page 13019

For complete product information, order Catalog 1307819

Technical Documents for Board-to-Board Products

Various technical documents are available for your use.

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineers.

Receptacle Assemblies and Unshrouded Breakaway Headers, Surface-Mount — Pages 2069, 2100-2103:

- 108-25017 Interconnection System, AMPMODU Two-Piece
- 108-25022 Interconnection System, AMPMODU Mod. IV Vertical Assemblies
- 108-25026 Interconnection System, AMPMODI Mod. II Standard Pressure Receptacle Assembly and Header

Two-Piece Printed Circuit Board Connectors — Pages 2106-2113:

- 108-16 ACTION PIN Contacts
- 108-25017 Interconnection System, AMPMODU Two-Piece
- 108-25027 Interconnection System, AMPMODU Mod. II Short-Point Receptacle Assembly and Header

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 2088-2099:

- 108-9007 Interconnection System, AMPMODU Mod. II Standard, Short-Point and High-Pressure Receptacle Assemblies with Mating Headers
- 108-25022 Interconnection System, AMPMODU Mod. IV Vertical Assemblies
- 108-25026 Interconnection System, AMPMODU Mod. II Standard Pressure Receptacle Assembly and Header
- 108-25027 Interconnection System, AMPMODU Mod. II Short-Point Receptacle Assembly and Header

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 2047-2060, 2064-2068, 2071-2078, 2081-2087:

- 108-16 ACTION PIN Contacts
- 108-25026 Interconnection System, AMPMODU Mod. II Standard Pressure Receptacle Assembly and Header

Application Specifications describe requirements for using the product in its intended application, and/or crimping information. They are intended for the Packaging and Design Engineers and the Setup person.

Two-Piece Printed Circuit Board Connectors — Pages 2106-2112:

- 114-9009 Header, Two-Piece, Double Row, AMPMODU, Application of

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 2088-2099:

- 114-25018 Receptacle Assembly, PC Board Mounted, Vertical, AMPMODU Mod. II and IV, Application of

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 2047-2060, 2064-2068, 2071-2078, 2081-2087:

- 114-25028 AMP Headers with ACTION PIN Contacts, Application

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

Two-Piece Printed Circuit Board Connectors — Pages 2106-2112:

- 408-2636 ACTION PIN Contact Rear Insertion/Extraction Tool 265871-7
- 408-9054 Seating Tools
- 408-9185 ACTION PIN Contact Front Extraction Tool 58209-1

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 2088-2099:

- 408-7297 Inserting Solder Tine Receptacle Contacts in AMPMODU Mod. II Horizontal Connectors
- 408-7411 Suggestions for Flow Soldering Vertical AMPMODU Receptacles
- 408-7700 Replacing Solder Tine Receptacle Contacts in AMPMODU Mod. II and Mod. IV Vertical Connectors

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 2047-2060, 2064-2068, 2071-2078, 2081-2087:

- 408-2636 ACTION PIN Contact Rear Insertion/Extraction Tool 265871-7
- 408-6944 AMP Uninsulated Bandolier Post Insertion Tool 92419-1
- 408-7977 End Shrouds for AMPMODU Double Row, Straight Posts, .100 x .100 [0.64 x 0.64] Centers
- 408-7878 Barrier Inserts for AMPMODU Headers
- 408-9009 Hand Tool 91046-1 for Breakaway Headers
- 408-9054 Seating Tool for ACTION PIN Contact Headers, 91170 Series
- 408-9185 ACTION PIN Contact Front Extraction Tool 58209-1
- 408-9707 Tool Kit 314818-1 for Breakaway Headers

Handbook 5697 Guide to Application of ACTION PIN Contact Connectors

For complete product information, order Catalog 1307819

Technical Documents for Wire-to-Board Products

Various technical documents are available for your use.

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineers.

Mod. IV Wire-Applied Contacts and Housings — Pages 2116-2125:

- 108-25007 Interconnection System, AMPMODU Mod. V Wire-Applied (High Pressure)
- 108-25019 AMPMODU Mod. IV Male Connectors
- 108-25020 Interconnection System, AMPMODU Mod. IV (Standard Pressure)
- 108-25021 Interconnection System, AMPMODU Mod. IV (Intermediate Pressure)

Short-Point Wire-Applied Contacts and Housings — Pages 2126-2128:

- 108-1472 Short-Point Contacts and Housings

AMPMODU MTE Interconnection System — Pages 2129-2148:

- 108-25034 AMPMODU MTE Connectors

AMPMODU MT and Shielded MT Interconnection System — Pages 2152-2157:

- 108-25015 AMPMODU MT Standard Pressure Connectors
 - 108-25018 AMPMODU MT High Pressure Connectors
 - 108-25030 AMPMODU MT Shielding Accessories
-

Application Specifications describe requirements for using the product in its intended application, and/or crimping information. They are intended for the Packaging and Design Engineers and the Setup person.

Mod. IV Wire-Applied Contacts and Housings — Pages 2116-2125:

- 114-25003 AMPMODU Mod. IV (Standard Pressure), Mod. IV.V (Intermediate Pressure) and Mod. V (High Pressure) Receptacle Contacts, Application of
- 114-25016 AMPMODU Mod. IV Crimp Pin Contact

Short-Point Wire-Applied Contacts and Housings — Pages 2126-2128:

- 114-25038 Short-Point Contacts and Housings

AMPMODU MTE Interconnection System — Pages 2129-2148:

- 114-25026 AMPMODU MTE Interconnection System

AMPMODU MT and Shielded MT Interconnection System — Pages 2152-2157:

- 114-25032 AMPMODU MT Interconnection System and Shielding Accessories, Application of

For complete product information, order Catalog 1307819

Technical Documents for Wire-to-Board Products

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

Mod. IV Wire-Applied Contacts and Housings — Pages 2116-2125:

408-4379 AMP PRO-CRIMPER II Hand Tool
408-7481 AMP Extraction Tool 91065-1 for AMPMODU Wire-Applied Housings 86308
408-7538 AMP Hand Tool 90202-2
408-7935 AMPMODU Receptacle Connectors with Strain Relief/Pull Tabs
408-9222 AMP Hand Tool 90418-1
408-9231 AMP Hand Tool 90417-1
408-9453 AMP Extraction Tools 843996 and 843477 for Removing AMPMODU Crimp Snap-In Receptacle Contacts from Wire-Applied Housings

AMPMODU MTE Interconnection System — Pages 2129-2148:

408-6789 AMP Pneumatic Pistol Handle 58075-1
408-6790 AMP Manual Pistol Handle 58074-1
408-6919 AMPMODU MTE Connectors
408-8236 MTE Head Assembly for Discrete Wire or Flat Ribbon Cable
408-9230 AMP Keying Tool 91417-1
408-9359 MTE Modular Terminating Head 58336-1
408-9393 AMP Pneumatic Bench Assy. 58338-1
408-9407 AMP Hand Crimp Tool 58342-1 and 58342-2
408-9453 AMP Extraction Tools 843996 and 843477 for Removing AMPMODU Crimp Snap-In Receptacle Contacts from Wire-Applied Housings
408-9515 Ribbon Cable Notcher 85449-[]
408-9590 AMP Hand Crimp Tool 58438-1
408-9593 AMP Hand Crimp Tool 58437-1
409-5746 AMP Electric Power Unit 931800-1
409-5832 MTE Ribbon Cable Terminator 856002-1

AMPMODU MT and Shielded MT Interconnection System — Pages 2151-2157:

408-6532 AMPMODU MT Connectors
408-9453 AMP Extraction Tools 843996 and 843477 for Removing AMPMODU Crimp Snap-In Receptacle Contacts from Wire-Applied Housings

For complete product information, order Catalog 1307819

Product Facts

- Rugged connector system featuring .031 x .062 (0.79 x 1.57) posts with mating receptacles.
- Current rating 5 amps max per contact. Varies due to ambient temperature, wire size and duty cycles.
- Available for board-to-board and wire-to-board applications.
- Posts available on strip for machine application directly to pc board or in housings for board mounting.
- Receptacles available for board mounting or wire crimping.
- Contacts available in both tin and gold plating.
- Flame retardant thermoplastic housings 94V-0 rated.
- Locking Clip contacts available to mate with .031 x .062 posts.
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 16455



The .031 x .062 [0.79 x 1.57] interconnection system has served as an industry standard for modular packaging for over three decades. It is a rugged, large scale system designed for board-to-board and board-to-wire or cable applications that has offered millions of reliable interconnections and countless mating cycles. This versatile interconnection system successfully meets the requirements for most modular power supply packaging.

Board mounted receptacles and receptacle assemblies are available in various geometries, offering packaging interconnections

that include perpendicular, parallel and stacking capabilities. Machine applied terminations, through matched application equipment, are geared to virtually any production requirement, with the goal of low applied cost.

Crimp snap-in receptacles for 26-18 AWG [0.12 – 0.9mm²] wire provide excellent discrete wire terminations. Housings for these contacts provide for ease of handling terminations in high density applications.

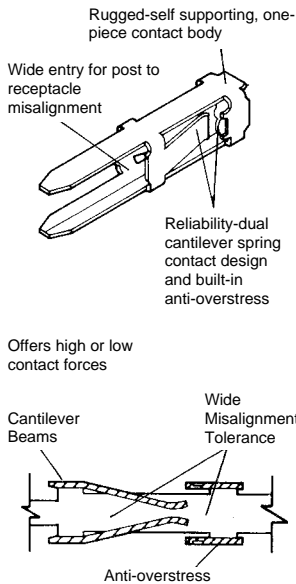
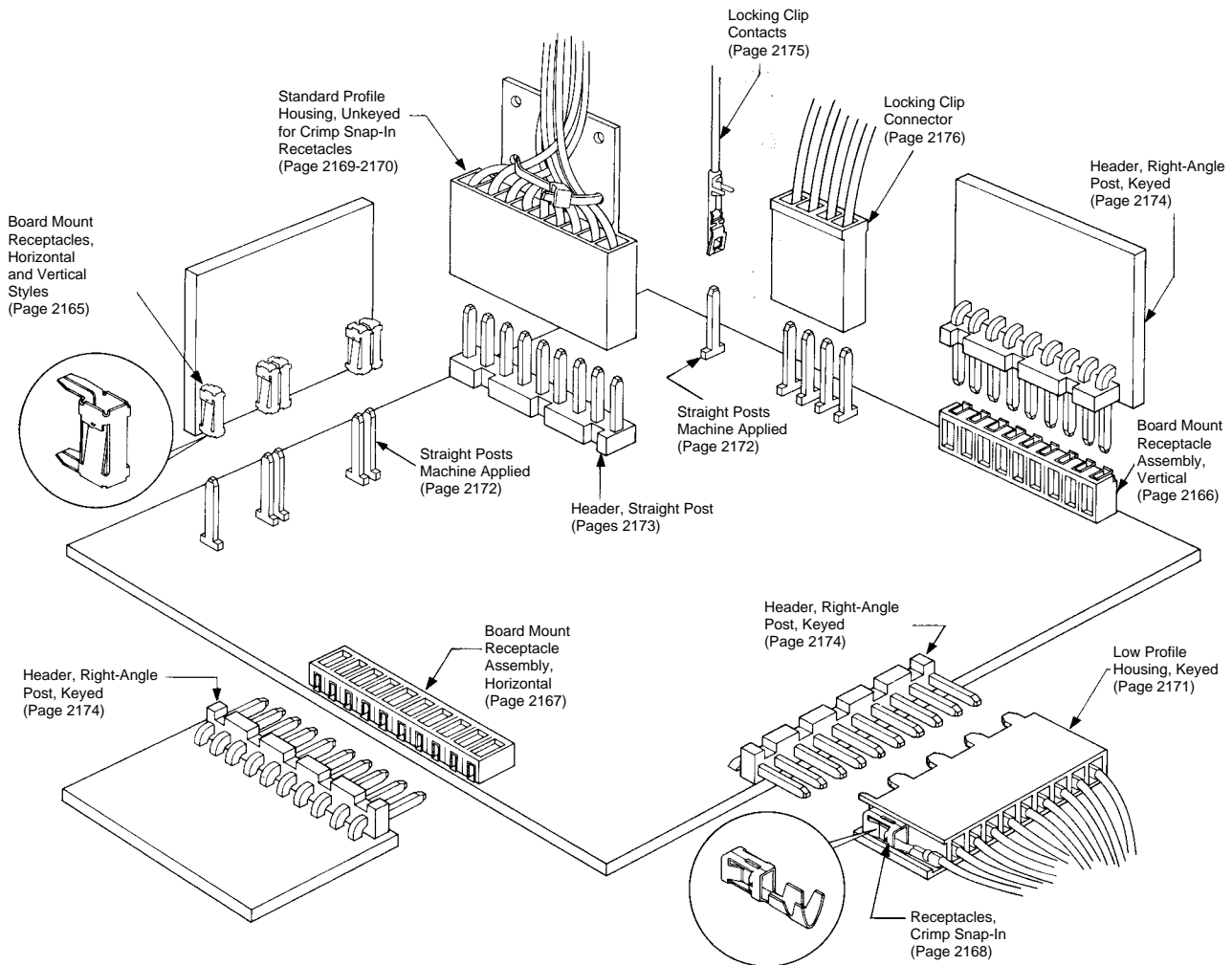
AMPMODU mating posts are supplied typically as header assemblies. They are available in various sizes to meet the interconnection and

packaging requirements of your system. However, in instances where packaging configurations do not lend themselves to the economies of assemblies, Tyco Electronics can provide for the discrete location of individual posts and receptacles.

If your interconnections require Top Entry, Bottom Entry and/or Side Entry for perpendicular, parallel and stacked configurations, the .031 x .062 [0.79 x 1.57] interconnection system can fulfill your needs with the lowest applied cost through efficient interconnections and supporting application equipment.

For complete product information, order Catalog 1307819

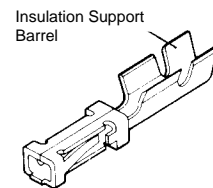
AMPMODU .031 x .062 [0.79 x 1.57] Interconnection System



The AMPMODU receptacle cross-section is primarily rectangular, with rounded corners. Two integral cantilever beams contact the mating square or rectangular posts. Deflection of these spring members is limited by anti-overstress and excessive deformation is prevented. This feature allows a wide range of tolerances for misalignment of mating contacts. The configuration of the receptacle completely encloses the spring members help prevent damage during handling and assembly and makes the system compatible with automatic application techniques.

This design also permits the use of the receptacles without housings or encapsulation.

Note: Application of a contact lubricant is part of the manufacturing process of all AMPMODU tin-plated crimp products. However, it is not part of the manufacturing process of products that customers will solder, then clean. For these products, Tyco Electronics recommends that customers purchase a contact lubricant. (See application specification 114-25004 for further information.)

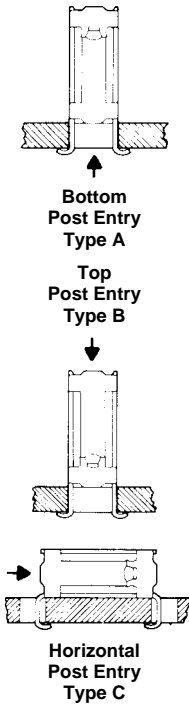


Wire Crimp Receptacle

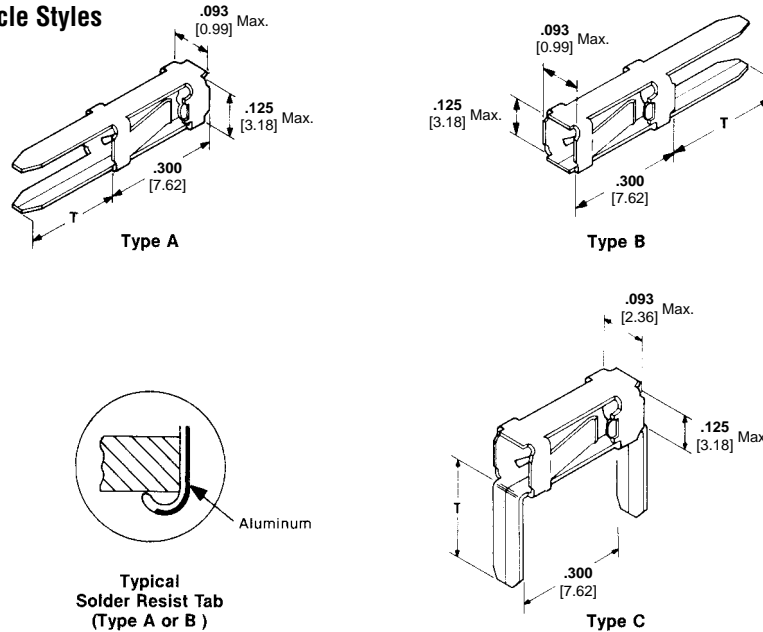
For complete product information, order Catalog 1307819

Mod I Receptacles, Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Vertical and Horizontal Board Mount



Receptacle Styles



J-Receptacle centers may vary depending on requirements. For individual receptacles, minimum nominal centerline spacing between adjacent receptacles is .156 [3.81]; for receptacle assemblies, centerline spacing between adjacent receptacles is .156 [3.96]. The .003 [0.08] tolerances are not to accumulate over length of board. For solder mask, see AMP Instruction Sheet 408-7411.

Note: Drawings depict normal use of the contact in a one or two-sided circuit board. When using plated thru-holes, refer to AMP Engineering Report ER-001 and AMP Instruction Sheet 408-7411. For solder mask, see AMP Instruction Sheet 408-7411.

Related Product Data:

Recommended Board Layout for Type C—page 2167

Mates with

Machine Applied Posts—page 2172

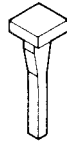
Headers—pages 2173, 2174

Application Tooling—page 2177

Performance Specifications—page 2178

Technical Documents: page 2178

Keying Plug



Part Number 86181-2
Use in Board Mount Receptacle Styles

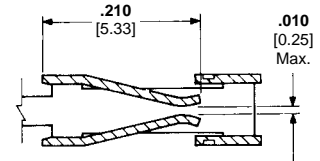
Material and Finish:

Copper alloy, plated as follows:

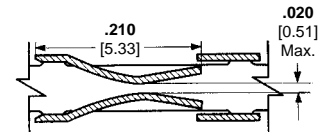
Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B—.000079 [0.00201] min. tin on entire contact

Plating C—(Solder Resist)—.000030 [0.00076] gold over .000050 [0.00127] nickel on contact area, .000500 [0.01270] aluminum on inside area of solder tines; remainder of contact unfinished



Standard Pressure Receptacle



High Pressure Receptacle

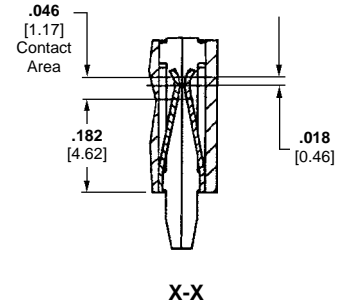
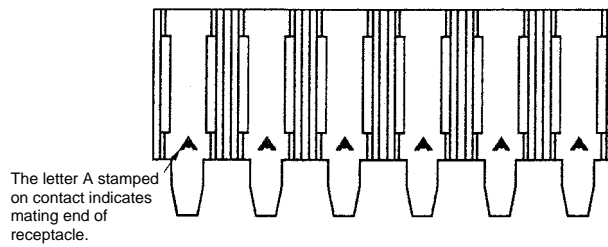
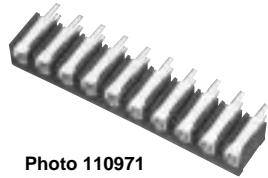
Type	Board Thickness Range	(Ref. Pg. Above) Dimension T	Finish	Standard Pressure Part Numbers		High Pressure Part Numbers		Insertion Applicator Number for "U" Frame Machine
				Strip Form	Loose Piece	Strip Form	Loose Piece	
A	.070-.055 1.78-1.40	.112 2.84	Plating A	86477-2	86480-2	—	—	466376-1
			Plating B	86477-3	—	87316-3	—	466376-1
			Plating C (Solder Resist)	87772-2	—	—	—	466376-1
B	.070-.055 1.78-1.40	.112 2.84	Plating A	87003-1	87105-1	—	—	466376-1
			Plating B	87003-2	—	—	—	466376-1
C	.103-.055 2.62-1.40	.145 3.68	Plating A	—	85493-4	—	—	565967-3
			Plating B	—	—	—	86434-1	—

Notes: 1. All strip form parts in packaged quantities of 5,000 each.
2. All loose piece parts in packaged quantities of 500 each.

For complete product information, order Catalog 1307819

Mod I Receptacle Assemblies, Vertical Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Single Row .156 [3.96] Centerline



Material and Finish:

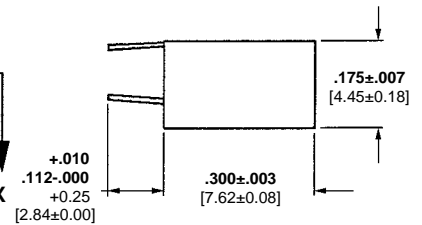
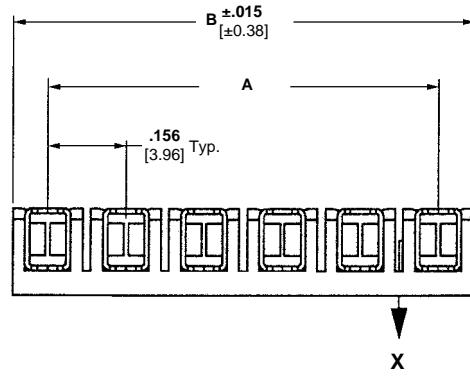
Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B—.000079 [0.00201] min. tin on entire contact

Plating C—(Solder Resist)—.000030 [0.00076] gold over .000050 [0.00127] nickel on contact area, .000500 [0.01270] aluminum on inside area of solder tines; remainder of contact unfinished



Related Product Data:

Recommended Board Layout—page 2165

Mates with

Machine Applied Posts—page 2172

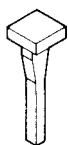
Headers—pages 2173, 2174

Performance Specifications—page 2178

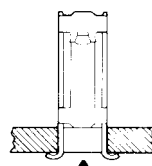
Technical Documents: page 2178

No. of Positions	Dimensions		Part Numbers		
			Type A	Type B	
	A	B	Standard Pressure	Standard Pressure	
4	.468 11.89	.624 15.85	—	Plating A	Plating B
6	.780 19.81	.936 23.77	87989-6	87986-4	—
10	1.404 35.66	1.560 39.62	—	87986-6	1-87985-0

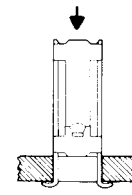
Keying Plug



Part Number 86181-2
(Use in Board Mount Receptacles)



Post Entry Type A



Post Entry Type B

For complete product information, order Catalog 1307819

Mod I Receptacle Assemblies, Horizontal Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Single Row .156 [3.96] Centers

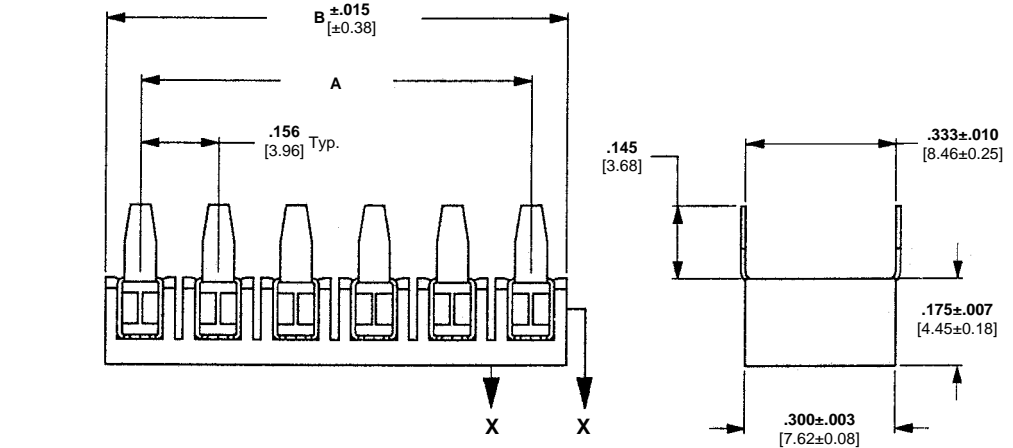
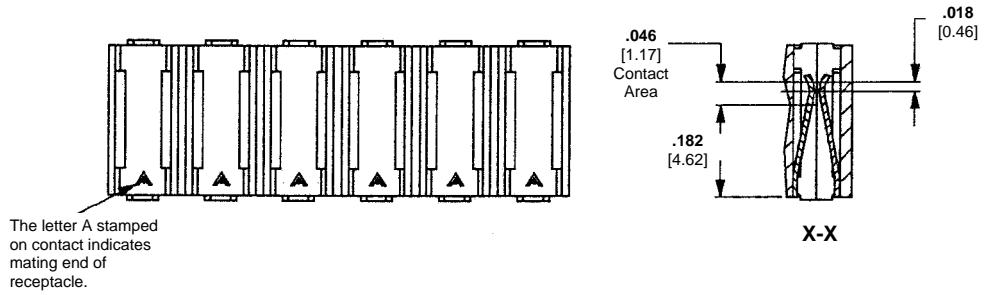
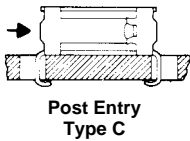
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B—.000079 [0.00201] min. tin on entire contact



Related Product Data:

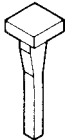
Mates with
Machine Applied Posts—page 2172

Headers—pages 2173, 2174

Performance Specifications—page 2178

Technical Documents: page 2178

Keying Plug



Part Number 86181-2
(Use in Board Mount Receptacles)

The mating post length is depicted by the A dimension on page 134 (machine applied posts) and the C dimension on pages 135, 136 (headers).

H-Receptacle centers may vary depending on requirements. For individual receptacles, minimum nominal centerline spacing between adjacent receptacles is .125 [3.18] for receptacle assemblies, centerline spacing between adjacent receptacles is .156 [3.96]. The .003 [0.08] tolerances are not to accumulate over length of board.

No. of Positions	Dimensions				Part Numbers		
	A		B		Standard Pressure		High Pressure
					Plating A	Plating B	Plating B
4	.468	11.89	.624	15.85	87988-4	—	87995-4
8	1.092	27.74	1.248	31.70	—	87987-8	—

For complete product information, order Catalog 1307819

Mod I Receptacles, Crimp Snap-In (Wire Applied), .031 x .062 [0.79 x 1.57] Centerline

Material and Finish:

Copper alloy, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B—.000016 [0.00041] min. tin on entire contact

Related Product Data:

Housings used in—pages 2169-2171

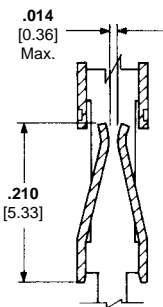
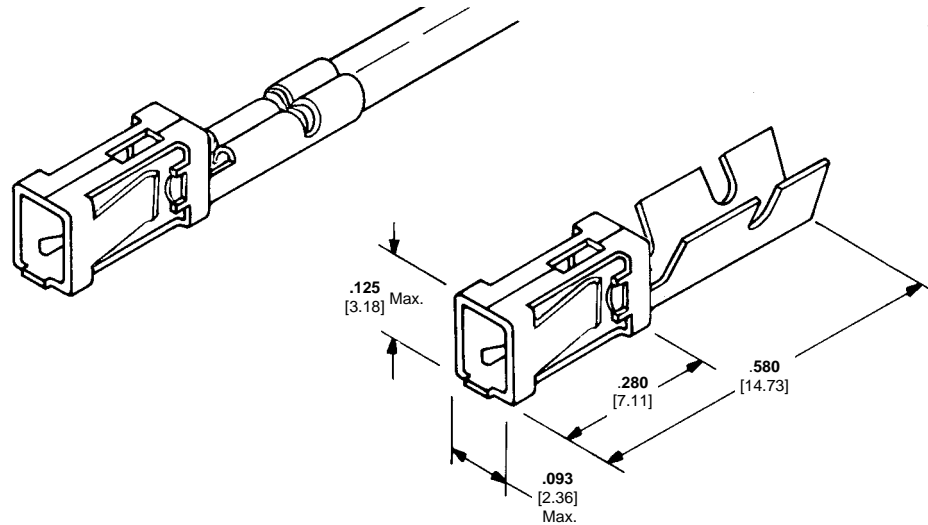
Mate with Machine Applied Posts—page 2172

Headers—pages 2173, 2174

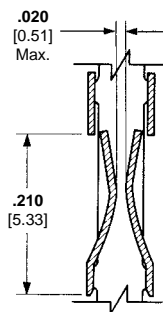
Application Tooling—page 2177

Performance Specification—page 2178

Technical Documents: page 2178



Standard Pressure Receptacle



High Pressure Receptacle



Extraction Tool Part Number 843473-1
Part Instruction Sheet 408-9451

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Standard Pressure			
			Strip Form		Loose Piece	
			Packaged Quantities	Part Numbers	Packaged Quantities	Part Numbers
22-18 0.3-0.9	.051-.090 1.30-2.29	Plating A	5,000	—	500	102103-2
		Plating B	5,000	102099-5	500	—

Wire Size Range AWG [mm ²]	Applicator (Standard Pressure)			Premium CERTI-CRIMP Hand Tool Part Number
	Part Number	Type	Used With Machine	
22-18	466764-3	HDM	Model "G" (AMP-O-LECTRIC)	90274-2
	466764-2	HDM	Model "K" (AMP-O-LECTRIC)	
	466764-1	HDM	CLS IV+ (AMPOMATOR)	
	1016605-1	Applicator 2000	Model "G", "K" and CLS IV+	
	466937-1	SCA	Stripper-Crimper (AMP-O-MATIC)	

AMP-O-LECTRIC KII Machine. Applicators also available for AMPOMATOR Lead Making Machines and Stripper/Crimper Machines. Consult Tyco Electronics.

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	High Pressure			
			Strip Form		Loose Piece	
			Packaged Quantities	Part Numbers	Packaged Quantities	Part Numbers
22-18 0.3-0.9	.051-.090 1.30-2.29	Plating A	5,000	102100-2	500	102104-2
		Plating B	5,000	102100-5	500	102104-3
26-22 0.12-0.4	.042-.073 1.07-1.85	Plating A	5,000	102102-2	500	102106-2

Wire Size Range AWG [mm ²]	Applicator (High Pressure)			Premium CERTI-CRIMP Hand Tool Part Number
	Part Number	Type	Used With Machine	
22-18 0.3-0.9	466764-3	HDM	Model "G" (AMP-O-LECTRIC)	90274-2
	466764-2	HDM	Model "K" (AMP-O-LECTRIC)	
	466764-1	HDM	CLS IV+ (AMPOMATOR)	
26-22 0.12-0.4	466937-1	SCA	Stripper-Crimper (AMP-O-MATIC)	90328-1
	466763-2	HDM	Model "K" (AMP-O-LECTRIC)	
	466763-1	HDM	CLS IV+ (AMPOMATOR)	

AMP-O-LECTRIC KII Machine. Applicators also available for AMPOMATOR Lead Making Machines and Stripper/Crimper Machines. Consult Tyco Electronics.

For complete product information, order Catalog 1307819

Mod I Receptacle Housings, Standard Profile, Unkeyed, .031 x .062 [0.79 x 1.57] Centerline

**Single Row, .156 [3.96]
Centers, Without Strain
Relief**

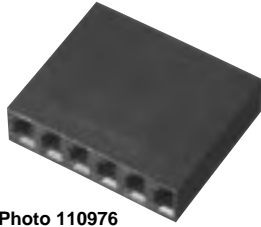
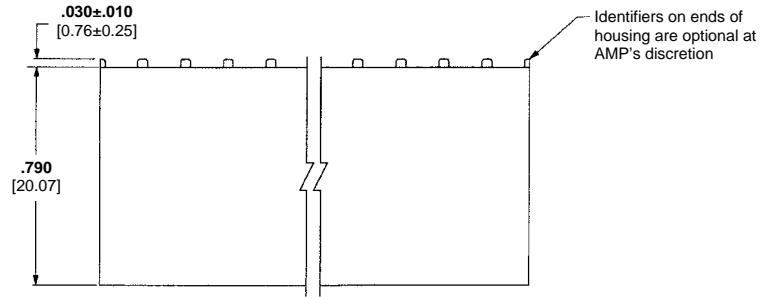


Photo 110976



Material:

Black thermoplastic, flame retardant,
94V-0 rated

Related Product Data:

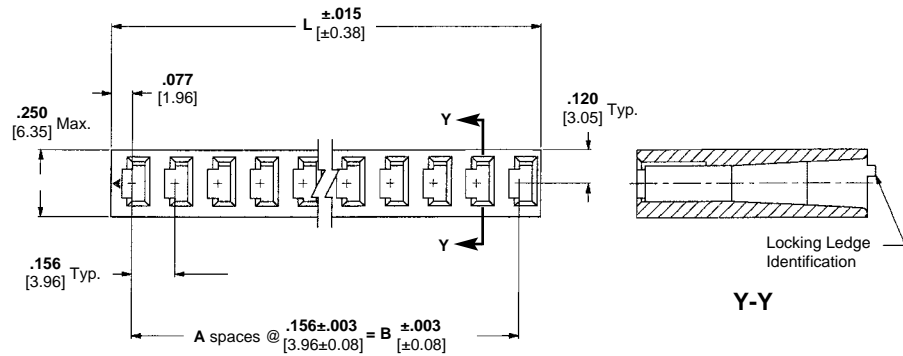
Contacts used with—page 2168

Mate with

Machine Applied Posts—page 2172

Headers—pages 2173, 2174

Performance Specifications—page 2178



Technical Documents: page 2178

No. of Positions	Dimensions			Housing Part Numbers	
	A	B	L	Unstamped ¹	
2	1	.156 3.96	.312 7.92	2-87025-5	
3	2	.312 7.92	.468 11.89	2-87025-1	
4	3	.468 11.89	.624 15.85	1-87025-3	
12	11	1.716 43.59	1.872 47.55	1-87025-2	

Notes: 1. No markings on housing.

For complete product information, order Catalog 1307819

Mod I Receptacle Housings, Standard Profile, Unkeyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96]
Centers, With Strain Relief

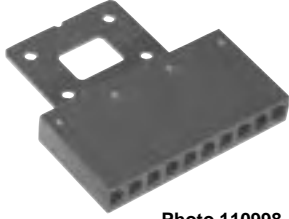


Photo 110998

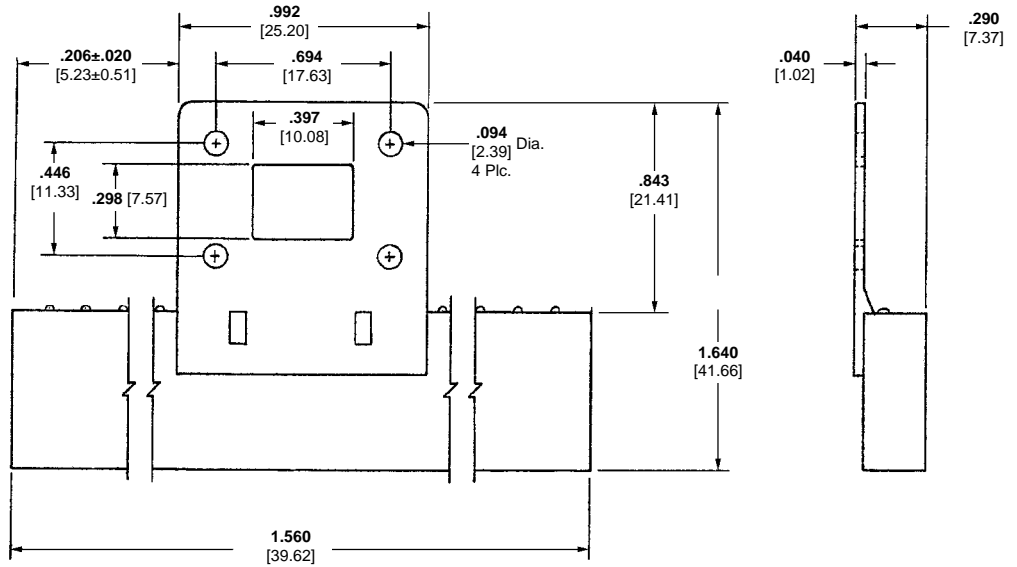
Material:

Black thermoplastic, flame retardant,
94V-0 rated

Related Product Data:

- Contacts used with**—page 2168
- Mate with**
Machine Applied Posts—page 2172
- Headers**—pages 2173, 2174
- Performance Specifications**—
page 2178

Technical Documents: page
2178



10 Position Receptacle Housing, Part Number 1-102090-0

For complete product information, order Catalog 1307819

Single Row, .156 [3.96] Centers

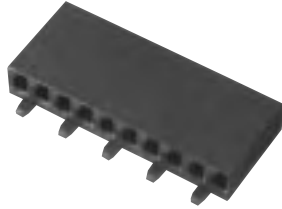


Photo 110974

Material:

Black thermoplastic, flame retardant,
94V-0 rated

Related Product Data:

Contacts used with—page 2168

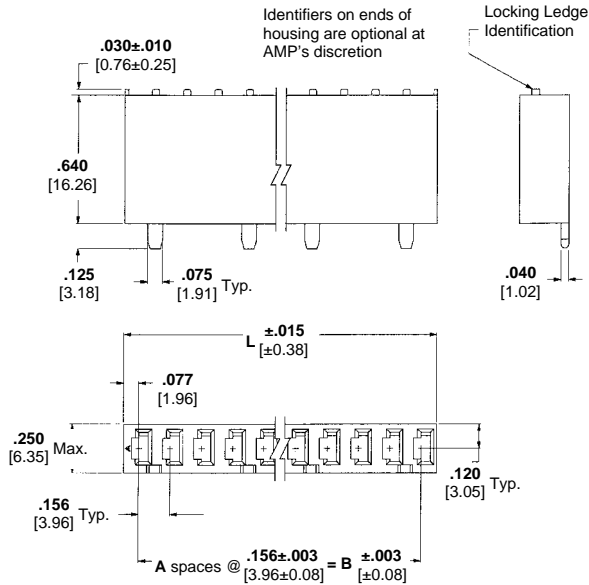
Mate with

Headers—pages 2173, 2174

Performance Specifications—
page 2178

Technical Documents: page
2178

Mod I Receptacle Housings, Low Profile, Keyed, .031 x .062 [0.79 x 1.57] Centerline



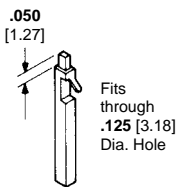
No. of Positions	Dimensions			No. of Keys	Housing Part Numbers (Unstamped) ¹	Key Locations
	A	B	L			
2	1	.156 3.96	.312 7.92	1	87159-3	A
4	3	.468 11.89	.624 15.85	2	87159-5	A,C
5	4	.624 15.85	.780 19.81	2	87159-1	A,D
6	5	.780 19.81	.936 23.77	3	87159-6	A,C,E
8	7	1.092 27.74	1.248 31.70	4	87159-8	A,C,E,G
10	9	1.404 35.66	1.560 39.62	5	1-87159-0	A,C,E,G,J
12	11	1.716 43.59	1.872 47.55	6	1-87159-2	A,C,E,G,J,L

¹ No marking on housing.

Keying Plug

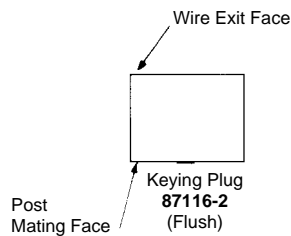
Material:

Natural Color Nylon

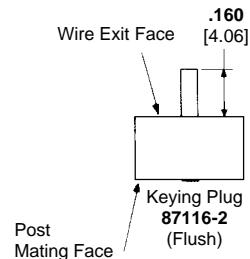


Part Number 87116-2

Keying Plug References



For Standard Housings

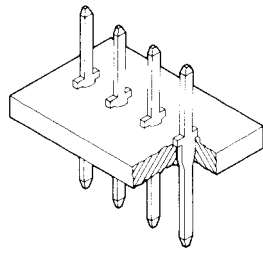


For Low Profile Housings

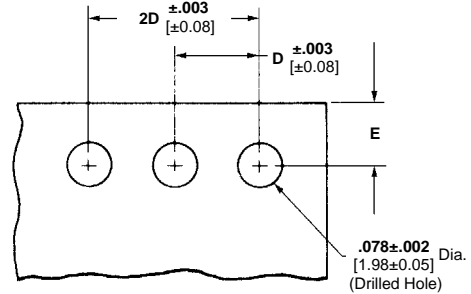
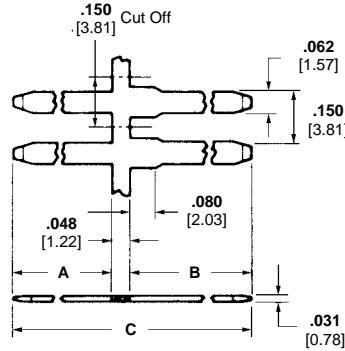
For complete product information, order Catalog 1307819

Mod I Posts, Machine Applied, .031 x .062 [0.79 x 1.57] Centerline

Straight Posts



Typical Assembly



Recommended Mounting Holes

Material and Finish:

Brass, plated as follows:

Plating A—.000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Plating B—.0001000-.000200 [0.00254-0.00508] bright tin over .000050 [0.00127] nickel on entire post

Related Product Data:

Mate with Board Mount Receptacles—page 2165

Board Mount Receptacle Assemblies—pages 2166, 2167

Crimp Snap-In Receptacles and Housings—pages 2168-2170

Locking Clip Contacts & Housings—pages 2175, 2176 (see page 2175 for recommended post length).

Application Tooling—pages 2177

Performance Specifications—page 2178

D—Post centers may vary depending on requirements. Minimum nominal centerline spacing between adjacent contacts is .125 [3.18]; .003 [0.08] tolerances not to accumulate over length of board.

E—Post center location from edge of board may vary to satisfy application.

	Dimensions			Finish	Part Nos.	
	A	B	C		Strip Form ¹	Loose Piece ²
.360	9.14	.187 4.75	.595 15.11	Plating A	86147-7	86182-7
.400	10.16	.125 3.18	.573 14.55	Plating B	3-86147-7	2-86182-5
.480	12.19	.187 4.75	.715 18.16	Plating A	—	1-86182-8
.565	14.35	.187 4.75	.800 20.32	Plating A	86147-8	86182-8
.670	17.02	.125 3.18	.843 21.41	Plating A	—	1-86182-1
.800	20.32	.150 3.81	.998 25.35	Plating B	1-86147-0	1-86182-0

¹ Packaging quantity of 20,000 per reel.

² Packaging quantity of 1,000 per bag.

Note: Strip form posts applied with Insertion Machine No. 3-457382-1, includes power unit and applicator.

Technical Documents: page 2178

For complete product information, order Catalog 1307819

Mod I Headers, Straight Post, Keyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers

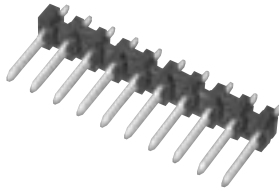


Photo 110972

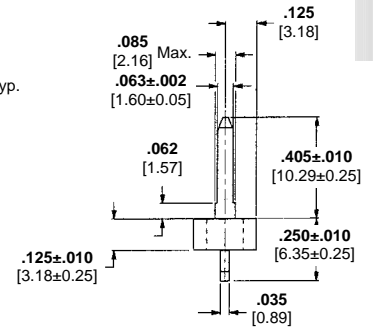
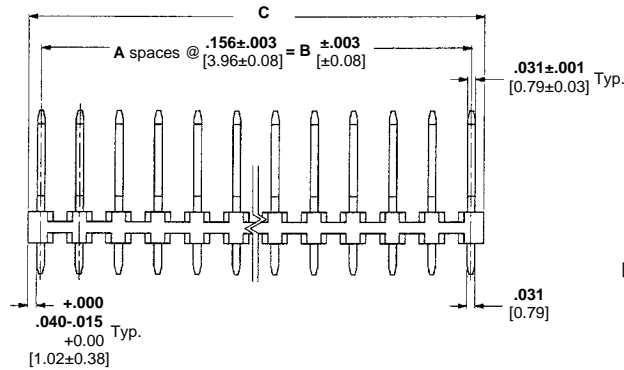
Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Posts—Brass, plated as follows:

Plating A—Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] min. nickel on entire post

Plating B—.000100-.000200 [0.00254-0.00508] bright tin lead over .000030 [0.000762] nickel on entire post



Related Product Data:

Mate with Board Mount Receptacles—page 2165

Board Mount Receptacle Assemblies—pages 2166, 2167

Crimp Snap-In Receptacles and Housings—pages 2171-2174

Locking Clip Contacts & Housings—pages 2175, 2176 (see page 2175 for recommended post length).

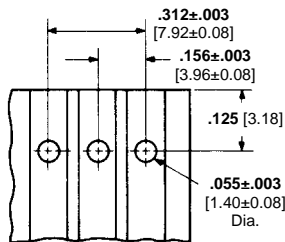
Performance Specifications—page 2178

Technical Documents: page 2178



Keyway Locations
(Ref only)

No. of Positions	Dimensions			No. of Keying Slots	Part Numbers			Keyway Locations
	A	B	C		Post Height D=.405 [10.29]		Post Height D=.587 [14.91]	
					Plating A	Plating B	Plating A	
2	1	.156 3.96	.267 6.78	1	85829-2	87160-4	—	A
3	2	.312 7.92	.423 10.74	1	—	87160-5	—	A
4	3	.468 11.89	.579 14.71	2	85829-4	87160-6	87247-4	A,C
6	5	.780 19.81	.891 22.63	3	85829-6	87160-7	87247-6	A,C,E
8	7	1.092 27.74	1.203 30.56	4	—	87160-9	—	A,C,E,G
10	9	1.404 35.66	1.515 38.48	5	1-85829-0	1-87160-1	—	A,C,E,G,J
12	11	1.716 43.59	1.827 46.41	6	—	1-87160-3	—	A,C,E,G,J,L



Recommended Board Layout

For complete product information, order Catalog 1307819

Mod I Headers, Right-Angle Post, Keyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers

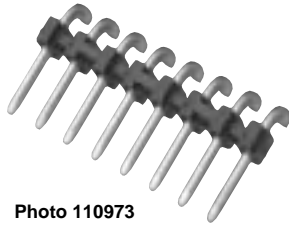


Photo 110973

Material and Finish:

Housing – Black thermoplastic, 94V-0 rated

Posts – Brass, plated as follows:

Plating B – .000015 [0.00038] gold over .000050 [0.00127] nickel on entire post

Related Product Data:

Mate with Board Mount Receptacles—page 2165

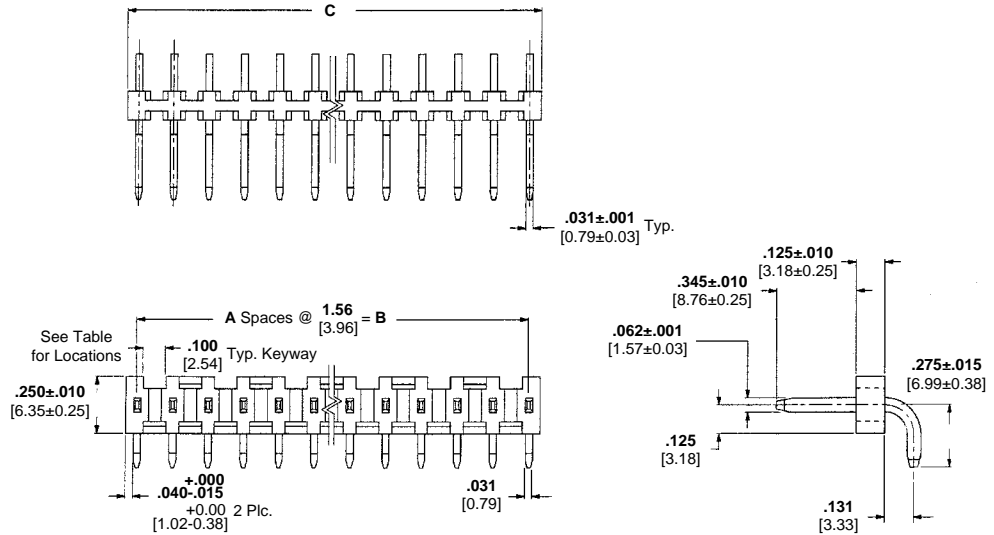
Board Mount Receptacle Assemblies—pages 2166, 2167

Crimp Snap-In Receptacles and Housings—pages 2171-2173

Locking Clip Contacts and Housings—pages 2175, 2176 (see page 2175 for recommended post length).

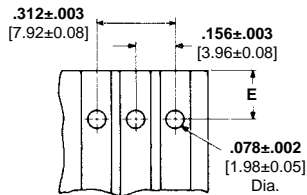
Performance Specifications—page 2178

Technical Documents: page 2178



Keyway Locations
(Ref Only)

No. of Positions	Dimensions			No. of Keying Slots	Post Height Part Numbers D=.500 [12.70] Plating B	Keyway Locations
	A	B	C			
2	1	.156 3.96	.267 6.78	1	87258-2	A
4	3	.468 11.89	.579 14.71	2	87258-4	A,C
5	4	.624 15.85	.735 18.67	2	87258-5	A,D



Recommended Board Layout

E Dimension

.345 [8.76] Post Height

.250 [6.35] for mounting header flush with board edge; .595 [15.11] for supporting mating connector on board.

.500 [12.70] Post Height

.250 [6.35] for mounting header flush with board edge; .750 [19.05] for supporting mating connector on board.

For complete product information, order Catalog 1307819

Locking Clip Contacts for .031 x .062 [0.79 x 1.57] Posts, .031 x .062 [0.79 x 1.57] Centerline

Wire Crimp Contacts with Insulation Support

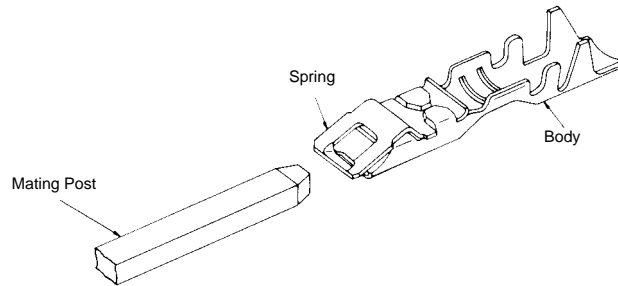
Material and Finish:

Contact Body—Phosphor bronze, plated as follows:

Plating A—Selectively plated .000015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B—.000100 [0.00254] min. bright tin/lead over .000050 [0.00127] nickel on entire contact

Contact Spring—Stainless steel



Related Product Data:

Mate with Machine Applied Posts—page 2171

Headers (.500 Post Height Only)—pages 2173, 2174
(see recommended post length below)*

Housings used in—page 2176

Application Tooling—pages 2177

Performance Specification—page 2178

Technical Documents: page 2178

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers		
			Strip Form	Loose Piece	
22-18 0.3-0.9	.050-.0100	1.27-2.54	Plating A	87269-2	87278-2
			Plating B	87269-1	87278-1

Wire Size Range AWG [mm ²]	Applicator			Premium CERTI-CRIMP Hand Tool Part Number
	Part Number	Type	Used With Machine	
22-18 0.3-0.9	466007-2	HDM	Model "K" (AMP-O-LECTRIC) ¹	90308-1
	466950-2	SCA	Stripper/Crimper (AMP-O-MATIC)	

¹ AMP-O-LECTRIC KII Machine. Applicators also available for AMPOMATOR Lead Making Machines. Consult Tyco Electronics.

Note: These contacts must be crimped in accordance with AMP Specification No. 114-25008 in order to function properly in a connector housing.
Extraction Tool **Part Number 91104-1** is used for removing individual contacts from connector housings and for detaching contacts from mating posts.

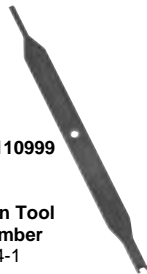


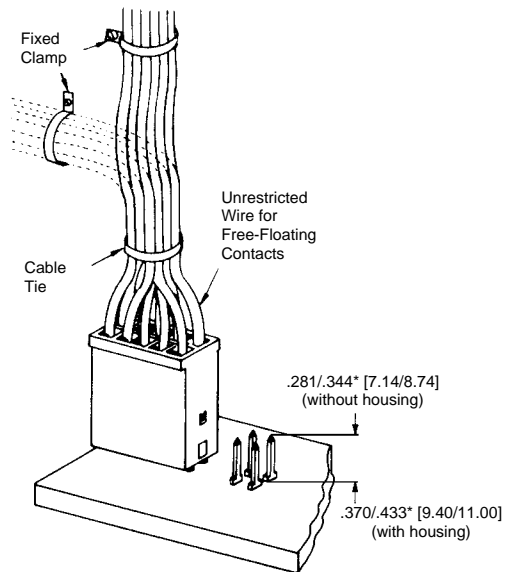
Photo 110999

Extraction Tool
Part Number
91104-1

Instruction Sheet 408-7678

Wire Harnessing

If necessary, wires can be grouped with cable ties and secured to a panel with fixed clamps. However, locking clip contacts must be free to float within the connector housings to allow proper extraction. Therefore, harnessing hardware or the use of multiple terminations per contact must not restrict the free-floating action of contacts in the housing. For more information, request Insulating and Bundling Products Catalog 124132.



For complete product information, order Catalog 1307819

Locking Clip Connector Housings, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers

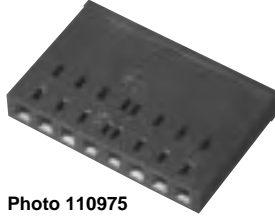


Photo 110975

Material and Finish:

Black thermoplastic, 94V-0 rated

Related Product Data:

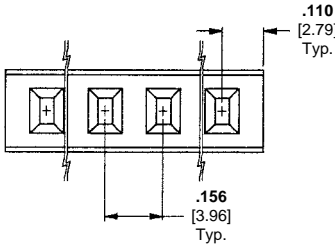
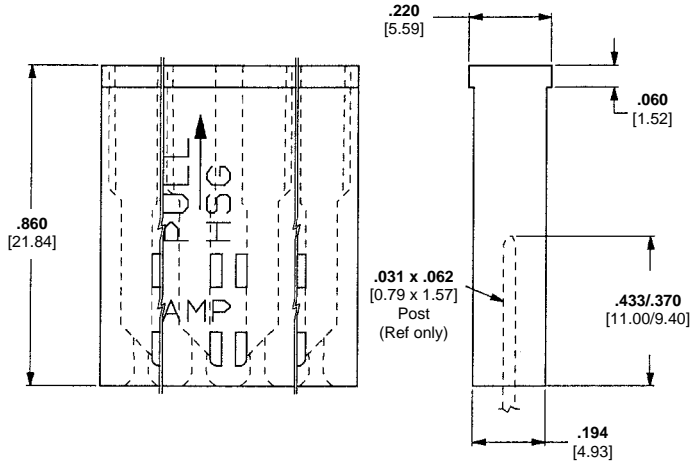
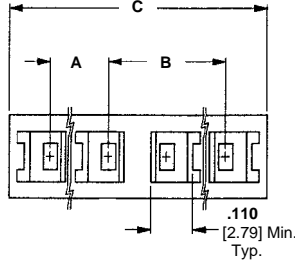
Contacts used with—page 2175

Mate with Machine Applied Posts—page 2172

Headers—pages 2173, 2174 (see page 2175 for recommended post length)

Performance Specifications—page 2178

Technical Documents: page 2178



No. of Positions	Dimensions			Housing Part Nos.
	A	B	C	UnKeyed
1	—	—	.200 5.08	87270-1
2	—	—	.376 9.55	87270-2
3	.156 3.96	.156 3.96	.532 13.51	1-87270-3
4	.156 3.96	.312 7.92	.688 17.48	87270-4
5	.312 7.92	.312 7.92	.844 21.44	1-87270-4

Notes: 1. All housings listed above will accept Locking Clip Contacts No. 87269 and 87278, refer to page 2175
2. Refer to AMP Instruction Sheet 408-7676 for proper contact orientation within the housings.

For complete product information, order Catalog 1307819

**Application Tooling for Crimp Snap-In Receptacle Contacts and Locking
Clip Contacts**

Hand Tools**PRO-CRIMPER II Hand Tool** — Part Number 354940-1

See Page 13003

CERTI-CRIMP Straight Action Hand Tool — (SAHT)

See Page 13012

Semi-automatic Bench Tooling**AMP-O-LECTRIC Model "G" Terminating Machines** —**Part Number** 354500-1, -9, -11

See Page 13005

AMP-O-MATIC Stripper-Crimper Machines — Part Number

854040-3, -4

See Page 13011

Crimp Quality Monitor (CQM) — Part Number 1320420-1, -2

See Page 13027

Automatic Tooling**AMP-O-MATOR CLS IV+ Lead-Making Machines** — Part Number

356500-1, -2, 1213400-1, -2

See Page 13005

Crimp Quality Monitor (CQM) — Part Number 1320420-1, -2

See Page 13027

Application Tooling for Board Mount Receptacles and Machine Applied Posts

Semi-automatic Bench Tooling**Modular Insertion System (MIS) Machines** — Part Number

217600 Series, 662820 Series

See Page 13022

Semi-automatic Bench Tooling**Comp-U-Sertor II Machines** — Part Number 122300-1, -2

See Page 13021

P300 Automatic Insertion Machine

See Page 13021

For complete product information, order Catalog 1307819

Performance Specifications

The electrical, mechanical and environmental characteristics of the AMPMODU .031 x .062 [0.79 x 1.57] Interconnection System are listed below:

Mechanical Characteristics

Contact Durability:

Plating	Receptacles		Locking Clip Contacts
	Standard Pressure	High Pressure	
.000016 [0.00041] Min. Tin	75 Cycles	25 Cycles	N/A
.000079 [0.00201] Min. Tin	75 Cycles	25 Cycles	N/A
.000100 [0.00254] Min. Bright Tin/Lead	N/A	N/A	25 Cycles
.000015 [0.00038] Gold	75 Cycles	50 Cycles	25 Cycles
.000030 [0.00076] Gold	200 Cycles	100 Cycles	N/A

Electrical Characteristics:

Contact Current Rating — 5 amperes max. for single contact in free air, could vary due to ambient temperature, wire size and duty cycles.

Contact Resistance — 12 milliohms at 100 ma and 50 mv open circuit.

Dielectric Rating — At Sea Level – 1200 VAC between contacts on .156 [3.96] centers for 1 minute.

Insulation Resistance — 5 x 10³ megohms (initial)

Connector Durability

Receptacles

Mating – 16 oz. [4.45N] max. per contact after 3 mating cycles (standard pressure)

–30 oz. [8.34N] max. per contact after 3 mating cycles (high pressure, gold)

–60 oz. [16.68N] max. per contact after 3 mating cycles (high pressure, tin)

Unmating – 1 oz. [0.28N] min. per contact after 3 mating cycles (standard pressure)

3 oz. [0.83N] min. per contact after 3 mating cycles (high pressure)

Locking Clip Contacts

Mating – 4 lb. [17.79N] max. per contact after 3 mating cycles

Unmating – 2 lb. [8.90N] min. per contact after 3 mating cycles

Environmental Characteristics

Operating Temperature: -65°C to 105°C [-85°F to 221°F] (Gold Plated)

-65°C to 60°C [-85°F to 140°F] (Tin Plated)

Technical Documents

Various technical documents are available for your use:

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-25016 Interconnection System, Standard Pressure

108-25025 Interconnection System, High Pressure, Gold

108-25025-1 Interconnection System, High Pressure, Tin

108-36029 Locking Clip Connectors

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-25000 Crimp Snap-In Receptacle Contacts

114-25004 Board Mount Receptacle Contacts

114-25008 Locking Clip Contacts

114-25011 Machine Applied Straight Posts

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-7308 Clinching Procedures for Header Assemblies

408-7411 Suggestions for Wave Soldering AMPMODU Receptacles

408-7594 AMP Hand Tool 90274-2 for Crimping Crimp Snap-In 18-22 AWG Contacts

408-7750 AMP Hand Tool 90328-1 for Crimping Crimp Snap-In Contacts (22-26 AWG)

408-7676 AMPMODU Locking Clip Connectors and Contacts

408-7671 AMP Hand Tool 90308-1 for Crimping Locking Clip Contacts

408-7678 AMP Extraction Tool 91104-1 for Locking Clip Contacts

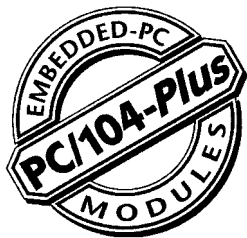
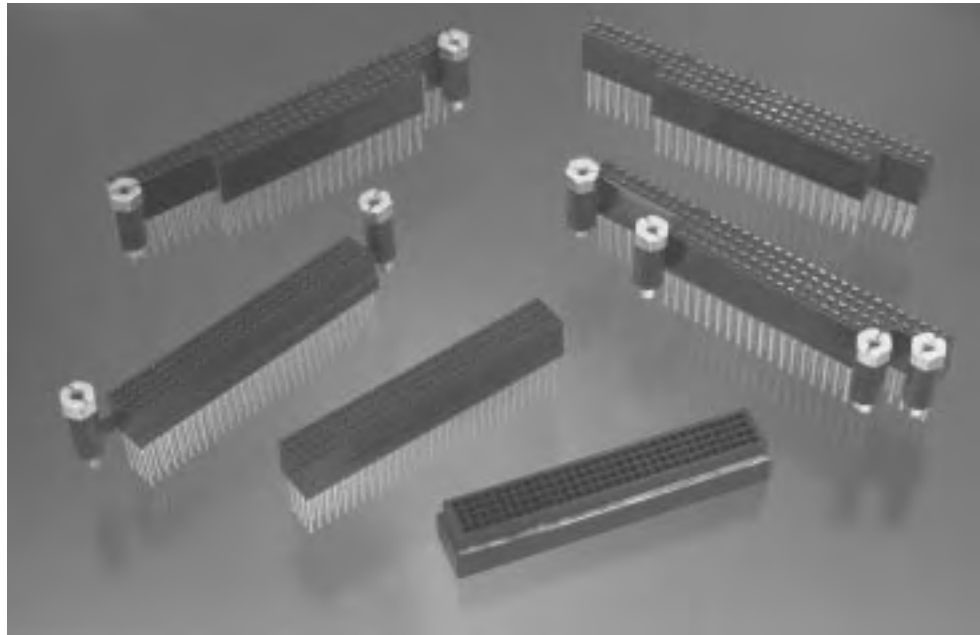
408-7981 Clinching Procedures for Receptacle Assemblies

408-9451 AMP Extraction Tool 843473-1 for Crimp Snap-In Receptacles

For complete product information, order Catalog 1307819

Product Facts

- Press fit design — eliminates hand soldering
- Unitized PC104 connector assembly — eliminates two piece (64 pin & 40 pin) configuration
- Integral board spacers with captive hardware — eases & improves assembly efficiency while minimizing stocked hardware
- “Flat-rock” insertable — no need for complex insertion tooling
- UL Recognition and CSA Certification Pending 
- Fully compliant with PC104 & PC104-Plus standards



The PC/104 and PC/104-Plus connectors are industry standard product offerings which comply with the interconnection requirements defined by the PC/104 organization (<http://www.pc104.org>)

Both products are designed specifically for “flat-rock” press-fit installation for ease of application. Solder version is also available.

Optional integral standoffs minimize the customer’s system assembly time.

The AMP offering of the standard PC/104 product is a unitized connector rather than the two piece, 40 and 64 position connectors currently on the market. Customer needs to stock and apply only one part number rather than two.

Performance Specifications

Electrical Characteristics

Meets requirements of PC/104 and PC/104-Plus standards

Nominal Resistance — 10 milliohms maximum, ΔR

Insulation Resistance — 1000 megohms minimum

Dielectric Withstanding Voltage — 500 VAC for 1 min. at sea level

Mechanical Characteristics

Meets requirements of PC/104 and PC/104-Plus standards

Current — Signal application only

Temperature — -55° to 105°C

Material and Finish

Housing — Black Thermoplastic, UL 94V-0

Contact — Phosphor Bronze, Full Gold all over Nickel (stackthrough), Gold on mating end, Tin-Lead on PCB tail all over Nickel (non-stackthrough)

Need more information?

Call the Technical Support Center:
1-800-522-6752

The Technical Support Center is staffed with specialists well versed in Tyco Electronics products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

Technical Documents:

Product Specifications

108-1956

Application Specifications

114-13021

Connector	Centerline	Position
PC/104	.100 2.54	104*
PC/104 Plus	.079 2.0	120

*Two circuits plugged per PC/104 specification.

For complete product information, order Catalog 1308564

PC/104, Press-Fit

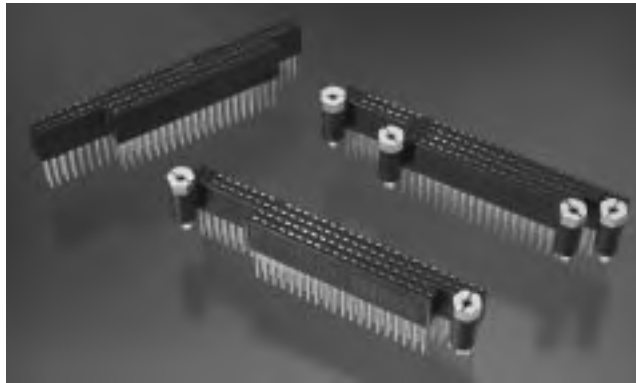
Material and Finish

Housing — High Temperature, Glass filled Nylon, Black

Contacts — Phosphor Bronze, 0.000381 [0.00015] min. Gold on mating receptacle end, 0.000130 [0.00005] min. Gold on remainder, all over 0.001270 [0.00005] Nickel (stackthrough), 0.000381 [0.00015] min.

Gold on mating receptacle end, 0.00254 [0.001] bright Tin-lead on remainder, all over 0.001270 [0.00005] Nickel (non-stackthrough)

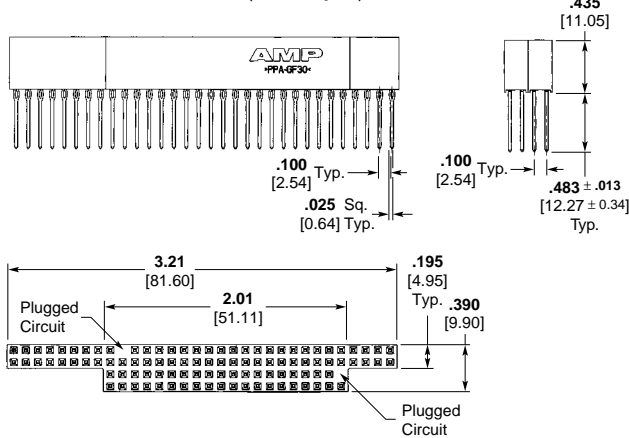
Screwlocks — Steel, Clear Chromate over Zinc



Part Number 1375795-1 (Keyed)

Stackthrough, No Standoffs

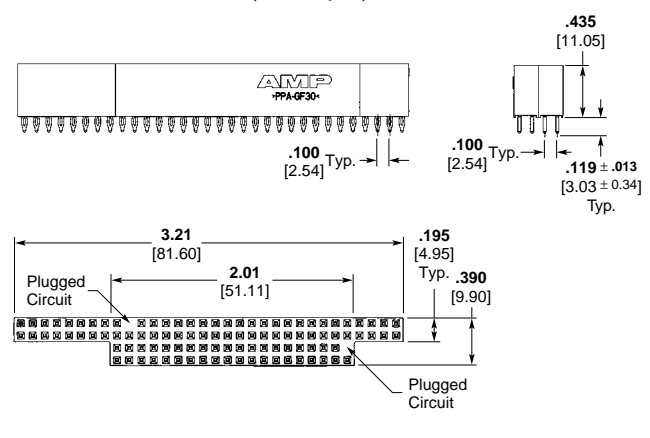
Part Number 1375795-2 (Non-Keyed)



Part Number 1375796-1 (Keyed)

Non-Stackthrough, No Standoffs

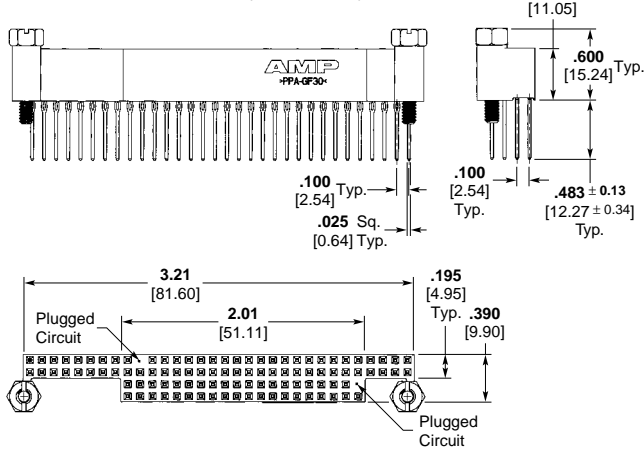
Part Number 1375796-2 (Non-Keyed)



Part Number 1375793-1 (Keyed)

Stackthrough, 2 Standoffs

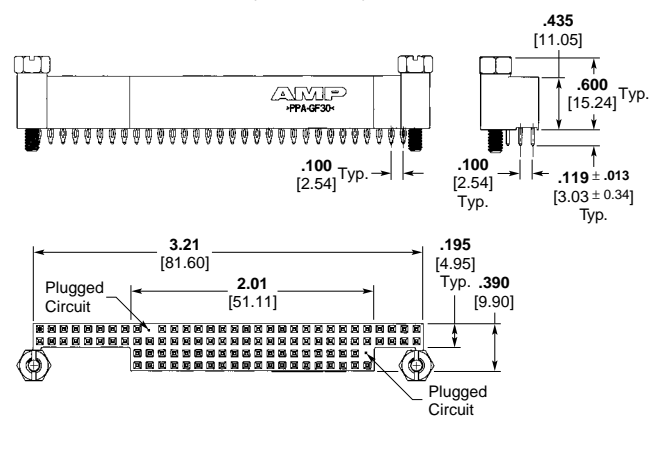
Part Number 1375793-2 (Non-Keyed)



Part Number 1375794-1 (Keyed)

Non-Stackthrough, 2 Standoffs

Part Number 1375794-2 (Non-Keyed)



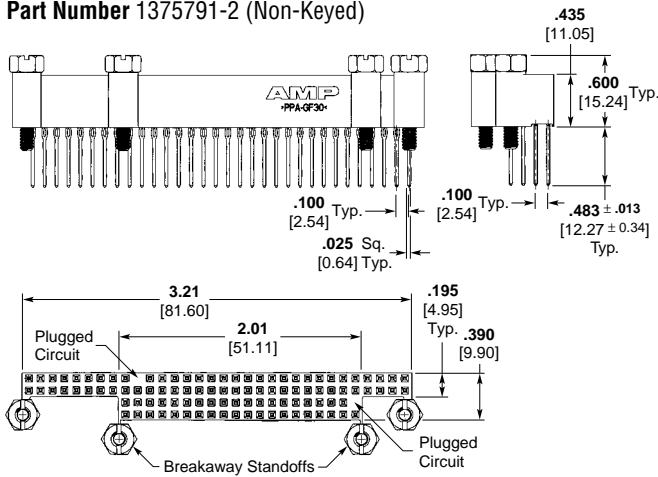
For complete product information, order Catalog 1308564

PC/104, Press-Fit

Part Number 1375791-1 (Keyed)

Stackthrough, 4 Standoffs

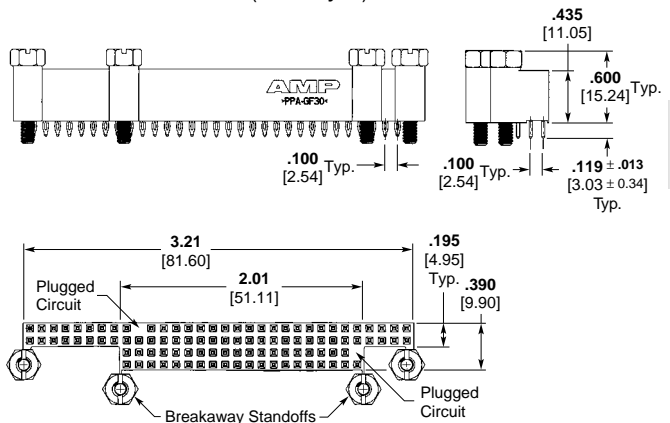
Part Number 1375791-2 (Non-Keyed)



Part Number 1375792-1 (Keyed)

Non-Stackthrough, 4 Standoffs

Part Number 1375792-2 (Non-Keyed)



2
PCB and Wire Connectors

PC/104-Plus, Press-Fit

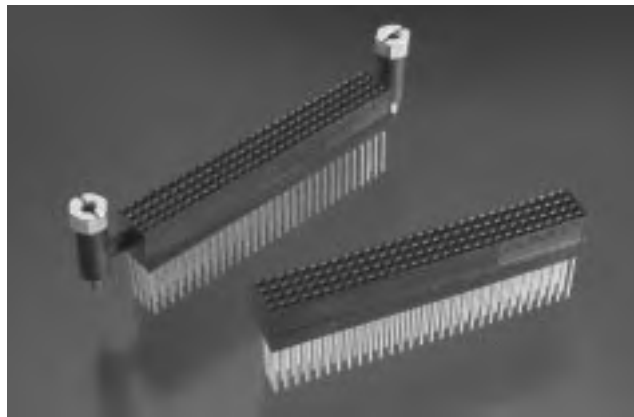
Material and Finish

Housing — High Temperature, Glass filled Nylon, Black

Contacts — Phosphor Bronze, 0.000381 [.000015] min. Gold on mating receptacle end, 0.000130 [.000005] min. Gold on remainder, all over 0.001270 [.00005] Nickel (stackthrough), 0.000381 [.000015] min.

Gold on mating receptacle end, 0.00254 [.0001] bright Tin-lead on remainder, all over 0.001270 [.00005] Nickel (non-stackthrough)

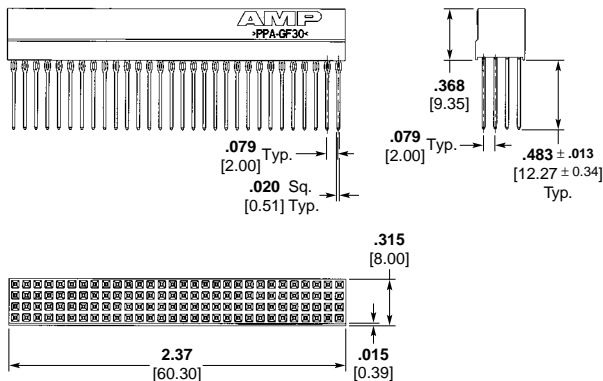
Screwlocks — Steel, Clear Chromate over Zinc



Part Number 1375799-1 (Keyed)

Stackthrough, No Standoffs

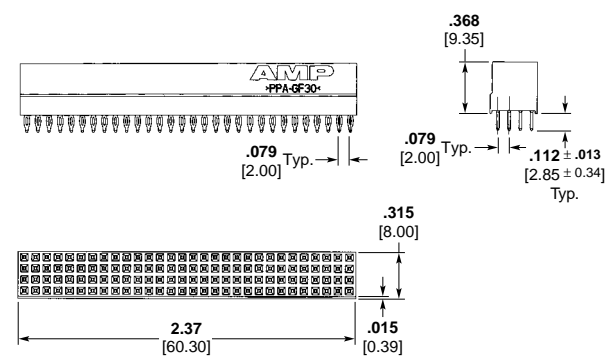
Part Number 1375799-2 (Non-Keyed)



Part Number 1375800-1 (Keyed)

Non-Stackthrough, No Standoffs

Part Number 1375800-2 (Non-Keyed)



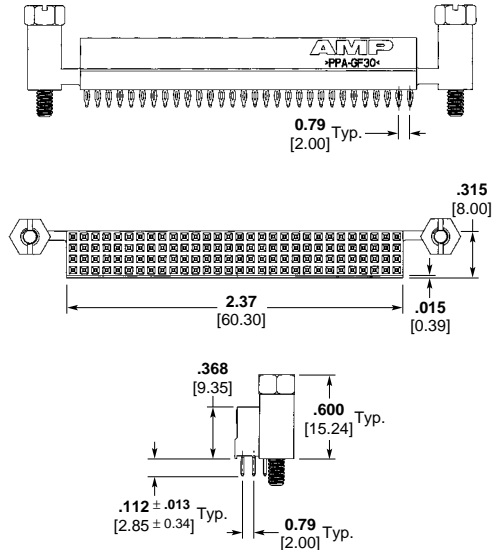
For complete product information, order Catalog 1308564

PC/104-Plus, Press-Fit

Part Number 1375798-1 (Keyed)

Non-Stackthrough, 2 Standoffs

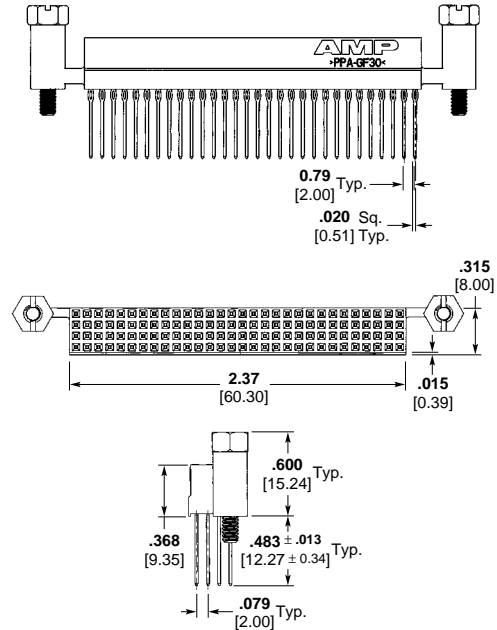
Part Number 1375798-2 (Non-Keyed)



Part Number 1375797-1 (Keyed)

Stackthrough, 2 Standoffs

Part Number 1375797-2 (Non-Keyed)



PC/104, Solder

Material and Finish

Housing — High Temperature, Glass filled Nylon, Black

Contacts — Phosphor Bronze, 0.000381 [0.00015] min. Gold on mating receptacle end, 0.000130 [0.00005] min. Gold on remainder, all over 0.001270 [0.00005] Nickel (stackthrough), 0.000381 [0.00015] min.

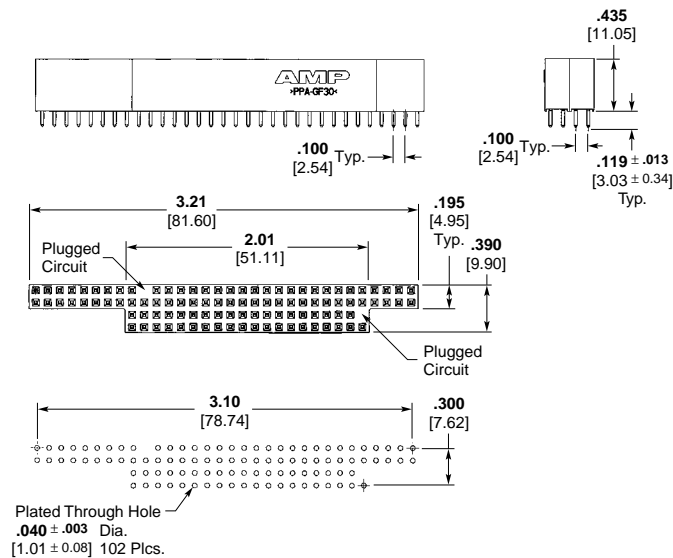
Gold on mating receptacle end, 0.00254 [0.0001] bright Tin-lead on remainder, all over 0.001270 [0.00005] Nickel (non-stackthrough)

Screwlocks — Steel, Clear Chromate over Zinc

Part Number 1375963-1 (Keyed)

Non-Stackthrough, No Standoffs

Part Number 1375963-2 (Non-Keyed)



Recommended PC Board Layout

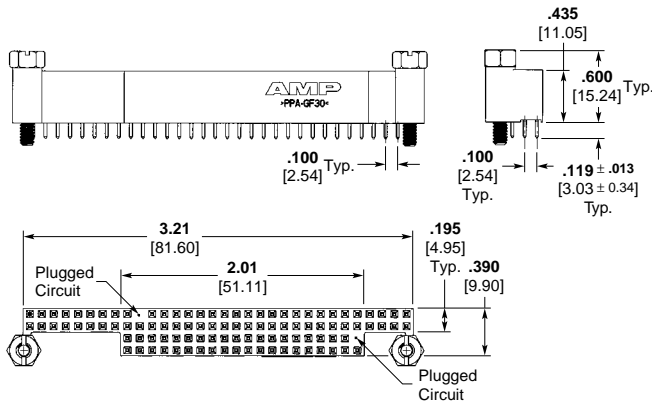
For complete product information, order Catalog 1308564

PC/104, Solder

Part Number 1375961-1 (Keyed)

Non-Stackthrough, 2 Standoffs

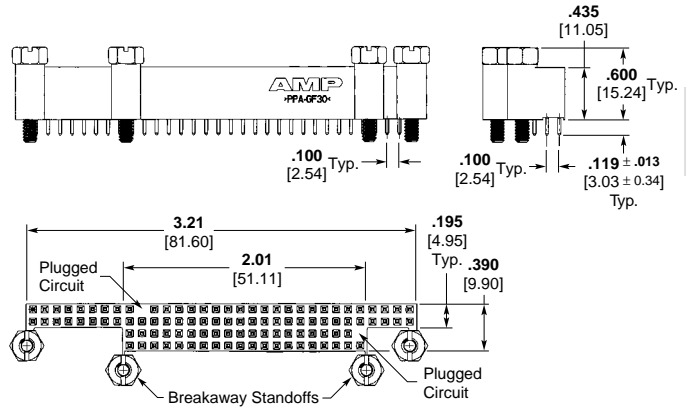
Part Number 1375962-2 (Non-Keyed)



Part Number 1375959-1 (Keyed)

Non-Stackthrough, 4 Standoffs

Part Number 1375959-2 (Non-Keyed)



PC/104-Plus, Solder

Material and Finish

Housing — High Temperature, Glass filled Nylon, Black

Contacts — Phosphor Bronze, 0.000381 [.000015] min. Gold on mating receptacle end, 0.000130 [.000005] min. Gold on remainder, all over 0.001270 [.00005] Nickel (stackthrough), 0.000381 [.000015] min.

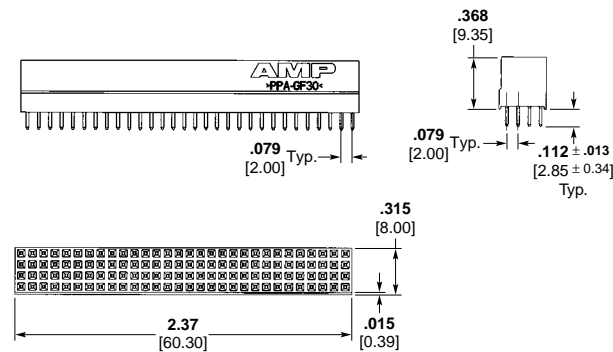
Gold on mating receptacle end, 0.00254 [.0001] bright Tin-lead on remainder, all over 0.001270 [.00005] Nickel (non-stackthrough)

Screwlocks — Steel, Clear Chromate over Zinc

Part Number 1375967-1 (Keyed)

Non-Stackthrough, No Standoffs

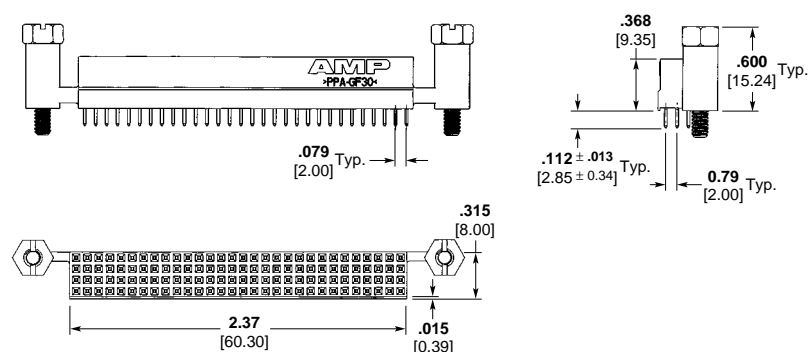
Part Number 1375967-2 (Non-Keyed)



Part Number 1375965-1 (Keyed)

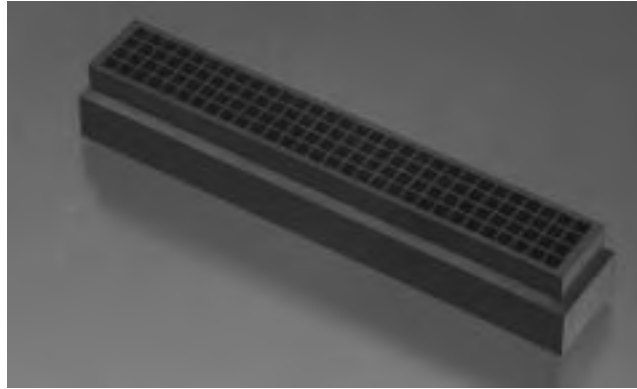
Non-Stackthrough, 2 Standoffs

Part Number 1375965-2 (Non-Keyed)



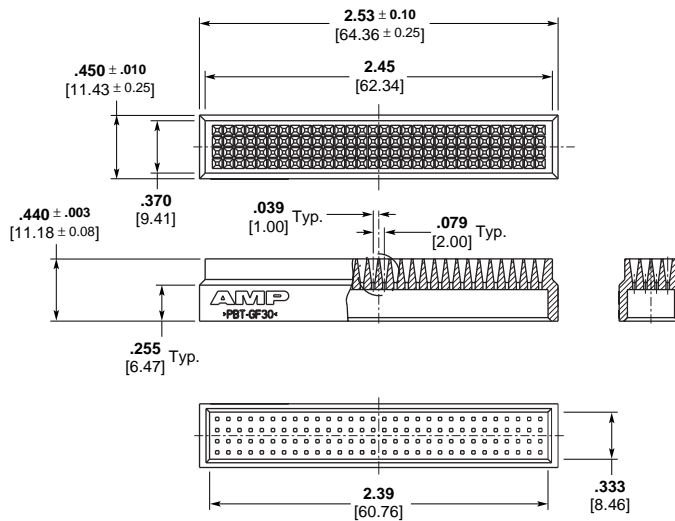
For complete product information, order Catalog 1308564

Accessories



Part Number 1375801-1
Shroud, PC/104-Plus

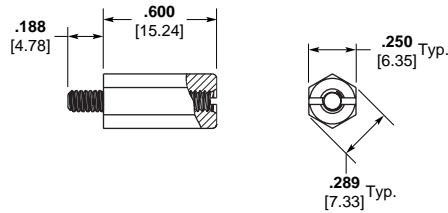
Material and Finish
Housing — PBT, Black



Recommended PC Board Layout

Part Number 1445005-1
Standoff



Material and Finish
Steel, Clear Chromate over Zinc



Part Number 1445251-1
Organizer, PC/104

For complete product information, order Catalog 1308564

Product Facts

- Connectors and headers for 2 through 28 positions; wire sizes of 22, 24, 26 and 28 AWG [0.4-0.08] mm²
- Wire-to-Post Connectors preloaded with dual beam contacts
- Connectors and headers, except shrouded headers, are end-to-end stackable
- Connector styles include both closed end and feed-thru connectors with locking ramps, with and without polarizing tabs
- Polarizing tabs do not allow reverse mating
- Posted connectors for 2 through 19 positions
- Connectors preloaded with IDC contact
- All contacts are slotted for insulation displacement (IDC) terminal technique
- Contacts are lubricated to prevent fretting corrosion
- Benefits derived from the MTA-100 system include increased quality and ease of handling such as —
 - One-step assembly
 - No wire stripping
 - No contact damage
 - Reduced wiring errors
 - Simpler tooling
 - Simple maintenance and repair
- Meets the material requirements of Table 23.1 of UL1410 Standards for Television Receiver and Video Products (wire-to-post connectors only)
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File No. LR7189 

Technical Documents:

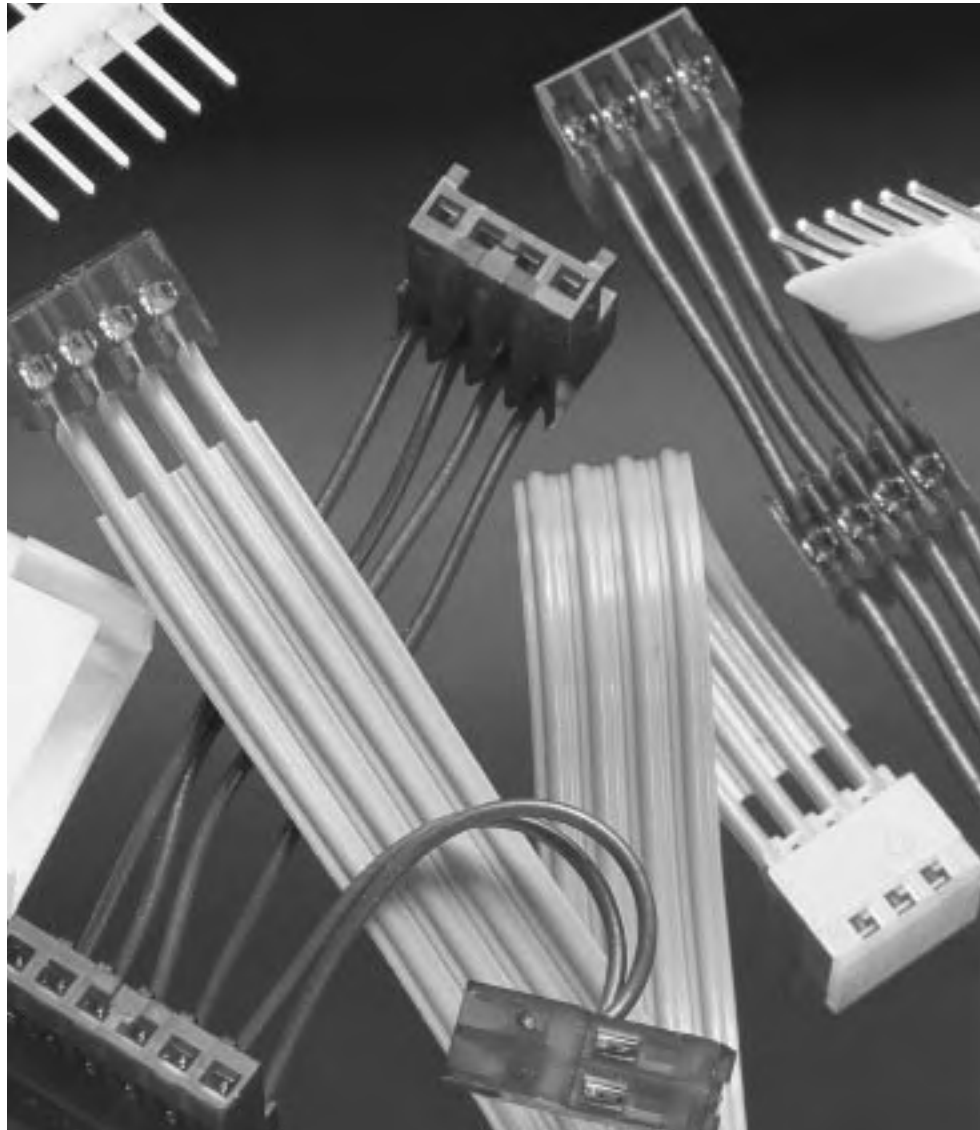
Product Specification

108-1050 MTA-100 Connectors

Application Specifications

114-1019 MTA-100 Connectors

114-1031 MTA-100 Ribbon Cable Assembly



MTA-100 connectors accept discrete and ribbon cable wire sizes ranging from 22–28 AWG [0.4–0.08 mm²] with maximum insulation outside diameter of .060 [1.52] for terminating single wire and .050 [1.27] for mass termination of wires. Tin plated solid, fused stranded, or stranded (7 strands) wire with PVC insulation can be used on 22–28 AWG [0.4–0.09 mm²] MTA-100 connectors and 19 stranded wire on 22–24 AWG [0.4–0.2 mm²] MTA-100 connectors. Only one wire to

be terminated into an IDC contact slot.

The wire-to-post connector housing material is flame retardant thermoplastic, either UL94V-2 or UL94V-0 rated.

A full line of .100 [2.54] centerline headers completes the system. Headers are available with straight or right-angle posts, in flat, polarized or friction lock styles. Headers are available in 2 through 28 positions. Shrouded headers are available in 2 through 14 positions.

Performance Data*:

Voltage Rating — 250 vac

Current Rating — 5 amp max.

Low-Level Resistance — 6 mΩ max. initial

Dielectric Withstanding Voltage — 750 vac/1 min.

Insulation Resistance — 5000 MΩ min. initial

Operating Temperature — -55° C to +105° C

Note: Refer to page 2219 for approved wire listings.

*Refer to the Product Specification for additional electrical, mechanical and environmental performance tests and requirements.

For complete product information, order Catalog 82056

Matrix for Gold Plated Part Numbers

This matrix has been prepared to assist you, our customer, in defining the correct mating halves for the MTA-100 header and connector combination. Where a "Y" is indicated the combination is a valid mating pair. Where an "N" is indicated the combination is not acceptable for mating.

Matrix for .000030 [0.00076] Gold Plated Part Numbers

		Headers																				
		641211	641212	641213	641214	641215	641216	644487	644489	644884	644885	644886	644887	644896	644897	644898	647108	647109	647114	647116	647117	647168
Connectors	641237	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641238	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641239	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641240	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641241	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641242	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641243	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	641244	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644020	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644042	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644043	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644044	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644702	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	644726	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y
	*770602	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Matrix for .000015 [0.00038] Gold Plated Part Numbers

		Headers															
		641122	641123	641124	641125	641126	641127	644888	644889	644890	644891	647075	647076	647078	647079	647107	647167
Connectors	641190	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641191	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641192	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641193	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641198	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641199	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641200	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	641201	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	644038	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	644040	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	*770602	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

*Select contact plating to match header plating.

For complete product information, order Catalog 82056

Closed End and Feed-Thru Connectors

Material and Finish:

Housing — UL94V-2 rated, type 6/6 nylon, see below for color; or UL94V-0 rated, nylon, black

Contacts — Phosphor bronze, post tin plated, .000030 [0.00076] or .000015 [0.00038] post gold-plated over nickel

Color Coding by Wire Size for UL94V-2 Connectors

- 28 AWG — Green
- 26 AWG — Blue
- 24 AWG — White
- 22 AWG — Red

All wire sizes in UL94V-0 — Black

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see pages 2191 thru 2196.

Notes:

1. Refer to page 2219 thru 2223 for approved wire listing.
2. For strain reliefs and dust covers, see page 2190.
3. Other circuit sizes are available upon request. Minimums may apply.
4. Connector circuits can be molded closed for keying purposes. Minimums may apply.
5. Where no part numbers appear in the chart, parts can be made available upon request. Minimums may apply.
6. To determine connector overall length (dim. A), multiply .100 x the number of circuits. Example: .100 x 10 circuits equals 1.000 inch [25.4 mm].

Connector Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete part number for a 10-position closed end connector without polarizing tabs for 22 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

The correct ordering number is

1-xxxxxx-0

For complete product information, order Catalog 82056

Base Part Numbers

Connector Type & Wire Size	Closed End				Feed-Thru			
	Without Tabs		With Tabs		Without Tabs		With Tabs	
	Connector Part Nos.	No. of Circuits	Connector Part Nos.	No. of Circuits	Connector Part Nos.	No. of Circuits	Connector Part Nos.	No. of Circuits
Standard UL94V-2, Tin Plated								
22 AWG 0.3-0.4 mm ²	640440	2-28	643813	2-28	640620	2-28	644540 ¹	2-15
24 AWG 0.2 mm ²	640441	2-28	643814	2-28	640621	2-28	644563 ¹	2-24
26 AWG 0.12-0.15 mm ²	640442	2-28	643815	2-28	640622	2-28	644564 ¹	2-15
28 AWG 0.08-0.09 mm ²	640443	2-28	643816	2-28	640623	2-28	644565 ¹	2-15
Tape Mounted on Reel UL94V-2, Tin Plated								
22 AWG 0.3-0.4 mm ²	640468	2-28	644511	2-28	641311	2-28	—	—
24 AWG 0.2 mm ²	640469	2-28	644512	2-28	641312	2-28	—	—
26 AWG 0.12-0.15 mm ²	640470	2-28	644513	2-28	641313	2-28	—	—
28 AWG 0.08-0.09 mm ²	640471	2-28	644514	2-28	641314	2-28	—	—
Standard UL94V-2, .000030 [0.00076] Gold Plated								
22 AWG 0.3-0.4 mm ²	641237	2-28	644042	2-28	641241	2-28	644702 ¹	2-15
24 AWG 0.2 mm ²	641238	2-28	644020	2-28	641242	2-28	—	—
26 AWG 0.12-0.15 mm ²	641239	2-28	644043 ¹	2-14	641243	2-28	644726 ¹	2-15
28 AWG 0.8-0.9 mm ²	641240	2-28	644044 ¹	2-14	641244	2-28	—	—
Standard UL94V-2, .000015 [0.00038] Gold Plated								
22 AWG 0.3-0.4 mm ²	641190	2-28	644038 ¹	2-14	641198	2-28	—	—
24 AWG 0.2 mm ²	641191	2-28	—	—	641199	2-28	—	—
26 AWG 0.12-0.15 mm ²	641192	2-28	644040 ¹	2-14	641200	2-28	—	—
28 AWG 0.08-0.09 mm ²	641193	2-28	—	—	641201	2-28	—	—
LED*, UL94V-2, Tin Plated (See Note 1)								
22 AWG 0.3-0.4 mm ²	641534	2-3	—	—	641653	2-3	—	—
24 AWG 0.2 mm ²	641535	2-3	644795	2-3	641654	2-3	—	—
26 AWG 0.12-0.15 mm ²	641536	2-3	—	—	641655	2-3	—	—
28 AWG 0.08-0.09 mm ²	641537	2-3	—	—	641656	2-3	—	—
Standard UL94V-0, Tin Plated (Gold is available, minimums may apply.) (Black in color)								
22 AWG 0.3-0.4 mm ²	643498 ¹	2-15	644083 ¹	2-15	644575 ¹	2-15	644578 ¹	2-15
24 AWG 0.2 mm ²	644574 ¹	2-15	644312 ¹	2-15	644576 ¹	2-15	644579 ¹	2-15
26 AWG 0.12-0.15 mm ²	643828 ¹	2-15	644313 ¹	2-15	644577 ¹	2-15	644497 ¹	2-15

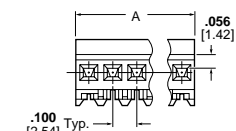
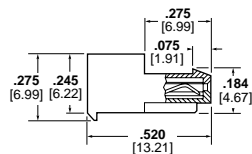
*LED connectors are designed to mate with .014-.020 [0.36-0.51] diameter posts or square leads.

¹ Other circuit sizes are available upon request. Minimums may apply.

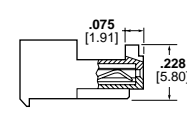
² Tape mounted

Note: Blocked circuit configurations are available. Contact product engineer or product manager for details. Minimums may apply.

Closed End Connectors

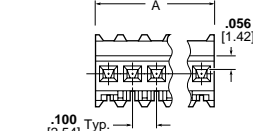
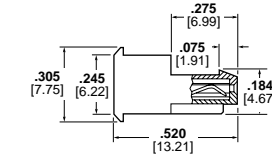


Without Polarizing Tabs

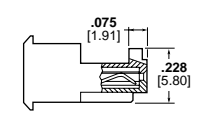


With Polarizing Tabs

Feed-Thru Connectors



Without Polarizing Tabs



With Polarizing Tabs

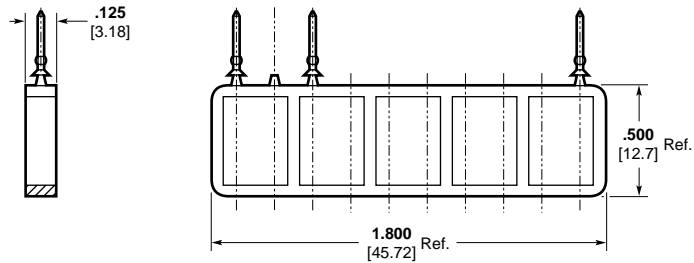
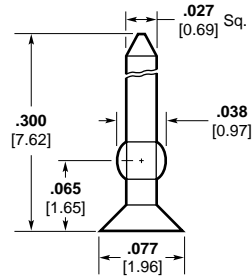
MTA-100 IDC Connector Accessories

Keying Plug with Carrier Strip (10 plugs per strip) Part No. 641994-1

Material

UL94V-2 rated, type 6/6 nylon, natural color

Note: Removal of contact is not necessary when using keying plug.



Replacement IDC Contacts

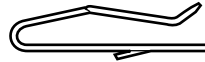
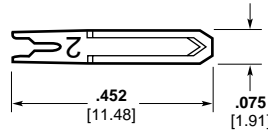
Material and Finish

Phosphor bronze, post tin plated; .000030 [0.00076] or .000015 [0.00038] post gold plated over nickel

Note:

Tyco Electronics Corporation does not recommend terminating an MTA contact more than one time. Use replacement contacts when required for field repairs or wire changes.

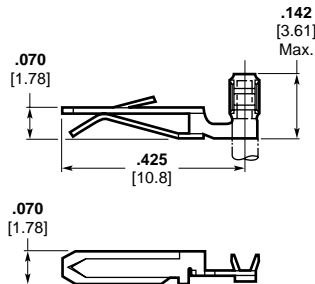
Wire Size		Part Numbers			
AWG	mm ²	Standard Tin Plated	.000030 [0.00076] Gold Plated	.000015 [0.00038] Gold Plated	LED Tin Plated
22	0.3-0.4	640636-1	641186-2	641186-1	641643-1
24	0.2	640637-1	641187-2	641187-1	641644-1
26	0.12-0.15	640638-2	641188-2	641188-1	641645-1
28	0.08-0.09	640639-1	641189-2	641189-1	641646-1



Crimp Snap-In Contacts

Material and Finish

Phosphor bronze, tin plated



Wire Size		Part Nos.	
AWG	mm ²	Loose Piece*	Strip**
26-22	0.12-0.4	640709-1	640708-1

*Hand Tool No. 59836-1 (IS 408-6527)
**Applicator No. 466747-1 (AI 408-8040)

Special applications for crimp snap-in contacts are:

1. Double wire per contact
2. Coax or shielded wire
3. Mixed wire size in same connector

Note: Only one crimp snap-in contact per connector.

For complete product information, order Catalog 82056

Accessories

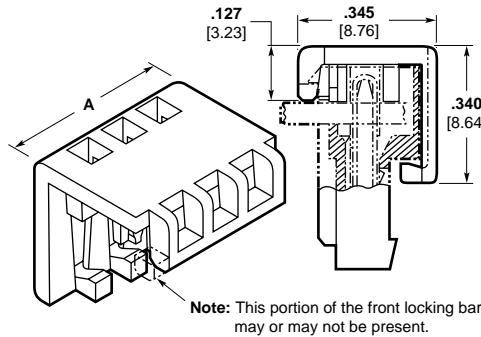
Covers

Material

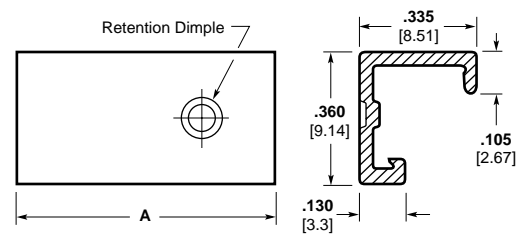
Strain Relief Cover — UL94V-2 rated, nylon, white

Dust Covers — UL94V-0 rated, polyester, white

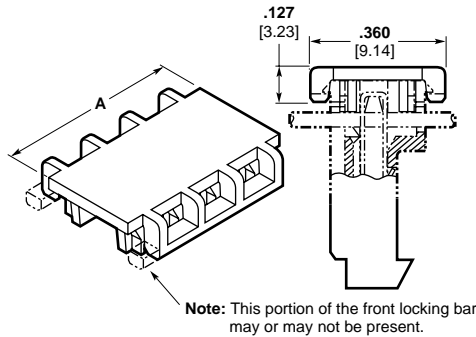
Closed End Strain Relief Covers



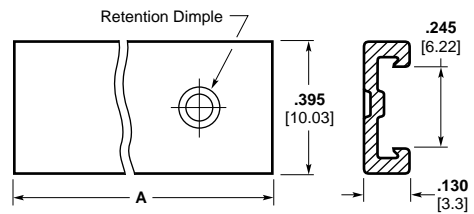
Closed End Dust Covers



Feed-Thru Strain Relief Covers



Feed-Thru Dust Covers



Cover Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described cover.

Prefixes and suffixes are determined by the number of circuit positions in the cover. For example, the complete part number for a 10-position closed end strain relief cover would be:

Base number **XXXXXX** plus prefix-and-suffix

1- -0

The correct ordering number is

1-XXXXXX-0

Base Part Numbers

Closed End				Feed-Thru			
Strain Relief Covers		Dust Covers		Strain Relief Covers		Dust Covers	
Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits
643075	2-28	640550	2-28	643077	2-28	640642	3-28

Cover Length

No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix
2	.200 5.08	-2	9	.900 22.86	-9	16	1.600 40.64	1- -6	23	2.300 58.42	2- -3
3	.300 7.62	-3	10	1.00 25.4	1- -0	17	1.700 43.18	1- -7	24	2.400 60.96	2- -4
4	.400 10.16	-4	11	1.100 27.94	1- -1	18	1.800 45.72	1- -8	25	2.500 63.5	2- -5
5	.500 12.7	-5	12	1.200 30.48	1- -2	19	1.900 48.26	1- -9	26	2.600 66.04	2- -6
6	.600 15.24	-6	13	1.300 33.02	1- -3	20	2.000 50.8	2- -0	27	2.700 68.58	2- -7
7	.700 17.78	-7	14	1.400 35.56	1- -4	21	2.100 53.34	2- -1	28	2.800 71.12	2- -8
8	.800 20.32	-8	15	1.500 38.1	1- -5	22	2.200 55.88	2- -2			

For complete product information, order Catalog 82056

Posted Connectors (Wire-to-Wire) — Closed End, Feed-Thru

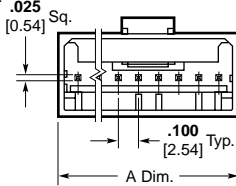
Material and Finish:

Housing — UL 94V-2 rated, 6/6, 6/12 nylon, see chart for color

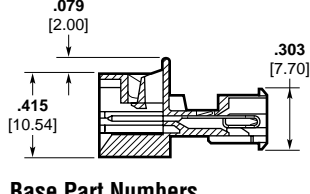
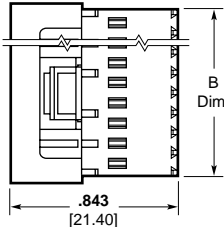
Contacts — Copper alloy, post tin or gold plated over nickel (see chart)

Notes:

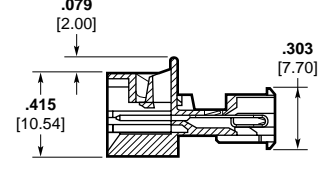
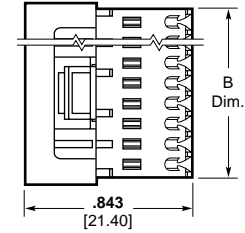
1. Mating half visuals - page 2188.
2. Use feed-thru strain relief covers & feed-thru dust covers (if needed) - page 2190.
3. Approved wire listing - pages 2219 thru 2223.



Closed End



Feed-Thru



Connector Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete closed end connector for 22 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -2

The correct ordering number is

1-xxxxxx-2

Color Coding by Wire Size for UL 94V-2 Connectors

- 22 AWG** — Red
- 24 AWG** — White
- 26 AWG** — Blue
- 28 AWG** — Green

Performance Data:

Voltage Rating — 250 VAC

Current Rating — 4 amp max.

Low-Level Resistance — 16 mΩ max. initial

Dielectric Withstanding Voltage — 750 VAC/1 min.

Insulation Resistance — 5000 MΩ min. initial

Operating Temperature — -55°C to +105°C

Technical Documents:

Product Specification
108-1050-1 MTA-100 Posted Connector

Base Part Numbers

Connector Type & Wire Size	Closed End Connector		Feed-Thru Connector	
	Part Numbers	No. of Circuits	Part Numbers	No. of Circuits
Standard UL 94V-2, Tin Plated				
22 AWG 0.3-0.4 mm ²	647000	2 - 19 ¹	647004	— ²
24 AWG 0.2 mm ²	647001	2 - 19 ¹	647005	— ²
26 AWG 0.12-0.15 mm ²	647002	2 - 19 ¹	647006	— ²
28 AWG 0.08-0.09 mm ²	647003	2 - 19 ¹	647007	— ²
Standard UL 94V-2, .000030 [0.00076] Gold Plated				
22 AWG 0.3-0.4 mm ²	647008	2 - 19 ¹	647012	— ²
24 AWG 0.2 mm ²	647009	2 - 19 ¹	647013	— ²
26 AWG 0.12-0.15 mm ²	647010	2 - 19 ¹	647014	— ²
28 AWG 0.08-0.09 mm ²	647011	2 - 19 ¹	647015	— ²
Standard UL 94V-2, .000015 [0.00038] Gold Plated				
22 AWG 0.3-0.4 mm ²	647016	2 - 19 ¹	647020	— ²
24 AWG 0.2 mm ²	647017	2 - 19 ¹	647021	— ²
26 AWG 0.12-0.15 mm ²	647018	2 - 19 ¹	647022	— ²
28 AWG 0.08-0.09 mm ²	647019	2 - 19 ¹	647023	— ²

¹ 2 and 3 position MTA-100 Posted Connectors (Closed End) **can not mate** with MTA-100 connectors with polarizing tabs.

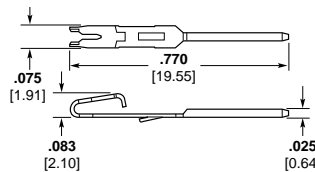
² Other sizes may be manufactured upon request. Minimums may apply. Contact Product Engineer or Product Manager for details.

No. of Circuits	Dim.		No. of Circuits	Dim.		No. of Circuits	Dim.		No. of Circuits	Dim.	
	A	B		A	B		A	B		A	B
2	.300 [7.62]	.227 [5.77]	6	.700 [17.78]	.627 [15.93]	10	1.100 [27.94]	1.027 [26.09]	14	1.500 [38.10]	1.427 [36.25]
3	.400 [10.16]	.327 [8.31]	7	.800 [20.32]	.727 [18.47]	11	1.200 [30.48]	1.127 [28.63]	15	1.600 [40.64]	1.527 [38.79]
4	.500 [12.70]	.427 [10.85]	8	.900 [22.86]	.827 [21.01]	12	1.300 [33.02]	1.227 [31.17]	16	1.700 [43.18]	1.627 [41.33]
5	.600 [15.24]	.527 [13.39]	9	1.000 [25.40]	.927 [23.55]	13	1.400 [35.56]	1.327 [33.71]	17	1.800 [45.72]	1.727 [43.87]
									18	1.900 [48.26]	1.827 [46.41]
									19	2.000 [50.80]	1.927 [48.95]

Application Specification

114-1019 MTA-100 Connectors

Replacement IDC Contacts



Material and Finish:

Contacts — Copper alloy, post tin or gold plated over nickel

For complete product information, order Catalog 82056

Wire Size AWG	mm ²	Part Numbers	
		Tin Plated	.000030 [0.00076] Gold Plated
22	0.3-0.4	647030-1	647030-3
24	0.2	647031-1	647031-3
26	0.12-0.15	647032-1	647032-3
28	0.8-0.9	647033-1	647033-3

Flat Headers — Straight and Right-Angle

Material and Finish:

Housing — UL94V-0 rated, polyester, white

Posts — Copper alloy, tin plated, .000030 [0.00076] or .000015 [0.00038] gold over nickel

Notes: MTA-100 Flat Headers

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
3. To determine header overall length (dim. A) multiply .100 x the number of posts. Example: .100 x 10 posts equals 1.000 inch [25.4 mm].

Notes: MTA-100 Narrow Flat Headers

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Headers without retentive legs are suitable for breakaway application.
3. 2 or 3 retentive leg(s) per header, depending upon number of positions.
4. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
5. To determine header overall length (dim. A) multiply .100 x the number of posts minus (-) .012. Example: .100 x 10 posts - .012 = .988 inches [25.1 mm].

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2188.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight posts would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

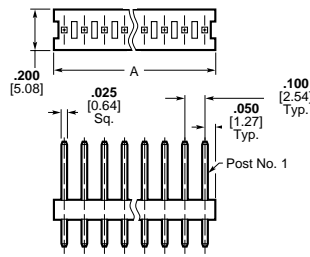
The correct ordering number is

1-xxxxxx-0

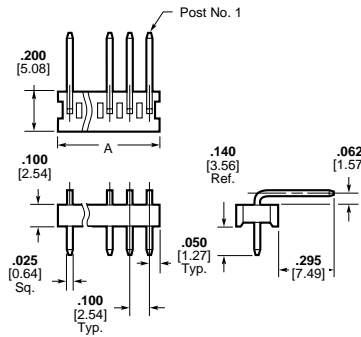
Note:

Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

Straight Post (.025 [0.64] Square)



Right-Angle Post (.025 [0.64] Square)



Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Straight Posts		Right-Angle Posts	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated			
640452	2-28	640453	2-28
Standard UL94V-0, .000030 [0.00076] Gold Plated			
641211	2-28	641212	2-28
Standard UL94V-0, .000015 [0.00038] Gold Plated			
641122	2-28	641123	2-28

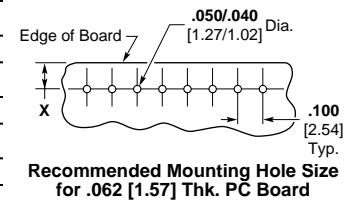
Straight Headers

X = .120 [3.05] Min.

Right-Angle Headers

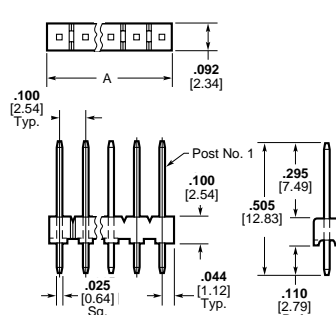
X = .120 [3.05] Min., .240 [6.1] Max. when mated with MTA-100 Connector.

X = .120 [3.05] Min., when mated with CST-100 II Connector.

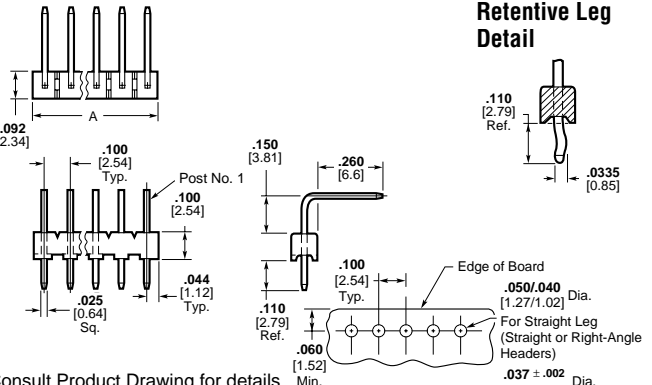


Narrow Flat Headers — Straight and Right-Angle

Straight Post (.025 [0.64] Square)



Right-Angle Post (.025 [0.64] Square)



Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Straight Posts				Right-Angle Posts			
Without Retentive Legs		With Retentive Legs		Without Retentive Legs		With Retentive Legs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated							
644456	2-28	644695	2-28	644457	2-28	644694	2-28
Standard UL94V-0, .000030 [0.00076] Gold Plated							
644884	2-28	644886	2-28	644885	2-28	644887	2-28
Standard UL94V-0, .000015 [0.00038] Gold Plated							
644888	2-28	644890	2-28	644889	2-28	644891	2-28

For complete product information, order Catalog 82056

Polarized Headers — Straight and Right-Angle

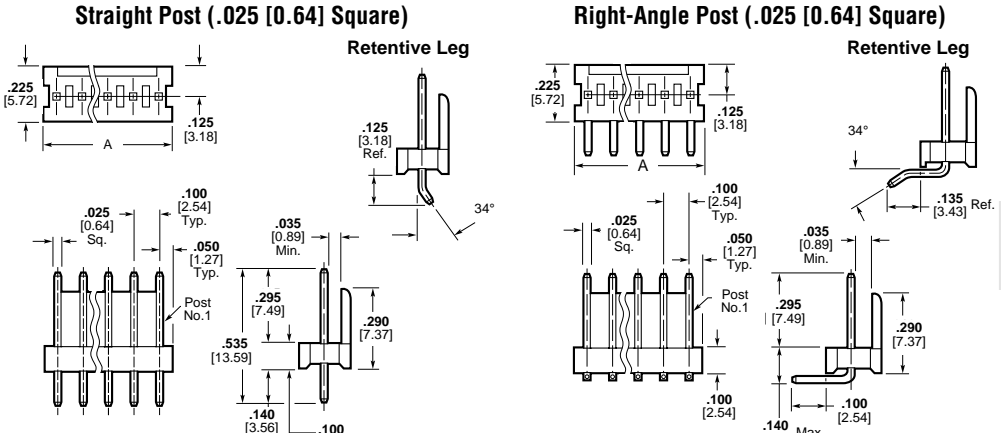
Material and Finish:

Housing — UL94V-0 rated, polyester, white

Posts — Copper alloy, tin plated, .000030 [0.00076] or .000015 [0.00038] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
3. All posts on retentive leg headers are bent.
4. To determine header overall length (dim. A) multiply .100 x the number of posts. Example: .100 x 10 posts equals 1.000 inch [25.4 mm].
5. PCB detail shown below is the same for Polarized & Friction Lock Headers.



Note: Consult Product Drawing for details on placing headers onto pc boards. (See Note 5.)

Base Part Numbers

Straight Posts				Right-Angle Posts			
Without Retentive Legs		With Retentive Legs		Without Retentive Legs		With Retentive Legs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated							
640454	2-28	644876	2-28	640455	2-28	644877	2-28

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2188.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight posts would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

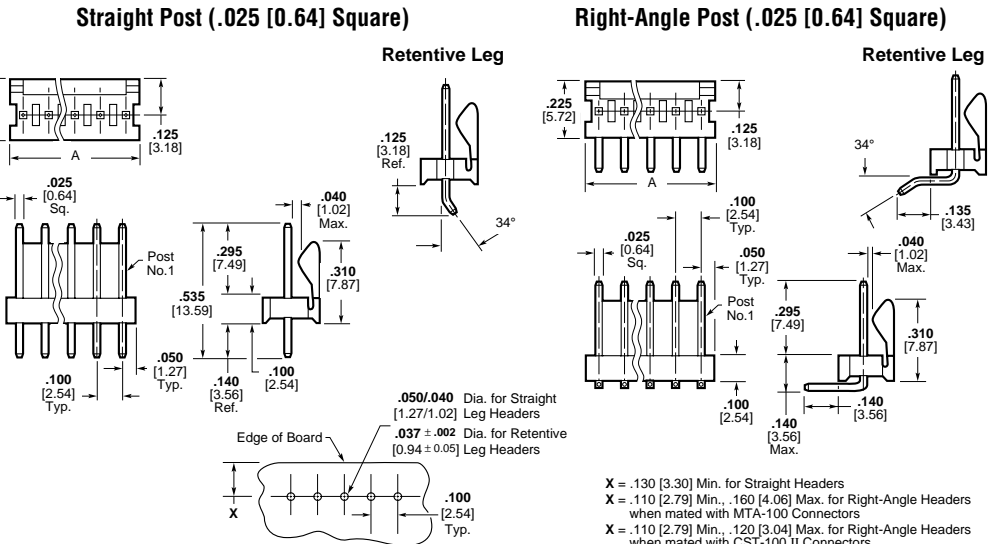
The correct ordering number is

1-xxxxxx-0

Note: Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

For complete product information, order Catalog 82056

Friction Lock Headers — Straight and Right-Angle



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board

X = .130 [3.30] Min. for Straight Headers
 X = .110 [2.79] Min., .160 [4.06] Max. for Right-Angle Headers when mated with MTA-100 Connectors
 X = .110 [2.79] Min., .120 [3.04] Max. for Right-Angle Headers when mated with CST-100 II Connectors

Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Straight Posts				Right-Angle Posts			
Without Retentive Legs		With Retentive Legs		Without Retentive Legs		With Retentive Legs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated							
640456	2-28	644874	2-28	640457	2-28	644875	2-28
Standard UL94V-0, .000030 [0.00076] Gold Plated							
641215	2-28	—	—	641216	2-28	—	—
Standard UL94V-0, .000015 [0.00038] Gold Plated							
641126	2-28	—	—	641127	2-28	—	—

Polarized High Temperature Headers (For use with Infrared Reflow Process)

Maximum Temperature Rating: 235°C

Material and Finish:

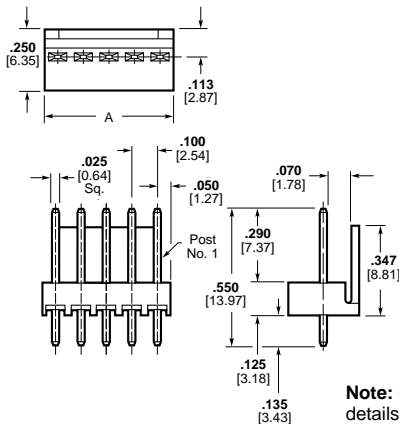
Housing — UL94V-0 rated, thermoplastic, black

Posts — Copper alloy, tin plated, .000030 [0.00076] or .000015 [0.00038] gold over nickel

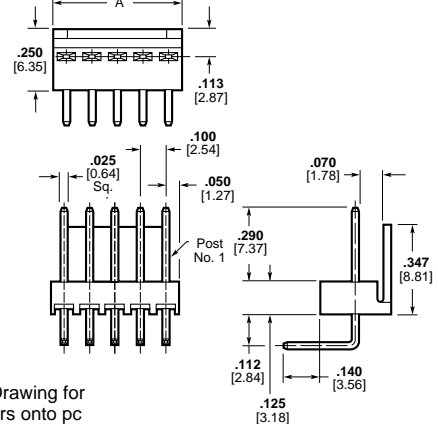
Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
3. To determine header overall length (dim. A) multiply .100 x the number of posts. Example: .100 x 10 posts equals 1.000 inch [25.4 mm].

Straight Post (.025 [0.64] Square)



Right-Angle Post (.025 [0.64] Square)



Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Straight Posts		Straight Posts Tube Loaded		Right-Angle Posts	
Header Part Number	No. of Posts	Header Part Number	No. of Posts	Header Part Number	No. of Posts
Standard UL94V-0, Tin-Lead Plated					
647047	2-18	647298	2-18	647048	2-18
Standard UL94V-0, .000030 [0.00076] Gold Plated					
647109	2-18	647300	2-18	647114	2-18
Standard UL94V-0, .000015 [0.00038] Gold Plated					
647075	2-18	647299	2-18	647076	2-18

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2188.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight posts would be:

Base number **xxxxxx** plus prefix-and-suffix
1- -0

The correct ordering number is

1-xxxxxx-0

Note:

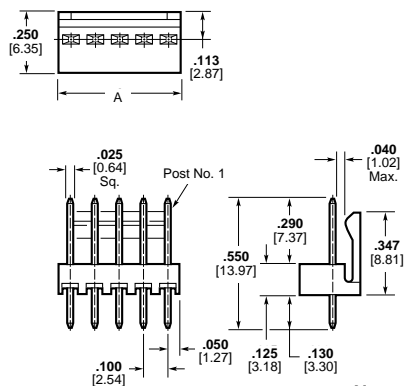
Select load headers (omitted pin headers) and special packaging can be made available upon request. Minimums may apply. Please contact product engineer or product manager for details.

For complete product information, order Catalog 82056

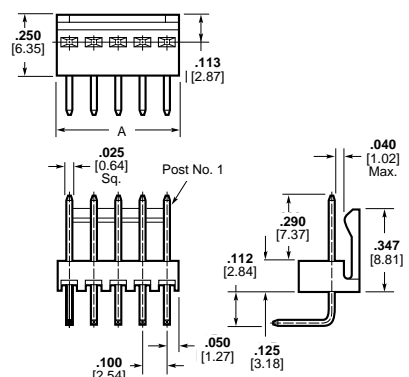
Friction Lock High Temperature Headers (For use with Infrared Reflow Process)

Maximum Temperature Rating: 235°C

Straight Post (.025 [0.64] Square)



Right-Angle Post (.025 [0.64] Square)



Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Straight Posts		Straight Posts Tube Loaded		Right-Angle Posts	
Header Part Number	No. of Posts	Header Part Number	No. of Posts	Header Part Number	No. of Posts
Standard UL94V-0, Tin-Lead Plated					
647050	2-18	647295	2-18	647051	2-18
Standard UL94V-0, .000030 [0.00076] Gold Plated					
647116	2-18	647297	2-18	647117	2-18
Standard UL94V-0, .000015 [0.00038] Gold Plated					
647078	2-18	647296	2-18	647079	2-18

Polarized and Friction Lock Surface Mount Headers — Straight

Material and Finish:

Housing — UL94V-0 rated, thermoplastic, black

Posts — Copper alloy, tin plated, .000030 [0.00076] or .000015 [0.00038] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
3. To determine header overall length (dim. A) multiply .100 x the number of posts. Example: .100 x 10 posts equals 1.000 inch [25.4 mm].

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2188.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position surface mount polarized header would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

The correct ordering number is

1-xxxxxx-0

Note:

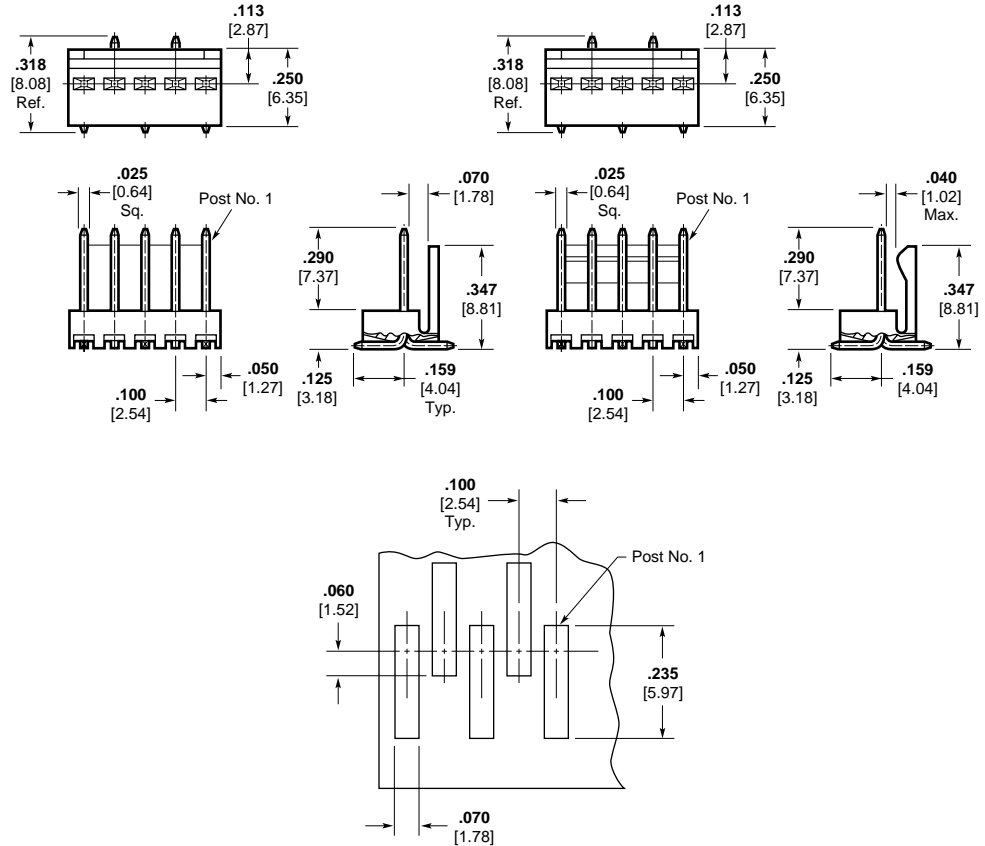
Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

For use with Infrared Reflow Process

Maximum Temperature Rating: 235°C

Polarized Header

Friction Lock Header



Recommended PC Board Layout for use with .010 [0.25] Thick Stencil

Base Part Numbers

	Polarized Headers		Friction Lock Headers	
	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin-Lead Plated	647106	2-18 ¹	647166	2-18 ¹
Standard UL94V-0, .000030 [0.00076] Gold Plated	647108	2-18 ¹	647168	2-18 ¹
Standard UL94V-0, .000015 [0.00038] Gold Plated	647107	2-18 ¹	647167	2-18 ¹

¹ Alternate packaging may be available upon request. Minimums may apply. Contact Product Engineer or Product Manager for details.

For complete product information, order Catalog 82056

Shrouded Headers — Straight and Right-Angle

Material and Finish:

Housing — UL94V-0 rated, polyester, black

Posts — Copper alloy, tin plated; or .000030 [0.00076] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Headers with .000015 [0.00038] gold plated post are available upon request. Minimums may apply.
3. Gold headers are duplex plated, gold on mating end of post and tin on the soldertail.

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2188.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight post and with pegs would be:

Base number **XXXXXX** plus prefix-and-suffix

1- -0

The correct ordering number is

1-XXXXXX-0

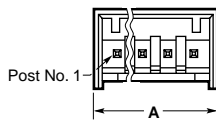
Notes:

1. Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.
2. MTA-100 shrouded headers **do not mate** with CST-100 II housings.

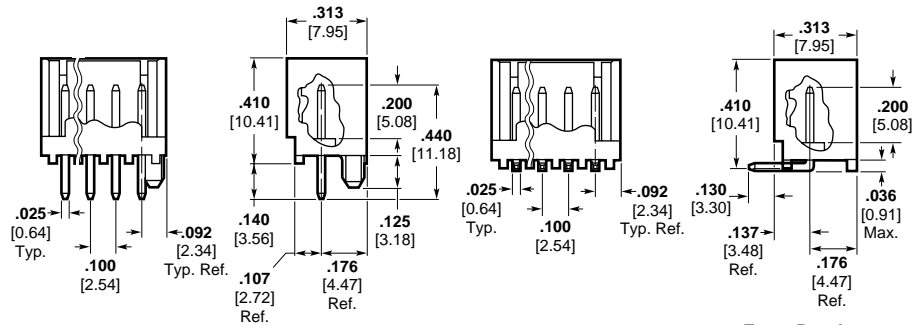
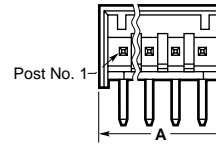
Header Length

No. of Circuits	Dim. A	Prefix/Suffix
2	.284 7.21	-2
3	.384 9.75	-3
4	.484 12.29	-4
5	.584 14.83	-5

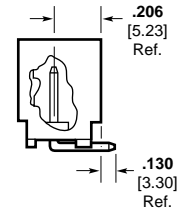
Straight Post (.025 [0.64] Square)



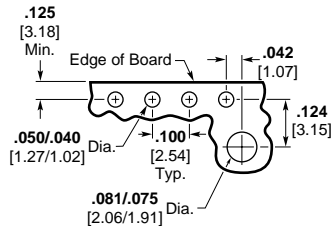
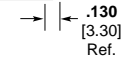
Right-Angle Post (.025 [0.64] Square)



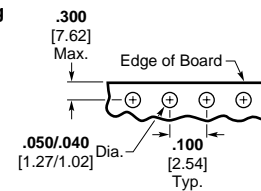
Front Bend



Rear Bend



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board (Solder Side of Board Shown)



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board (Solder Side of Board Shown)

Note: Consult Product Drawing for details on placing headers onto pc boards.



Base Part Numbers

Straight Posts				Right-Angle Posts			
With Pegs		Without Pegs		Without Pegs Only			
Front Bend		Rear Bend		Front Bend		Rear Bend	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin-Lead Plated							
644486	2-14	644861	2-14	644488	2-14	644803	2-14
Standard UL94V-0, .000030 [0.00076] Gold Plated							
644487	2-14	—	—	644489	2-14	—	—

No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix
2	.284 7.21	-2	6	.684 17.37	-6	10	1.084 27.53	1- -0
3	.384 9.75	-3	7	.784 19.91	-7	11	1.184 30.07	1- -1
4	.484 12.29	-4	8	.884 22.45	-8	12	1.284 32.61	1- -2
5	.584 14.83	-5	9	.984 24.99	-9	13	1.384 35.15	1- -3

For complete product information, order Catalog 82056

Product Facts

- Low cost wire-to-board interconnections
- Wide wire range for single contact
- Tin and gold plated contacts
- Mates with specified MTA and similar competitive notched headers
- Plastic latching feature in housing helps prevent contact backout
- Locking ramps and polarizing tabs are standard
- For keying purposes use keying plug 641994-1 (page 2189)
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR7189 

For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see pages 2192 thru 2195 and 2198.

Performance Data:

- Voltage Rating** — 250 vac
Current Rating — 4 amp max.
Low-Level Resistance — 6 mΩ max. initial; 10 mΩ max. final
Insulation Resistance — 1000 MΩ min. initial; 100 MΩ min. final
Operating Temperature — -55° C to +105° C

Technical Documents:

- Product Specification**
108-1948
Application Specification
114-13036
Instruction Sheet
408-8493



Contacts

Part Numbers		
Tin Plated	15 Au Gold Plated	30 Au Gold Plated
1375819-1 (Strip)	1375819-2 (Strip)	1375819-3 (Strip)
1445336-1 (Loose Piece)	1445336-2 (Loose Piece)	1445336-3 (Loose Piece)

Material and Finish:

Phosphor bronze, pretinned or .000015 [0.00038] gold, .000030 [0.00076] gold over nickel

Wire Range — 22-26 AWG [0.35-0.13 mm²]

Max. Ins. Dia. — .065 [1.65]

Housing*

Material:

UL94V-0 rated, Nylon, white

No. of Pos.	Dim. A	Part Numbers	No. of Pos.	Dim. A	Part Numbers
2	.220 5.59	1375820-2	16	1.620 41.15	1-1375820-6
3	.320 8.13	1375820-3	17	1.720 43.69	1-1375820-7
4	.420 10.67	1375820-4	18	1.820 46.23	1-1375820-8
5	.520 13.21	1375820-5	19	1.920 48.77	1-1375820-9
6	.620 15.75	1375820-6	20	2.020 51.31	2-1375820-0
7	.720 18.29	1375820-7	21	2.120 53.85	2-1375820-1
8	.820 20.83	1375820-8	22	2.220 56.39	2-1375820-2
9	.920 23.37	1375820-9	23	2.320 58.93	2-1375820-3
10	1.020 25.91	1-1375820-0	24	2.420 61.47	2-1375820-4
11	1.120 28.45	1-1375820-1	25	2.520 64.01	2-1375820-5
12	1.220 30.99	1-1375820-2	26	2.620 66.55	2-1375820-6
13	1.320 33.53	1-1375820-3	27	2.720 69.09	2-1375820-7
14	1.420 36.07	1-1375820-4	28	2.820 71.63	2-1375820-8
15	1.520 38.61	1-1375820-5			

Application Tooling

Loose Piece Contacts:

Hand Tool No. 58517-1 (408-4064) with Die Set No. 58517-2 (408-4064)

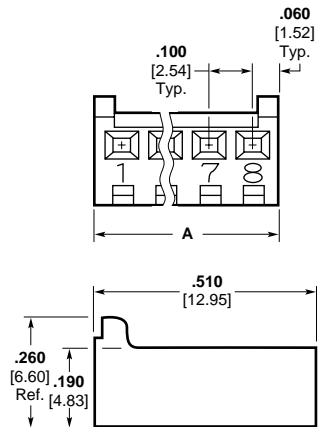
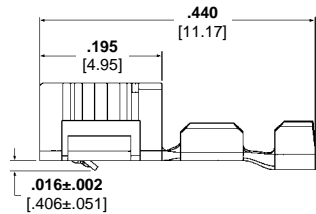
Strip Contacts:

AMP-O-LECTRIC Model "G" Termination Machine*
Applicator No. 567373-3
(Request Catalog 65828)

AMP-O-MATIC Stripper-Crimper Machine* Applicator No. 567910-1 or 567827-1 (with CQM) (Request Catalog 65004)

AMPOMATOR CLS IIIG Lead Making Machine* (Request Catalog 82659)

*Requires applicators. For part numbers, call the Technical Support Center at **1-800-522-6752** for latest information.



For complete product information, order Catalog 82056

Shrouded Headers — Straight and Right-Angle

Material and Finish:

Housing — UL94V-0 rated, polyester, black

Posts — Copper alloy, tin plated; or .000030 [0.00076] gold over nickel

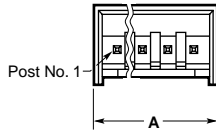
Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Headers with .00015 [0.00038] gold plated post are available upon request. Minimums may apply.
3. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.

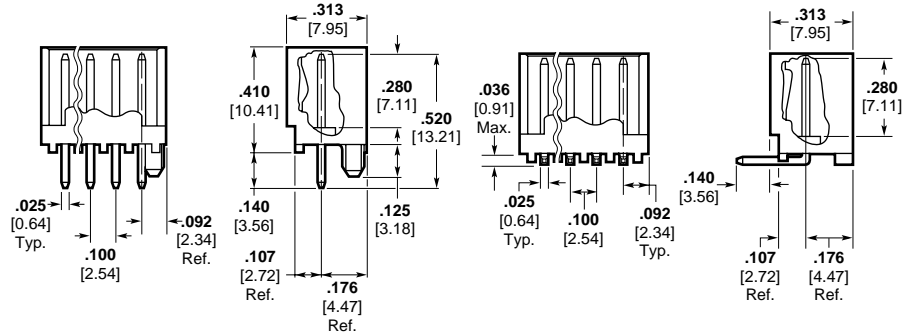
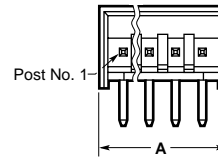
For mateability options, see matrix on pages 2186 and 2187.

For mating half visuals, see page 2197.

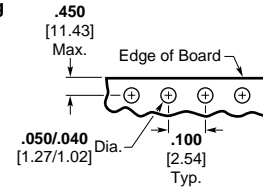
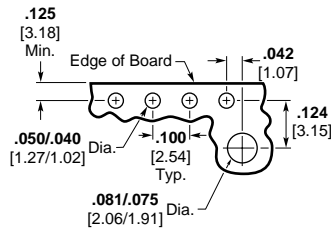
Straight Post (.025 [0.64] Square)



Right-Angle Post (.025 [0.64] Square)



Polarized Retention Peg



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board
(Solder Side of Board Shown)

Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board
(Solder Side of Board Shown)

Note: Consult Product Drawing for details on placing headers onto pc boards.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight post and with pegs would be:

Base number **XXXXXX** plus prefix-and-suffix

1 - - 0

The correct ordering number is

1-XXXXXX-0

Note:

CST-100 shrouded headers **only** mate with CST-100 housings. All the MTA-100 headers except the MTA-100 shrouded headers mate with CST-100 II housings.

Base Part Numbers



Straight Posts					
With Pegs		Without Pegs		Right-Angle Posts Without Pegs Only	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated					
644893	2-14	644892	2-14	644894	2-14
Standard UL94V-0, .000030 [0.00076] Gold Plated					
644897	2-14	644896	2-14	644898	2-14

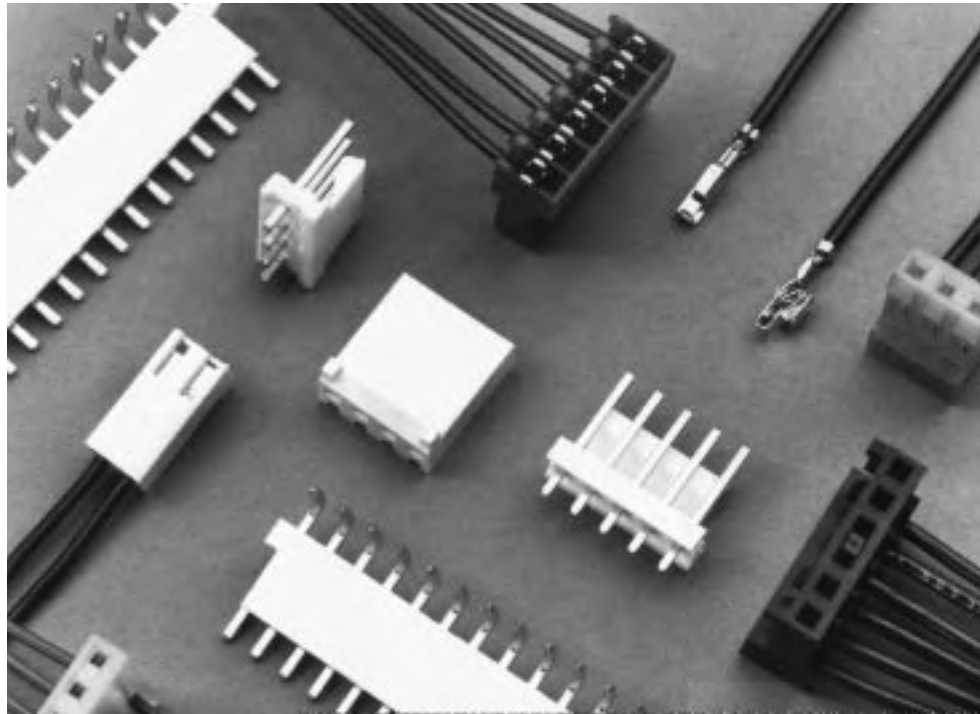
Header Length

No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix	No. of Circuits	Dim. A	Prefix/Suffix
2	.284 7.21	-2	5	.584 14.83	-5	8	.884 22.45	-8
3	.384 9.75	-3	6	.684 17.37	-6	9	.984 24.99	-9
4	.484 12.29	-4	7	.784 19.91	-7	10	1.084 27.53	1- 0

For complete product information, order Catalog 82056

Product Facts

- Connectors and headers for 2 through 24 positions; wire sizes of 18, 20, 22, 24 and 26 AWG [0.9–0.12 mm²]
- Connectors and headers, except shrouded headers, are end-to-end stackable
- QUAD Connectors for higher current rating
- Posted connectors for 2, 3, 4, 6, 9, 12, 15 and 24 positions
- Card edge connectors for 3, 6, 9, 12, 15, 18 and 20 through 24 positions
- Connectors preloaded with IDC contacts
- All contacts are slotted for insulation displacement (IDC) termination technique
- Connector styles include both closed end and feed-thru, with and without locking ramps and polarizing tabs
- Polarizing tabs do not allow reverse mating
- Contacts are lubricated to prevent fretting corrosion
- Benefits derived from the MTA-156 system include increases quality and ease of handling such as —
 - One-step assembly
 - No wire stripping
 - No contact damage
 - Reduced wiring errors
 - Simpler tooling
 - Simple maintenance and repair
- Meets the material requirements of Table 23.1 of UL 1410 Standards for Tele-vision Receiver and Video Products (wire-to-post connectors only)
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR7189



MTA-156 connectors accept discrete and ribbon cable wire sizes ranging from 18–26 AWG [0.9–0.12 mm²] with maximum insulation outside diameter .095 [2.41] for single wire and .070 [1.78] for mass termination of wires. Tin plated solid or fused stranded wire may be used with any wire gauge. Stranded (7, 16, and 19 strands) wire with PVC insulation can be used on 18 AWG [0.8–0.9 mm²] MTA-156 connectors; 7, 10, and 19 stranded wire on 20 AWG [0.5–0.6 mm²] MTA-156 connectors; and 7 and 19 stranded wire on 22–26 AWG [0.4–0.12 mm²] MTA-156 connectors.

Only one wire to be terminated into an IDC contact slot.

Mass termination of wire provides the lowest applied cost because it drastically reduces the labor content

of virtually any cable or harness assembly required.

The wire-to-post connector housing material is flame retardant thermoplastic, either UL94V-2 or UL94V-0 rated.

A full line of .156 [3.96] centerline headers completes the system. Headers are available with straight or right-angle posts, in flat, friction lock and shrouded styles. Headers are available in 2 through 24 positions, except shrouded. Shrouded headers are available in 2-12 positions.

Note: Refer to page 2219 for approved wire listings.

Performance Data*:

- Voltage Rating** — 600 vac
- Current Rating** — 7 amp max. for MTA-156 Connector
- Low-Level Resistance** — 3.0 mΩ max. initial
- Dielectric Withstanding Voltage** — 1250 vac/1 min.
- Insulation Resistance** — 5000 MΩ min. initial
- Operating Temperature** — –55° C to +105° C

*Refer to the Product Specification for additional electrical, mechanical and environmental performance tests and requirements.

Technical Documents:

- Product Specification**
108-1051 MTA-156 Connectors
- Application Specifications**
114-1020 MTA-156 Connectors, Posted Connectors and Card Edge Connectors
- 114-1032 MTA-156 Ribbon Cable Assembly

For complete product information, order Catalog 82056

IDC Connectors — Closed End

Material and Finish:

Housing — UL94V-2 rated, type 6/6 or 6/12 nylon, see below for color; or UL94V-0 rated, nylon, black

Contacts — Phosphor bronze, post tin plated, .000030 [0.00076] or .000015 [.00038] post gold plated over nickel

Color Coding by Wire Size for UL94V-2 Connectors

- 26 AWG** — Blue
- 24 AWG** — White
- 22 AWG** — Red
- 20 AWG** — Yellow
- 18 AWG** — Orange

All Wire Sizes in UL94V-0 — Black

Notes:

1. Only connectors with locking ramp and without polarizing tabs mate with posted connectors on page 2206.
2. Refer to page 2219 for approved wire listing.
3. For strain reliefs and dust covers, see page 2204.
4. For keying plugs and panel mount end caps, see page 2205.
5. Other circuit sizes are available upon request. Minimums may apply.
6. Connector circuits can be molded closed for keying purposes. Minimums may apply.
7. Where no part numbers appear in the chart, parts can be made available upon request. Minimums may apply.
8. To determine connector overall length (Dim. A), multiply .156 x the number of circuits. Example: .156 x 10 circuits equals 1.560 inches [39.62 mm].

Connector Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete part number for a 10-position closed end connector with locking ramp and without polarizing tabs for 18 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

The correct ordering number is

1-xxxxxx-0

Base Part Numbers

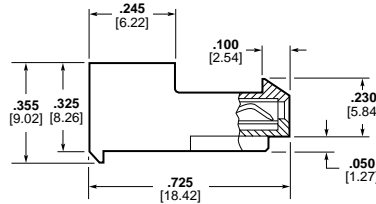
Connector Type & Wire Size	Closed End with Locking Ramp				Closed End without Locking Ramp			
	Without Tabs		With Tabs		Without Tabs		With Tabs	
	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits
Standard UL94V-2, Tin Plated								
18 AWG 0.8-0.9 mm ²	640426	2-24	643817	2-24	640431	2-24	644461 ⁵	2-14
20 AWG 0.5-0.6 mm ²	640427	2-24	643818	2-24	640432	2-24	644462 ⁵	2-14
22 AWG 0.3-0.4 mm ²	640428	2-24	643819	2-24	640433	2-24	644463 ⁵	2-14
Standard UL94V-2, .000030 [0.00076] Gold Plated								
18 AWG 0.8-0.9 mm ²	641217	2-24	644460 ⁵	2-12	641222	2-24	—	—
20 AWG 0.5-0.6 mm ²	641218	2-24	644663 ⁵	2-12	641223	2-24	—	—
22 AWG 0.3-0.4 mm ²	641219	2-24	644662 ⁵	2-12	641224	2-24	644687 ⁵	2-14
24 AWG 0.2 mm ²	641220	2-24	—	—	641225	2-24	—	—
26 AWG 0.12-0.15 mm ²	641221	2-24	—	—	641226	2-24	—	—
Standard UL94V-2, .000015 [0.00038] Gold Plated								
18 AWG 0.8-0.9 mm ²	641148	2-24	644284 ⁵	2-12	641153	2-24	—	—
22 AWG 0.3-0.4 mm ²	641150	2-24	—	—	641155	2-24	—	—

⁵ Other circuit sizes are available upon request. Minimums may apply.

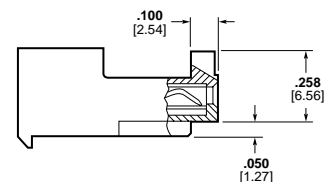
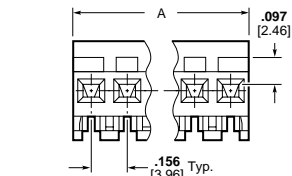
⁶ With High Force contacts

Note: Blocked circuit configurations are available upon request. Contact product engineer or product manager for details. Minimums may apply.

Closed End with Locking Ramp



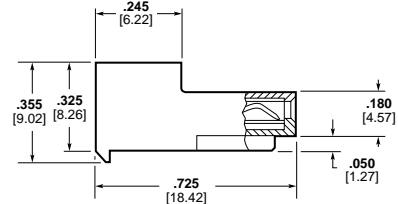
without Polarizing Tabs



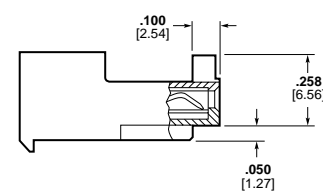
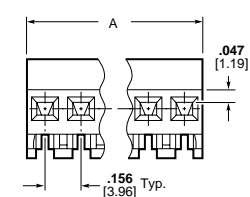
with Polarizing Tabs

Mating half visuals for Closed End Connectors with Locking Ramp, see pages 2206 thru 2211 (2208 and 2209 Front Bend Headers Only).

Closed End without Locking Ramp



without Polarizing Tabs



with Polarizing Tabs

Mating half visuals for Closed End Connectors without Locking Ramp, see pages 2207 thru 2211.

For mateability options, see matrix on pages 2200 and 2201.

For complete product information, order Catalog 82056

IDC Connectors — Feed-Through

Material and Finish:

Housing — UL94V-2 rated, type 6/6 or 6/12 nylon, see below for color; or UL94V-0 rated, nylon, black

Contacts — Phosphor bronze; post tin plated, .000030 [.00076] or .000015 [.00038] post gold plated over nickel

Color Coding by Wire Size for UL94V-2 Connectors

- 26 AWG** — Blue
- 24 AWG** — White
- 22 AWG** — Red
- 20 AWG** — Yellow
- 18 AWG** — Orange

All Wire Sizes in UL94V-0 — Black

Notes:

1. Only connectors with locking ramp and without polarizing tabs mate with posted connectors on page 2206.
2. Refer to page 2219 for approved wire listing.
3. For strain reliefs and dust covers, see page 2204.
4. For keying plugs and panel mount end caps, see page 2205.
5. Other circuit sizes are available upon request. Minimums may apply.
6. Connector circuits can be molded closed for keying purposes. Minimums may apply.
7. Where no part numbers appear in the chart, parts can be made available upon request. Minimums may apply.
8. To determine connector overall length (Dim. A), multiply .156 x the number of circuits. Example: .156 x 10 circuits equals 1.560 inches [39.62 mm].

Connector Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete part number for a 10-position feed-thru connector with locking ramp and without polarizing tabs for 18 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

The correct ordering number is

1-xxxxxx-0

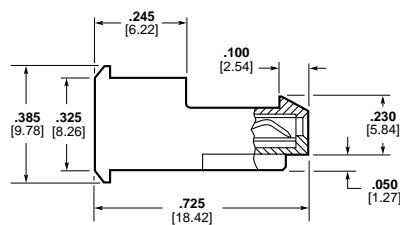
Base Part Numbers

Connector Type & Wire Size	Feed-Through with Locking Ramp				Feed-Through without Locking Ramp			
	Without Tabs		With Tabs		Without Tabs		With Tabs	
	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits
Standard UL94V-2, Tin Plated								
18 AWG 0.8-0.9 mm ²	640599	2-24	644465 ⁵	2-14	640604	2-24	644469 ⁵	2-14
20 AWG 0.5-0.6 mm ²	640600	2-24	644466 ⁵	2-14	640605	2-24	644470 ⁵	2-14
22 AWG 0.3-0.4 mm ²	640601	2-24	644467 ⁵	2-14	640606	2-24	644471 ⁵	2-14
24 AWG 0.2 mm ²	640602	2-24	644468 ⁵	2-14	640607	2-24	644472 ⁵	2-14

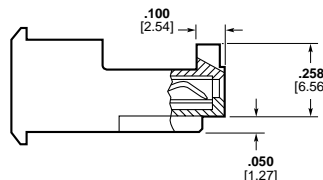
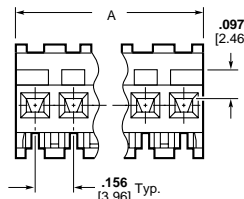
⁵ Other circuit sizes are available upon request. Minimums may apply.

Note: Blocked circuit configurations are available upon request. Contact product engineer or product manager for details. Minimums may apply.

Feed-Through with Locking Ramp



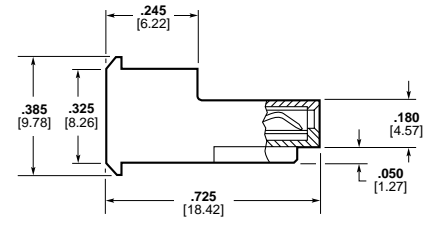
without Polarizing Tabs



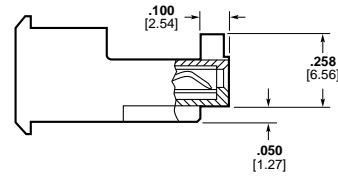
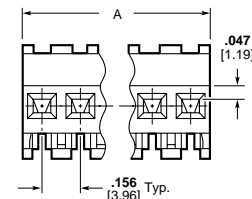
with Polarizing Tabs

Mating half visuals for Feed-Through Connectors with Locking Ramp, see pages 2206 thru 2211 (2208 and 2209 Front Bend Headers Only).

Feed-Through without Locking Ramp



without Polarizing Tabs



with Polarizing Tabs

Mating half visuals for Feed-Through Connectors without Locking Ramp, see pages 2207 thru 2211.

For mateability options, see matrix on pages 2200 and 2201.

For complete product information, order Catalog 82056

Connector Accessories

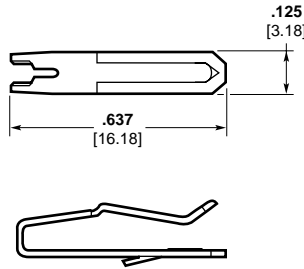
Replacement IDC Contacts

Material and Finish

Contacts — Phosphor bronze, post tin plated; .000030 [0.00076] or .000015 [0.00038] post gold plated over nickel

Note:

Tyco Electronics Corporation does not recommend terminating an MTA contact more than one time. Use replacement contacts when required for field repairs or wire changes.



Wire Size		Part Numbers		
AWG	mm ²	Tin Plated	.000030 [0.00076] Gold Plated	.000015 [0.00038] Gold Plated
18	0.8-0.9	640631-2	641143-2	641143-1
20	0.5-0.6	640632-2	641144-2	641144-1
22	0.3-0.4	640633-2	641145-2	641145-1
24	0.2	640634-2	641146-2	641146-1
26	0.12-0.15	640635-2	641147-2	641147-1

Closed End and Feed-Thru Covers

Material:

Strain Relief Covers — UL94V-2 rated, nylon, white

Dust Covers — UL94V-0 rated, polyester, white

Cover Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described cover.

Prefixes and suffixes are determined by the number of circuit positions in the cover. For example, the complete part number for a 10-position closed-end strain relief cover would be:

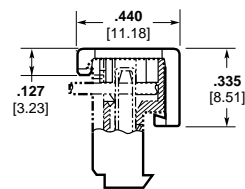
Base number **xxxxxx** plus prefix-and-suffix

1- -0

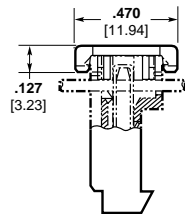
The correct ordering number is

1-xxxxxx-0

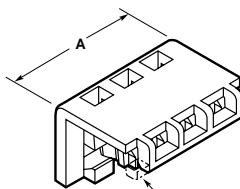
Strain Relief Covers



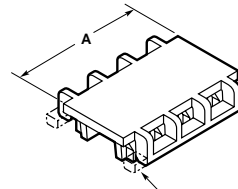
Closed End



Feed-Thru

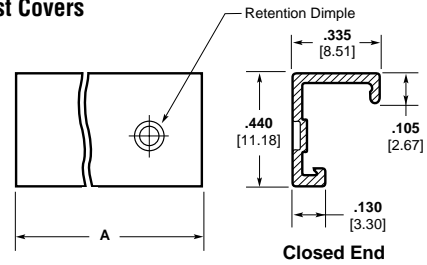


Note: This portion of front locking bar may or may not be present

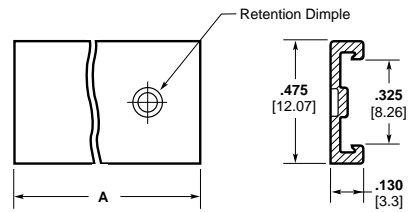


Note: This portion of front locking bar may or may not be present

Dust Covers



Closed End



Feed-Thru

Base Part Numbers

Closed End				Feed-Thru			
Strain Relief Covers		Dust Covers		Strain Relief Covers		Dust Covers	
Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits	Cover Part Numbers	No. of Circuits
643067	2-24	640551	2-24	643071	2-24	640643	2-24

Cover Length

No. of Circuits	Dim. A	Prefix/Suffix
2	.312 7.92	-2
3	.468 11.89	-3
4	.624 15.85	-4
5	.780 19.81	-5
6	.936 23.77	-6
7	1.092 27.74	-7

No. of Circuits	Dim. A	Prefix/Suffix
8	1.248 31.7	-8
9	1.404 35.66	-9
10	1.560 39.62	1- -0
11	1.716 43.59	1- -1
12	1.872 47.55	1- -2
13	2.028 51.51	1- -3

No. of Circuits	Dim. A	Prefix/Suffix
14	2.184 55.47	1- -4
15	2.340 59.44	1- -5
16	2.496 63.4	1- -6
17	2.652 67.36	1- -7
18	2.808 71.32	1- -8
19	2.964 75.29	1- -9

No. of Circuits	Dim. A	Prefix/Suffix
20	3.120 79.25	2- -0
21	3.276 83.21	2- -1
22	3.432 87.17	2- -2
23	3.588 91.14	2- -3
24	3.744 95.1	2- -4

For complete product information, order Catalog 82056

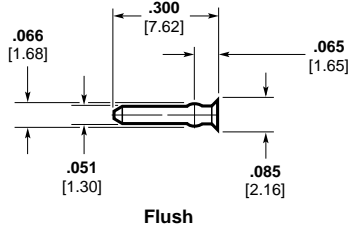
Connector Accessories

Keying Plugs

Material:

UL94V-2 rated, type 6/6 nylon, natural color

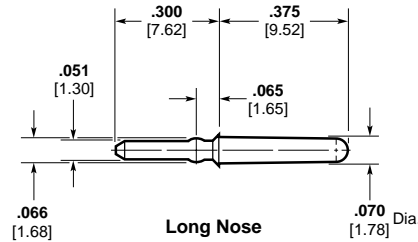
Note: Removal of contact is not necessary when using keying plug.



Flush

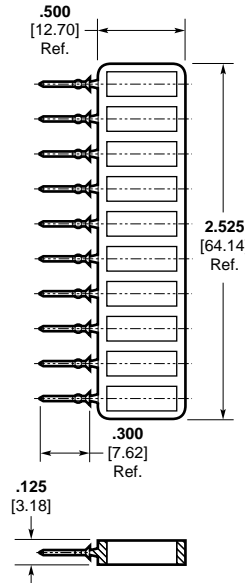
Loose Piece

Part Number 640629-1 (Flush)
Used with keyed headers



Long Nose

Part Number 640630-1 (Long Nose)
Used with staked post



On Carrier Strip

Part Number 641623-1 (Flush)
(10 per strip)

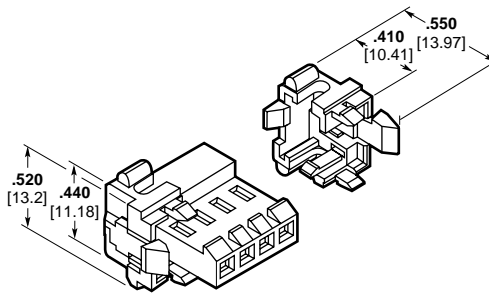
Panel Mount End Caps

Material:

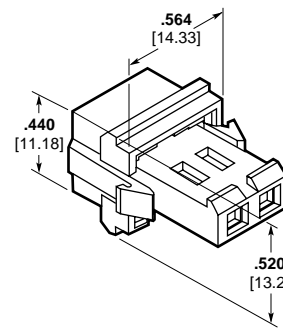
UL94V-2 rated, nylon, black

Notes:

- Both left-hand and right-hand end caps are attached by a connecting tab. This tab must be broken off prior to installing on connector.
- For best results attach panel mount end caps to the MTA-156 (IDC) connectors shown on pages 2202 thru 2203. While not preferred, panel mount end caps can be attached to MTA-156 (IDC) posted connector on page 2206.

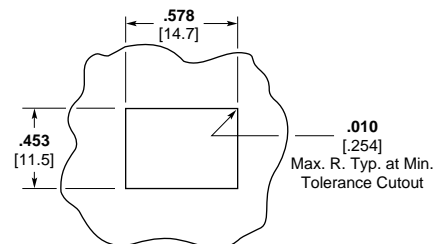
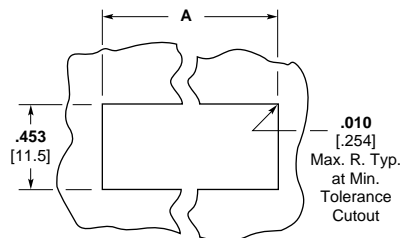


3- thru 24-Position
Part Number 641440-1
See Note 1



2-Position Only
Part Number 641533-1

No. of Positions	Dim. A
3	.736 18.69
4	.892 22.66
6	1.204 30.58
9	1.672 42.47
12	2.140 54.36
15	2.608 66.24
24	4.012 101.9



Recommended Panel Cutout
(Recommended Panel Thickness .067 [1.57] to .067 [1.70] max.)

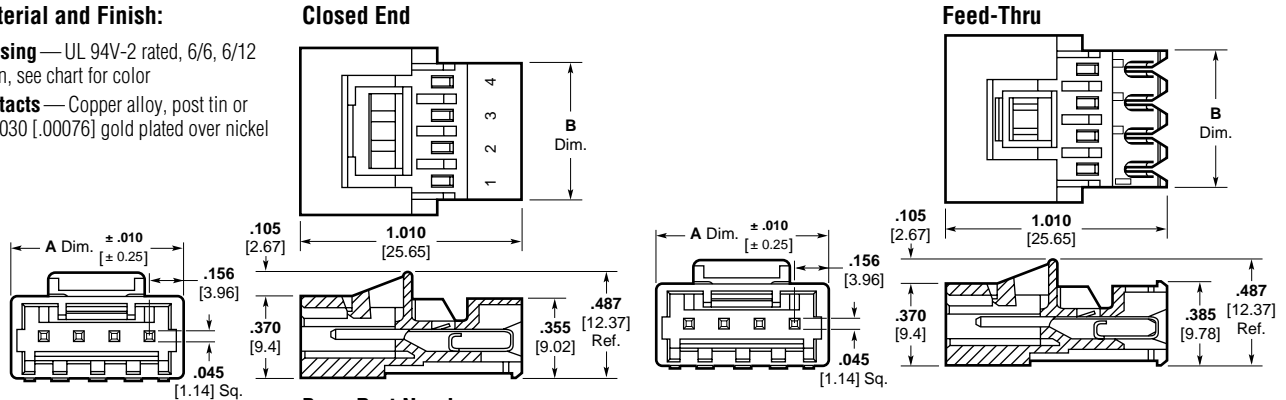
For complete product information, order Catalog 82056

IDC Posted Connectors (Wire-to-Wire) — Closed End, Feed-Thru

Material and Finish:

Housing — UL 94V-2 rated, 6/6, 6/12 nylon, see chart for color

Contacts — Copper alloy, post tin or .000030 [0.00076] gold plated over nickel



Base Part Numbers

Notes:

- Mating half visuals - pages 2202 thru 2203.
- Strain relief & dust covers - page 2204.
- Approved wire listing - page 2219.

Connector Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete part number for a 12-position closed end connector for 18 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix
1- -2

The correct ordering number is
1-xxxxxx-2

Connector Type & Wire Size	Closed End Connector		Feed-Thru Connector	
	Part Numbers	No. of Circuits	Part Numbers	No. of Circuits

Standard UL 94V-2, Tin Plated

18 AWG 0.8-0.9 mm ²	641435	2, 3, 4, 6, 9, 12, 15, 24	641522	2, 3, 4, 6, 9, 12, 15, 24
20 AWG 0.5-0.6 mm ²	641436	2, 3, 4, 6, 9, 12, 15, 24	641523	2, 3, 4, 6, 9, 12, 15, 24
22 AWG 0.3-0.4 mm ²	641437	2, 3, 4, 6, 9, 12, 15, 24	641524	2, 3, 4, 6, 9, 12, 15, 24
24 AWG 0.2 mm ²	641438	2, 3, 4, 6, 9, 12, 15, 24	641525	2, 3, 4, 6, 9, 12, 15, 24
26 AWG 0.12-0.15 mm ²	641439	2, 3, 4, 6, 9, 12, 15, 24	641526	2, 3, 4, 6, 9, 12, 15, 24

Standard UL 94V-2, .000030 [0.00076] Gold Plated

18 AWG 0.8-0.9 mm ²	644807	2, 3, 4, 6, 9, 12, 15, 24	644812	2, 3, 4, 6, 9, 12, 15, 24
20 AWG 0.5-0.6 mm ²	— ²	—	— ²	—
22 AWG 0.3-0.4 mm ²	644809	2, 3, 4, 6, 9, 12, 15, 24	644814	2, 3, 4, 6, 9, 12, 15, 24
24 AWG 0.2 mm ²	— ²	—	— ²	—
26 AWG 0.12-0.15 mm ²	— ²	—	— ²	—

¹ MTA-156 Posted Connectors (Closed End and Feed-Thru) will **Only mate** with MTA-156 connectors with locking ramp and without polarizing tabs. They **will NOT mate** with MTA-156 Quad Connectors.

² Parts can be made available upon request. Minimums may apply.

Color Coding by Wire Size for UL 94V-2 Connectors

- 18 AWG** — Orange
- 20 AWG** — Yellow
- 22 AWG** — Red
- 24 AWG** — White
- 26 AWG** — Blue

No. of Circuits	Dim.		Suffix	No. of Circuits	Dim.		Prefix/Suffix
	A	B			A	B	
2	.468 11.89	.316 8.03	-2	9	1.560 39.62	1.408 35.76	-9
3	.624 15.85	.472 11.99	-3	12	2.028 51.51	1.876 47.65	1- -2
4	.780 19.81	.628 15.95	-4	15	2.496 63.40	2.344 59.54	1- -5
6	1.092 27.74	.940 23.88	-6	24	3.900 99.06	3.748 95.20	2- -4

Performance Data:

- Voltage Rating** — 600 VAC
- Current Rating** — 7 amp max.
- Low-Level Resistance** — 7 mΩ max. initial
- Dielectric Withstanding Voltage** — 1500 VAC/1 min.
- Insulation Resistance** — 5000 MΩ min. initial
- Operating Temperature** — -55° C to +105° C

Technical Documents:

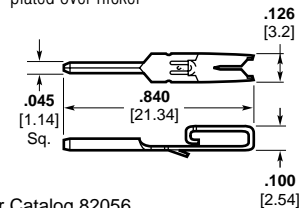
Product Specification
 108-1065 MTA-156 Posted Connector

Application Specification
 114-1020 MTA-156 Connectors, Posted Connectors and Card Edge Connectors

Replacement IDC Contacts

Material and Finish:

Contacts — Copper alloy, post tin plated over nickel



AWG	Wire Size		Part Numbers
	mm ²		
18	0.8-0.9		641425-1
20	0.5-0.6		641426-1
22	0.3-0.4		641427-1
24	0.2		641428-1
26	0.12-0.15		641429-1

For complete product information, order Catalog 82056

Flat Headers — Straight

Material and Finish:

Housing — UL94V-0 rated, polyester, white

Posts — Copper alloy, tin plated, .000030 [0.00076] or .00015 [0.00038] gold over nickel

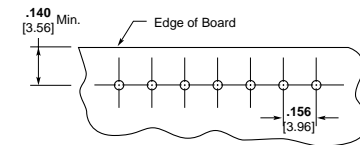
Notes:

- Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
- Gold headers are duplex plated, gold on mating end of post and tin on the soldertail.
- .125 [3.18] soldertail lengths are for .062 [1.57] thick printed circuit board and .175 [4.45] soldertail lengths are for .093-.125 [2.36-.318] thick printed circuit boards.
- To determine header overall length (Dim. A), multiply .156 x the number of posts. Example: .156 x 10 posts equals 1.560 inches [39.62 mm].

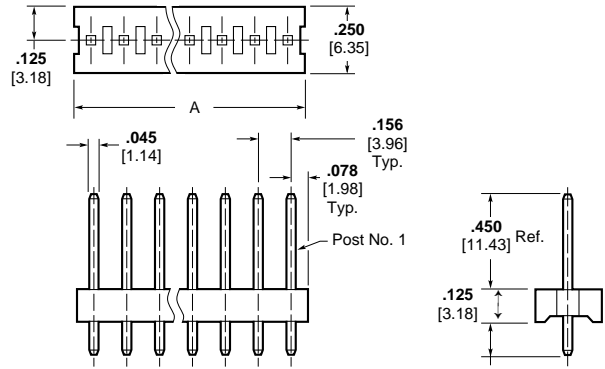
For mateability options, see matrix on pages 2200, 2201, 2212 and 2214.

For mating half visuals, see pages 2202, 2203, 2213, 2216 and 2217.

PC Board Hole Diameters	
Square Post	Round Post
.080/.070 [2.03/1.78]	.070/.060 [1.78/1.52]



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board



Base Part Numbers

Square Posts				Round Posts			
.125 [3.18] Solder-tail		.175 [4.45] Solder-tail		.125 [3.18] Solder-tail		.175 [4.45] Solder-tail	
Header Part Nos.	No. of Posts	Header Part Nos.	No. of Posts	Header Part Nos.	No. of Posts	Header Part Nos.	No. of Posts
Standard UL94V-0, Tin Plated							
640383	2-24	644749	2-24	640384	2-24	644750	2-24
Standard UL94V-0, .000030 [0.00076] Gold Plated							
641202	2-24	644756	2-24	641203	2-24	644757	2-24
Standard UL94V-0, .000015 [0.00038] Gold Plated							
641113	2-24	644763	2-24	641114	2-24	644764	2-24

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with square posts and a .125 [3.18] soldertail length would be:

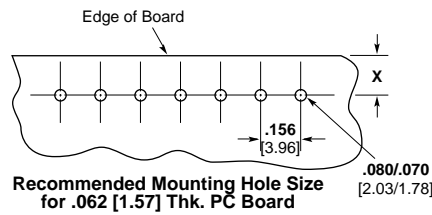
Base number **xxxxxx** plus prefix-and-suffix
1- -0

The correct ordering number is

1-xxxxxx-0

Note:

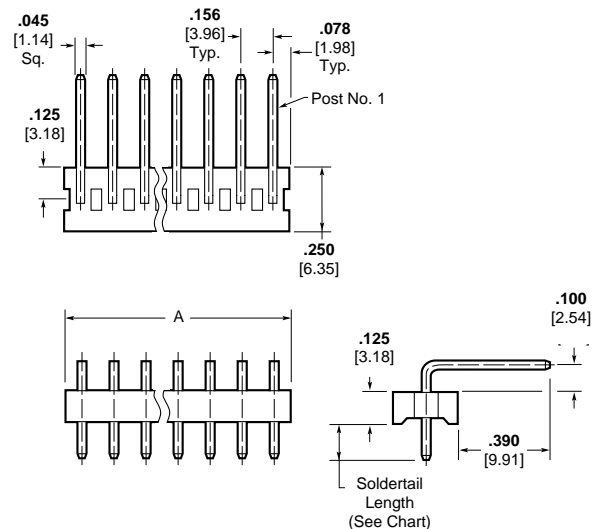
Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board

X = .140 [3.56] Min., .430 [10.92] Max. when mated with MTA-156 Connector
X = .140 [3.56] Min. when mated with SL-156 Wire-to-Board Connector.

Note: Consult Product Drawing for details on placing headers onto pc boards.



Base Part Numbers

Square Posts			
.125 [3.18] Solder-tail		.175 [4.45] Solder-tail	
Header Part Nos.	No. of Posts	Header Part Nos.	No. of Posts
Standard UL94V-0, Tin Plated			
640385	2-24	644751	2-24
Standard UL94V-0, .000030 [0.00076] Gold Plated			
641204	2-24	644758	2-24
Standard UL94V-0, .000015 [0.00038] Gold Plated			
641115	2-24	644765	2-24

For complete product information, order Catalog 82056

Friction Lock Headers — Straight

Material and Finish:

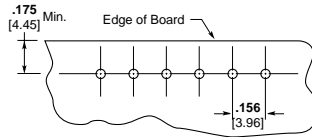
Housing — UL94V-0 rated, polyester, white

Posts — Copper alloy, tin plated, .000030 [0.00076] or .000015 [0.00038] gold over nickel

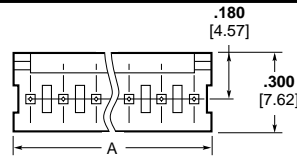
Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the soldertail.
3. .125 [3.18] soldertail lengths are for .062 [1.57] thick printed circuit board and .175 [4.45] soldertail lengths are for .093-.125 [2.36-3.18] thick printed circuit boards.
4. To determine header overall length (Dim. A), multiply .156 x the number of posts. Example: .156 x 10 posts equals 1.560 inches [39.62 mm].

PC Board Hole Diameters	
Square Post	Round Post
.080/.070 [2.03/1.78]	.070/.060 [1.78/1.52]

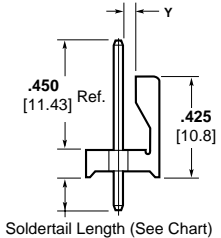
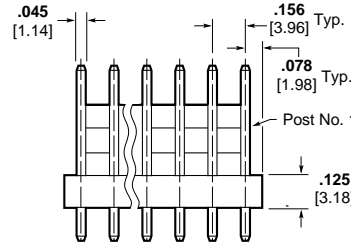


Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board



Y = .068 [1.73] 2-8 position tin plated and 2-24 position gold plated headers.

Y = .073 [1.85] 9-24 position tin plated headers.



Soldertail Length (See Chart)

Base Part Numbers

Square Posts				Round Posts			
.125 [3.18] Soldertail		.175 [4.45] Soldertail		.125 [3.18] Soldertail		.175 [4.45] Soldertail	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts

Standard UL94V-0, Tin Plated

640445	2-24	644752	2-24	640388	2-24	644753	2-24
643495-2	5 ¹						

Standard UL94V-0, .000030 [0.00076] Gold Plated

641208	2-24	644759	2-24	641209	2-24	644760	2-24
--------	------	--------	------	--------	------	--------	------

Standard UL94V-0, .000015 [0.00038] Gold Plated

641119	2-24	644766	2-24	641120	2-24	644767	2-24
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¹ Post Numbers 2 and 4 Omitted

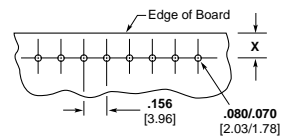
For mateability options, see matrix on pages 2200, 2201, 2212 and 2214.

For mating half visuals, use connectors with a locking ramp for polarization/retention purposes, see pages 2202, 2203, 2213, 2216 and 2217.

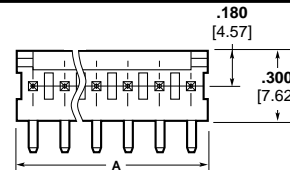
For polarizing purposes only use connectors without a locking ramp. See pages 2202, 2203, 2213, 2216 and 2217.

Friction Lock Headers — Right-Angle

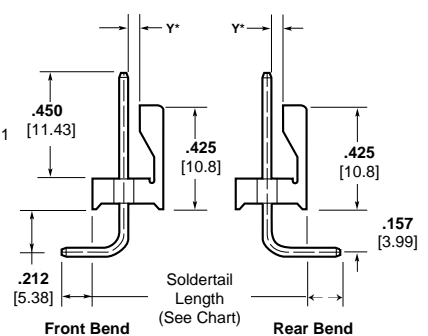
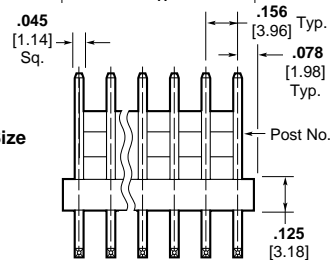
When using Rear Bend Headers — use connectors without a locking ramp.



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board



*See Y dimension above.



Note: Consult Product Drawing for X Dim. and details on placing headers onto pc boards.

Base Part Numbers

Square Posts					
Front Bend			Rear Bend		
.125 [3.18] Soldertail		.175 [4.45] Soldertail		.125 [3.18] Soldertail	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts

Standard UL94V-0, Tin Plated

640389	2-24	644754	2-24	640387	2-24
--------	------	--------	------	--------	------

Standard UL94V-0, .000030 [0.00076] Gold Plated

641210	2-24	644761	2-24	641207	2-24
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For complete product information, order Catalog 82056

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with square posts and a .125 [3.18] soldertail length would be:

Base number **xxxxxx** plus prefix-and-suffix
1- -0

The correct ordering number is

1-xxxxxx-0

Note: Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

Material and Finish:

Housing — UL94V-0 rated, polyester, white

Posts — Copper alloy, tin plated or .000030 [0.00076] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Peg holes are not required in PC Boards when headers without pegs are used.
3. One peg only on a 2 position header, other position sizes have two pegs.
4. Headers with .00015 [0.00038] gold plated post are available upon request. Minimums may apply.
5. To determine header overall length (Dim. A), multiply .156 x the number of posts. Example: .156 x 10 posts equals 1.560 inches [39.62 mm].

For mateability options, see matrix on pages 2200, 2201, 2212 and 2214.

For mating half visuals, use connectors with a locking ramp for polarization/retention purposes, see pages 2202, 2203, 2213, 2216 and 2217.

For polarizing purposes only use connectors without a locking ramp. See pages 2202, 2203, 2216 and 2217.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with square posts with pegs would be:

Base number **xxxxxx** plus prefix-and-suffix **1- - -0**

The correct ordering number is

1-xxxxxx-0

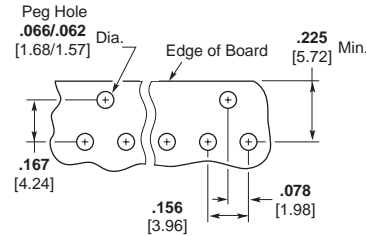
Note:

Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

Polarized Lock Headers — Straight

PC Board Hole Diameters

Square Post	
.069/.065	
[1.75/1.65]	



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board

Base Part Numbers

Square Posts			
Without Pegs		With Pegs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
644611	2-18	644615	2-18

Standard UL94V-0, Tin Plated

644611	2-18	644615	2-18
--------	------	--------	------

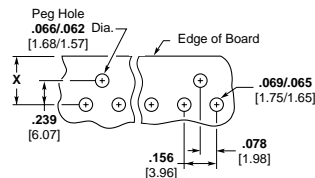
Standard UL94V-0, .000030 [0.00076] Gold Plated

644627	2-18	644631	2-18
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Polarized Lock Headers — Right-Angle

X = .350 [8.89] Min., .825 [20.96] Max. when mated with MTA-156 Connector

X = .350 [8.89] Min. when mated with SL-156 Connector.



Recommended Mounting Hole Size for .062 [1.57] Thk. PC Board

Note: Consult Product Drawing for details on placing headers onto pc boards.

Base Part Numbers

Square Posts			
Front Bend			
Without Pegs		With Pegs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
644613	2-18	644617	2-18

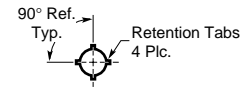
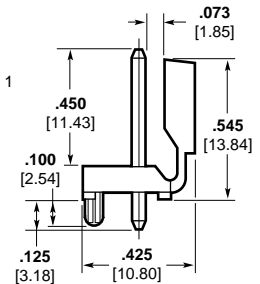
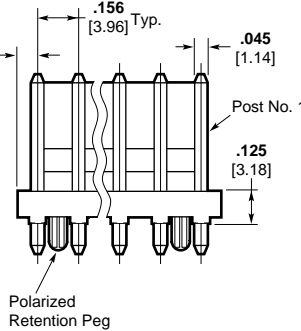
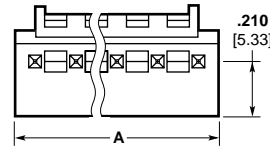
Standard UL94V-0, Tin Plated

644613	2-18	644617	2-18
--------	------	--------	------

Standard UL94V-0, .000030 [0.00076] Gold Plated

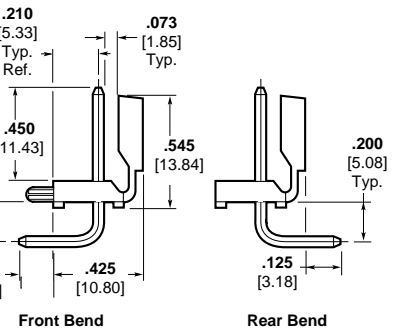
644629	2-18	644633	2-18
--------	------	--------	------

For complete product information, order Catalog 82056



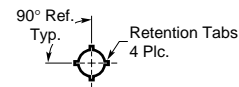
Polarized Retention Peg

2 PCB and Wire Connectors



Front Bend Rear Bend

Contact product engineer or product manager for details on Rear Bend.



Polarized Retention Peg

Friction Lock High Temperature Headers — Straight

Material and Finish:

Housing — UL94V-0 rated, thermoplastic, polyester, black

Posts — Copper alloy, tin plated, .000015 [0.00038] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin tin on the solder detail.
3. Headers with straight and right angle square posts are available upon request. Minimums may apply.
4. To determine header overall length (Dim. A), multiply .156 x the number of posts. Example: .156 x 10 posts equals 1.560 inches [39.62 mm].

For mateability options, see matrix on pages 2200, 2201, 2212 and 2214.

For mating half visuals, use connectors with a locking ramp for polarization/retention purposes, see pages 2202, 2203, 2213, 2216 and 2217.

For polarizing purposes only use connectors without a locking ramp. See pages 2202, 2203, 2216 and 2217.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers.

Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with round tin plated posts:

Base number **xxxxxx** plus prefix-and-suffix

1- -0

The correct ordering number is

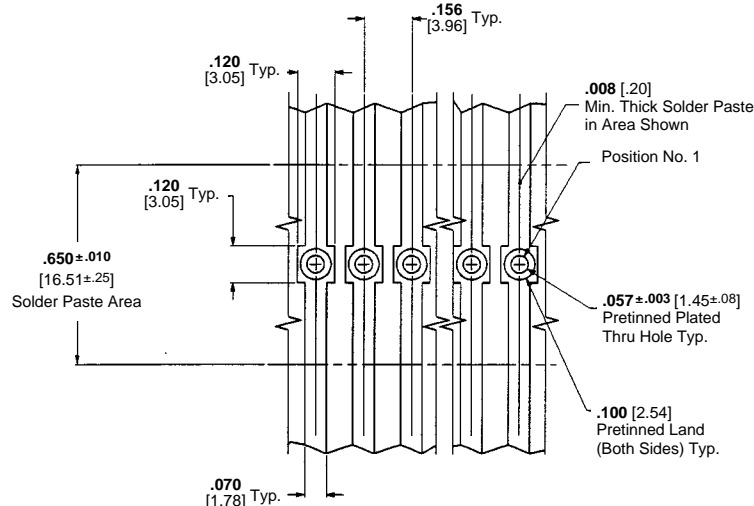
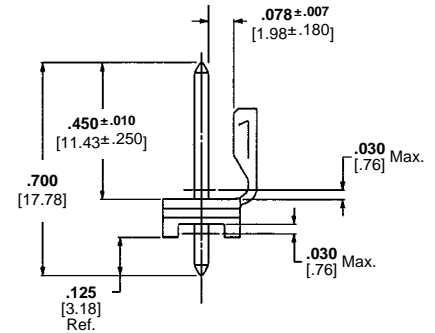
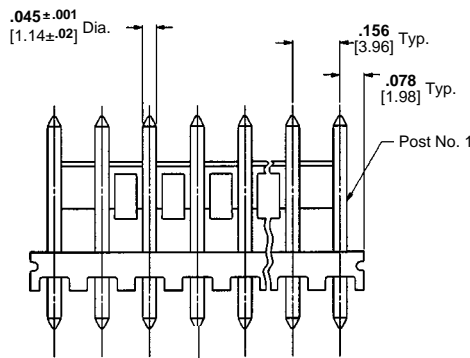
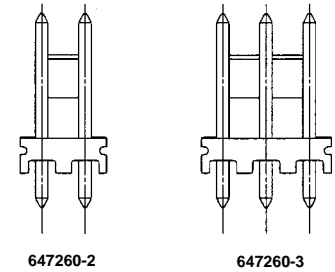
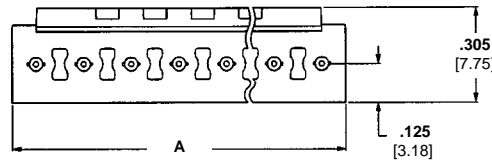
1-xxxxxx-0

Note:

Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

For use with Infrared Reflow Process

Maximum Temperature Rating: 235°C



Recommended Mounting Hole Pattern for .062 [1.57] Thick PC Board

Base Part Numbers

Round Post	
Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated	
647260	2-11
Standard UL94V-0, .000015 [0.00038] Gold Plated	
647261	2-11
Tube Loaded UL94V-0, Tin Plated	
647262	2-11
Tube Loaded UL94V-0, .000015 [0.00038] Gold Plated	
644322	2-11

For complete product information, order Catalog 82056

Shrouded Headers — Straight and Right-Angle

Material and Finish:

Housing — UL94V-0 rated, polyester, black

Posts — Copper alloy, tin plated; or .000030 [0.00076] or .000015 [0.00038] gold over nickel

Notes:

1. Post(s) can be omitted for keying purposes. Specify the desired post(s) to be omitted using the figure to identify Post No. 1.
2. Gold headers are duplex plated, gold on mating end of post and tin on the solder tail.
3. Peg holes are not required in PC boards when headers without pegs are used.
4. One peg only on a 2 position header, other position sizes have two pegs.
5. Right angle front and rear bend headers with retention pegs can be made available upon request. Minimums may apply.

For mateability options, see matrix on pages 2200, 2201, 2212 and 2214.

For mating half visuals, see pages 2202, 2203 and 2213.

Header Ordering Information

The "Base Part Numbers" Chart at right shows the base part number and number of posts available for the described headers. Prefixes and suffixes are determined by the number of post positions in the header. For example, the complete part number for a 10-position header with straight, square posts and with pegs would be:

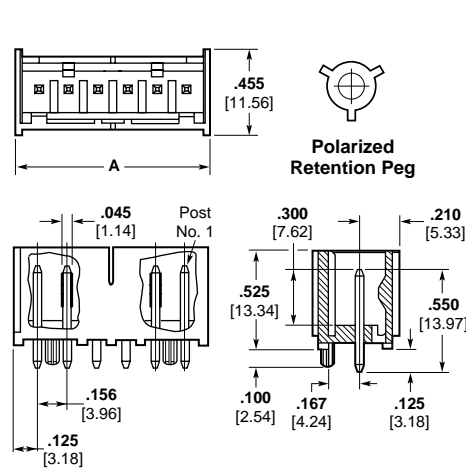
Base number **xxxxxx** plus prefix-and-suffix **1--0**

The correct ordering number is **1-xxxxxx-0**

Header Length

No. of Circuits	Dim. A	Prefix/Suffix
2	.406 10.31	-2
3	.562 14.27	-3
4	.718 18.24	-4
5	.874 22.20	-5
6	1.030 26.16	-6
7	1.186 30.12	-7
8	1.342 34.09	-8
9	1.498 38.05	-9
10	1.654 42.01	1--0
11	1.810 45.97	1--1
12	1.966 49.94	1--2

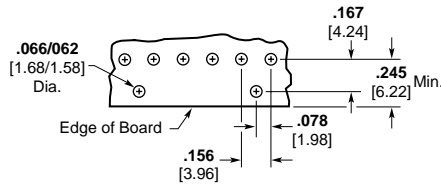
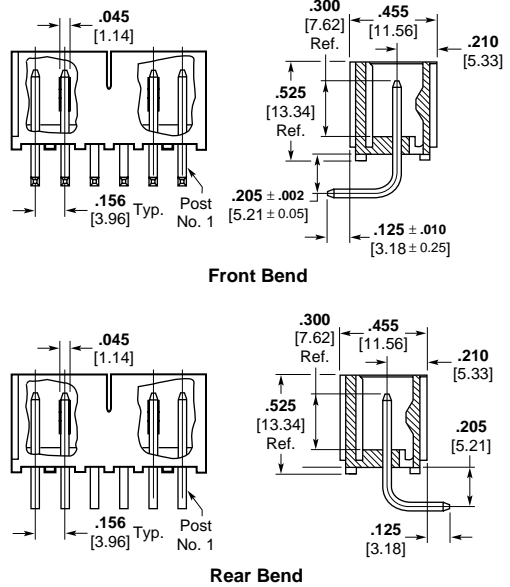
Straight Post (.045 [1.14] Square or Round)



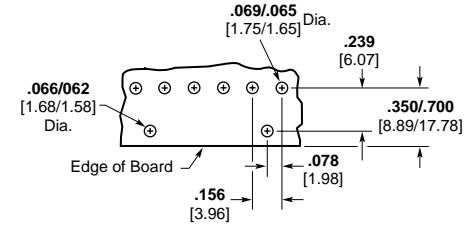
PC Board Hole Diameters

Square Post	Round Post
.069/.065 [1.75/1.65]	.054/.050 [1.37/1.27]

Right-Angle Post (.045 [1.14] Square)



Recommended Mounting Hole Size for .062 [1.57] Thick PC Board Using a Straight Post Header



Recommended Mounting Hole Size for .062 [1.57] Thick PC Board Using a Right-Angle Header

Base Part Numbers

Note: Consult Product Drawing for details on placing headers onto pc boards.

Straight Square Posts				Straight Round Posts			
Without Pegs		With Pegs		Without Pegs		With Pegs	
Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts	Header Part Numbers	No. of Posts
Standard UL94V-0, Tin Plated							
647123	2-12	647127	2-12	647124	2-12	647128	2-12
Standard UL94V-0, .000030 [0.00076] Gold Plated							
647131	2-12	647135	2-12	647132	2-12	647136	2-12
Standard UL94V-0, .000015 [0.00038] Gold Plated							
647139	2-12	647143	2-12	647140	2-12	647144	2-12
Square Posts							
Right-Angle Posts, Front Bend Without Pegs				Right-Angle Posts, Rear Bend Without Pegs			
Header Part Numbers		No. of Posts		Header Part Numbers		No. of Posts	
Standard UL94V-0, Tin Plated							
647125		2-12		647126		2-12	
Standard UL94V-0, .000030 [0.00076] Gold Plated							
647133		2-12		647134		2-12	
Standard UL94V-0, .000015 [0.00038] Gold Plated							
647141		2-12		647142		2-12	

Note: Select load headers (omitted pin headers) are available upon request. Please contact product engineer or product manager for details.

Product Facts

- Provides four points of contact
- Greater current carrying capability
- Connector styles include both closed end and feed-thru with locking ramp, with and without polarizing tabs in 2 through 12 positions
- Available for wire ranges of 18–22 AWG [0.9–0.3 mm²]
- Contacts are lubricated to prevent fretting corrosion
- Complies with AMP Specification 109-151, "Current Rating Verification"
- Uses existing MTA application tooling for termination
- Quad connectors preloaded with contacts
- All contacts are slotted for insulation displacement (IDC) termination technique
- Connectors and headers are end to end stackable
- AWG size is "frosted" on the side of the connector
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189
- Satisfies the VDE requirements according to VDE 110, Insulation Group B, 250 vac for air and creepage paths



The MTA-156 Quad Connector provides a connection with four points of contact. The UL94V-0 rated connector with multi-point contacts provides greater current carrying capability. These connectors comply with AMP Specification 102-6* and satisfy the VDE requirements according to VDE 110.

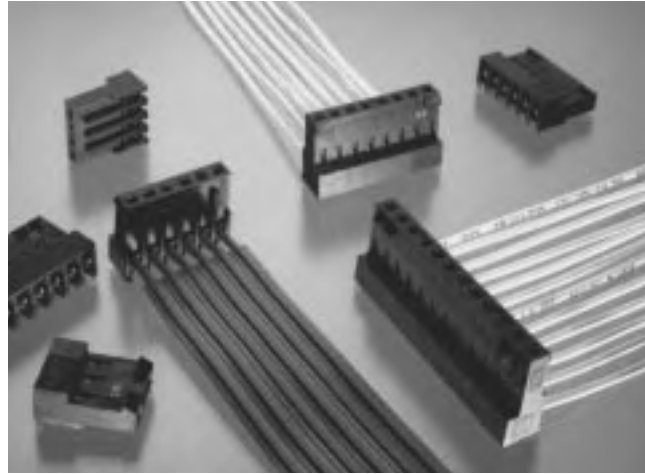
The connectors are available for wire ranges of 18–22 AWG [0.9–0.3 mm²] and in a variety of styles including closed end and feed-thru with locking ramp, with and without polarizing tabs.

Only one wire to be terminated into an IDC contact slot.

*The 102-6 Test Specification is the new AMP Current Rating Verification Procedure. Its purpose is to provide a means for verifying the maximum current carrying capacity of the device.

Note: Refer to page 2219 for approved wire listings.

This matrix has been prepared to assist you, our customer, in defining the correct mating halves for the MTA-156 header and connector combination. Where a "Y" is indicated the combination is a valid mating pair.



The MTA-156 Quad Connectors only mate with standard MTA-156 square post headers and use existing MTA application tooling for termination.

Performance Data:

- Voltage Rating**—600 vac
- Current Rating**—12.5 amp max. on a single circuit
- For Multiple Circuit Loading**—refer to Product Specification for current rating chart.
- Low-Level Resistance**—3.0 mΩ max. initial
- Dielectric Withstanding Voltage**—1500 vac/1 min.
- Insulation Resistance**—5000 MΩ min. initial
- Operating Temperature**—-55° C to +105° C

Technical Documents:

- Product Specification**
108-1219 Connector System, MTA-156, Quad
- Application Specification**
114-1048 MTA-156 Quad Connector

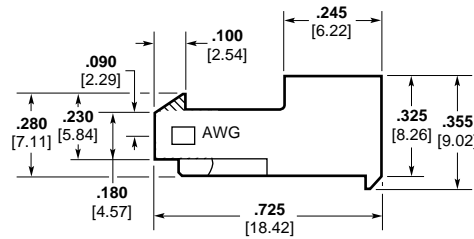
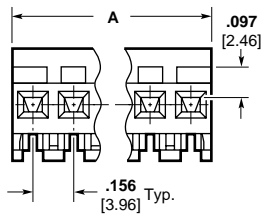
Headers

	640383	640385	640389	640445	644611	644673	644615	644617	644749	644751	644752	644754	647123	647125	647126	647127	647129	647130	647185	647187	647188	647190	647206	647208	647209	647211	647227	647229
644329	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644370	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644371	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644375	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644376	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644377	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644381	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644382	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644383	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644387	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644388	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
644389	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

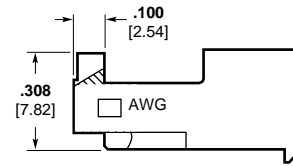
For complete product information, order Catalog 82056

IDC Quad Connectors — Closed End and Feed-Thru

Closed End with Locking Ramp

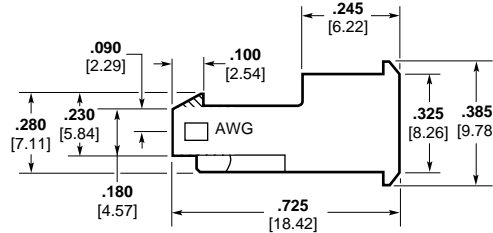
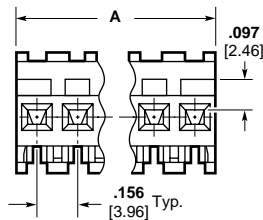


without Polarizing Tabs

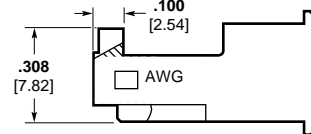


with Polarizing Tabs

Feed-Thru with Locking Ramp



without Polarizing Tabs



with Polarizing Tabs

Material and Finish:

Housing — UL94V-0 rated, 6/6 nylon, black

Contacts — High conductivity copper alloy, post tin plated

For mateability options, see matrix on page 2212.

For strain relief and dust covers, see page 2204.

For mating half visuals, see pages 2207 thru 2211 (2208 and 2209 Front Bend Headers only). **Mates with tin-plated square posts only.**

Refer to pages 2219 thru 2223 for approved wire listing.

Note:

To determine connector overall length (Dim. A), multiply .156 x the number of circuits. Example: .156 x 10 circuits equals 1.560 inches [39.62 mm].

Base Part Numbers

Connector Type & Wire Size	Closed End with Locking Ramp				Feed-Thru with Locking Ramp			
	Without Tabs		With Tabs		Without Tabs		With Tabs	
	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits	Connector Part Numbers	No. of Circuits
Standard UL94V-0, Tin Plated								
18 AWG 0.8-0.9 mm ²	644329	2-12	644381	2-12	644375	2-12	644387	2-12
20 AWG 0.5-0.6 mm ²	644370	2-12	644382	2-12	644376	2-12	644388	2-12
22 AWG 0.3-0.4 mm ²	644371	2-12	644383	2-12	644377	2-12	644389	2-12

Connector Ordering Information

The "Base Part Numbers" Chart above shows the base part number and number of circuits available for the described connectors.

Prefixes and suffixes are determined by the number of circuit positions in the connector. For example, the complete part number for a 10-position closed end connector with locking ramp and without polarizing tabs for 18 AWG wire would be:

Base number **xxxxxx** plus prefix-and-suffix

1 — -0

The correct ordering number is

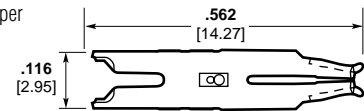
1-xxxxxx-0

For complete product information, order Catalog 82056

Replacement IDC Contacts

Material and Finish:

Contacts — High conductivity copper alloy post tin plated



Note: Tyco Electronics does not recommend terminating an MTA contact more than one time. Use replacement contacts when required for field repairs or wire gage changes.

Wire Size		Part Numbers
AWG	mm ²	
18	0.8-0.9	644508-1
20	0.5-0.6	644509-1
22	0.3-0.4	644510-1

Product Facts

- Rugged wire-to-board interconnection to mate with .045 square or round post headers or staked posts on .156 centers
- Connectors accept wire range of 18–24 AWG [0.9–0.2 mm²]
- Two-piece interconnection system (connector/header)
- Housing made of flame retardant nylon
- Available in 1- through 24-position connector configurations
- Connectors are end-to-end stackable in Standard Housings
- Wire-to-board system offers polarization with friction lock for positive mating
- Meets the material requirements of Table 23.1 of UL1410 Standard for High-Voltage Television Receivers and Video Productions



- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR7189

The AMP SL-156 connectors shown on the following pages are designed to mate with .045 [1.14] square or round post headers or staked posts on .156 [3.96] centers.

The wire-to-board connector is a two-piece connector system with the wire crimped to the contact, then inserted into the housing. This product mates with the MTA-156 flat, polarized and friction lock header, or staked posts (**not** MTA-156 shrouded headers).

Performance Data:

- Voltage Rating** —250 vac
- Current Rating** —
10 amp max. at 250 vac
- Low-Level Resistance** —
3.0 mΩ max. initial
- Dielectric Withstanding Voltage** —
2000 vac/1 min.
- Insulation Resistance** —
1000 MΩ min. initial
- Operating Temperature** —
–55° C to +105° C

Technical Documents:

- Product Specifications**
108-1049, 108-1049-1, 108-1049-2
- Application Specification**
114-1021

The Large Insulation Diameter (LID) Contacts and Housings are for use in applications where wire insulation exceeds .105 [2.67].

This chart represents only the housing and header combinations. You also need to consider the plating on the contacts and headers. Gold contact with gold headers and tin contacts with tin headers.

Housings *	Standard		Headers																															
	LID		640383	640384	640385	640387	640388	640389	640445	641202	641203	641204	641207	641208	641209	641210	644322	644611	644612	644613	644614	644615	644616	644617	644627	644628	644629	644630	644631	644632	644633	644749	644750	
640250	647401		Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
640251	647400		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
770849	647402		Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Housings *	Standard		Headers											
	LID		644751	644752	644753	644754	644755	644756	644757	644758	644759	644760	644761	644762
640250	647401		Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
640251	647400		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
770849	647402		Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N

Housings *	Standard		Headers																				
	LID		647210	647211	647212	647213	647214	647215	647216	647217	647218	647219	647227	647228	647229	647230	647231	647232	647233	647234	647260	647261	647262
640250	647401		Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y
640251	647400		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
770849	647402		Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y

* Select contact plating to match header plating

For complete product information, order Catalog 82056

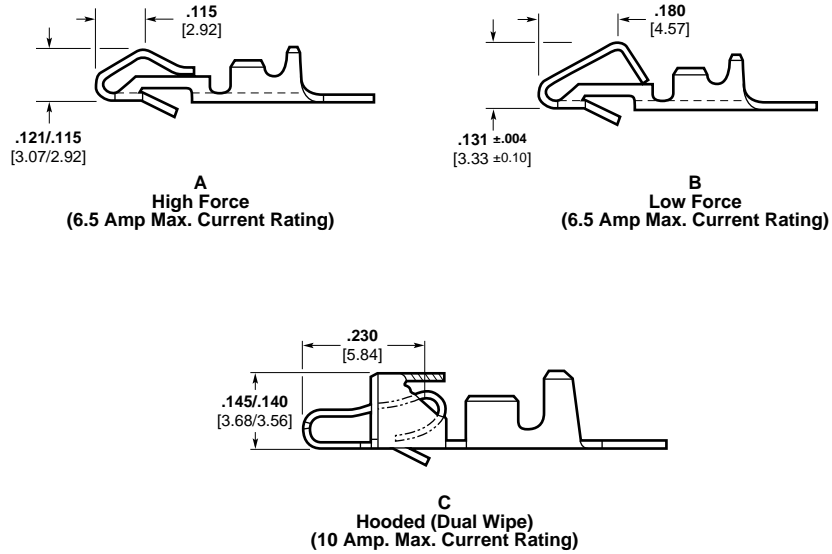
Crimp Contacts and Keying Plugs

Contacts

Material and Finish:

.012 [0.3] bright tin plated brass or phosphor bronze; .012 [0.3] pre-tin brass; or .012 [0.3] brass or phosphor bronze with .000030 [0.00076] gold over nickel (see chart)

- All tin-plated contacts are post lubricated to resist fretting corrosion
- Recommended insulation diameter is .105 [2.67] max.
- Wire range is 18-24 AWG [0.9-0.2 mm²]



Application Note:

Part Number 640252 has a higher mating and unmating force than **Part Number 350980** and is recommended to be used only in housings with 1 through 12 positions. **Part Number 350980** can be used in any size housing but is recommended to be used in housings with 13 through 24 positions. **Part Number 770476** is recommended for use in any size housing. Its mating force is similar to **Part Number 350980** while unmating force is similar to 640252.

For housings, see pages 2216 and 2218.

Contact	Material and Finish	Part Numbers	
		Strip	Loose Piece
A	brass, bright tin plated	640252-1	640706-1
	brass, pre-tin plated	640252-2	640706-2
	brass, bright tin plated	350980-1	640707-1
B	brass, pre-tin plated	350980-2	—
	brass, gold plated	350980-3	770258-1
C	phosphor bronze, bright tin plated	770476-1	770522-1
	phosphor bronze, gold plated	770476-2	770522-2

Application Tooling

Extraction Tool
Part Number 90471-1

Loose Piece Contacts:
 PRO-CRIMPER II Hand Tool
Part Number 58614-1 (408-4228)
 [For Field Service Use Only]
 CERTI-CRIMP Hand Tool
 Contact Technical Support Center

Strip Contacts:

AMP-O-LECTRIC Model "G" Termination Machine* Applicator 466468-4 (Request Catalog 65828)
 AMP-O-LECTRIC Model "K" Termination Machine* Applicator 466468-2
 AMP-O-MATIC Stripper-Crimper Machine* SCA 466947-1 or 567828-1 (with CQM) (Request Catalog 65004)
 AMPOMATOR CLS IV+ Lead-Making Machine* Applicator 466468-1 (Request Catalog 82659)
 *Requires applicators. For part numbers, call the Technical Support Center at **1-800-522-6752**

Keying Plugs

Material:

UL94V-2 rated, type 6/6 nylon, natural color



For complete product information, order Catalog 82056

Standard Housings — Wire-to-Board

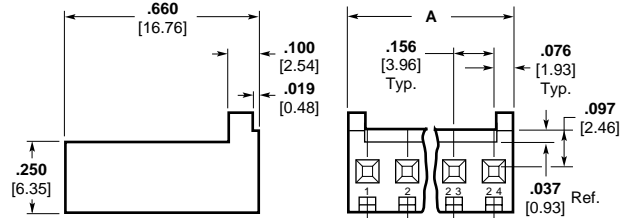
Housings

Material:

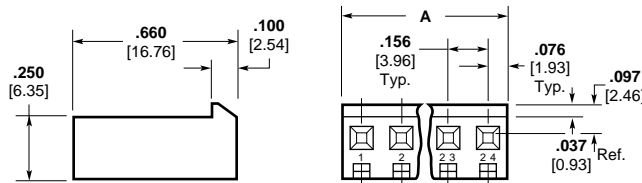
UL94V-0 rated, nylon, white

Notes:

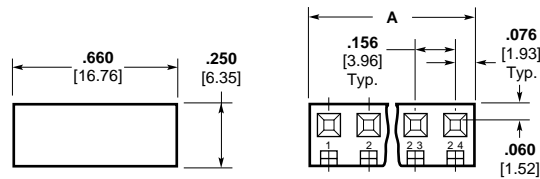
1. Accepts either .045 [1.14] square or round posts. Housings mate with flat and friction lock headers, or staked posts on .156 [3.96] centers.
2. Housings without ramp, with polarizing tab, available upon request. Minimums may apply.
3. Recommend contact: Part No. 640252 for 1 thru 12 positions; Part No. 350980 for 13 thru 24 positions; Part No. 770476 for 1 thru 24 positions.
4. These parts are End-to-End stackable.



With Locking Ramp/With Polarizing Tabs



With Locking Ramp/Without Polarizing Tabs



Without Locking Ramp/Without Polarizing Tabs

For contacts, see page 2215.

For mateability options, see matrix on page 2214.

For mating half visuals, for connectors with locking ramp, see pages 2207 thru 2210 (2208 and 2209 Front Bend Headers only.)

For mating half visuals, for connectors without locking ramp, see pages 2207 thru 2210.

No. of Positions	Dim. A	With Ramp/With Tabs	With Ramp/Without Tabs	Without Ramp/Without Tabs
1	.152 3.86	—	640250-1	640251-1
2	.308 7.82	770849-2	640250-2	640251-2
3	.465 11.81	770849-3	640250-3	640251-3
4	.621 15.77	770849-4	640250-4	640251-4
5	.777 19.74	770849-5	640250-5	640251-5
6	.933 23.70	770849-6	640250-6	640251-6
7	1.090 27.69	770849-7	640250-7	640251-7
8	1.246 31.65	770849-8	640250-8	640251-8
9	1.402 35.61	770849-9	640250-9	640251-9
10	1.558 39.57	1-770849-0	1-640250-0	1-640251-0
11	1.715 43.56	1-770849-1	1-640250-1	1-640251-1
12	1.871 47.52	1-770849-2	1-640250-2	1-640251-2

No. of Positions	Dim. A	With Ramp/With Tabs	With Ramp/Without Tabs	Without Ramp/Without Tabs
13	2.027 51.49	1-770849-3	1-640250-3	1-640251-3
14	2.183 55.45	1-770849-4	1-640250-4	1-640251-4
15	2.340 59.44	1-770849-5	1-640250-5	1-640251-5
16	2.496 63.40	1-770849-6	1-640250-6	1-640251-6
17	2.652 67.36	1-770849-7	1-640250-7	1-640251-7
18	2.808 71.32	1-770849-8	1-640250-8	1-640251-8
19	2.965 75.31	1-770849-9	1-640250-9	1-640251-9
20	3.121 79.27	2-770849-0	2-640250-0	2-640251-0
21	3.277 83.24	2-770849-1	2-640250-1	2-640251-1
22	3.433 87.20	2-770849-2	2-640250-2	2-640251-2
23	3.590 91.19	2-770849-3	2-640250-3	2-640251-3
24	3.746 95.15	2-770849-4	2-640250-4	2-640251-4

Note: Not for use with LID contacts, shown on page 2217.

For complete product information, order Catalog 82056

Housings and Contacts for Large Insulation Diameter (LID) Wire

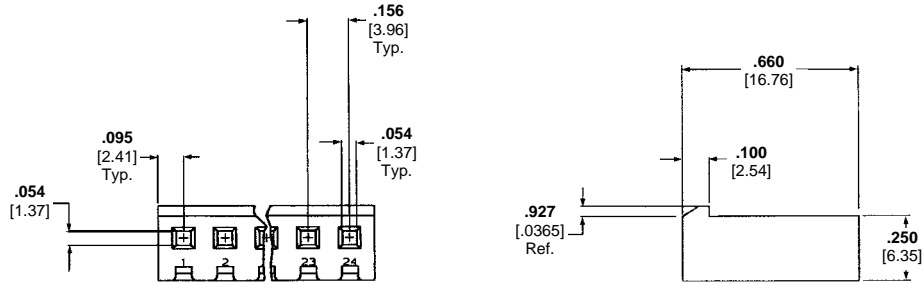
Housings

Material:

UL 94V-0 rated, nylon, white

Notes:

1. Accepts Standard and LID contacts.
2. Larger opening in housings eases contact insertion when using wires that have large insulation diameters (.100-.112 [2.54-2.84]).
3. Housings are not End-to-End stackable.



No. of Positions*	Description	Part Numbers Housings with Larger Openings for Oversize Wire
1-24	Without Locking Ramp or Polarization Tabs	647400
	With Locking Ramp and without Polarization Tabs	647401 (shown above)
2-24	With Locking Ramp and Polarization Tabs	647402

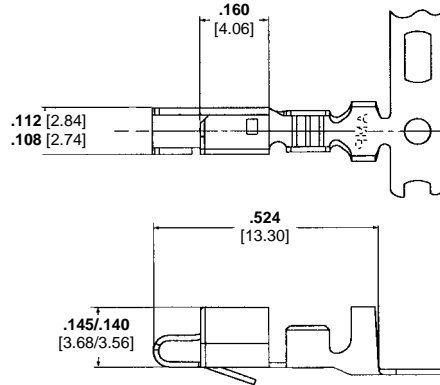
*Base Part Number Prefixes and Suffixes indicate number of contact positions, e.g. 2 Position = 0-xxxxxx-2 and 12 Position = 1-xxxxxx-2

Contacts

Material and Finish:

.012 [0.3] bright tin plated phosphor bronze; .012 [0.3] phosphor bronze with .000030 [0.00076] gold over nickel (see chart)

- All tin-plated contacts are post lubricated to resist fretting corrosion
- Maximum insulation diameter is .112 [2.85].
- Wire range is 18-24 AWG [0.9-0.2 mm²] and a limited 16 AWG (1.29-1.42 mm²) (2550-2800 CMA)



**Hooded (Dual Wipe)
(10 Amp Max. Current Rating)**

Product Specifications:

108-1049-1 and 108-1049-2

Wire Size	Material	Plating	Part Numbers For LID* Wire	
			Strip	Loose Piece
18-24 AWG	Phosphor Bronze	Tin	647406-1	647409-1
		Gold	647406-2	647409-2
16 AWG (2550-2800 CMA only)	Phosphor Bronze	Tin	647466-1	647485-1
		Gold	647466-2	647485-2

*Large Insulation Diameter (.100-.112 [2.54-2.84])

- Notes:** 1. For information on application tooling, call the Technical Support Center 1-800-522-6752.
2. Can **not** be used with Standard SL-156 Housings, must be used with LID Housings only.

Application Tooling

AMP-O-LETRIC Model "G" Termination Machine*

Applicator 1385048-3 [18-24 AWG]

Applicator 1385219-3 [16 AWG]

AMP-O-LECTRIC Model "K"

Termination Machine*

Applicator 1385048-2 [18-24 AWG]

Applicator 1385219-3 [16 AWG]

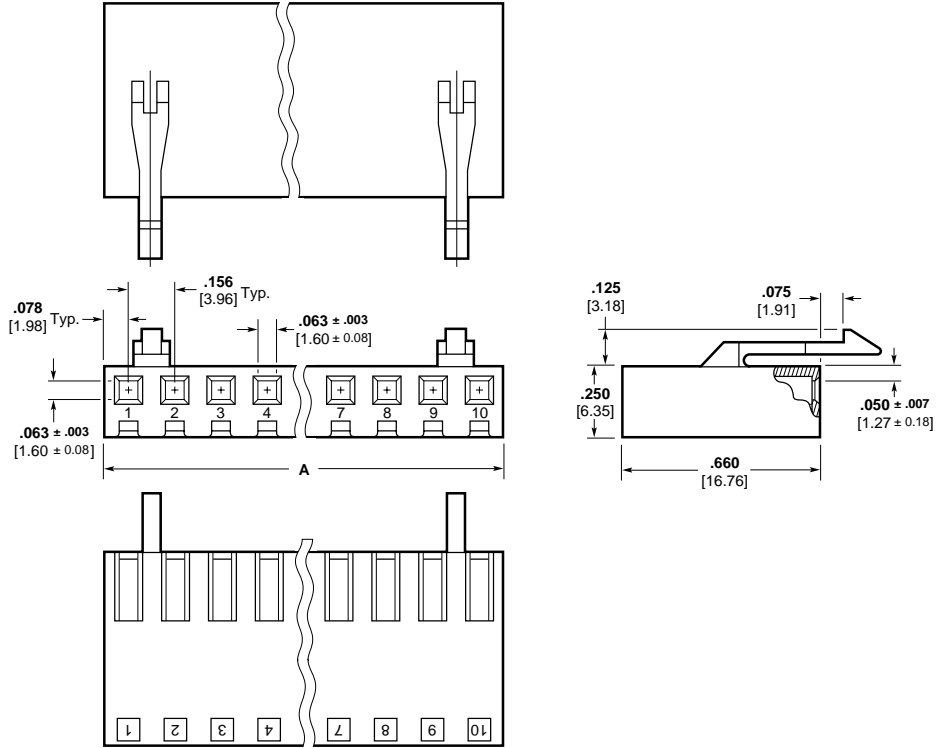
*For additional part numbers and information contact the Technical Support Center at 1-800-522-6752

Housings With Through-Board Latch

Housings

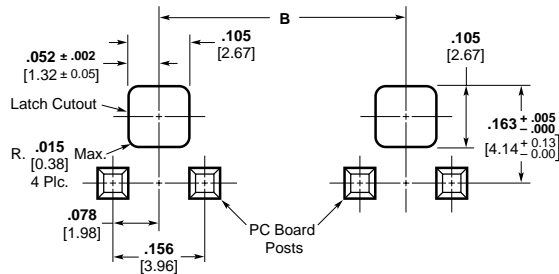
Material:

UL94V-2 rated, nylon, white



Mates with .045 square or round staked posts only.

For contacts, see page 2215.



**Recommended PC Board Cutout
for .062 [1.57] Thick PC Board**

No. of Positions	Dimensions		Latch Location Centered Between Pos.	Part Number
	A	B		
2	.312 7.92	—	1 and 2	770894-2
3	.468 11.89	—	1 and 2	770894-3
4	.624 15.85	—	2 and 3	770894-4
5	.780 19.81	—	2 and 3	770894-5
6	.936 23.77	—	3 and 4	770894-6
7	1.092 27.74	—	3 and 4	770894-7
8	1.248 31.70	—	4 and 5	770894-8
9	1.404 35.66	1.092 27.74	1 and 2 & 8 and 9	770894-9
10	1.560 39.62	1.248 31.70	1 and 2 & 9 and 10	1-770894-0

For complete product information, order Catalog 82056

Critical to the success of a wire-to-board application is the proper wire selection. The chart identifies wires that have been evaluated and approved by the product engineering section. If you plan to use a wire not on the approved list, please submit a sample 12" length of wire to Tyco Electronics for evaluation.

AWG Metric Equivalents

- 18—0.8—0.9 mm²
- 20—0.5—0.6 mm²
- 22—0.3—0.4 mm²
- 24—0.2 mm²
- 26—0.12—0.15 mm²
- 28—0.08—0.09 mm²

Technical Documents:

Product Specifications

- 108-1050—MTA-100 Connectors
- 108-1050-1—MTA-100 Posted Connectors
- 108-1051—MTA-156 Connectors
- 108-1219—MTA-156 Quad Connector System
- 108-1065—MTA-156 Posted Connectors
- 108-1058—MTA-156 Card Edge Connectors

Application Specifications

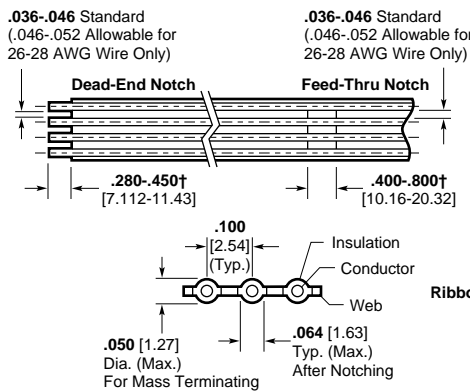
- 114-1019—MTA-100 Connectors
- 114-1020—MTA-156 Connectors
- 114-1031—MTA-100 Ribbon Cable Connector Assembly
- 114-1032—MTA-156 Ribbon Cable Connector Assembly
- 114-1048—MTA-156 Quad Connector

MTA Connectors Approved Wire Listing

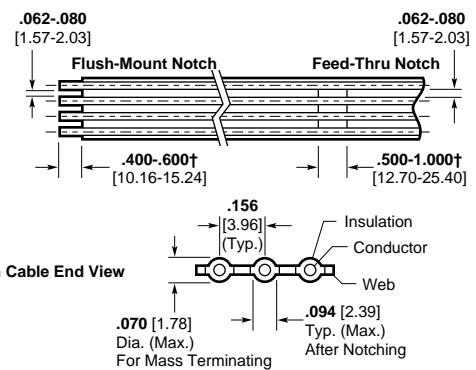
MTA-100 Connectors	Wall	Approved Wire AWG
UL 1007 PVC Insulation	.015" [0.381]	22, 24, 26, 28
UL 1061 Semi-Rigid PVC Insulation	.009" [0.229]	22, 24, 26, 28
UL 1095 Semi-Rigid PVC Insulation	.012" [0.305]	24
UL 1371 TEFLON Insulation—TFE	.006" [0.152]	22, 26
UL 1429 Irradiated PVC—X.L.P.V.C.	.010" [0.254]	22, 24, 26, 28
UL 2464 PVC	.013" [0.330]	24
UL 3265 Irradiated Polyethylene—X.L.P.E.	.010" [0.254]	22, 24
UL 3266 Irradiated Polyethylene—X.L.P.E.	.015" [0.381]	22, 24
MIL-W-16878, Type B-PVC Insulation	.010" [0.254]	22
UL 1213 TEFLON Insulation—T.F.E.	.010" [0.254]	22
MTA-156 Connectors		
UL 1007 PVC Insulation	.015" [0.381]	18, 20, 22, 24
UL 1061 Semi-Rigid PVC Insulation	.009" [0.229]	18, 20, 22, 24
UL 1180 TEFLON Insulation—T.F.E.	.015" [0.381]	22
UL 1213 TEFLON Insulation—T.F.E.	.010" [0.254]	18, 22, 24
UL 1316 PVC/Nylon Wall	.015" [0.381]	18, 22
UL 1429 Irradiated PVC—X.L.P.V.C.	.010" [0.254]	18, 20, 22, 24
UL 1430 Irradiated PVC—X.L.P.V.C.	.015" [0.381]	18, 20, 22, 24
UL 1569 PVC	.015" [0.381]	18
UL 3265 Irradiated Polyethylene—X.L.P.E.	.010" [0.254]	22
UL 3266 Irradiated Polyethylene—X.L.P.E.	.015" [0.381]	18, 20, 22, 24

Note: When selecting approved wire styles noted on this list, the MTA Application Specifications guidelines must be followed. Also, due to wire variations in insulation wall thickness, hardness and wire stranding we would recommend evaluating the wire selected before final application approval.

MTA-100 Ribbon Cable Preparation



MTA-156 Ribbon Cable Preparation

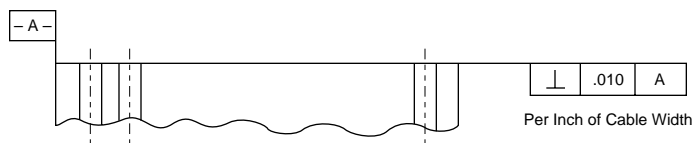


† The dimensions shown represent the recommended minimum and maximum for notches; the actual dimension will depend on your application requirements.

Notes:

- Cable shall be notched, as indicated in the individual ribbon cable connector assembly drawing, according to the requirements specified in these figures. Conductor shall not be exposed after notching, nor shall individual wire stands be cut or nicked.
- U.L. Style #2651 ribbon cable is approved for use with MTA-100 and MTA-156 connectors per Application Specification 114-1031 and 114-1032.

Ribbon Cable



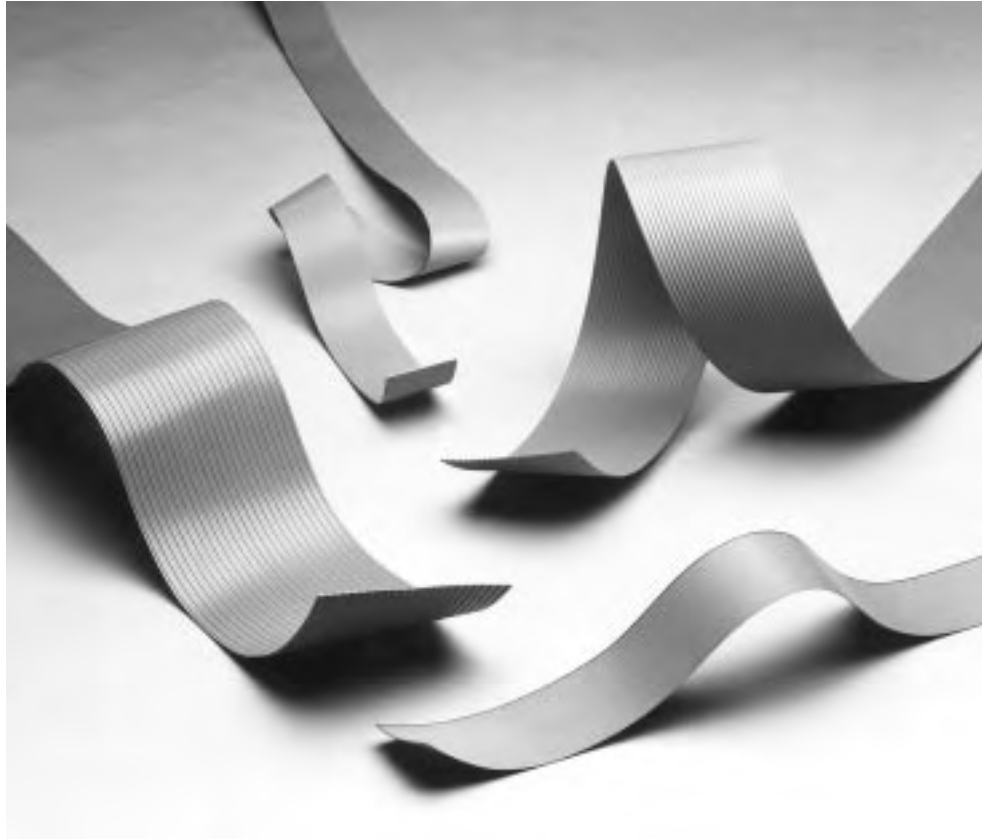
Notes:

- For MTA Cable Assemblies Contact US Engineering Cable Assembly Group.
- For IDC Cable, see pages 2220 thru 2223.

For complete product information, order Catalog 82056

Product Facts

- Compatible with a variety of Insulation Displacement Connectors
- Available on .025 [0.63], .0394 [1.00], .050 [1.27], .100 [2.54] and .156 [3.96] centerline
- Color code edge mark on conductor #1
- Gray flame retardant flexible PVC insulation
- Insulation rated for temperature of -20°C to +105°C
- Recognized under the Component Program of Underwriters Laboratories Inc.,
File No. E53793



Madison Cable Corporation has an expanding array of planar PVC insulated product designed for compatibility with a variety of Insulation Displacement Connectors. AMP IDC terminations have been proven to offer a quick, reliable, cost effective cabling system which can be automated.

The .100 [2.54] centerline cable is available in 28 to 22 AWG, either as tinned or as overcoated tinned wire, in 2 to 28 conductors.

The .156 [3.96] centerline is available in 22 AWG and 18 AWG, either as tinned or overcoated tinned, in 2 to 24 conductors.

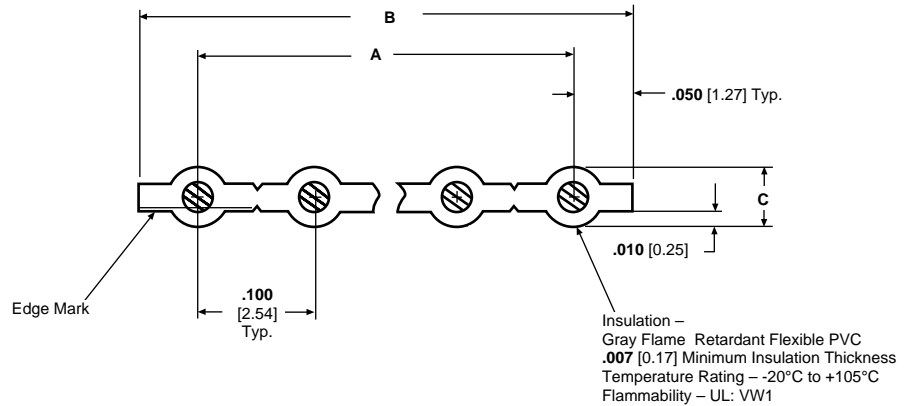
IDC Ribbon Cable is produced to tighter standards than usually required for high yield insulation displacement terminations. The extra precision offers trouble free operation in fully automatic stripping, notching and termination equipment.

For complete product information, order Catalog 82056

.100 [2.54] Centerline, IDC Ribbon Cable, PVC Insulation

Product Specifications:

Voltage Rating — 300 Volts
UL Recognized — AWM Style 2651
CSA — Available on request



No. of Conductors	Dimensions			Part Numbers
	A	B	C	
28 AWG 7/36 Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.035 [.89]	02WDY00006
5	0.400 [10.16]	0.500 [12.70]	0.035 [.89]	05WDY00006
10	0.900 [22.86]	1.000 [25.40]	0.035 [.89]	10WDY00006
15	1.400 [35.56]	1.500 [38.10]	0.035 [.89]	15WDY00006
20	1.900 [48.26]	2.000 [50.80]	0.035 [.89]	20WDY00006
25	2.400 [60.96]	2.500 [63.50]	0.035 [.89]	25WDY00006
28	2.700 [68.58]	2.800 [71.12]	0.035 [.89]	28WDY00006
28 AWG 7/36 Overcoated Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.035 [.89]	02WDY00007
5	0.400 [10.16]	0.500 [12.70]	0.035 [.89]	05WDY00007
10	0.900 [22.86]	1.000 [25.40]	0.035 [.89]	10WDY00007
15	1.400 [35.56]	1.500 [38.10]	0.035 [.89]	15WDY00007
20	1.900 [48.26]	2.000 [50.80]	0.035 [.89]	20WDY00007
25	2.400 [60.96]	2.500 [63.50]	0.035 [.89]	25WDY00007
28	2.700 [68.58]	2.800 [71.12]	0.035 [.89]	28WDY00007
26 AWG 7/34 Tinned Copper				
2	0.100 [2.54]	0.200 [6.08]	0.039 [.99]	02WEY00008
5	0.400 [10.16]	0.500 [12.70]	0.039 [.99]	05WEY00008
10	0.900 [22.86]	1.000 [25.40]	0.039 [.99]	10WEY00008
15	1.400 [35.56]	1.500 [38.10]	0.039 [.99]	15WEY00008
20	1.900 [48.26]	2.000 [50.80]	0.039 [.99]	20WEY00008
25	2.400 [60.96]	2.500 [63.50]	0.039 [.99]	25WEY00008
28	2.700 [68.58]	2.800 [71.12]	0.039 [.99]	28WEY00008
26 AWG 7/34 Overcoated Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.039 [.99]	02WEY00007
5	0.400 [10.16]	0.500 [12.70]	0.039 [.99]	05WEY00007
10	0.900 [22.86]	1.000 [25.40]	0.039 [.99]	10WEY00007
15	1.400 [35.56]	1.500 [38.10]	0.039 [.99]	15WEY00007
20	1.900 [48.26]	2.000 [50.80]	0.039 [.99]	20WEY00007
25	2.400 [60.96]	2.500 [63.50]	0.039 [.99]	25WEY00007
28	2.700 [68.58]	2.800 [71.12]	0.039 [.99]	28WEY00007

Other Conductor Counts Available on Request.

Contact Madison Cable 1-877-Madison (1-877-623-4766) for engineering questions or for order placement of this cable.

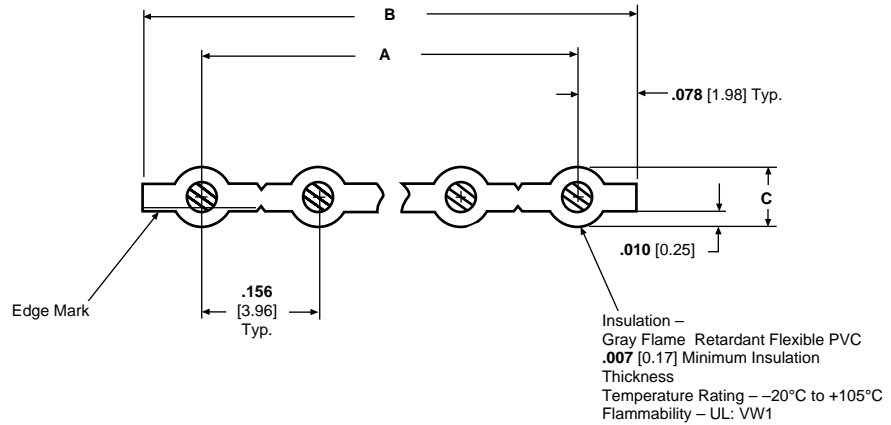
No. of Conductors	Dimensions			Part Numbers
	A	B	C	
24 AWG 7/32 Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.044 [1.12]	02WFY00006
5	0.400 [10.16]	0.500 [12.70]	0.044 [1.12]	05WFY00006
10	0.900 [22.86]	1.000 [25.40]	0.044 [1.12]	10WFY00006
15	1.400 [35.56]	1.500 [38.10]	0.044 [1.12]	15WFY00006
20	1.900 [48.26]	2.000 [50.80]	0.044 [1.12]	20WFY00006
25	2.400 [60.96]	2.500 [63.50]	0.044 [1.12]	25WFY00006
28	2.700 [68.58]	2.800 [71.12]	0.044 [1.12]	28WFY00006
24 AWG 7/32 Overcoated Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.044 [1.12]	02WFY00007
5	0.400 [10.16]	0.500 [12.70]	0.044 [1.12]	05WFY00007
10	0.900 [22.86]	1.000 [25.40]	0.044 [1.12]	10WFY00007
15	1.400 [35.56]	1.500 [38.10]	0.044 [1.12]	15WFY00007
20	1.900 [48.26]	2.000 [50.80]	0.044 [1.12]	20WFY00007
25	2.400 [60.96]	2.500 [63.50]	0.044 [1.12]	25WFY00007
28	2.700 [68.58]	2.800 [71.12]	0.044 [1.12]	28WFY00007
22 AWG 7/30 Tinned Copper				
2	0.100 [2.54]	0.200 [5.08]	0.051 [1.30]	02WGY00006
5	0.400 [10.16]	0.500 [12.70]	0.051 [1.30]	05WGY00006
10	0.900 [22.86]	1.000 [25.40]	0.051 [1.30]	10WGY00006
15	1.400 [35.56]	1.500 [38.10]	0.051 [1.30]	15WGY00006
20	1.900 [48.26]	2.000 [50.80]	0.051 [1.30]	20WGY00006
25	2.400 [60.96]	2.500 [63.50]	0.051 [1.30]	25WGY00006
28	2.700 [68.58]	2.800 [71.12]	0.051 [1.30]	28WGY00006
22 AWG 7/30 Overcoated Tinned Copper				
2	0.100 [2.54]	0.200 [6.08]	0.051 [1.30]	02WGY00007
5	0.400 [10.16]	0.500 [12.70]	0.051 [1.30]	05WGY00007
10	0.900 [22.86]	1.000 [25.40]	0.051 [1.30]	10WGY00007
15	1.400 [35.56]	1.500 [38.10]	0.051 [1.30]	15WGY00007
20	1.900 [48.26]	2.000 [50.80]	0.051 [1.30]	20WGY00007
25	2.400 [60.96]	2.500 [63.50]	0.051 [1.30]	25WGY00007
28	2.700 [68.58]	2.800 [71.12]	0.051 [1.30]	28WGY00007

For complete product information, order Catalog 82056

.156 [3.96] Centerline, Flat Ribbon Cable, PVC Insulation

Product Specifications:

Voltage Rating — 300 Volts
UL Recognized — AWM Style 2651
CSA — Available on request



No. of Conductors	Dimensions			Part Numbers
	A	B	C	
22 AWG 7/30 Tinned Copper				
2	0.156 [3.96]	0.312 [7.92]	0.051 [1.30]	02WGY00008
5	0.624 [15.85]	0.780 [19.81]	0.051 [1.30]	05WGY00008
10	1.404 [35.66]	1.560 [39.62]	0.051 [1.30]	10WGY00008
15	2.184 [55.47]	2.340 [59.44]	0.051 [1.30]	15WGY00008
20	2.964 [75.29]	3.120 [79.25]	0.051 [1.30]	20WGY00008
24	3.588 [91.14]	3.744 [95.10]	0.051 [1.30]	24WGY00008
22 AWG 7/30 Overcoated Tinned Copper				
2	0.156 [3.96]	0.312 [7.92]	0.051 [1.30]	02WGY00009
5	0.624 [15.85]	0.780 [19.81]	0.051 [1.30]	05WGY00009
10	1.404 [35.66]	1.560 [39.62]	0.051 [1.30]	10WGY00009
15	2.184 [55.47]	2.340 [59.44]	0.051 [1.30]	15WGY00009
20	2.964 [75.29]	3.120 [79.25]	0.051 [1.30]	20WGY00009
24	3.588 [91.14]	3.744 [95.10]	0.051 [1.30]	24WGY00009
18 AWG 7/26 Tinned Copper				
2	0.156 [3.96]	0.312 [7.92]	0.068 [1.73]	02WJY000010
5	0.624 [15.85]	0.780 [19.81]	0.068 [1.73]	05WJY000010
10	1.404 [35.66]	1.560 [39.62]	0.068 [1.73]	10WJY000010
15	2.184 [55.47]	2.340 [59.44]	0.068 [1.73]	15WJY000010
20	2.964 [75.29]	3.120 [79.25]	0.068 [1.73]	20WJY000010
24	3.588 [91.14]	3.744 [95.10]	0.068 [1.73]	24WJY000010
18 AWG 7/26 Overcoated Tinned Copper				
2	0.156 [3.96]	0.312 [7.92]	0.068 [1.73]	02WJY00009
5	0.624 [15.85]	0.780 [19.81]	0.068 [1.73]	05WJY00009
10	1.404 [35.66]	1.560 [39.62]	0.068 [1.73]	10WJY00009
15	2.184 [55.47]	2.340 [59.44]	0.068 [1.73]	15WJY00009
20	2.964 [75.29]	3.120 [79.25]	0.068 [1.73]	20WJY00009
24	3.588 [91.14]	3.744 [95.10]	0.068 [1.73]	24WJY00009

Other Conductor Counts Available on Request.

Contact Madison Cable 1-877-Madison (1-877-623-4766) for engineering questions or for order placement of this cable.

For complete product information, order Catalog 82056



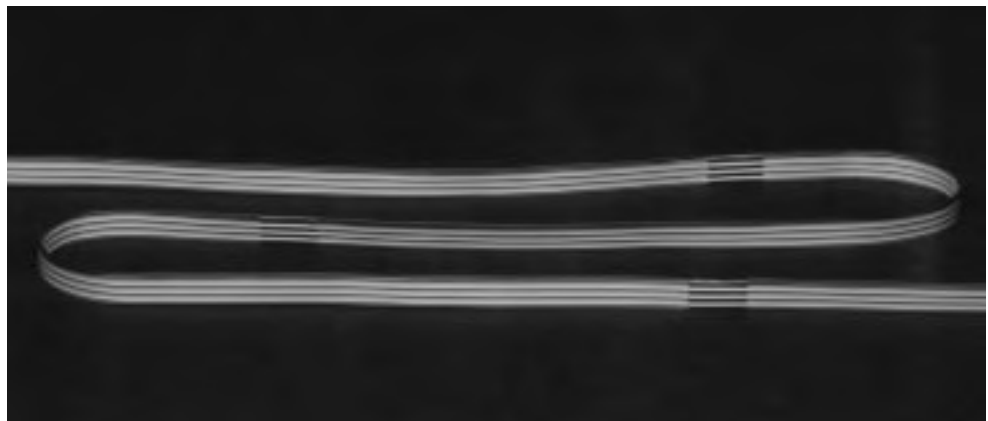
In addition to bulk cable, the AMP Cable Assembly Group offers Prepared Cable for the .100 [2.54] and .156 [3.96] centerline cables. This can be in the form of prenotched cable on reels or cut to length cable segments.

Prenotched 250 foot reels of cable can be produced with notches at varying increments or repeating all along the cable. The maximum width of these

cables is 20 conductor for the .100 [2.54] centerline and 13 conductor for the .156 [3.96] centerline.

Prepared Cable is also available with a Strip and Retain feature allowing the cable assembly to be soldered directly to the PC Board. This saves space and cost and reduces spare parts inventory. Strip & Retain on both ends is used in family board applications to maintain the

electrical connection when the PC Board is separated into smaller boards after soldering. Widths are limited to 20 conductors for the .100 [2.54] centerline and 13 conductors for the .156 [3.96] centerline. However, multiple cables can be placed side-by-side in a single connector. For other styles and configurations contact the product engineer or product manager.



For complete product information, order Catalog 82056

Tooling Options

One-At-A-Time Termination Tooling Part Numbers

Note: Max. Insulation Outside Diameter Wire:
.060 [1.52] for MTA-100 Connectors/.095 [2.41] for MTA-156 Connectors

MTA Connector Assembly		Interchangeable Head	Interchangeable Head and Loose-Piece Feed Track	Interchangeable Head and Tape Feed Track	Special Applicator	T-Handle ⁴ Maintenance Tool
		Used with: Manual Hand Tool 58074-1, Air Hand Tool 58075-1, Air Bench Mount Tool 58338-1, Electric Bench Machine 931800-1	Used with: Air Bench Mount Tool 58338-1, Electric Bench Machine 931800-1	Used with: Air Bench Mount Tool 58338-1, Electric Bench Machine 931800-1		
MTA-100 Connector	Closed End	58246-1 (Standard)*	933567-1	853546-1 & 853542-1 (Base)	466728-1	59803-1
		58246-2 (Ext Wear)				
		58246-3 (Ribbon Cable)				
MTA-100 Connector	Feed Thru	58442-1	—	—	—	59803-1
MTA-100 Connector	Posted (Closed-End)	58638-1	—	—	—	59803-1
MTA-156 Connector	Closed End	58247-1 (Standard)**	933568-1	853547-1 & 853542-1 (Base)	466727-1	59804-1
		58247-2 (Ext Wear)				
		58247-3 (Ribbon Cable)				
MTA-156 Connector	Feed Thru	58443-1	—	—	—	59804-1
MTA-156 Connector	Posted (Closed-End)	58082-1	—	—	—	59804-1
MTA-156 Card Edge	Closed End	58061-1	—	—	567020-1	59839-1
MTA-156 Quad	Closed End	58392-1	—	—	—	59804-1

- Notes:**
1. A repair kit consists of a cam, a feed-slide sub-assembly and a locating pawl. Repair kits can be made available for other interchangeable heads. Consult Tyco Electronics.
 2. Standard modular heads 58246-1 and 58247-1 are recommended for low volume use.
 3. Extended wear modular heads 58246-2 and 58247-2 are recommended for high volume use.
 4. T-Handle Maintenance Tools are for maintenance (field) use only. They are not recommended for production.
 5. Some Manual Hand Tool Assemblies are available:
 - a. Order 58579-1, comprised of Head 58246-1 with Manual Hand Tool 58074-1.
 - b. Order 58580-1, comprised of Head 58247-1 with Manual Hand Tool 58074-1.
 - c. Order 58639-1, comprised of Head 58638-1 with Manual Hand Tool 58074-1.

*Repair Kit 856600-1 **Repair Kit 856600-2

Mass Termination Tooling Part Numbers

Note: Max. Insulation Outside Diameter Wire:
.050 [1.27] for MTA-100 Connectors/.070 [1.78] for MTA-156 Connectors

MTA Connector Assembly		Interchangeable Head		Harness Board Holding Fixture		Interchangeable Head and Tape Feed Track		
		Part Number	Used With	Part Number	Used With		Part Number	Used With
					Applicator Assembly	Tooling Assembly		
MTA-100 Connector	Closed End	—	—	58242-1	—	854175-1 & 854200-1 (Base)	312522-1	
		—	—	58242-3	58575-1			
	Feed Thru	58644-1 (Discrete Wire) [†] 58644-2 (Notched Cable) [†]	58074-1 (Man Hd TI)	58243-1	—	Manual Bench Tool 58024-1 and Tooling Assembly 58039-1	—	
	Closed End (Posted)	—	—	58243-3	58575-1		—	
	Feed Thru (Posted)	—	—	58635-1	58575-1		—	
MTA-156 Connector	Closed End	—	—	58244-1	—	854176-1 & 854200-1 (Base)	312522-1	
		—	—	58244-3	58576-1			
	Feed Thru	58646-1 (Discrete Wire) ^{††} 58646-2 (Notched Cable) ^{††}	58074-1 (Man Hd TI)	58245-1	—	Manual Bench Tool 58024-1 and Tooling Assembly 58040-1	—	
	Card Edge	—	—	58245-3	58576-1		—	
	Closed End (Posted)	—	—	59848-1	—		—	
	Feed Thru (Posted)	—	—	59848-3	58576-1		—	
	—	—	—	58009-1	—		—	
—	—	—	58009-2	58576-1	—			
MTA-156 Quad	Closed End	—	—	58010-2	58576-1	—	—	
		—	—	58244-1	—	Manual Bench Tool 58024-1 and Tooling Assy 58040-1	—	
	Feed Thru	—	—	58244-3	58576-1		—	
—	—	—	58245-1	—	58024-1 and Tooling Assy 58040-1		—	
—	—	—	58245-3	58576-1	—	—		

[†]2- through 12-positions. ^{††}2- through 8-positions.

Ribbon Cable Notcher Assemblies

Part Number	Description	Used With
854449-2	For use with 26-28 AWG wire (.100 Centerline)	Manual Bench Tool 58024-1
854449-4	For use with 22-28 AWG wire (.100 Centerline)	Air Bench Machine 91112-2
854449-3	For use with 18-24 AWG wire (.156 Centerline)	2700 lb Bench Machine 312522-1 AMP-O-LECTRIC Bench Machine 1-471273-3 (with Conversion Kit 690675-2)

Use Adapter 854468-1 when putting Notcher in the AMP-O-LECTRIC Machine. Use Adapter 854468-2 when putting Notcher in the 2700 lb Air Bench Machine.

For complete product information, order Catalog 82056

Tooling Options

One-At-A-Time Termination Tooling (Typical Tooling Combinations)



Manual Hand Tool with Interchangeable Head



Air Hand Tool with Interchangeable Head



Air Bench Mount Tool with Interchangeable Head and Foot Switch



Electric Bench Machine with Interchangeable Head

Power Units

Manual Hand Tool — Pistol Grip Handle Part Number 58074-1

- Easy to use
- Ratchet control will not release the trigger until it is fully bottomed
- Allows head to be rotated for user convenience

Air Hand Tool — Pistol Grip Pneumatic Handle Part Number 58075-1

- Light weight
- Operates at air pressure between 40 and 70 psi [2.76 and 4.83 bar]
- Head may be rotated for user convenience

Air Bench Mount Tool — Bench Mount Power Assembly Part Number 58338-1

- May be mounted with Interchangeable head pointed up or down
- Operated by a foot switch
- Operates at air pressure between 40 and 70 psi [2.76 and 4.83 bar]

Electric Bench Machine — IDC Power Unit Part Number 931800-1

- All electric: 120 VAC, 60 Hz, 2 A
- Compact, portable and quiet
- Operated by a foot switch



Air Bench Mount Tool with Interchangeable Head and Loose-Piece Feed Track



Electric Bench Machine with Interchangeable Head and Tape Feed Track



AMP-O-ELECTRIC Bench Machine with Special Applicator

Interchangeable Heads and Applicators (Refer to page 2227 for part numbers.)

Interchangeable Head

- Terminates one unstripped wire per cycle
- Aligns and holds the connector in place for each termination
- Automatically advances the connector after each termination

Interchangeable Head and Loose-Piece Feed Track

- No special setup required
- Connectors are easily loaded into feed track
- Connectors are fed using a simple spring-loaded pusher

Interchangeable Head and Tape Feed Track

- No special setup required
- Tape-mounted connectors are transferred from product reel to feed track by simply pulling on the free end of the carrier tape
- Connectors are fed using a simple spring-loaded pusher

Special Applicator

- Connectors are easily hand loaded into feed track
- Automatically advances the connector after each termination
- Cannot be cycled until the connector is properly positioned



T-Handle Maintenance Tool

For complete product information, order Catalog 82056

Tooling Options

Mass Termination Tooling (Typical Tooling Combinations)



Manual Bench Tool with
Applicator and Holding Fixture

Power Units

Manual Bench Tool — Arbor Frame Assembly Part Number 58024-1

- Applicator and holding fixture can be oriented for operator convenience for closed-end or feed-thru terminations
- Ram height (insertion depth) is easily adjusted
- May be bench mounted



Air Harness Tool with
Applicator

Air Harness Tools — Hand-Held Power Unit with Applicator Part Number 58575-1 (MTA-100) Part Number 58576-1 (MTA-156)

- Applicator can be rotated 360° for orientation with holding fixture
- Insertion depth is easily adjusted
- Operates at air pressure between 75 and 95 psi [5.17 and 6.55 bar]



Air Bench Machine

Air Bench Machine — Pneumatic Unit Part Number 91112-2

- Operated by a foot switch
- Operates at air pressure between 80 and 90 psi [5.52 and 6.21 bar]
- Not recommended for notching cable with more than 14 conductors



2700 lb Air Bench Machine with
Ribbon Cable Notcher Assembly

2700 lb Air Bench Machine — Part Number 312522-1

- Operated by a foot switch
- Capable of exerting 2,700 lb [12,000 N] of force at minimum 80 psi [5.52 bar] air pressure
- May be bench mounted



Manual Bench Tool with
Applicator and Tape Feed Track



Ribbon Cable Notcher
Assembly

Applicators and Notcher Assemblies

Applicator and Holding Fixture

- Wires are laced into plastic combs for mass termination
- Trims excess wire for closed-end terminations
- Holding fixture may be mounted to a harness board

Applicator and Tape Feed Track

- Tape-mounted connectors are transferred from product reel to feed track by simply pulling on the free end of the carrier tape
- Connectors are fed using a simple spring-loaded pusher
- Feed stop easily adjusted for different connector sizes

Ribbon Cable Notcher Assembly

- Notch cable with up to 28 conductors for .100 centerline, and 24 conductors for .156 centerline
- Pressure plate holds cable in position during notching
- Scrap conveniently removed through a chute with a blast of air from a built-in air valve

For complete product information, order Catalog 82056

Tooling Options

Technical Documents

The following is a list of technical documents covering the installation, operation, adjustment, maintenance and repair of MTA application tooling.

Instruction Sheets (IS) provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

Customer Manuals (CM) provide complete, detailed instructions on the installation, operation, adjustment, maintenance and repair of complex tools and application machines.

Applicator Instructions (AI) are similar to instruction sheets (which cover products and tools), and provide instructions for installation, adjustment and maintenance of applicators used in automatic and semiautomatic machines.

Hand Tools, Power Units & Accessories

Manual Arbor Frame Assembly	58024-1	IS 408-6923	Terminator Assembly, "G" Term	354500-1	CM 409-5842
Ribbon Cable Applicator, .100	58039-1	IS 408-6685	AMP-O-LECTRIC Machine	1-471273-3	CM 409-5128
Ribbon Cable Applicator, .156	58040-1	IS 408-6701	Conversion Kit	690675-2	IS 408-8022
Manual Hand Tool	58074-1	IS 408-6790	Base Assembly	853542-1	IS 408-9636
Air Bench Mount Tool	58338-1	IS 408-9393	Base	854200-1	IS 408-9650
Air Hand Tool (MTA-100)	58575-1	IS 408-4260	Adaptor (AMP-O-LECTRIC Machine)	854468-1	IS 408-9687
Air Harness Tool (MTA156)	58576-1	IS 408-4260	Adaptor (2700 lb Machine)	854468-2	IS 408-9687
T-Handle Maintenance Tool	59803-1	IS 408-7907	Repair Kit	856600-1	IS 408-9745
Air Arbor Frame Assembly	91112-2	IS 408-7763	Repair Kit	856600-2	IS 408-9745
2700 lb Air Bench Machine	312522-1	CM 409-5843	Electric Bench Mount Tool	931800-1	CM 409-5746

One-At-A-Time Termination Tooling

Interchangeable Heads

MTA-100		MTA-156	
58246-1	IS 408-6929	58247-1	IS 408-6930
58246-2	IS 408-9379	58247-2	IS 408-9380
58246-3	IS 408-4147	58247-3	IS 408-4146
58442-1	IS 408-9603	58443-1	IS 408-9607
58638-1	IS 408-4358	58061-1	IS 408-6794
		58082-1	IS 408-6795
		58392-1	IS 408-9450

Interchangeable Head & Loose-Piece Feed Track

MTA-100	MTA-156
933567-1	IS 408-9435
933568-1	IS 408-9466

Interchangeable Head & Tape Feed Track

MTA-100		MTA-156	
853546-1	IS 408-9636	853547-1	IS 408-9637
Special Applicators			
MTA-100		MTA-156	
466728-1	AI 408-8054	466727-1	AI 408-8054
		567020-1	AI 408-8069

Mass Termination Tooling

Holding Fixtures

MTA-100		MTA-156	
58242-1	IS 408-7994	58009-1	IS 408-7995
58242-3	IS 408-7994	58009-2	IS 408-7995
58243-1	IS 408-7994	58010-2	IS 408-7995
58635-1	IS 408-7994	58244-1	IS 408-7995
58636-1	IS 408-7994	58244-3	IS 408-7995
58644-1	IS 408-4406	58245-1	IS 408-7995
58644-2	IS 408-4440	58245-3	IS 408-7995
59844-1	IS 408-7994	58646-1	IS 408-4405
59845-1	IS 408-7994	58646-2	IS 408-4439
59845-3	IS 408-7994	59848-1	IS 408-7995
		59848-3	IS 408-7995

Die Set Assembly

MTA-100	MTA-156
854175-1	IS 408-9667
	854176-1
	IS 408-9650

Typical Application Rates

Produce 6-in. [15 cm] Long Jumpers, One 4-Position MTA-100 Connector per End, Discrete Wire

Method	Terminations Per Hour
Manual Hand Tool 58074-1 with Interchangeable Head 58246-1	—
Electric Bench Machine 931800-1 with Interchangeable Head 58246-1	900
Electric Bench Machine 931800-1 with Interchangeable Head and Loose-Piece Feed Track 933567-1	1,100
Electric Bench Machine 931800-1 with Interchangeable Head and Tape Feed Track 853546-1 and 853542-1 (Base)	1,250

Apply One 4-Position MTA-100 Feed-Thru Connector per Assembly, Discrete Wire

Method	Terminations Per Hour
Manual Bench Tool 58024-1 with Applicator and Holding Fixture	650

For further information about tooling call the Technical Support Center 1-800-522-6752

For complete product information, order Catalog 82056

Produce 6-in. [15 cm] Long Jumpers, One 4-Position MTA-100 Connector per End, Ribbon Cable*

Method	Terminations Per Hour
2700 lb Air Bench Machine 312522-1 with Applicator and Tape Feed Track 854175-1 and 854200-1 (Base)	7,500



* Procedure: Mass terminate 12-conductor ribbon cable with three connectors per end. After terminating, separate by tearing the 12-conductor assembly into three 4-conductor assemblies.

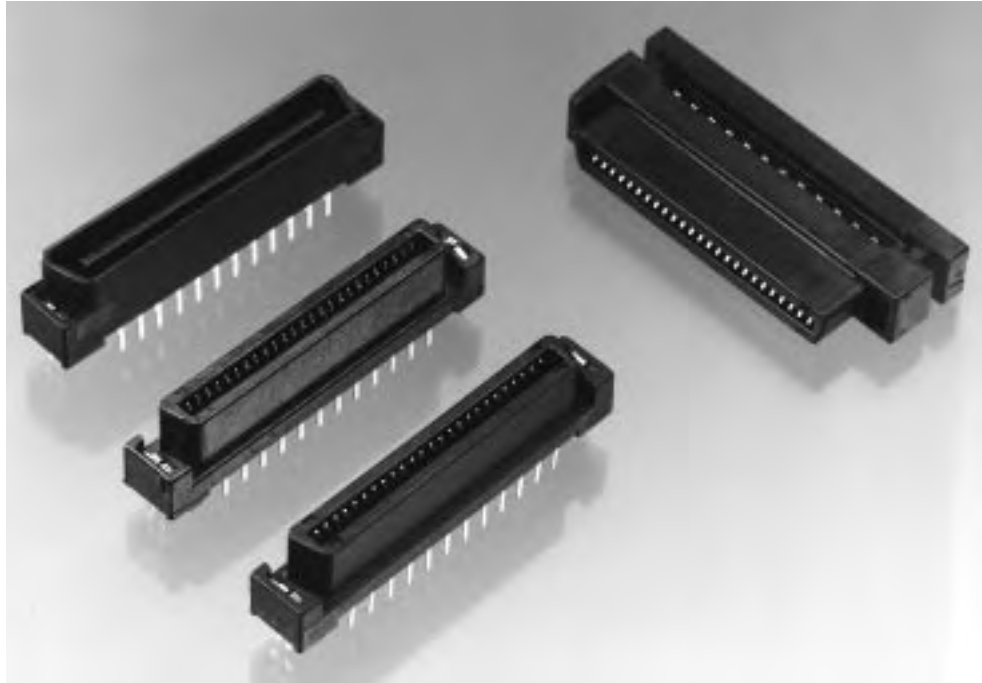
Cable Notching

Method	Cable Ends Per Hour
2700 lb Air Bench Machine 312522-1 with Ribbon Cable Notcher Assembly 854449-2 and 854468-2 (Adapter)	1,000

CHAMP .050 Series I Connectors

Series I Connectors for Internal Applications

- All-plastic PC board mounting
- Vertical and right-angle plugs and receptacles
- Parallel, perpendicular, and in-line interconnections
- Single-spring contact design for high tolerance to mating depth variations
- Receptacle connectors will mate with .062 [1.57] printed circuit boards to allow service as card edge connectors
- 20 through 200 selected positions
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E-28476 
- Certified by Canadian Standards Association File No. LR 7189C 
- Produced under a quality management system certified to ISO 9001

**Performance Specifications:****Operating Temperature Range** —

–55°C to +85°C for Standard

–55°C to +105°C for High Temp.

Current Rating — 1 Ampere Max.**Voltage Rating** — 250 VAC Max.**Termination Resistance** —
35 Milliohms Maximum Initial**Insulation Resistance** —
1,000 Megohms Minimum Initial**Mating Force** — 90 Grams Per
Contact Maximum**Rated Cycle Life** — 500 Cycles**Technical Documents:****Product Specification**

108-5290 — Standard Temp

108-1367 — High Temp

Application Specification

114-6045

Instruction Sheet

411-5499

For complete product information, order Catalog 82244

CHAMP .050 Series I Connectors

Right-Angle Plugs

Materials and Finish:

Housing and Tine Plate — Glass filled nylon, rated 94V-0, black for standard. LCP, rated 94V-0, black for High Temp.

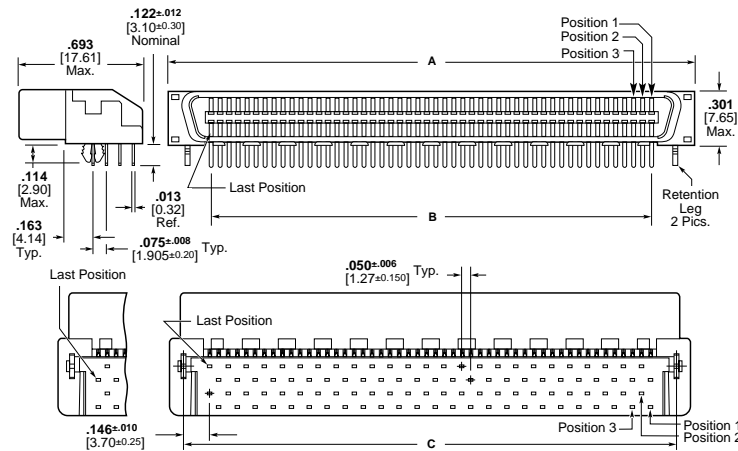
Contacts — Phosphor bronze selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in solder tail area.

Retention Leg (Board Lock) — Brass, tin-lead plated.

Performance Specifications — Page 2228

PC Board Accommodation — .031 [0.79] to .063 [1.60] nominal thickness

Mating Receptacle Connectors — Right-Angle — Below
Vertical — Page 2230



No. of Positions	Dimensions			Part Numbers High Temp.
	A	B	C	
40	1.391 35.33	.950 24.13	1.241 31.52	557100-5
50	1.641 41.68	1.200 30.48	1.491 37.87	557100-9
68	2.091 53.11	1.650 41.91	1.941 49.30	1-557100-7
80	2.391 60.73	1.950 49.53	2.241 56.92	2-557100-1
100	2.891 73.43	2.450 62.23	2.741 69.62	2-557100-5
120	3.391 86.13	2.950 74.93	3.241 82.32	2-557100-9

Right-Angle Receptacles

Materials and Finish:

Housing and Tine Plate — Glass filled nylon, rated 94V-0, black for standard. LCP, rated 94V-0, black for High Temp.

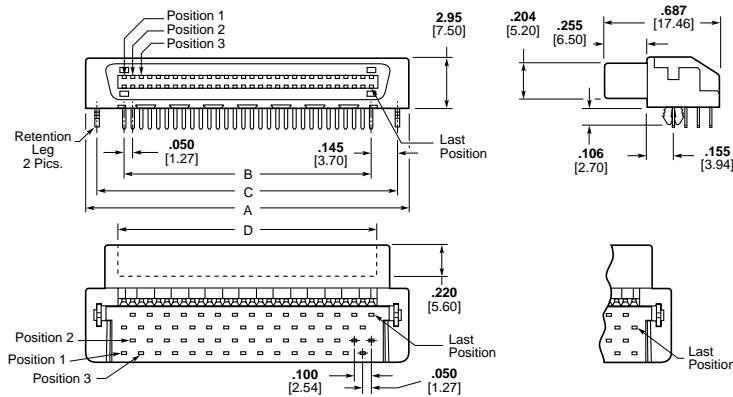
Contacts — Phosphor bronze selectively plated with minimum of .000030 [.00076] gold in mating area and tin-lead in solder tail area.

Retention Leg (Board Lock) — Brass, tin-lead plated.

Performance Specifications — Page 2228

PC Board Accommodation — .031 [0.79] to .063 [1.60] nominal thickness

Mating Plug Connectors — Right-Angle — Above
Vertical — Page 2230



No. of Positions	Dimensions				Part Numbers High Temp.	Part Numbers Standard Temp.
	A	B	C	D		
40	1.391 35.33	.950 24.13	1.241 31.53	1.024 26.03	557101-5	5-175474-5
50	1.641 41.68	1.200 30.48	1.491 37.88	1.274 32.38	557101-9	—
68	2.091 53.11	1.650 41.91	1.941 49.31	1.724 43.81	1-557101-7	—
80	2.391 60.73	1.950 49.53	2.241 56.93	2.024 51.43	2-557101-1	5-175474-9
100	2.891 73.43	2.450 62.23	2.741 69.63	2.524 64.13	*2-557101-5	—
120	3.391 86.13	2.950 74.93	3.241 82.33	3.024 76.83	2-557101-9	—

For complete product information, order Catalog 82244

*Part Number without board locks is available — Contact Tyco Electronics.

CHAMP .050 Series I Connectors

Vertical Plugs

Materials and Finish:

Housing — Glass filled nylon, rated 94V-0, black for standard. LCP, rated 94V-0, black for High Temp.

Contacts — Phosphor bronze selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in solder tail area.

Retention Leg (Board Lock) — Brass, tin-lead plated.

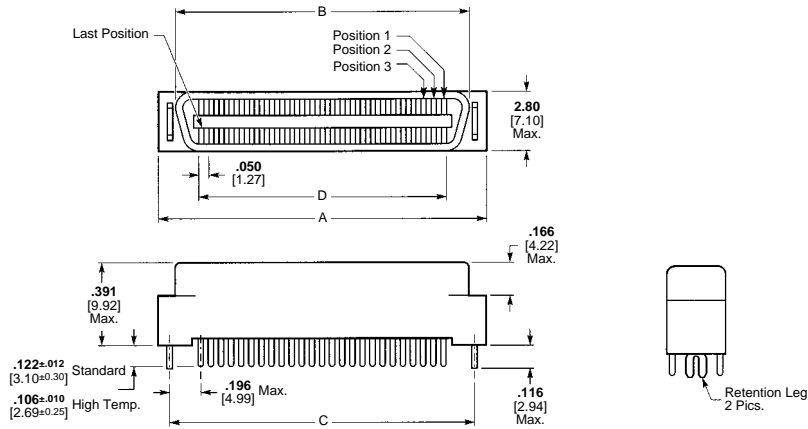
Performance Specifications — Page 2228

PC Board Accommodation — .031 [0.79] to .063 [1.60] nominal thickness

Mating Receptacles

Right Angle — Page 2229

Vertical — Below



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E ³	Keying Post ²	Standard Temp. w/o Post ¹
40	1.447 36.75	1.278 32.47	1.343 34.11	.950 24.13	—	557102-5	—
68	2.147 54.53	1.978 50.25	2.043 51.89	1.650 41.91	—	1-557102-7	—
80	2.447 62.15	2.278 57.87	2.343 59.51	1.950 49.53	—	*2-557102-1	5-175473-9
100	2.947 74.85	2.778 70.57	2.843 72.21	2.450 62.23	—	2-557102-5	6-175473-0
120	3.447 87.55	3.278 83.27	3.343 84.91	2.950 74.93	1.671 42.44	2-557102-9	—

*Part Numbers without board locks are available, contact Tyco Electronics.

Vertical Receptacles

Materials and Finish

Housing — Glass filled nylon, rated 94V-0, black for standard. PPA, rated 94V-0 for High Temp.

Contacts — Phosphor bronze selectively plated with minimum of .000030 [0.00076] gold in mating area and tin-lead in solder tail area.

Retention Leg (Board Lock) — Brass, tin-lead plated.

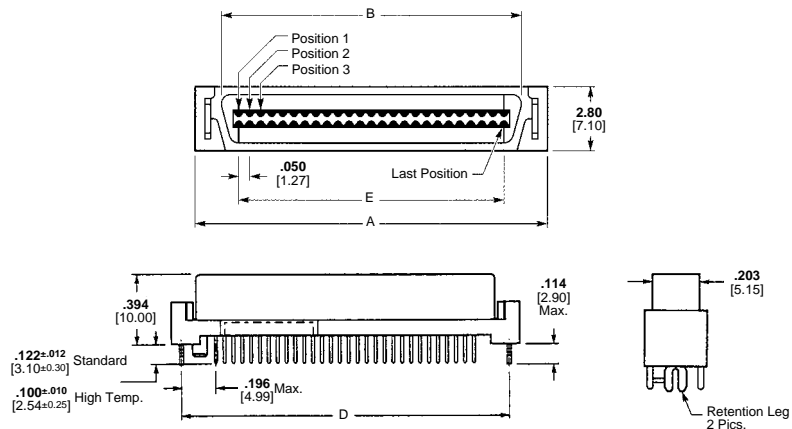
Performance Specifications — Page 2228

PC Board Accommodation — .031 [0.79] to .063 [1.60] nominal thickness

Mating Plug Connectors

Right-Angle — Page 2229

Vertical — Above



No. of Positions	Dimensions						Part Numbers	
	A	B	C	D	E	F ³	Keying Post ²	w/o Post ¹
40	1.447 36.75	1.168 29.67	.985 25.03	1.343 34.11	.950 24.13	—	557103-5	—
68	2.147 54.53	1.868 47.45	1.724 43.81	2.043 51.89	1.650 41.91	—	1-557103-7	1-786925-7
80	2.447 62.15	2.168 55.07	2.024 51.43	2.343 59.51	1.950 49.53	—	*2-557103-1	2-786925-1
100	2.947 74.85	2.668 67.77	2.131 54.13	2.843 72.21	2.450 62.23	—	*2-557103-5	—
120	3.447 87.55	3.418 86.82	3.024 76.83	3.343 84.91	2.950 74.93	1.671 42.44	2-557103-9	—
160	4.447 112.95	4.160 105.87	4.024 102.21	4.343 110.31	3.950 100.33	2.171 55.14	3-557103-7	—

¹ End Board Locks.

² End Board Locks and Keying Post.

³ End and Center Board Locks and Keying Post.

*Part Numbers without board locks are available, contact Tyco Electronics.

Product Facts

- For parallel board stacking applications
- High density packaging on 0.8 [.031] centerline spacing
- Available sizes from 40 to 200 positions (in 20 position increments)
- Board stacking heights available from 5 [.197] to 16 [.630] (in 1 [.039] increments)
- Bellows type spring contacts are resistant to scooping and stubbing during mating and unmating
- Positioning bosses for proper on-board orientation
- Available packaged on "tape-and-reel" for automatic placement per EIA standards
- Recognized under the Component Program of Underwriter Laboratories Inc.,  File No. E28476

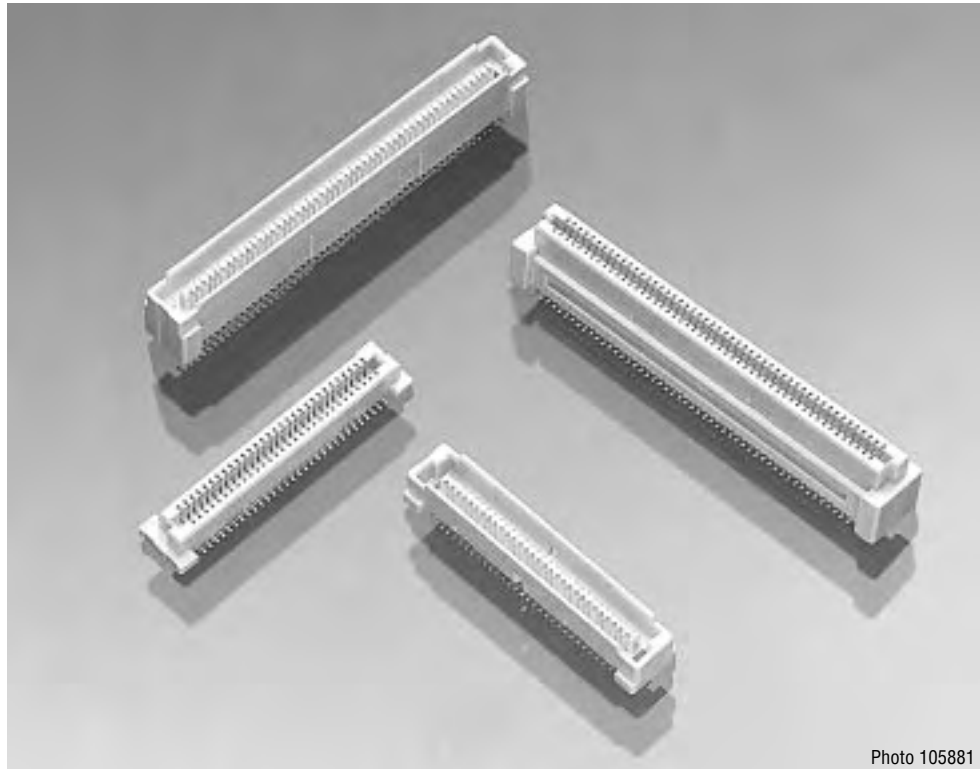


Photo 105881

AMP 0.8mm FH surface-mount connectors are designed for parallel board stacking applications using subminiature connectors to meet today's electronic industry requirements for high density packaging.

It is possible to save more than 50% of the required board space when compared to conventional 1.27 [.050] centerline connectors.

Vertical board-mount plugs and receptacles are available. By mating combinations of plug and receptacle housing heights, board-to-board stacking heights from 5 [.197] to 16 [.630] (in 1 [.039] increments) can be achieved.

The receptacles are preloaded with unique bellows-type spring contacts for reliable electrical connection with the plugs.

Surface-mount solder leads permit fast assembly operation.

Performance Characteristics:

Voltage Rating — 100 VAC

Current Rating — 0.5 ampere

Contact Resistance — 30 milliohms max. (initial)

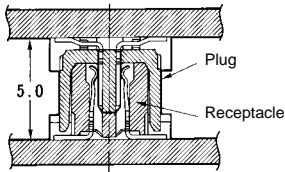
Dielectric Withstanding Voltage — 500 VAC (1 minute)

Operating Temperature — -40°C to +85°C (Including terminal temperature rise)

For complete product information, order Catalog 889092

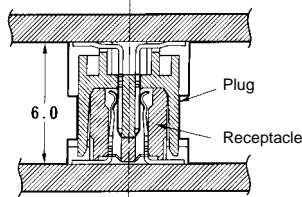
Board-to-Board Stacking Heights (By Plug/Receptacle Combinations)

Part Number: 177984-□
(Page 2233)



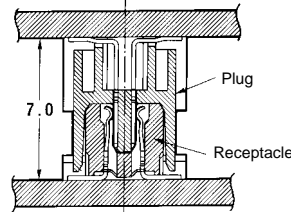
Part Number: 177983-□
(Page 2237)
5 [.197] Stacking Height

Part Number: 179029-□
(Page 2234)



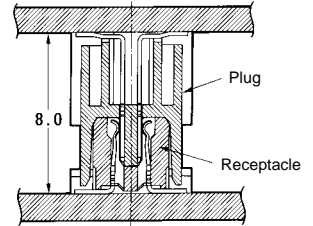
Part Number: 177983-□
(Page 2237)
6 [.236] Stacking Height

Part Number: 179030-□
(Page 2235)



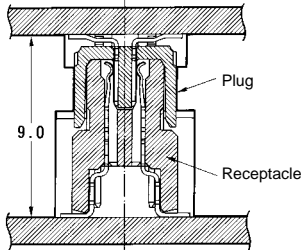
Part Number: 177983-□
(Page 2237)
7 [.276] Stacking Height

Part Number: 179031-□
(Page 2236)



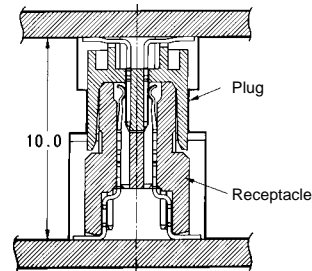
Part Number: 177983-□
(Page 2237)
8 [.315] Stacking Height

Part Number: 177984-□
(Page 2233)



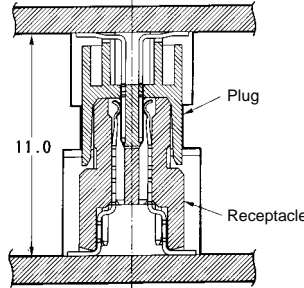
Part Number: 5-179009-□
(Page 2238)
9 [.354] Stacking Height

Part Number: 179029-□
(Page 2234)



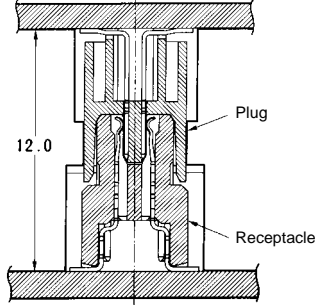
Part Number: 5-179009-□
(Page 2238)
10 [.394] Stacking Height

Part Number: 179030-□
(Page 2235)



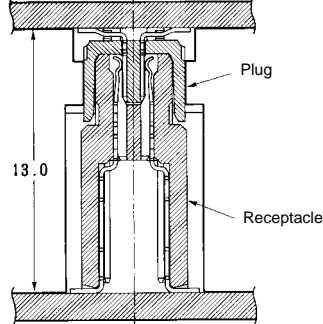
Part Number: 5-179009-□
(Page 2238)
11 [.433] Stacking Height

Part Number: 179031-□
(Page 2236)



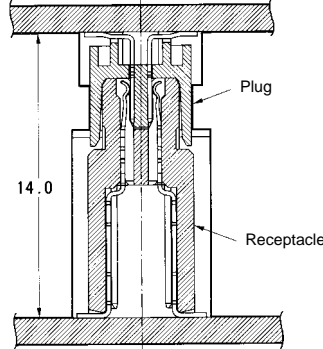
Part Number: 5-179009-□
(Page 2238)
12 [.472] Stacking Height

Part Number: 177984-□
(Page 2233)



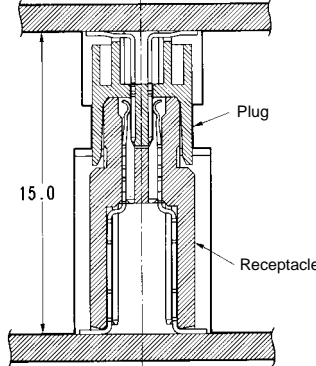
Part Number: 5-179010-□
(Page 2239)
13 [.512] Stacking Height

Part Number: 179029-□
(Page 2234)



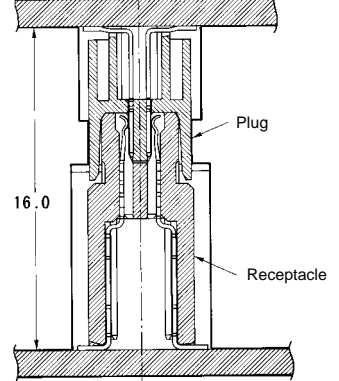
Part Number: 5-179010-□
(Page 2239)
14 [.551] Stacking Height

Part Number: 179030-□
(Page 2235)



Part Number: 5-179010-□
(Page 2239)
15 [.591] Stacking Height

Part Number: 179031-□
(Page 2236)



Part Number: 5-179010-□
(Page 2239)
16 [.630] Stacking Height

Note: For specific dash nos. of sizes 40 to 200 positions (in 20-position increments), see pages 2233-2239.

For complete product information, order Catalog 889092

Vertical Plugs

5mm Plugs for 5 [.197], 9 [.354] and 13 [.512] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

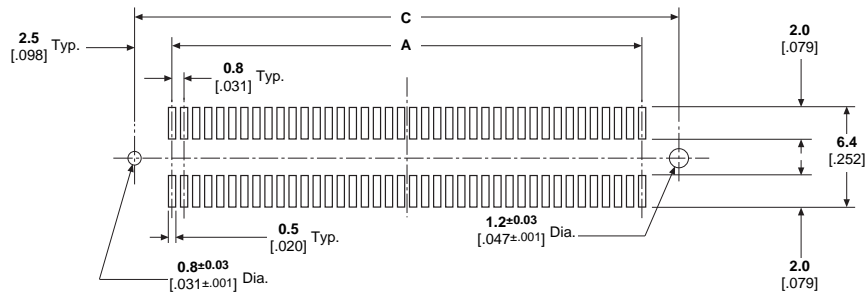
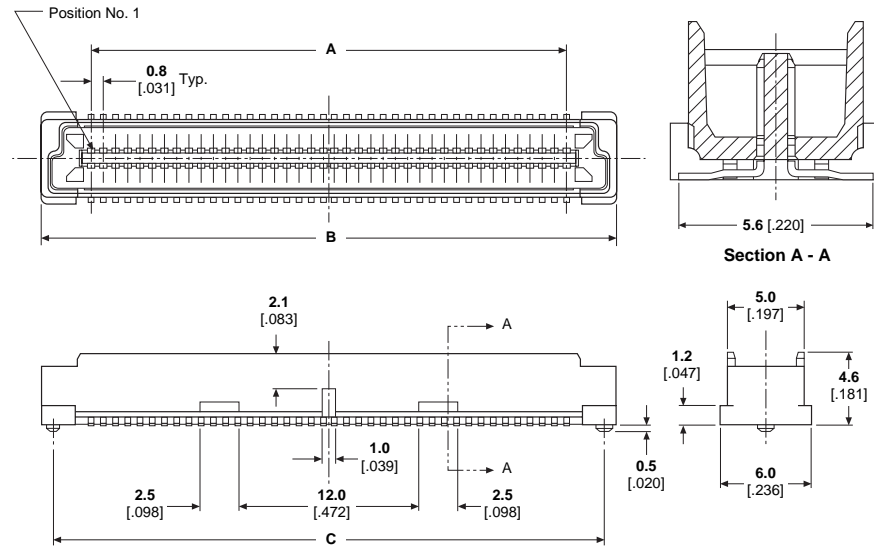
Performance Characteristics — Page 2231

Stacking Height Combinations — Page 2232

Mating Receptacles — Page 2237-2239

Technical Documents:

Product Specification
108-5390



Recommended PC Board Layout

No. of Positions	Dimensions			Plug Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	177984-1	177986-1
60	23.20 .913	29.80 1.173	28.20 1.110	177984-2	177986-2
80	31.20 1.228	37.80 1.488	36.20 1.425	177984-3	177986-3
100	39.20 1.543	45.80 1.803	44.20 1.740	177984-4	177986-4
120	47.20 1.858	53.80 2.118	52.20 2.055	177984-5	177986-5
140	55.20 2.173	61.80 2.433	60.20 2.370	177984-6	177986-6
160	63.20 2.488	69.80 2.748	68.20 2.685	177984-8	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-177984-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Plugs

6mm Plugs for 6 [.236], 10 [.394] and 14 [.551] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.00008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

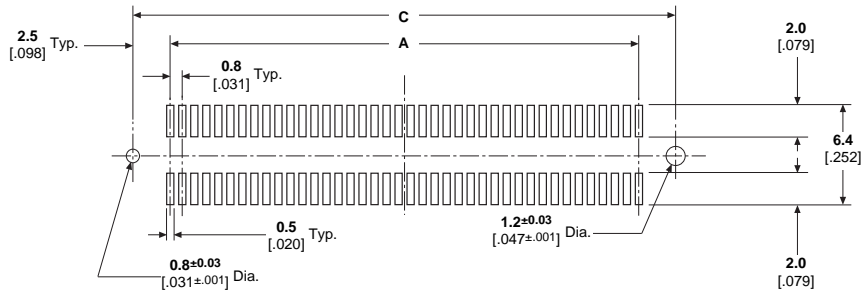
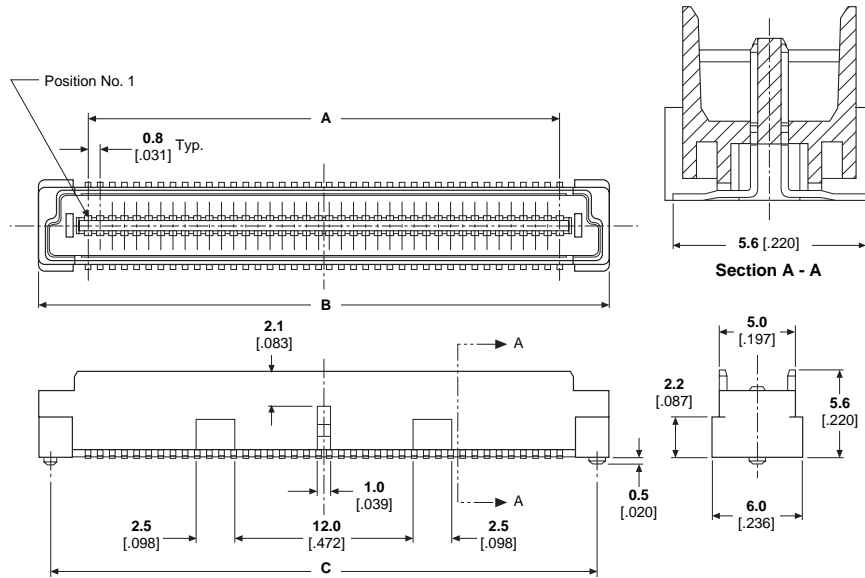
Performance Characteristics — Page 2231

Stacking Height Combinations — Page 2232

Mating Receptacles — Page 2237-2239

Technical Documents:

Product Specification
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Recommended PC Board Layout

No. of Positions	Dimensions			Plug Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	179029-1	1-177986-1
60	23.20 .913	29.80 1.173	28.20 1.110	179029-2	1-177986-2
80	31.20 1.228	37.80 1.488	36.20 1.425	179029-3	1-177986-3
100	39.20 1.543	45.80 1.803	44.20 1.740	179029-4	1-177986-4
120	47.20 1.858	53.80 2.118	52.20 2.055	179029-5	1-177986-5
140	55.20 2.173	61.80 2.433	60.20 2.370	179029-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	179029-8	—
180	71.20 2.803	77.80 3.063	76.20 3.000	179029-9	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-179029-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Plugs

7mm Plugs for 7 [.276], 11 [.433] and 15 [.591] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

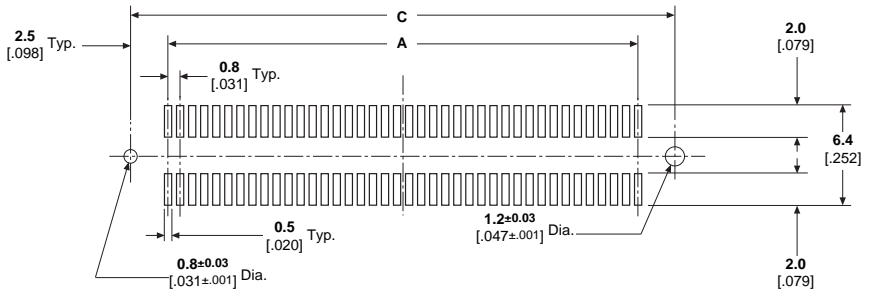
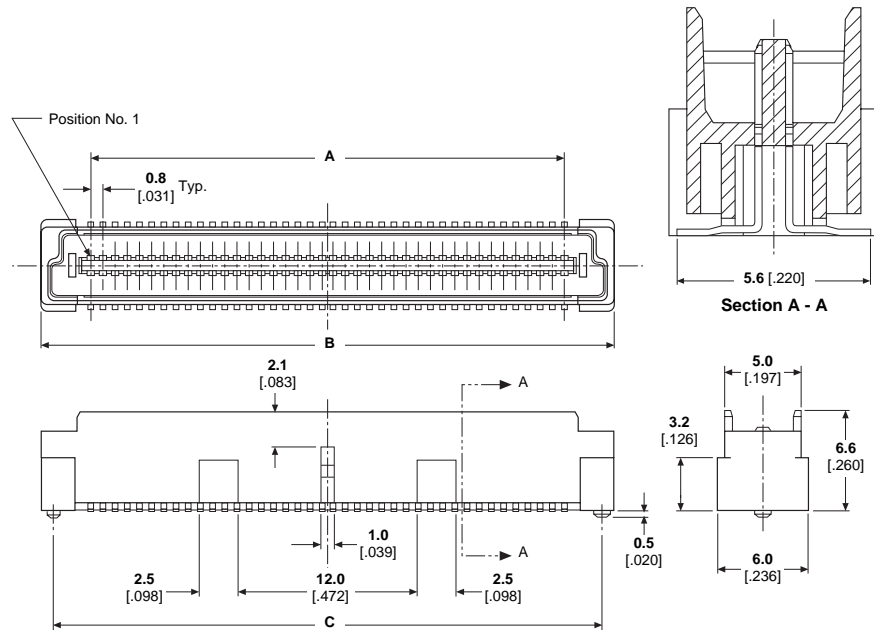
Performance Characteristics — Page 2231

Stacking Height Combinations — Page 2232

Mating Receptacles — Page 2237-2239

Technical Documents:

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Recommended PC Board Layout

No. of Positions	Dimensions			Plug Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged *
40	15.20 .598	21.80 .858	20.20 .795	179030-1	2-177986-1
60	23.20 .913	29.80 1.173	28.20 1.110	179030-2	2-177986-2
80	31.20 1.228	37.80 1.488	36.20 1.425	179030-3	2-177986-3
100	39.20 1.543	45.80 1.803	44.20 1.740	179030-4	2-177986-4
120	47.20 1.858	53.80 2.118	52.20 2.055	179030-5	2-177986-5
140	55.20 2.173	61.80 2.433	60.20 2.370	179030-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	179030-8	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-179030-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Plugs

8mm Plugs for 8 [.315], 12 [.472] and 16 [.630] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Brass; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

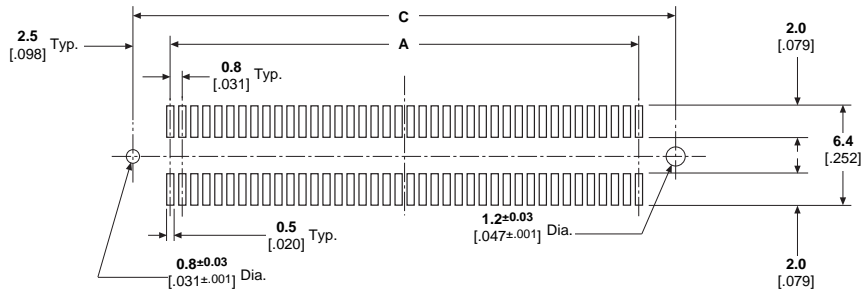
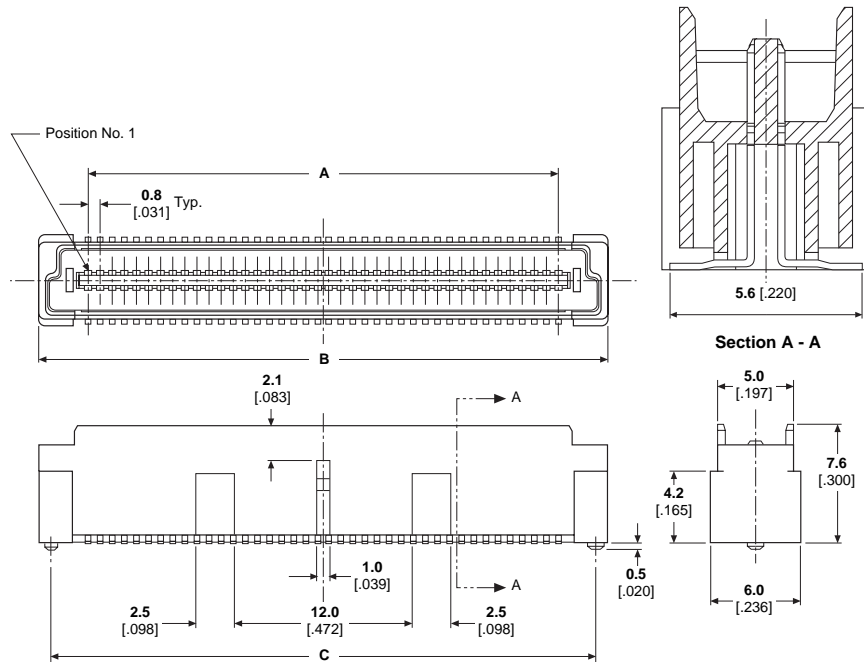
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2239

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Recommended PC Board Layout

No. of Positions	Dimensions			Plug Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	179031-1	3-177986-1
60	23.20 .913	29.80 1.173	28.20 1.110	179031-2	3-177986-2
80	31.20 1.228	37.80 1.488	36.20 1.425	179031-3	3-177986-3
100	39.20 1.543	45.80 1.803	44.20 1.740	179031-4	3-177986-4
120	47.20 1.858	53.80 2.118	52.20 2.055	179031-5	3-177986-5
140	55.20 2.173	61.80 2.433	60.20 2.370	179031-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	179031-8	—
180	71.20 2.803	77.80 3.063	76.20 3.000	179031-9	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-179031-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Receptacles

5mm Receptacles for 5 [.197], 6 [.236], 7 [.276] and 8 [.315] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

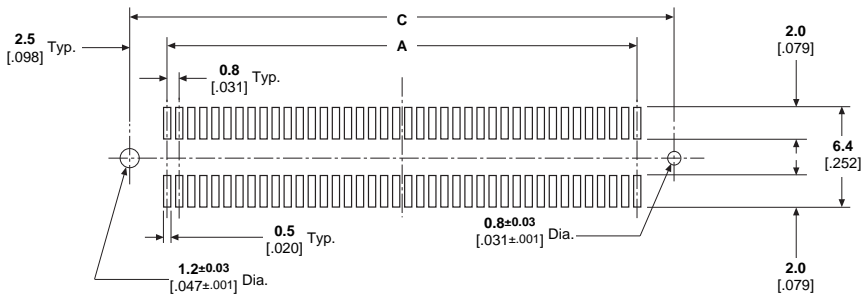
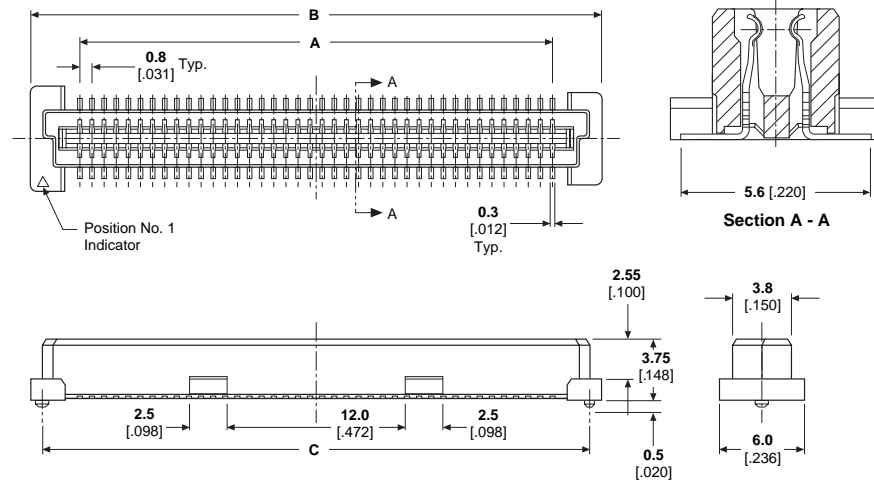
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Stacking Height Combinations —
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Mating Plugs — Page 2233-2236

Technical Documents:

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Recommended PC Board Layout

No. of Positions	Dimensions			Receptacle Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	177983-1	177985-1
60	23.20 .913	29.80 1.173	28.20 1.110	177983-2	177985-2
80	31.20 1.228	37.80 1.488	36.20 1.425	177983-3	177985-3
100	39.20 1.543	45.80 1.803	44.20 1.740	177983-4	177985-4
120	47.20 1.858	53.80 2.118	52.20 2.055	177983-5	177985-5
140	55.20 2.173	61.80 2.433	60.20 2.370	177983-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	177983-8	—
200	79.20 3.118	85.80 3.378	84.20 3.315	1-177983-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Receptacles

9mm Receptacles for 9 [.354], 10 [.394], 11 [.433] and 12 [.472] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

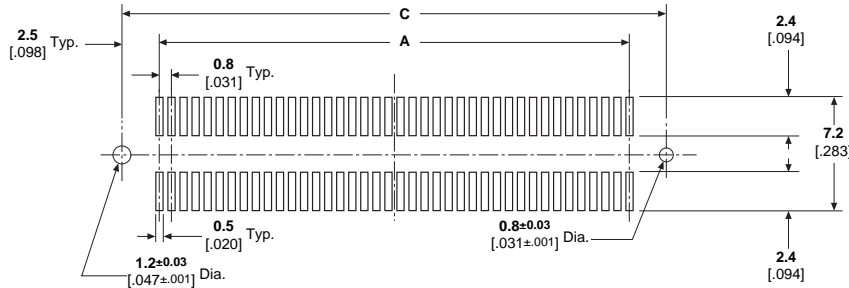
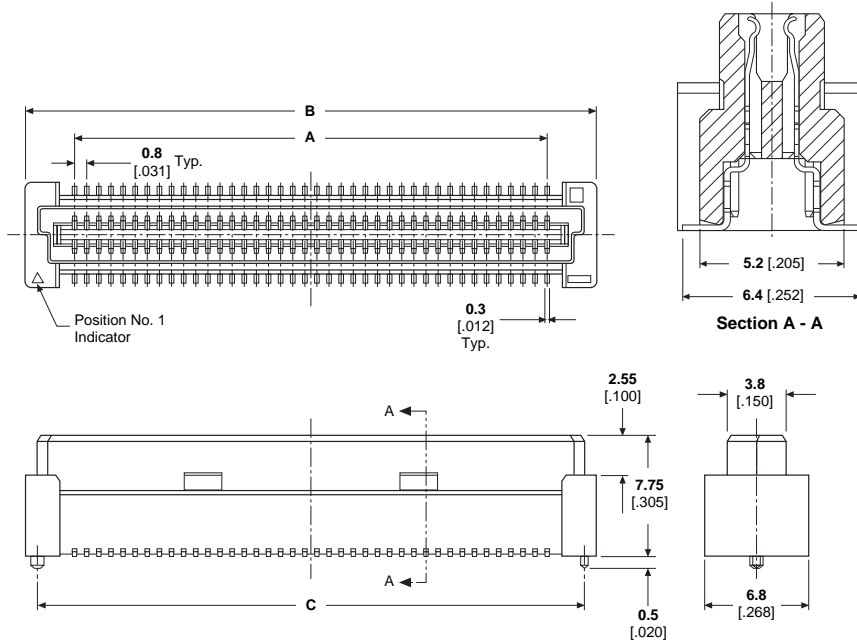
Performance Characteristics —
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Stacking Height Combinations —
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Recommended PC Board Layout

No. of Positions	Dimensions			Receptacle Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	5-179009-1	5-179180-1
60	23.20 .913	29.80 1.173	28.20 1.110	5-179009-2	5-179180-2
80	31.20 1.228	37.80 1.488	36.20 1.425	5-179009-3	5-179180-3
100	39.20 1.543	45.80 1.803	44.20 1.740	5-179009-4	5-179180-4
120	47.20 1.858	53.80 2.118	52.20 2.055	5-179009-5	—
140	55.20 2.173	61.80 2.433	60.20 2.370	5-179009-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	5-179009-8	—
180	71.20 2.803	77.80 3.063	76.20 3.000	5-179009-9	—
200	79.20 3.118	85.80 3.378	84.20 3.315	6-179009-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Vertical Receptacles

13mm Receptacles for 13 [.512], 14 [.551], 15 [.591] and 16 [.630] Stacking Heights

Material and Finish:

Housing — High temperature thermoplastic, natural color, 94V-0 rated

Contacts — Beryllium copper; duplex plated 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin-lead on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data:

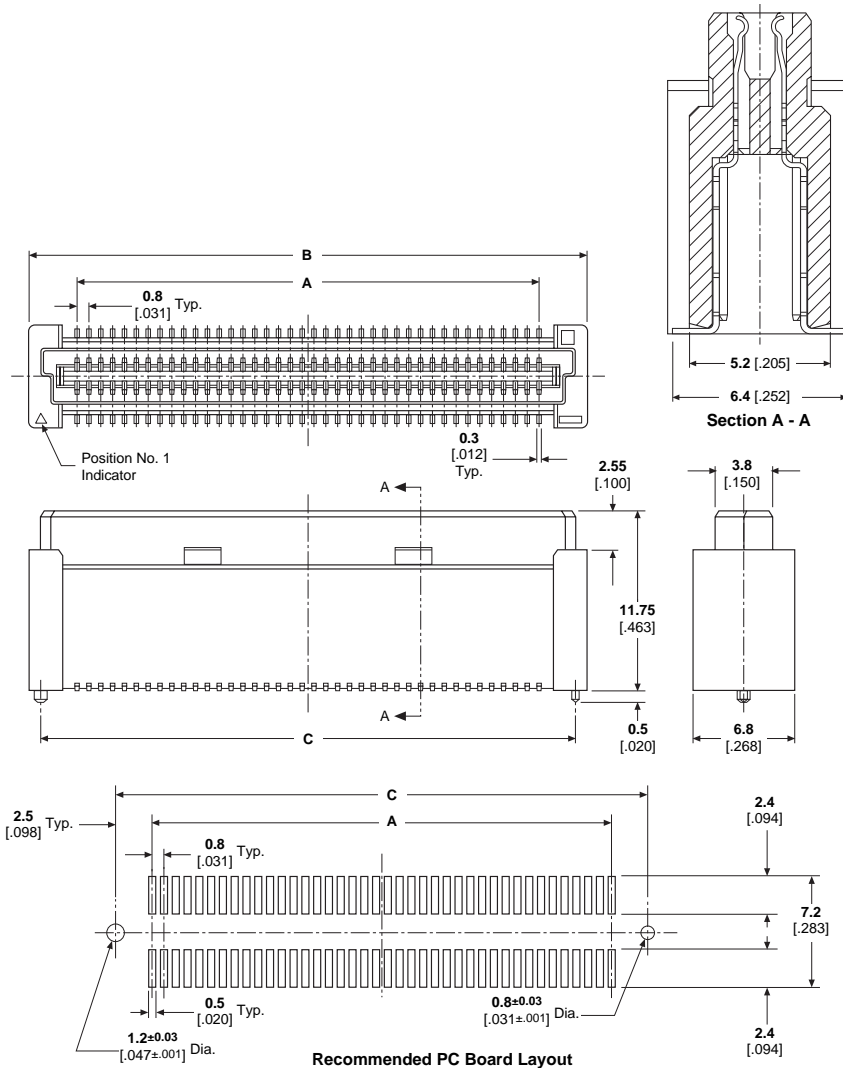
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Technical Documents:

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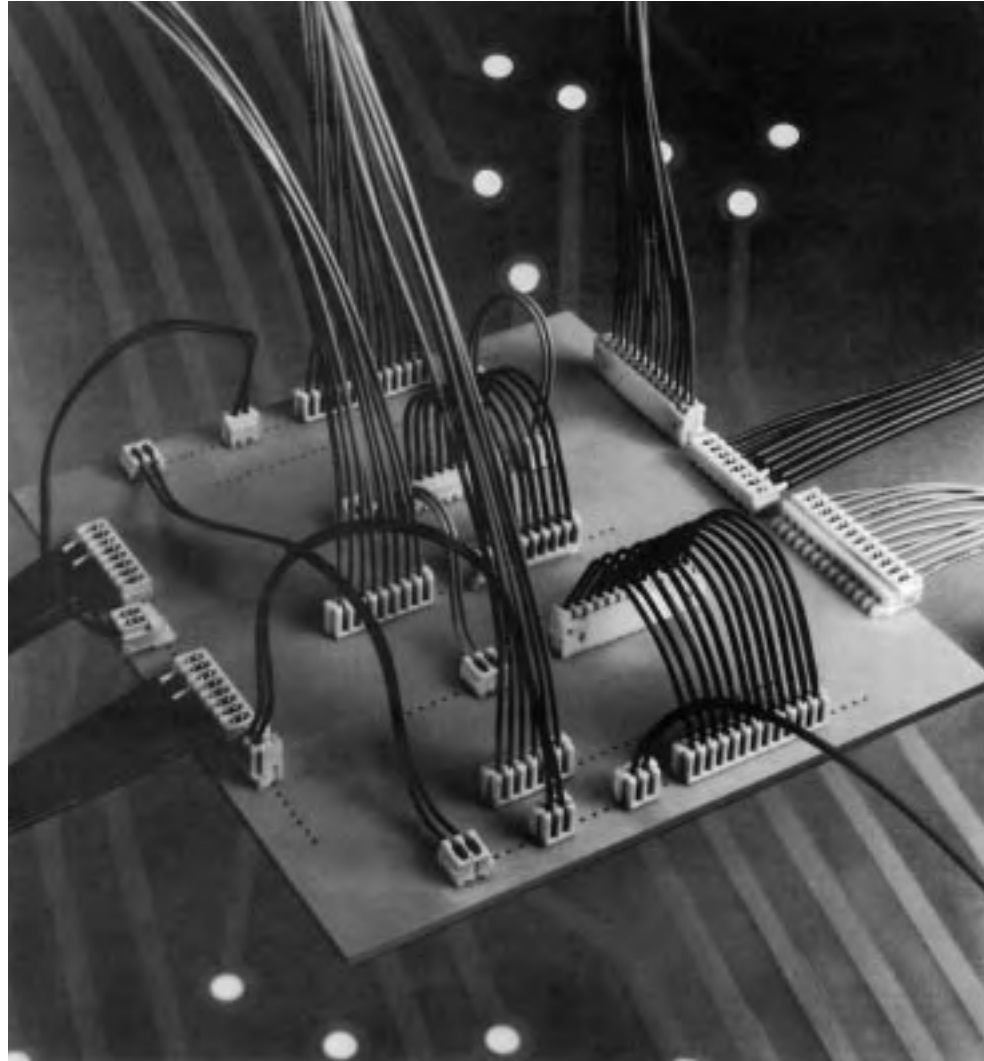
No. of Positions	Dimensions			Receptacle Part Numbers	
	A	B	C	Tube Packaged	Tape Packaged*
40	15.20 .598	21.80 .858	20.20 .795	5-179010-1	84616-1
60	23.20 .913	29.80 1.173	28.20 1.110	5-179010-2	84616-2
80	31.20 1.228	37.80 1.488	36.20 1.425	5-179010-3	84616-3
100	39.20 1.543	45.80 1.803	44.20 1.740	5-179010-4	84616-4
120	47.20 1.858	53.80 2.118	52.20 2.055	5-179010-5	84616-5
140	55.20 2.173	61.80 2.433	60.20 2.370	5-179010-6	—
160	63.20 2.488	69.80 2.748	68.20 2.685	5-179010-8	—
180	71.20 2.803	77.80 3.063	76.20 3.000	5-179010-9	—
200	79.20 3.118	85.80 3.378	84.20 3.315	6-179010-0	—

*With steel cover for automatic placement.

For complete product information, order Catalog 889092

Product Facts

- A connector system to assemble multiple connectors to both ends of wire simultaneously by the combined use of AMP high-speed automatic insulation displacement crimping machine and mass-termination connectors.
- Provides substantial labor-savings as well as improved quality and stability in harness assembly.
- The assembling machine can be adapted to all harness configurations without the need to change machine parts.
- Applicable connectors include MT connectors as well as MT AMP-IN header assemblies that can be directly inserted into printed circuit boards.
- A crimping receptacle connector is also available.
- Board-mount post headers are offered in two types, SMT-type and DIP-types, each usable for vertical mounting and horizontal mounting.
- In addition, a relay post header is available that mates with receptacle connectors both at front and at rear when mounted on panel.
- Both MT receptacle connectors and crimp-type receptacle connectors can share the same post headers when mated.
- MT AMP-IN header assemblies are secured onto boards with posts inserted directly into board holes and soldered.
- Both DIP-type post headers and MT AMP-IN headers are provided with kinks for self-retention on boards.
- Mini-Drawer connectors that mate with each other with CT receptacle connectors inserted on the wire side are also available.



■ Recognized under the Component Program of Underwriters Laboratories Inc., File No. E 28476



■ Certified by Canadian Standards Association, File No. LR 7189-133



For complete product information, order Catalog 1242172

MT Connectors (2mm Pitch)

Insulation Displacement Receptacle Assemblies (Wire Application Side)

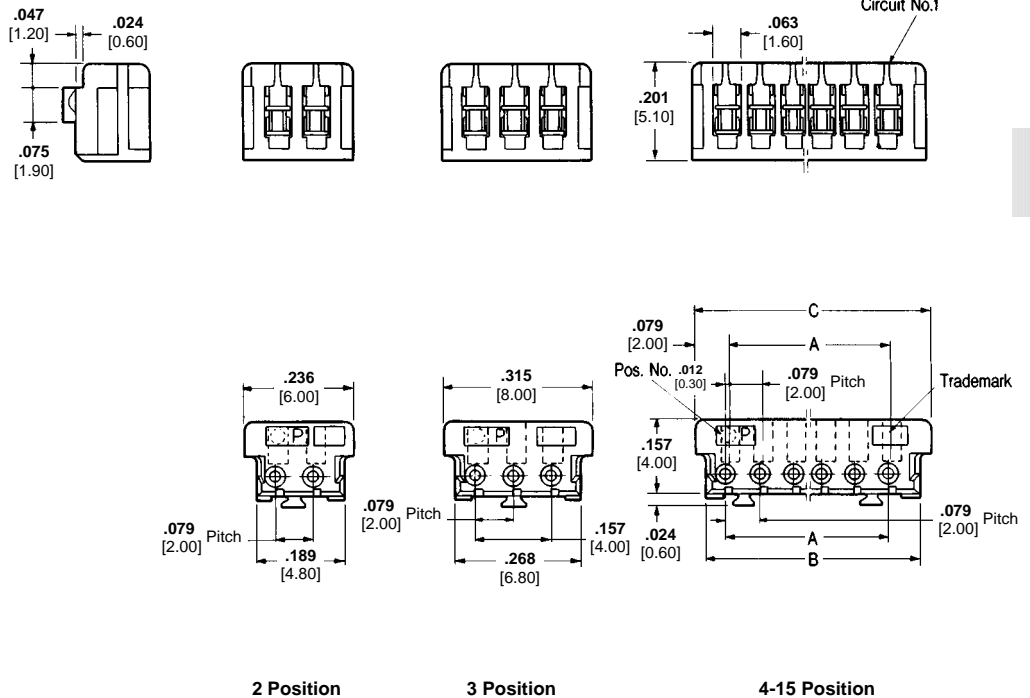
Material and Finish:

Housing — UL94V-0 rated, glass-filled P.B.T., see note below for color

Contact — Pre-tinned phosphor bronze

Wire Size — AWG #28-26 (0.08-0.15mm²)
AWG #24 (0.20-0.22mm²)

Insulation Dia. —
AWG #28-26 (0.85-1.05mm)
AWG #24 (0.9-1.05mm)



2
PCB and Wire Connectors

No. of Positions	Dimensions			Part Numbers of Receptacle Assembly*	
	A	B	C	AWG #28-26*	AWG #24**
2	.079 2.00	.189 4.80	.236 6.00	173977-2	2-179694-2
3	.157 4.00	.268 6.80	.315 8.00	173977-3	2-179694-3
4	.236 6.00	.346 8.80	.394 10.00	173977-4	2-179694-4
5	.315 8.00	.425 10.80	.472 12.00	173977-5	2-179694-5
6	.394 10.00	.504 12.80	.551 14.00	173977-6	2-179694-6
7	.472 12.00	.583 14.80	.630 16.00	173977-7	2-179694-7
8	.551 14.00	.661 16.80	.709 18.00	173977-8	2-179694-8
9	.630 16.00	.740 18.80	.787 20.00	173977-9	2-179694-9
10	.709 18.00	.819 20.80	.866 22.00	1-173977-0	3-179694-0
11	.787 20.00	.898 22.80	.945 24.00	1-173977-1	3-179694-1
12	.866 22.00	.976 24.80	1.024 26.00	1-173977-2	3-179694-2
13	.945 24.00	1.055 26.80	1.102 28.00	1-173977-3	3-179694-3
14	1.024 26.00	1.134 28.80	1.181 30.00	1-173977-4	3-179694-4
15	1.102 28.00	1.213 30.80	1.260 32.00	1-173977-5	3-179694-5

*The color of housing is natural. Other colors available include blue, yellow and black.
**The color of the housing is gray only.

For complete product information, order Catalog 1242172

Post Header Assemblies (For MT Connectors)

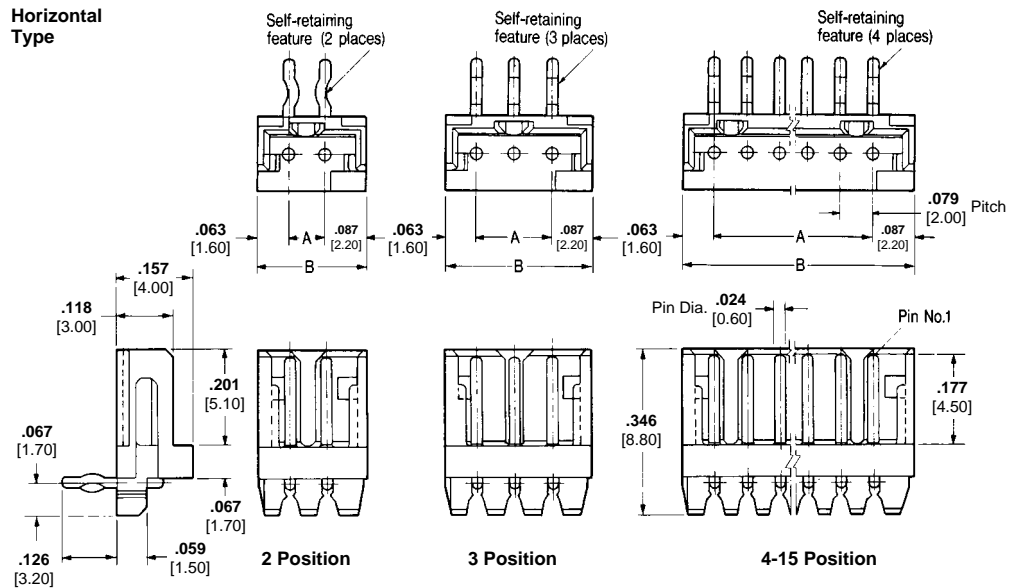
Standard Type Post Header Assemblies (PC Board Application Side)

Horizontal Mount Type

Material and Finish:

Housing — UL94V-0 rated, 6/6 nylon, see note below for color

Post Contact — Tin-lead plated brass
(Acceptable board thickness: .031-.063 [0.8-1.6mm])

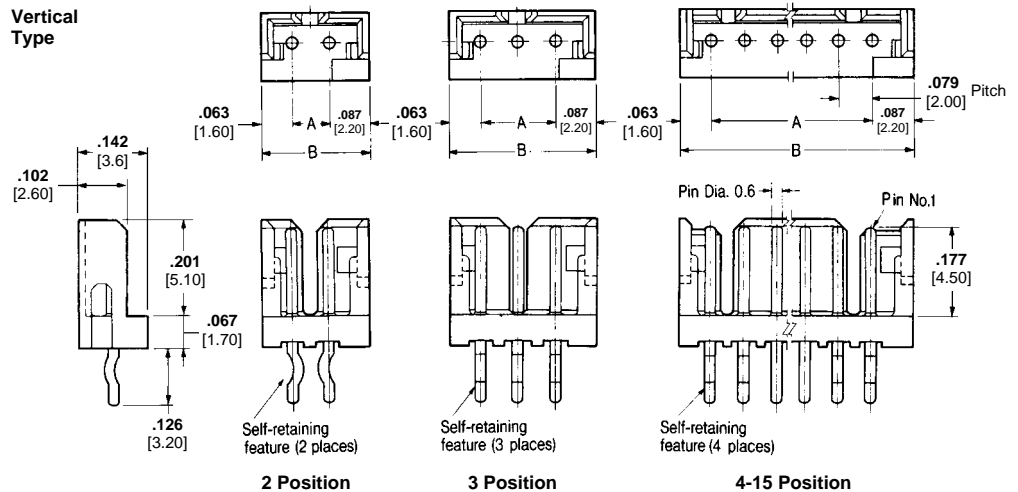


Vertical Mount Type

Material and Finish:

Housing — UL94V-0 rated, 6/6 nylon, see note below for color

Post Contact — Tin-lead plated brass
(Acceptable board thickness: .031-.063 [0.8-1.6mm])



No. of Positions	Dimensions		Part Numbers of Post Header Assembly*	
	A	B	Horizontal Mount	Vertical Mount
2	.079 2.00	.228 5.80	173979-2	173981-2
3	.157 4.00	.307 7.80	173979-3	173981-3
4	.236 6.00	.386 9.80	173979-4	173981-4
5	.315 8.00	.465 11.80	173979-5	173981-5
6	.394 10.00	.543 13.80	173979-6	173981-6
7	.472 12.00	.622 15.80	173979-7	173981-7
8	.551 14.00	.701 17.80	173979-8	173981-8
9	.630 16.00	.780 19.80	173979-9	173981-9
10	.709 18.00	.858 21.80	1-173979-0	1-173981-0
11	.787 20.00	.937 23.80	1-173979-1	1-173981-1
12	.866 22.00	1.016 25.80	1-173979-2	1-173981-2
13	.945 24.00	1.094 27.80	1-173979-3	1-173981-3
14	1.024 26.00	1.173 29.80	1-173979-4	1-173981-4
15	1.102 28.00	1.252 31.80	1-173979-5	1-173981-5

*The color of housing is natural. Other colors available include blue, yellow, black, and red. For details consult Tyco Electronics.

For complete product information, order Catalog 1242172

Post Header Assemblies (For MT Connectors)

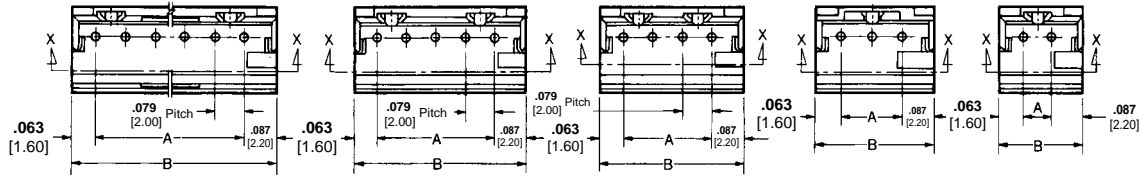
**DIP Box Type
Post Header Assembly
(PC Board Application Side)**

Vertical Mount Type

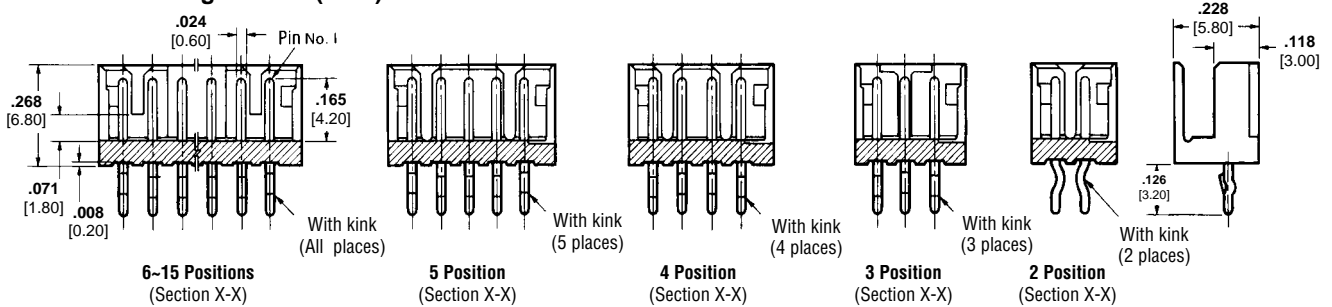
Material and Finish:

Housing — UL94V-0 rated, 6/6 nylon,
see note below for color

Post Contact — Tin-lead plated brass
(Acceptable board thickness: .031-.063
[0.8 ~ 1.6mm])



With Self-Retaining Feature (Kink)



No. of Positions	Dimensions		Part Numbers of Post Header Assembly*	
	A	B	With Kink	Loose Piece
2	.079 2.00	.228 5.80	175487-2	
3	.157 4.00	.307 7.80	175487-3	
4	.236 6.00	.386 9.80	175487-4	
5	.315 8.00	.465 11.80	175487-5	
6	.394 10.00	.543 13.80	175487-6	
7	.472 12.00	.622 15.80	175487-7	
8	.551 14.00	.701 17.80	175487-8	
9	.630 16.00	.780 19.80	175487-9	
10	.709 18.00	.858 21.80	1-175487-0	
11	.787 20.00	.937 23.80	1-175487-1	
12	.866 22.00	1.016 25.80	1-175487-2	
13	.945 24.00	1.094 27.80	1-175487-3	
14	1.024 26.00	1.173 29.80	1-175487-4	
15	1.102 28.00	1.252 31.80	1-175487-5	

*The color of housing is natural. Other colors available include blue, yellow and black.

For complete product information, order Catalog 1242172

MT AMP-IN Header (2mm Pitch)

Horizontal Mount Type

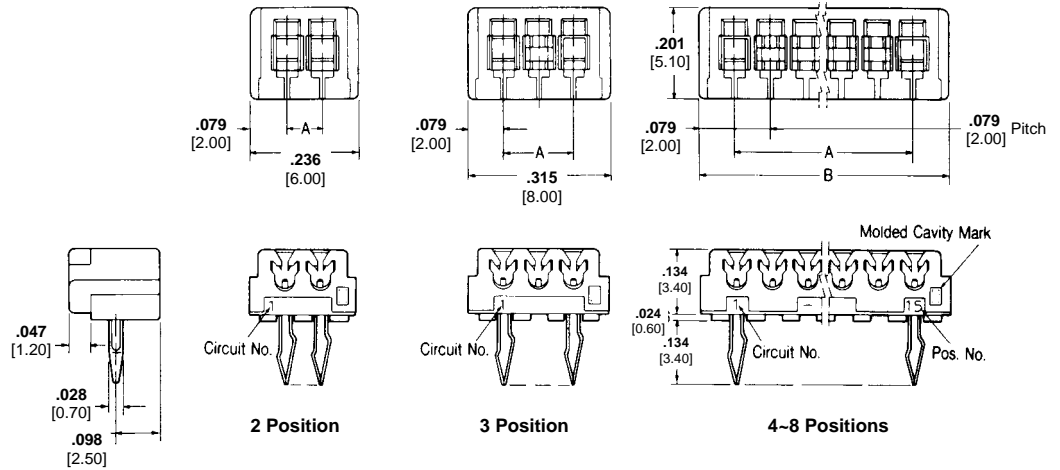
Material and Finish:

Housing — UL94V-0 rated, glass-filled P.B.T., cream yellow

Contact — Pre-tinned phosphor bronze

Wire Size — AWG #28-26 (0.08-0.15mm²)

Insulation Dia. — .033-.041 (0.83-1.05mm)



Vertical Mount Type

Material and Finish:

Housing — UL94V-0 rated, glass-filled P.B.T., light blue

Contact — Pre-tinned phosphor bronze

Wire Size — AWG #28-26 (0.08-0.15mm²)

Insulation Dia. — .033-.041 (0.83-1.05mm)

(Acceptable board thickness: .031-.063 (0.8-1.6mm))

No. of Positions	Dimensions				Part Numbers of AMP-IN Header Horizontal Mount
	A		B		
2	.079	2.00	.236	6.00	2-173983-2
4	.236	6.00	.394	10.00	2-173983-4
5	.315	8.00	.472	12.00	2-173983-5
6	.394	10.00	.551	14.00	2-173983-6
7	.472	12.00	.630	16.00	2-173983-7
8	.551	14.00	.709	18.00	2-173983-8

For complete product information, order Catalog 1242172

Application Tooling

For Insulation Displacement Pistol Grip Hand Tool

Crimp Kit Part Number 911790-1



Manual Pistol Grip Tool:
Handle Assembly Part Number
58074-1
with Modular Head Part Number
58372-1

Hand Press

Crimp Part Number 909372-1

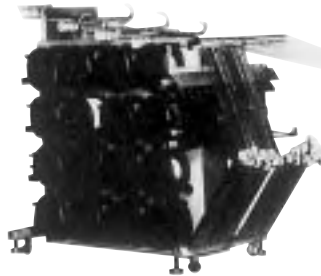


Mini Press

Part Number 759980-3

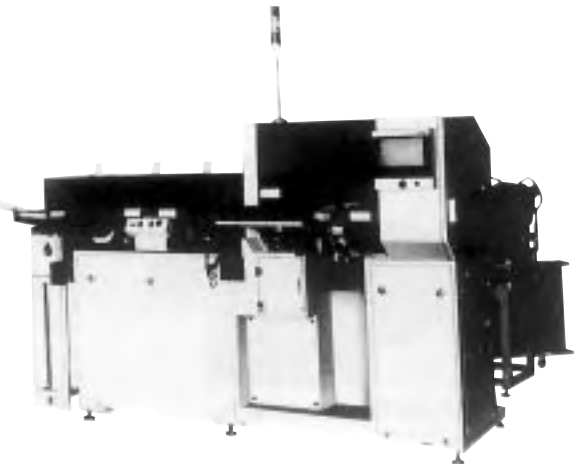


Bench Mount Power Assembly
Part Number 58338-1 with Modular
Head Assembly Part Number
58372-1



Insulation Displacement Automatic Tooling

Contact Tyco Electronics for
automatic tooling options.



Air Mini Press

Part Number 909190-1

(works by butting wires)

Part Number 909190-2

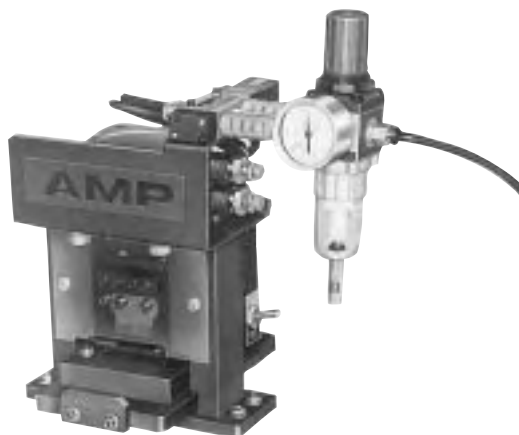
(works by cutting off wires)

Harness Circuit Numbers:

Random

Applicable Cable:

Discrete Wire



For complete product information, order Catalog 1242172

AMP EI Series Connectors are wire-to-board and wire-to-wire connectors. Small in size, precision-built and very economical to use, the connectors are ideally suited for compact, high density connection of wirings inside electric equipment, as well as for labor saving.

Types

There are two types of connectors available from the product line – Standard and Low Profile. In addition, a Board Mount Post Header is also available which can be used in common with both of the standard and low profile connectors.

Connectors for Wire Termination

The standard type connector consists of a receptacle connector and a plug connector. The receptacle connector is used for wire-to-wire termination when mated with the cap connector and for wire-to-board connection when mated with the post header. The plug connector is available in two styles of free-hanging and panel mounting. The low profile connector consists of a receptacle connector which, when mated with the post header, is used for wire-to-board connection. Compared with the standard type, this type of connector is .25" [6mm] shorter in its mated height.

Housing with Many Features

The housing is designed with many outstanding features. These include a locking mechanism to promote positive mating, polarization to prevent mismatching, and a guide for correct alignment of contacts.



Post Header for Board Mount

The post header is available with posts on .098 [2.50] centers. There are two styles of post header; one can be mounted on the board horizontally and the other vertically. The post header is provided with devices to help prevent the wicking and splashing of flux during soldering operations. It can accommodate boards of .063 [1.60] thick.

Contacts

The receptacle contacts have a large contacting area to mate with posts or pin contacts and are of a stable, two-sided contact design. When mated, the contacting area provides a consistently high contact pressure and provides a clean surface through wiping action. As a result, it can provide a highly reliable electrical connection even when used in small current circuitry.

Wire Size Range

Standard type –
AWG #30 – 20
(0.05~0.52mm²)
Low Profile type –
AWG #30 – 22
(0.05~0.35mm²)

For complete product information, order Catalog 1242174

Introduction

Cap Connector (Wire Applied)



Free Hanging Type



Panel Mount Type

Post Header (Board Applied)



Horizontal Mount Type

Product Specifications:

Voltage ratings —

- UL 250V
(Spacing .047 [1.2] min.)
- UL 600V
(Spacing .126 [3.2] min.)
- CSA 250V
- TÜV 125V AC/150V DC (.098 [2.5] pitch)
- TÜV 250V AC/300V DC (.197 [5.0] pitch)

<Mating Styles>

- Wire-to-wire termination
- Wire-to-board connection

Receptacle Connector (Wire Applied)



Standard Type



Low Profile Type

Current ratings:

AWG	UL	CSA	TUV
30	—	2	2
26	—	—	3
22	—	4	4
20	—	5	5

Low level resistance — 10mΩ max.

Insulation resistance — 500MΩ min. at 500V DC

Dielectric withstanding voltage — 750V AC for one minute

AMP-specified maximum operating temperature — -20~+95°C

UL-recognized operating temperature — +105°C

CSA-certified maximum operating temperature — +105°C

TÜV-specified operating temperature — -20~+85°C

TÜV-specified insulation group — B

Product Specification

108-5118

Application Specifications

- 114-5035 (for connectors except Low Profile types)
- 114-5051 (for Low Profile type connectors)

Instruction Sheets

- IS-123J (Pin contacts)
- IS-073J (Standard type receptacle contacts)
- IS-109J (Low Profile type receptacle contacts)

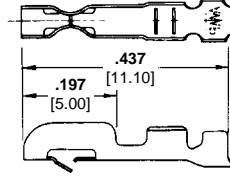
For complete product information, order Catalog 1242174

Receptacle Connectors (Wire Applied)

Standard Type Receptacle Contacts

Material:

Pre-Tin Brass



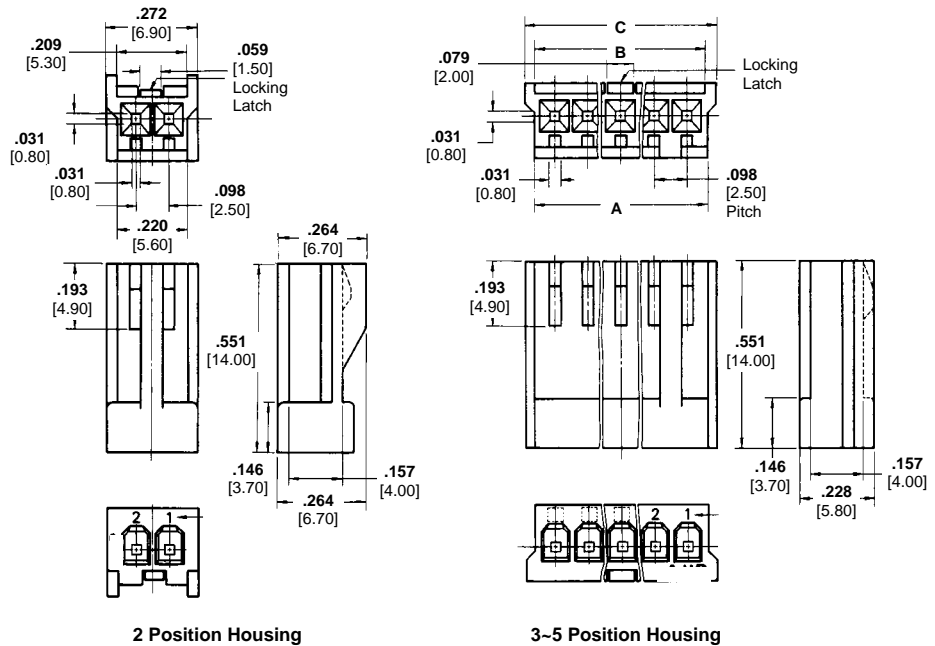
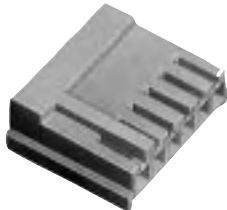
Wire Size AWG (mm ²)	Wire Ins. Diameter	Contact Part Numbers Brass/Pre-Tin		Hand Tool Part Numbers
		S.T.	L.P.	
30-26 (0.05-0.15)	.039-.055 1.00-1.40	—	170205-1	722561-1
26-20 (0.14-0.52)	.043-.075 1.10-1.90	170262-1	170204-1	722560-1

Hand Tool Instruction Sheet: IS-071J.

Standard Type Receptacle Housings for Standard Circuit .098 [2.50]

Material:

UL 94V-0 rated, 6/6 nylon



No. of Positions	Dimensions			Part Numbers Natural
	A	B	C	
2	—	—	—	171822-2
3	.319 8.1	.307 7.8	.370 9.4	171822-3
4	.417 10.6	.406 10.3	.469 11.9	171822-4
5	.516 13.1	.504 12.8	.567 14.4	171822-5

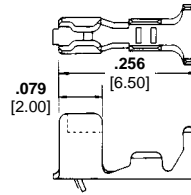
For complete product information, order Catalog 1242174

Receptacle Connectors (Wire Applied)

Low Profile Type Receptacle Contacts

Material:

Pre-Tin Phosphor Bronze



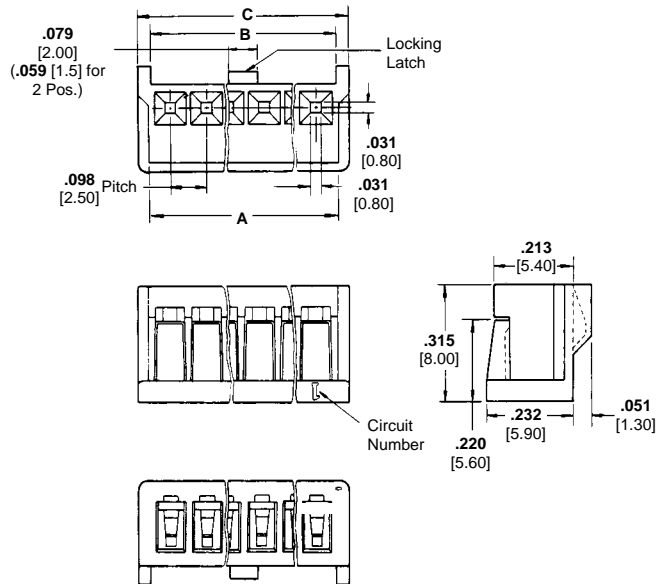
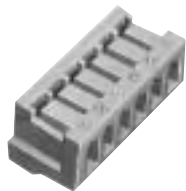
Wire Size	Wire Ins.	Contact Part No.		Hand Tool Part Numbers		
		AWG	mm ²		S.T.	L.P.
30-26	0.05-0.15	.039-.059	1.00-1.50	—	170370-1	724663-1
26-22	0.12-0.35	.043-.075	1.10-1.90	170354-1	170369-1	755332-1

Hand Tool Instruction Sheet: IS-099J (724663-1), IS-364J (755332-1).
 Insertion Tool Number 724674-1. Extraction Tool Number 724676-1.

Low Profile Type Receptacle Housings .098 [2.50]

Material:

UL 94V-0 rated, 6/6 nylon



No. of Positions	Dimensions				Part Numbers		
	A		B		C		
2	.217	5.50	.205	5.20	.276	7.00	172142-2
3	.315	8.00	.303	7.70	.374	9.50	172142-3
4	.413	10.50	.402	10.20	.472	12.00	172142-4

For complete product information, order Catalog 1242174

Post Headers (Board Applied)

Vertical Mount Type .098 [2.50]

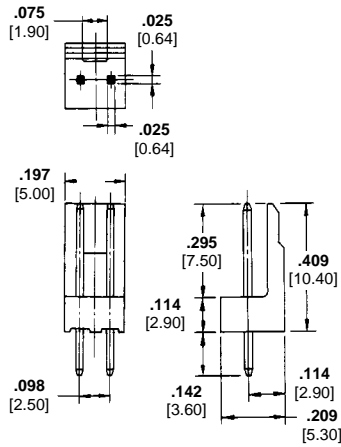
Material & Finish:

Header — Recognized by UL, flame retardant grade, UL 94V-0 rated, 6/6 nylon

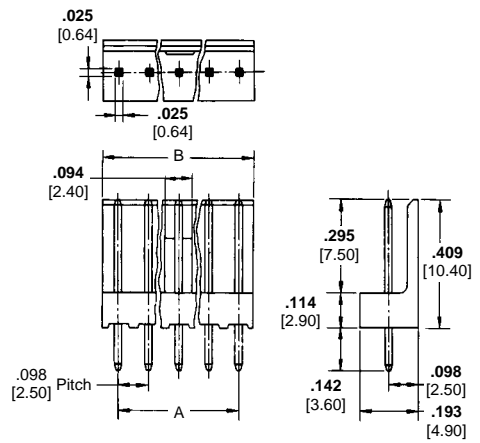
Post — Brass, Tin over copper plated



2 Positions



3 ~ 5 Positions



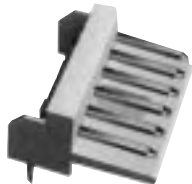
No. of Positions	Dimensions		Part Numbers Natural
	A	B	
2	—	—	171825-2
3	.197 5.00	.295 7.50	171825-3
4	.295 7.50	.394 10.00	171825-4
5	.394 10.00	.492 12.50	171825-5

Horizontal Mount Type .098 [2.50]

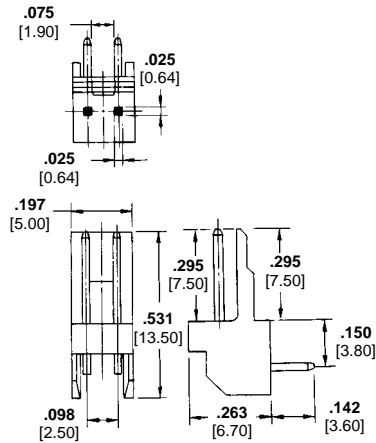
Material & Finish:

Header — Recognized by UL, flame retardant grade, UL 94V-0 rated, 6/6 nylon

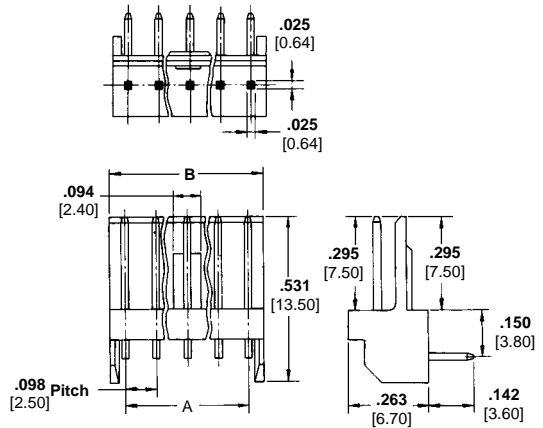
Post — Brass, Tin



2 Positions



3 ~ 5 Positions



No. of Positions	Dimensions		Part Numbers Natural
	A	B	
2	—	—	171826-2
3	.197 5.00	.295 7.50	171826-3
4	.295 7.50	.394 10.00	171826-4
5	.394 10.00	.492 12.50	171826-5

For complete product information, order Catalog 1242174

Post Headers (Board Applied)

Vertical Mount Type with Self-Retaining Feature Posts .098 [2.50]

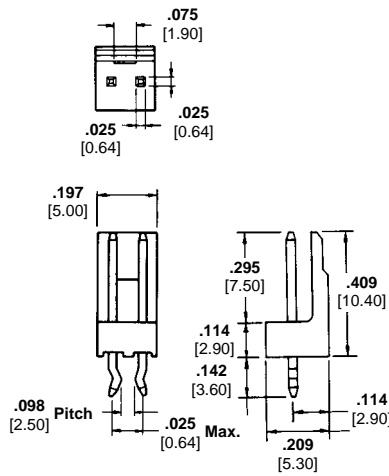
Material & Finish:

Header — UL 94V-0 rated, 6/6 nylon

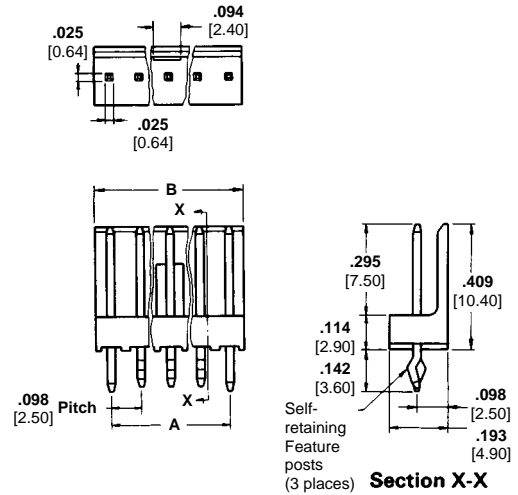
Post — Brass, Tin-lead over copper plated



2 Positions



3 ~ 5 Positions



No. of Positions	Dimensions				Part Numbers Natural
	A		B		
2	—		—		172732-2
3	.197	5.00	.295	7.50	172732-3
4	.295	7.50	.394	10.00	172732-4
5	.394	10.00	.492	12.50	172732-5

2
PCB and Wire Connectors

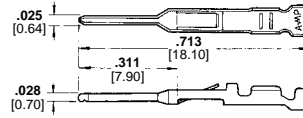
For complete product information, order Catalog 1242174

Plug Connectors (Wire Applied)

Standard Type Pin Contacts

Material:

Pre-Tin Brass



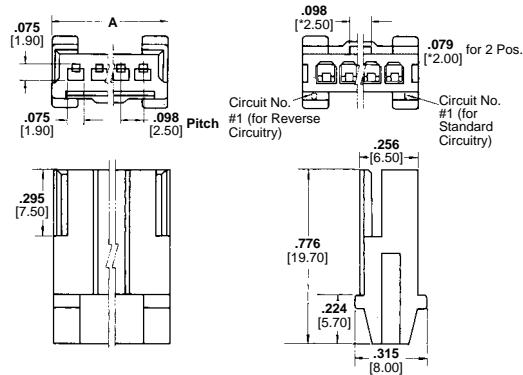
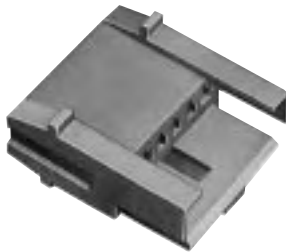
Wire Size		Wire Ins. Dia.	Contact Part Numbers Brass/Pre-Tin		
AWG	mm ²		S.T	L.P.	
30-26	0.05-0.15	.394-.055	1.00-1.40	170377-1	170430-1
26-20	0.14-0.52	.043-.075	1.10-1.90	170376-1	170429-1

Hand Tool Part Number 724687-1 (for AWG#30-26), 755333-1 (IS-365J) (for AWG #26-20)
Extraction Tool Part Number 724762-1

Free Hanging Style Plug Housings .098 [2.50]

Material:

UL94V-0 rated, 6/6 nylon



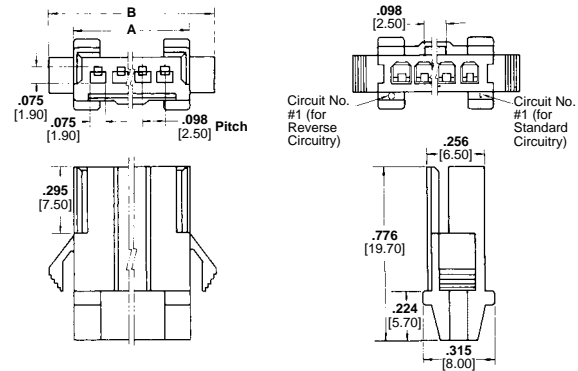
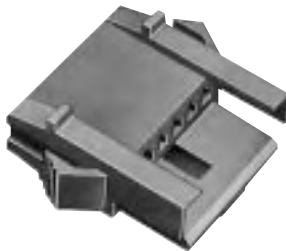
No. of Positions	Dimensions A		Part Numbers For Standard Circuit Natural
2	.311	7.90	172211-2
3	.409	10.40	172211-3
4	.508	12.90	172211-4
5	.606	15.40	172211-5

Note: Cap housing for standard circuitry Part Number 172211 mates with receptacle housing for standard circuitry Part Number 171822

Plug Housings for Panel Mount .098 [2.50]

Material:

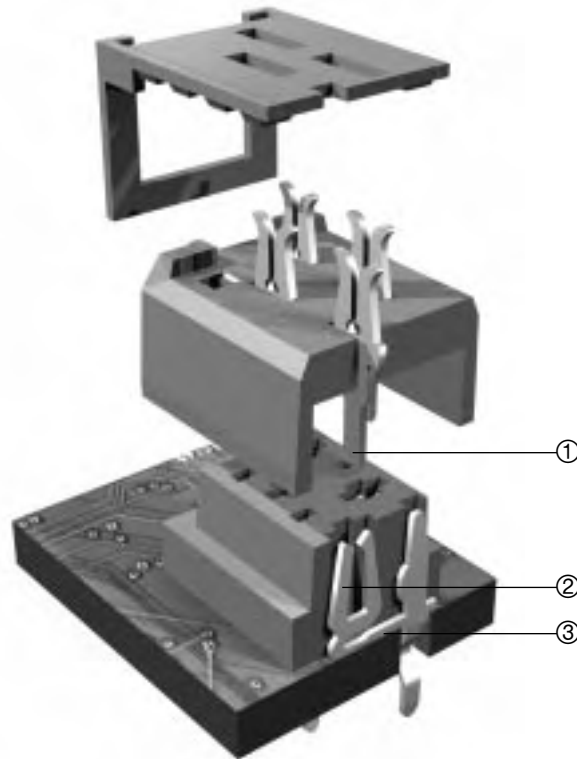
UL 94V-0 rated, 6/6 nylon



No. of Positions	Dimensions				Part Numbers For Standard Circuit Natural
	A		B		
3	.409	10.40	.630	16.00	172213-3
5	.606	15.40	.827	21.00	172213-5

Note: Cap housing for standard circuitry Part Number 172213 mates with receptacle housing for standard circuitry Part Number 171822

For complete product information, order Catalog 1242174



- 1. Contact Pin**
- 2. Contact Spring**
- 3. Positioning Spring**

Miniaturization and the trend toward higher density of electronic functions on a substrate led to the introduction of smaller interconnection systems. The AMP Micro-MaTch connector family, with its contact spacing of 0.05 [1.27 mm], fully complies with the electronic packaging requirements of today and the future. The system offers a range of board and wire connectors, enabling a variety of wire-to-board and board-to-board interconnections. The AMP Micro-MaTch contact concept shown on this page is essentially different from other systems available.

By its design the traditional failure mode in tinplated connections, fretting corrosion, is minimized. Due to an additional positioning spring in the female part, relative

movements caused by vibrations/thermal expansion between male and female contacts are absorbed. By preventing movements on the contact spot, a gas tight connection can be obtained.

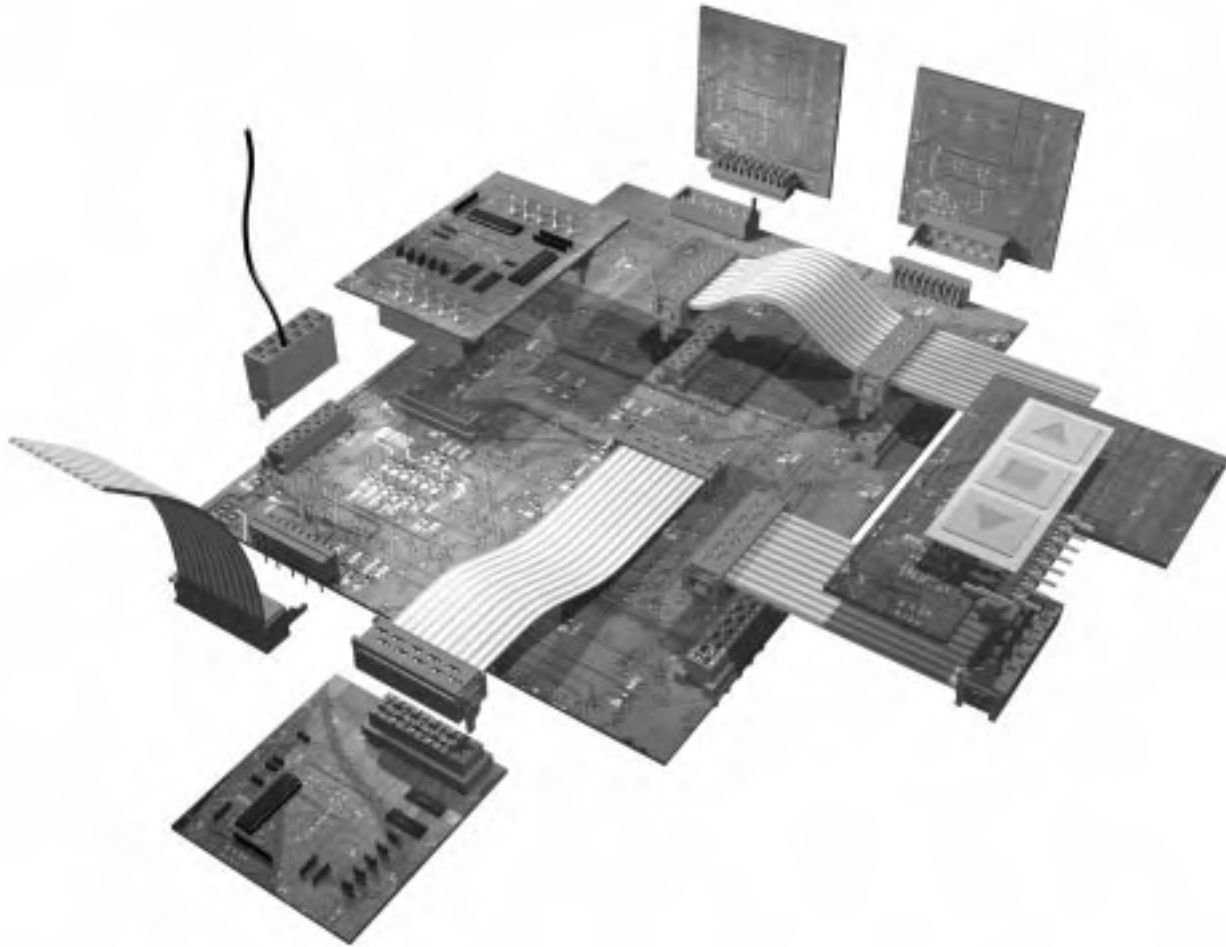
The contact spring is located in the board connector and not in the cable connector, which is usually the case. The counter part, incorporated in the cable connector, is a simple pin, either with an insulation displacement section, suitable for the mass-termination of cable or with a kinked solder leg to be soldered onto a PC Board. The separation of these two basic functions of the contact system - contact force generation and wire termination -, enables the independent optimization of both functions and also leads to relatively simple contact

shapes.

Because of their shapes, contacts can be post-plated, leaving no bare edges in the contact and wire slot area. The contact spring system features an additional spring member - the positioning spring - which compensates positional tolerances. In this way the contact spring can be fully optimized for its basic function, providing the relatively high contact force required for tin plated contact systems.

For complete product information, order Catalog 1307822

System Overview, Technical Data



Technical Data:

Centerline — 0.050 [1.27 mm] (staggered)

Number of Positions — 4, 6, 8, 10, 12, 14, 16, 18, and 20 positions

Contact Material — Phosphor bronze

Contact Finish — Tin-lead

Housing Material — Thermoplastic polyester, red, glass-filled
For surface mount versions polyimide 4.6

Flammability rating — per UL 94 V-0

UL-recognized — File E28476 Vol. 23 Section 4

Contact Resistance — 10 M Ω max.

Insulation Resistance — 1.000 M Ω min.

Nominal Voltage — 230 V

Current Rating — 1.5 A max.

Temperature Range — -40°C to +105°C (operating)

Mating Force — 5N max. per contact

Unmating Force — 1N min. per contact

Minimum Contact Force — 2N min.

Product Specification
108-19052

Application Specification
114-19016, 114-19051

PC Board Connectors:

PC Board Thickness — 0.06 [1.6 mm] nominal

PC Board Hole Diameter — 0.03 [0.8 mm] for solder connectors

Ribbon Connectors:

Cable Type — Ribbon cable, UL Style 2651

Conductor Spacing — 0.050 [1.27 mm]

Conductor Diameter — Solid 0.01 [0.30 mm] diameter
Stranded .003 [0.08 mm²]
0.28 x 0.004-0.005 [7 x 0.12 - 0.13 mm] (other diameters and/or configurations on request)

Insulation Type — semi-rigid PVC

Insulation Diameter — 0.04±0.004 [0.9 ± 0.1 mm]

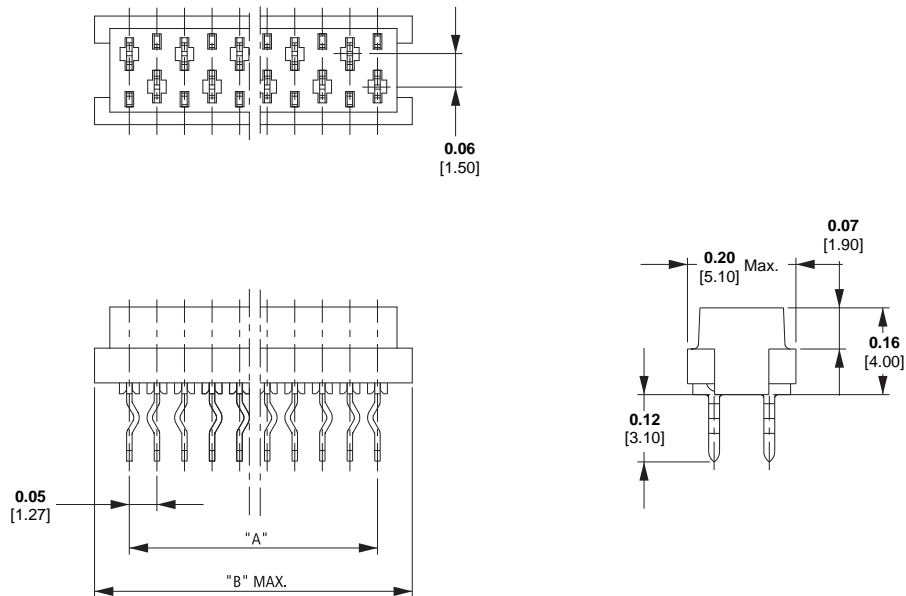
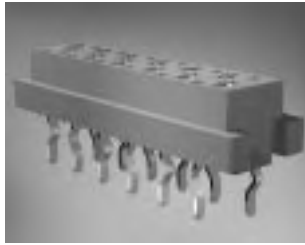
Discrete Wire (COSI) Connectors:

Cable Type — AWG 28-24 and 24-20

For complete product information, order Catalog 1307822

Female-on-Board Connector

Top Entry



This connector version incorporates the patented AMP Micro-MaTch contact spring system and is designed to be soldered onto PC Boards with a nominal thickness of 0.06 [1.6 mm].

The solder legs are indented, providing firm retention of the connector before and during the soldering operations.

As polarization is accomplished directly between the AMP Micro-MaTch male connectors and the PC Board, this top entry female connector does not have any polarizing features. Therefore, the orientation of the connector on the PC Board is irrelevant.

Notes:

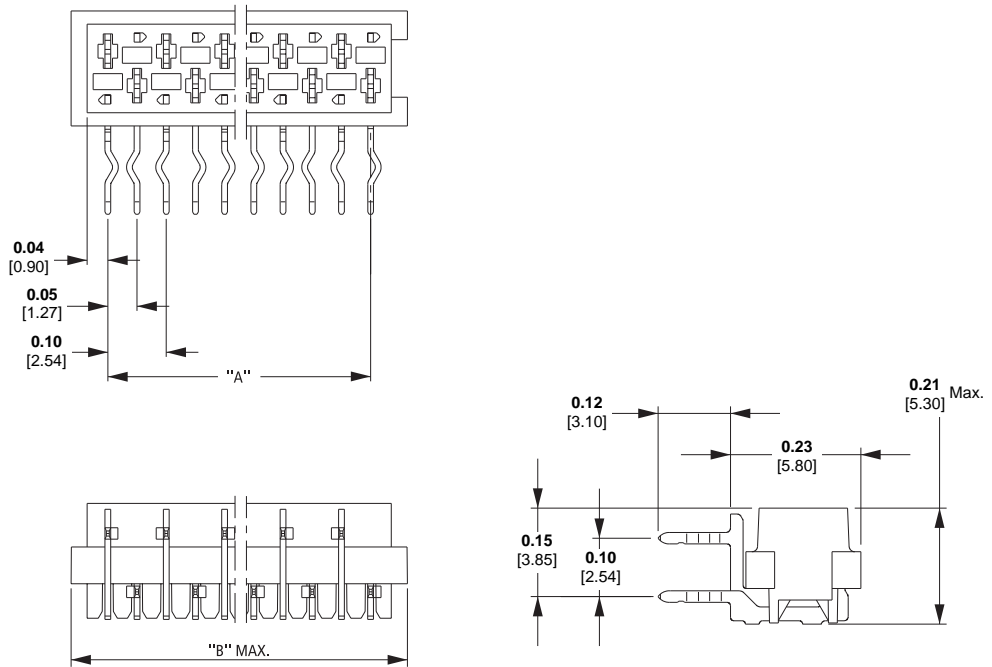
1. Connectors are always sideways mounted onto an adhesive tape.
2. Standard packaging quantity is 2500 connectors on a reel with a diameter of 23.62 [600 mm].
3. At additional charge a special packaging option is available: 250 connectors on a reel with a diameter of 9.84 [250 mm], packed in a dedicated dispenser box.

No. of Positions	Dimensions		Part Numbers	
	A	B	2500 Connectors/Reel	250 Connectors/Box
4	0.15 3.81	0.28 7.10	215079-4	7-215079-4
6	0.25 6.35	0.38 9.70	215079-6	7-215079-6
8	0.35 8.89	0.48 12.20	215079-8	7-215079-8
14	0.65 16.51	0.78 19.80	1-215079-4	8-215079-4
20	0.95 24.13	1.08 27.40	2-215079-0	9-215079-0

For complete product information, order Catalog 1307822

Female-on-Board Connector

Side Entry



This connector version is identical to the top entry version with two exceptions:

- The solder legs are parallel to the mating face of the connector instead of perpendicular.

- Its housing is polarized, so that polarization is accomplished directly between the two mating connectors. Proper orientation of the connectors on the PC Board is relevant here.

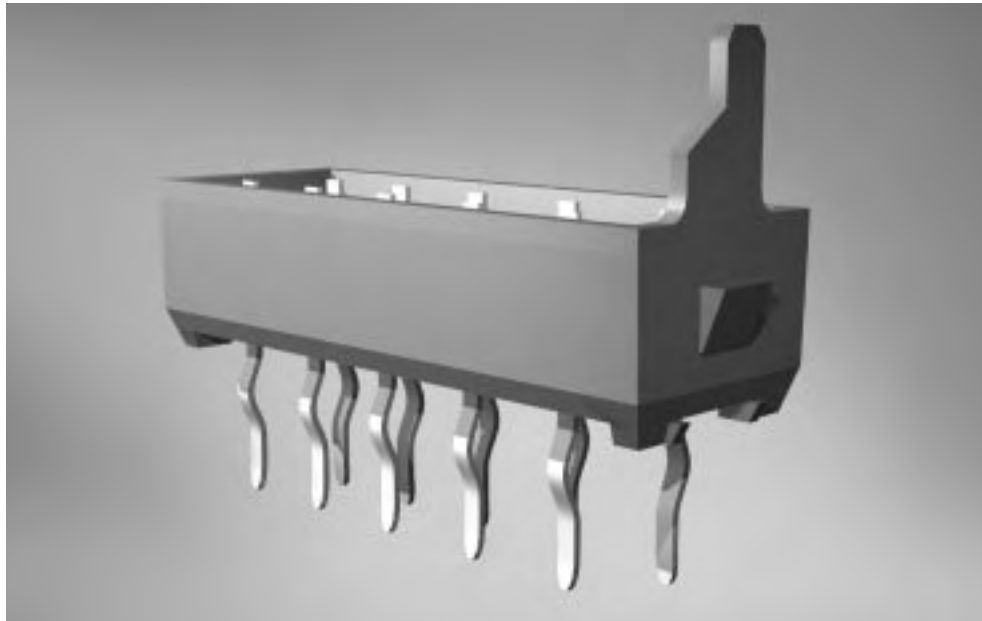
Notes:

1. Connectors are always sideways mounted onto an adhesive tape.
2. Standard packaging quantity is 2500 connectors on a reel with a diameter of 23.62 [600 mm].
3. At additional charge a special packaging option is available: 250 connectors on a reel with a diameter of 9.84 [250 mm], packed in a dedicated dispenser box.

No. of Positions	Dimensions		Part Numbers	
	A	B	2500 Connectors/Reel	250 Connectors/Box
4	0.15 3.81	0.28 7.10	215460-4	7-215460-4
6	0.25 6.35	0.38 9.70	215460-6	7-215460-6
8	0.35 8.89	0.48 12.20	215460-8	7-215460-8
14	0.65 16.51	0.78 19.80	1-215460-4	8-215460-4
20	0.95 24.13	1.08 27.40	2-215460-0	9-215460-0

For complete product information, order Catalog 1307822

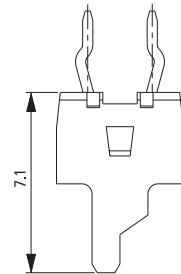
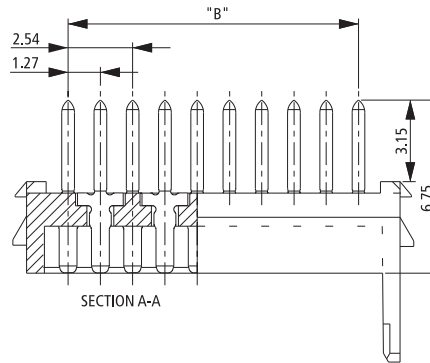
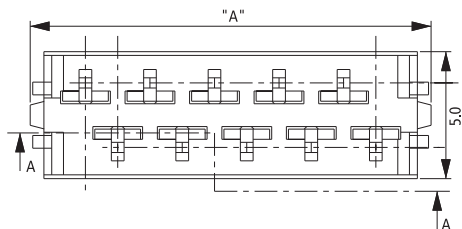
Male-on-Board Connector



This male connector version is designed to be soldered onto PC Boards with a nominal thickness of .06[1.6].

The solder legs are indented for firm retention of the connector in the PC Board.

The connector housing features a polarizing pin on one end for proper orientation of this connector version.



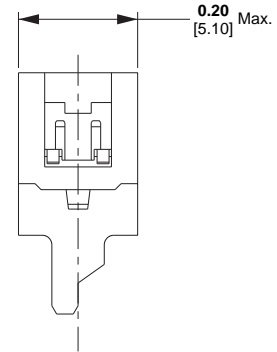
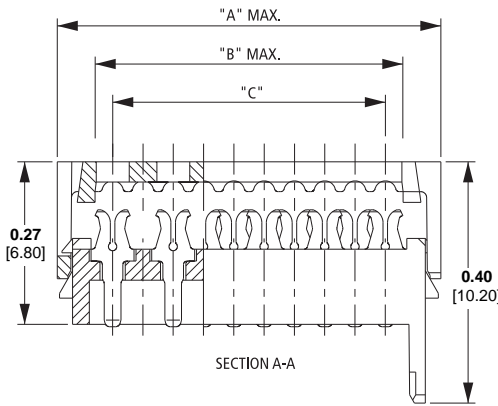
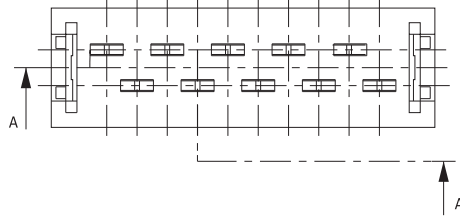
Notes:

1. Connectors are always sideways mounted onto an adhesive tape.
2. Standard packaging quantity is 2500 connectors on a reel with a diameter of 23.62[600mm].
3. At additional charge a special packaging option is available: 250 connectors on a reel with a diameter of 9.84[250mm], packed in a dedicated dispenser box.

No. of Positions	Dimensions		Part Numbers	
	A	B	2500 Connectors/Reel	250 Connectors/Box
4	.15 [3.81]	.28 [7.1]	215464-4	7-215464-4
6	.25 [6.35]	.38 [9.7]	215464-6	7-215464-6
8	.35 [8.89]	.48 [12.2]	215464-8	7-215464-8
14	.65 [16.51]	.78 [19.8]	1-215464-4	8-215464-4
20	.95 [24.13]	1.08 [27.4]	2-215464-0	9-215464-0

For complete product information, order Catalog 1307822

Male-on-Wire Connector



For the wire connection, a well-known AMP-LATCH type blade with a single slot is used. The insides of the slots are tin plated for stable and reliable connections.

The connector is supplied with a pre-assembled cover, providing excellent positioning of the ribbon

cable before and during the insulation displacement process.

After termination the cover is held in place by each individual contact in addition to two plastic latches at both ends of the connector.

Remark:

The AMP Micro-MaTch Male-on-Wire connector is specifically designed to be disengaged from its counterpart by pulling the cable in the appropriate direction.

Notes:

1. Connectors are always sideways mounted onto an adhesive tape.
2. Standard packaging quantity is 2500 connectors on a reel with a diameter of 23.62 [600 mm].
3. At additional charge a special packaging option is available: 250 diameter of 9.84 [250 mm], packed in a dedicated dispenser box.

No. of Positions	Dimensions			Part Numbers	
	A	B	C	2500 Connectors/Reel	250 Connectors/Box
4	0.34 8.60	0.21 5.40	0.15 3.81	215083-4	7-215083-4
6	0.44 11.10	0.31 8.00	0.25 6.35	—	7-215083-6
8	0.14 3.60	0.41 10.50	0.35 8.89	—	7-215083-8
14	0.84 21.30	0.71 18.10	0.65 16.51	1-215083-4	8-215083-4
20	1.14 28.90	1.01 25.70	0.95 24.13	2-215083-0	9-215083-0

For complete product information, order Catalog 1307822

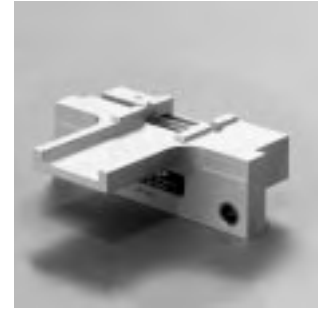
Application Tooling



Pistol handgrip tooling. This is a handtool for terminating Micro-MaTch Male-on-Wire and Paddle Board connectors. Meant for small quantities or repair services. Pistol handgrip and adapter must be ordered separately.



Standard pistol handgrip Part Number 734155-1. This basic tool can be used for both Micro-MaTch and AMP-LATCH applications.



Pistol handgrip adapter set Part Number 734024-1. This adapter can be used for Micro-MaTch terminations, together with the pistol handgrip.



Bench press tooling Part Number 733280-3. This complete tool includes a Micro-MaTch dedicated tool set mounted on the bench press Part Number 654173-2.



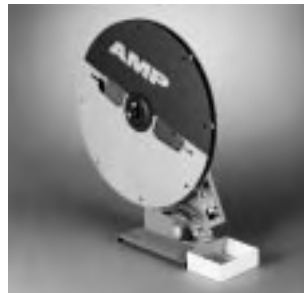
Bench press Part Number 91085-2. This basic press is a hand operated version. This press can also be obtained in a pneumatically operated version; Part Number 91112-3.



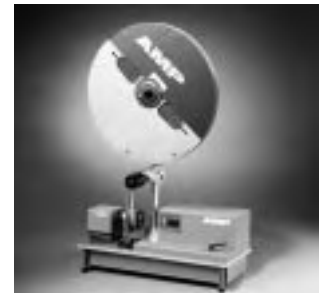
Bench press tool set Part Number 733278-2. This tool set is designed especially for Micro-MaTch. It fits both pneumatically and hand operated press.



Semi automatic tooling Part Number 677410-1. This tool can be used for Micro-MaTch lead end and for daisy chain assembly applications.



Semi automatic tooling Part Number 677412-5. For Micro-MaTch only and Part Number 1-677412-0 for both Micro-MaTch and AMP-LATCH. This machine can be used for lead end assemblies.



Connector dispenser Part Number 677463-1. The dispenser accepts the Micro-MaTch standard reels (2500 pcs/reel). It automatically removes the pre-set connector quantity from the reel and drops it in a separate box. Quantity can easily be programmed by the user.

For complete product information, order Catalog 1307822

AMP-BARREL Terminals

Product Facts

- Unique insulation displacement technology
- Eliminates wire preparation—no stripping or soldering
- Capable of being wave-soldered to pc board with other components, enabling wires to be terminated at a more conducive time and location
- Anti-solder wicking design
- Accepts a wide range of wire sizes, solid or stranded
- Available in single and two-wire version
- Reusable terminal
- Available in loose-piece or strip version
- Semiautomatic insertion machine for strip version
- Simple, rugged low cost wire insertion tool
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476



Technical Documents:

Product Specifications

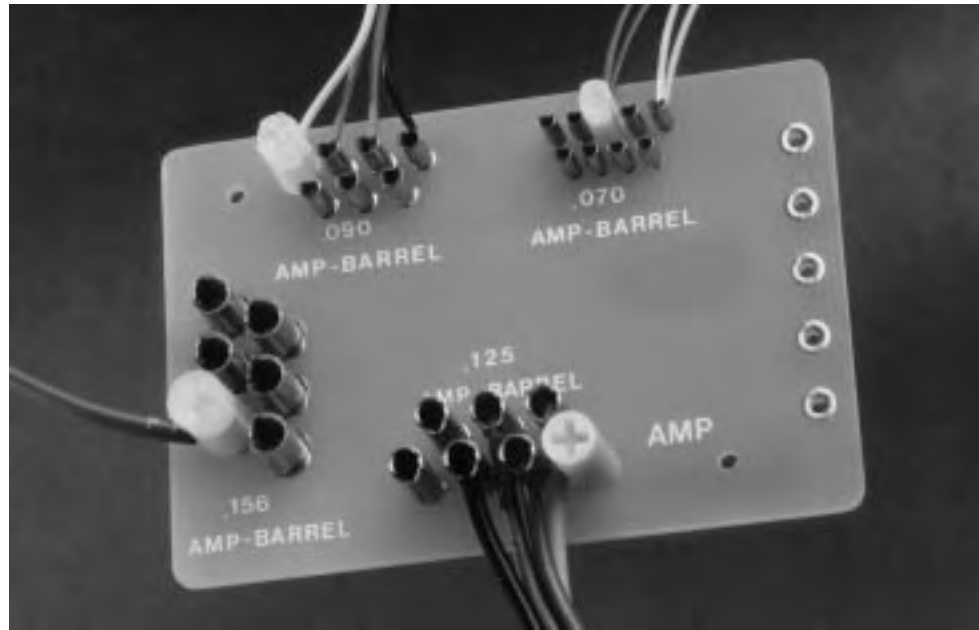
108-6043 .070 [1.78] Diameter Terminal
 108-6044 .090 [2.29] Diameter Terminal
 108-6025 .125 [3.18] Diameter Terminal
 108-6026 .156 [3.96] Diameter Terminal

Application Specification

114-6000 AMP-BARREL Terminals

Instruction Sheets

408-3187, 408-6505, 408-6553



AMP-BARREL Terminals solve the problem of interconnecting discrete wires to printed circuit boards without permanently soldering them in place, and provide cost savings by eliminating the need for two-piece terminal systems, terminal strips or expensive space-consuming modular connectors.

These unique insulation displacement terminals are suitable for most printed circuit boards from .047 [1.19] to .125 [3.18] thick and are mounted in a space-saving, free-standing manner wherever required.

AMP-BARREL Terminals are available in loose piece or strip form for semiautomatic machine insertion. Upon insertion, they may be hand or wave-soldered with other components without solder wicking into the wire termination area.

Termination is achieved by placing the end of a pre-cut unstripped wire horizontally to the board at the top of the AMP-BARREL Terminal. Insertion to the proper depth is accomplished by the use of a simple, low-

cost screwdriver type tool or low cost plastic stuffer cap. These caps use a standard Phillips type screwdriver to terminate the wire. When left in place on the terminal they provide strain relief and insulation. They may be removed and reused for field changes and/or repairs. The high compliancy of the terminal provides for a highly reliable, stable interconnection and withstands most extreme temperature, vibration and shock.

AMP-BARREL Terminals offer the added benefit of accepting a wide wire range, solid or stranded, within the same terminal. The .125 [3.18] diameter AMP-BARREL Terminal accepts a wire range of 28-18 AWG [0.08-0.8 mm²] with a maximum insulation diameter of .086 [2.18]. It is made of high strength, high ductility, pre-tinned phosphor bronze and accepts one or two wires of the same type that may vary in size by one wire gage. The C-shaped cross-slot provides for a reliable two-wire termination.

This product also offers a wire cutoff version which allows the wire to be placed across the top of the terminal where the hand tool terminates and trims the wire in one action.

Similarly constructed, but of smaller size, are the .070 [1.78] and .090 [2.29] diameter AMP-BARREL Terminals. These terminals accept, respectively, wire sizes of 28-26 AWG [0.08-0.15 mm²] with a maximum insulation diameter of .036 [0.91] and 28-22 AWG [0.08-0.4 mm²] with a maximum insulation diameter of .053 [1.35]. They also will accept two wires of the same gage and type.

The .156 [3.96] diameter AMP-BARREL Terminal accepts a wire range of 24-18 AWG [0.2-0.8 mm²] with a maximum insulation diameter of .115 [2.92]. It is made of tin-lead plated brass and will accept one wire per terminal.

All AMP-BARREL Terminals are reusable. This feature is extremely important when correcting wiring errors, making field repairs or modifications.

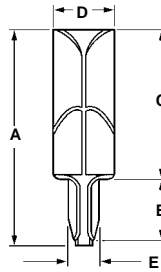
For complete product information, order Catalog 82159

AMP-BARREL Terminals

.070 [1.78] and .090 [2.29] Terminals

Material and Finish:

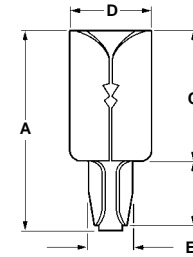
Pretinned phosphor bronze



.156 [3.96] Terminals

Material and Finish:

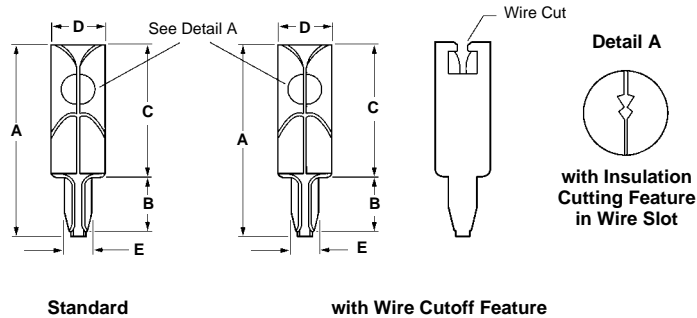
Tin-lead plated brass



.125 [3.18] Terminals

Material and Finish:

Pretinned phosphor bronze



Standard

with Wire Cutoff Feature

Terminal Size	Conductor (solid or stranded)			PC Board		Terminal Dimensions					Part Numbers		
	Wire Size Range AWG	mm ²	Max. Ins. O.D.	Wire per Terminal	Thk. Range	Mtg. Hole Dia.	A	B	C	D	E	Loose Pc.	Strip
.090 2.29	28-22	0.08-0.4	.053 1.35	1 or 2	.047-.094	.050-.054	.340	.120	.210	.090	.056	552967-1	—
					1.19-2.39	1.27-1.37	8.64	3.05	5.33	2.24	1.42		
.125 3.18 Standard	28-18	0.08-0.8	.086 2.18	1 or 2	.062-.094	.061-.065	.458	.118	.325	.125	.067	552699-1*	—
					1.57-2.39	1.55-1.65	11.63	3.00	8.26	3.18	1.70		
					.062-.094	.061-.065	.458	.118	.325	.125	.067	—	552699-4
1.57-2.39	1.55-1.65	11.63	3.00	8.26	3.18	1.70							
.156 3.96	24-18	0.2-0.8	.115 2.92	1	.062-.094	.078-.082	.390	.125	.250	.156	.084	552770-1	—
					1.57-2.39	1.98-2.08	9.91	3.18	6.35	3.96	2.13		

*Has tough insulation cutting feature in wire slot (see Detail A in illustration). These barrels are not recommended for smaller standard wires.

**Cutoff is adjustable depending on board thickness.

- Notes:**
- .070 [1.78] and .090 [2.29] terminals accept two wires of the same gage and type.
 - The .125 [3.18] terminal accepts two wires of the same type that may vary in size by one wire gage.
 - .070 [1.78] and .090 [2.29] terminals have a solder resist material on the inside of barrel which prevents solder wicking.

Wire Stuffer Caps

Product Facts

- Insulates
- Provides strain relief
- Acts as field service repair tool

Material and Finish:

Thermoplastic



Wire Size Range AWG	mm ²	Color	For Use With Terminal Part Numbers	Wire Stuffer Cap Part Numbers
28-22	0.08-0.4	Natural	552967	553594-1
22-18	0.4-0.8	Yellow	552699	230707-1
28-24	0.08-0.2	Natural	552699	230707-3
24-18	0.2-0.8	Natural	552770	553595-1

For complete product information, order Catalog 82159

Test Probe Receptacles

Product Facts

- Leg mounts are "V" shaped to promote solder wicking and consistent fillets
- Receptacle is recessed in housing to prevent shorting or flashover
- Probe may be inserted in either end of test probe receptacle, except Type C
- Housing color is molded, not dyed
- Accepts $.080 \pm .001$ [2.03 \pm 0.025] probes



The Tyco Electronics line of Test Probe Receptacles is designed to provide low-cost test probe capability of circuits on pc boards, without interruption of operating currents, with precise reliability.

Receptacles are available with either two or three mounting

legs. Two legs of a tri-leg mount are not part of the live testing circuit. Receptacles are also available either in the standard height, or in a taller height (to permit probing at any position on the board where clearance to probe is necessary). The three-leg mount gives

maximum stability. The two-leg mount yields maximum density.

The present line of test probe receptacles fits a range of board thicknesses from 1/32 to 1/8 depending on the length of the receptacle legs. The legs mount in .052 [1.32] diameter holes.

Material and Finish:

Housing—Nylon type 6/6

Contact—Beryllium copper

Receptacle and Legs—Brass, ASTM B36, Alloy 6

Contact Plating—See table below

Technical Document:

Product Specification

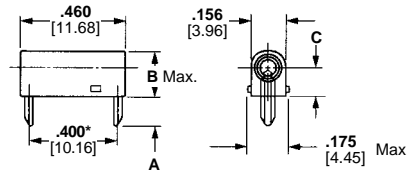
108-1082 Receptacle, Test Probe

Performance Characteristics:

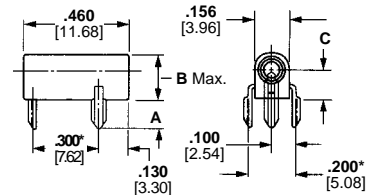
Insulation Resistance — 10,000 megohms

Retention Value — 16 oz. [4.45 N]

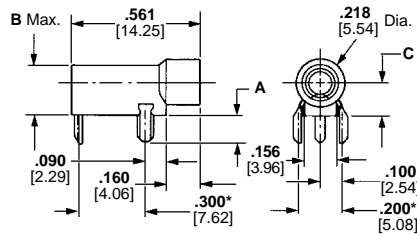
Operating Temperature — 55°C to 85°C



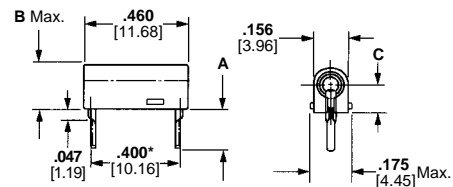
Type A



Type B



Type C



Type D

*Mounting hole location for .050-.054 [1.27-1.37] dia. holes.

Color Suffix Table

Suffix Dash Number	Housing Color
-0	Black
-1	Brown
-2	Red
-3	Orange
-4	Yellow
-5	Green
-6	Blue
-7	Violet
-8	Gray
-9	White

Type	Contact Finish	Dimensions			Housing Colors	Part Numbers**	
		A	B	C			
A	Bright Tin-Lead	.130 3.30	.230 5.84	.138 3.51	See Table	1-582118-x	
		Silver	.130 3.30	.230 5.84	.138 3.51	See Table	2-582118-x
			Gold	.130 3.30	.230 5.84	.138 3.51	See Table
B	Gold	.130 3.30	.467 11.86	.375 9.53	See Table	3-582340-x	
		.130 3.30	.230 5.84	.138 3.51	See Table	3-582119-x	
C	Gold	.130 3.30	.230 5.84	.138 3.51	See Table	350180-x	
		.180 4.57	.230 5.84	.138 3.51	See Table	1-380736-x	
D	Bright Tin-Lead	.180 4.57	.230 5.84	.138 3.51	See Table	1-380736-x	
		.180 4.57	.230 5.84	.138 3.51	Green	3-380736-5	

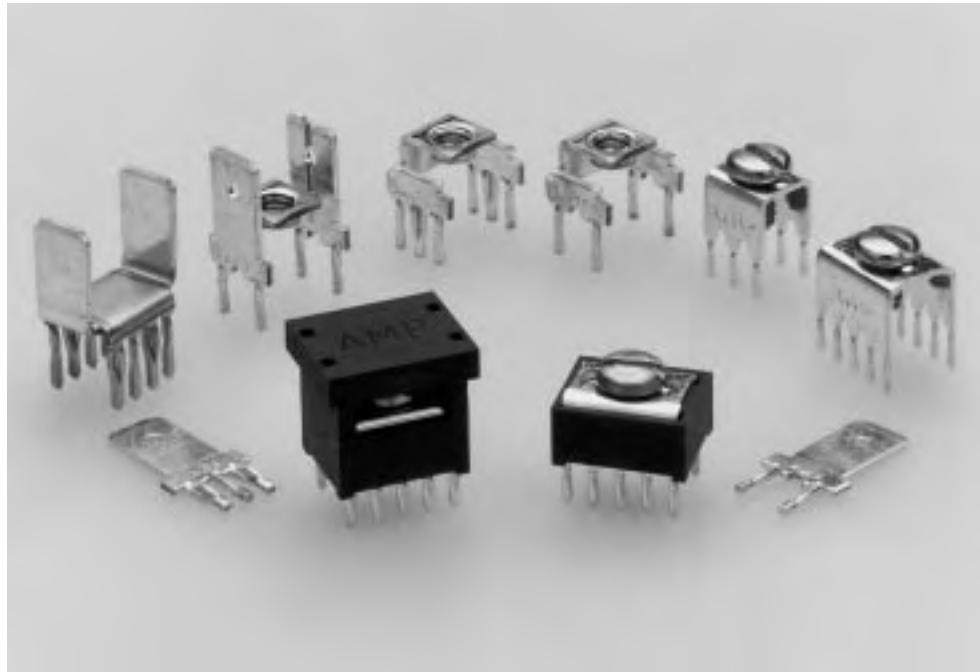
**Part numbers with a numerical suffix are only for the specific color listed in the chart.

For complete product information, order Catalog 82159

Power Taps

Product Facts

- ACTION PIN contacts eliminate soldering
- Provides high current, separable connection to pc board traces
- Wire-to-board connection using common terminals
- All metal-to-metal assembly for long-term integrity
- Standard DIP outlines (.300 x .100 [7.62 x 2.54]), 10 positions, and .250 x .125 [6.35 x 3.18], 6 and 10 positions, plus high current versions on .400 x .200 [10.16 x 5.08] footprint in 4 and 6 positions, .300 x .100 [7.62 x 2.54] in 8 positions, and both 2 and 3 position in-line .100 [2.54] tab taps
- Low resistance interface
- Internally threaded tap to secure screw to terminal
- Anti-rotational embossments hold wire and terminal in place
- Standard Power Taps rated at 2.5 amps per pin—6 position 15 amps, 10 position 25 amps current carrying capability
- High Current Power Taps rated at up to 5 amps per pin—2 position 10 amps, 3 position 15 amps, 4 and 6 position 20 amps and 8 position 40 amps



AMP Power Taps are designed for the growing need for power to printed circuit board applications required in today's electronic industry. The taps provide a high current, separable connection to a pc board. Pin configuration is of the standard DIP outline with .300 x .100 [7.62 x 2.54] or .250 x .125 [6.35 x 3.18] for the Standard versions, plus .400 x .200 [10.16 x 5.08], .300 x .100 [7.62 x 2.54] and in-line spacing for the High Current versions.

ACTION PIN contacts provide a low resistance interface with tin-plated through holes in the pc board, thereby eliminating the need for soldering.

The variety of available power taps allow for various installation schemes. The Uninsulated Tap and Low Profile Tap can be used in bus bar pattern. The High Profile and Low Profile Taps offer insulation protection from other components. The High Current versions provide a greater power

density option with current ratings from 10 amps on the 2 position in-line .250 [6.35] tab tap up to 40 amps on the 8 position dual .250 [6.35] tab tap.

All AMP Power Tap configurations are easily inserted into the pc board with a simple Tyco Electronics or customer supplied tool.

For complete product information, order Catalog 82159

Standard Power Taps

Standard Insulated Power Taps

Material and Finish:

Connector Body and Lid—Nylon, 105°C, 94V-0 rated

Contact—Copper alloy, bright tin-lead plated

Screw—Plated steel

Electrical and Mechanical Characteristics:

Resistance—2 milliohms, max. (stud hole to ACTION PIN contact)

Insertion Force—40 lbs. [177.9 N], max. per pin

Retention Force—7 lbs. [31.1 N], min. per pin

Technical Documents:

Product Specification

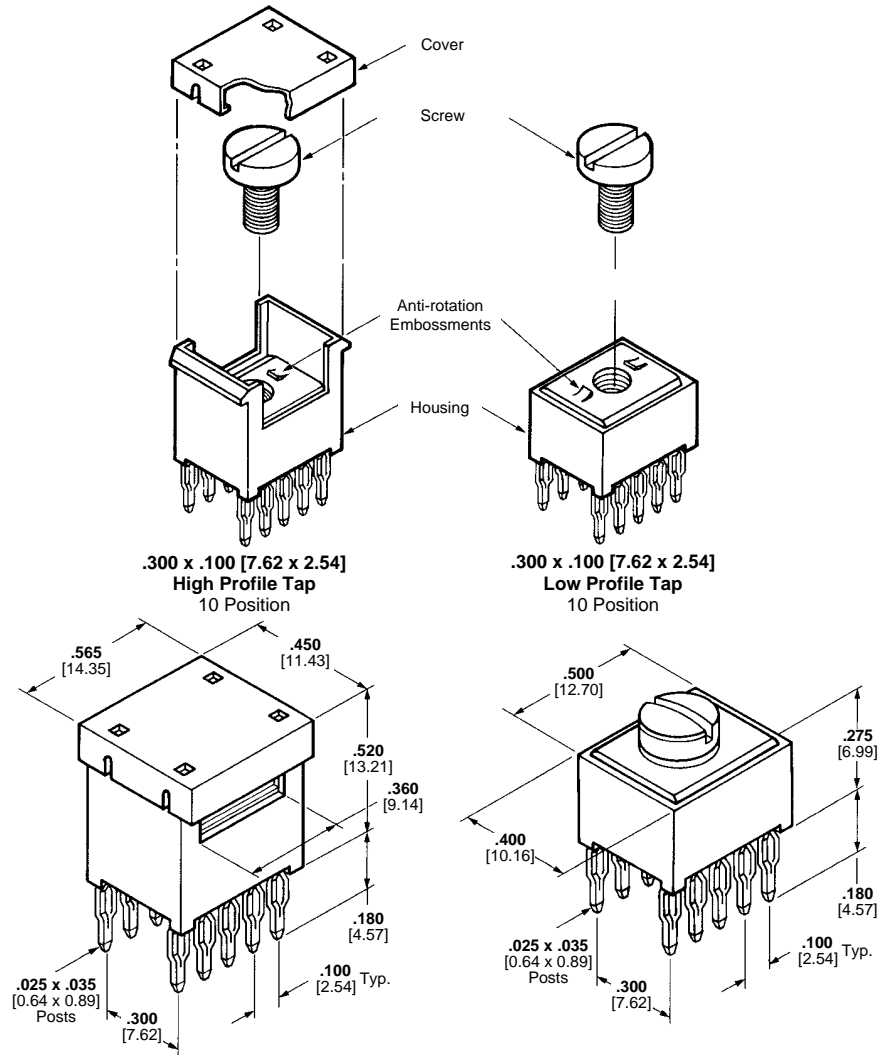
108-11030 Tap, Power Distribution

Application Specification

114-11000 Tap, Power Distribution

Handbook

5697 Guide to Application of ACTION PIN Connectors



No. of Positions	Tap Version	Pcb Thickness	Description	Screw Hole Size	Part Numbers
10	High Profile	.062-.125 1.57-3.18	Housing and contact assembled without screw ¹	6-32	55557-3
	High Profile	.062-.125 1.57-3.18	Housing and contact assembled with screw ^{1,2}	6-32	55557-4
	Low Profile	.062-.125 1.57-3.18	Housing and contact assembled with screw ²	6-32	55556-4
	Low Profile	.062-.125 1.57-3.18	Housing and contact assembled with screw ^{2,3}	6-32	55673-2
	Low Profile	.062-.125 1.57-3.18	Housing and contact assembled without screw	6-32	55556-3
	Low Profile	.062-.125 1.57-3.18	Housing and contact assembled without screw	M4	55556-9
6	Low Profile	.062-.125 1.57-3.18	Housing and contact assembled with screw ²	4-40	796131-2

¹ Cover not assembled

² Screw not assembled

³ No anti-rotational embossments

For complete product information, order Catalog 82159

Standard Power Taps

Standard Uninsulated Power Taps

Material and Finish:

Contact—Copper alloy, post plated bright tin-lead

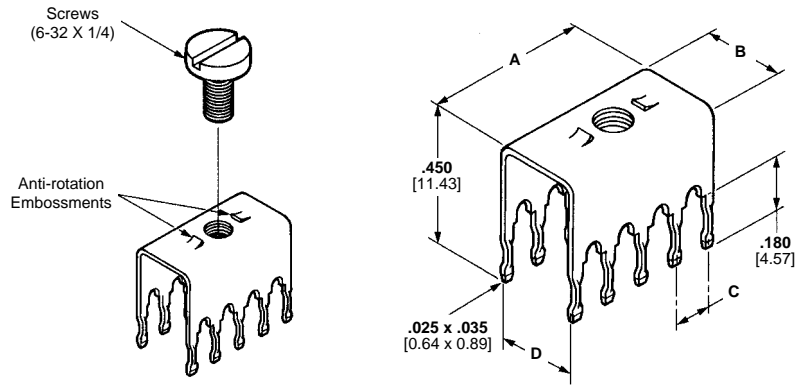
Screw—Stainless steel, passivated

Electrical and Mechanical Characteristics:

Resistance—2 milliohms, max. (stud hole to ACTION PIN contact)

Insertion Force—40 lbs. [177.9 N] max. per pin

Retention Force—7 lbs. [31.1 N] min. per pin



Size	Pcb Thickness	Dimensions				Description	Screw Size	Part Numbers
		A	B	C	D			
.300 x .100 7.62 x 2.54 10 Position	.062-.125 1.57-3.18	.440	.325	.100	.300	Without Screw	6-32	55558-3
		11.18	8.26	2.54	7.62	With Screw	6-32	55558-4
.250 x .125 6.35 x 3.18 6 Position	.062-.125 1.57-3.18	.320	.275	.125	.250	Without Screw	6-32	55323-5
		8.13	6.99	3.18	6.35	With Screw	6-32	55323-9
.250 x .125 6.35 x 3.18 10 Position	.062-.125 1.57-3.18	.570	.275	.125	.250	Without Screw	6-32	55323-6
		14.48	6.99	3.18	6.35			

¹ No Anti-rotation Embossments

High Current Power Tap

6 Position High Current* Power Tap *Up to 20 amps

Material and Finish:

Contact—Phosphor bronze, tin-lead plated

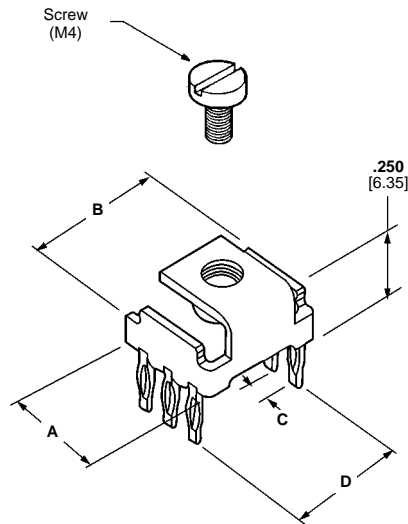
Screw—Stainless steel, passivated

Electrical and Mechanical Characteristics:

Current Rating—20 amperes max.

Insertion Force—40 lbs. [180 N] max. per pin

Retention Force—7 lbs. [30 N] min. per pin



Size	Pcb Thickness	Dimensions				Description ¹	Part Number
		A	B	C	D		
6 Position	.062-.125 1.57-3.18	.358	.431	.100	.400	With Screw	213816-1
		9.09	10.95	2.54	10.16		

¹ No Anti-rotation Embossments featured on High Current Taps. Therefore, if application requires, use of Bellville lockwashers with a high surface contact area are strongly recommended.

For complete product information, order Catalog 82159

High Current* Power Taps

8 Position Dual .250 Tab Taps (with ACTION PIN Posts)

*Up to 5 amps per pin

Material and Finish:

Contact—Phosphor bronze, post plated tin-lead

Screw—Stainless steel, passivated

Washer—Stainless steel

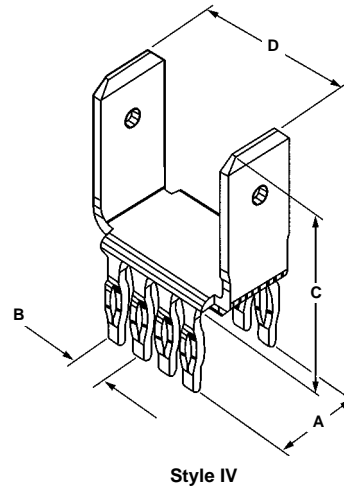
Electrical and Mechanical Characteristics:

Current Rating—5 amps max. per pin

Insertion Force—40 lbs. [180 N] max. per pin

Related Product Data:

Mates with — .250 FASTON Receptacles



Style	Pcb Thickness	Dimensions				Tab Configuration	Part Number	Mates With
		A	B	C	D			
IV	.125 3.18	.300 7.62	.100 2.54	.485 12.32	.500 12.7	Two .250 x .032 6.35 x 0.81 Tabs With Dimple	167892-2 ¹ 167892-3	FASTON Receptacles

¹ Selective tin-lead plating on mating surface of both tabs.

Insertion Tooling

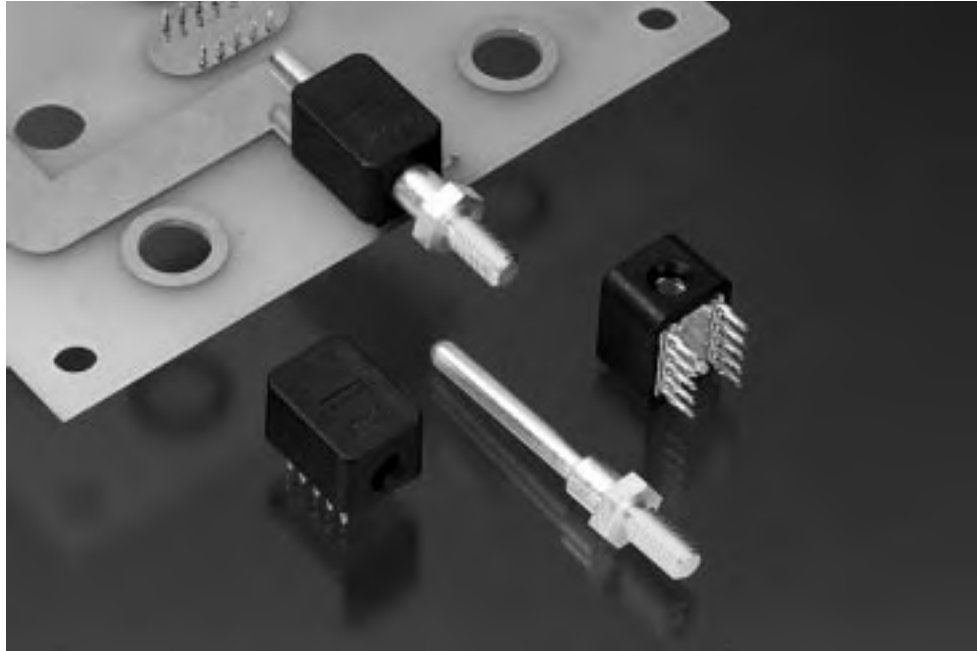
Manual Arbor Tool

Part Number	Upper Tool	Lower Tool
677430-1	432849-1	433600-2 or 432130-2

For complete product information, order Catalog 82159

Product Facts

- Excellent for power distribution
- To be used for board-to-board and board-to-bus bar applications
- Louvertac high current contact used in receptacle
- Receptacle fits onto standard DIP .300 x .100 footprint
- Press-fit receptacle needs simple "flat-rock" tooling to install
- Accommodates board thickness from .054 to .125
- Insulation body rated 105°C, 94V-0
- Blind mate capability (tolerance $\pm .125$ in X and Y axes)
- Perpendicular board stacking



The AMP Right-Angle Power Tap connector provides a high current power distribution system, which gives reliable, consistent performance while allowing quick connect/disconnect of motherboard/daughtercard and bus bar/board combinations. Applications are found primarily in the networking and mass storage industries.

Designed with ACTION PIN contacts, each Right-Angle Power Tap connector has a 10 pin DIP footprint for convenient, industry standard mounting to .300 x .100 dimensions. A discrete pin and discrete socket are mounted on opposing halves (receptacles mounted on printed circuit boards, pins mounted on either printed circuit boards or bus bars) providing perpendicular board-to-board or board-to-bus bar mating. The Tap is insulated to provide shorting protection from other components and is easily

inserted into the printed circuit board using simple, AMP Electric Servo Presses or customer supplied "flatrock" tooling.

Each Right-Angle Power Tap receptacle incorporates the highly reliable Louvertac contact for high current carrying capacity.

Technical Documents:

Application Specification
114-11000

For complete product information, order Catalog 82159

Receptacle Assembly

10 Position

Part Number 580132-1

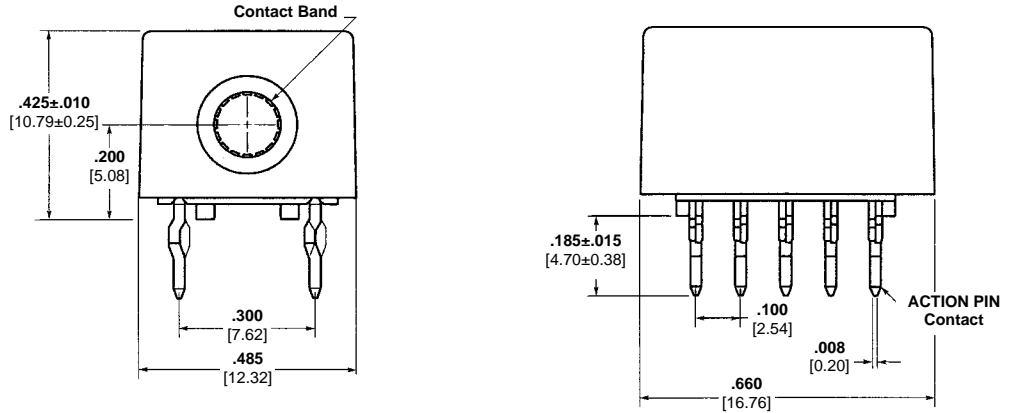
Material:

Connector Body — Polyester, 105°C, 94V-0 rated

Contact — Phosphor bronze, silver plated

Related Product Data:

Mates With — Threaded Power Pin (below)

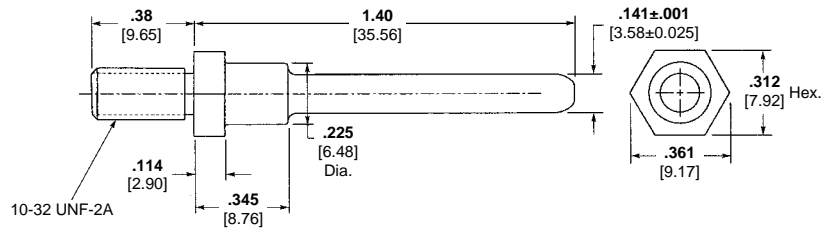


Threaded Power Pin

Part Number 580133-5

Material:

Brass, silver plated





For complete product information, order Catalog 82159

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Application Tooling	3109



Product Facts

- Designed for high speed applications
- Provides controlled impedance
- Low inductance
- High density
- Superior electrical performance down to 250 picosecond rise times
- 40 high speed signal lines per inch
- Daughtercard-to-motherboard stacking connectors available in sizes of 40 to 240 positions
- Custom stacking heights available: between 10.92 [.430] and 18.75 [.738] or 31.12 [1.225] and 38.94 [1.533]
- Cable-to-board system available in sizes of 40 to 120 positions
- Vertical and right-angle board mount receptacles for cable connectors
- Connector housings are polarized
- Board mount connectors are compatible with standard through-hole flow solder and vapor phase reflow solder processes
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



AMP Micro-Strip connectors are a high density, controlled impedance connector family compatible with the requirements of high density and high speed data transmission technologies.

Each signal line within the mated connector is located at a specific distance from an integral, separable bus bar serving as a ground plane in a micro-strip configuration. The selection of housing dielectric, spacing from signal contact-to-ground plane and conductor geometry provide a specific

characteristic impedance plus very low inductance and capacitance.

Discontinuities resulting from connector structure and solder interfaces are dimensionally small and therefore appear transparent to high speed signals. Both vertical and right-angle board-to-board and cable-to-board connector versions share a nominal impedance of 50 ohms.

Each one inch length of connector houses two electrically isolated high current contacts. When soldered to the PC board

ground plane, that ground plane is extended through the mated connector.

Resistance is minimized by a large contact area and short electrical length, providing signal return paths with negligible ground loop voltages. Since signal return is via the bus bars, signal-ground-signal alternation, common to high speed applications, becomes unnecessary. All contacts can be dedicated to signal transmission, effectively doubling connector density.

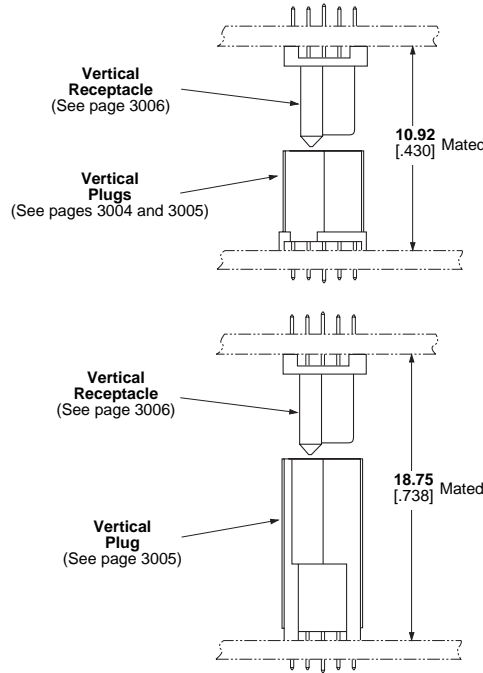
For complete product information, order Catalog 65194

Vertical Board-to-Board Stacking Applications

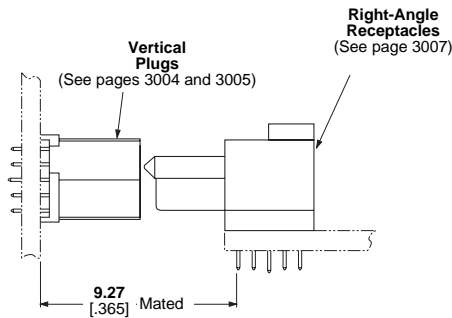
Performance Characteristics:

Connector Impedance—
50 ohms $\pm 10\%$ at 1 ns

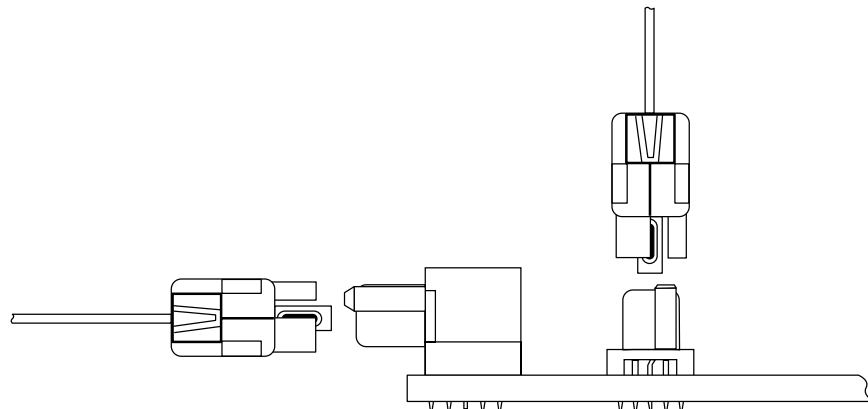
Configuration — 2.54 [.100]
signal row-to-signal row,
1.27 [.050] signal-to-ground,
1.27 [.050] signal-to-signal



Right-Angle Board-to-Board Application



Vertical and Right-Angle Cable-to-Board Applications (Ref. AMP Catalog 65069, Micro-Strip Cable Assemblies)



For complete product information,
order Catalog 65194

Vertical Plugs (Board-to-Board)

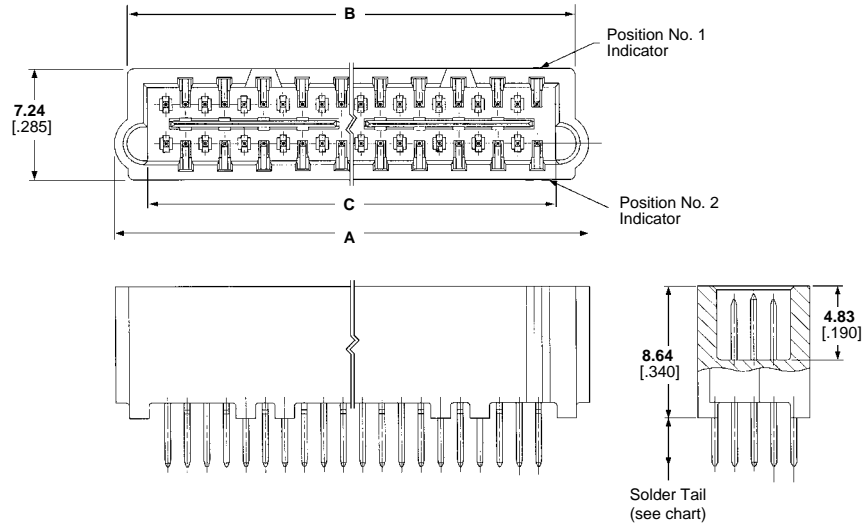
10.92 [.430] Stacking Height

Material and Finish:

Housing — High-temperature thermoplastic, flame retardant, natural color

Bus Bar — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire bus underplated 0.00127 [.000050] nickel

Signal Pin — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire contact underplated 0.00127 [.000050] nickel



Related Product Data:

Performance Characteristics — page 3003

Mating Receptacles — pages 3006 and 3007

Technical Documents:

Product Specification
108-1272

Application Specification
114-11005

Electrical Performance Report
82833

No. of Positions	Dimensions			Part Numbers		
	A	B	C	2.41 [.095] Solder Tail	3.18 [.125] Solder Tail	4.70 [.185] Solder Tail
40	30.84 1.214	29.08 1.145	26.62 1.048	536280-1	536272-1	536273-1
60	43.54 1.714	41.78 1.645	39.32 1.548	536280-2	536272-2	—
80	56.24 2.214	54.48 2.145	52.02 2.048	536280-3	536272-3	536273-3
100	68.94 2.714	67.18 2.645	64.72 2.548	536280-4	536272-4	536273-4
120	81.64 3.214	79.88 3.145	77.42 3.048	536280-5	536272-5	536273-5
140	94.34 3.714	92.58 3.645	90.12 3.548	536280-6	536272-6	—
160	107.04 4.214	105.28 4.145	102.82 4.048	536280-7	536272-7	—
180	119.74 4.714	117.98 4.645	115.52 4.548	536280-8	536272-8	—
200	132.44 5.214	130.68 5.145	128.22 5.048	536280-9	536272-9	—
220	145.14 5.714	143.38 5.645	140.92 5.548	1-536280-0	—	—
240	157.84 6.214	156.08 6.145	153.62 6.048	1-536280-1	—	—

For complete product information, order Catalog 65194

Vertical Plugs (Board-to-Board)

18.75 [.738] Stacking Height

Material and Finish:

Housing — High-temperature thermoplastic, flame retardant, natural color

Bus Bar — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire bus underplated 0.00127 [.000050] nickel

Signal Pin — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire contact underplated 0.00127 [.000050] nickel

Related Product Data:

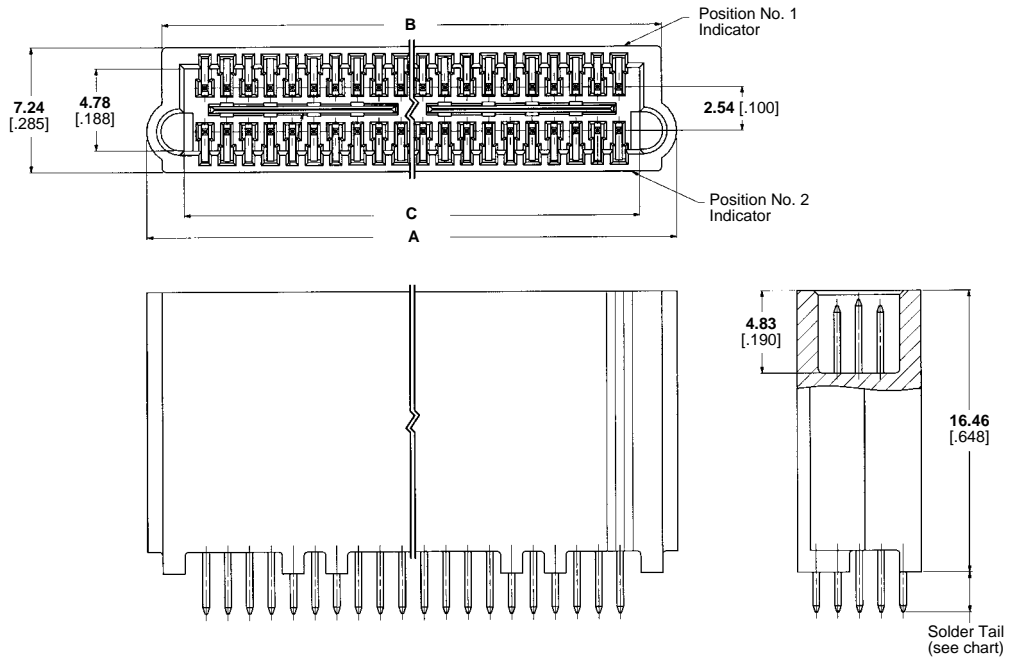
Performance Characteristics — page 3003

Mating Receptacles — pages 3006 and 3007

Technical Documents:

Product Specification
108-1272

Application Specification
114-11005



No. of Positions	Dimensions			Part Numbers		
	A	B	C	2.41 [.095] Solder Tail	3.18 [.125] Solder Tail	4.70 [.185] Solder Tail
40	30.84 1.214	29.21 1.150	26.62 1.048	149009-1	149011-1	149012-1
60	43.54 1.714	41.91 1.650	39.32 1.548	149009-2	149011-2	149012-2
80	56.24 2.214	54.61 2.150	52.02 2.048	149009-3	149011-3	149012-3
100	68.94 2.714	67.31 2.650	64.72 2.548	149009-4	149011-4	149012-4
120	81.64 3.214	80.01 3.150	77.42 3.048	149009-5	149011-5	149012-5
140	94.34 3.714	92.71 3.650	90.12 3.548	149009-6	149011-6	149012-6
160	107.04 4.214	105.41 4.150	102.82 4.048	149009-7	149011-7	149012-7
180	119.74 4.714	118.11 4.650	115.52 4.548	149009-8	149011-8	149012-8
200	132.44 5.214	130.81 5.150	128.22 5.048	149009-9	149011-9	149012-9

For complete product information, order Catalog 65194

Vertical Receptacles (Board-to-Board)

Material and Finish:

Housing — High-temperature thermoplastic, flame retardant, natural color

Receptacle Bus — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire bus underplated 0.00127 [.000050] nickel

Receptacle Contact — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire contact underplated 0.00127 [.000050] nickel

Related Product Data:

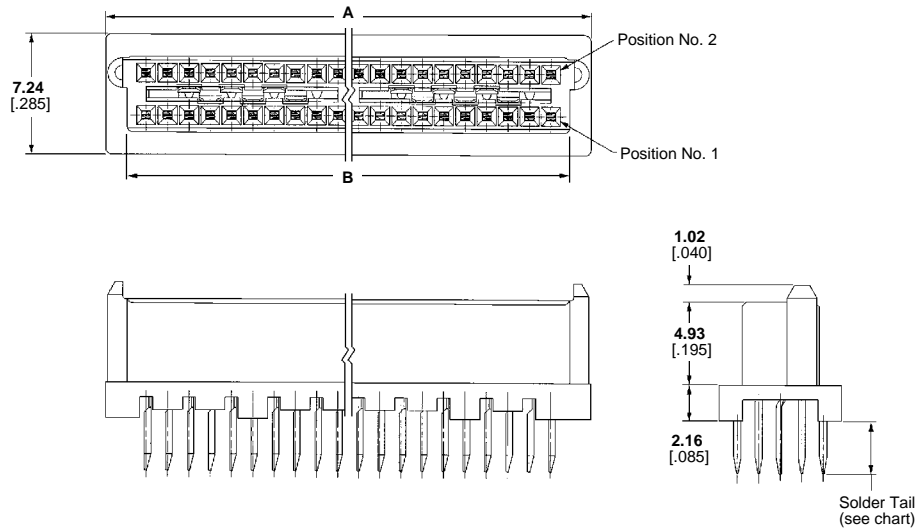
Performance Characteristics — page 3003

Mating Plugs — pages 3004 and 3005

Technical Documents:

Product Specification
108-1272

Application Specification
114-11005



No. of Positions	Dimensions		Part Numbers		
	A	B	2.41 [.095] Solder Tail	3.18 [.125] Solder Tail	4.57 [.180] Solder Tail
40	28.96 1.140	26.34 1.037	536279-1	536254-1	536255-1
60	41.66 1.640	39.01 1.537	536279-2	536254-2	536255-2
80	54.36 2.140	51.74 2.037	536279-3	536254-3	536255-3
100	67.06 2.640	64.44 2.537	536279-4	536254-4	536255-4
120	79.76 3.140	77.14 3.037	536279-5	536254-5	536255-5
140	92.48 3.640	89.84 3.537	536279-6	536254-6	536255-6
160	105.16 4.140	102.54 4.037	536279-7	536254-7	536255-7
180	117.86 4.640	115.24 4.537	536279-8	536254-8	—
200	130.56 5.140	127.94 5.037	536279-9	536254-9	536255-9
220	143.26 5.640	140.64 5.537	1-536279-0	—	—
240	155.96 6.140	153.34 6.037	1-536279-1	—	—

For complete product information, order Catalog 65194

Right-Angle Receptacles (Board-to-Board)

Material and Finish:

Housing — High-temperature thermoplastic, flame retardant, natural color

Receptacle Bus — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire bus underplated 0.00127 [.000050] nickel

Receptacle Contact — Phosphor bronze; duplex plated 0.00076 [.000030] gold in mating area, 0.00254 [.000100] tin-lead in terminating area, with entire contact underplated 0.00127 [.000050] nickel

Related Product Data:

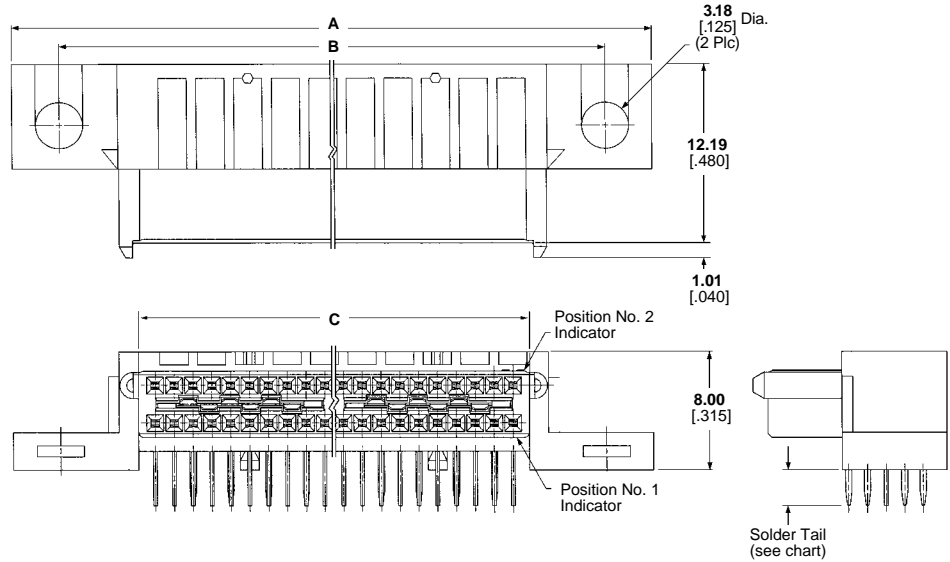
Performance Characteristics — page 3003

Mating Plugs — pages 3004 and 3005

Technical Documents:

Product Specification
108-1272

Application Specification
114-11005



No. of Positions	Dimensions			Part Numbers		
	A	B	C	2.41 [.095] Solder Tail	3.18 [.125] Solder Tail	4.57 [.180] Solder Tail
40	43.18 1.700	36.83 1.450	26.34 1.037	536295-1	536297-1	536299-1
60	55.88 2.200	49.53 1.950	39.04 1.537	536295-2	536297-2	—
80	68.58 2.700	62.23 2.450	51.74 2.037	536295-3	536297-3	536299-3
100	81.28 3.200	74.93 2.950	64.44 2.537	536295-4	536297-4	—
120	93.98 3.700	87.63 3.450	77.14 3.037	536295-5	536297-5	—
140	106.68 4.200	100.33 3.950	89.84 3.537	—	536297-6	536299-6
160	119.38 4.700	113.03 4.450	102.54 4.037	536295-7	536297-7	—
180	132.08 5.200	125.73 4.950	115.24 4.537	—	536297-8	—
200	144.78 5.700	138.43 5.450	127.94 5.037	536295-9	536297-9	—

For complete product information, order Catalog 65194

Product Facts

- 76 dedicated signal lines per linear inch
- Surface mount family designed for parallel and right-angle board-to-board, flex-to-board and cable-to-board configurations
- 0.64 [.025] centerline contact spacing
- Provides 8 levels of mezzanine stacking from 6.60 [.260] to 21.59 [.850]
- Redundant interfaces on mated contacts
- Infrared and forced air convection compatible housing materials
- Designed for 50-ohm systems
- Connector housings polarized for correct mating
- Built-in connector-to-board retention feature
- Various packaging styles can be made available for automated assembly. Consult Tyco Electronics for details
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476
- CSA LR7189



The MICTOR connector family is based on the microstrip concept of two rows of signal contacts divided by a center power ground plane. MICTOR connectors are motherboard and daughtercard compatible and include designs for cable-to-board applications. Various mated heights are available for parallel board-to-board systems. The MICTOR connector family is available in

0.64 [.025] centerlines and in sizes ranging from 38 signal positions to 266 positions (in increments of 38 positions). There is a discrete ground bus every 12.7 [.50] of the connector length, which can be assigned to either power or ground in any combination. Redundant interfaces on every signal line provide added reliability. Two plating options are available to meet the needs of various applications.

The housing material is a liquid crystal polymer, compatible with infrared and forced air convection operations. The connector system maintains a 50-ohm impedance and uses the solid ground bus between the rows of signals to provide low crosstalk and excellent high-speed signal characteristics.

For complete product information, order Catalog 65194

Material and Performance Specifications

Material Specifications

Material

Housing: Liquid crystal polymer, black

Contacts: Copper alloy

Ground Bus: Phosphor bronze

Finish (Gold Plating)

Contacts and Ground Bus: Duplex plated 0.00076 [.000030] min. gold in mating area, 0.00381 [.000150] min. tin-lead on leads, with entire contact and ground bus underplated 0.00178 [.000070] min. nickel

Finish (Palladium-Nickel Plating)

Contacts and Ground Bus: Duplex plated 0.000013 [.000005] min. gold over 0.00076 [.000030] min. palladium-nickel in mating area, 0.00381 [.000150] min. tin-lead on leads, with entire contact and ground bus underplated 0.00178 [.000070] min. nickel

Performance Specifications

Ratings

Voltage: 30 vac

Current: Signal; 1.0 ampere, fully derated*
Ground; 7.6 amperes, fully derated*

Temperature: -55°C to +125°C

*Consult Tyco Electronics for details on current rating.

Electrical Characteristics

Characteristic Impedance: 50±5 ohms at 1 ns

Termination Resistance: ΔR 10 milliohms max.; AMP Specification 109-6-1

Insulation Resistance: 10,000 megohms min.; AMP Specification 109-208-1

Dielectric Withstanding Voltage: 500 vac at sea level; AMP Specification 109-29-1

Mechanical Characteristics

Solderability: Solderable area shall have a 95% min. solder coverage; AMP Specification 109-11-1

Vibration (Random): No discontinuities of 1 μs or longer duration; AMP Specification 109-21-5

Physical Shock: No discontinuities of 1 μs or longer duration; AMP Specification 109-26-1

Durability (Tested to): Mate and unmate samples at a rate of 600 cycles max. per hour. 25 cycles, gold plating; 500 cycles, palladium-nickel plating; AMP Specification 109-27

Contact Retention: 1 lb min.; AMP Specification 109-30

Mating Force: 152 oz max. per 1/2 inch of connector (1 module). Each module equals 38 signal contacts and 1 ground bus; AMP Specification 109-42

Unmating Force: 19 oz min. per 1/2 inch of connector (1 module). Each module equals 38 signal contacts and 1 ground bus; AMP Specification 109-42

Environmental Characteristics

Thermal Shock: Subject mated samples to 5 cycles between -55°C and +125°C; AMP Specification 109-22

Humidity - Temperature Cycling: Subject mated samples to 10 cycles between +25°C and +65°C at 95% RH; AMP Specification 109-23-3, Condition B

Temperature Cycling: Subject mated samples to 1024 cycles between -40°C and +60°C at 2 hours per cycle; AMP Specification 109-75-1

Temperature Life: Subject mated samples to temperature life at +118°C for 792 hours; AMP Specification 109-43

Mixed Flowing Gas: Subject mated samples to environmental class II for 14 days; AMP Specification 109-85-2

For complete product information, order Catalog 65194

MICTOR Connectors Stacking Height Selection Guide (By Receptacle/Plug Combinations)

Plugs	Receptacles	
	Standard Height	Extended Height
6.60 [.260]	<p>Page 3016</p> <p>Receptacle Plug</p> <p>6.60 [.260]</p> <p>Page 3011</p>	<p>Page 3017</p> <p>Receptacle Plug</p> <p>15.62 [.615]</p> <p>Page 3011</p>
9.00 [.354]	<p>Page 3016</p> <p>Receptacle Plug</p> <p>9.00 [.354]</p> <p>Page 3012</p>	<p>Page 3017</p> <p>Receptacle Plug</p> <p>18.00 [.709]</p> <p>Page 3012</p>
10.92 [.430]	<p>Page 3016</p> <p>Receptacle Plug</p> <p>10.92 [.430]</p> <p>Page 3013</p>	<p>Page 3017</p> <p>Receptacle Plug</p> <p>19.94 [.785]</p> <p>Page 3013</p>
12.57 [.495]	<p>Page 3016</p> <p>Receptacle Plug</p> <p>12.57 [.495]</p> <p>Page 3014</p>	<p>Page 3017</p> <p>Receptacle Plug</p> <p>21.59 [.850]</p> <p>Page 3014</p>

For complete product information,
order Catalog 65194

Right angle versions are also available, see pages 3015 and 3018

Vertical Plugs

**6.60 [.260] or 15.62 [.615]
Stacking Height**

Related Product Data:

Material and Finish — page 3009

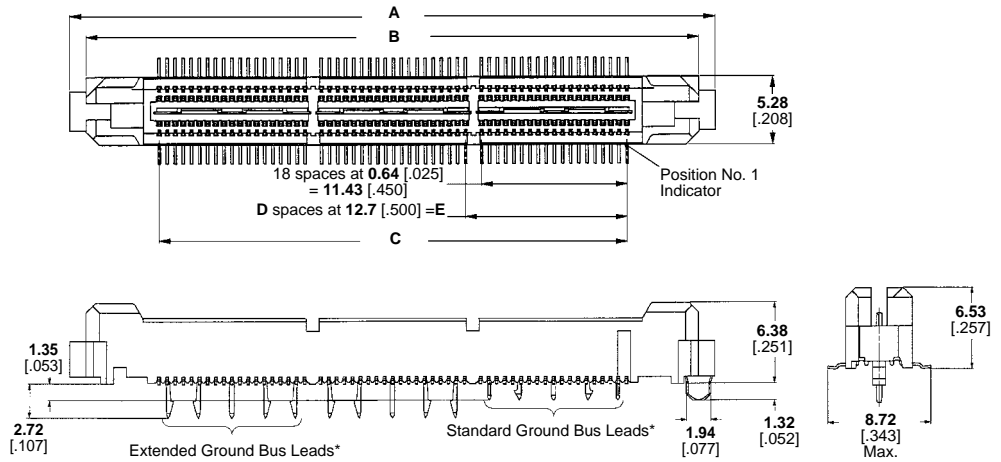
Performance Characteristics —
page 3009

Mating Receptacles — pages
3016 thru 3018. See stacking height
selection guide — page 3010.

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Standard Leads Gold Plating	Extended Leads Palladium-Nickel Plating
38	25.40 1.000	22.81 .898	11.43 .450	0	—	767007-8	767056-1
76	38.10 1.500	35.51 1.398	24.13 .950	1	12.70 .500	767007-9	767056-2
114	50.80 2.000	48.21 1.898	36.83 1.450	2	25.40 1.000	1-767007-0	767056-3
152	63.50 2.500	60.91 2.398	49.53 1.950	3	38.10 1.500	1-767007-1	767056-4
190	76.20 3.000	73.61 2.898	62.23 2.450	4	50.80 2.000	1-767007-2	767056-5
228	88.90 3.500	86.31 3.398	74.93 2.950	5	63.50 2.500	1-767007-3	767056-6
266	101.60 4.000	99.01 3.898	87.63 3.450	6	76.20 3.000	1-767007-4	767056-7

*One ground bus with 5 tails per each 38-position module.

For complete product information, order Catalog 65194

Vertical Plugs

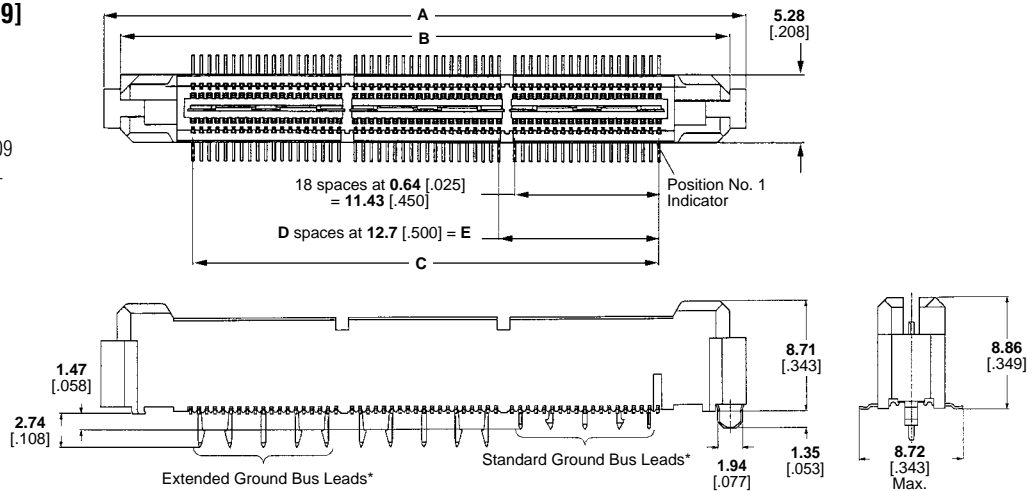
**9.00 [.354] or 18.00 [.709]
Stacking Height**

Related Product Data:

- Material and Finish** — page 3009
- Performance Characteristics** — page 3009
- Mating Receptacles** — pages 3016 thru 3018. See stacking height selection guide — page 3010.

Technical Documents:

- Product Specification** 108-1422
- Application Specification** 114-11004



No. of Positions	Dimensions					Plug Part Numbers	
	A	B	C	D	E	Standard Leads Gold Plating	Extended Leads Palladium-Nickel Plating
38	25.40 1.000	22.81 .898	11.43 .450	0	—	767139-1	767140-1
76	38.10 1.500	35.51 1.398	24.13 .950	1	12.70 .500	767139-2	767140-2
114	50.80 2.000	48.21 1.898	36.83 1.450	2	25.40 1.000	767139-3	767140-3
152	63.50 2.500	60.91 2.398	49.53 1.950	3	38.10 1.500	767139-4	767140-4
190	76.20 3.000	73.61 2.898	62.23 2.450	4	50.80 2.000	767139-5	767140-5
228	88.90 3.500	86.31 3.398	74.93 2.950	5	63.50 2.500	767139-6	767140-6
266	101.60 4.000	99.01 3.898	87.63 3.450	6	76.20 3.000	767139-7	767140-7

*One ground bus with 5 tails per each 38-position module.

For complete product information, order Catalog 65194

Vertical Plugs

**10.92 [.430] or 19.94 [.785]
Stacking Height**

Related Product Data:

Material and Finish — page 3009

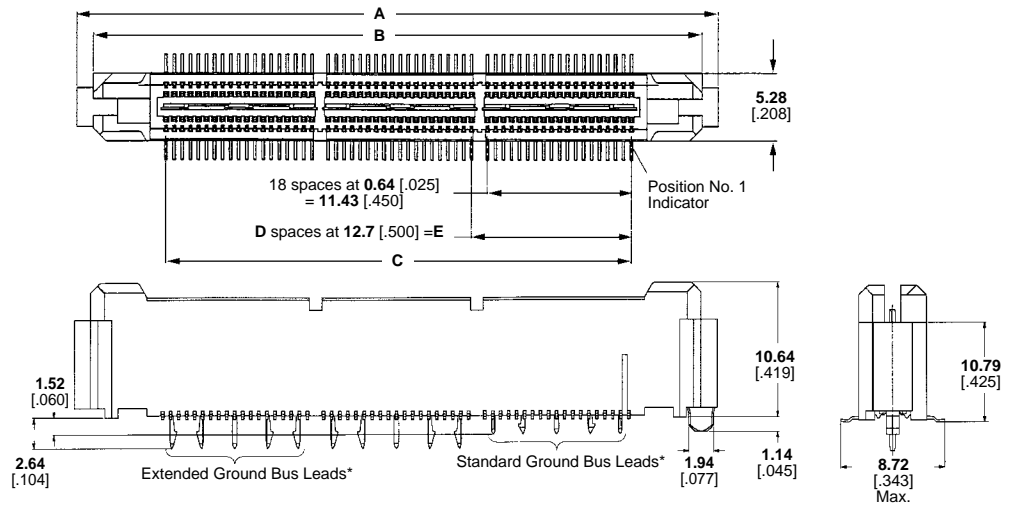
Performance Characteristics —
page 3009

Mating Receptacles — pages
3016 thru 3018. See stacking height
selection guide — page 3010.

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Standard Leads Gold Plating	Extended Leads Palladium-Nickel Plating
38	25.40 1.000	22.81 .898	11.43 .450	0	—	767003-9	767087-1
76	38.10 1.500	35.51 1.398	24.13 .950	1	12.70 .500	1-767003-0	767087-2
114	50.80 2.000	48.21 1.898	36.83 1.450	2	25.40 1.000	1-767003-1	767087-3
152	63.50 2.500	60.91 2.398	49.53 1.950	3	38.10 1.500	767003-8	767087-4
190	76.20 3.000	73.61 2.898	62.23 2.450	4	50.80 2.000	1-767003-2	767087-5
228	88.90 3.500	86.31 3.398	74.93 2.950	5	63.50 2.500	1-767003-3	767087-6
266	101.60 4.000	99.01 3.898	87.63 3.450	6	76.20 3.000	1-767003-4	767087-7

*One ground bus with 5 tails per each 38-position module.



Backplane / High Speed Connectors

For complete product information, order Catalog 65194

Vertical Plugs

**12.57 [.495] or 21.59 [.850]
Stacking Height**

Related Product Data:

Material and Finish — page 3009

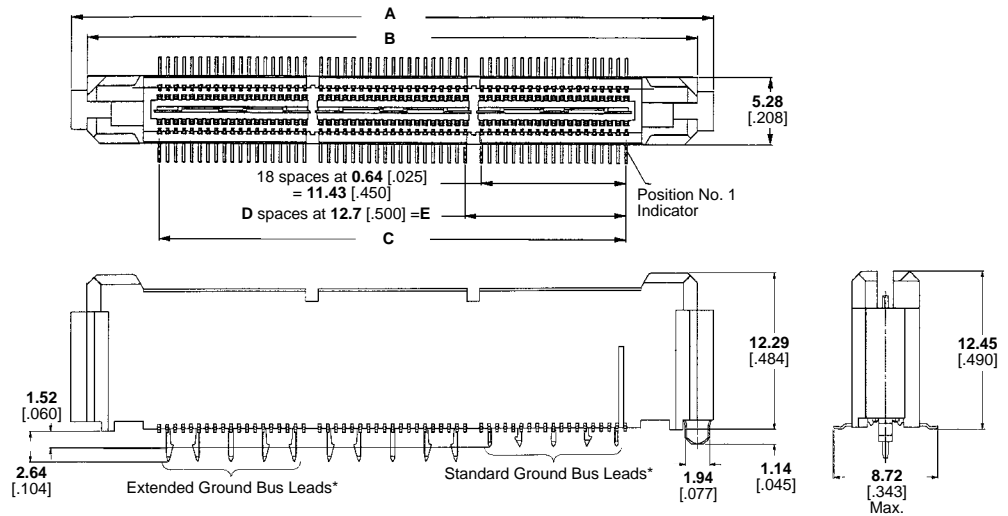
Performance Characteristics —
page 3009

Mating Receptacles — pages
3016 thru 3018. See stacking height
selection guide — page 3010.

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Standard Leads Gold Plating	Extended Leads Palladium-Nickel Plating
38	25.40 1.000	22.81 .898	11.43 .450	0	—	767005-8	767057-1
76	38.10 1.500	35.51 1.398	24.13 .950	1	12.70 .500	767005-9	767057-2
114	50.80 2.000	48.21 1.898	36.83 1.450	2	25.40 1.000	1-767005-0	767057-3
152	63.50 2.500	60.91 2.398	49.53 1.950	3	38.10 1.500	1-767005-1	767057-4
190	76.20 3.000	73.61 2.898	62.23 2.450	4	50.80 2.000	1-767005-2	767057-5
228	88.90 3.500	86.31 3.398	74.93 2.950	5	63.50 2.500	1-767005-3	767057-6
266	101.60 4.000	99.01 3.898	87.63 3.450	6	76.20 3.000	1-767005-4	767057-7

*One ground bus with 5 tails per each 38-position module.

For complete product information, order Catalog 65194

Right-Angle Plugs

Related Product Data:

Material and Finish — page 3009

Performance Characteristics —
page 3009

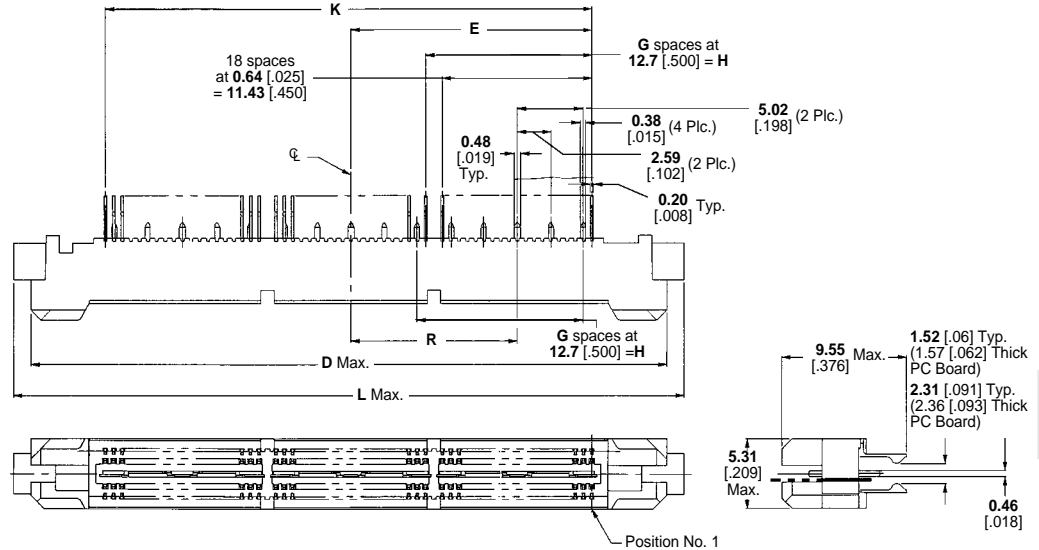
Mating Receptacles — pages
3016 thru 3018

Application Tooling — page 3019

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions							Part Numbers		
	D	E	G	H	K	L	R	1.57 [.062] PC Boards		2.36 [.093] PC Boards
								Gold Plating	Palladium-Nickel Plating	Palladium-Nickel Plating
38	22.81 .898	5.72 .225	0	—	11.43 .450	25.55 .778	—	767006-1	767055-1	767039-1
76	35.51 1.398	12.07 .475	1	12.70 .500	24.13 .950	38.25 1.278	6.35 .250	767006-2	767055-2	767039-2
114	48.21 1.898	18.42 .725	2	25.40 1.000	36.83 1.450	50.95 1.778	12.70 .500	767006-3	767055-3	767039-3
152	60.91 2.398	24.77 .975	3	38.10 1.500	49.53 1.950	63.65 2.278	19.05 .750	767006-4	767055-4	767039-4
190	73.61 2.898	31.12 1.225	4	50.80 2.000	62.23 2.450	76.35 2.778	25.40 1.000	767006-5	767055-5	767039-5
228	86.31 3.398	37.47 1.475	5	63.50 2.500	74.93 2.950	89.05 3.278	31.75 1.250	767006-6	767055-6	767039-6
266	99.01 3.898	43.82 1.725	6	76.20 3.000	87.63 3.450	101.75 3.778	38.10 1.500	767006-7	767055-7	767039-7

For complete product information, order Catalog 65194

Standard Height Vertical Receptacle

Related Product Data:

Material and Finish — page 3009

Performance Characteristics — page 3009

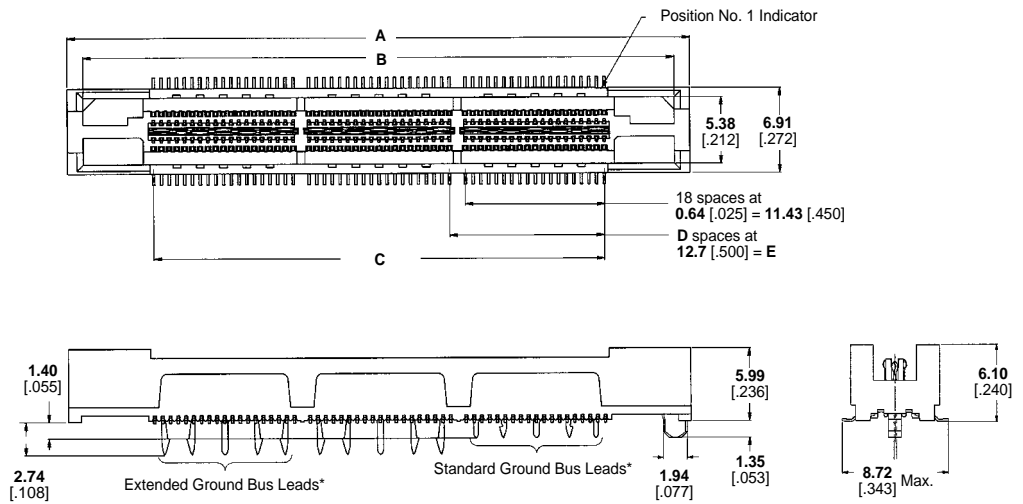
Mating Plug — pages 3011 thru 3015.

See stacking height selection guide — page 3010.

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Standard Leads Gold Plating	Extended Leads Palladium-Nickel Plating
38	25.40 1.000	22.86 .900	11.43 .450	0	—	2-767004-2	767054-1
76	38.10 1.500	35.56 1.400	24.13 .950	1	12.70 .500	2-767004-3	767054-2
114	50.80 2.000	48.26 1.900	36.83 1.450	2	25.40 1.000	2-767004-4	767054-3
152	63.50 2.500	60.96 2.400	49.53 1.950	3	38.10 1.500	2-767004-5	767054-4
190	76.20 3.000	73.66 2.900	62.23 2.450	4	50.80 2.000	2-767004-6	767054-5
228	88.90 3.500	86.36 3.400	74.93 2.950	5	63.50 2.500	2-767004-7	767054-6
266	101.60 4.000	99.06 3.900	87.63 3.450	6	76.20 3.000	2-767004-8	767054-7

*One ground bus with 5 tails per each 38-position module.

For complete product information, order Catalog 65194

Extended Height Vertical Receptacle

Related Product Data:

Material and Finish — page 3009

Performance Characteristics — page 3009

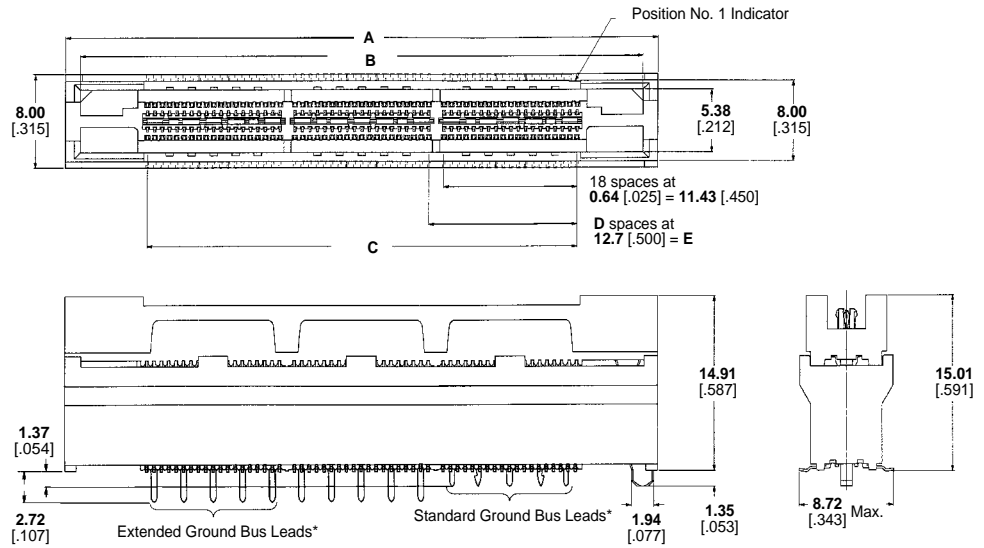
Mating Plugs — pages 3011 thru 3015.

See stacking height selection guide — page 3010.

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Standard Leads Palladium-Nickel Plating	Extended Leads Palladium-Nickel Plating
	38	25.40 1.000	22.86 .900	11.43 .450	0	—	767094-1
76	38.10 1.500	35.56 1.400	24.13 .950	1	12.70 .500	767094-2	767095-2
114	50.80 2.000	48.26 1.900	36.83 1.450	2	25.40 1.000	767094-3	767095-3
152	63.50 2.500	60.96 2.400	49.53 1.950	3	38.10 1.500	767094-4	767095-4
190	76.20 3.000	73.66 2.900	62.23 2.450	4	50.80 2.000	767094-5	767095-5
228	88.90 3.500	86.36 3.400	74.93 2.950	5	63.50 2.500	767094-6	767095-6
266	101.60 4.000	99.06 3.900	87.63 3.450	6	76.20 3.000	767094-7	767095-7

*One ground bus with 5 tails per each 38-position module.



Backplane / High Speed Connectors

For complete product information, order Catalog 65194

Right-Angle Receptacles

Related Product Data:

Material and Finish — page 3009

Performance Characteristics —
page 3009

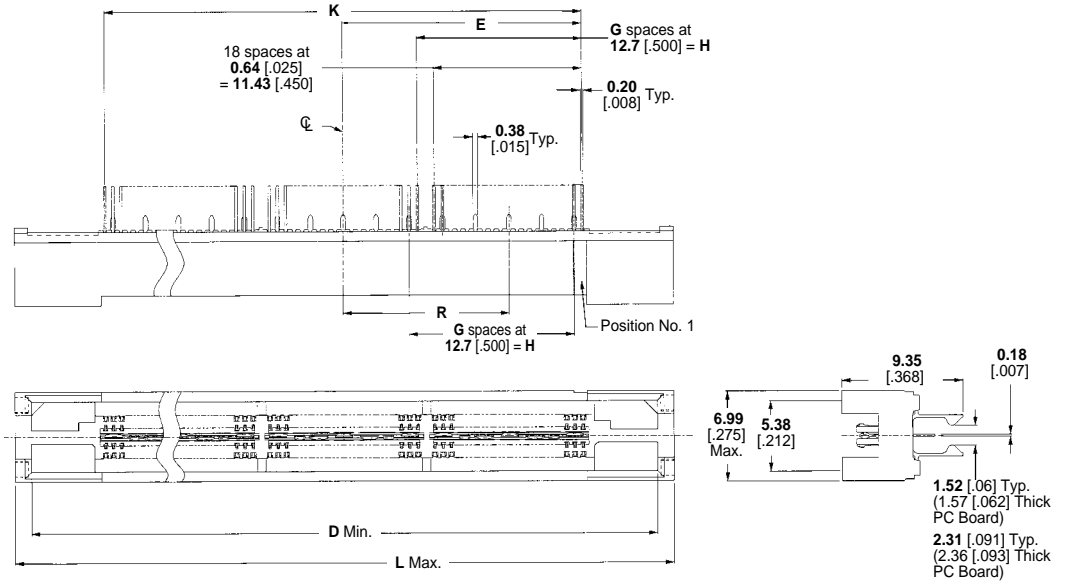
Mating Plugs — pages 3011 thru
3015

Application Tooling — page 3019

Technical Documents:

Product Specification
108-1422

Application Specification
114-11004



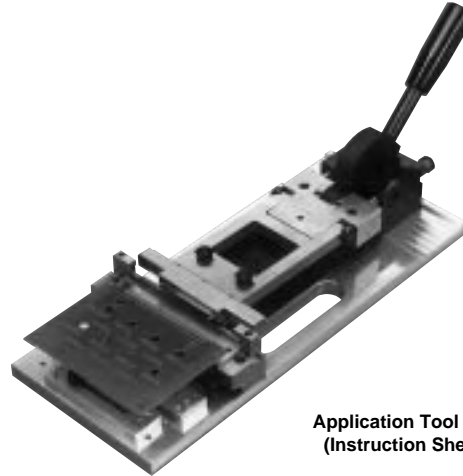
No. of Positions	Dimensions							Part Numbers (Palladium-Nickel Plating) PC Board Thickness	
	D	E	G	H	K	L	R	1.57 [.062]	2.36 [.093]
38	22.86 .900	5.72 .225	0	—	11.43 .450	25.48 1.003	—	767044-1	767089-1
76	35.56 1.400	12.06 .475	1	12.70 .500	24.13 .950	38.18 1.503	6.35 .250	767044-2	767089-2
114	48.26 1.900	18.42 .725	2	25.40 1.000	36.83 1.450	50.88 2.003	12.70 .500	767044-3	767089-3
152	60.96 2.400	24.76 .975	3	38.10 1.500	49.53 1.950	63.58 2.503	19.05 .750	767044-4	767089-4
190	73.66 2.900	31.12 1.225	4	50.80 2.000	62.23 2.450	76.28 3.003	25.40 1.000	767044-5	767089-5
228	86.36 3.400	37.46 1.475	5	63.50 2.500	74.93 2.950	88.98 3.503	31.75 1.250	767044-6	767089-6
266	99.06 3.900	43.82 1.725	6	76.20 3.000	87.63 3.450	101.69 4.003	38.10 1.500	767044-7	767089-7

For complete product information, order Catalog 65194

Application Tooling for Right-Angle Connectors

Two operations must be performed so that MICTOR right-angle plug and receptacle connectors can be successfully installed on a PC board. First, the board must be slit for the ground/bus bar. At the customer's option, this operation may be done at the time of board manufacture. Second, the right-angle connector must be properly placed on the board.

We offer a bench-mount tooling for slitting the PC board (see below) and a free-standing tool for installing the connector (shown at the right). AMP Application Specification No. 114-11004 and Instruction Sheets are available to provide the necessary instructions and recommendations for proper tool use.



Application Tool Number 767511-1
(Instruction Sheet No. 408-4335)

Replacement Components for Tool Number 767511-1

Connector Size (No. of Positions)	Board Locator Pin		Plug Inserter	Receptacle Inserter	Support Pillar
	Round	Diamond			
38	767523-1	767526-1	767514-1	767570-1	767522-1
76	767523-1	767526-1	767514-2	767570-2	767522-1
114	767523-1	767526-1	767514-3	767570-3	767522-1
152	767523-1	767526-1	767514-4	767570-4	767522-1
190	767523-1	767526-1	767514-5	767570-5	767522-1
228	767523-1	767526-1	767514-6	767570-6	767522-1
266	767523-1	767526-1	767514-7	767570-7	767522-1



Slitting Tool Number 767527-1
(Instruction Sheet No. 408-4334)

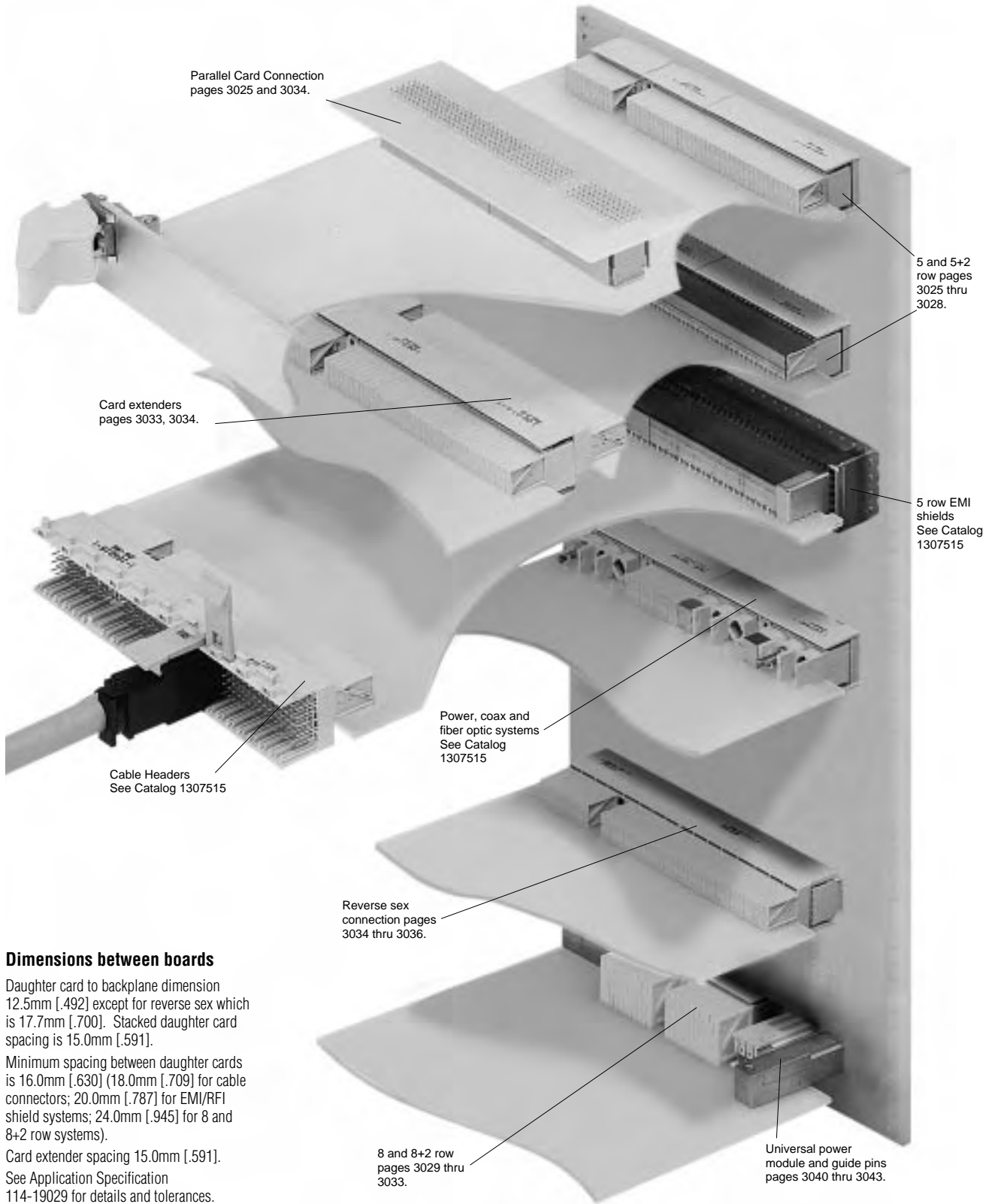
Replacement Components for Tool Number 767527-1

Component Description	Quantity Required for Each Increment of 38 Positions (0.64 [.025] Centerline)	Part Numbers
Slitting Punch (Set of 35)	5	767532-1
Die Insert* (Set of 7)	1	767530-1

* The die insert is located in the tool with a 3.18 x 28.58 [.125 x 1.125] long dowel and held in place with a 6-32 UNC-2A x 7.94 mm [5/16"] long socket head cap screw (not included with replacement insert).

For complete product information, order Catalog 65194

System Options — Front



Dimensions between boards

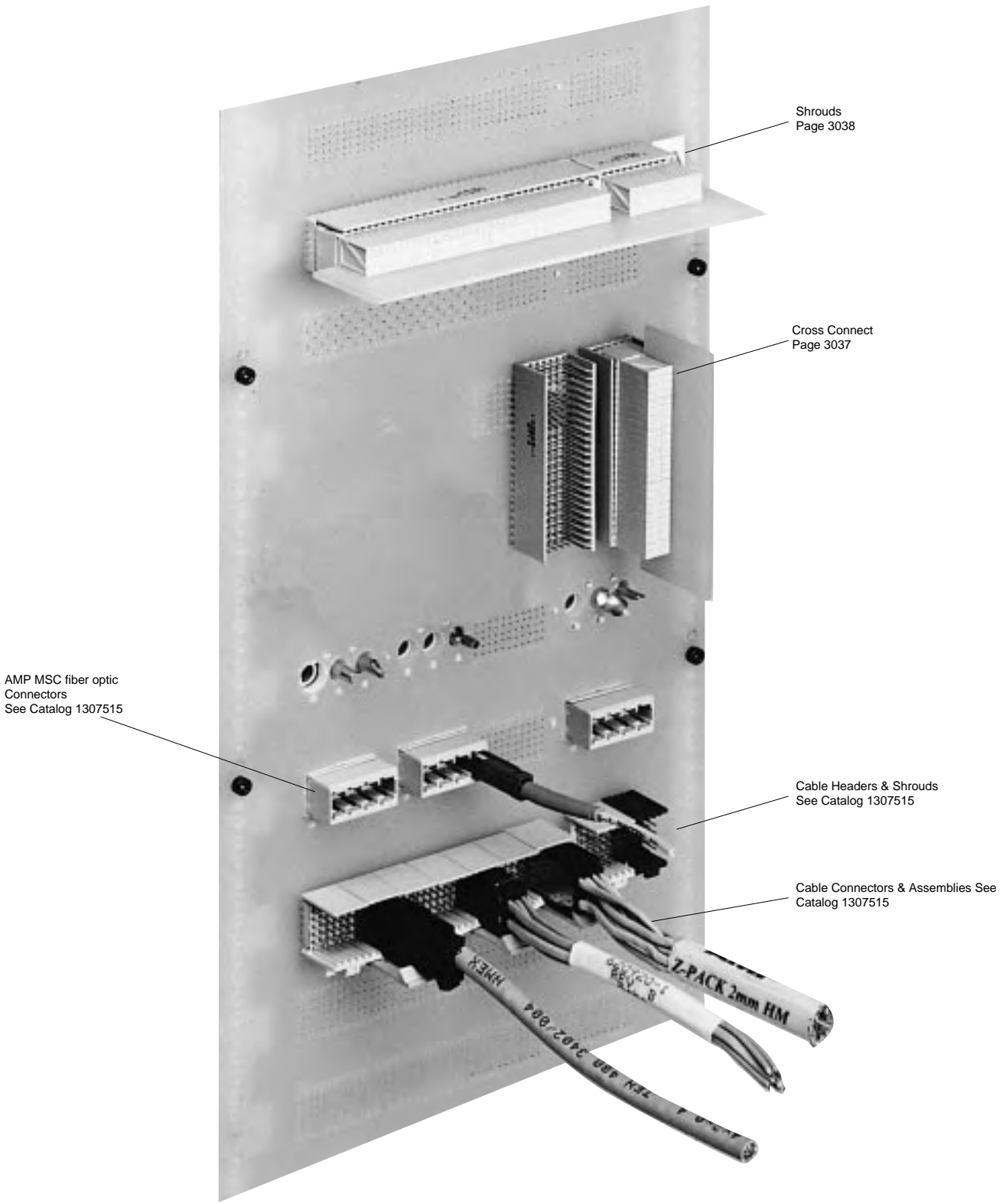
Daughter card to backplane dimension 12.5mm [.492] except for reverse sex which is 17.7mm [.700]. Stacked daughter card spacing is 15.0mm [.591].

Minimum spacing between daughter cards is 16.0mm [.630] (18.0mm [.709] for cable connectors; 20.0mm [.787] for EMI/RFI shield systems; 24.0mm [.945] for 8 and 8+2 row systems).

Card extender spacing 15.0mm [.591].
See Application Specification
114-19029 for details and tolerances.

For complete product information, order Catalog 65911

System Options — Rear



Shrouds
Page 3038

Cross Connect
Page 3037

AMP MSC fiber optic
Connectors
See Catalog 1307515

Cable Headers & Shrouds
See Catalog 1307515

Cable Connectors & Assemblies See
Catalog 1307515

For complete product information, order Catalog 65911

Product Characteristics and System Features

PRODUCT CHARACTERISTICS

Electronic developments are increasing the demands on system performance, and connectors can no longer be considered as discrete components but as part of a total electrical/electronic design. These aspects can include the following:

Higher pin count within tight space constraints.

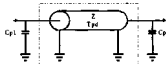
With 25 and 40 signal pins per cm of 5 row and 8 row connectors respectively, high densities can be achieved, or low signal to ground ratios specified within tight space constraints.

Minimum reflections

Matched impedance between cables, connectors and systems give low reflections at interfaces. This is achieved with overmolded receptacle contacts which give impedances close to the values of printed circuit boards, maximizing effective signal strength.

Reduced crosstalk

Crosstalk can be minimized by selective use of ground pins between signals, which can be augmented by the use of ground return shields. Reduced cross talk versions of the receptacle connector provide partial shielding between columns.



AMP Single Line and Multi Line Models, and Electrical Performance Reports are available for Z-PACK 2mm HM Connectors at www.amp.com/simulation, or by requesting CD#1307568.

Shielding

Upper and/or lower ground return shields are used with 5+2 and 8+2 row headers to improve signal integrity. EMI / RFI shields are available to totally enclose 5 row connectors to give maximum exclusion from, and minimum emission of, radiated noise.

Reduced Skew

The design of right angle connectors achieves very low skew between longest and shortest contact and board paths, corrected for board effects. The actual value varies between 5 row and 8 row types.

Fiber Optic Connections

As well as the normal power and coaxial DIN contacts, either DIN fiber optic or AMP MSC fiber optic connectors can be included in backplane systems for high speed data transfer with minimum risk of corruption.

Upgradeability

The system is upgradeable to give enhanced performance as system demands increase. This allows economical selection of components initially with enhanced version selectable as performance levels increase without a major change in connector design or board layout. Tyco Electronics recommends that board layouts include ground return shield holes for future-proofing.

SYSTEM FEATURES

Termination

All versions use AMP ACTION PIN press fit contact termination, giving high retention force termination conforming to IEC 352-5.

Pin Headers

Contact pins are available to give three mating levels on the front face with standard 3.7mm [.146] tail, suitable for boards from 1.4 to 4.3mm [.055 - .169] thick. Feedthrough vertical headers offer three levels of mating to rear of backplane for midplane and cable connection with special twisted pins used for cross connect applications. A wide variety of standard product exists which offer economy and short lead times, but any variation of selective load can be offered.

Receptacle Assemblies

Receptacle assemblies employ a 'chiclet' assembly principle allowing a variety of selective loading and providing the ability to fit reduced cross talk shields. Enhanced versions are prefitted with upper shields, with lower shields applied separately as required.

Power Connection

Universal Power Module Connectors are press fit three position connectors with the option of three levels of sequencing and 23A rating.

Alternatively, DIN contacts can be used in type L, M and N housings with contact rating up to 40A and first make/last break option. Variations of cable-to-board, board-to-board and cable-to-cable are offered.

Coaxial Connection

DIN coax contacts can be fitted to type L, M and N housings in cable and board mount versions.

Fiber Optic Connections

DIN style contacts can be fitted to housings as above or higher density AMP MSC contacts to MSC housings.

Spice Models

To achieve optimum performance and cost, it is essential to accurately match connector and system parameters. Where customers wish to carry out their own analysis, Tyco Electronics offers single and multi-line models for many connector styles. Please ask for details of the packages available.

Modeling Support

Tyco Electronics offers a structured approach to the design and evaluation of packaging and interconnection systems, including a full range of electrical and mechanical support functions.

Using accurate device models, our capabilities include high speed signal propagation analysis using SPICE modeling, and simulation of interconnections and backplane designs. Complete power distribution and thermal analysis can also be included.

For complete product information, order Catalog 65911

Electrical Characteristics

Electrical Characteristics, Typical

AMP Z-PACK 2mm HM Connector System offers considerable benefits in performance over other 2mm [.079] systems. Tests have shown values for inductance, capacitive loading and propagation delay to be 18%, 13% and 18% lower respectively than other 5 row systems.

Shield Types and Selection Standard Version

5 row version gives 250 contacts/100mm [3.937], suitable for rise times down to 100ps with cross talk <5% using a 4:1 signal/ground ratio (50 signal/100mm)

Reduced Cross Talk Version

Metal shield grounded to row c and to the board (optional) reduces cross talk in the d and e contacts by 25% to the level of a and b. Allows increase in density to 100 signals/100mm [3.937].

Ground Return Shields

Performance is enhanced suitable for rise times down to 250ps by using extra pin rows mating to shields on the receptacle. Allows an increase in density to 75 signal/100mm [3.937], reduces cross talk by 30% and reduces single ended impedance peaks in rows a and e.

Ground Return and Reduced X-talk Shields

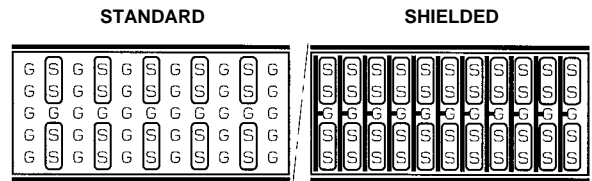
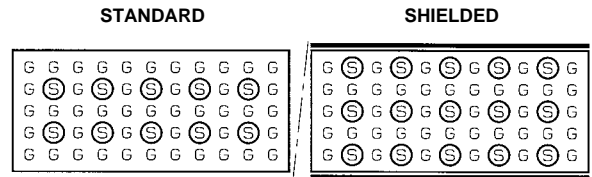
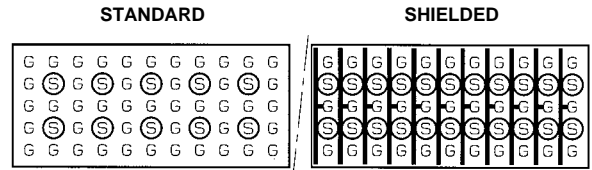
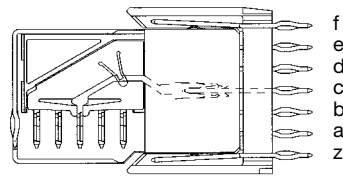
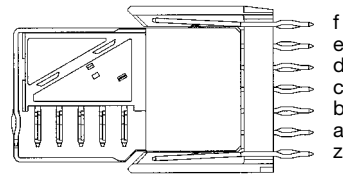
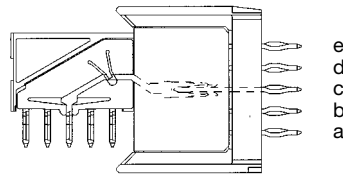
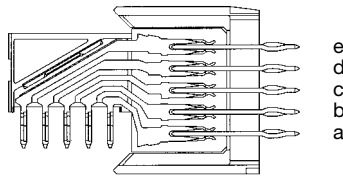
Increase performance to sub-nanosecond rise times. When used with differential pairs, improves cross talk by 30%, lowers impedance peaks and reduces propagation delay by 10%.

Electrical characteristics, Typical.

Signal Pin rating, all contacts loaded	1.5a @ 70°C [158°F]		
Nominal resistance	<13.5mOhm		
Creepage/clearance	<=0.8mm		
Propagation delay, corrected for board effects (5 row)	104ps		
Signal/ground ratio	4:1	1:1	Differential Pair
Impedance	50-58	49-55	86-89
Backward x-talk, row to row	4-10		
“ “ column to column	<3	<1	<1
“ “ diagonal	<2	<<1	<<1

These values apply at 333ps rise time (10%-90%)

These values have been obtained with 5 row connectors; similar improvements are obtained with 8 row versions



For complete product information, order Catalog 65911

Connector Configurations

Connector Stacking

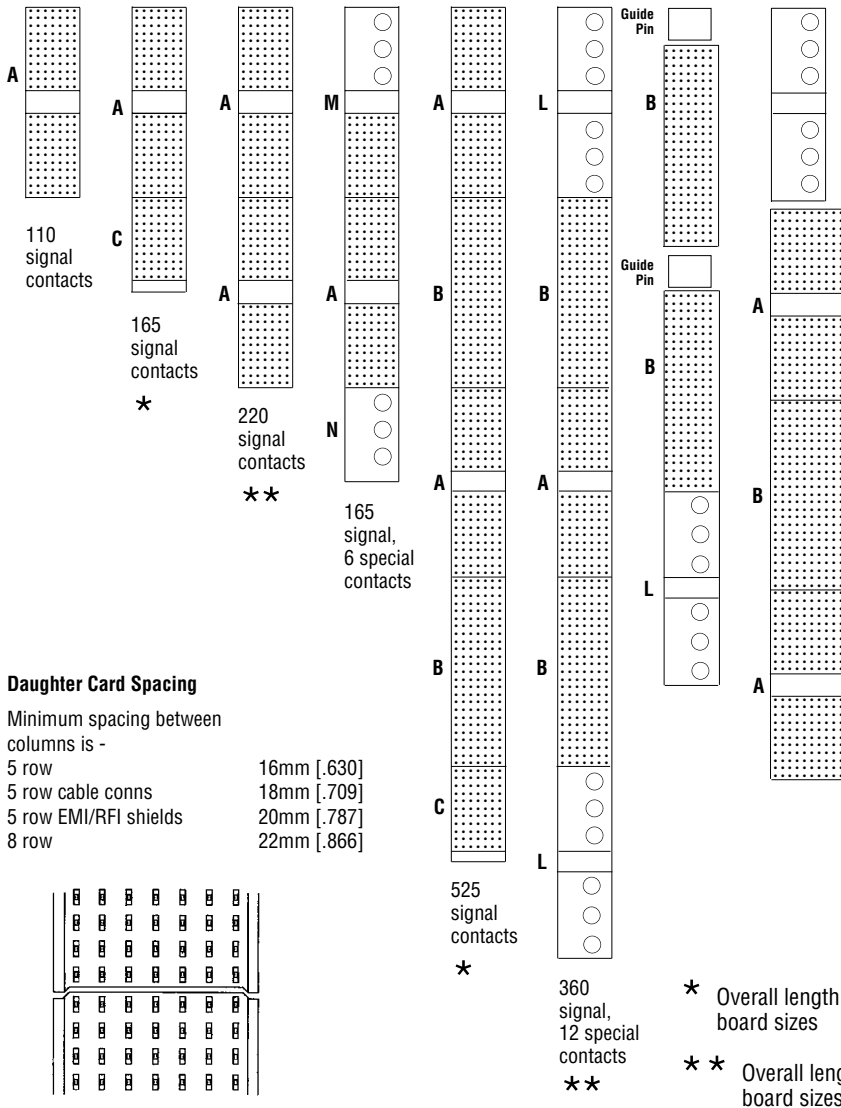
Connectors can be stacked together without change of contact pitch so that the end features shown below nest together.

Guiding features are provided to align connector pairs and minimize contact damage. IEC 61076-4-101 dictates that connectors are end stacked as shown in the adjacent first five columns, with B modules located between modules with location/guiding features. This can be deviated from, but Tyco Electronics recommends that an alternative guiding device is used instead, such as the guide pin (page 3042) or static discharge guide pin (page 3043).

Types C and N are intended for use at a column end.

Universal Power Module connectors can be located at any position. Special arrangements must be made when stacking 8 row to 5 row.

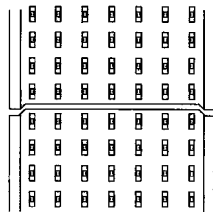
The diagrams show typical arrangements but others are possible.



Daughter Card Spacing

Minimum spacing between columns is -

5 row	16mm [.630]
5 row cable conns	18mm [.709]
5 row EMI/RFI shields	20mm [.787]
8 row	22mm [.866]



- * Overall length fits Eurocard board sizes
- ** Overall length fits ETSI board sizes

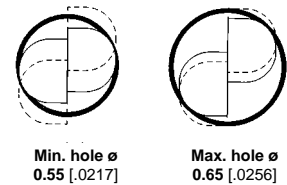
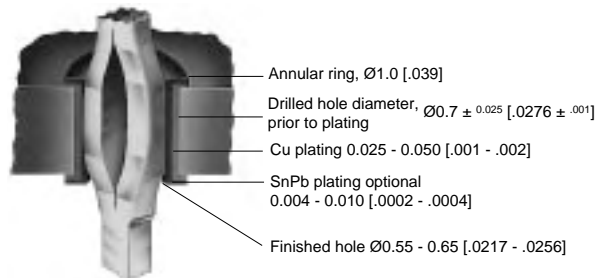
ACTION PIN Contacts

Details of the pcb hole size and finish apply to all ACTION PIN contacts. IEC 61076-4-101 specifies true position of holes to within 0.1mm [.004].

For feedthrough posts, Tyco Electronics recommends true position within 0.05mm [.002] to minimize out-of-position post tips.

A new contact can be inserted into the same hole three times without damage should repair or replacement be necessary.

AMP ACTION PIN press-fit contact interconnection



Two spring members compress to different degrees to accommodate hole tolerances

For complete product information, order Catalog 65911

Vertical Male Connector, 5 Row, Types A, B and C

Vertical Male Connectors

Types A, B and C male connectors will mate with right angle female and vertical female connectors shown on pages 3027 and 3036 respectively.

5 Row Versions

For use with unshielded females and with EMI/RFI shields.

Type A has 110 signal pins with center guiding and keying facility. Type B has 125 signal pins and Type C has 55 signal pins and guiding features. All are end stackable without change in contact pitch according to the chart on page 3024.

5+2 Row Versions

For use with females with ground return shields and contacts in rows z and f in addition to those above.

Short Tail Versions

Standard versions have contact option A in rows a-e with option C in rows z and f on 5+2 row versions.

Feedthrough Versions

For midplane and rear cable connection. 5 row versions mate with unshielded female connectors and 5 row cable connectors. 5+2 row versions mate with female connectors having ground return shields or 5+2 row shielded cable connectors. Standard versions use contact options K and T instead of A and C

MYLAR coated tail guides can be fitted to feedthrough posts to aid assembly to the board.

For versions other than those shown, refer to page 3039 which gives access to other sizes and loading patterns.

End caps are available for use with special versions of types A and B connectors. Consult Tyco Electronics.

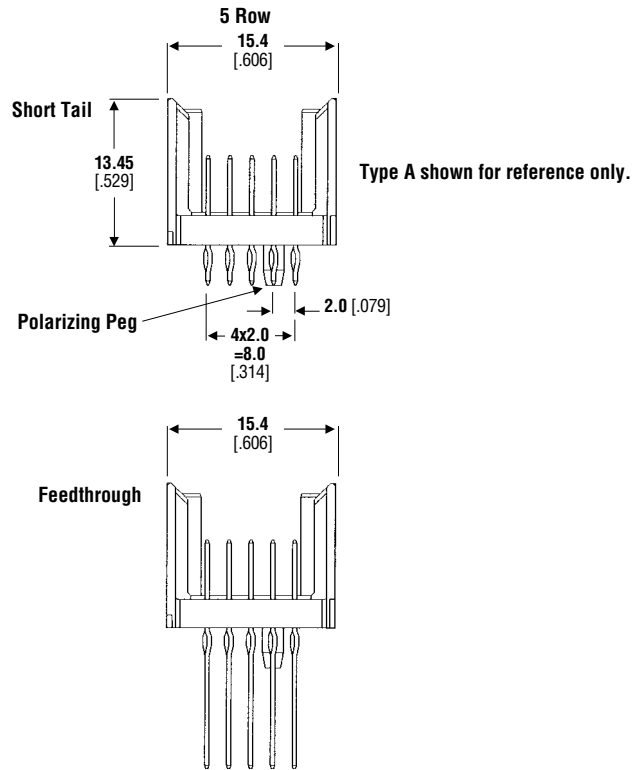
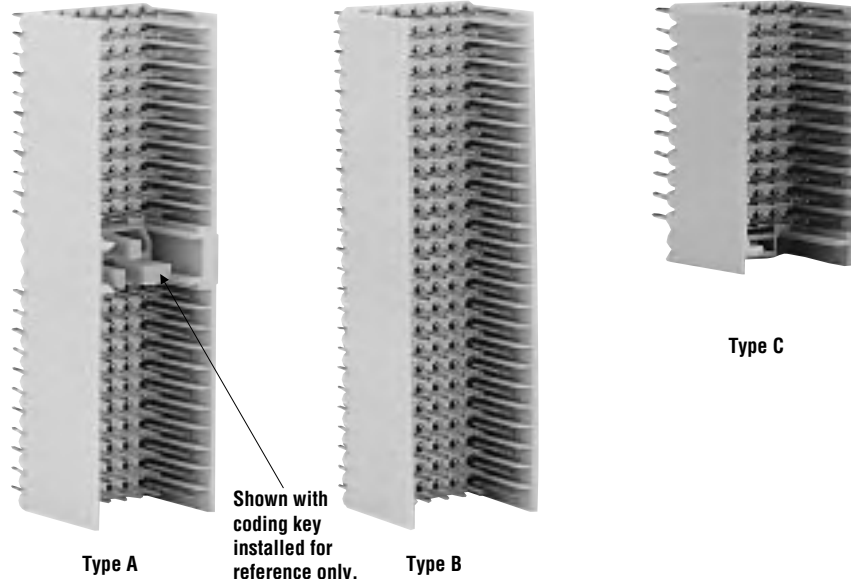
Electrical Characteristics — page 3023.

Material and Finish:

Glass filled polyester housing gray, UL94 V-0 rated Phosphor-bronze signal contacts Contact area 0.8µm Au over 1.3µm Ni ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni

Coding keys for type A page 3039.

Tooling — page 3046-3048.

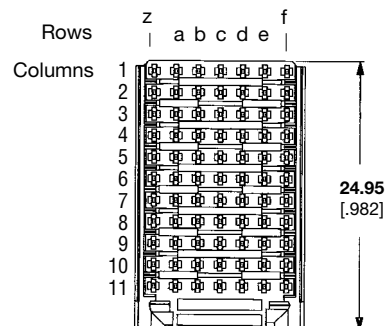
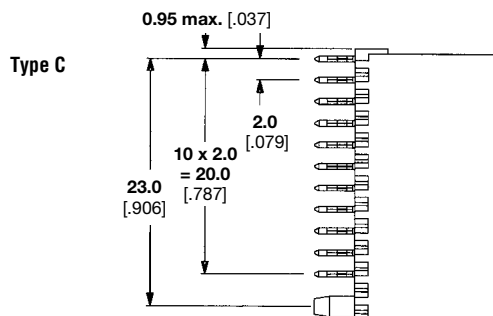
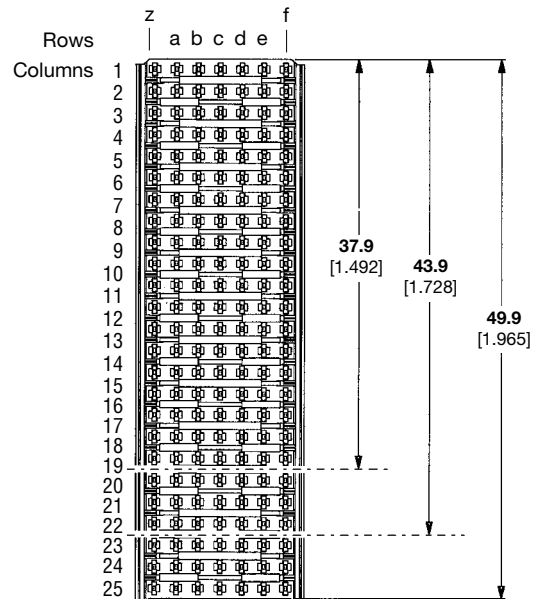
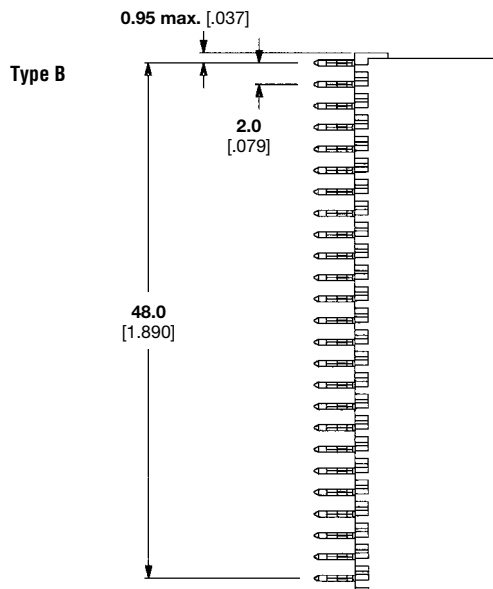
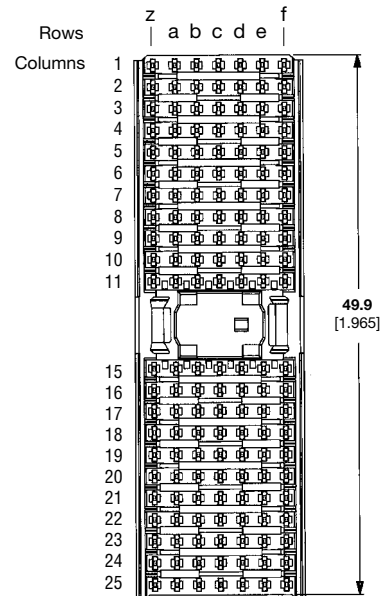
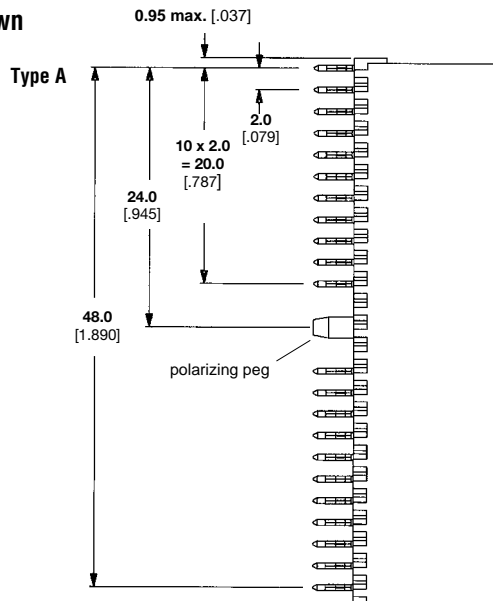


Type	Part Numbers			
	Short Tail		Feedthrough	
	5 Row	5+2 Row	5 Row	5+2 Row
Type A (with locating peg)	100143-1	100668-1	106164-1	106509-1
Type B	100141-1	100669-1	106165-1	106510-1
Type C	100159-1	106081-1	106303-1	188637-1

For complete product information, order Catalog 65911

Vertical Male Connector, 5 Row, Types A, B and C

Short Tail Version Shown



For complete product information, order Catalog 65911

Right Angle Female Connectors, 5 Row, Types A, B and C

Right Angle Female Connectors

Types A, B and C female connectors will mate with respective vertical and right angle male connectors and with shrouds shown on page 3025.

Type A has 110 contacts with center guiding and keying facility, Type B has 125 contacts and Type C has 55 contacts with end guiding feature. All are end stackable without change of contact pitch according to the chart on page 3024.

Four levels of performance are offered; standard, reduced crosstalk, ground return shield and reduced crosstalk + ground return shields. Upper ground return shields are pre-fitted to receptacles; lower shields are supplied and fitted separately as required. 5+2 male connectors are used with ground return shield versions.

For versions other than those shown, refer to page 3039 which gives access to other sizes and loading patterns.

Electrical Characteristics — page 3023.

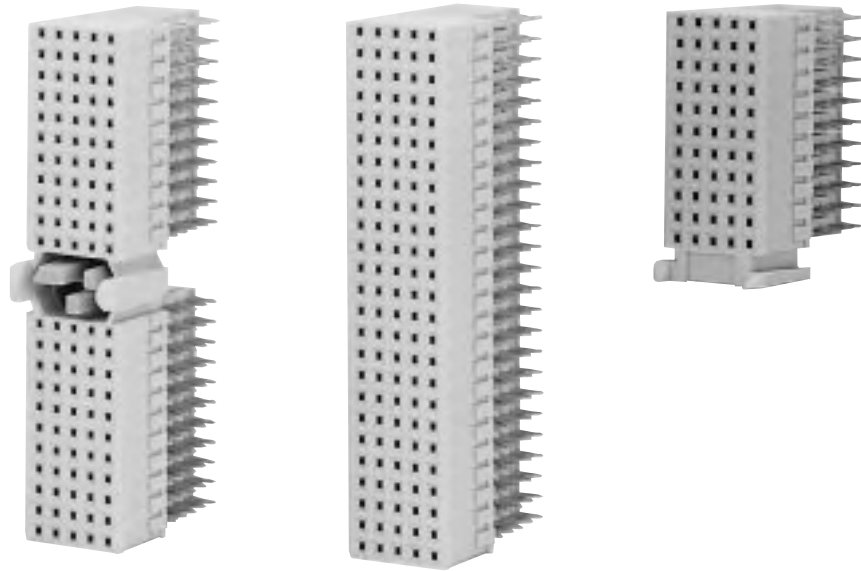
Material and Finish:

Glass filled polyester housing, gray, UL94 V-0 rated.
Phosphor-bronze signal contacts
Contact area 0.8µm Au over 1.3µm Ni
ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni.

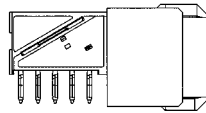
Coding keys for type A page 3039.

Daughtercard thickness range of 1.4 - 4.3mm [.055 - .169] (3.5mm [.138] max with lower shield).

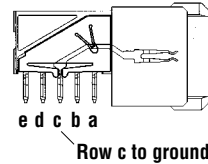
Tooling — page 3046.



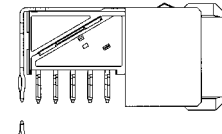
Standard Version



Reduced Crosstalk Version



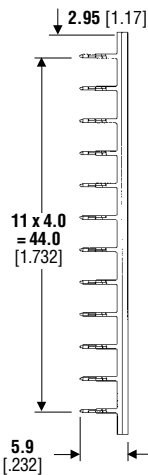
With Upper Shield Attached



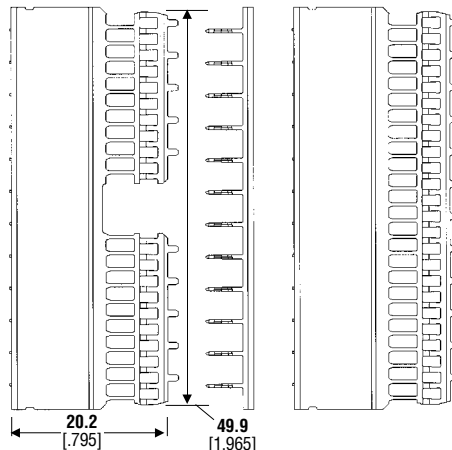
Separate Lower shield

Lower Shields

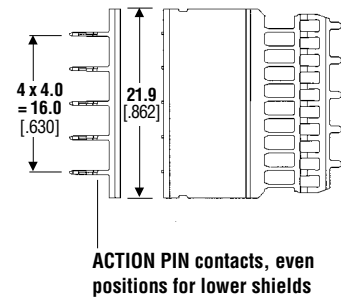
Type A



Type B



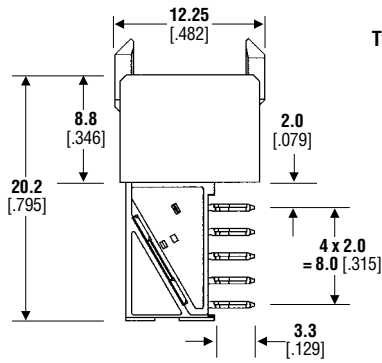
Type C



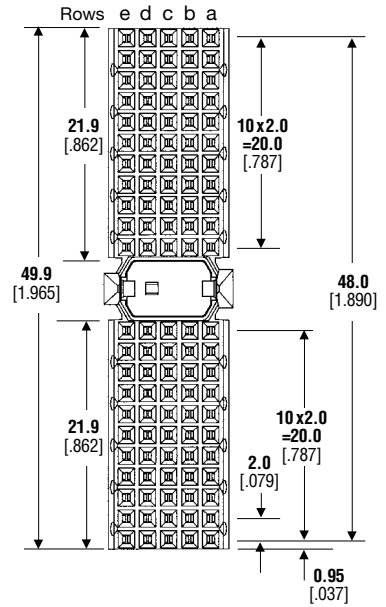
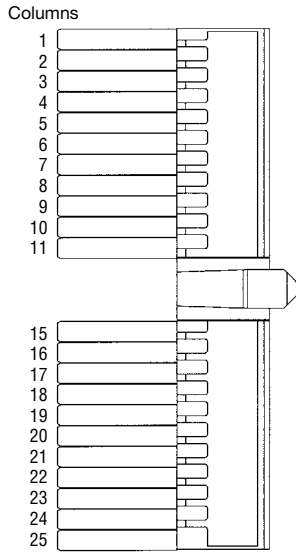
Type	Part Numbers				
	Standard	Standard with Upper Shield	Reduced Cross Talk	Reduced Cross Talk with Upper Shield	Lower Shield
Type A	100147-1	352068-1	100623-1	352344-1	338108-2
Type B	100145-1	352069-1	100624-1	352345-1	338110-2
Type B (22)	188836-1	352152-1	—	1345007-1	352468-2
Type B (19)	352009-1	352171-1	—	1345008-1	352029-2
Type C	100161-1	352115-1	188224-1	352346-1	352112-2

For complete product information, order Catalog 65911

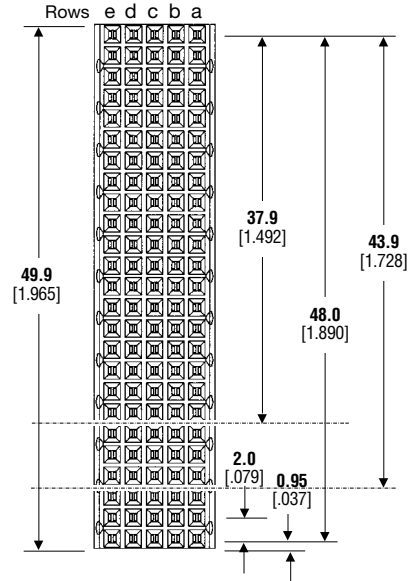
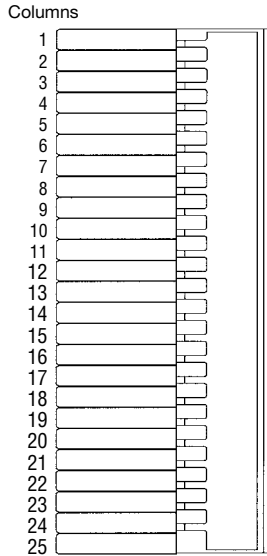
Right Angle Female Connectors, 5 Row, Types A, B and C



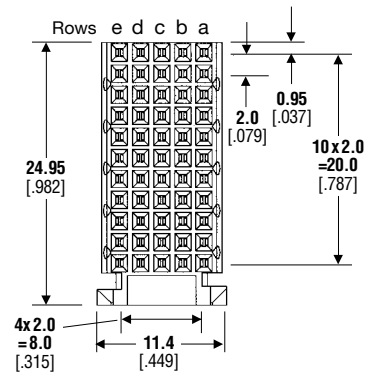
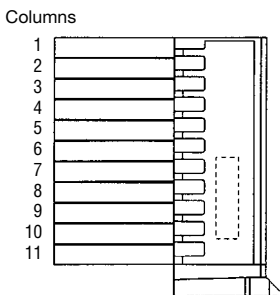
Type A



Type B



Type C



For complete product information, order Catalog 65911

Vertical Male Connectors, 8 Row, Types D, E and F

Vertical Male Connectors

Types D, E and F mate with respective right angle receptacle connectors shown on page 3031.

8 row Versions

For use with unshielded female connectors. Type D has 176 signal pins with center guiding and keying facility, and Type E has 200 signal pins and Type F has 88 signal pins. They are stackable without change of contact pitch according to the chart on page 3024.

8+2 Row Versions

For use with females with ground return shields and have contacts in rows z and i in addition to those above.

Short Tail Versions

Standard versions have contact option A in rows a-h with option C in rows z and i on 8+2 row versions.

Feedthrough Versions

For midplane connection, 8 row versions mate with standard 8 row female connectors and 8+2 row versions mate with female connectors having ground return shields. Standard versions use contact options K and T instead of A and C.

For versions other than those shown, refer to page 3039 which gives access to other sizes and loading patterns.

Guide pin Part Number 532808-1 may be used with Type D male connectors to give early alignment.

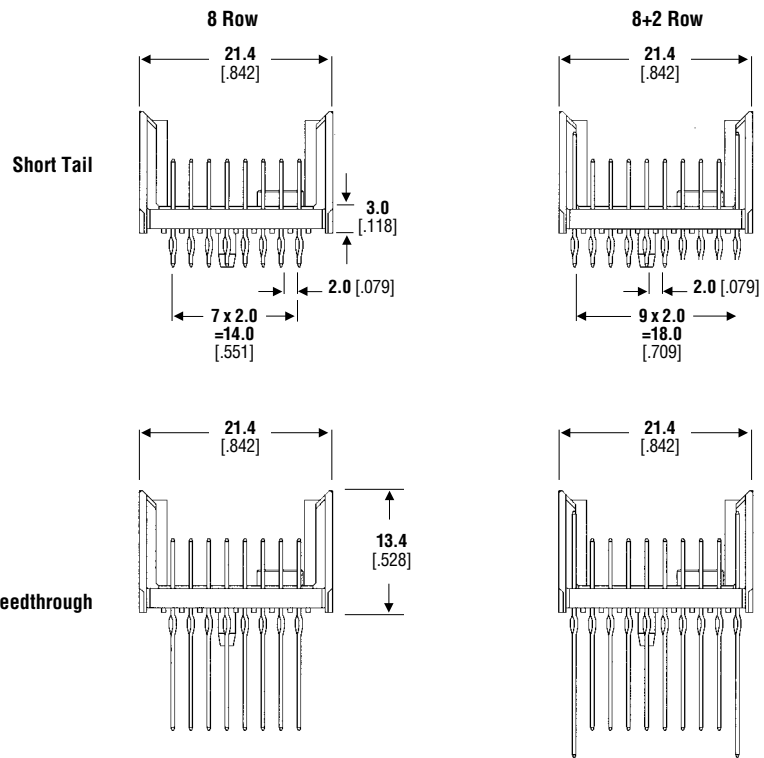
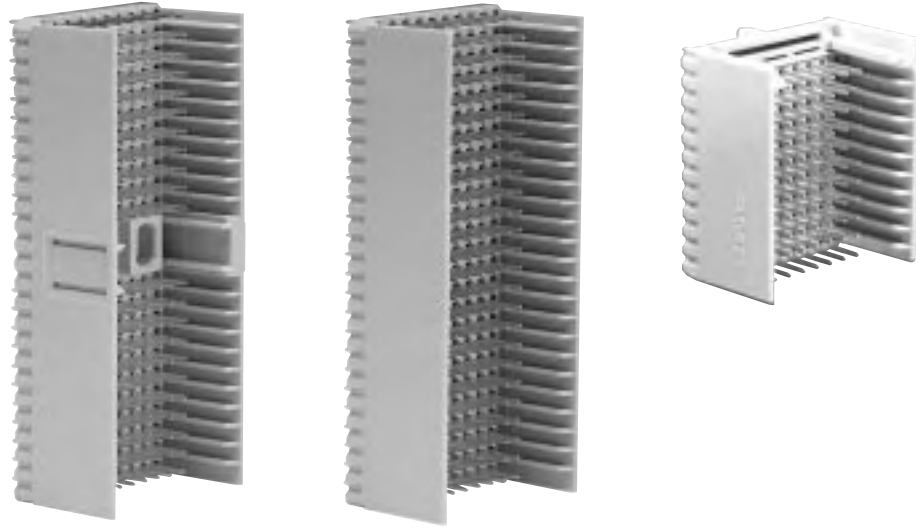
Electrical Characteristics — page 3023.

Material and Finish:

Glass filled polyester housing, gray, UL94 V-0 rated
Phosphor-bronze signal contacts
Contact area 0.8µm Au over 1.3µm Ni
ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni.

Coding keys for type D page 3039.

Tooling — page 3046.

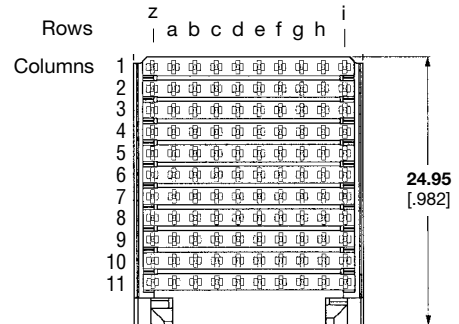
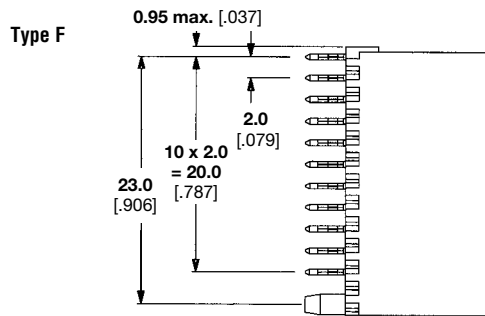
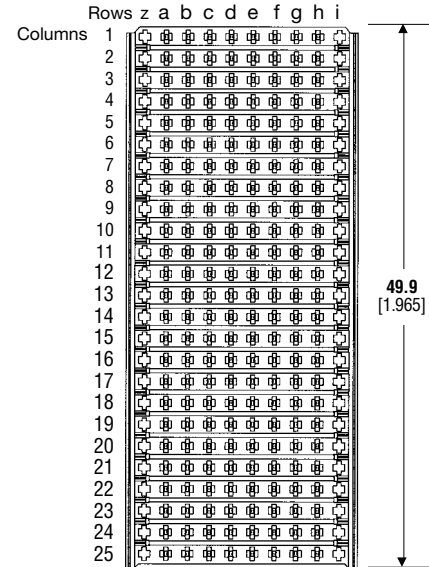
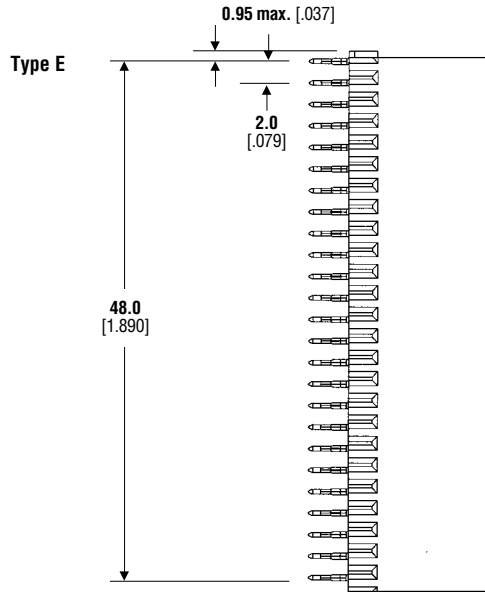
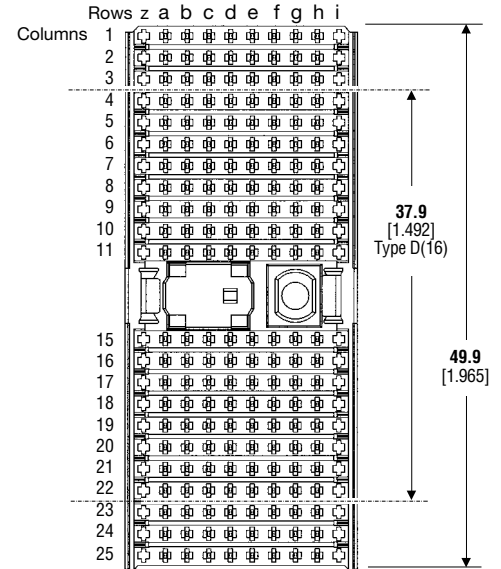
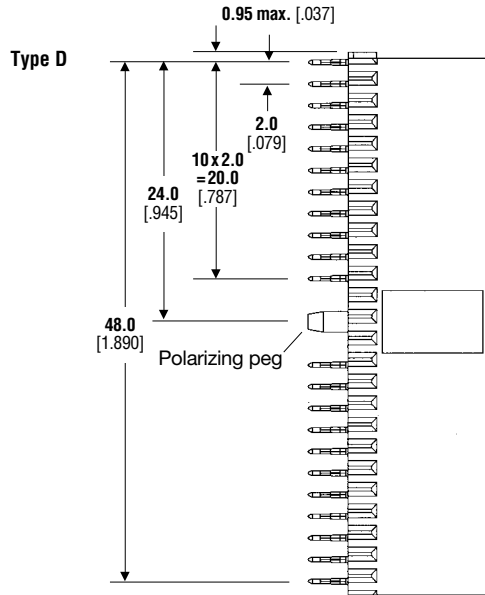


Type	Part Numbers			
	Short Tail		Feedthrough	
	8 Row	8+2 Row	8 Row	8+2 Row
Type D	646346-1	646356-1	646372-1	646375-1
Type D (16 column, 128 position)	646362-1	—	—	—
Type E	646347-1	646357-1	646373-1	646376-1
Type F	646457-1	646513-1	646514-1	646515-1

For complete product information, order Catalog 65911

Vertical Male Connectors, 8 Row, Types D, E and F

Short Tail Versions Shown



For complete product information, order Catalog 65911

Right Angle Female Connectors, 8 Row, Types D, E and F

Right Angle Female Connectors

Types D, E and F female connectors will mate with respective vertical male connectors shown on page 3029.

Type D has 176 contacts with center guiding and keying facility and Type E has 200 contacts and Type F has 88 contacts. Connectors are end stackable without change of contact pitch according to the chart on page 3024. Two levels of performance are offered; standard and ground return shield versions. Upper ground return shields are pre-fitted to receptacles; lower shields are supplied and fitted separately as required. 8+2 male connectors are used with ground return shield versions.

For versions other than those shown, which gives access to other sizes and loading patterns, consult Tyco Electronics.

Electrical Characteristics — page 3023.

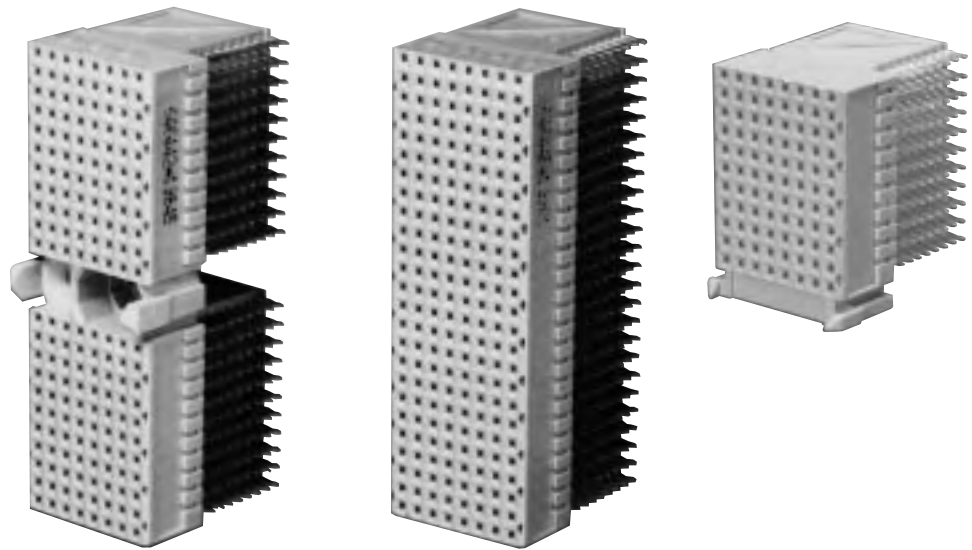
Materials and Finish:

Glass filled polyester + LCP housing, gray, UL94 V-0 rated
Phosphor-bronze signal contacts
Contact area 0.8µm Au over 1.3µm Ni
ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni

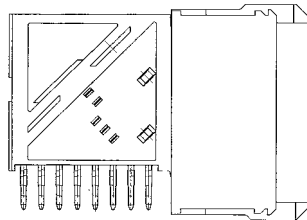
Coding Keys for Type A page 3039.

Daughtercard thickness range of 1.4 - 4.3mm [.055 - .169] (3.5mm [.138] max. with lower shield)

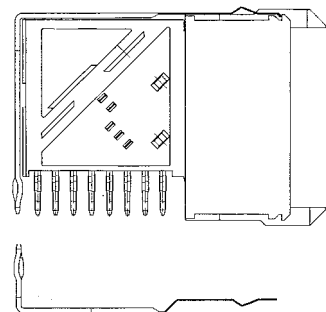
Tooling — page 3046.



Standard

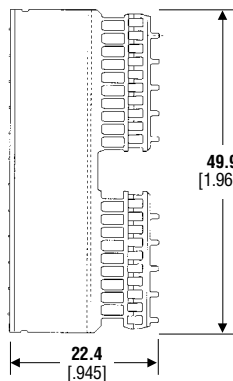


With Shields

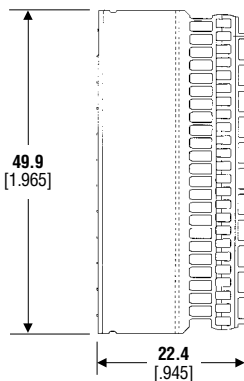


Shields

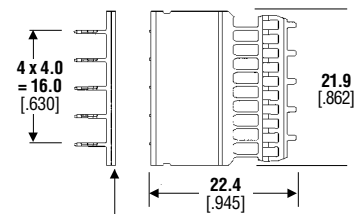
Type D



Type E



Type F

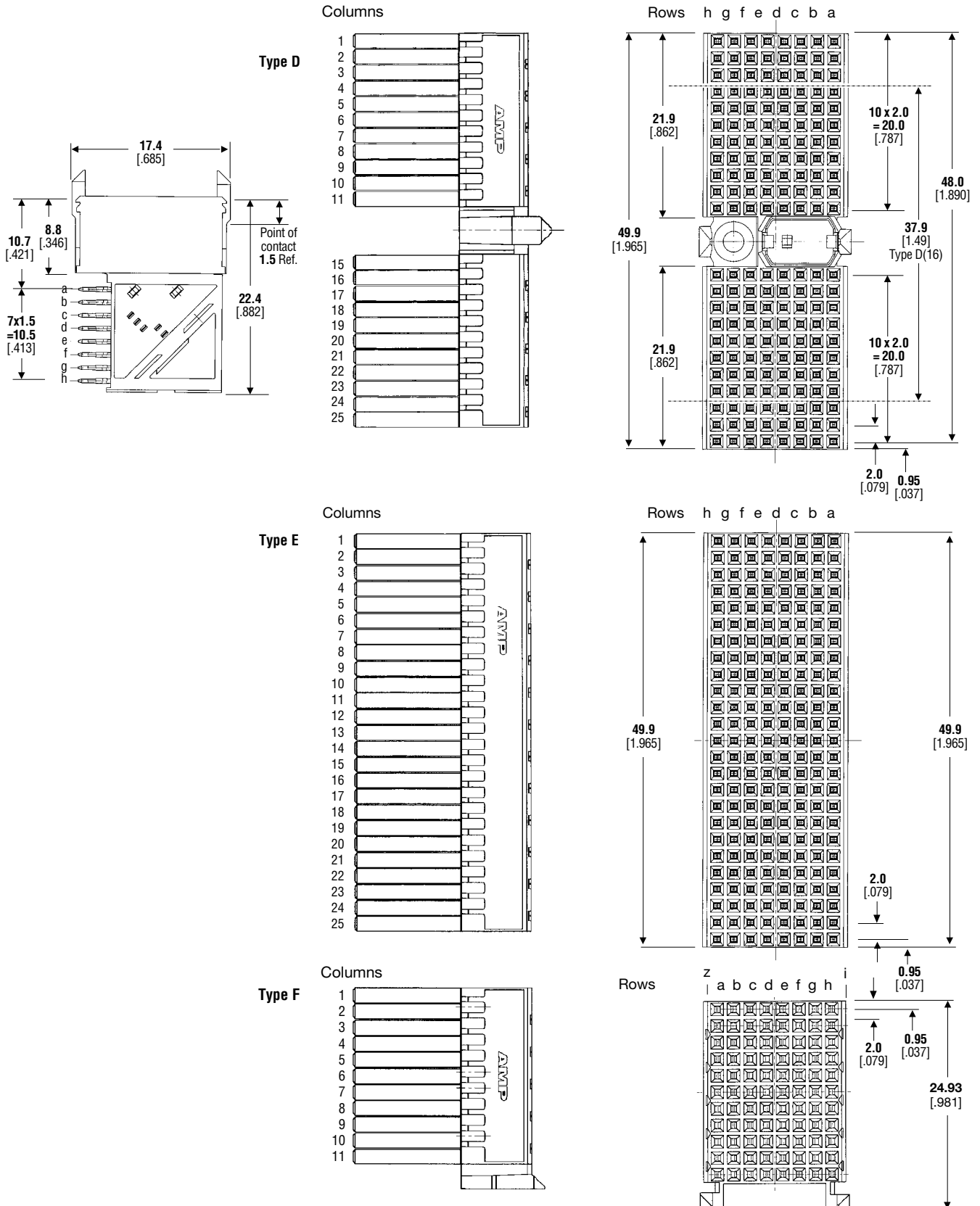


ACTION PIN contacts, even positions for lower shields

Type	Part Numbers		
	Standard	Standard with Upper Shield	Lower Shield
Type D	646442-1	646486-1	646428-1
Type D (16)	646447-1	—	—
Type E	646445-1	646487-1	646430-1
Type F	646446-1	646492-1	646493-1

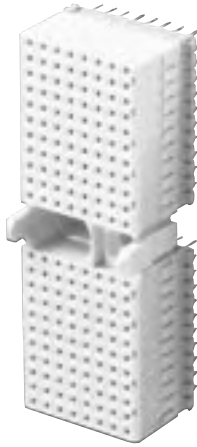
For complete product information, order Catalog 65911

Right Angle Female Connectors, 8 Row, Types D, E and F



For complete product information, order Catalog 65911

Vertical Female Connectors, 8 Row, Types D, E and F



Type D shown

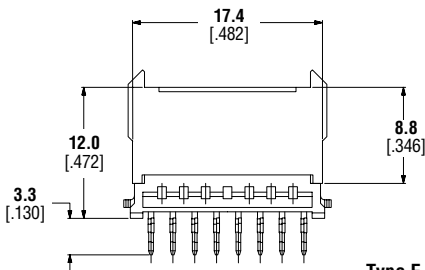
Vertical Female Connector

Type D, E, and F mate with respective vertical male connectors shown on page 3030. They are used in stacking applications offering high density in a limited space.

Material and Finish:

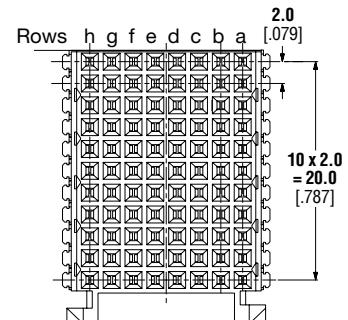
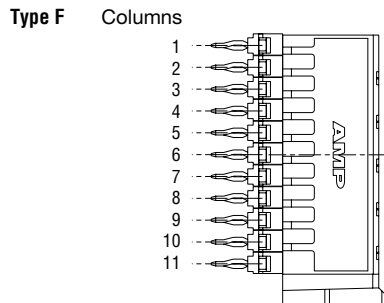
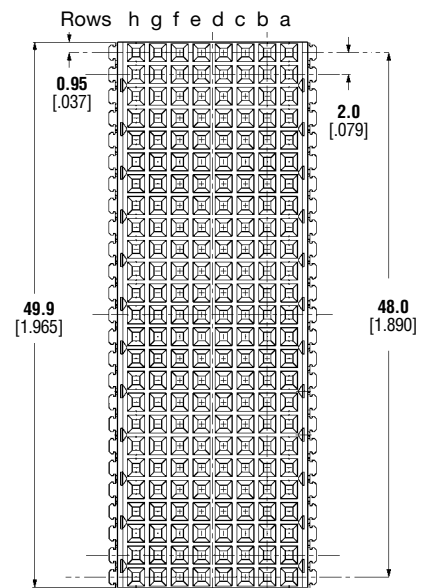
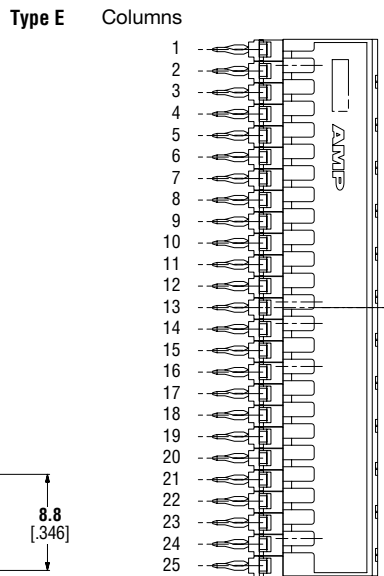
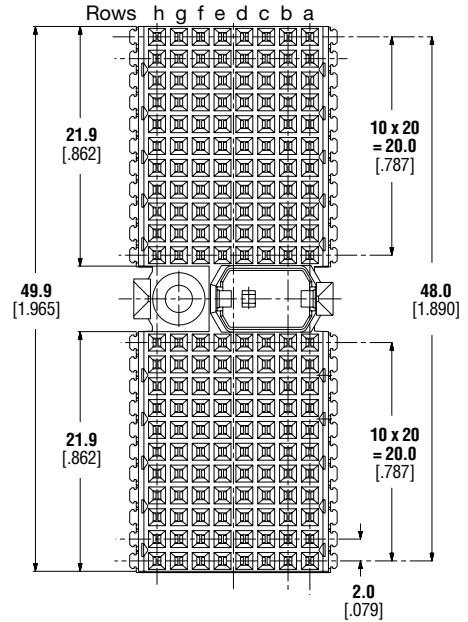
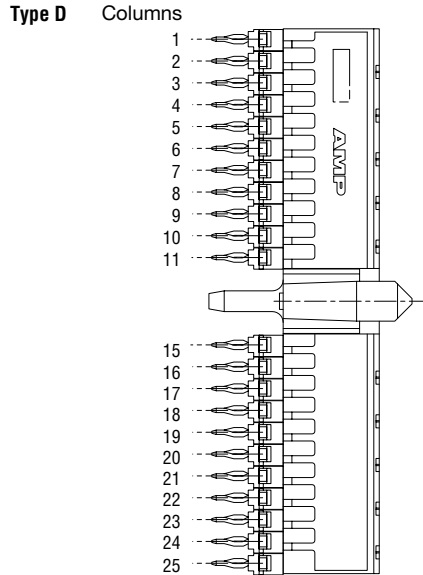
Glass filled polyester housing, gray, UL94 V-0 rated Phosphor-bronze signal contacts Contact area 0.8µm Au over 1.3µm Ni ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni.

Tooling — page 3046.



Type F shown

Type	Part Numbers
Type D	646538-1
Type E	646539-1
Type F	646540-1

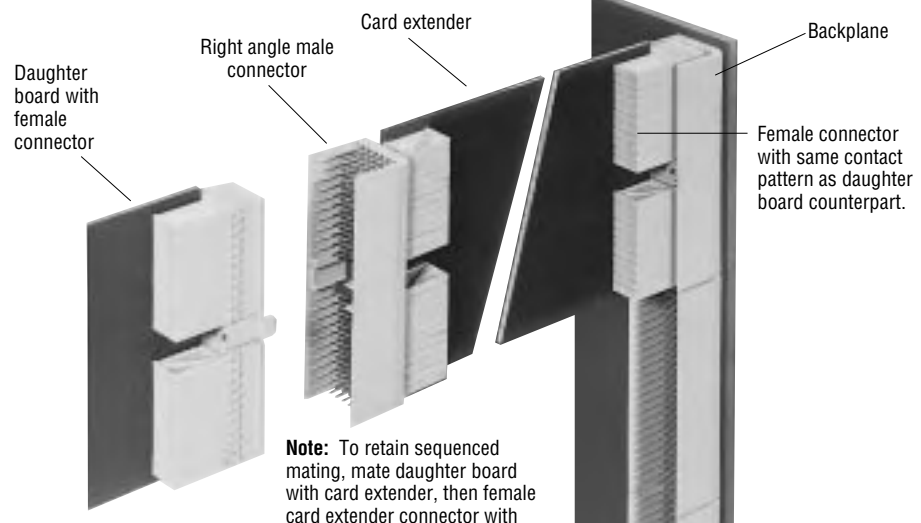


For complete product information, order Catalog 65911

Right Angle Male Connectors, Types A, B, C



Arrangement



Right Angle Male Connector

Used for card extender and reverse sex daughter-to-backplane application

Types A, B and C connectors mate with respective right angle female connectors for card extenders and with vertical female connectors for reverse sex connection. Refer to pages 3027 and 3036.

Type A has 110 contacts with center guiding and keying facility; Type B has 125 contacts and Type C has 55 contacts with guiding feature. Standard versions have pins with mating level 1; see page 3039 for other options.

Two performance levels are available; standard and reduced cross-talk

Electrical Characteristics — page 3023.

Material and Finish:

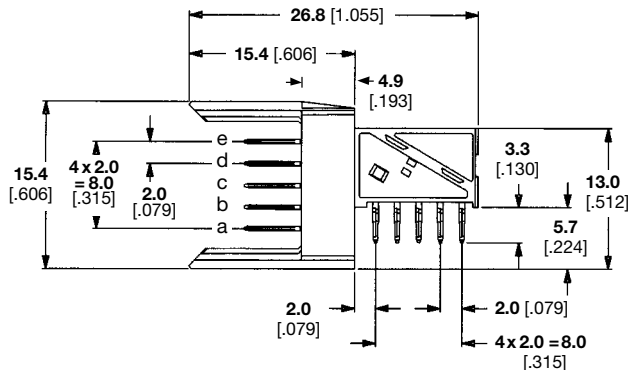
Glass filled polyester housing, gray, UL94 V-0 rated Phosphor-bronze signal contacts Contact area 0.8µm Au over 1.3µm Ni ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni

Coding keys for type A page 3039.

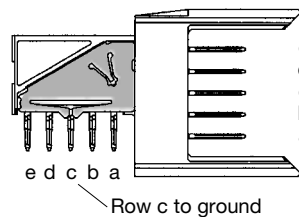
Tooling — page 3046.

Side Elevation

Standard version



Reduced crosstalk version. Same dimensions as standard version. consult Tyco Electronics.

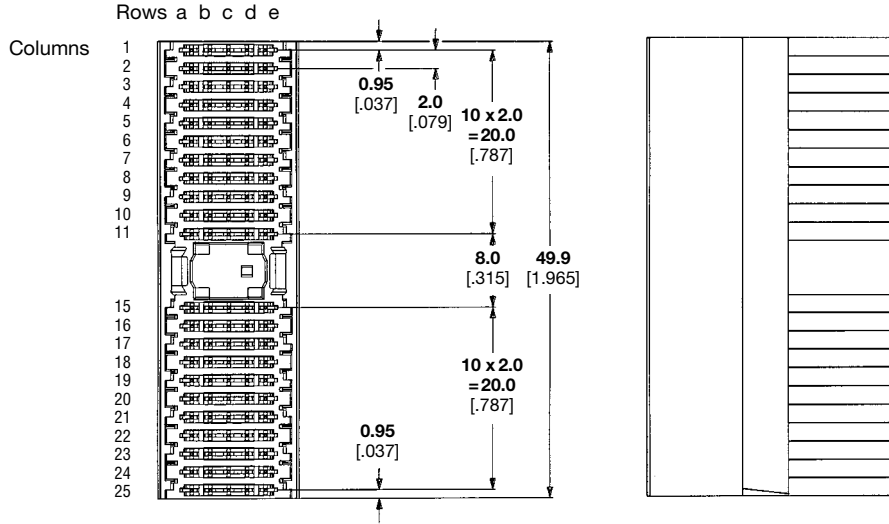


Type	Part Numbers	
	Standard	Reduced CrossTalk
Type A	106015-1	352271-1
Type B	106014-1	352272-1
Type B 22col	352131-1	—
Type B 19col	352406-1	—
Type C	106012-1	352273-1

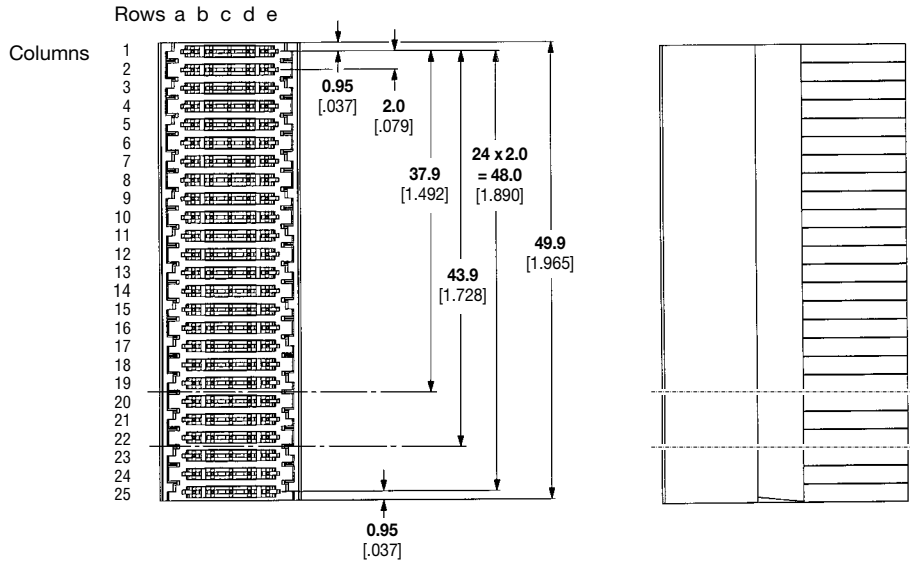
For complete product information, order Catalog 65911

Right Angle Male Connectors, Types A, B, C

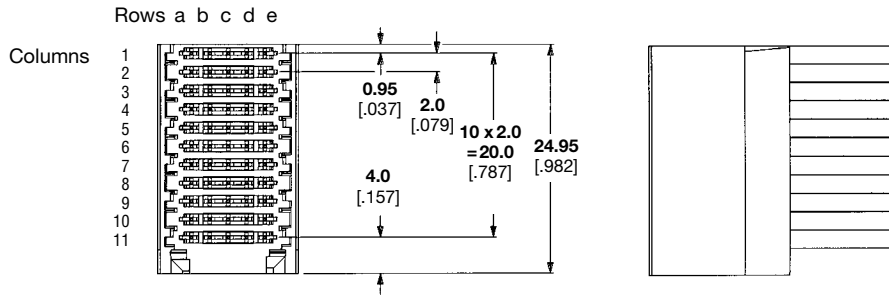
Type A, 110 Signal Pins, 50mm Module



Type B, 125 Signal Pins, 50mm Module



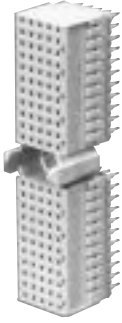
Type C, 55 Signal Pins, 25 mm Module



For complete product information, order Catalog 65911

3
Backplane / High Speed Connectors

Vertical Female Connectors, 5 Row, Types A, B and C



Vertical Female Connectors

Types A, B and C mate with respective right angle and vertical male connectors shown on pages 3025 and 3034.

Type A has 110 contacts and center keying and guiding. Type B has 125 contacts and Type C has 55 contacts with guiding feature. All are stackable without change in contact pitch according to the chart on page 3024.

Limited other contact patterns are available; see page 3039.

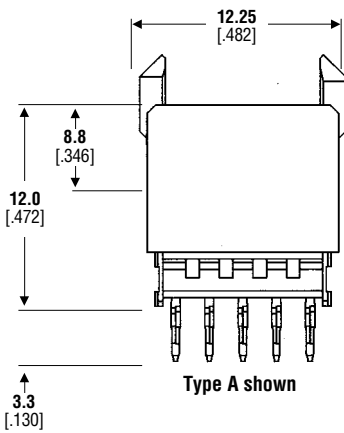
Electrical Characteristics — page 3024.

Materials and Finish:

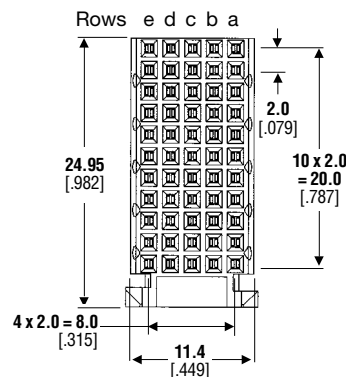
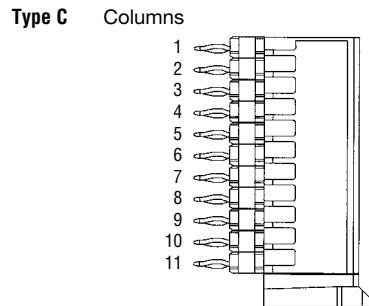
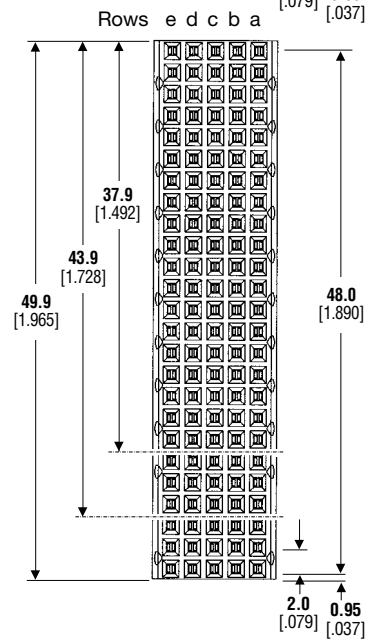
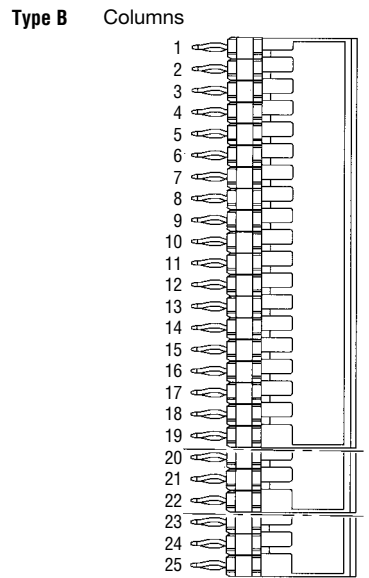
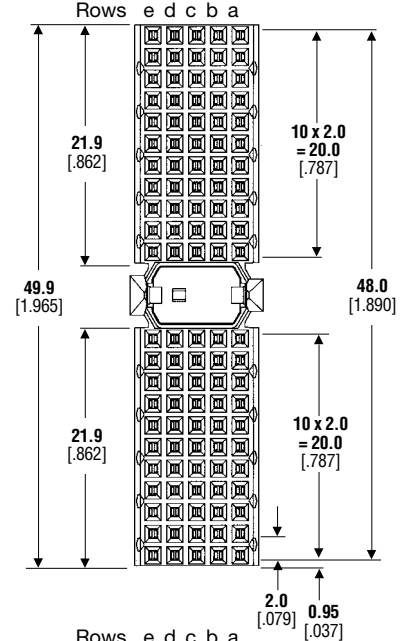
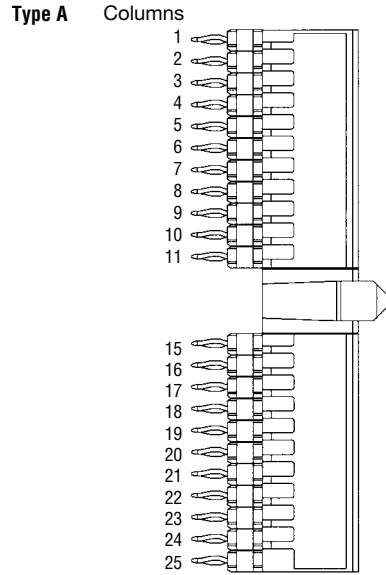
Glass filled polyester housing.
Phosphor-bronze signal contacts
Contact area 0.8µm Au over 1.3µm Ni
ACTION PIN contact 0.5µm Sn/Pb over 1.3 µm Ni.

Coding keys for type A page 3039.

Tooling — page 3046.



Type	Part Numbers
Type A (without locating peg)	106773-1
Type A (with locating peg)	352457-1
Type B	106774-1
Type B 22 col	352268-1
Type B 19 col	352269-1
Type C	106775-1



For complete product information, order Catalog 65911

Midplane Board-to-Board Arrangements

Midplane Connection

Daughter boards can be connected to either side of a backplane in parallel, asymmetric parallel and cross connect configuration. Vertical male connectors with feedthrough pins are used with one piece shrouds on page 3038.

Feedthrough pins can be in 5, 5+2, 8 or 8+2 row configuration.

Daughter card connectors are the same for front and rear using types A, B, C, D, E and F.

Parallel Connection

Parallel connection can be symmetric, where the daughter cards are the same way up, or asymmetric, where they are reversed. Column numbers are reversed on the backplane rear with symmetric orientation.

Cross Connect

Cross connect can be configured with spacers and shrouds as above giving a matrix of pins where male connectors and shrouds coincide, or selective loaded male connectors can be used at the rear, with empty positions to allow for feedthrough posts from the front. Post options U,V, or X must be used. When male connectors are used front and rear, spacers cannot be used to adjust post lengths.

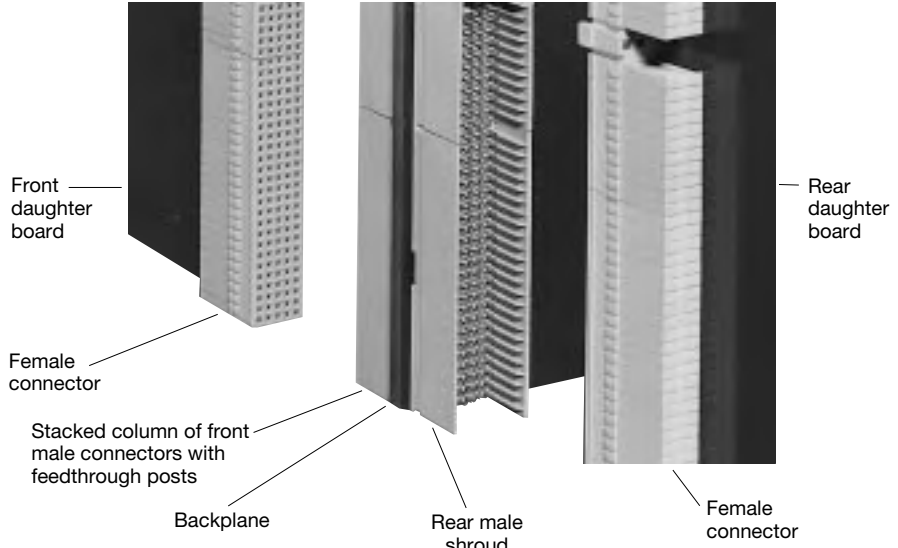
All arrangements can use receptacles with ground return shields. Consult Tyco Electronics if EMI/RFI shielding is required.

5x5 Cross Connect

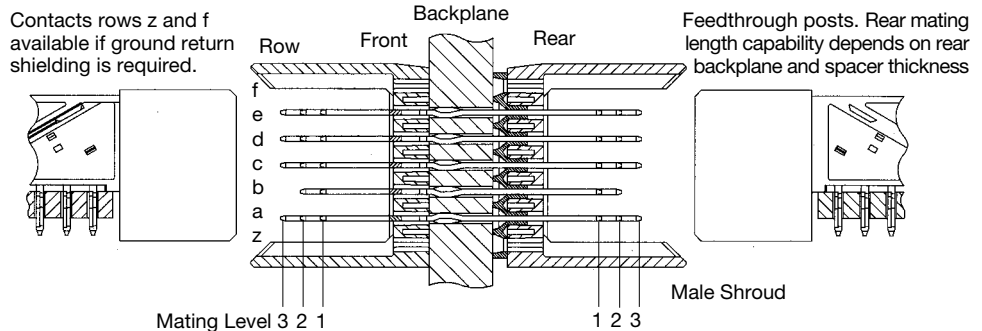
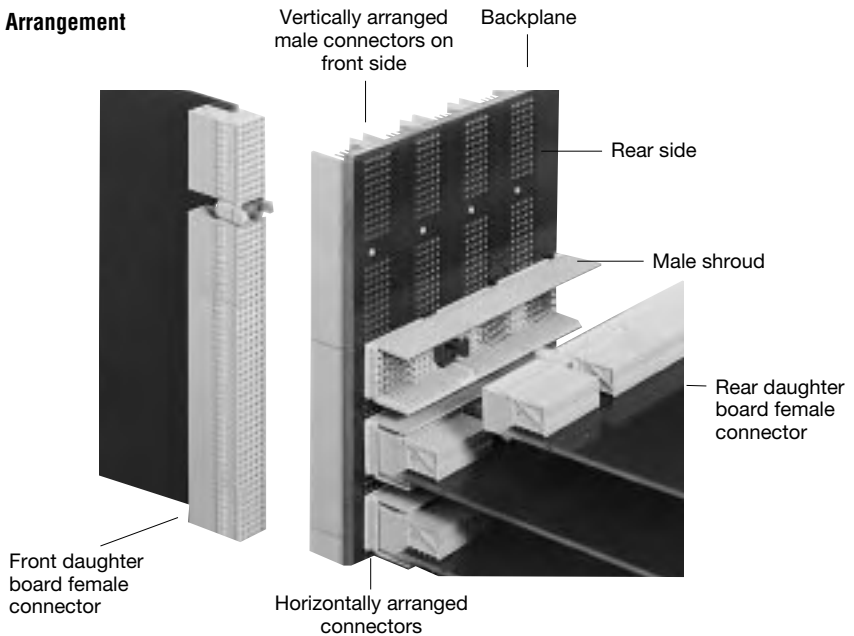
Special 5x5 connectors are available for cross connect applications.

EMI/RFI shielding is available for these parts.

Vertical Board Arrangement, shown with symmetrical daughter boards



Cross-connect Arrangement



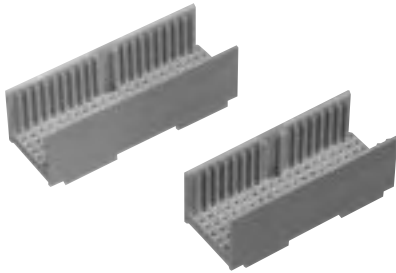
For complete product information, order Catalog 65911

3 Backplane / High Speed Connectors

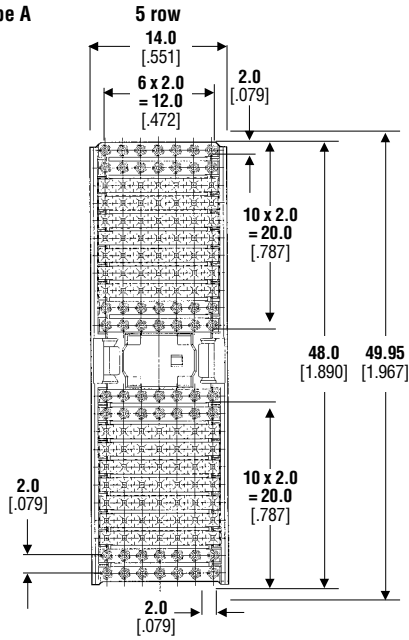
One Piece Shrouds

Type A, B, C, D, E or F Shrouds

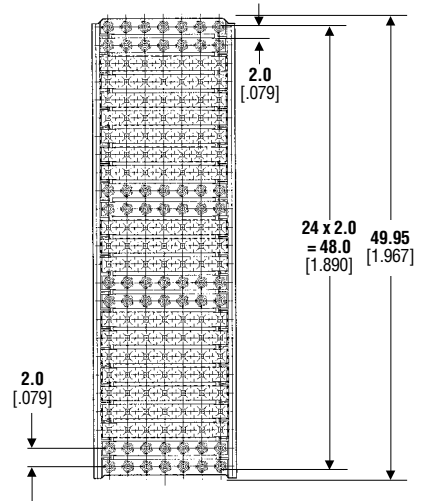
One piece shrouds can be used with several backplane thicknesses to provide required pin mating levels (see chart for options available). The single piece design also provides a reduced part count, lower applied cost solution.



Type A



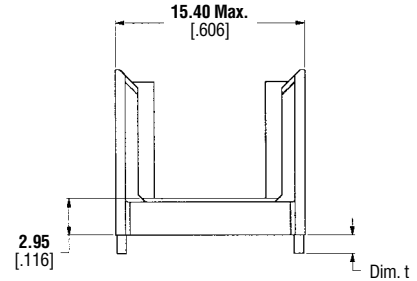
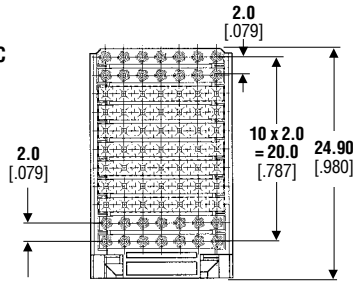
Type B



Type AB Shrouds

Type AB shrouds require male feed thru connectors with short tail or vacant ground pin positions in the guide feature locations.

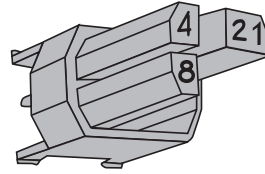
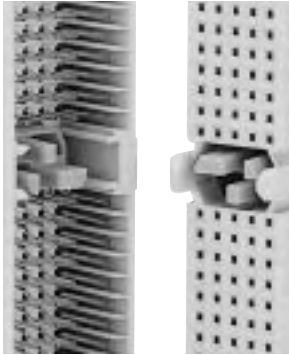
Type C



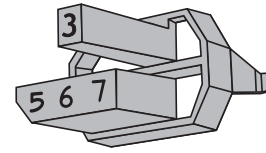
Shroud Type "t"	Part Numbers						
	0 [.000]	.9 [.035]	1.1 [.043]	1.3 [.051]	1.5 [.059]	1.7 [.067]	1.9 [.075]
A	646478-1	646478-2	646478-3	646478-4	646478-5	646478-6	646478-7
B	646479-1	646479-2	646479-3	646479-4	646479-5	646479-6	646479-7
C	646480-1	646480-2	646480-3	646480-4	646480-5	646480-6	646480-7
B (19)	646481-1	646481-2	646481-3	646481-4	646481-5	646481-6	646481-7
B (22)	646482-1	646482-2	646482-3	646482-4	646482-5	646482-6	646482-7
AB (19)	646483-1	646483-2	646483-3	646483-4	646483-5	646483-6	646483-7
AB (22)	646484-1	646484-2	646484-3	646484-4	646484-5	646484-6	646484-7
D	646476-1	646476-2	646476-3	646476-4	646476-5	646476-6	646476-7
E	646477-1	646477-2	646477-3	646477-4	646477-5	646477-6	646477-7
F	646525-1	646525-2	646525-3	646525-4	646525-5	646525-6	646525-7

For complete product information, order Catalog 65911

Coding Keys and Contact Loading Variants



Key for Male Connectors



Key for Female Connectors

Coding key sets with combinations of matching colors and complementary numbering

Used in Type A, D, L and M male and female connectors and shrouds.

Male and female keys are polarized for male and female housing multi-purpose centers; unambiguous keying is by combination of color and code numbered posts.

Keys are inserted from the mating faces of male and female housings, retained by foot clips snap-fitting into housing slots. Removal from the front is possible whenever required.

Material:

Glassfilled Polyimide 6.6.

Color	RAL ¹ Number	For Male Connector		For Female Connector	
		Code Number	Key Part Number	Code Number	Key Part Number
Nut brown	8011	1236	100525-3	4578	100526-3
† Strawberry red	3018	1248	100525-9	3567	100526-9
Blue lilac	4005	1356	2-100525-0	2478	2-100526-0
• Brilliant blue	5007	1567	3-100525-2	2348	3-100526-2
Reseda green	6011	2578	5-100525-4	1346	5-100526-4
* Cadmium yellow	1021	3456	5-100525-6	1278	5-100526-6
Slate gray	7015	3467	5-100525-9	1258	5-100526-9
Steel blue	5011	3478	6-100525-1	1256	6-100526-1
Pastel orange	2003	3568	6-100525-3	1247	6-100526-3
Ochre yellow	1024	4678	6-100525-9	1235	6-100526-9

¹ RAL is a Trademark of the Central Organization for product assurance in Germany.

• For CompactPCI 5.0V

* For CompactPCI 3.3V

† For CompactPCI Telephony

Note: The color/code no. combinations, listed above, follow IEC 61076-4-101 recommendations. Other versions are available, see drawings.

Contact Loading Variants

For contact loading variants of Z-PACK 2mm HM connectors, refer to the appropriate instruction sheet shown here. These sheets can be obtained from AMP FAX Service and allow you to select an existing contact loading to suit your requirements.

Instruction Sheet Numbers

	5 Row	5+2 Row	5 row feedthrough	5+2 feedthrough	8 and 8+2 row
Type A Male	411-19410	411-19412	411-19411	411-19413	Consult Tyco Electronics
Type B Male	411-19414	411-19416	411-19415	411-19417	
Type C Male	411-19418	411-19420	411-19419	411-19421	
Type B 22 Column Male	411-19425				
Type B 19 Column Male	411-19426				
Type M Male	411-19422				
Type M-MSD and Rev Male	411-19423				
5x5 Cross Connect Male	411-19427				
Right Angle Male, all types	411-19428				
Right Angle Female, all types	411-19429				

For complete product information, order Catalog 65911

Universal Power Module - Vertical Receptacle

The AMP Universal Power Module is a three position, modular, Hard Metric board-to-board power connector designed to be compatible with Z-PACK 2mm HM Connectors. The design is in an "inverse-sex" orientation and the vertical receptacle module meets the IEC 950 safety requirements for finger probe protection.

Both the headers and receptacle utilize ACTION PIN press-fit leads for ease of assembly onto printed circuit boards. Additionally, the vertical receptacle leads are polarized to allow only one orientation onto the printed circuit board, eliminating the possibility of reverse placement.

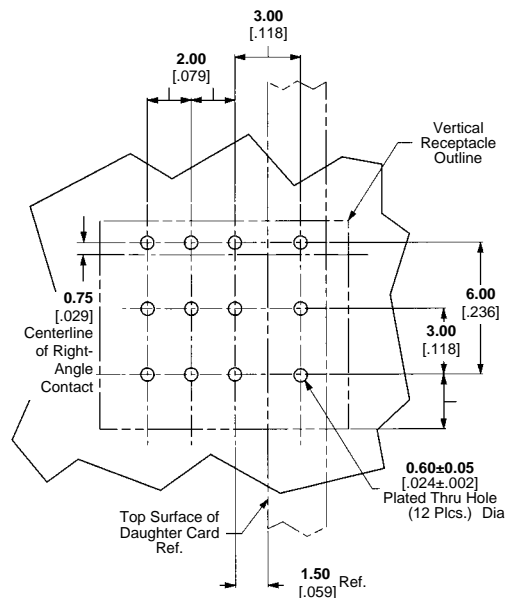
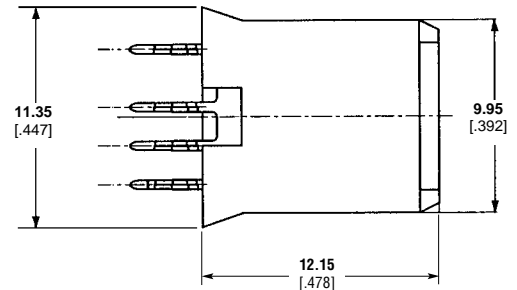
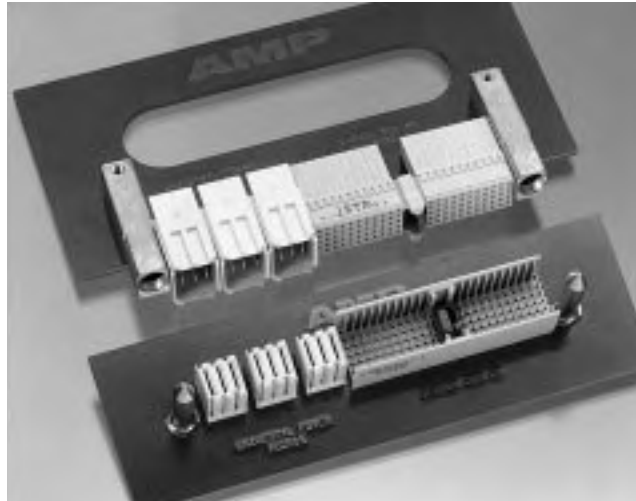
The Universal Power Module is compatible with a wide variety of other AMP board-to-board connectors including Z-PACK Stripline 100, AMP-HDI, TBC, TBC Plus and Eurocard connectors.

The housing is a high temperature thermoplastic, and the phosphor bronze contacts are gold-over-nickel plated on the mating surfaces.

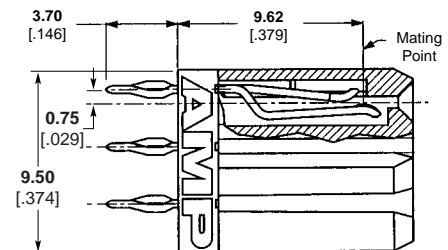
The modules are rated to carry a maximum of 23.5 amperes or 7.8 amperes per contact, fully energized for up to 250 mating cycles.

The right angle header contacts are available with sequenced lengths for "make-first/break-last" applications.

Generous alignment features designed into the housings and optional guide pins and receptacles make the AMP Universal Power Module ideal for "blind mating" applications.



Recommended PC Board Hole Layout



	Position Loaded	Part Numbers
Vertical Receptacle	ABC	223955-2
	AC	223984-1

For complete product information, order Catalog 65911

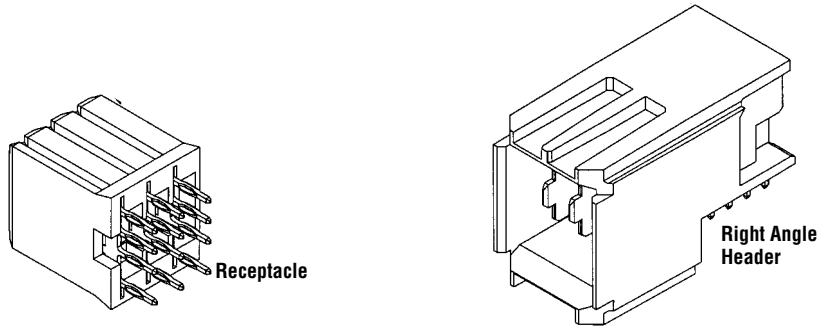
Universal Power Module - Right Angle Header

Material and Finish:

Housing — Liquid crystal polymer, natural color

Contacts — Phosphor bronze, plated 0.00127 [.000050] min. gold in mating area, 0.00050 [.000020] min. tin-lead on ACTION PIN post area, with entire contact underplated 0.00127 [.000050] min. nickel

Note: Contact lubrication with Bellcore approved lubricant



Related Product Data:

Guiding Hardware (Optional) — page 3042.

Application Tooling:

Header — Seating Tool, 224441-1
Board Support Fixture, 224442-1.

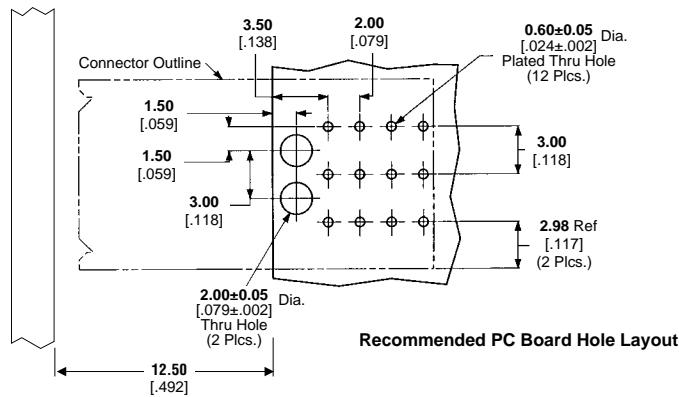
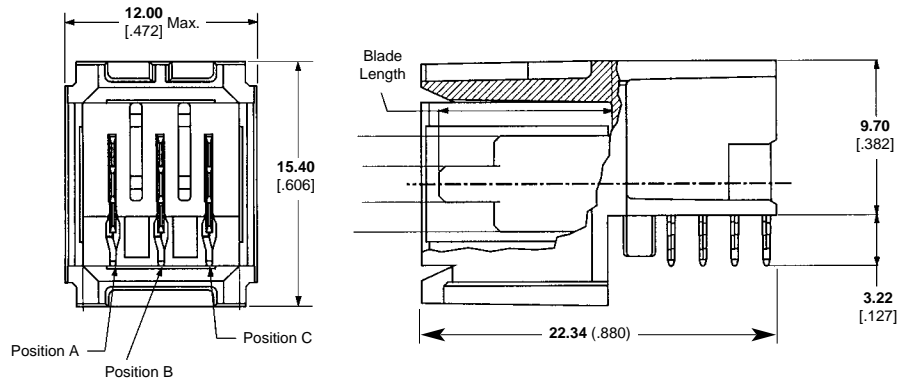
Receptacle — Seating Tool, 224421-1
Board Support Fixture, 217602-1.

Technical Documents:

Product Specification
108-1651

Application Specification
114-1103

Instruction Sheet
408-4169 (Receptacle)
Seating Tool 224421-1)



Blade Length Dimensions			Right Angle Header
Position A	Position B	Position C	Part Numbers
10.90 .429	10.90 .429	10.90 .429	223961-1
10.90 .429	9.30 .366	10.90 .429	223962-1
10.90 .429	9.30 .366	9.30 .366	223968-1
10.90 .429	7.68 .302	10.90 .429	223972-1
10.90 .429	7.68 .302	9.30 .366	223971-1
10.90 .429	7.68 .302	7.68 .302	223970-1
9.30 .429	10.90 .429	9.30 .366	223963-1
9.30 .366	10.90 .429	7.68 .302	223964-1
9.30 .366	9.30 .366	9.30 .366	223967-1
9.30 .366	—	9.30 .366	223975-1
9.30 .366	9.30 .366	7.68 .302	223981-1
9.30 .366	7.68 .302	9.30 .366	223965-1
7.68 .302	9.30 .366	7.68 .302	223983-1
7.68 .302	7.68 .302	9.30 .366	223980-1
7.68 .302	7.68 .302	7.68 .302	223974-1

For complete product information, order Catalog 65911

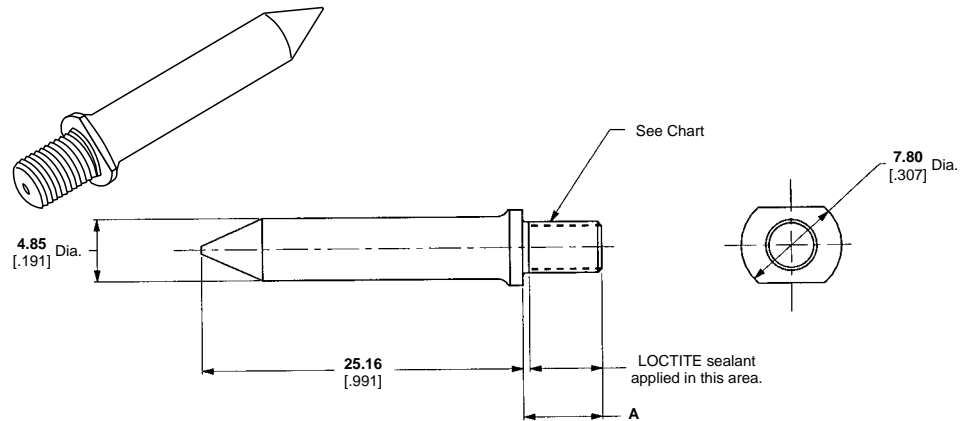
Guiding Hardware

Guide Pin

Material and Finish:

Passivated stainless steel

Part Number 223956-1



A	Thread	Part Numbers
7.5 .295	M4 x 7-6G	223982-1*
9.2 .362	M4 x 7-6G	223969-7
12.7 .500	8-32 UNC-2A	223969-4
12.7 .500	M4 x 7-6G	223969-1
6.2 .244	M4 x 7-6G	223956-1

*6.35 Hex Base

Female Guide Module

Material and Finish:

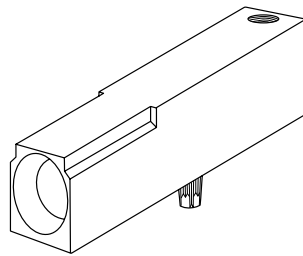
Zinc alloy, chromate conversion coated

Related Product Data:

Application Tooling —

Seating Tool, 224440-1

Board Support Fixture, 217603-1



Technical Documents:

Product Specification

108-1651

Application Specification

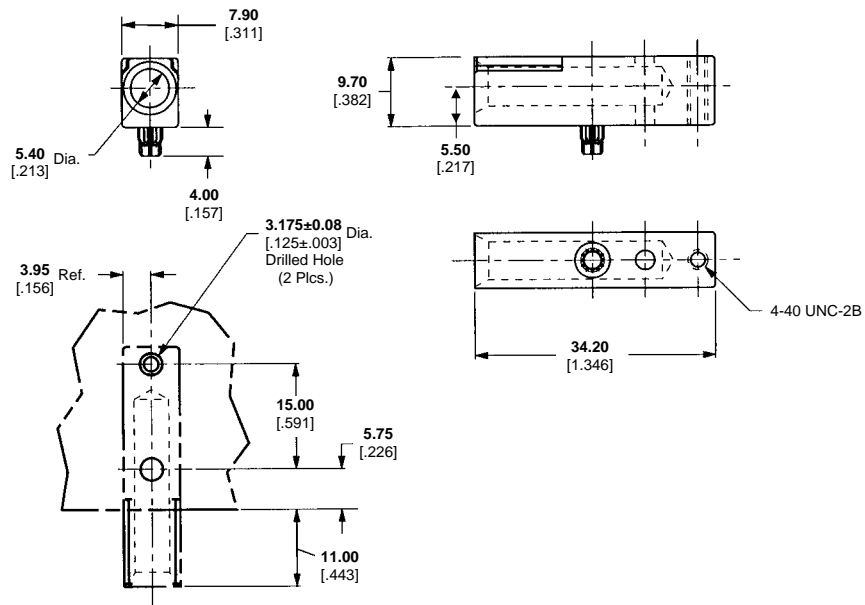
114-1103

Part Number 223957-1

(as shown)

Part Number 223979-1

(dual alignment posts)



Recommended PC Board Hole Layout

For complete product information, order Catalog 65911

Guiding Hardware

Static Discharge Guide Pins

Ground connection and guidance can be combined using this system which can be used instead of the guide pins shown on page 3042. The contacts have a rating of 10A and give a make/break position 12mm [.472] in advance of level 3 signal contacts.

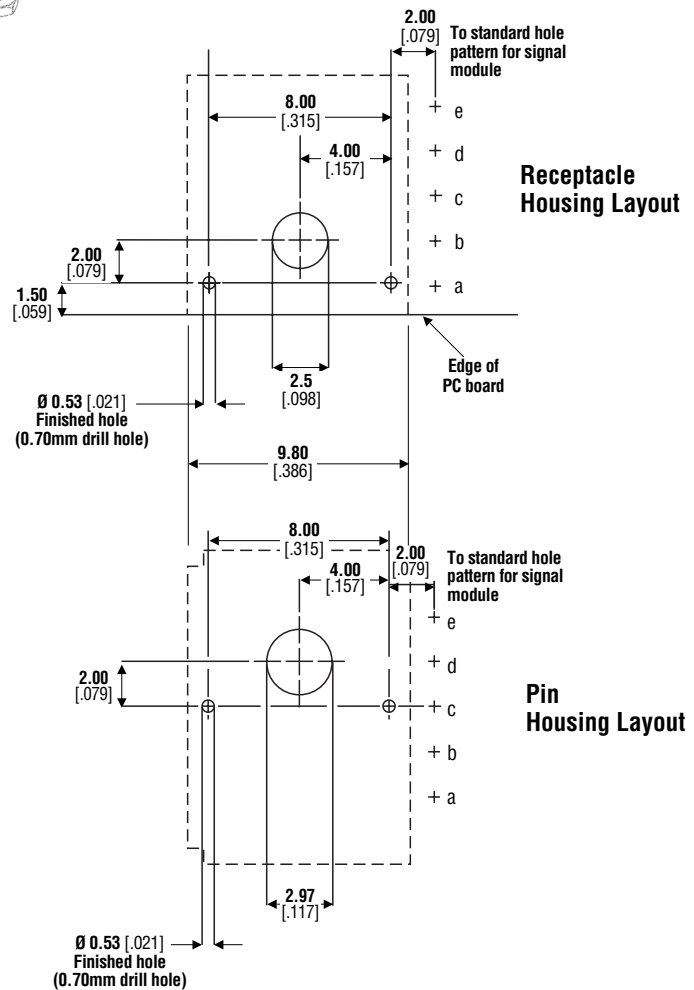
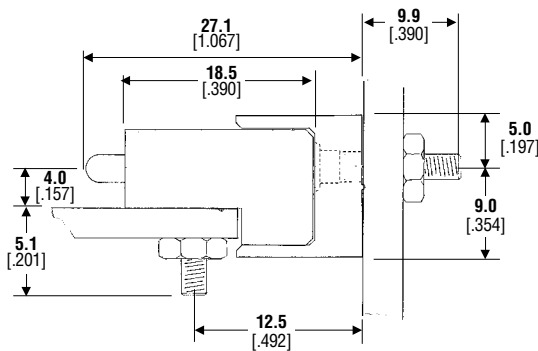
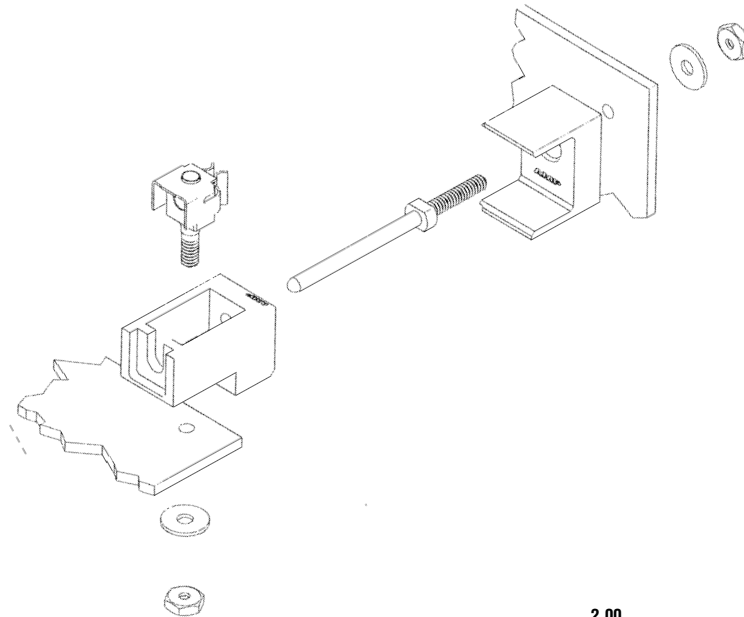
Alternative pin lengths are possible and the pin contact housing can be omitted if desired.

Materials and Finish:

Housings — Glass filled polyester gray, UL94 V-0 rating

Contacts — Pin Brass Receptacle Copper alloy

Plating — 0.8µm Au in contact area over 0.8µm min Ni



Part Numbers	
Pin Contact	532828-5
Pin Contact Housing	646274-1
Receptacle Contact	533065-6
Rec Contact Housing	646273-1
Nut	21124-4
Washer	986794-1

For complete product information, order Catalog 65911

Dimensions and Tolerances

Coordination dimensions and tolerances

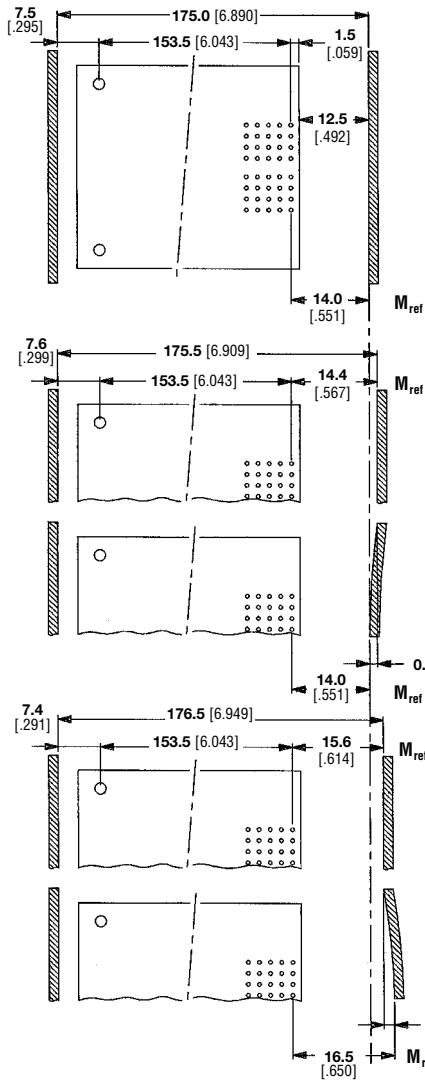
The accompanying diagrams show the depth dimensions used in the equipment practice, used for both 2mm and 2.5mm [.079 and .098] systems, and allowable tolerances for subrack and backplane bending.

Coordination Dimension M_{ref}

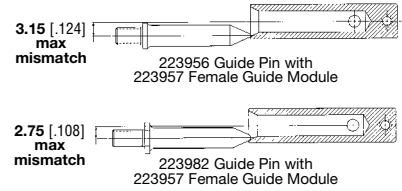
As defined in the DIN 43356 and IEEE 1301 Hard Metric equipment practices for the 2.5mm system, and used in IEC 61076-4-101, the dimension **M_{ref}** is the range for free board engagement with the backplane.

The specified contact mating must be maintained on a mated pair of connectors, within the range of **M**=14 to 16.5mm [.551 to .650] for the shortest mating level 1.

For mating levels 2 and 3 the contact ranges are 14 to 18mm [.551 to .709] and 14 to 19.5mm [.551 to .768].



Coordination Dimensions



Subrack tolerances

Worst case condition 1 without back panel bending

Worst case condition 1 with back panel bending

Subrack tolerances

Worst case condition 2 without back panel bending

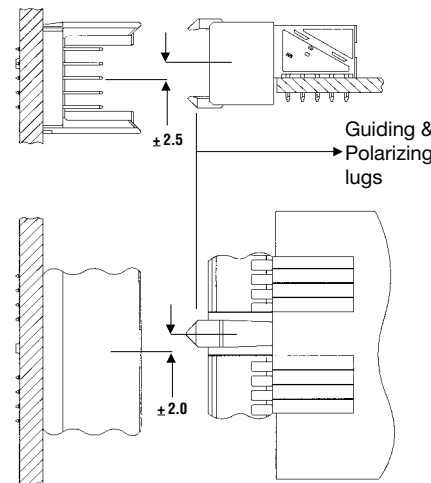
Worst case condition 2 with back panel bending

Misalignment and inclination tolerances

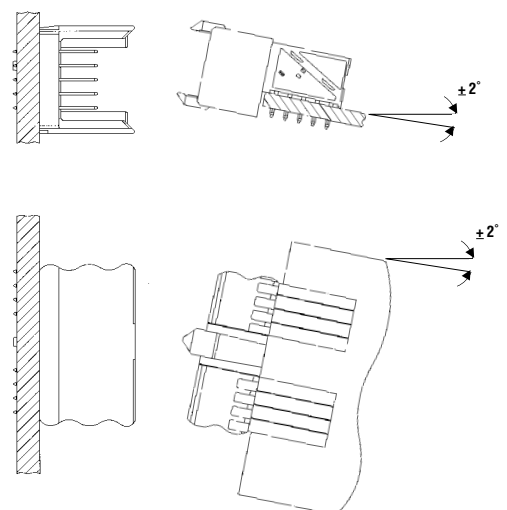
Guiding and polarizing lugs of Type A, M and L connectors, also at ends of Type C and N, allow the mating tolerances shown here.

Tolerances apply only when guide lugs are separated by only one Type B module without lugs.

Allowed misalignment, transverse & longitudinal axes



Allowed inclination, transverse & longitudinal axes



For complete product information, order Catalog 65911

Dimensions

Fixed Board Male Connectors

Type A, B, C, M, M-MS-C and M-MS-C-rev. fixed board male connectors have signal contact positions identified by row letters and column numbers, shown right, viewed toward the frontside of the backplane.

Contact positions can be filled or left unfilled, as required, for a customer's circuit arrangement. Contact pins for each position can be specified from any of the options shown below, excepting:

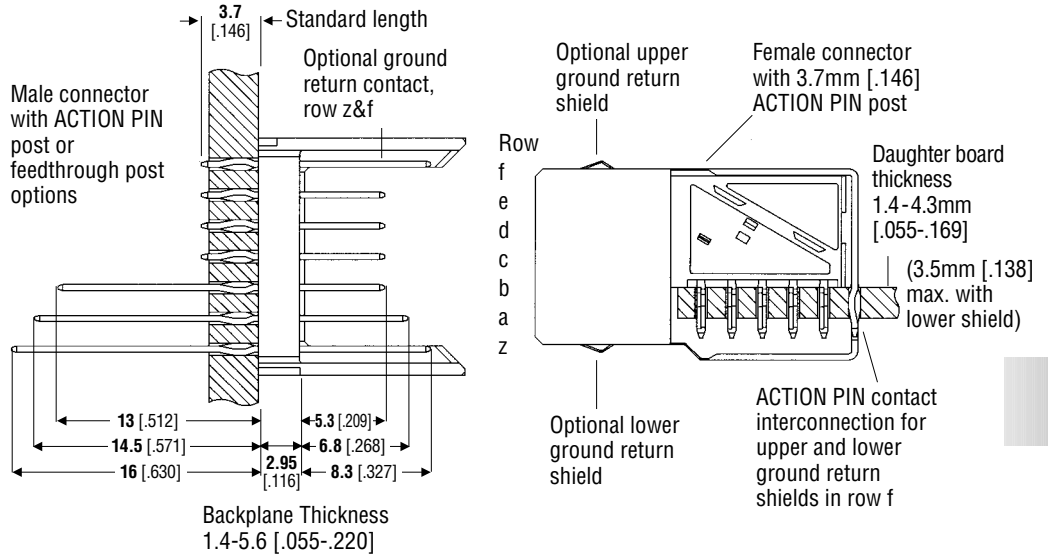
- Rows **z** and **f**, for ground return shield contacts only, must always be level 3.
- Row **b** is not available for level 3 (length 11.2mm [.441]) contacts when mating with a right angle female connector.
- For rear board cable connectors, use posts providing rear mating length 1 after allowing for board thickness, unless sequenced mating is required.

Use the codes A-V to specify front/rear contact for each position on the special option chart, see Catalog 1307515.

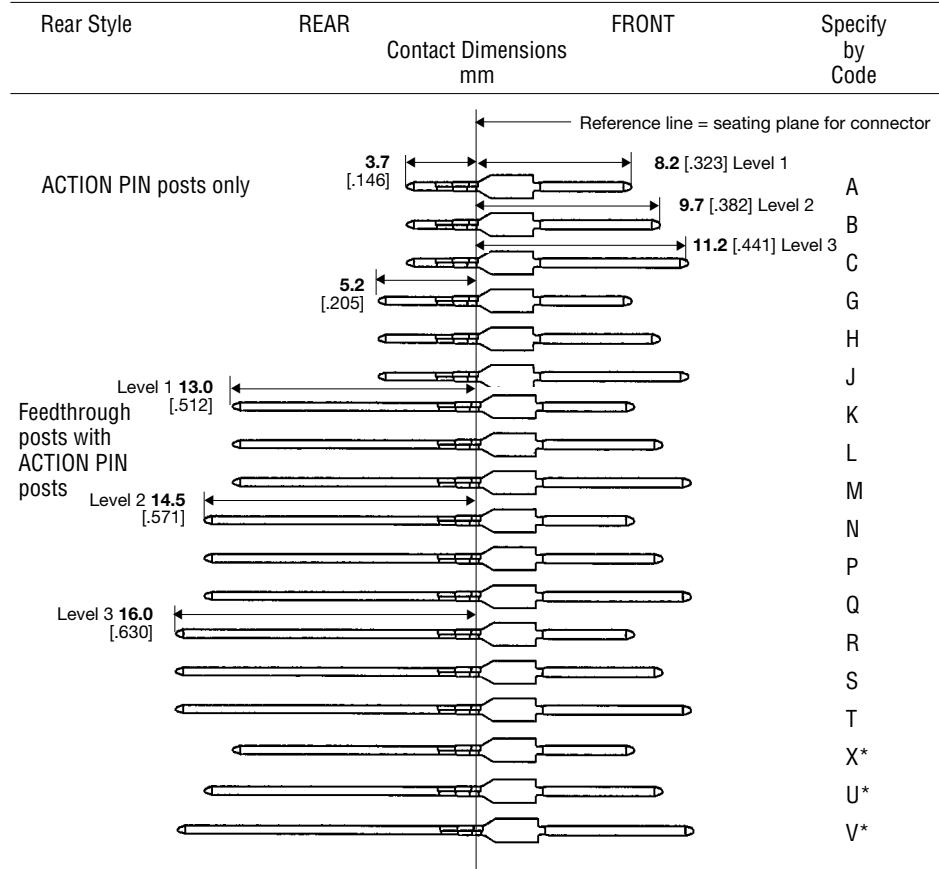
Midplane Cross-connect Applications

Cross-connections, require the feedthrough posts to be rotated 90°, so that the mating surface aligns with the female receptacle spring beams.

Connector Types



Male Pin Options



*X,U,V are only used for cross connect applications. Not all versions are tooled.

For complete product information, order Catalog 65911

Z-PACK 2mm HM Connector Insertion Tooling — Flat Rock Style

There are two styles of connector insertion tooling available to suit different production needs.

■ “Flat Rock” - tools are fitted to the connector and are suitable for multiple connector insertion when used with a high force press

■ Quick Change (see page 3048)

Description	Part Numbers		Instruction Sheet Number
	Upper Insertion Tooling	Support Tooling	
Instruction sheet summary (with insertion information for most 2mm HM components)	—	—	411-19305
Upper and Lower Adapters for AMP insertion machines. For all types	—	679980-1/2/3	408-4038
Vertical Males			
5/5+2 row, Type A	90753-1	†	408-9912
5/5+2 row, Type B	90755-1	†	408-9914
5/5+2 row, Type B (19 columns)	90755-3	—	—
5/5+2 row, Type B (22 columns)	90755-2	†	—
5/5+2 row, Type C	90757-1	†	408-9916
8/8+2 row, Type D	224671-2	†	408-4281
8/8+2 row, Type E	224668-2	†	408-4282
8/8+2 row, Type F	224668-3	†	408-4282
Right Angle Females - Unshielded			
Type A	122559-1	122561-1	408-4216
Type B	122559-1	122561-1	408-4216
Type C	122559-1	122561-1*	408-4216
Type D	318866-1	318867-1	408-4304
Type E	318866-1	318867-1	408-4304
Type F	91326-1	318867-1*	408-4304
Right Angle Females - Shielded			
Type A (except TDM J4)	122562-1	122561-1	408-4382
Type A for TDM J4	91316-1	—	—
Type B	122562-1	122561-1	408-4382
Type B (19 columns)	122562-1	122561-1*	408-4382
Type B (22 columns)	122562-1	122561-1*	408-4382
Type AB (19 columns)	122562-1*	122561-1*	408-4382
Type AB (22 columns)	122562-1*	122561-1*	408-4382
Type C	122562-1	122561-1*	408-4382
Type D	318868-1	318867-1	408-4430
Type E	318868-1	318867-1	408-4430
Type F	91327-1	318867-1	408-4430
Lower Shields			
Type A and B, Right Angle Female	122563-1	122562-1	408-4383
Type C and M, Right Angle Female	122563-1	122562-1	408-4383
Type D and E, Right Angle Female	318869-1	318868-1	408-4429
Type F, Right Angle Female	318869-1	318868-1	408-4429

Description	Part Numbers		Instruction Sheet Number
	Upper Insertion Tooling	Support Tooling	
Right Angle Males			
Type A	—	122561-1	408-4216
Type B	—	122561-1	408-4216
Type B (22 columns)	—	122561-1*	408-4216
Type B (19 columns)	—	122561-1*	408-4216
Type C	—	122561-1*	408-4216
Type D	—	—	—
Type E	—	—	—
Vertical Females			
Type A	—	122561-1	—
Type B	—	122561-1	—
Type B (22 columns)	—	122561-1*	—
Type B (19 columns)	—	122561-1*	—
Type C	—	122561-1*	—
Type D	—	—	—
Type E	—	—	—
Shrouds & Spacers			
Type A Shroud and Spacer	90753-1	90753-1	408-9912
Type A, One Piece Shroud	90753-1	90753-1	408-9912
Type B Shroud and Spacer	90755-1	90755-1	408-9914
Type B (19 columns)	90755-3	90755-3	408-9914
Type B (22 columns)	90755-2	90755-3	408-9914
Type B, One Piece Shroud	90755-1	90755-1	408-9914
Type AB, One Piece Shroud (19 columns)	—	90753-1	408-9912
Type AB, One Piece Shroud (22 columns)	—	90753-1	408-991
Type C Shroud and Spacer	90757-1	90757-1	408-9916
Type C, One Piece Shroud	90757-1	90757-1	408-9916
Type D Shroud and Spacer	224671-2	—	408-4281
Type D, One Piece Shroud	224671-2	—	408-4281
Type E Shroud and Spacer	224668-2	—	408-4282
Type E, One Piece Shroud	224668-2	—	408-4282
Type F, One Piece Shroud	224668-3	—	408-4282
Universal Power Module			
Right Angle Male	224441-1	224442-1	408-4280
Vertical Female	224421-1	217602-1	408-4169

* Tool length exceeds connector length; check that tool does not interfere with other components
† Customer Supplied

Contact the Technical Support Center at 1-800-522-6752 if tooling is not indicated.

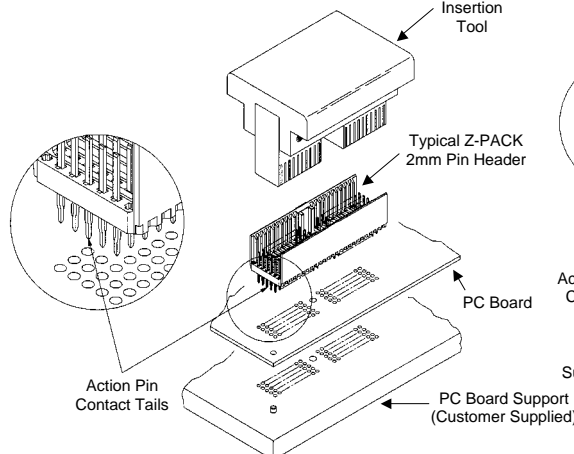
Flat Rock Insertion Machine (Seating Machine) Options:

1. SM-3 Pneumatic Machine 814700-2
2. SM-10 Electric/Hydraulic Machine 803880-6
3. Manual Arbor Frame 58024-1

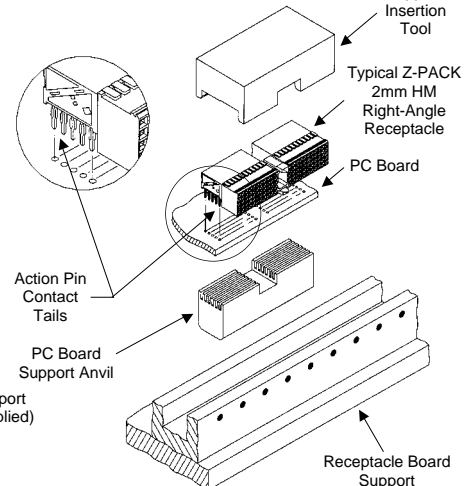
Pin Repair Kit Part Number 354687-1 for Z-PACK 2mm HM and FB Pin Contacts

Instruction Sheet 408-9979

Male Connector Insertion



Female Connector Insertion



For complete product information, order Catalog 65911

Z-PACK 2mm HM Connector Insertion Tooling — Quick Change

- Quick Change - inserts are attached to the press

All presses can be supplied to suit local power supply conditions. The manual press is recommended for repair tasks.

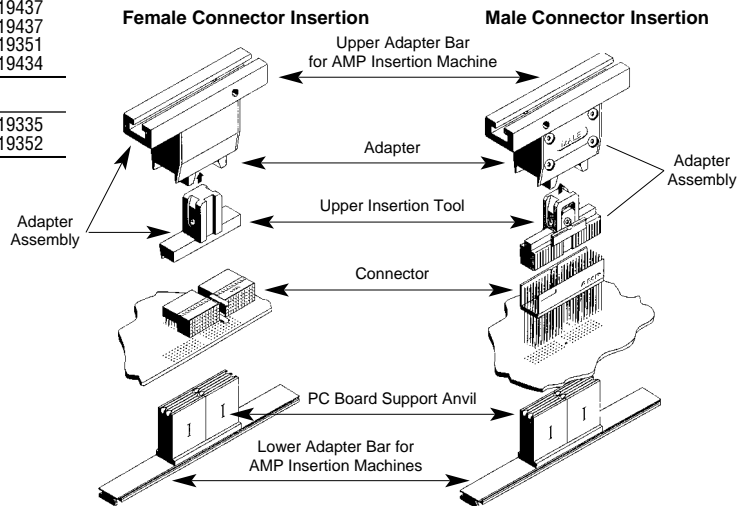
Description	Part Numbers		Instruction Sheet Number
	Upper Insertion Tooling	Support Tooling	
Instruction sheet summary (with insertion information for most 2mm HM components)			411-19305
Upper and lower adapters for AMP insertion machines. For all types except L, M, N, L-MS-C and M-MS-C		679980-1/2/3	411-19306 408-4038
Vertical Males			
5/5+2 row, Type A	438001-1	438051-1	411-19312
5/5+2 row, Type B	438002-1	438051-1	411-19313
5/5+2 row, Type B (19 columns)	438002-2	438051-4	411-19313
5/5+2 row, Type B (22 columns)	438002-3	438051-6	411-19313
5/5+2 row, Type C	438003-1	438051-2	411-19314
8/8+2 row, Type D	438051-2	438051-3	411-19432
8/8+2 row, Type E	439491-1	438051-3	411-19432
8/8+2 row, Type F	—	—	—
Type L	438001-1	438056-1	411-19315
L-MS-C	438014-1	438056-1	411-19318
Type M	438001-1	438057-1	411-19316
M-MS-C	438015-1	438057-1	411-19319
M-MS-C reverse	438015-1	438057-1	411-19320
Type N	438003-1	438056-2	411-19317
Right Angle Females - Unshielded			
Type A	438031-1	438051-1	411-19324
Type B	438031-1	438051-1	411-19325
Type C	438032-1	438051-2	411-19326
Type L	438031-1	438052-1	411-19327
L-MS-C	438070-1	438056-1	411-19330
Type M	438031-1	438054-1	411-19328
M-MS-C	438072-1	438057-1	411-19331
M-MS-C reverse	438071-1	438057-1	411-19332
Type N	438032-1	438052-2	411-19329
Right Angle Females - Shielded			
Type A (except TDM J4)	438036-1	438051-1	411-19334
Type A for TDM J4	1115335-1	438051-1	411-19334
Type B	436036-1	438051-1	411-19334
Type B (19 columns)	438036-2	438051-4	411-19437
Type B (22 columns)	438036-3	438051-6	411-19437
Type AB (19 columns)	438036-2	438051-4	411-19437
Type AB (22 columns)	438036-3	438051-6	411-19437
Type C	438037-1	438051-2	411-19437
Type D	439491-1	438051-7	411-19351
Type E	439491-1	438051-7	411-19434
Lower Shields			
Type A and B, Right Angle Female	438041-†	438053-1	411-19335
Type C and M, Right Angle Female	438042-†	438053-2	411-19352

- Quick Change Tooling Options:
- SM-3 Pneumatic Machine 814700-2
 - SM-10 Electric/Hydraulic Machine 803880-6
 - Manual Arbor Frame 58024-1

Description	Part Numbers		Instruction Sheet Number
	Upper Insertion Tooling	Support Tooling	
Right Angle Males			
Type A	438031-1	438051-1	411-19344
Type B	438031-1	438051-1	411-19345
Type B (22 columns)	438036-2	438051-4	411-19345
Type B (19 columns)	438036-3	438051-6	411-19345
Type C	438032-1	438051-2	411-19346
Vertical Females			
Type A	438076-1	438051-1	411-19377
Type B	438076-1	438051-1	411-19377
Type B (22 columns)	438076-1*	438051-4	411-19377
Type B (19 columns)	438076-1*	438051-6	411-19377
Type C	438077-1	438051-2	411-19377
Shrouds & Spacers			
Type A Shroud and Spacer	438001-1	438058-1	411-19337
Type B Shroud and Spacer	438002-1	438058-1	411-19338
Type B (19 column)	438002-3	438058-1*	411-19338
Type B (22 column)	438002-2	438058-1*	411-19338
Type B, One Piece Shroud	438002-1	438058-1	—
Type C Shroud and Spacer	438003-1	438058-1	411-19339
Type C, One Piece Shroud	438003-1	438058-1	—
EMI/RFI Shields			
EMI/RFI Right Angle Female, Upper	438036-1	438051-1	411-19334
EMI/RFI Right Angle Female, Lower	438041-†	438053-1	411-19335
EMI/RFI Right Angle Female, Closing	438023-1	438051-2	411-19336
EMI/RFI Vertical Male, Sides	438020-1	438051-1	411-19322
EMI/RFI Vertical Male, Closing	438021-1	438051-2	411-19323

† Part number suffix depends on application. See instruction sheet for details.
* Tool length exceeds connector length; check that tool does not interfere with other components.

Contact the Technical Support Center at 1-800-522-6752 if tooling is not indicated.



For complete product information, order Catalog 65911

Z-PACK 2mm HM Connector Insertion Tooling

There are two styles of connector insertion tooling available to suit different production needs.

- **Quick Change** - inserts are attached to the insertion machine
- **"Flat Rock"** - tools are fitted to the connector and are suitable for multiple connector insertion when used with a high force insertion machine

All insertion machines can be supplied to suit local power supply conditions. The manual hand tool is recommended for repair tasks.

Quick Change

This tooling is designed so that it can be fitted to the machines. These tools allow the sequential fitting of connectors to the board by selection of the appropriate inserts. Fitting to other types of machines is possible by selecting adapters without the upper and lower adapter bars.

ICIM (Intelligent Connector Insertion Machine)

Part Number 67941-□

- Capacity of 27 500 N [6180 lb] with 5 bar air supply
- Force and stroke control (compensates for printed circuit board thickness)
- Fitted with an inhibitor (detects if the X-Y table is not aligned correctly)
- Detects faulty connector insertion
- X-Y tables optional
- Actual dash (-) number depends on voltage needed
- See catalog 889943 for more details

Pneumatic Insertion Machine

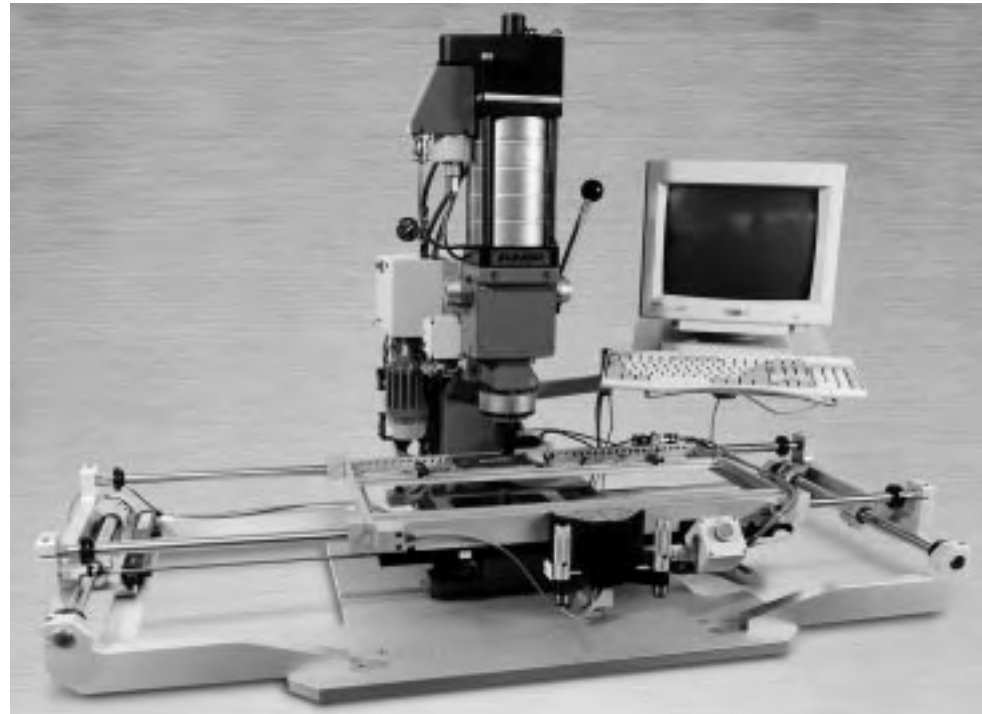
Part Number 677420-1

- Controllable insertion force from 0.5- 25 000 N [1.1-5620 lb]
- 250 mm [9.843] throat depth
- Moveable lower tool holder
- Manual X-Y table with adjustable stops
- Recommended for high volume production of backplanes and daughter cards
- See catalog 889943 for more details

Pneumatic Insertion Machine (with circuit board support platform)

Part Number 677427-2

- Similar to Pneumatic Insertion Machine Part Number 677420-1 (above)
- X-Y table replaced with a circuit board support platform
- See catalog 889943 for more details



ICIM (Intelligent Connector Insertion Machine)

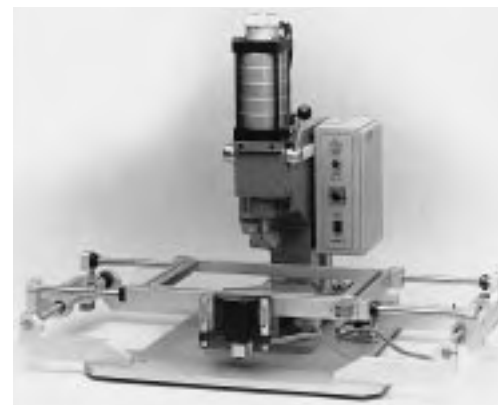


Hand Tool

Manual Hand Tool

Part Number 677430-2

- Insertion force 15 000 N [3370 lb]
- 125mm [4.921] throat depth
- Fixed lower tooling and board support
- Low volume production
- Prototyping
- Use with repair tools



Pneumatic Insertion Machine



Pneumatic Insertion Machine (with Circuit Board Support Platform)

For complete product information, order Catalog 65911

Product Facts

- High-density connections; four-row and five-row, 2mm x 2mm circuit grid
- Modular design for signal and power connections
- Compatible to International Specifications IEC61076-4-0X(48B) and EIA SP3179
- Choice of solder leads or compliant press-fit leads
- Bellcore approved (Contact Tyco Electronics for specific part numbers)
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR7189
- Current Rating at 70°C Continuous Signal Contacts: 1A, Power Contacts: 4.6A

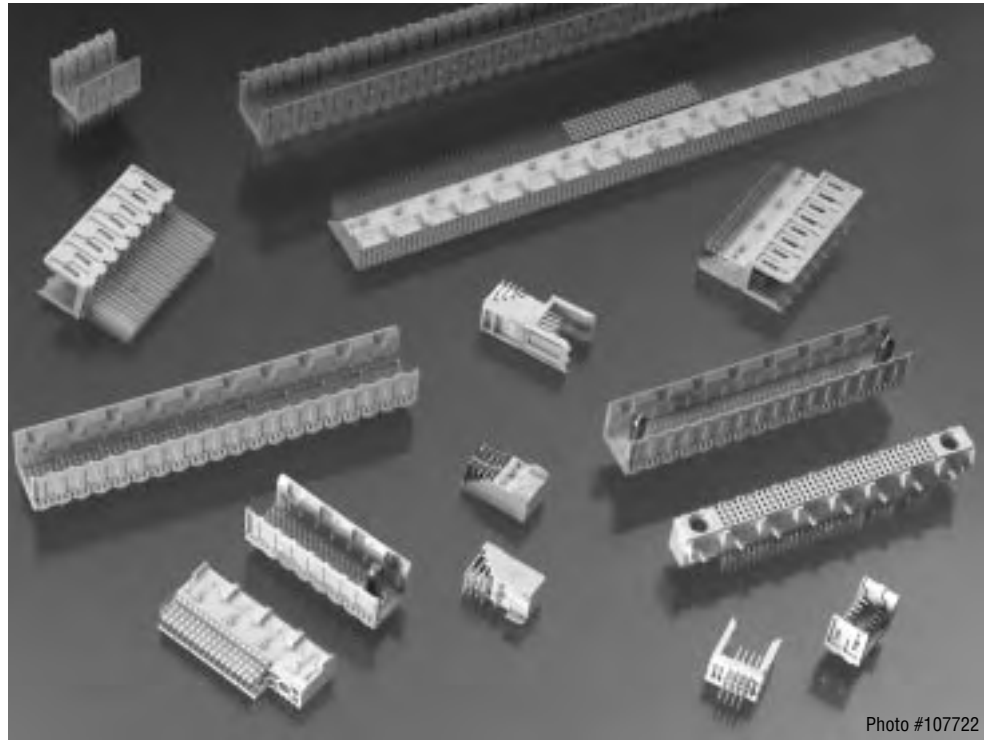


Photo #107722

Material Specification:

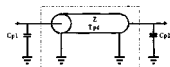
Liquid Crystal Polymer — per ASTM D5138 LCP000 G30A 32250 UL94V-0 Rated

Phosphor Bronze — per UNS Alloy No. C51100

Gold — per MIL-G-45204, Type I, Grade C

Tin-Lead — per MIL-P-81728

Nickel — per QQ-N-290, Class 2



AMP Single Line and Multi Line Models, and Electrical Performance Reports are available for Z-PACK 2mm FutureBus+ connectors at www.amp.com/simulation, or by requesting CD#1307568.

The AMP Z-PACK 2mm FB two-piece connector system uses a modular concept and a 2mm contact pitch to provide high-density, high-speed signal and power connections for FutureBus+ and FutureBus+ “like” applications. These versatile connectors are designed to meet the requirements of International Specification IEC61076-4-0X(48B) with applications that include networking and telecommunications equipment.

Signal and power modules are available in pin and receptacle assemblies with a choice of either solder

leads or compliant press-fit leads. Compliant press-fit leads offer fast, solderless application to printed circuit boards. Pin and receptacle housings are made of a high temperature liquid crystal polymer. Contacts are duplex plated gold on the mating surfaces and tin-lead on the leads for performance and reliability. The signal modules are end-to-end stackable, providing 88 signal lines per cm [50.8 signal lines per inch].

Signal pin and receptacle modules are available in position sizes of 24 through 264 in increments of 24 positions for 4 row. Sizes of

30 through 330 in increments of 30 position for 5 row. Power pin and receptacle modules are available in an 8-position size with compatible footprints for 4 row. Available in a 10 position size with compatible footprints for 5 row. Signal and power modules are available in integrally molded Monoblock configurations for added versatility.

Press-Fit Contact/PC Board Applications

Connector (Contact) Type	Press-Fit Contact		Drilled Hole Diameter	Plating Thicknesses		Plated-Through Hole Diameter	Radial Hole Distortion	
	Minimum Board Thickness	Material Thickness		Copper ¹	Tin-Lead		Average	Maximum
Receptacle Assemblies	1.30 .051	0.355 .014	0.81-0.86 .032-.034	0.025 .0010 Min.	0.015 .0006 Max.	0.65-0.80 .026-.031	0.038 .001	0.05 .002
Pin Assemblies	2.40 .094	0.50 .020	0.81-0.86 .032-.034	0.025 .0010 Min.	0.015 .0006 Max.	0.65-0.80 .026-.031	0.038 .001	0.05 .002

¹Maximum hardness of copper layer is 150 Knoop

For complete product information, order Catalog 65358

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-1441 Connector, Z-PACK 2mm FutureBus+, Signal and Power

Application Specification

describes the requirements for using the product in its intended application. It is intended for the Packaging and Design Engineer and the set-up person.

114-1075 Z-PACK 2mm FutureBus+ Receptacle and Pin Header Connectors.

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

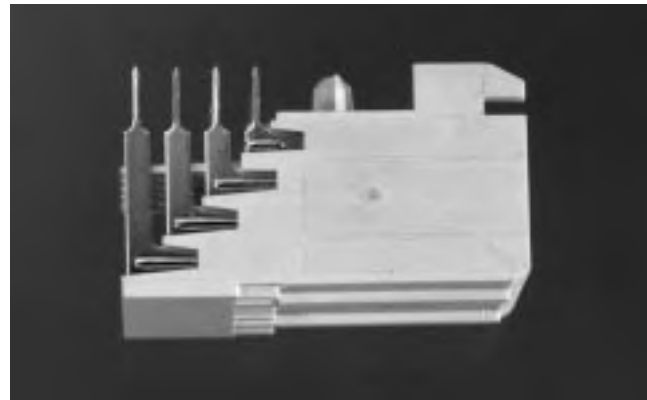
408-4157 AMP Vertical Power Contact Header Connector Seating Tool, 58512-[]

408-4038 PC Board Support Fixtures 679980-1, -2 for AMP Z-PACK 2mm FutureBus+ and Z-PACK 2mm HM Receptacle Tooling.

408-4166 Shunted Signal Header Seating Tool for Z-PACK 2mm FutureBus+ Connectors

408-4250 Signal Header Seating Tool for 5 Row Z-PACK 2mm FutureBus+ Connectors 318860-[]

- **Low applied cost and inexpensive tooling**
- **Cold hold feature eliminates heat staking and problems associated with heat staking**
- **Housing extends over the back of the connector protecting the leads during shipping, handling, and assembly**
- **Leads are stamped to shape versus bent to shape, giving excellent structural strength**
- **Compliant pin lead option can be used to apply connectors on surface mount cards, eliminating an additional soldering operation**
- **A secondary housing or tooling is not needed to insert the compliant pin contacts.**
- **Lead organizers are an integral part of the connector body**
- **Leads held into true position of .2mm for ease of insertion into boards**
- **Lead organizer enhances the rigidity of the leads**
- **Organizer can not dislodge from the connector**



408-6927 Design Recommendations for Printed Circuit Board Support Fixture.

408-9910 AMP Seating Tool 58511-[] for Z-PACK 2mm FutureBus+ Pin Headers with Compliant Lead Contacts

408-9979 Pin Repair Kit 354687-1 for Z-PACK 2mm HM and FB Pin Contacts

Electrical Performance Reports contain abstracts of the results of various computer simulations of electrical interconnection performance. They are intended for the Electrical and Design Engineer.

65476 Z-PACK 2mm FutureBus+ Connector (2mm Centerline, Four-Row, Right Angle Receptacle, Through-Hole Mount)

1242176 Z-PACK 2mm FutureBus+ Connector (2mm Centerline, Five-Row, Right Angle Receptacle, Through-Hole Mount)

For complete product information, order Catalog 65358

4 Row Signal Modules, Vertical Pin Assemblies, Fixed-Board Connector, 2mm x 2mm Circuit Grid

16mm Wide Body Pin Assemblies with Solder Leads and Compliant Press-Fit Leads

Material and Finish:

Housing — Liquid crystal polymer

Pin Contacts — Phosphor bronze, duplex plated gold 0.0008 min. on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel

Related Product Data:

Material Specifications — page 3049

Compliant Press-Fit Contact Specifications

— page 3049

Application Tooling — page 3057

Technical Documents:

Product Specification

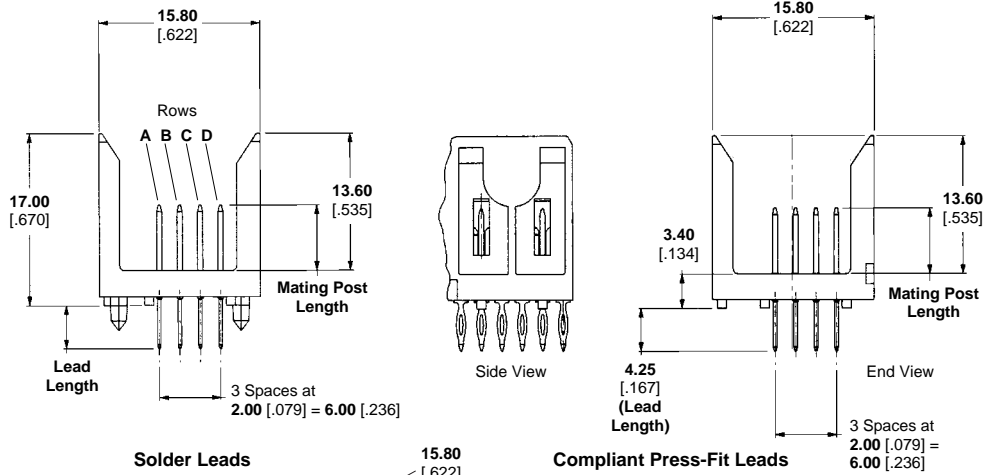
108-1441

Application Specification

114-1075

Electrical Performance Report

65476



Vertical Pin Assemblies with Solder Leads

No. of Positions	Dimension A	Part Numbers						
		Solder Lead Length of 4.25 [.167] Mating Post Lengths				Solder Lead Length of 3.20 [.126] Mating Post Length 6.50 [.256]		Seating Tooling
		5.00 [.197]	5.75 [.226]	6.50 [.256]	7.25 [.285]			
24	11.88 0.468	536513-1	536549-1	536501-1	—	536536-1	58511-1	
48	23.88 0.940	536513-2	536549-2	536501-2	536551-2	536536-2	58511-2	
72	35.88 1.413	—	—	1-536501-1	—	—	1-58511-4	
96	47.88 1.885	536513-3	—	536501-3	—	536536-3	58511-3	
120	59.88 2.357	—	—	536501-6	—	—	58511-6	
144	71.88 2.830	536513-5	—	536501-5	—	—	58511-5	
168	83.88 3.302	—	—	536501-7	—	—	58511-7	
192	95.88 3.775	536513-4	—	536501-4	536551-4	536536-4	58511-4	
216	107.88 4.247	—	—	536501-9	—	—	58511-8	
240	119.88 4.720	—	—	536501-8	—	—	58511-9	
264	131.88 5.192	—	—	1-536501-0	—	—	1-58511-0	

Vertical Pin Assemblies with Press-Fit Leads

No. of Positions	Dimension A	Part Numbers						
		Lead Length of 4.25 [.167] Mating Post Lengths				8.00 [.315]		Seating Tooling
		5.00 [.197]	5.75 [.226]	6.50 [.256]	7.25 [.285]			
24	11.88 0.468	536514-1	536524-9	536504-1	536542-1	536515-1	58511-1	
48	23.88 0.940	536514-2	536524-2	536504-2	536542-2	536515-2	58511-2	
72	35.88 1.413	—	—	1-536504-2	—	—	1-58511-4	
96	47.88 1.885	536514-3	536524-3	536504-3	536542-3	536515-3	58511-3	
120	59.88 2.357	536514-6	—	536504-6	536542-6	—	58511-6	
144	71.88 2.830	536514-5	—	536504-8	—	—	58511-5	
168	83.88 3.302	—	—	536504-5	—	—	58511-7	
192	95.88 3.775	536514-4	536524-4	536504-4	536542-4	536515-4	58511-4	
216	107.88 4.247	—	—	1-536504-0	—	—	58511-8	
240	119.88 4.720	—	536524-1	536504-9	—	—	58511-9	
264	131.88 5.192	—	—	1-536504-1	—	—	1-58511-0	

For complete product information, order Catalog 65358

5 Row Signal Modules, Vertical Pin Assemblies, Fixed-Board Connector, 2mm x 2mm Circuit Grid

18mm Wide Body Pin Assemblies with Solder Leads and Compliant Press-Fit Leads

Material and Finish:

Housing — Liquid crystal polymer

Pin Contacts — Phosphor bronze, duplex plated 0.0008 min. gold on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel

Related Product Data:

Material Specifications — page 3049

Compliant Press-Fit Contact Specifications — page 3049

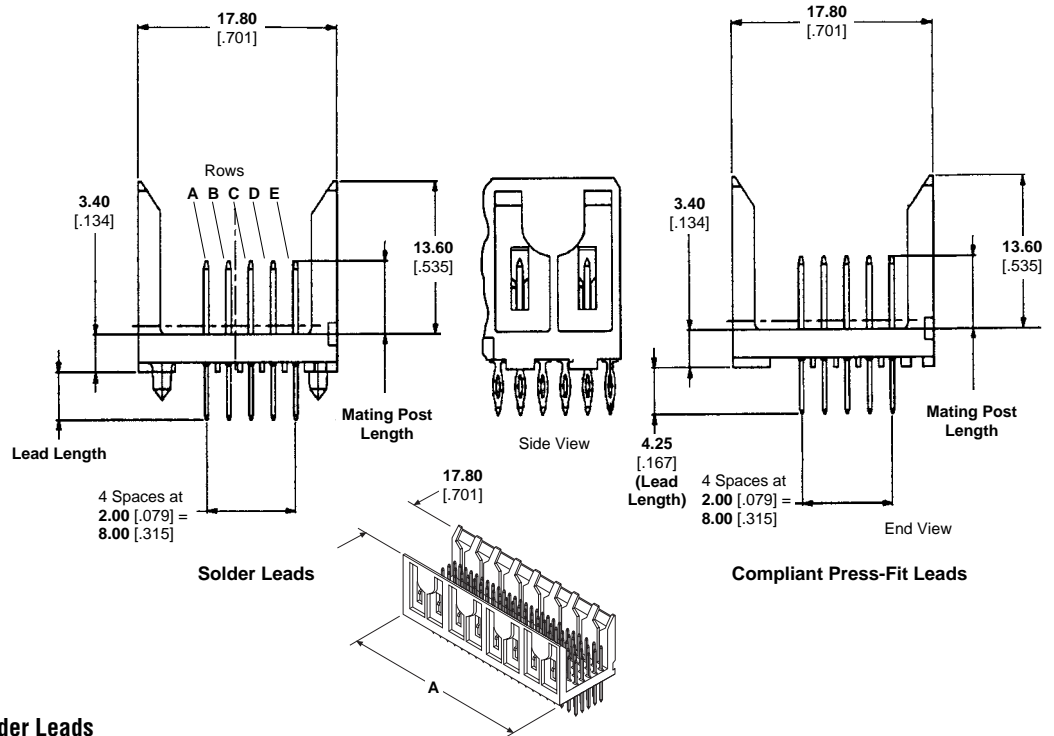
Application Tooling — page 3057

Technical Documents:

Product Specification
108-1441

Application Specification
114-1075

Electrical Performance Report
1242176



Vertical Pin Assemblies with Solder Leads

No. of Positions	Dimension A	Part Numbers				
		Solder Lead Length of 4.25 [.167] Mating Post Lengths		Solder Lead Length of 3.20 [.126] Mating Post Length 5.00 [.197]		Seating Tooling
		5.00 [.197]	6.50 [.256]	223000-1	223000-2	
30	11.88 0.468	223010-1	223000-1	223013-1	318860-1	
60	23.88 0.940	223010-2	223000-2	223013-2	318860-2	
90	35.88 1.413	—	223000-3	—	318860-3	
120	47.88 1.885	223010-4	223000-4	223013-4	318860-4	
150	59.88 2.357	—	223000-5	—	318860-5	
180	71.88 2.830	—	223000-6	—	318860-6	
210	83.88 3.302	—	223000-7	223013-7	318860-7	
240	95.88 3.775	223010-8	223000-8	223013-8	318860-8	
270	107.88 4.247	—	223000-9	—	318860-9	
300	119.88 4.720	—	1-223000-0	1-223013-0	1-318860-0	
330	131.88 5.192	—	1-223000-1	1-223013-1	1-318860-1	

Vertical Pin Assemblies with Press-Fit Leads

No. of Positions	Dimension A	Part Numbers					Seating Tooling
		Lead Length of 4.25 [.167] Mating Post Lengths					
		5.00 [.197]	5.75 [.226]	6.50 [.256]	7.25 [.285]	8.00 [.315]	
30	11.88 0.468	223011-1	223016-1	223002-1	223017-1	223018-1	318860-1
60	23.88 0.940	223011-2	223016-2	223002-2	223017-2	223018-2	318860-2
90	35.88 1.413	—	—	223002-3	—	—	318860-3
120	47.88 1.885	223011-4	223016-4	223002-4	223017-4	223018-4	318860-4
150	59.88 2.357	—	—	223002-5	—	—	318860-5
180	71.88 2.830	—	—	223002-6	—	—	318860-6
210	83.88 3.302	—	—	223002-7	—	—	318860-7
240	95.88 3.775	223011-8	223016-8	223002-8	223017-8	223018-8	318860-8
270	107.88 4.247	—	—	223002-9	—	—	318860-9
300	119.88 4.720	—	—	1-223002-0	—	—	1-318860-0
330	131.88 5.192	—	—	1-223002-1	—	—	1-318860-1

For complete product information, order Catalog 65358

4 Row Signal Modules, Right Angle Receptacle Assemblies, Free-Board Connector, 2mm x 2mm Circuit Grid

Receptacle Assemblies with Solder Leads and Compliant Press-Fit Leads

Material and Finish:

Housing — Liquid crystal polymer
Receptacle Contacts — Copper alloy 18C, duplex plated 0.0008 min. gold on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel

Related Product Data:

Material Specifications — page 3049

Compliant Press-Fit Contact Specifications — page 3049

Application Tooling — page 3057

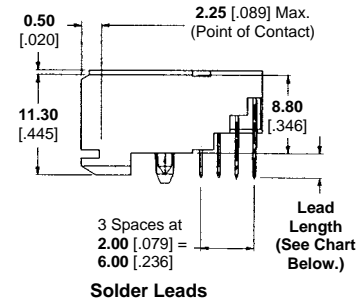
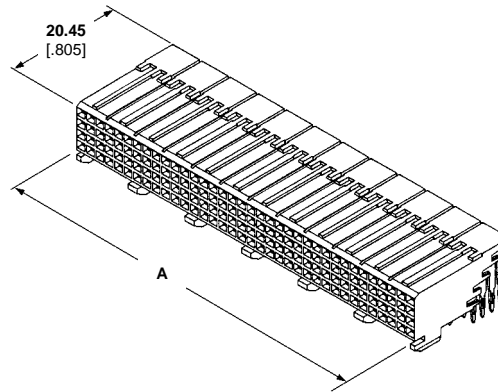
Technical Documents:

Product Specification
108-1441

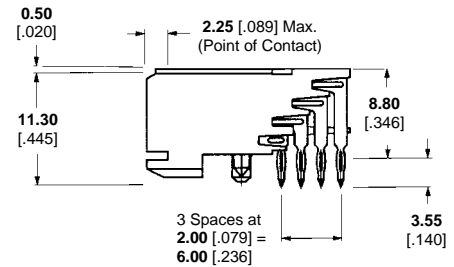
Application Specification
114-1075

Instruction Sheets
408-6927, 408-9910, 408-9979

Electrical Performance Report
65476



Solder Leads



Compliant Press-Fit Leads

Receptacle Assembly

No. of Positions	Dimension A	Part Numbers			Seating Tooling
		with Solder Leads		with Press-Fit Leads	
		2.73 [.107] Lead Length	3.53 [.139] Lead Length		
24	11.88 0.468	536507-1	536510-1	536511-1	
48	23.88 0.940	536507-2	536510-2	536511-2	
72	35.88 1.413	1-536507-1	—	1-536511-2	
96	47.88 1.885	536507-3	536510-3	536511-3	
120	59.88 2.357	536507-6	536510-6	536511-6	Industry Standard Flat Rock
144	71.88 2.830	536507-7	536510-5	536511-5	
168	83.88 3.302	536507-5	536510-7	536511-8	
192	95.88 3.775	536507-4	536510-4	536511-4	
216	107.88 4.247	536507-9	536510-9	1-536511-0	
240	119.88 4.720	536507-8	536510-8	536511-9	
264	131.88 5.192	1-536507-0	1-536510-0	1-536511-1	

Note: Consult Tyco Electronics for additional sizes.

3

Backplane / High Speed Connectors

For complete product information, order Catalog 65358

5 Row Signal Modules, Right Angle Receptacle Assemblies, Free-Board Connector, 2mm x 2mm Circuit Grid

Receptacle Assemblies with Solder Leads and Compliant Press-Fit Leads

Material and Finish:

Housing — Liquid crystal polymer
Receptacle Contacts — Copper alloy 18C, duplex plated 0.0008 min. gold on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel

Related Product Data:

Material Specifications — page 3049

Compliant Press-Fit Contact Specifications — page 3049

Application Tooling — page 3057

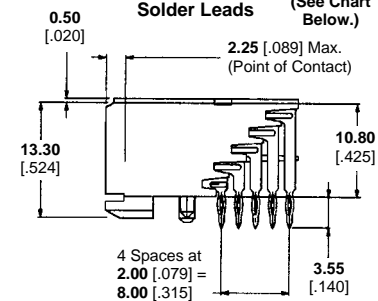
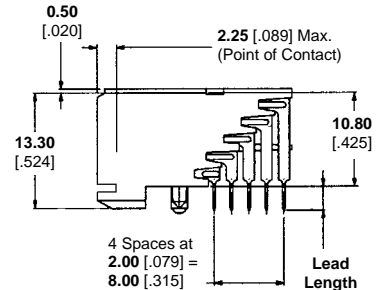
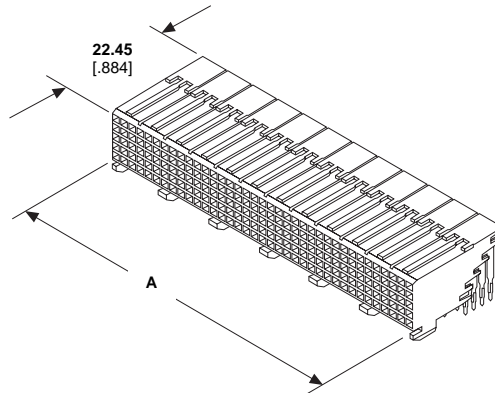
Technical Documents:

Product Specification
108-1441

Application Specification
114-1075

Instruction Sheets
408-6927, 408-9910, 408-9979

Electrical Performance Report
1242176



Receptacle Assembly

No. of Positions	Dimension A	Part Numbers			Seating Tooling
		with Solder Leads		with Press-Fit Leads	
		2.73 [.107] Lead Length	3.53 [.139] Lead Length		
30	11.88 .468	223004-1	223007-1	223008-1	Industry Standard Flat Rock
60	23.88 .940	223004-2	223007-2	223008-2	
90	35.88 1.413	223004-3	223007-3	223008-3	
120	47.88 1.885	223004-4	223007-4	223008-4	
150	59.88 2.357	223004-5	223007-5	223008-5	
180	71.88 2.830	223004-6	223007-6	223008-6	
210	83.88 3.302	223004-7	223007-7	223008-7	
240	95.88 3.775	223004-8	223007-8	223008-8	
270	107.88 4.247	223004-9	223007-9	223008-9	
300	119.88 4.720	1-223004-0	1-223007-0	1-223008-0	
330	131.88 5.192	1-223004-1	1-223007-1	1-223008-1	

Note: Consult Tyco Electronics for additional sizes.

For complete product information, order Catalog 65358

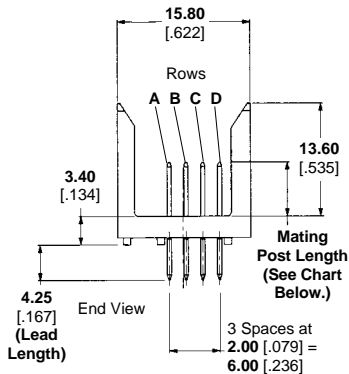
4 Row Power Modules, Vertical Pin Assemblies, Fixed Board Connector, 2mm x 2mm Circuit Grid

4 Row 16mm Wide Body Pin Assemblies with Solder Leads and Compliant Press- Fit Leads (8 Positions)

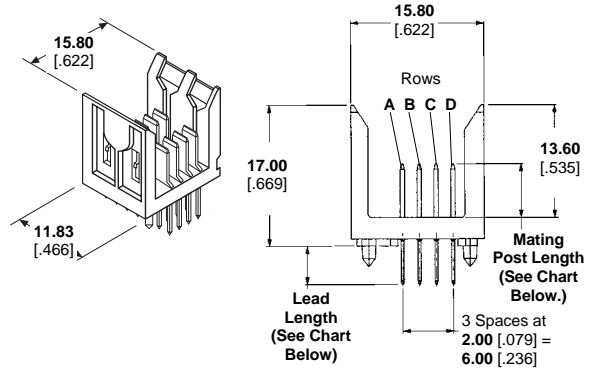
Material and Finish:

Housing — Liquid crystal polymer

Pin Contacts — Phosphor bronze, duplex plated 0.0008 min. gold on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel



Compliant Press-Fit Leads



Solder Leads

Related Product Data:

Material Specifications — page 3049

Compliant Press-Fit Contact Specifications — page 3049

Application Tooling — page 3057

Technical Documents:

Product Specification
108-1441

Application Specification
114-1075

Instruction Sheets
408-6927, 408-9910, 408-9979,
408-4158

Electrical Performance Report
65476-4 Row
1242176-5 Row

Sequenced Power Pin Assemblies

Part Number 536606

Part Number 536619

Part Number 536621

Part Number 536622

Part Number 536627

Notes: Refer to customer drawing for specific loading patterns and part numbers. Other sequence patterns may be available.

No. of Positions	Mating Post Lengths				Vertical Pin Assembly Part Numbers			Seating Tooling				
	A	B	C	D	4.25 [.167] Solder Leads	3.2 [.126] Solder Leads	4.25 [.167] Press-Fit Leads					
8	6.50	.256	6.50	.256	6.50	.256	6.50	.256	536600-1	536628-1	536603-1	
	7.25	.285	7.25	.285	7.25	.285	7.25	.285	536625-1	—	—	58512-1
	8.00	.315	8.00	.315	8.00	.315	8.00	.315	536623-1	—	536620-1	

Note: Seating Tooling applicable to all 8 position power headers.

5 Row Power Modules, Vertical Pin Assemblies, Fixed Board Connector, 2mm x 2mm Circuit Grid

Sequenced Power Pin Assemblies

Part Number 536606

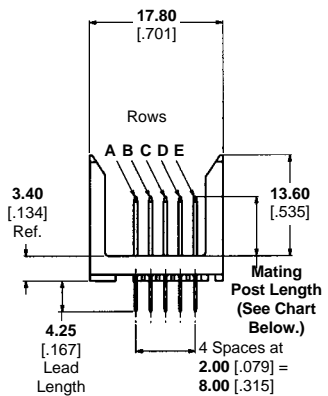
Part Number 536619

Part Number 536621

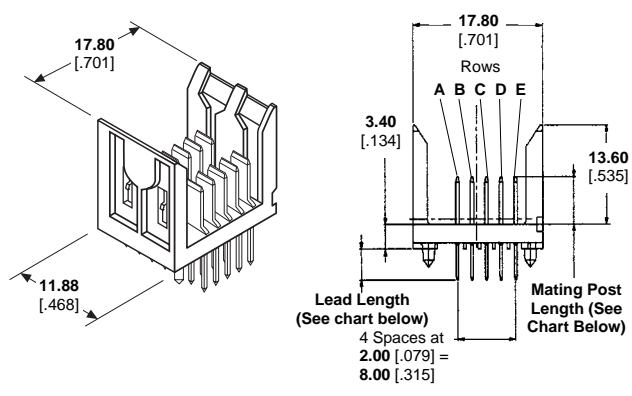
Part Number 536622

Part Number 536627

Notes: Refer to customer drawing for specific loading patterns and part numbers. Other sequence patterns may be available.



Compliant Press-Fit Leads



Solder Leads

5 Row 18mm Wide Body Pin Assemblies with Solder Leads and Compliant Press- Fit Leads (10 Positions)

Vertical Pin Assembly

No. of Positions	Mating Post Length	Part Numbers			Seating Tooling
		2.73 [.107] Solder Leads	3.53 [.139] Solder Leads	4.25 [.167] Press-Fit Leads	
10	6.50 .256	223092-1	223093-1	536642-1	1214224-1

Note: Seating Tooling applicable to all 10 position power headers.

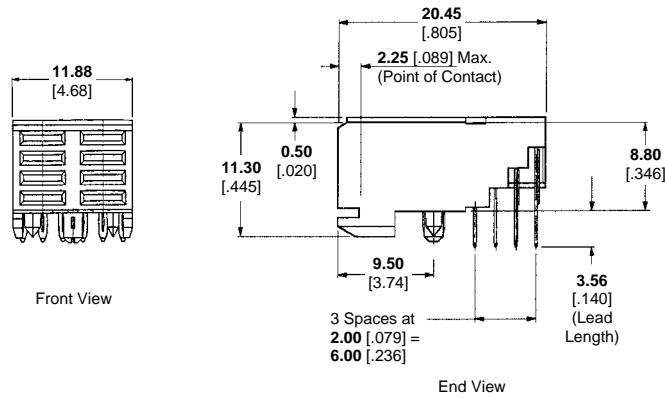
For complete product information, order Catalog 65358

4 Row Power Modules, Right Angle Receptacle Assemblies, Free-Board Connector, 2mm x 2mm Circuit Grid

4 Row Receptacle Assemblies with Solder Leads and Compliant Press-Fit Leads (8 Positions)

Material and Finish:

Housing — Liquid crystal polymer
Receptacle Contacts — Phosphor bronze, duplex plated 0.0008 min. gold on mating surface, 0.0038 min. tin-lead on solder lead, with entire contact underplated 0.0013 nickel



Related Product Data:

Material Specifications — page 3049
Compliant Press-Fit Contact Specifications — page 3049
Application Tooling — page 3057

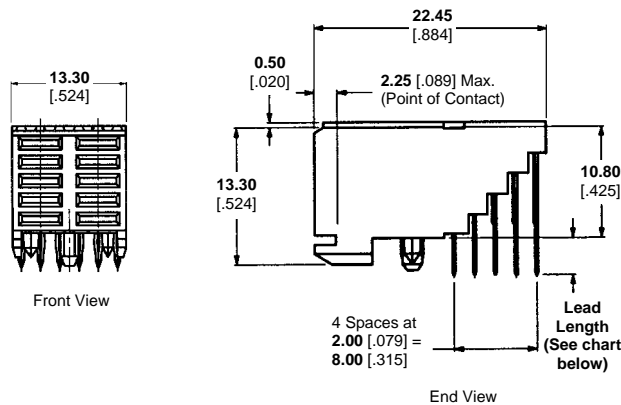
Technical Documents:

Product Specification
108-1441
Application Specification
114-1075
Instruction Sheets
408-6927, 408-9910, 408-9979
Electrical Performance Reports
65476-4 Row
1242176-5 Row

Receptacle Assembly

No. of Positions	Part Numbers			Seating Tooling
	with Solder Leads	with Press-Fit Leads	with Press-Fit Leads	
	2.73 [.107] Lead Length	3.53 [.139] Lead Length	3.56 [.140] Lead Length	
8	536607-1	536613-1	536614-1	Industry Standard Flat Rock

5 Row Receptacle Assemblies with Solder Leads and Compliant Press-Fit Leads (10 Positions)



5 Row Power Modules, Right Angle Receptacle Assemblies, Free-Board Connector, 2mm x 2mm Circuit Grid

Receptacle Assembly

No. of Positions	Part Numbers			Seating Tooling
	with Solder Leads	with Press-Fit Leads	with Press-Fit Leads	
	2.73 [.107] Lead Length	3.53 [.139] Lead Length	3.56 [.140] Lead Length	
10	223092-1	223093-1	536649-1	Industry Standard Flat Rock

For complete product information, order Catalog 65358

Application Tooling for Vertical Pin Assemblies with Compliant Press-Fit Leads (Signal and Power Modules)

Vertical pin assemblies use compliant lead contacts to allow fast, solderless backplane construction through reliable press-fit application.

Press-fitting these connectors to PC boards requires special seating tools that transfer the application force directly to the contacts.

Receptacle Tooling:

A customer supplied tool, or an AMP arbor tool or pneumatic machine with a flat bearing surface is needed to push both the "Cold Hold" feature and Press-Fit contacts into printed circuit boards. Bottom support tooling is available to support the leads and "COLD HOLD" feature that extend through the printed circuit board:

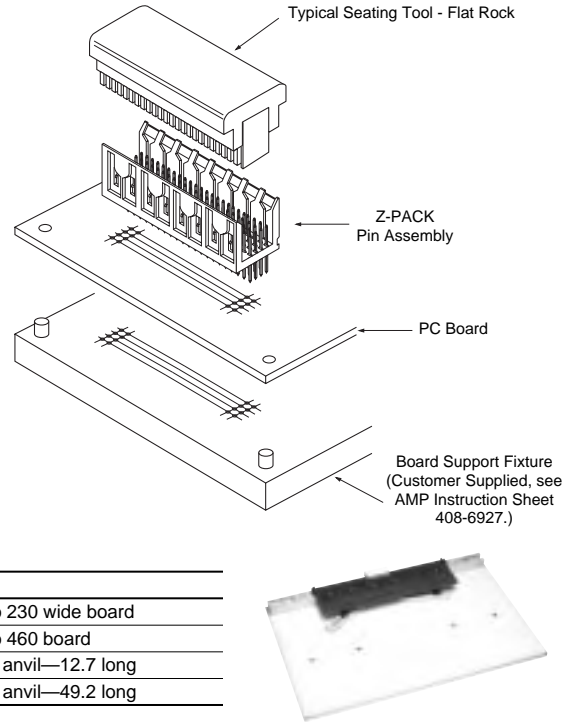
Instruction Sheet
408-4038

4 Row Pin Assembly Seating Tools

5 Row Pin Assembly Seating Tools

Board support fixtures are used to support PC boards or backplanes while connectors are being assembled to the boards or backplanes. AMP Instruction Sheet No. 408-6927 provides Tyco Electronics recommendations for manufacturing board support fixtures.

Pin Contact Replacement Kit:
354687-1
Instruction Sheet 408-9979



Part Number	Description
679980-1	Fixture for up to 230 wide board
679980-2	Fixture for up to 460 board
679977-1	Bottom support anvil—12.7 long
679977-2	Bottom support anvil—49.2 long

Signal Module

Part Number	Position
58511-1	24
58511-2	48
58511-3	96
58511-4	192
58511-5	144
58511-6	120
58511-7	168
58511-8	216
58511-9	240
1-58511-0	264
1-58511-4	72

Instruction Sheet
408-9910

Signal Module

Part Number	Position
318860-1	30
318860-2	60
318860-3	90
318860-4	120
318860-5	150
318860-6	180
318860-7	210
318860-8	240
318860-9	270
1-318860-0	300
1-318860-1	330

Instruction Sheet
408-4250

For complete product information, order Catalog 65358

Power Module

Part Number	Position
58512-1	8
58512-2	16

Instruction Sheet
408-4157

Power Module

Part Number	Position
1214224-1	10

Instruction Sheet
408-4488

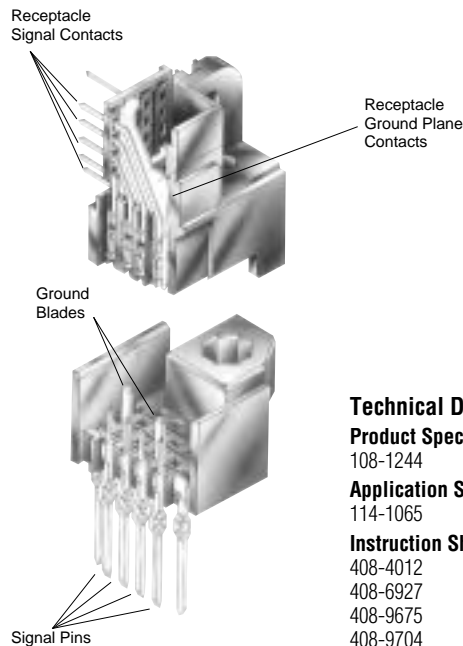
Insertion Machine (Seating Machine) Options:

- SM-3 Pneumatic Machine 814700-2
- SM-10 Electric/Hydraulic Machine 803880-6
- Manual Arbor Frame 58024-1

Product Facts

- High performance system with backplane and cable interconnects
- Superior electrical performance down to 250 picosecond rise times
- System speeds to 2.5 Gbps
- Stripline technology for controlled impedance
- 40 high-speed signal lines per inch
- High density; signal pins not used as ground reference
- Receptacle contact leads blanked at 45° angles to minimize skew
- Modular design with 60 and 80 position modules; one-piece molded housings in sizes of 100 to 280 positions
- Receptacle modules preassembled to stiffener for modular design
- Compatible with current board manufacturing techniques
- Sequencing of ground, power and signal contacts
- Electrical spice simulation and mechanical models available

Z-PACK Stripline 100 connectors have an integral ground plane between each column of contacts to provide the controlled impedance that makes them ideal for high performance systems with edge speeds as fast as 250 picoseconds. Four rows of 0.38 [.015] square posts on 2.54 x 2.54 [.100 x .100] centerlines provide 40 high speed signal lines per inch. No signal lines have to be assigned as ground reference, enabling the connectors to maximize the number of signal lines per unit area.



Technical Documents:

Product Specification

108-1244

Application Specification

114-1065

Instruction Sheets

408-4012

408-6927

408-9675

408-9704

408-9709

Electrical Performance Report

82353

Material and Finish:

Housing and Organizer — Liquid crystal polymer, black

Stiffener — Aluminum

Contacts (All) — Phosphor bronze; duplex plated gold flash over 0.00076 [.000030] min. palladium-nickel in mating area, 0.00381 [.000150] min. tin-lead on leads, with entire contact underplated 0.00127 [.000050] min. nickel

Performance Specifications:

Mating Force — 0.83 N [3.0 oz], avg. per contact

Unmating Force — 0.11 N [.4 oz], min. per contact

Normal Force — 50 grams min., end-of-life

Wipe — 2.54 [.100] with 4.45 [.175] post

Resistance:

Signal Contacts — 20 milliohms max.

Power/Ground Contacts — 10 milliohms max.

Operating Temperature — -65°C to +125°C

Current Rating:

Signal Contacts — 1.0 ampere continuous (fully derated)

Power/Ground Contacts — 2.5 amperes.

Durability — Tested to 250 cycles

For complete product information, order Catalog 65194

Z-PACK Stripline 100 connectors offer a system solution for daughtercard-to-backplane, card extender/co-planar, and high speed cable-to-backplane applications.

As the product name applies, Z-PACK Stripline 100 connectors employ stripline technology within a board-to-board interconnect providing excellent electrical

performance and interconnection density. The design has been optimized with extensive electrical simulation and mechanical modeling. Ears on the pin connectors and extended ears on the receptacle connectors provide .050 [1.27] lead-in and guidance. Guide pins, power pins and keys also are available for use in the connector ears.



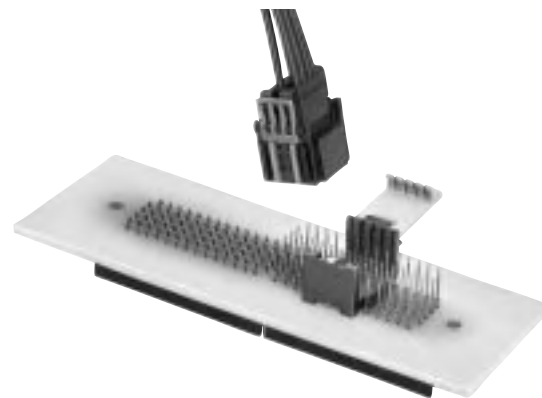
The discretely molded version is available in sizes of 100 through 280 positions.



The modular version, used for larger size connectors (120 through 820 positions), employs receptacle modules preassembled on an aluminum stiffener. The stiffener can be screwed down to the daughtercard adding rigidity. Modules can be selectively loaded on the stiffener to allow for clearance on the backplane. Pin modules then are press fitted into the backplane to match the mating receptacle.



Right-angle pin assemblies are available in sizes of 120 through 820 positions. These connectors are ideal for card extender and co-planar applications.



High performance cable assemblies utilize a stripline construction similar to the board-to-board product, providing a high speed interconnect from the daughtercard through the backplane through the cabling.

For complete product information, order Catalog 65194

Electrical Analysis

Z-PACK Stripline 100 connectors provide excellent high speed performance for risetimes down to 250 picoseconds. Ground planes between columns of contacts provide:

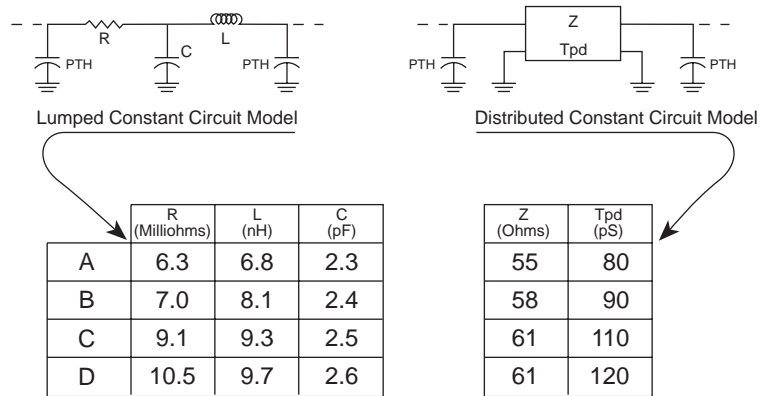
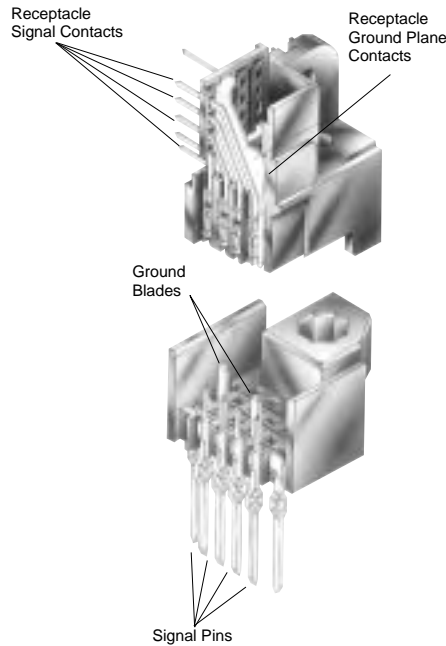
- Controlled impedance
- Low inductance ground return paths for common mode noise protection
- Cross talk protection
- Power distribution

The solder leads of receptacle contacts are blanked at angles to minimize propagation delay and skew between different rows. The daughtercard pattern is 2.54 [.100] column-to-column and 1.91 [.075] row-to-row to reduce the electrical path to the connector.

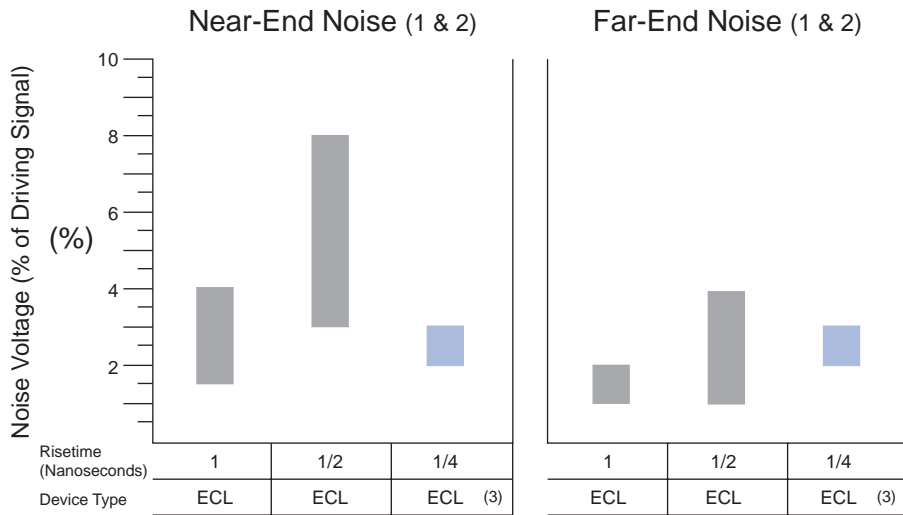
SINGLE-LINE models are circuit representations of the electrical performance of a single pin contact of a pinfield when a realistic number of other pin contacts of the field are assigned as a signal return or reference conductors. The resistance, inductance, capacitance, impedance and propagation delay values are shown at the right. These models can be made available on floppy disks.

Our unique MULTI-LINE models are circuit representations of a multiplicity of connector pin contacts. These models allow the user to assign functions to any pin in the grouping, allowing circuit designers to find the optimum pinning assignments. For the results of various computer simulations using these models, order AMP Electrical Performance Report No. 82353. Also, for additional information on these models, consult Tyco Electronics.

For complete product information, order Catalog 65194



Reference Plane Return Inductance, 1.5 NanoHenries



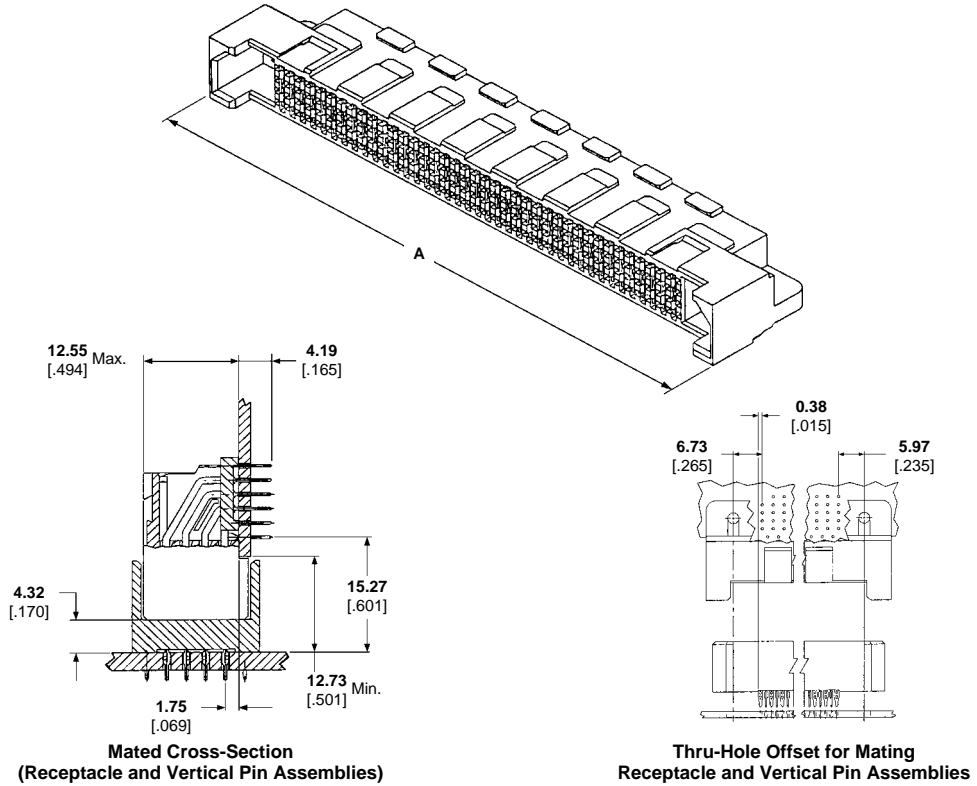
(1) Simultaneous Multiple Source Switching
(2) Includes Common Mode Noise

(3) Differential Pairs

Discretely Molded Receptacle Assemblies

Related Product Data:

- Material and Finish** — page 3058
- Performance Specifications** — page 3058
- Mating Pin Assemblies** — page 3062
- Accessories** — page 3066



Receptacle Assembly Part Numbers — 4.19 [.165] Solder Leads

No. of Positions	Dimensions			Part Numbers
	A	B	C	
60	60.96 2.400	48.26 1.900	35.56 1.400	646243-1
100	86.36 3.400	73.66 2.900	60.96 2.400	646243-2
140	111.76 4.400	99.06 3.900	86.36 3.400	646243-3
160	124.46 4.900	111.76 4.400	99.06 3.900	646243-8
180	137.16 5.400	124.46 4.900	111.76 4.400	646243-4
220	162.56 6.400	149.86 5.900	137.16 5.400	646243-5
240	175.26 6.900	162.56 6.400	149.86 5.900	646243-6
280	200.66 7.900	187.96 7.400	175.26 6.900	646243-7

For complete product information, order Catalog 65194

Discretely Molded Pin Assemblies

Related Product Data:

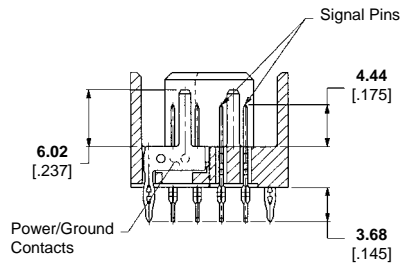
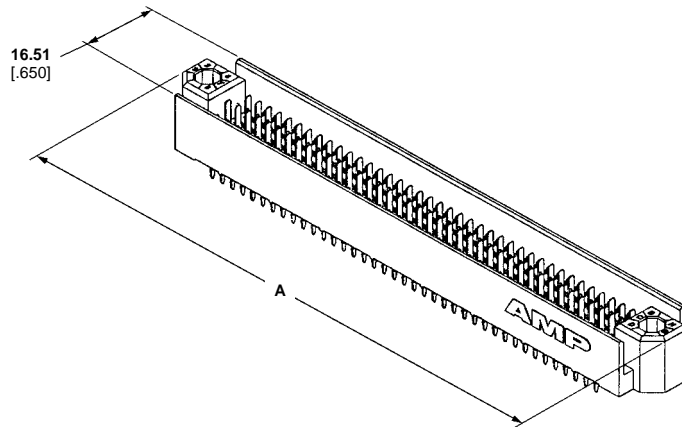
Material and Finish — page 3058

Performance Specifications —
page 3058

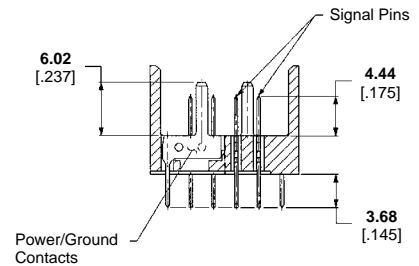
Mating Receptacle Assemblies —
page 3061

Accessories — page 3066

Application Tooling —
page 3067



ACTION PIN Contact Leads



Solder Leads

Pin Assembly Part Numbers — 3.68 [.145] ACTION PIN Contact and Solder Leads

No. of Positions	Dimensions A	Part Numbers	
		ACTION PIN Contact Leads	Solder Leads
100	83.31 3.280	646244-2	646245-2
140	108.71 4.280	646244-3	646245-3
180	134.11 5.280	646244-4	646245-4
220	159.51 6.280	—	646245-5
240	172.21 6.780	646244-6	646245-6
280	197.61 7.780	—	646245-7

For complete product information, order Catalog 65194

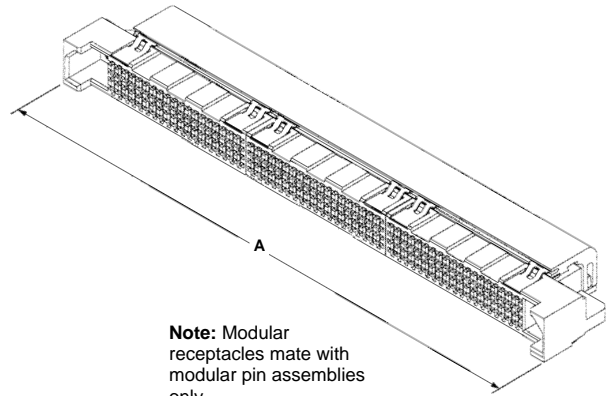
Modular Receptacle Assemblies

Receptacle assemblies and right-angle pin headers come preassembled with end and center modules loaded onto an aluminum stiffener. This aluminum stiffener also can be used to minimize board warpage and bow. The position of the solder leads is managed by use of an organizer, which is part of the assembly.

Modular vertical pin headers, available in 60 and 80 position center and end modules, are combined into the number of contacts needed to mate with the receptacle assemblies. The orientation of modules, both size and position, must be identical for both pin and receptacle assemblies for proper mating since ground/power planes are not in place at the seams where modules are

stacked. The contacts in pin assemblies are offered with ACTION PIN press-fit leads or solder leads. The ACTION PIN leads require a 1.57 [.062] thick PC board or larger and are pressed into a 0.94/1.09 [.037/.043] finished hole.

A through-hole offset exists between the motherboard and daughtercard. While mounting holes between boards are in line, there is a 0.38 [.015] offset between through holes in the daughtercard and motherboard. See illustration at right for dimensions.



Note: Modular receptacles mate with modular pin assemblies only.

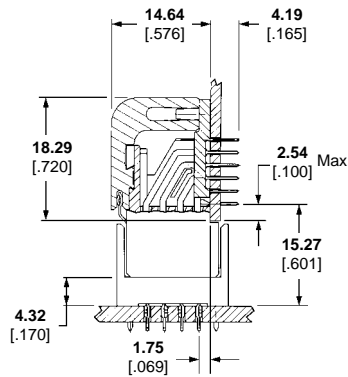
Related Product Data:

Material and Finish — page 3058

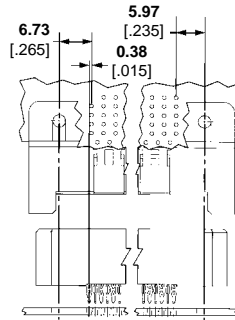
Performance Specifications — page 3058

Mating Pin Assemblies — pages 3064, 3065

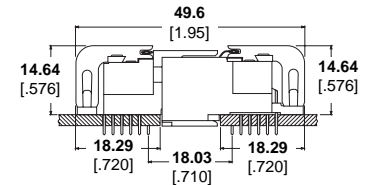
Accessories — page 3066



**Mated Cross-Section
(Receptacle and Vertical Pin
Assemblies)**



**Thru-Hole Offset for Mating
Receptacle and Vertical Pin
Assemblies**



**Mated Receptacle and
Right-Angle Pin Assemblies**

Receptacle Assembly Part Numbers – 4.19 [.165] Solder Lead Length

No. of Positions*	Dimensions A	Part Numbers
120	99.06 3.900	3-646236-1
140	111.76 4.400	3-646236-5
160	124.46 4.900	3-646236-2
180	137.16 5.400	3-646236-6
200	149.86 5.900	3-646236-3
220	162.56 6.400	3-646236-4
240	175.26 6.900	646236-1
260	187.96 7.400	646236-2 646661-1 [†]
280	200.56 7.900	646236-3
300	213.36 8.400	646236-4

No. of Positions*	Dimensions A	Part Numbers
340	238.76 9.400	646236-6
360	251.46 9.900	646236-7
380	264.16 10.400	646236-8
400	276.86 10.900	646236-9
460	314.96 12.400	1-646236-2
480	327.66 12.900	1-646236-3
520	353.06 13.900	1-646236-5
600	403.86 15.900	1-646236-9
620	416.56 16.400	2-646236-0
640	429.26 16.900	2-646236-1
700	467.36 18.400	2-646236-4

*Other sizes and styles can be made available, consult Tyco Electronics.

[†]Part number 646661-1 has 4.95 [.195] solder lead length.

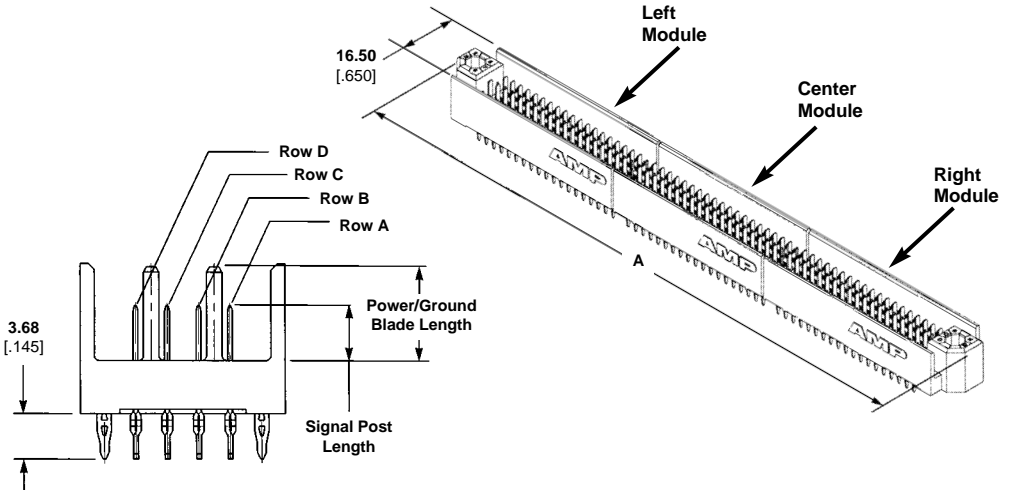
For complete product information, order Catalog 65194

Modular Vertical Pin Assemblies with ACTION PIN Thin Stock Contacts

**3.68 [.145]
Lead Length**

Related Product Data:

- Material and Finish — page 3058
- Performance Specifications — page 3058
- Mating Receptacles — page 3063
- Accessories — page 3066
- Application Tooling — page 3067



ACTION PIN

Signal Post Length		Power/Ground Blade Length	Module Selection					
Rows B&C	Rows A&D		Left Module		Center Module		Right Module	
4.45 .175	4.45 .175	6.02 .237	60 Pos.	80 Pos.	60 Pos.	80 Pos.	60 Pos.	80 Pos.
			646239-1	646239-2	646238-1	646238-2	646237-1	646237-2
Solder Leads								
3.68 .145	3.68 .145	6.02 .237						
			646242-1	646242-2	646241-1	646241-2	646240-1	646240-2

No. of Positions	Dimensions A		Number of Modules Required (Listed Above)					
			Left Module		Center Module		Right Module	
120	96.01	3.78	1				1	
140	108.71	4.28		1			1	
160	121.41	4.78		1				1
180	134.11	5.28	1		1		1	
200	146.81	5.78	1			1	1	
220	159.51	6.28	1		1	1		
240	172.21	6.78		1		1		1
260	184.91	7.28		1	2		1	
280	197.61	7.78		1	2			1
300	210.31	8.28	1			2		1
320	223.01	8.78		1		2		1
340	235.71	9.28		1	3			1
360	248.41	9.78	1			3	1	
380	261.11	10.28		1		3	1	
400	273.81	10.78		1		3		1
420	286.51	11.28	1		5		1	
440	299.21	11.78	1			4	1	
460	311.91	12.28		1		4	1	
480	324.61	12.78		1		4		1
500	337.31	13.28		1	6		1	
520	350.01	13.78	1			5	1	
540	362.71	14.28		1		5	1	
560	375.41	14.78		1		5		1
580	388.11	15.28		1	7			1
600	400.81	15.78	1			6	1	
620	413.51	16.28		1		6	1	
640	426.21	16.78		1		6		1
660	438.91	17.28	1		9		1	
680	451.61	17.78	1			7	1	
700	464.31	18.28		1		7	1	
720	477.01	18.78		1		7		1
740	489.71	19.28		1	10		1	
760	502.41	19.78	1			8	1	
780	515.11	20.28		1		8	1	
800	527.81	20.78		1		8		1
820	540.51	21.28		1	11			1

Note: Sequencing available upon request.

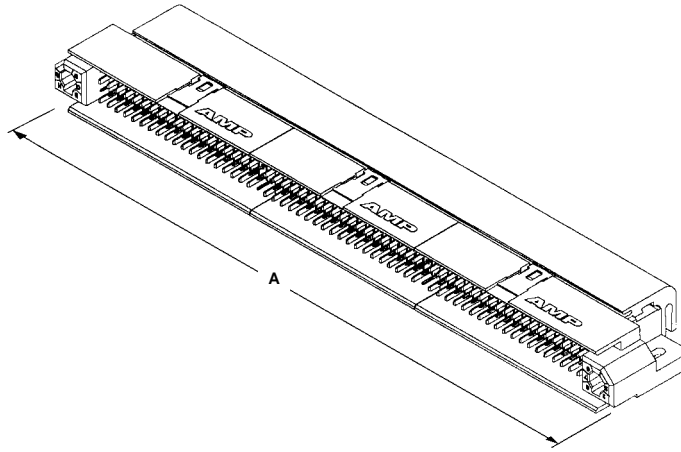
For complete product information, order Catalog 65194

Modular Right-Angle Pin Assemblies with Solder Lead Contacts

**4.19 [.165]
Lead Length**

Related Product Data:

- Material and Finish** — page 3058
- Performance Specifications** — page 3058
- Mating Receptacles** — page 3063
- Accessories** — page 3066



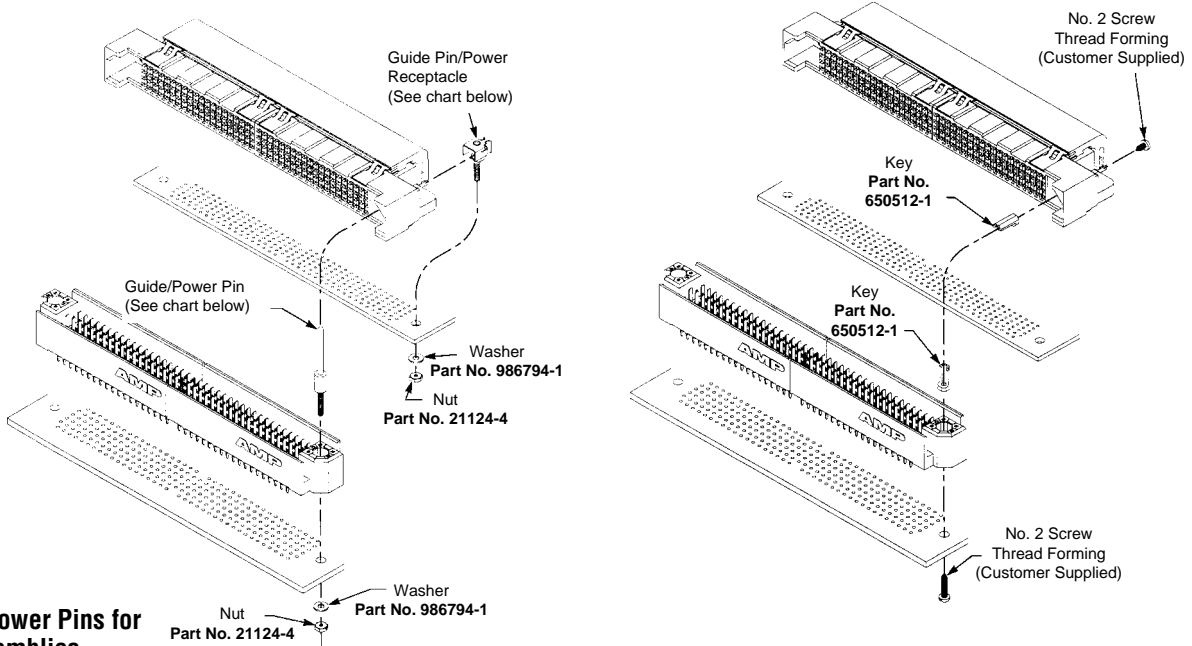
**Right-Angle Pin Assembly Part Numbers —
4.19 [.165] Solder Lead Length**

No. of Positions*	Dimensions A	Part Numbers
160	121.41 4.78	3-646166-2
180	134.11 5.28	3-646166-6
200	146.81 5.78	3-646166-3
240	172.21 6.78	646166-1
300	210.31 8.28	646166-4
340	235.71 9.28	646166-6
360	248.41 9.78	646166-7
600	400.81 15.78	1-646166-9
640	426.21 16.78	2-646166-1

* Other sizes can be made available, consult Tyco Electronics.

For complete product information, order Catalog 65194

Power and Keying Hardware and Applications



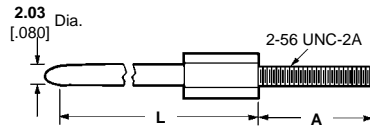
Guide/Power Pins for Pin Assemblies

Material and Finish:

Brass, plated as follows:

A — 0.00076 [.000030] gold over 0.00127 [.000050] min. nickel

B — 0.00127 [.000050] gold over 0.00127 [.000050] min. nickel

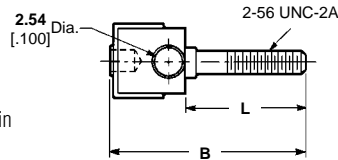


Dimensions		Finish	Part Numbers
A	L		
9.52 .375	26.04 1.025	None	533082-1
	30.35 1.195	None	533082-2
12.06 .475	26.04 1.025	A	533082-3
	30.35 1.195	A	533082-4
12.06 .475	30.35 1.195	None	533082-6
	26.04 1.025	None	533082-7
14.22 .560	26.04 1.025	None	533082-8
		A	533082-9
		None	1-533082-0
		A	1-533082-1

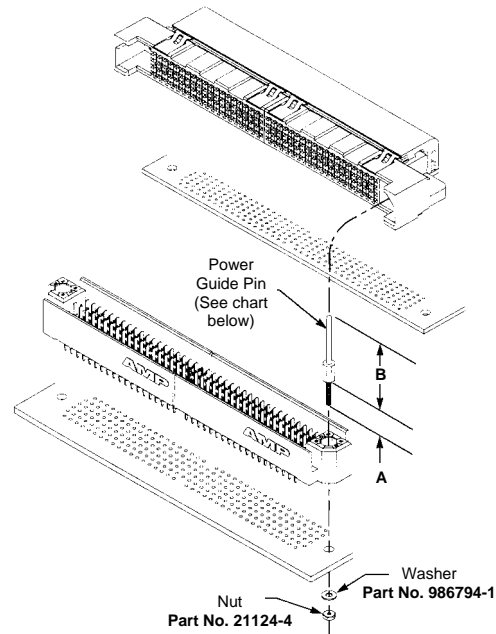
Guide Pin/Power Receptacle for Receptacle Assemblies

Material and Finish:

Brass, plated 0.00076 [.000030] gold in contact area and gold flash on remainder, with entire contact underplated 0.00127 [.000050] min. nickel



Dimensions		Part Numbers
B	L	
17.22 .678	10.80 .425	532924-1
14.68 .578	8.26 .325	532924-3
13.67 .538	7.25 .285	532924-4



For complete product information, order Catalog 65194

Application Tooling for Pin Assemblies with ACTION PIN Contacts

Z-PACK pin assemblies use ACTION PIN contacts to allow fast, solderless backplane construction through reliable press-fit application. Press-fitting connectors to PC boards requires special seating tools that transfer application force directly to the contacts.

Force applied to the tool to seat the connectors can be provided in several ways, although the high pin counts of Z-PACK connectors typically require power applicators such as AMP Seating Machine BMEP-3T (Part Number 1399400-1), BMEP-5T (Part Number 1399401-1), MEP-6T (Part Number 1399500-1), or MEP-12T (Part Number 1399501-1).

There are also commercially available arbor presses such as Greenerd 3A or 3B with a seating capacity of 178 N [40 lbs.] per contact.

Board support fixtures are used to support PC boards or backplanes while connectors are being assembled to the boards or backplanes. AMP Instruction Sheet No. 408-6927 provides Tyco Electronics recommendations for manufacturing board support fixtures.

For more tooling information, call the Technical Support Center **1-800-522-6752**.

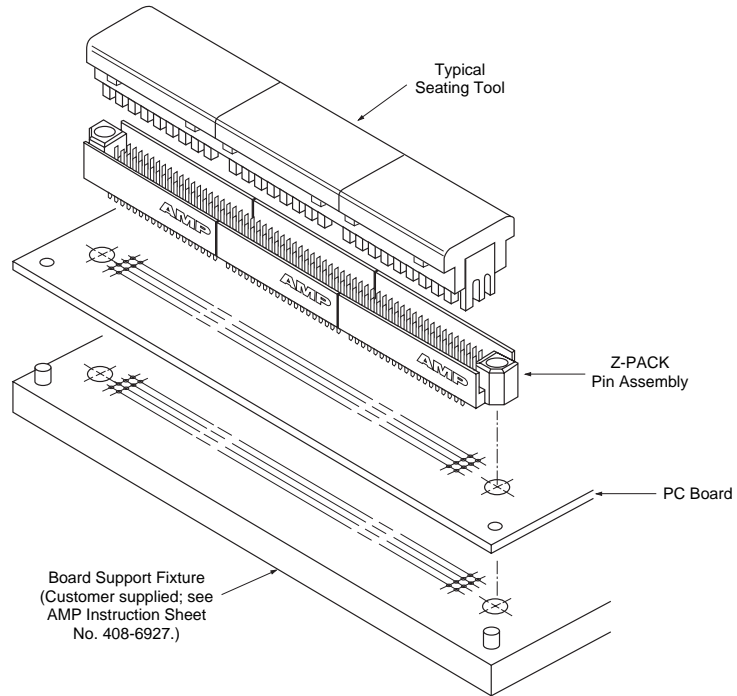
Repair Tooling



Receptacle Assembly Fastener Repair Tool Kit No. 854904-1

This kit is used to insert and remove locking clips from Z-PACK Stripline 100 receptacle assemblies when modules are in need of repair or replacement. See AMP Instruction Sheet No. 408-9704 for detailed instructions.

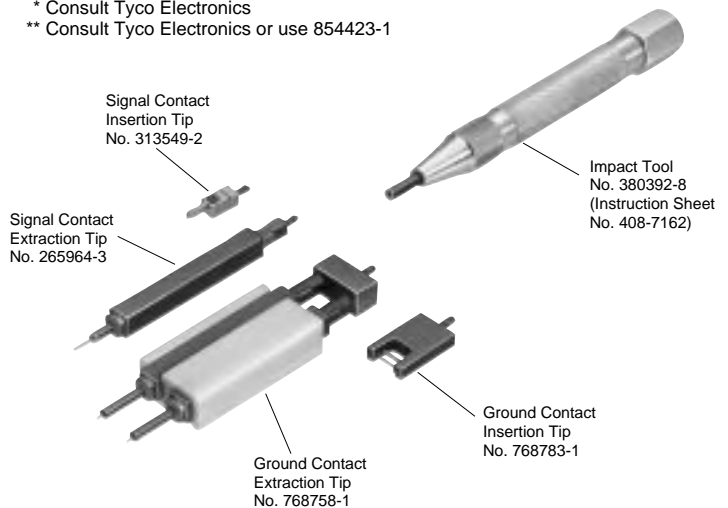
Pin Assembly Seating Tools



Connector Size (No. of Positions)	Seating Tool Numbers
60	854423-1
80	854423-2
100	*
140	**
180	854423-4
240	854423-6

* Consult Tyco Electronics

** Consult Tyco Electronics or use 854423-1





Pin Assembly Contact Repair Tool Kit No. 768784-1

This kit is used to repair both signal and power ground contacts in Z-PACK Stripline 100 pin assemblies. See AMP Instruction Sheet No. 408-4012 for details.

3
Backplane / High Speed Connectors

For complete product information, order Catalog 65194

Product Facts

- High pin count—through 684 positions
- Four areas of contact per connection
- Available with ACTION PIN contacts and solder posts on pin assemblies
- Pin assemblies available with both vertical and right angle posts
- Inserts into standard .100 [2.54] grid
- Keying system provides 64 combinations without loss of contact count
- High temperature material permits vapor phase reflow soldering
- Low mating forces
- Highly economical for quality and density
- Recognized under the Component Program of Underwriters Laboratories Inc.  File No. E28476
- Certified by Canadian Standards Association  File No. LR 7189



AMP-HDI connectors define the state-of-the-art for high pin count, two-piece printed circuit board connectors. They are available with two, three or four rows of contacts on a .100 [2.54] grid, totaling a maximum of 684 positions.

Complementing high density, the required PC board hole sizes and patterns allow space-efficient circuitry layout. Box-type, quad redundant receptacle contacts with select gold plating in the contact area

deliver high reliability while maintaining low mating force which makes possible the mating of such large connectors.

Center guide pins facilitate reliable mating of long connectors. In addition, contact and housing configurations prevent pin damage if a long connector is “peeled” apart from one end.

Features such as press fit pin headers with ACTION PIN contacts; four-

point, box-type receptacle contacts; 64-combination keying; and high-temperature housing materials add to the appeal of AMP-HDI connectors.

These connectors are highly specialized products for applications demanding their unusual characteristics and are military qualified to MIL-C-55302/173 thru 181.

Consult Tyco Electronics for the appropriate AMP part numbers-to-military part numbers.

For complete product information, order Catalog 82618

Four-Row Pin Assemblies Without Guide Holes

Vertical Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Phosphor bronze, plated as follows:

A .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel

B Gold flash over .000050-.000100 [0.00127-0.00254] nickel on entire contact, with .000030 [0.00076] gold in contact area and for .200 [5.08] from tip of wrap-type post

Related Product Data:

Mateable Connectors—page 3070

Guide/Power Pins—pages 3075, 3076

Application Tooling—page 3077

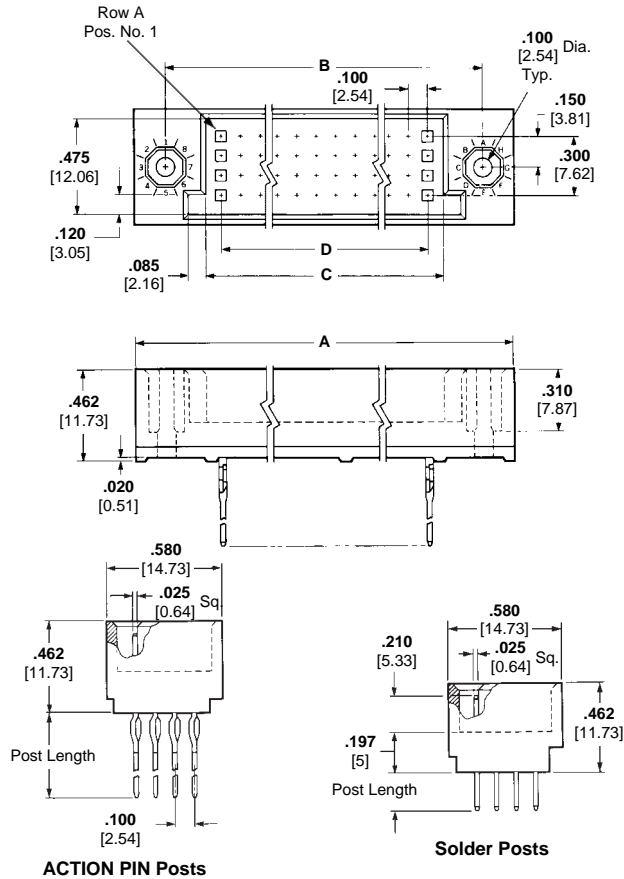
Technical Documents:

Product Specification
108-9063, 108-16

Application Specification
114-9008

Instruction Sheets

408-2636, 408-6626, 408-6909, 408-6927, 408-9007, 408-9038, 408-9142, 408-9185



No. of Positions	Dimensions				Post Length	Contact Finish	Part Numbers*	
	A	B	C	D			ACTION PIN Posts	Solder Posts
100	3.250 82.55	2.950 74.93	2.550 64.77	2.400 60.96	.533 13.54	B	533270-1	—
					.250 6.35	A	532448-1	—
					.190 4.83	A	—	532436-1
120	3.750 95.25	3.450 87.63	3.505 77.47	2.900 73.66	.250 6.35	A	532448-2	—
					.190 4.83	A	—	532436-3
128	3.950 100.33	3.650 92.71	3.250 82.55	3.100 78.74	.250 6.35	A	532448-3	—
					.190 4.83	A	—	532436-3
140	4.250 107.95	3.950 100.33	3.550 90.17	3.400 86.36	.250 6.35	A	532448-4	—
					.190 4.83	A	—	532436-5
160	4.750 120.65	4.450 113.03	4.050 102.87	3.900 99.06	.250 6.35	A	532448-5	—
					.190 4.83	A	—	532436-5
180	5.250 133.35	4.950 125.73	4.550 115.57	4.400 111.76	.250 6.35	A	532448-6	—
					.190 4.83	A	—	532436-7
200	5.750 146.05	5.450 138.43	5.050 128.27	4.900 124.46	.250 6.35	A	532448-7	—
					.190 4.83	A	—	532436-7
220	6.250 158.75	5.950 151.13	5.550 140.97	5.400 137.16	.250 6.35	A	532448-8	—
240	6.750 171.45	6.450 163.83	6.050 153.67	5.900 149.86	.250 6.35	A	532448-9	—
280	7.750 196.85	7.450 189.23	7.050 179.07	6.900 175.26	.250 6.35	A	1-532448-1	—
300	8.250 209.55	7.950 201.93	7.550 191.77	7.400 187.96	.250 6.35	A	1-532448-2	—

*Connectors with other post style/length/plating combinations can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

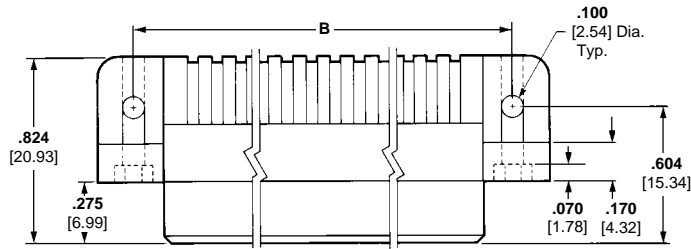
Four-Row Receptacle Assemblies Without Guide Holes

Right-Angle Solder Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Beryllium copper, plated .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel



Related Product Data:

Mateable Connectors—

page 3069

Guide/Power Pins—page 3076

Technical Documents:

Product Specification

108-9063

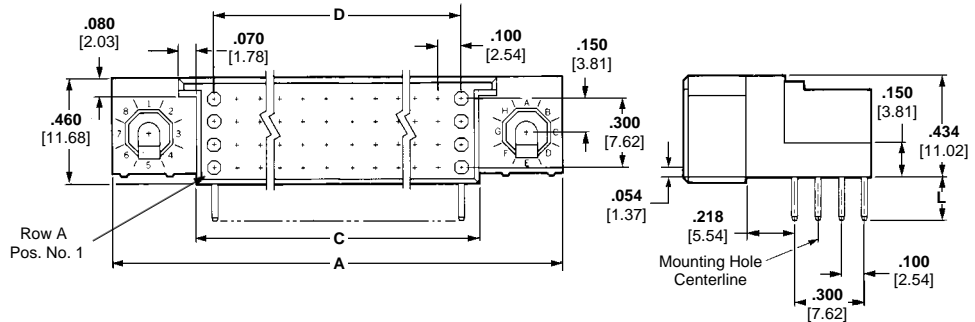
Application Specification

114-9008

Instruction Sheets

408-6626, 408-6909, 408-9141, 408-9007

Note: Housing with center guide is recommended for assemblies having 75 contacts or more per row.



No. of Positions	Dimensions				Part Numbers*	
	A	B	C	D	L = .180 [4.57]	L = .120 [3.05]
100	3.250 82.55	2.950 74.93	2.524 64.11	2.400 60.96	532434-1	532903-2
120	3.750 95.25	3.450 87.63	3.024 76.81	2.900 73.66	—	1-532903-2
128	3.950 100.33	3.650 92.71	3.224 81.89	3.100 78.74	—	532903-3
140	4.250 107.95	3.950 100.33	3.524 89.51	3.400 86.36	—	532903-4
160	4.750 120.65	4.450 113.03	4.024 102.21	3.900 99.06	—	532903-5
180	5.250 133.35	4.950 125.73	4.524 114.91	4.400 111.76	—	532903-6
200	5.750 146.05	5.450 138.43	5.024 127.61	4.900 124.46	532434-7	532903-7
220	6.250 158.75	5.950 151.13	5.524 140.31	5.400 137.16	532434-8	—
240	6.750 171.45	6.450 163.83	6.024 153.01	5.900 149.86	—	532903-9
280	7.750 196.85	7.450 189.23	7.024 178.41	6.900 175.26	—	1-532903-1
300	8.250 209.55	7.950 201.93	7.524 191.11	7.400 187.96	1-532434-2	532903-1

*Connectors with other post lengths can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

Three-Row Pin Assemblies Without Guide Holes

Vertical Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Phosphor bronze, plated as follows:

A .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel

Related Product Data:

Mateable Connectors—page 3072

Guide/Power Pins—pages 3075, 3076

Application Tooling—page 3077

Technical Documents:

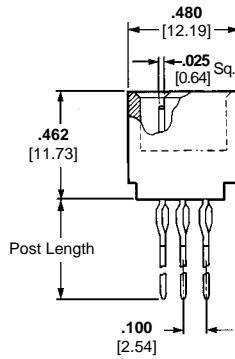
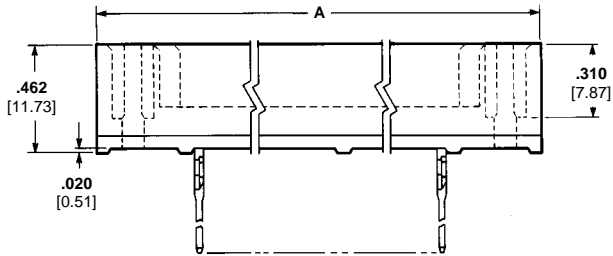
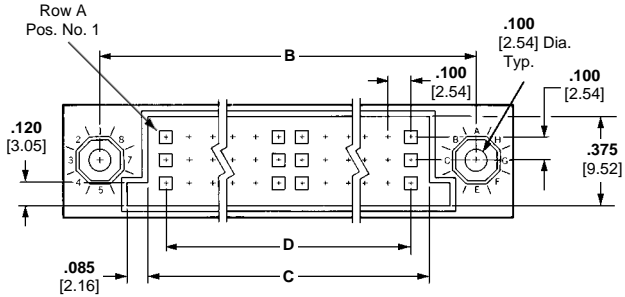
Product Specifications
108-9063, 108-16

Application Specification
114-9008

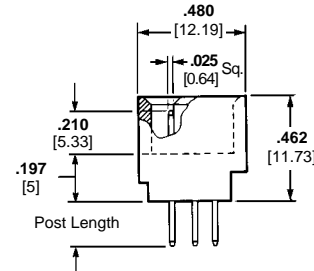
Instruction Sheets

408-2636, 408-6626, 408-6909, 408-6927, 408-9007, 408-9038, 408-9142, 408-9185

Note: Housing with center mounting is recommended for assemblies having 75 contacts or more per row.



ACTION PIN Posts



Solder Posts

No. of Positions	Dimensions				Post Length	Part Numbers*	
	A	B	C	D		ACTION PIN Posts	Solder Posts
75	3.250 82.55	2.950 74.93	2.550 64.77	2.400 60.96	.250 6.35	532447-1	—
90	3.750 95.25	3.450 87.63	3.050 77.47	2.900 73.66	.190 4.83	—	532433-2
96	3.950 100.33	3.650 92.71	3.250 82.55	3.100 78.74	.250 6.35	532447-3	—
					.190 4.83	—	532433-3
120	4.750 120.65	4.450 113.03	4.050 102.87	3.900 99.06	.533 13.54	533061-5	—
150	5.750 146.05	5.450 138.43	5.050 128.27	4.900 124.46	.250 6.35	532447-7	—
165	6.250 158.75	5.950 151.13	5.550 140.97	5.400 137.16	.190 4.83	—	532433-8
180	6.750 171.45	6.450 163.83	6.050 153.67	5.900 149.86	.250 6.35	532447-9	—
210	7.750 196.85	7.450 189.23	7.050 179.07	6.900 175.26	.250 6.35	1-532447-1	—
225	8.250 209.55	7.950 201.93	7.550 191.77	7.400 187.96	.250 6.35	1-532447-2	—

*Connectors with other post style/length/plating combinations can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

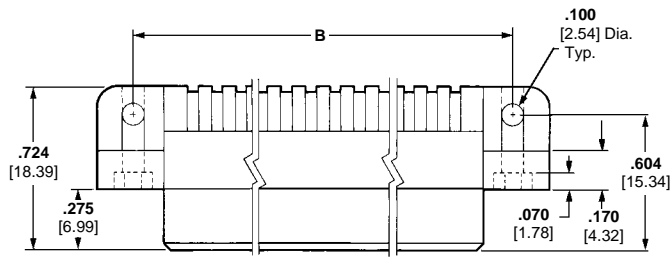
Three-Row Receptacle Assemblies Without Guide Holes

Right-Angle Solder Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Beryllium copper, plated .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel



Related Product Data:

Mateable Connectors—page 3071

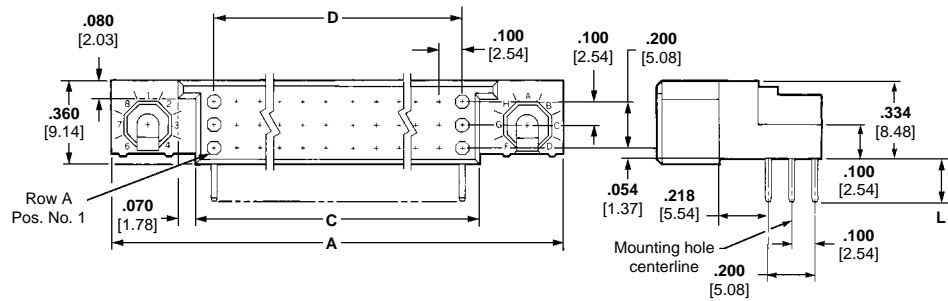
Guide Pin/Power Receptacles—page 3076

Technical Documents:

Product Specification
108-9063

Application Specification
114-9008

Instruction Sheets
408-6626, 408-6909, 408-9141, 408-9007



No. of Positions	Dimensions				Part Numbers*	
	A	B	C	D	L = .180 [4.57]	L = .120 [3.05]
75	3.250 82.55	2.950 74.93	2.524 64.11	2.400 60.96	532431-1	533268-1
90	3.750 95.25	3.450 87.63	3.024 76.81	2.900 73.66	—	533268-2
96	3.950 100.33	3.650 92.71	3.224 81.89	3.100 78.74	—	533268-3
120	4.750 120.65	4.450 113.03	4.024 102.21	3.900 99.06	532431-5	—
150	5.750 146.05	5.450 138.43	5.024 127.61	4.900 124.46	532431-7	—
165	6.250 158.75	5.950 151.13	5.524 140.31	5.400 137.16	532431-8	—
180	6.750 171.45	6.450 163.83	6.024 153.01	5.900 149.86	532431-9	533268-9
210	7.750 196.85	7.450 189.23	7.024 178.41	6.900 175.26	1-532431-1	—
225	8.250 209.55	7.950 201.93	7.524 191.11	7.400 187.96	—	1-533268-2

*Connectors with other post lengths can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

Two-Row Pin Assemblies Without Guide Holes

Vertical Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Phosphor bronze, plated as follows:

A .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-000100 [0.00127-0.00254] nickel

Related Product Data:

Mateable Connectors—page 3074

Application Tooling—page 3077

Technical Documents:

Product Specifications

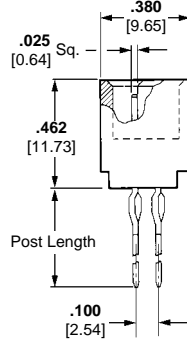
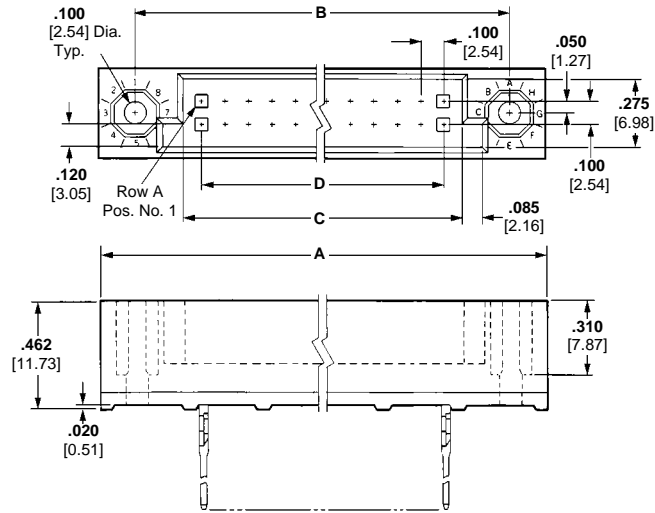
108-9063, 108-16

Application Specification

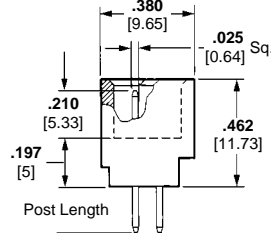
114-9008

Instruction Sheets

408-2636, 408-6909, 408-6927, 408-9007, 408-9038, 408-9142, 408-9178, 408-9185



ACTION PIN Posts



Solder Posts

No. of Positions	Dimensions				Post Length	Part Numbers*	
	A	B	C	D		ACTION PIN Posts	Solder Posts
40	2.750 69.85	2.450 62.23	2.050 52.07	1.900 48.26	.190 4.83	—	532430-3
50	3.250 82.55	2.950 74.93	2.550 64.77	2.400 60.96	.250 6.35	532446-4	—
60	3.750 95.25	3.450 87.63	3.050 77.47	2.900 73.66	.190 4.83	—	532430-5
80	4.750 120.65	4.450 113.03	4.050 102.87	3.900 99.06	.190 4.83	—	532430-7
100	5.750 146.05	5.450 138.43	5.050 128.27	4.900 124.46	.190 4.83	—	532430-9
150	8.250 209.55	7.950 201.93	7.550 191.77	7.400 187.96	.250 6.35	1-532446-4	—

*Connectors with other post style/length/plating combinations can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

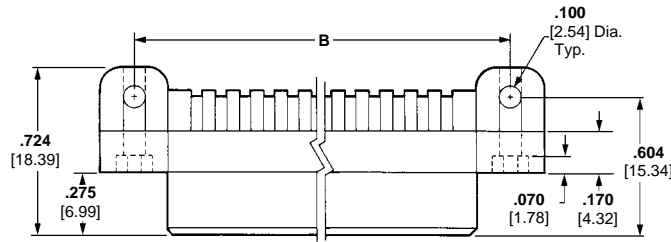
Two-Row Receptacle Assemblies Without Guide Holes

Right-Angle Solder Posts

Material and Finish:

Housing—Brown glass-filled polyphenylene sulfide

Contacts—Beryllium copper, plated .000030 [0.00076] gold in contact area; tin on posts, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel



Related Product Data:

Mateable Connectors—page 3073

Technical Documents:

Product Specification

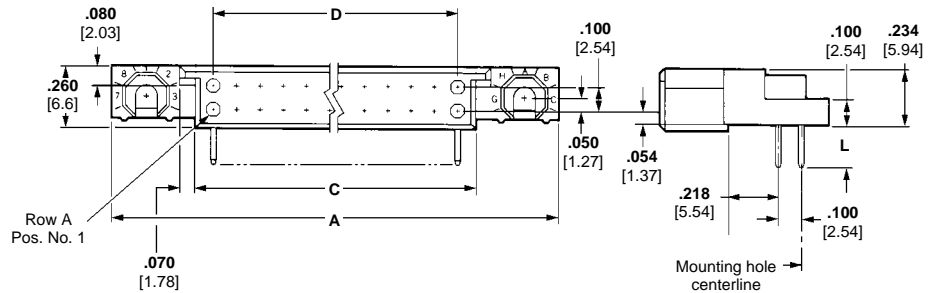
108-9063

Application Specification

114-9008

Instruction Sheets

408-6909, 408-9007, 408-9141, 408-9178



No. of Positions	Dimensions				Part Numbers*	
	A	B	C	D	L = .180 [4.57]	L = .120 [3.05]
40	2.750 69.85	2.450 62.23	2.024 51.41	1.900 48.26	532428-3	—
50	3.250 82.55	2.950 74.93	2.524 64.11	2.400 60.96	532428-4	—
60	3.750 95.25	3.450 87.63	3.024 76.81	2.900 73.66	532428-5	—
80	4.750 120.65	4.450 113.03	4.024 102.21	3.900 99.06	—	532825-7
100	5.750 146.05	5.450 138.43	5.024 127.61	4.900 124.46	532428-9	—
150	8.250 209.55	7.950 201.93	7.524 191.11	7.400 187.96	—	1-532825-4

*Connectors with other post lengths can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82618

Hardware and Applications

Guide Pin Kits (for use in Center Guide Holes)

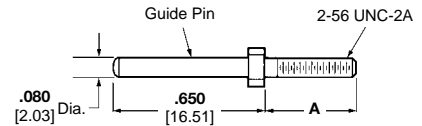
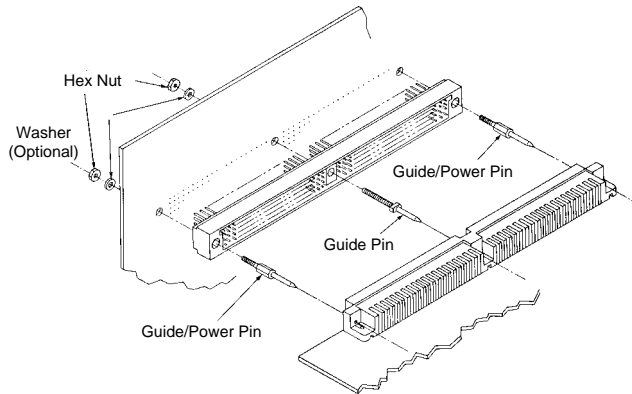
Material and Finish:

Washer— Passivated stainless steel

Pin— Passivated stainless steel

Nut— Passivated stainless steel

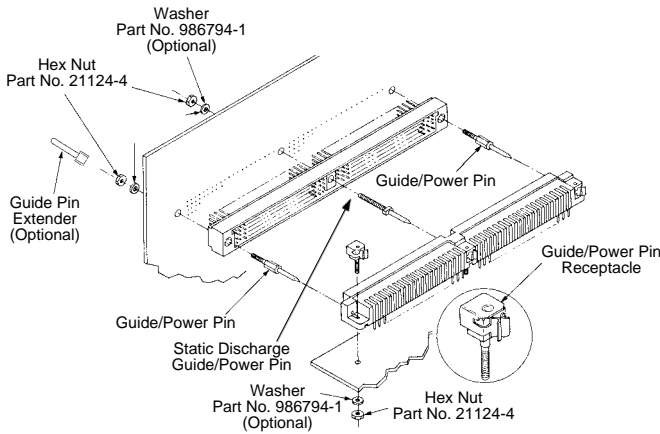
See AMP Instruction Sheet 408-6909.



Dimensions		Guide Pin Part Numbers	Guide Pin Kit Numbers
A			
.475	12.06	532807-1	532808-1
.562	14.27	532807-2	532808-2
.750	19.05	532807-3	532808-3

Note: Each kit includes a guide pin, washer and nut. All parts may be purchased separately.

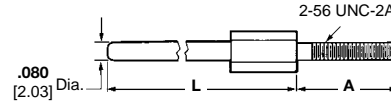
Guide/Power Pins/Static Discharge Guide/Power Pins



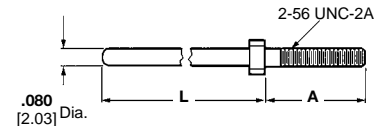
Current Rating: 10 Amperes Max.

Material and Finish:

Brass, plated .000030 [0.00076] gold over .000050-.000100 [0.00127-0.00254] nickel



Guide/Power Pins (For Use in End Guide Holes)



Static Discharge Guide/Power Pins (For Use in Center Guide Holes)

Guide/Power Pins (For Use in End Guide Holes)

Dimensions				Finish	Part Numbers
A		L			
Inch	mm	Inch	mm		
.375	9.52	1.025	26.04	None	533082-1
		1.025	26.04	Gold/Nickel	533082-3
		1.195	30.35	Gold/Nickel	533082-4
.475	12.07	1.195	30.35	Gold/Nickel	533082-6
.475	12.07	1.025	26.04	Gold/Nickel	533082-9
.560	14.22	1.025	26.04	Gold/Nickel	1-533082-1

Static Discharge Guide/Power Pins (For Use in Center Guide Holes)

Dimensions				Part Numbers
A		L		
Inch	mm	Inch	mm	
.475	12.07	1.150	29.21	532828-2
.475	12.07	.980	24.89	532828-5
.475	12.07	1.025	26.04	532828-8
.475	12.07	1.195	30.35	1-532828-1

For complete product information, order Catalog 82618

Power Hardware and Applications (for Three and Four-Row Connectors Only)

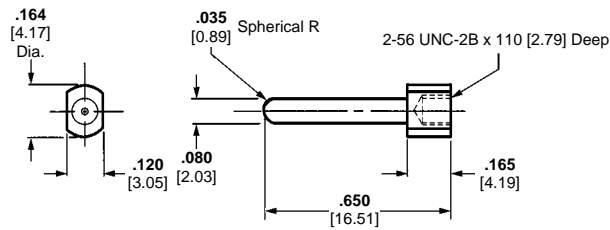
Guide Pin Extender

Current Rating: 10 Amperes Max.

Material and Finish:

Passivated stainless steel

Part Number 533265-1

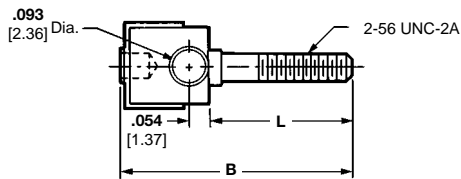


Guide Pin/Power Receptacles (for use in End Mounts)

Current Rating: 10 Amperes Max.

Material and Finish:

Copper alloy, plated .000030 [0.00076] gold in contact area and gold flash on remainder, with entire contact underplated .000030 [0.00076] nickel



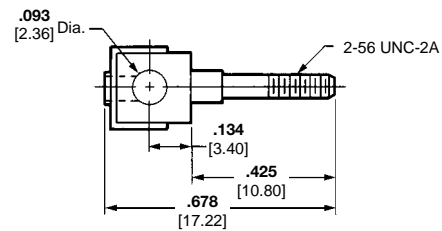
Guide Pin/Power Receptacles (for use in Center Mounts)

Current Rating: 10 Amperes Max.

Material and Finish:

Copper alloy, plated .000030 [0.00076] gold in contact area and gold flash on remainder, with entire contact underplated .000030 [0.00076] nickel

Part Number 533065-1



Dimensions		L	Part Numbers	
B				
.678	17.22	.425	10.80	532924-1
.578	14.68	.325	8.26	532924-3
.538	13.67	.285	7.25	532924-4

For complete product information, order Catalog 82618

Application Tooling

Seating Tools for AMP-HDI Four-Row Pin Assemblies

*Seating Tool is used in seating machine such as:
 SM-10/20 Machine No. 803880-6 or
 SM-3 Machine No. 814700-2
 Also requires customer supplied Board Support Fixture (See AMP Instruction Sheet 408-6927)

No. of Bays	Pin Assembly Configuration		Seating Tools*	
	No. of Pins/Row/Bay	Total No. of Pins	Tool Numbers	No. of Tools Required
One (without Guide Holes)	25	100	2-58172-1	One
	32	128	2-58172-2	
	35	140	4-58172-0	
	36	144	4-58172-1	
	40	160	2-58172-3	
	41	164	4-58172-3	
	44	176	4-58172-4	
	45	180	2-58172-5	
	50	200	2-58172-9	
	55	220	3-58172-3	
	60	240	3-58172-6	
	65	260	5-58172-6	
	75	300	2-58172-0	
	80	320	4-58172-7	

Seating Tools for AMP-HDI Three-Row Pin Assemblies

No. of Bays	Pin Assembly Configuration		Seating Tools	
	No. of Pins/Row/Bay	Total No. of Pins	Tool Numbers	No. of Tools Required
One (without Guide Holes)	8	24	4-58172-8	One
	25	75	5-58172-0	
	30	90	4-58172-5	
	32	96	58172-9	
	40	120	1-58172-0	
	46	138	1-58172-3	
	50	150	3-58172-9	
	55	165	1-58172-6	
	60	180	3-58172-8	
	70	210	1-58172-9	
	75	225	58172-8	
	80	240	6-58172-6	
	97	291	4-58172-9	
	100	300	5-58172-3	

Seating Tools for AMP-HDI Two-Row Pin Assemblies

No. of Bays	Pin Assembly Configuration		Seating Tools	
	No. of Pins/Row/Bay	Total No. of Pins	Tool Numbers	No. of Tools Required
One (without Guide Holes)	15	30	4-58172-2	One
	25	50	5-58172-1	
	30	60	58172-2	
	35	70	58172-3	
	40	80	58172-4	
	50	100	58172-5	
	55	110	58172-6	
	60	120	5-58172-2	
	63	126	5-58172-4	
	70	140	58172-7	
	75	150	58172-1	
	100	200	5-58172-3	

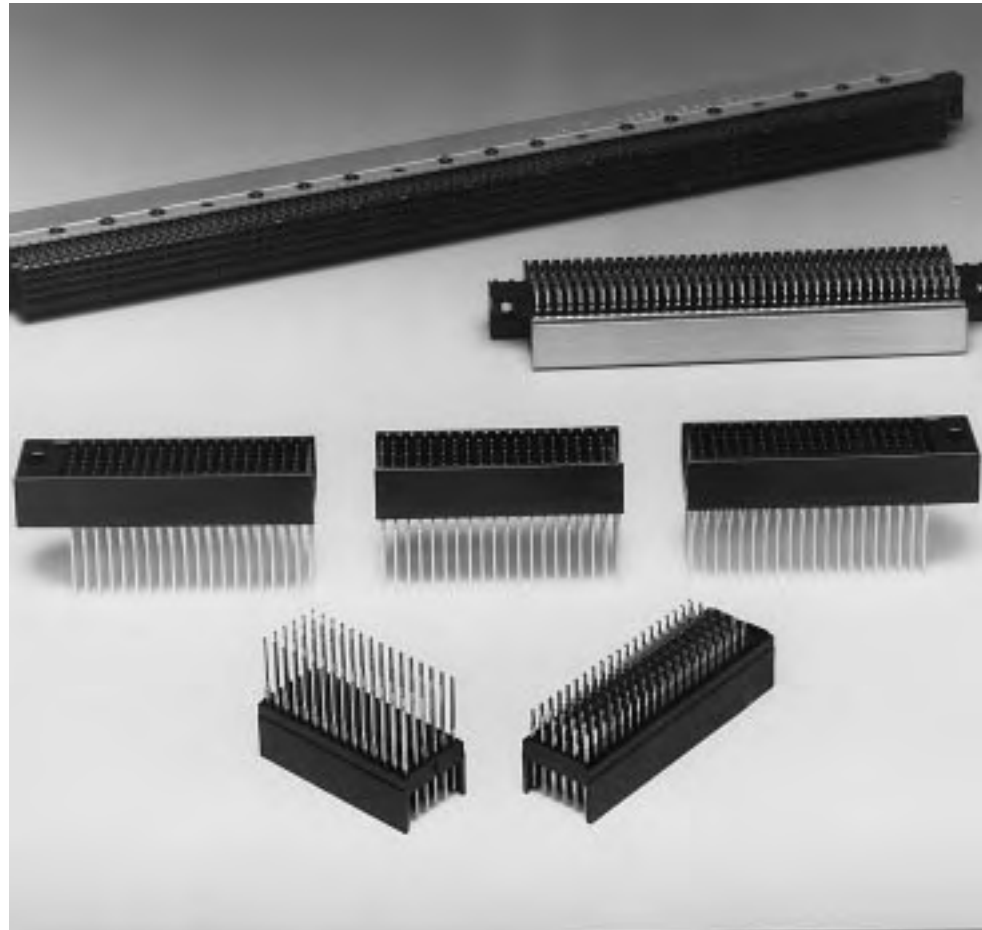
For complete product information, order Catalog 82618

Product Facts

- Six rows of contacts on high-density .100 [2.54] grid
- Modular design with 90- and 120-position modules
- High-conductivity beryllium copper twin-beam receptacle contacts provide two redundant points of contact
- Headers use ACTION PIN press-fit contacts with .025 x .025 [0.64 x 0.64] posts
- Various pin heights for make-first/break-last sequencing of ground, power and signals
- Select loading available
- Guide pins provide positive connector alignment
- Keying hardware allows 64 combinations to prevent mismatching
- Receptacle modules preassembled to stiffener
- Right-angle pin headers available for card extender applications
- Integral (nonmodular) assemblies available for high-volume requirements
- Interchangeable with other high-density, six-row connectors



- Recognized to U.S. and Canadian requirements under the Component Recognition Program of Underwriters Laboratories Inc., File No. E28476



AMP TBC Plus connectors combine economy and high performance into a high-density, six-row connector. The connectors are modular, consisting of 90- and 120-position post header modules and right-angle receptacle connectors. Contacts are on a .100 x .100 [2.54 x 2.54] grid. The modules can be combined to create high-pin-count interconnections which can exceed 1200.

At the heart of the TCB Plus connector is the twin-beam receptacle contact. Its design and beryllium copper material provide the high normal force, contact wipe, and conductivity for a reliable electrical

connection when mated to .025 x .025 [.064 x .064] posts.

Header posts are available in various heights to allow four-level sequencing of ground, power, and signals.

Posts use ACTION PIN contact feature for fast, solderless, press-fit application to the motherboard.

Each connector assembly includes two eight-way keying slots and can be configured with zero, one or two guide holes.

Material and Finish:

Housing—Black glass-filled polyester, 94V-0 rated

Receptacle Contacts—Beryllium copper, duplex plated .000030 [0.00076] gold in mating area, tin-lead on solder posts, with entire contact underplated .000050 [0.00127] min. nickel

Pin Contacts—Phosphor bronze, duplex plated .000030 [0.00076] gold in mating area, tin-lead on solder posts, with entire contact underplated .000050 [0.00127] min. nickel. Version with .555 [14.10] post length also has .000030 [0.00076] gold on lower .200 [5.08] of posts with gold flash on remainder of post.

Stiffener—Aluminum

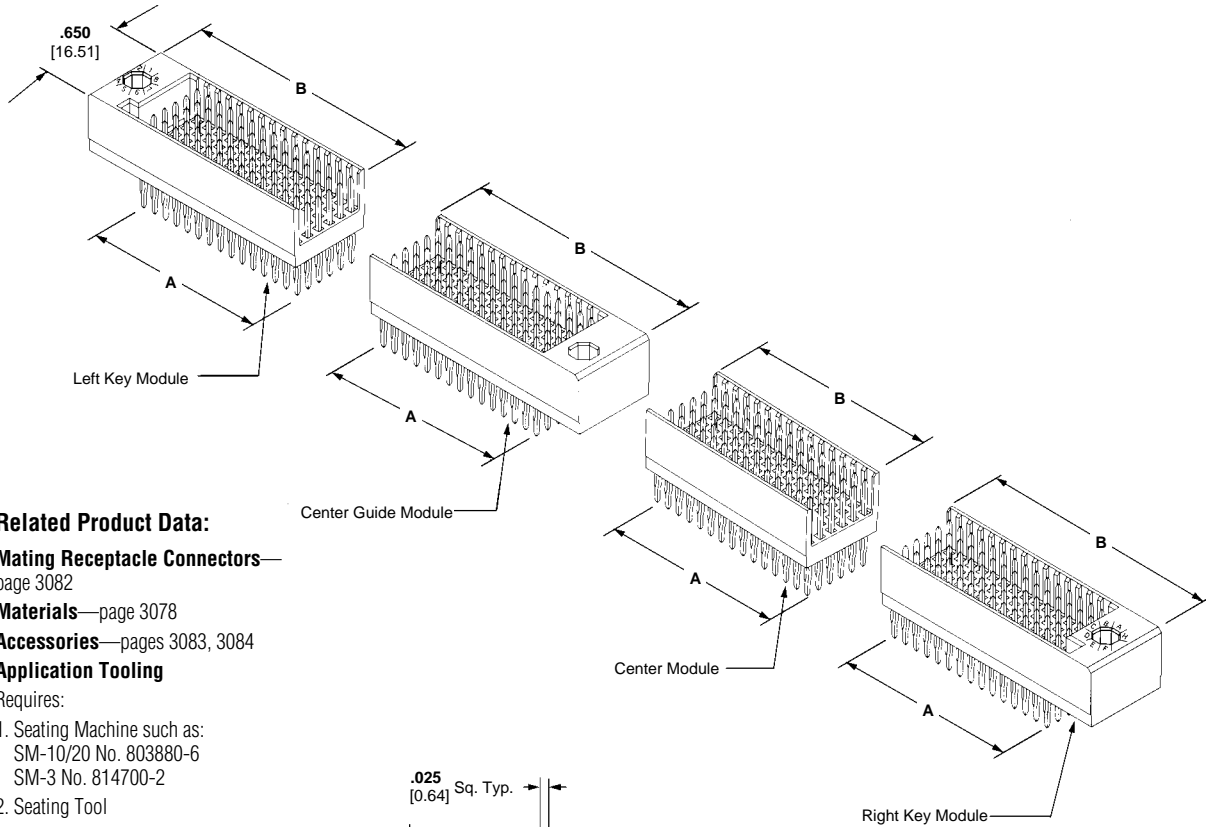
Power Guide Pin—Brass, plated .000030 [0.00076] gold over .000050 [0.00127] min. nickel

Power Guide Receptacle Assembly—Phosphor bronze contact, plated .000030 [0.00076] gold in contact area and gold flash on remainder, with entire contact underplated .000050 [0.00127] min. nickel. Brass bracket, plated gold flash over .000030 [0.00076] min. nickel

Center Guide Pin, Guide Pin, Inserts, Key Pin, Washers, and Nuts—Stainless steel

For complete product information, order Catalog 82618

Vertical Pin Header Modules



Related Product Data:

Mating Receptacle Connectors—page 3082

Materials—page 3078

Accessories—pages 3083, 3084

Application Tooling

Requires:

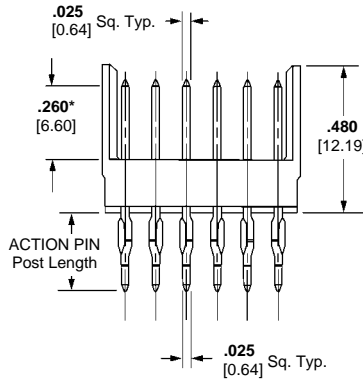
- Seating Machine such as:
SM-10/20 No. 803880-6
SM-3 No. 814700-2

- Seating Tool

Pin Header Module Size	Seating Tool Numbers*
90 Pos.	58411-1
120 Pos.	58411-2

*For additional sizes, see AMP Instruction Sheet 408-9543.

- Customer-Supplied Board Support Fixture (see AMP Instruction Sheet 408-9543)



Note: ACTION PIN posts require .093 [2.36] min. thick PC board.
*.180 [4.57] and .220 [5.59] post lengths available upon request.

Technical Documents:

Product Specifications

108-1188, 108-16

Application Specification

114-25036

Instruction Sheets

408-6927, 408-9

For complete product information, order Catalog 82618

Module Type	No. of Positions	Dimensions		Module Part Numbers	
		A	B	.250 [6.35] Post Length	.555 [14.10] Post Length
Left Key	90	1.400 35.56	1.868 47.45	535843-1	535843-5
	120	1.900 48.26	2.368 60.15	535843-2	535843-6
Center	90	1.400 35.56	1.497 38.02	535841-1	535841-5
	120	1.900 48.26	1.997 50.72	535841-2	535841-6
Center Guide	90	1.400 35.56	1.789 45.44	650369-1	650369-5
	120	1.900 48.26	2.289 58.14	650369-2	650369-6
Right Key	90	1.400 35.56	1.868 47.45	535845-1	535845-5
	120	1.900 48.26	2.368 60.15	535845-2	535845-6

Note: Consult Tyco Electronics for information on selective loading of different height posts for sequencing.

Modular Pin Assemblies Without Guide Holes

Related Product Data:

Mating Receptacle Connectors—
page 3082

Materials—page 3078

Accessories—pages 3083, 3084

Technical Documents:

Product Specifications

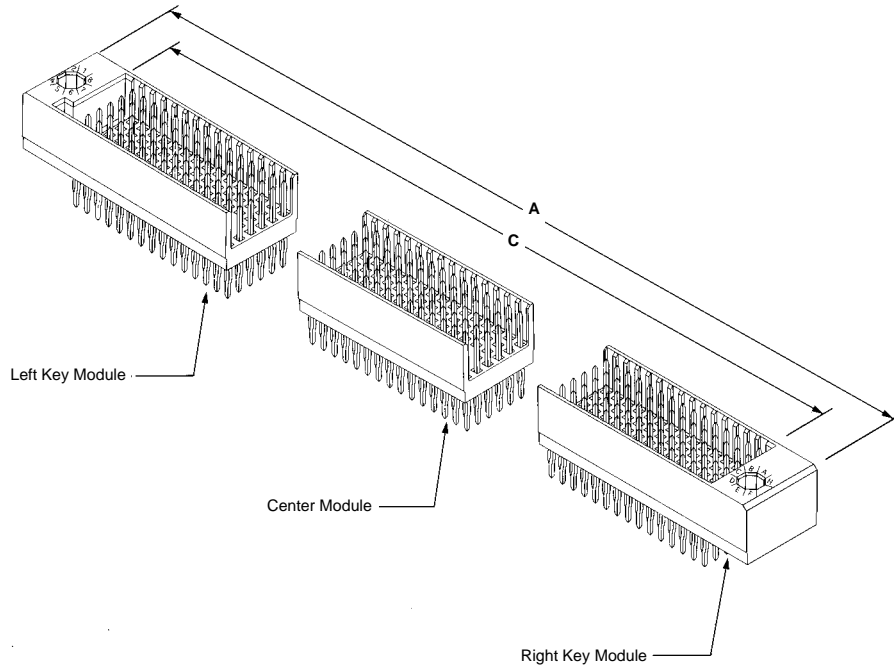
108-1188, 108-16

Application Specification

114-25036

Instruction Sheets

408-6927, 408-9543



No. of Positions	Dimensions				Modules Required					
	A	B	C	D	Left Key		Center		Right Key	
					90	120	90	120	90	120
180	3.750 95.25	3.450 87.63	3.050 77.47	2.900 73.66	1	—	—	—	1	—
210	4.250 107.95	3.950 100.33	3.550 90.17	3.400 86.36	1	—	—	—	—	1
240	4.750 120.65	4.450 113.03	4.050 102.87	3.900 99.06	—	1	—	—	—	1
270	5.250 133.35	4.950 125.73	4.550 115.57	4.400 111.76	1	—	1	—	1	—
300	5.750 146.05	5.450 138.43	5.050 128.27	4.900 124.46	1	—	—	1	1	—
330	6.250 158.75	5.950 151.13	5.550 140.97	5.400 137.16	—	1	1	—	—	1
360	6.750 171.45	6.450 163.83	6.050 153.67	5.900 149.86	—	1	—	1	—	1
390	7.250 184.15	6.950 176.53	6.550 166.37	6.400 162.56	1	—	1	1	1	—
420	7.750 196.85	7.450 189.23	7.050 179.07	6.900 175.26	1	—	1	1	—	1
450	8.250 209.55	7.950 201.93	7.550 191.77	7.400 187.96	—	1	1	1	—	1
480	8.750 222.25	8.450 214.63	8.050 204.47	7.900 200.66	—	1	—	2	—	1
600	10.750 273.05	10.450 265.43	10.050 255.27	9.900 251.46	—	1	—	3	—	1

For complete product information, order Catalog 82618

Modular Pin Assemblies With Guide Holes

One Guide Hole

Related Product Data:

Mating Receptacle Connectors—
page 3082

Materials—page 3078

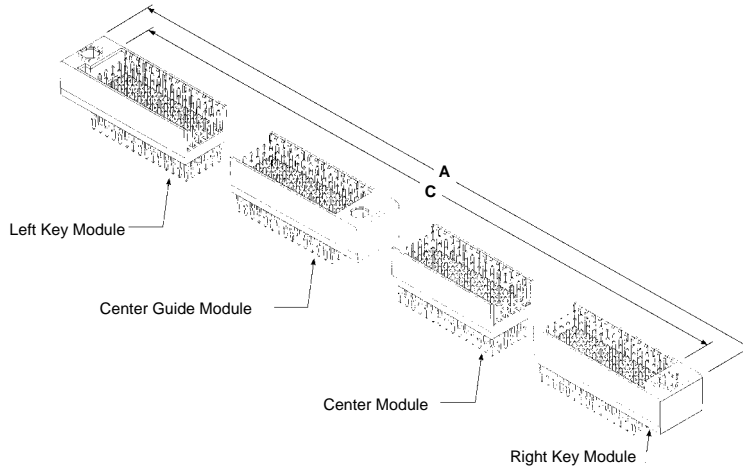
Accessories—pages 3083, 3084

Technical Documents:

Product Specifications
108-1188, 108-16

Application Specification
114-25036

Instruction Sheets
408-6927, 408-9543



No. of Positions	Dimensions					Modules Required							
	A	B	C	D	E	Left Key		Center		Center Guide		Right Key	
						90	120	90	120	90	120	90	120
480	9.050 229.87	8.750 222.25	8.350 212.09	3.900 99.06	4.375 111.13	—	1	—	1	—	1	—	1
540	10.050 255.27	9.750 247.65	9.350 237.49	4.400 111.76	4.875 123.83	1	—	3	—	1	—	1	—
600	11.050 280.67	10.750 273.05	10.350 262.89	4.900 124.46	5.375 136.53	—	1	3	—	1	—	—	1
660	12.050 306.07	11.750 298.45	11.350 288.29	5.400 137.16	5.875 149.23	1	—	—	3	—	1	1	—

Two Guide Holes

Related Product Data:

Mating Receptacle Connectors—
page 3082

Materials—page 3078

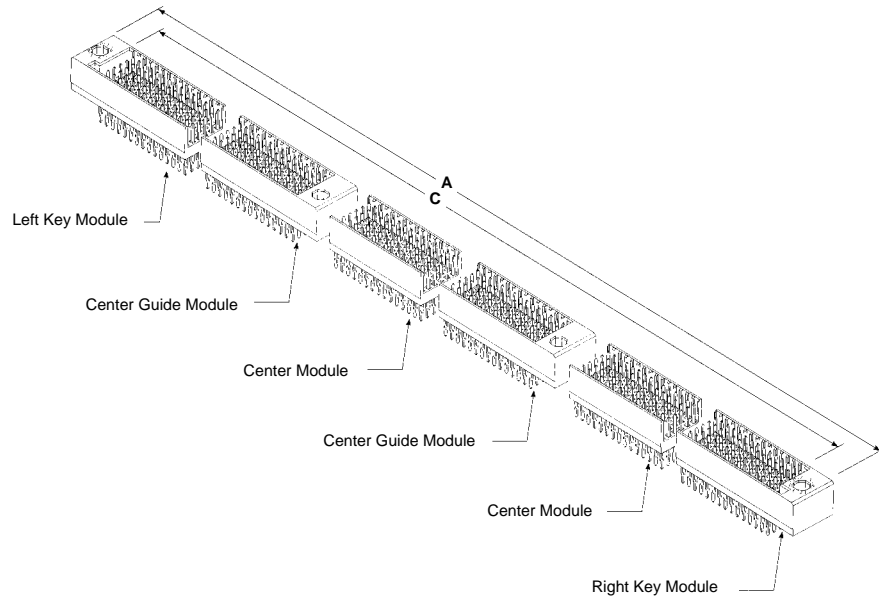
Accessories—pages 3083, 3084

Technical Documents:

Product Specifications
108-1188, 108-16

Application Specification
114-25036

Instruction Sheets
408-6927, 408-9543



No. of Position	Dimensions						Modules Required							
	A	B	C	D	E	F	Left Key		Center		Center Guide		Right Key	
							90	120	90	120	90	120	90	120
720	13.350 339.09	13.050 331.47	12.650 321.31	3.900 99.06	4.375 111.13	4.300 109.22	—	1	—	2	—	2	—	1
810	14.850 377.19	14.550 369.57	14.150 359.11	4.400 111.76	4.875 123.83	4.800 121.92	1	—	5	—	2	—	1	—

For complete product information, order Catalog 82618

Modular Receptacle Assemblies

Related Product Data:

Mating Pin Headers—
pages 3079 thru 3081

Materials—page 3078

Accessories—pages 3083, 3084

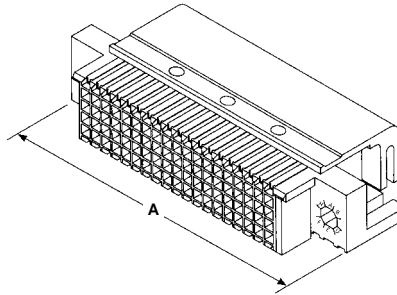
Technical Documents:

Product Specification
108-1188

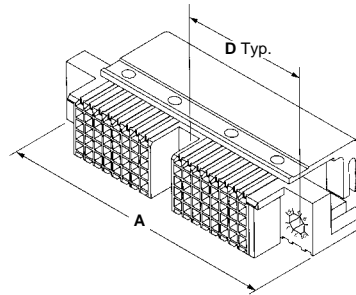
Application Specification
114-25036

Instruction Sheet
408-9868

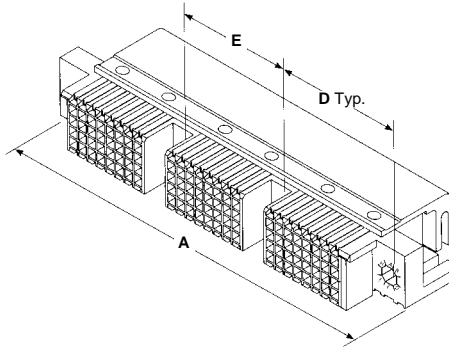
Without Center Guide



With One Center Guide



With Two Center Guides

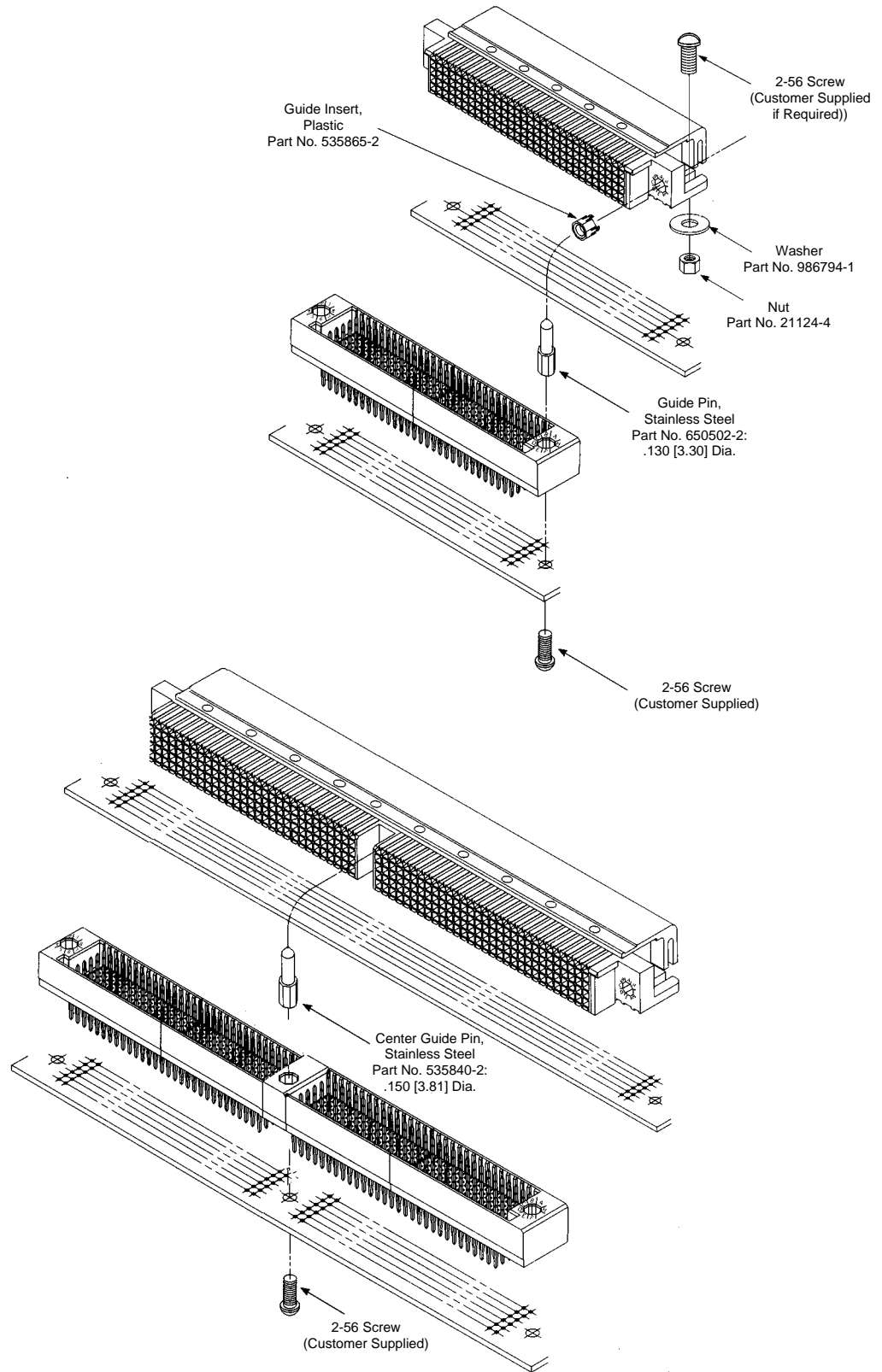


No. of Guides	No. of Positions	Dimensions					Part Numbers
		A	B	C	D	E	
0	180	3.730 94.74	3.450 87.63	2.900 73.66	—	—	535919-1
	210	4.230 107.44	3.950 100.33	3.400 86.36	—	—	535919-2
	240	4.730 120.14	4.450 113.03	3.900 99.06	—	—	535919-3
	270	5.230 132.84	4.950 125.73	4.400 111.76	—	—	535919-4
	300	5.730 145.54	5.450 140.72	4.900 124.46	—	—	535919-5
	330	6.230 158.24	5.950 151.13	5.400 137.16	—	—	535919-6
	360	6.730 170.94	6.450 163.83	5.900 149.86	—	—	535919-7
	390	7.230 183.64	6.950 176.53	6.400 162.56	—	—	535919-8
	420	7.730 196.34	7.450 189.23	6.900 175.26	—	—	535919-9
	450	8.230 209.04	7.950 201.93	7.400 187.96	—	—	1-535919-0

No. of Guides	No. of Positions	Dimensions					Part Numbers
		A	B	C	D	E	
0	480	8.730 221.74	8.450 214.63	7.900 200.66	—	—	1-535919-3
	540	9.730 247.14	9.450 240.03	8.900 226.06	—	—	1-535919-1
	600	10.730 272.54	10.450 265.43	9.900 251.46	—	—	1-535919-2
	480	9.030 229.36	8.750 222.25	3.900 99.06	4.375 111.13	—	650362-1
1	540	10.030 254.76	9.750 247.65	4.400 111.76	4.875 123.83	—	650362-2
	600	11.030 280.16	10.750 273.05	4.900 124.46	5.375 136.25	—	650362-3
	660	12.030 305.56	11.750 298.45	5.400 137.16	5.875 149.23	—	650362-4
2	720	13.350 339.09	13.050 331.47	3.900 99.06	4.395 111.63	4.300 109.22	650363-1
	810	14.850 377.19	14.550 369.57	4.400 111.76	4.875 123.83	4.800 121.92	650363-2

For complete product information, order Catalog 82618

Guidance, Power and Keying Hardware Applications

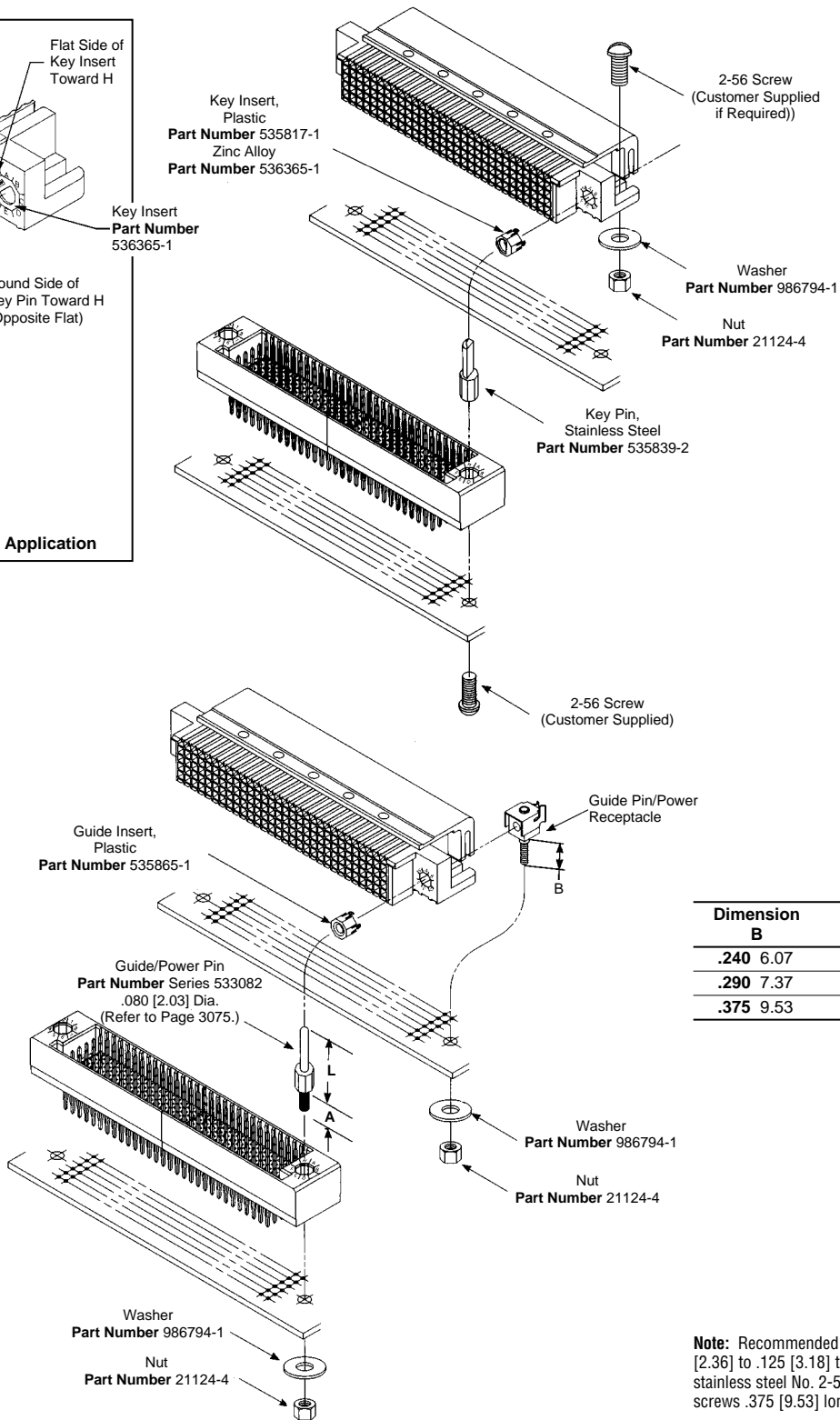
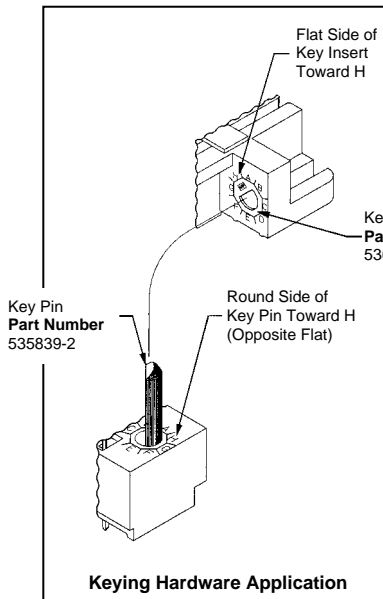


Note: Recommended screws for .093 [2.36] to .125 [3.18] thick boards are stainless steel No. 2-56 binding head screws .375 [9.53] long.

For complete product information, order Catalog 82618

3
Backplane / High Speed Connectors

Guidance, Power and Keying Hardware Applications



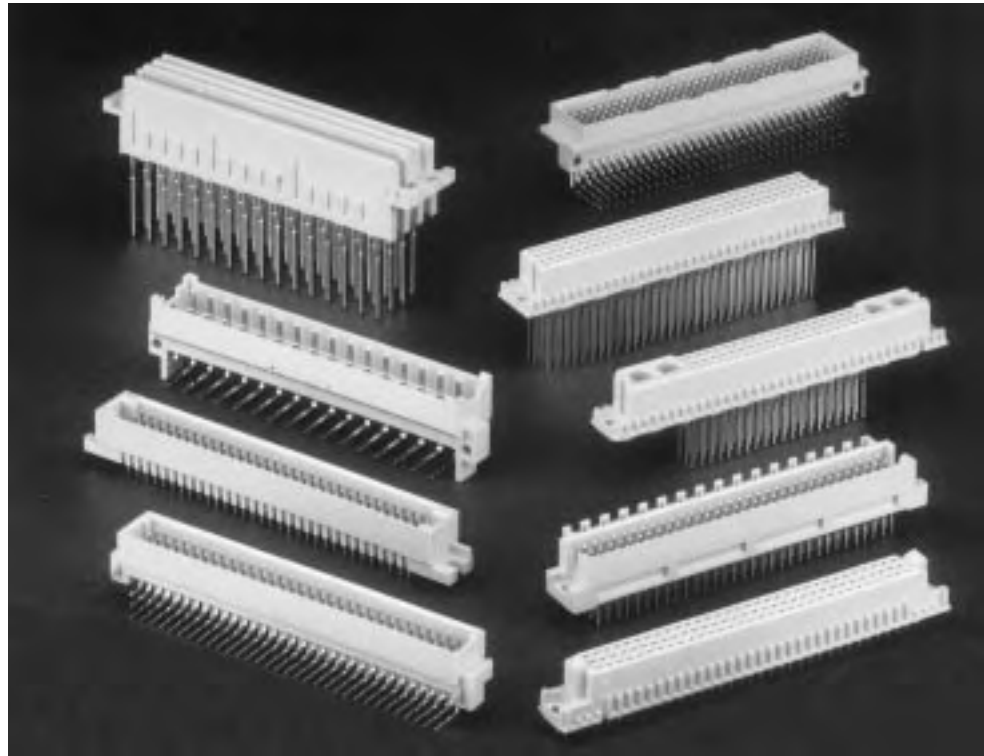
Dimension B		Part Numbers
.240	6.07	535875-1
.290	7.37	535875-2
.375	9.53	535875-3

Note: Recommended screws for .093 [2.36] to .125 [3.18] thick boards are stainless steel No. 2-56 binding head screws .375 [9.53] long.

For complete product information, order Catalog 82618

Product Facts

- Meets DIN 41612 and IEC 603-2
- Polarized housings
- Standard DIN sizes as well as half sizes, and expanded sizes
- AMP ACTION PIN post assemblies for reliability and economical motherboard assembly
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Electrical Data:

- Current Rating (signal contacts)** — 1.5 Amperes
- Contact Resistance** — 20 milliohms max.
- Lower Shield Inductance** — <10 nanohenries
- Lower Shield Resistance** — <10 milliohms
- Upper Shield Inductance** — <20 nanohenries
- Upper Shield Resistance** — <10 milliohms

AMP Eurocard Connectors meet DIN 41612 and IEC 603-2 specifications.

The application for the Eurocard connectors is a two-piece backplane connector for low to mid range networking gear.

These connectors are flame retardant and are available in Types C, F, M, and R. They have various solder post lengths, and selective contact loading.

Eurocard Connectors for Common Bus System Application

The Eurocard Connectors listed below provide high reliability and economy in packages compatible with the industry standard for printed circuit board computer backplane bus system application.

Common Bus Systems	AMP Eurocard Connectors	Part Numbers		Page Numbers
		Pin	Receptacle	
VMEbus	Type C, 96 Position	650473-5	535043-5	3091, 3092
VME64X	160 Position	—	148452-5 1-148495-5	3096

For complete product information, order Catalog 1307515

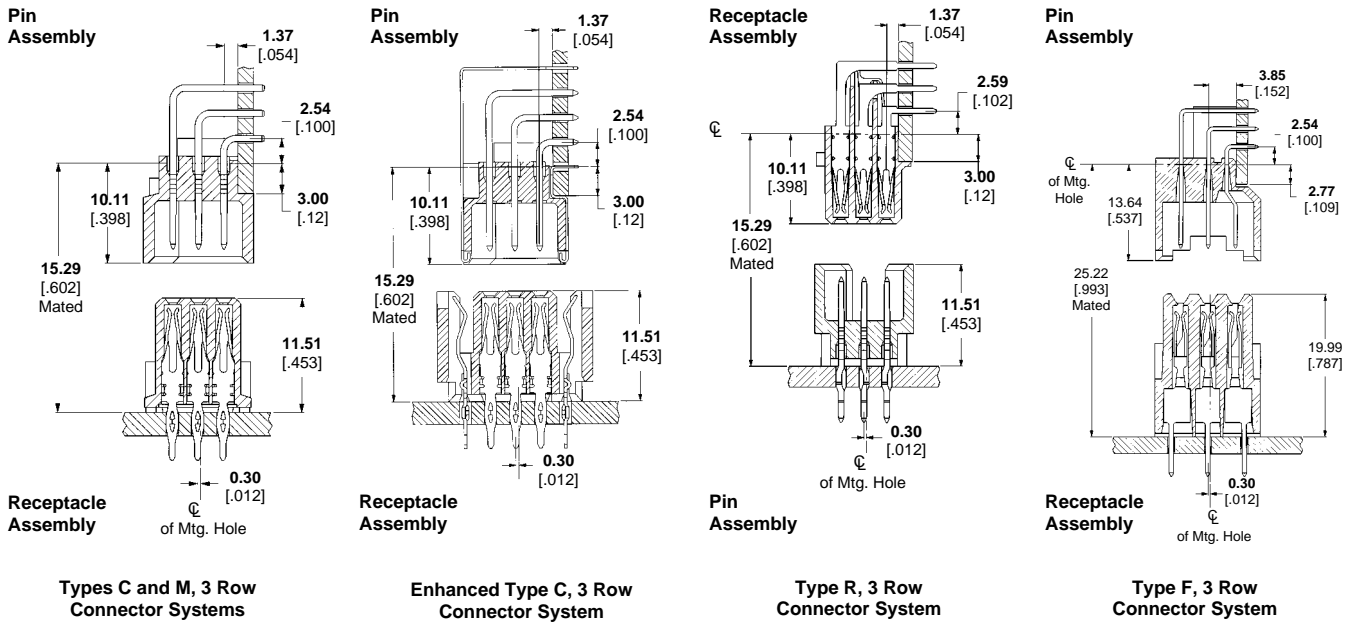
DIN 41612 Performance Levels

The following performance requirements are for Levels I, II and III of the DIN 41612 specification. Refer to Test Report 501-170 for AMP Eurocard Connector Level II test results.

	Level I	Level II	Level III
Test Batch P			
Dimensional Check	Yes	Yes	Yes
Contact Resistance	20 milliohms	20 milliohms	—
Insulation Resistance	1 E 12 ohms	1 E 12 ohms	1 E 11 ohms
Dielectric Strength	1000 V	1000 V	1000 V
Test Batch AP			
Withdrawal Force (Single Pin)	0.15 N [.54 oz] Min.	0.15 N [.54 oz] Min.	0.15 N [.54 oz] Min.
Mating and Unmating Force (96 Pos.)	90.7 N [20.4 lb] Max.	90.7 N [20.4 lb] Max.	90.7 N [20.4 lb] Max.
Solderability	Yes	Yes	Yes
Dielectric Strength	1000 V	1000 V	—
Vibration	10-2000 Hz, 20G	10-500 Hz, 6G	—
Shock	490 m/s ² (50G)	—	—
Acceleration	980 m/s ²	—	—
Rapid Temperature Change	-55°C, +125°C	-55°C, +125°C	—
Insulation Resistance	1 E 12 ohms	1 E 12 ohms	—
Dielectric Strength	1000 V	1000 V	—
Visual Examination	Yes	Yes	Yes
Climatic Sequence	5 cycles	5 cycles	—
Dry Heat	+125°C, 16 hours	+125°C, 16 hours	+125°C, 16 hours
Insulation Resistance (During Dry Heat)	1 E 11 ohms	1 E 11 ohms	1 E 10 ohms
Humid Heat	+55°C	+40°C	—
Cold	-55°C	-55°C	-55°C
Partial Vacuum	300M bar	300M bar	—
Dielectric Strength	300 V	300 V	—
Humid Heat	+55°C	+40°C	—
Insulation Resistance	1 E 10 ohms	1 E 10 ohms	1 E 9 ohms
Contact Resistance	20 milliohms	20 milliohms	20 milliohms
Dielectric Strength	1000 V	1000 V	—
Mating and Unmating	90.7 N [20.4 lb]	90.7 N [20.4 lb]	90.7 N [20.4 lb]
Visual Examination	Yes	Yes	Yes
Test Batch BP			
Withdrawal Force	0.15 N [.54 oz]	0.15 N [.54 oz]	0.15 N [.54 oz]
Durability	250 cycles	200 cycles	50 cycles
Industrial Atmosphere	21 days SO ₂	4 days SO ₂	—
Contact Resistance	20 milliohms	20 milliohms	—
Durability	250 cycles	200 cycles	—
Insulation Resistance	1 E 12 ohms	1 E 12 ohms	—
Dielectric Strength	1000 V	1000 V	—
Withdrawal Force	0.15 N [.54 oz]	0.15 N [.54 oz]	0.15 N [.54 oz]
Visual Examination	Yes	Yes	Yes
Static Axial Force	90 N [20.25 lb]	—	—
Test Batch CP			
Humid Heat	56 days	56 days	—
Insulation Resistance	1 E 10 ohms	1 E 10 ohms	—
Contact Resistance	20 milliohms	20 milliohms	—
Dielectric Strength	1000 V	1000 V	—
Visual Examination	Yes	Yes	—
Test Batch DP			
Durability	250 cycles	200 cycles	—
Electric Load at High Temperature	1 ampere at 70°C	1 ampere at 70°C	—
Contact Resistance	20 milliohms	20 milliohms	—
Dielectric Strength	1000 V	1000 V	—
Discharge Voltage	1000 V	1000 V	—
Visual Examination	Yes	Yes	—
Test Batch EP			
Mechanical Strength of Terminals	20 N [4.5 lb]	20 N [4.5 lb]	—
Contact Mount in Use	10 N [2.25 lb]	10 N [2.25 lb]	—
Growth of Mold	Yes	—	—
Visual Examination	Yes	—	—
Combustibility	10 sec burning	—	—

For complete product information, order Catalog 1307515

Overview of Eurocard Connector System



	Type C/Enhanced Type C (Signal Contacts)** /Type M (Signal Contacts)	Type R	Type F
Number of Positions (Max.)	96	96	48
Row Levels	A, B & C A & C	A, B & C	Z, B, & D
Grid in inches fully loaded (Pitch and row distance)	Receptacle Assembly	2.54 x 2.54 [.100 x .100]	5.08 X 5.08 [.200 X .200]
	Pin Assembly	2.54 x 2.54 [.100 x .100]	5.08 X 2.54 [.200 X .100]†
Minimum adjacent mounting space required	12.7 [.500]	12.7 [5.00]	15.2 [.600]
Performance Specifications:			
Current Rating	Per DIN 41612*		Per DIN 41612*
Voltage Rating	250 VAC	250 VAC	250 VAC
Dielectric Rating	1000 VAC/1.55 KV maximum	1000 VAC	1.55 KV max.
Contact Resistance	15 milliohms initial at 100 ma and 50 mv, open circuit	15 milliohms initial at 100 ma and 50 mv, open circuit	15 milliohms
Insulation Resistance	10 ⁶ megohms after temperature cycling environment		10 ⁶ megohms after temperature cycling environment
Temperature Rating	-55°C to +125°C, except EUROLATCH Connectors, +105°C max.		-55°C to +125°C
Durability	Per DIN 41612, Level I, II or III		Per DIN 41612, Level I, II or III
Mating Force	Less than 0.94 N [3.4 oz] Avg. per contact		Less than 0.94 N [3.4 oz] Avg. per contact
Unmating Force	0.15 N [.54 oz] min. per contact after three mating cycles		0.15 N [.54 oz] min. per contact after three mating cycles

*See derating curve on next page.

**For additional electrical data, see page 3085.

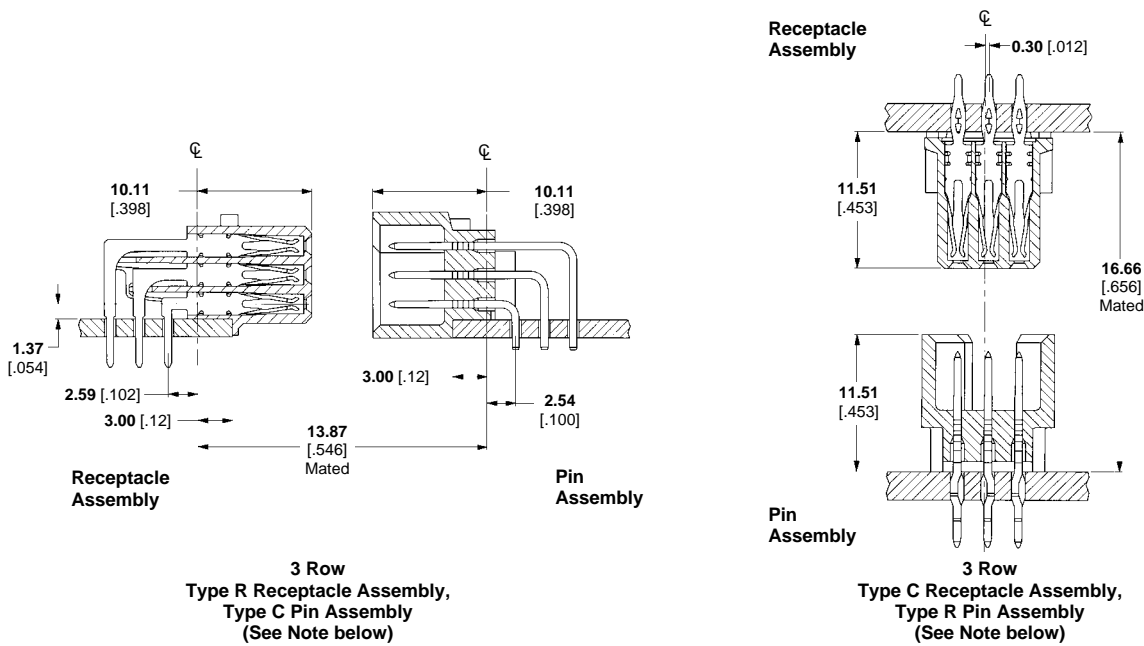
†At solder side.

For complete product information, order Catalog 1307515

3

Backplane / High Speed Connectors

Mixed Styles



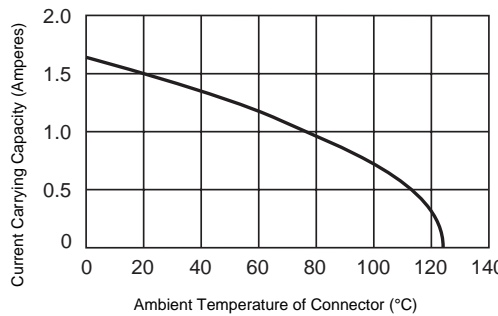
Note: When connector styles are mixed (Types C and R), the connector circuit numbers will not match; for example, position A1 of the pin assembly will mate with position A32 of the receptacle assembly.

Current Carrying Capacity and Mating Conditions

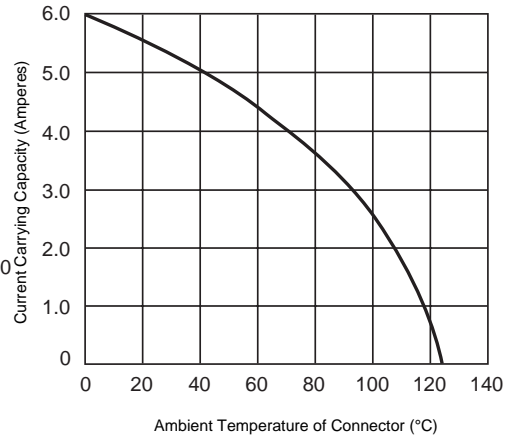
Current Carrying Capacity (All Contacts Energized in Housing)

Additional derating is recommended when paralleling contacts for power.

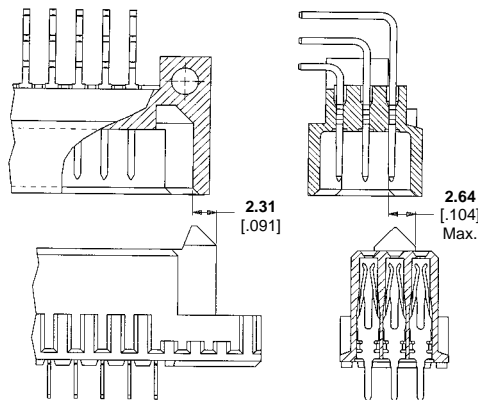
Types C and R per DIN 41612



Type F per DIN 41612



Mating Conditions

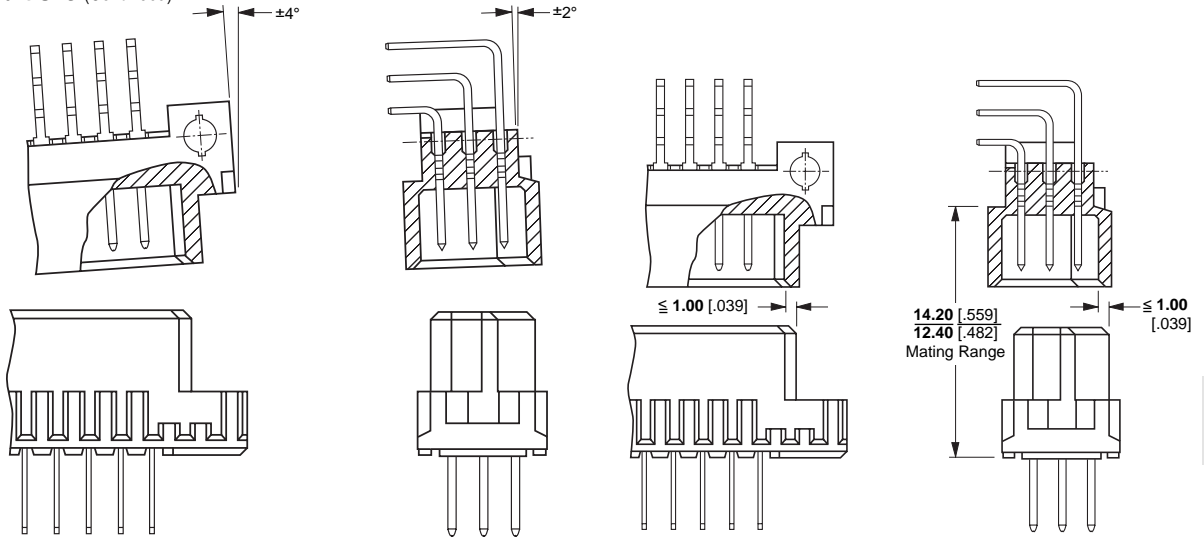


Eurocard Connector with Guide Features

For complete product information, order Catalog 1307515

Current Carrying Capacity and Mating Conditions

Mating Conditions (Continued)



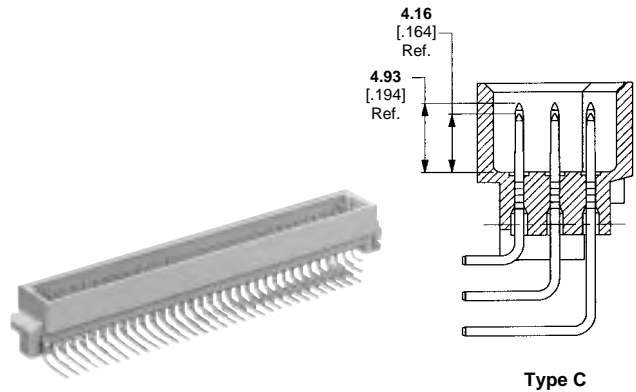
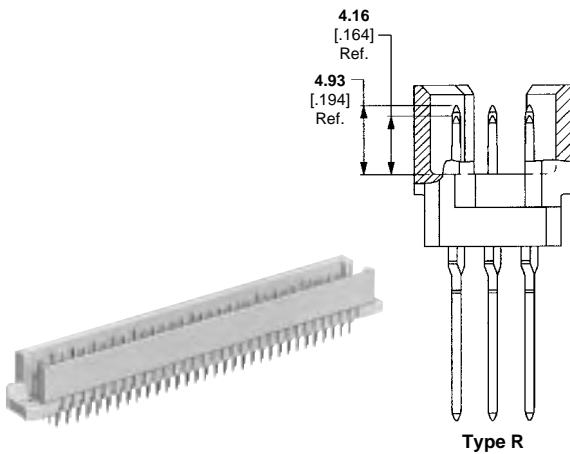
MFBL (Make First/Break Last) Connector System

Tyco Electronics offers MFBL Eurocard pin assemblies in both vertical and right angle styles. The MFBL concept is achieved by loading a connector with staggered length pins. The long pins make contact first during connector mating, and break last during unmating. Tyco Electronics recommends the use of 4.93 [.194] high pins for MFBL positions and 4.17 [.164] high pins for signal

positions. Also, Tyco Electronics offers a 5.69 [.224] long mating post. However, it exceeds the lead-in envelope of the housing and is susceptible to stubbing on the receptacle mating face.

Type R Eurocard MFBL pin assemblies are available with either ACTION PIN posts or solder posts. For press-fit MFBL applications, Tyco Electronics offers a

connector with contacts of all one height which is pressed into a board using the Tyco Electronics patented programmable tool. This allows the customer to buy a standard connector and configure the tool to the specific MFBL sequence required. For a description of the use of this tool, request AMP Instruction Sheet 408-9894.



For complete product information, order Catalog 1307515

MFBL (Make First/Break Last) Connector System

Type C Pin Assemblies

No. of Positions	Rows Loaded*	DIN Level	Part Numbers*
96	—	II	536437
			148123**
			536366 ¹
			148330* ²
48	—	II	148019
			536751 ¹
120	—	II	148002
			148032 ¹

*Refer to customer drawing for specific loading patterns and part numbers.

**Three levels of sequencing.

¹ With Boardlocks

² Reverse Polarized

Type R Pin Assemblies, 4.57 [.180] Solder Post Length

No. of Positions	Rows Loaded*	DIN Level	Part Number*
96	—	II	536744

*Refer to customer drawing for specific loading patterns and part numbers.

Type R Pin Assemblies, 6.35 [.250] ACTION PIN (Press-Fit) Post Length, Programmable (for 2.36 [.093] Min. Thick PC Board)

No. of Positions	Rows Loaded	DIN Level	Part Numbers
96	A,B,C	II	536019-5
64	A,C	II	536098-5
48	A,B,C	II	536092-5
32	A,C	II	536100-5
120	A,B,C	II	536094-5
150	A,B,C	II	536096-5

Type R Pin Assemblies, Eye of the Needle Compliant Pin, 4.06 [.160] Post Length, Programmable

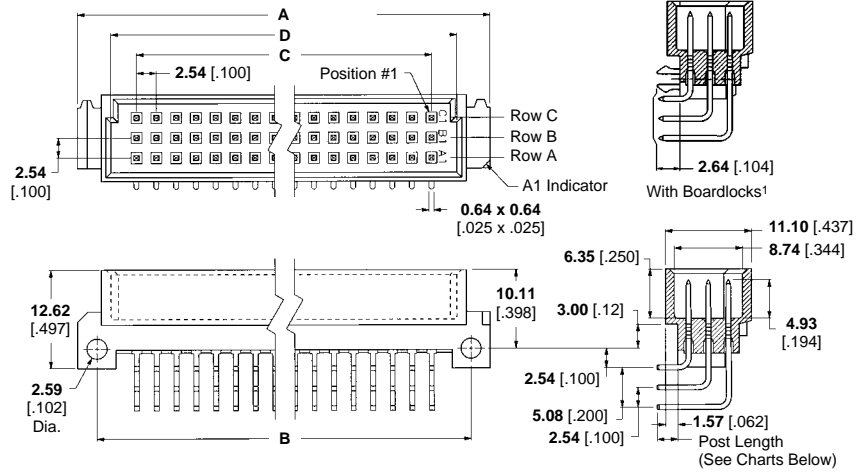
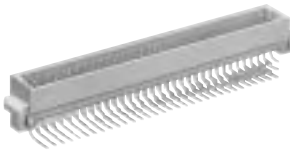
No. of Positions	Rows Loaded	DIN Level	Part Numbers
48	A,B,C	II	148472-4
64	A,C	II	148553-4
96	A,B,C	II	148304-4
120	A,B,C	II	148389-4
150	A,B,C	II	148306-4

Type R Pin Assemblies, 13.23 [.521] ACTION PIN (Press-Fit) Post Length, Programmable (for 2.36 [.093] Min. Thick PC Board)

No. of Positions	Rows Loaded	DIN Level	Part Numbers
96	A,B,C	II	536067-5
64	A,C	II	536099-5
48	A,B,C	II	536093-5
32	A,C	II	536101-5
120	A,B,C	II	536095-5
150	A,B,C	II	536097-5

For complete product information, order Catalog 1307515

Type C Right-Angle Pin Assemblies with Solder Posts (with and without Boardlocks)



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts and Boardlocks — Brass

DIN II Plating — Meets performance requirements of DIN Level II.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3092, 3102, 3103

Technical Documents:

DIN Specification 41612

IEC Specification 603-2

Application Specification 114-9014

Instruction Sheet 408-6784

Standard Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers		
		A	B	C	D		2.64 [.104] Post Length	3.30 [.130] Post Length	4.57 [.180] Post Length
96	A,B,C	93.98 3.700	88.90 3.500	78.74 3.100	85.29 3.358	II	650473-5	650947-5	148116-5
							650913-5 ¹	536405-5 ¹	—
							536010-5 ²	536742-5 ²	—
							536416-5 ^{1,2}	—	—
64	A,C	93.98 3.700	88.90 3.500	78.74 3.100	85.29 3.358	II	650473-9	650947-9	—
							650945-5	650951-5	148117-5
							536356-5 ¹	536406-5 ¹	—
							536011-5 ²	—	—
						III	650945-9	—	—
							148511-5 ^{1,2}	—	—

¹ With Boardlocks
² High Temperature Housing

Half Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		2.64 [.104] Post Length	3.30 [.130] Post Length
48	A,B,C	53.34 2.100	48.26 1.900	38.10 1.500	44.65 1.758	II	650478-5	650948-5
							650916-5 ¹	536407-5 ¹
							536012-5 ²	—
							148020-5 ^{1,2}	—
						III	650478-9	—
							640946-5	—
32	A,C	53.34 2.100	48.26 1.900	38.10 1.500	44.65 1.758	II	650978-5 ¹	536408-5
							536013-5 ²	—

¹ With Boardlocks
² High Temperature Housing

Expanded Size

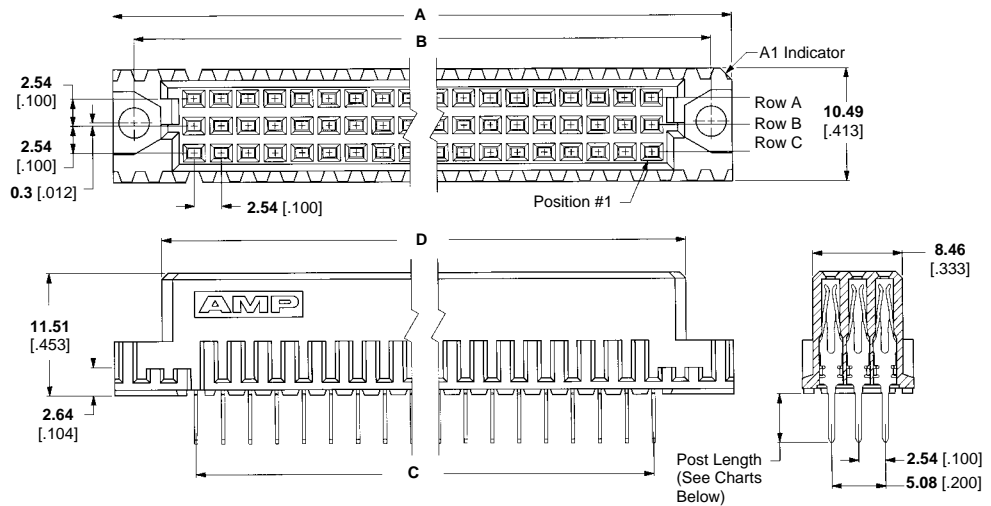
No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		2.64 [.104] Post Length	3.30 [.130] Post Length
120	A,B,C	114.30 4.500	109.22 4.300	99.06 3.900	105.61 4.158	II	650906-5	650949-5
							650914-5 ¹	536409-5 ¹
							536413-5 ^{1,2}	536741-5 ²
							—	650949-9
						III	650907-5	650950-5
							650915-5 ¹	536410-5 ¹
150	A,B,C	139.70 5.500	134.62 5.300	124.46 4.900	130.01 5.158	II	536414-5 ^{1,2}	—
							—	—

¹ With Boardlocks
² High Temperature Housing

Note: Select load and MFBL available upon request, contact Product Engineering.

For complete product information, order Catalog 1307515

Type C Vertical Receptacle Assemblies with Solder Posts for PC Board Mount



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3091, 3102, 3103

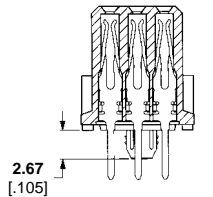
Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Application Specification
114-9014

Instruction Sheet
408-6784



With Boardlocks¹

Standard Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers		
		A	B	C	D		2.49 [.098] Post Length	3.30 [.130] Post Length	4.57 [.180] Post Length
96	A,B,C	93.98 3.700	90.00 3.543	78.74 3.100	85.00 3.346	II	535089-5	535090-5	535043-5
							—	535090-4 ²	535043-4 ²
							536418-5 ¹	650963-5 ¹	536412-5 ¹
							—	650963-4 ^{2,1}	536412-4 ^{2,1}
							535089-9	535090-9	535043-9
							650458-5	650956-5	650408-5
64	A,C	93.98 3.700	90.00 3.543	78.74 3.100	85.00 3.346	II	—	—	650408-4 ²
							536481-5 ¹	650983-5	536756-5
							650458-9	—	—

¹ With Boardlocks

² Contact Plating: .000030 Gold in mating area, Tin Lead on tails, All over .000050 Nickel.

Half Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers		
		A	B	C	D		2.49 [.098] Post Length	3.30 [.130] Post Length	4.57 [.180] Post Length
48	A,B,C	53.34 2.100	49.37 1.944	38.10 1.500	44.35 1.746	II	535091-5	535070-5	535071-5
							148521-5	535070-4 ²	535071-4 ²
							536397-5 ¹	536484-5 ¹	536485-5 ¹
							535091-9	—	535071-9
							650459-5	—	650466-5
							—	—	650466-4 ²
32	A,C	53.34 2.100	49.37 1.944	38.10 1.500	44.35 1.746	II	—	—	650466-4 ²
							536486-5 ¹	536487-5 ¹	536488-5 ¹
							—	—	—

¹ With Boardlocks

² Contact Plating: .000030 Gold in mating area, Tin Lead on tails, All over .000050 Nickel.

Expanded Size

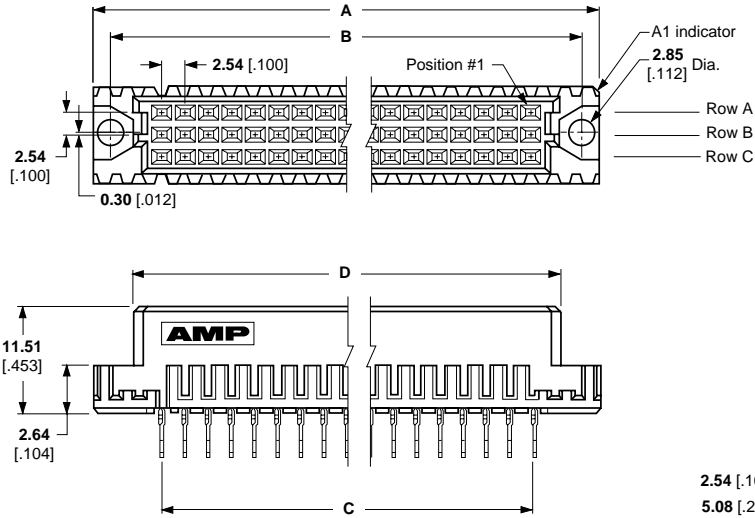
No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers		
		A	B	C	D		2.49 [.098] Post Length	3.30 [.130] Post Length	4.57 [.180] Post Length
120	A,B,C	114.30 4.500	110.31 4.343	99.06 3.900	105.31 4.146	II	535097-5	535098-5	535099-5
							—	535098-4 ²	—
							536489-5 ¹	536494-5 ¹	536490-5 ¹
							535097-9	535098-9	—
							650404-5	650405-5	650406-5
							536491-5 ¹	536492-5 ¹	536493-5 ¹
150	A,B,C	139.70 5.500	135.71 5.343	124.46 4.900	130.71 5.146	II	—	—	—
							650404-5	650405-5	650406-5
							536491-5 ¹	536492-5 ¹	536493-5 ¹

¹ With Boardlocks

² Contact Plating: .000030 Gold in mating area, Tin Lead on tails, All over .000050 Nickel.

For complete product information, order Catalog 1307515

Type C Vertical Receptacle Assemblies with ACTION PIN Posts for the PC Board Mount (0.30 x 0.61 [.012 x .024])



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3091, 3101

Application Tooling — pages 3109

Technical Documents:

DIN Specification 41612

IEC Specification 603-2

Application Specification 114-9014

Instruction Sheet 408-6927

Standard Size (for PC Board Thicknesses 1.57 [.062] and Above)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers
		A	B	C	D		
96	A,B,C	93.98	90.00	78.74	85.00	II	535032-5
		3.700	3.543	3.100	3.346		535032-42
						III	535056-51
						535056-42	
64	A,C	93.98	90.00	78.74	85.00	II	535032-9
		3.700	3.543	3.100	3.346		535059-5
						III	535059-42
						535059-9	

¹ Without mounting ears.

² Contact Plating: .000030 Gold in mating area, Tin Lead on tails, All over .000050 Nickel.

Half Size (for PC Board Thicknesses 1.57 [.062] and Above)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers
		A	B	C	D		
48	A,B,C	53.34	49.37	38.10	44.35	II	535034-5
		2.100	1.944	1.500	1.746		535034-42
						III	535034-9
32	A,C	53.34	49.37	38.10	44.35	II	535068-5
		2.100	1.944	1.500	1.746		

Expanded Size (for PC Board Thicknesses 1.57 [.062] and Above)

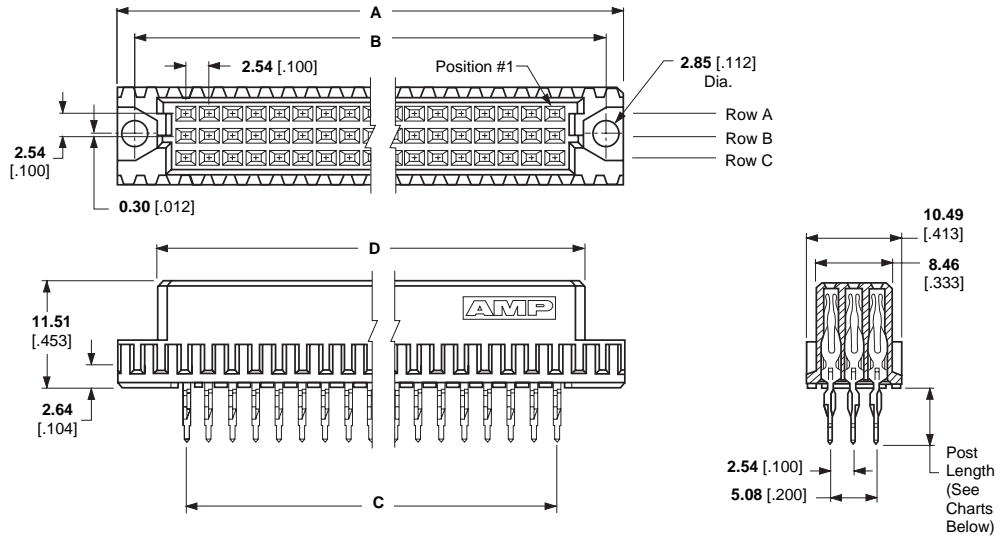
No. r of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers
		A	B	C	D		
120	A,B,C	114.30	110.31	99.06	105.31	II	535079-5
		4.500	4.343	3.900	4.146		
150	A,B,C	139.70	135.71	124.46	130.71	II	535080-5
		5.500	5.343	4.900	5.146		

Note: Connectors on this page are toolless (flat rock).

When they are installed using an SM-3 Machine a spacer of 26.67 [1.050] is needed to make up height difference.

For complete product information, order Catalog 1307515

Type C Vertical Receptacle Assemblies with ACTION PIN Posts for PC Board Mount (0.64[.025] Square)



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3091, 3101, 3102

Application Tooling — page 3109

Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Application Specification
114-9014

Instruction Sheets
408-6927, 408-9623

Standard Size (for PC Board Thicknesses 2.36 [.093] and Above)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		13 [.512] Post Length	17 [.669] Post Length
96	A,B,C	95.00	90.00	78.74	85.00	II	215912-4 ³	215614-4 ³
		3.740	3.543	3.100	3.346		1-215912-41.3	1-215614-41.3
							148057-5 ²	148059-5 ²
	A,C					III	1-148057-51.2	1-148059-51.2
							1-148057-41.2	—
							215912-8	—
64	A,C	95.00	90.00	78.74	85.00	II	1-215912-8 ¹	1-215614-8 ¹
		3.740	3.543	3.100	3.346		215913-4 ³	215781-4 ³
							148167-5	—
	A, B, C					III	1-215913-41.3	1-215781-41.3
							1-148167-51.2	—
							1-148167-41.2	—
48	A, B, C	53.34	49.37	38.10	44.35	—	215913-8	215781-8
		2.100	1.944	1.500	1.746		1-215913-8 ¹	1-215781-8 ¹

Standard Size (for 1.57 [.062] PC Board Thickness)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		13 [.512] Post Length	17 [.669] Post Length
96	A,B,C	95.00	90.00	78.74	85.00	II	215950-4 ³	215783-4 ³
		3.740	3.543	3.100	3.346		1-215950-41.3	1-215783-41.3
							148057-5 ²	148059-5 ²
	A,C					III	1-148057-51.2	1-148059-51.2
							1-148057-4 ¹	—
							215950-8	215783-8
64	A,C	95.00	90.00	78.74	85.00	II	1-215950-8 ¹	1-215783-8 ¹
		3.740	3.543	3.100	3.346		215951-4 ³	—
							148167-5 ²	—
	A, B, C					III	1-215951-4 ¹	—
							1-148167-51.2	—
							1-148167-41.2,3	—
48	A, B, C	53.34	49.37	38.10	44.35	—	215951-8	215784-8
		2.100	1.944	1.500	1.746		1-215951-8 ¹	1-215784-8 ¹

¹ Precious metal plating in contact area and for 5.08 [.200] from tip of post; gold flash on remainder of post.

² Toolless (flat rock) connectors.

³ .000030 Gold plating in contact mating area, Tin Lead on tails (unless otherwise specified), all over .000050 Nickel.

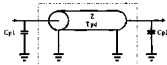
Note: Seating tool required, unless specified otherwise.

For complete product information, order Catalog 1307515

Type C Enhanced VME64X (J1, J2)

Product Facts

- Compatible with existing type C DIN 41612 connectors and VME bus applications
- Additional low inductance, low resistance grounds
- Lowers common mode noise
- Press-fit ACTION PIN contacts eliminate need for soldering on backplane
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



AMP Single Line and Multi Line Models are available for Eurocard (DIN) connectors at www.amp.com/simulation, or by requesting CD#1307568.

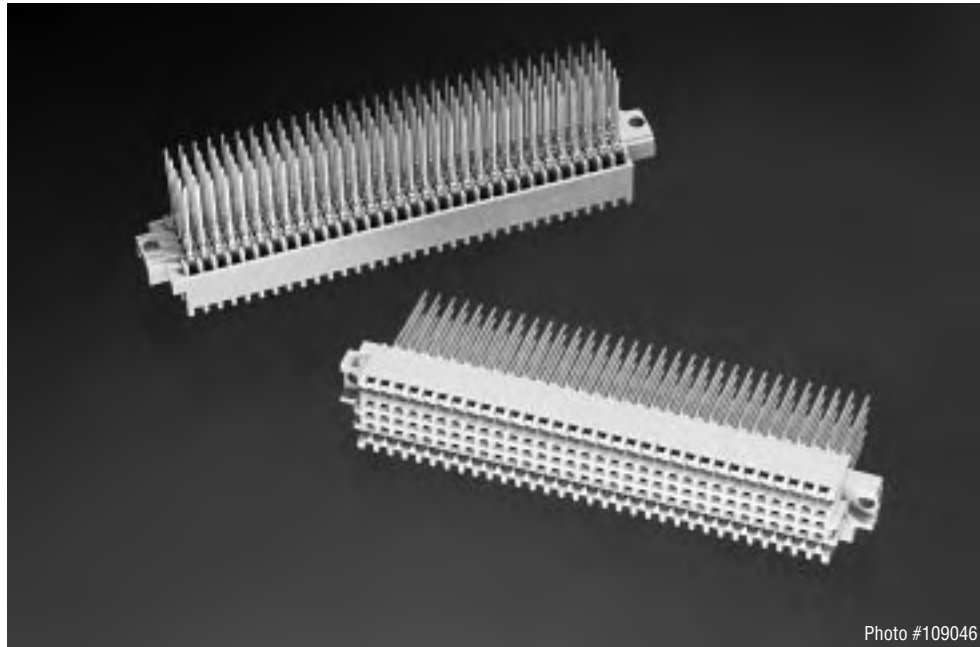


Photo #109046

Taking advantage of higher logic speeds to increase performance of computer systems, VME designers find themselves faced with problems such as common mode noise, crosstalk and limited I/O between daughter cards and the backplane.

The Enhanced Eurocard connector provides additional grounds while maintaining the standard Eurocard connector interface. Also, the

Enhanced Eurocard connector substantially lowers common mode noise, permitting designers to use faster logic families.

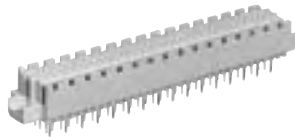
The Enhanced Eurocard connector is cost competitive and provides superior electrical performance, while maintaining the downward compatibility to standard VME daughter cards.

The Enhanced Eurocard connector is made to

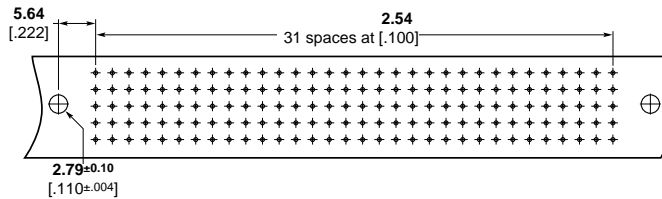
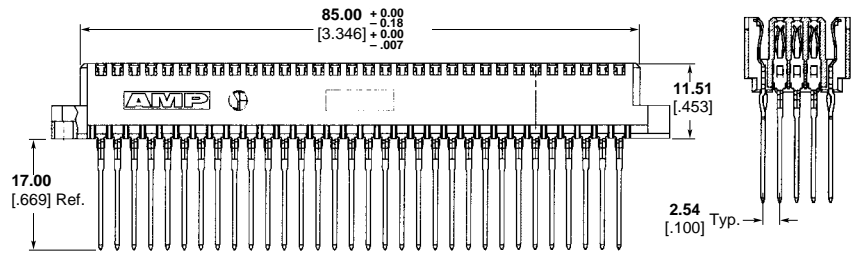
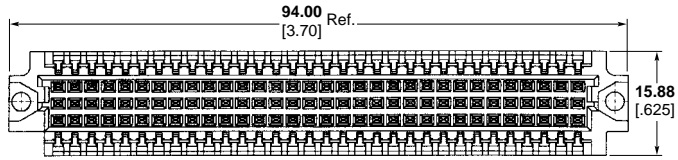
upgrade existing systems with minimal design change. They contain the make-first/break-last contacts which provide ESD protection. The pin headers feature high temperature plastic housings and are compatible with vapor phase and IR solder reflow process. The Enhanced Eurocard connectors also feature boardlocks that provide hold-down during soldering process.

For complete product information, order Catalog 1307515

Type C Enhanced Vertical Receptacle Assemblies VME64X ACTION PIN Contacts



Part Number 148452-5 Shown



Material:

Housing — Thermoplastic, glass-filled, grey, 94V-0 rated

Receptacle Contacts — Phosphor bronze

Ground Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

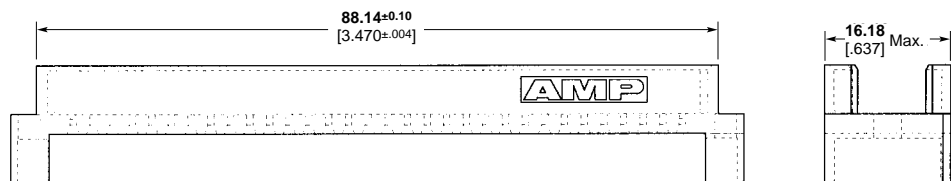
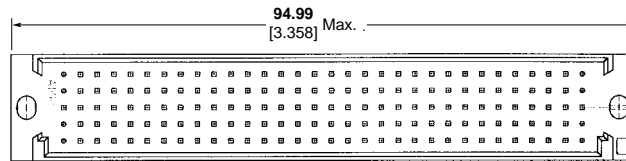
Related Product Data:

Electrical/Mechanical Data — page 3087

No. of Positions	Rows Loaded	DIN Levels	ACTION PIN Contacts	
			6.00 [.236]	17.00 [.669]
160	A, B, C	II	148452-5	1-148445-5

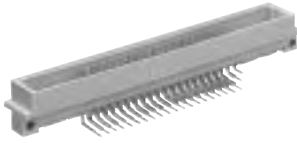
Shroud

PCB Thickness	Part Number
.125	148527-1
.150	148527-2



For complete product information, order Catalog 1307515

Type M Right-Angle Pin Assemblies with Solder Posts, for Power and Coaxial Contacts



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — page 3098

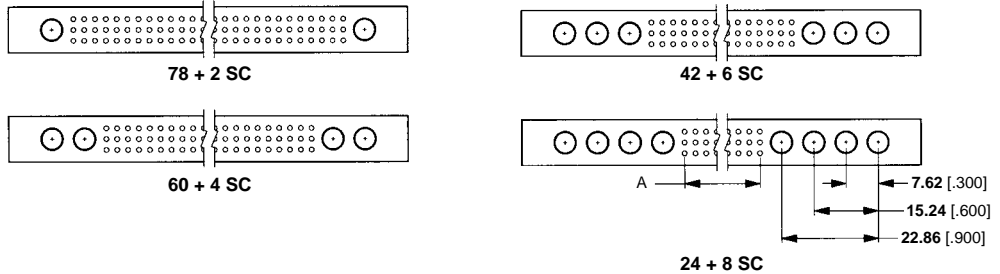
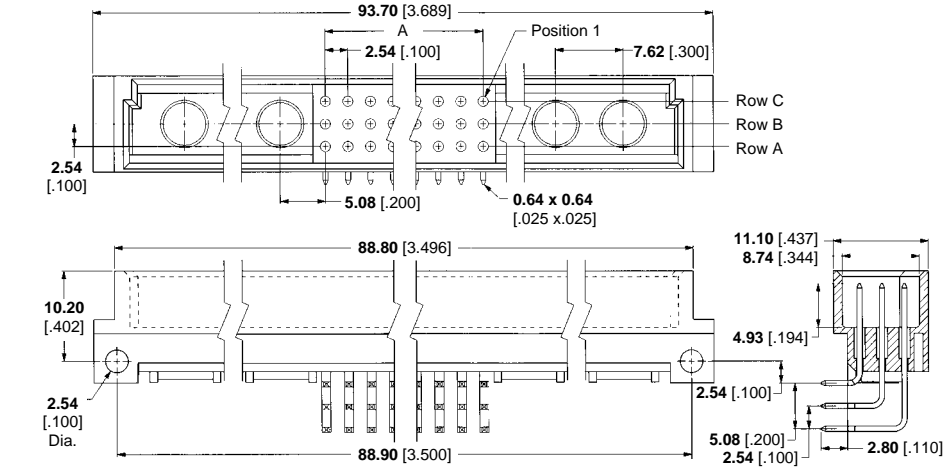
Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Instruction Sheet
408-6927

Contact Arrangement



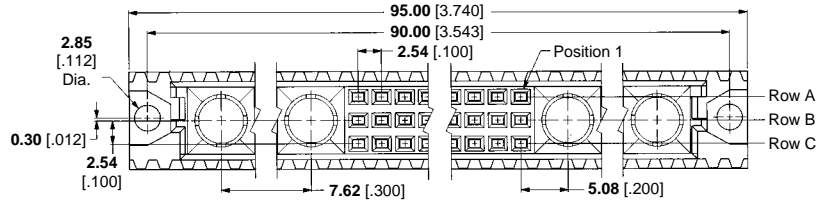
For Type M Receptacle Assemblies for CompactPCI Application

No. of Positions	Rows Loaded*	Dimension A	DIN Level	Part Numbers
78 + 2 SC	A,B,C	63.50 2.500 (25 x 2.54 [.100])	II	148411-5
60 + 4 SC	A,B,C	48.26 1.900 (19 x 2.54 [.100])	II	148412-5
42 + 6 SC	A,B,C	33.02 1.300 (13 x 2.54 [.100])	II	148413-5
24 + 8 SC	A,B,C	17.78 .700 (7 x 2.54 [.100])	II	148414-5

*Loaded with signal contacts only. See page 3100 for male power and coaxial contacts.

For complete product information, order Catalog 1307515

Type M Vertical Receptacle Assemblies with ACTION PIN Posts, for Power and Coaxial Contacts



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

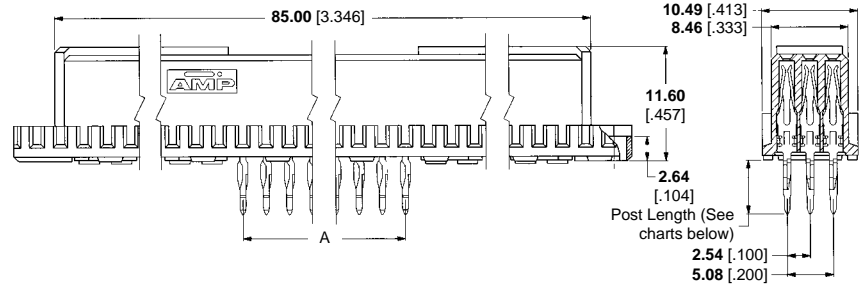
DIN II Plating — Meets performance requirements of DIN Level II.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — page 3097

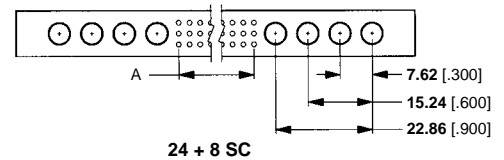
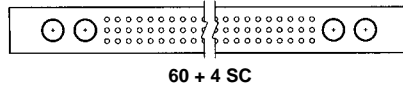
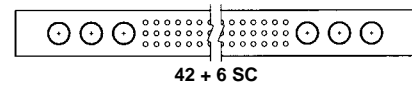
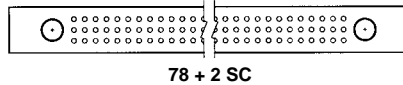


Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Contact Arrangement



PC Board Thickness 1.57 [.062] & above

No. of Positions	Rows Loaded*	Dimension A	Part Numbers/Post Lengths		
			Bd to Bd**		Wrap-Type**
			6.00 [.236]	13.00 [.512]	
78 + 2 SC	A,B,C	63.50 2.500 (25 x 2.54[.100])	148417-5	148418-5	148419-5
60 + 4 SC	A,B,C	48.26 1.900 (19 x 2.54[.100])	148420-5	148421-5	148422-5
42 + 6 SC	A,B,C	33.02 1.300 (13 x 2.54[.100])	148423-5	148424-5	148425-5
24 + 8 SC	A,B,C	17.78 .700 (7 x 2.54[.100])	148384-5	148427-5	148381-5

*Loaded with signal contacts only.

**DIN Performance Level II. For "piggy back" applications, consult Tyco Electronics Sales Representative.

***Connectors are toolless (flat rock).

For complete product information, order Catalog 1307515

High Current and Coaxial Contacts for Type M Receptacle Assemblies

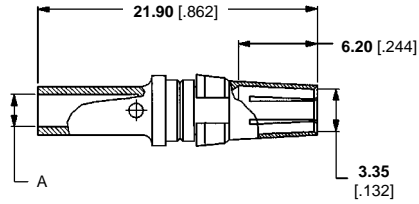
Material and Finish:

Contacts — Copper alloy, gold over nickel plated

Retaining Ring — Copper alloy

Note: These power contacts are used in the Type M Receptacle Assemblies shown on page 3098.

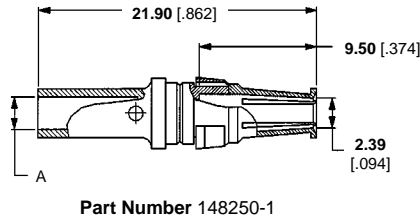
Female Power Contacts for Cable Termination



Part Number 148221-1

AWG	Contact Rated Current (Amperes)	Dim. A	Part Numbers	
			Solder	Crimp
8	40	4.80 .189	1393589-7	148432-1
12-14	20	2.80 .110	1393589-9	148221-1
16-18	10	1.70 .067	1-1393589-1	148410-1

Female Power Contacts (MFBL) for Cable Termination



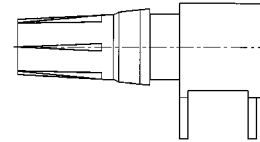
Part Number 148250-1

AWG	Contact Rated Current (Amperes)	Dim. A	Part Numbers	
			Solder	Crimp
8	40	4.80 .189	1-1393589-6	148433-1
12-14	20	2.80 .110	1-1393589-5	148250-1
16-18	10	1.70 .067	1-1393589-4	148416-1

Female Power Contact for PC Board Mount



Part Number 148375-1
(40 ampere rated current)



Part Number 148513-1
RIA Power

Coaxial Contacts

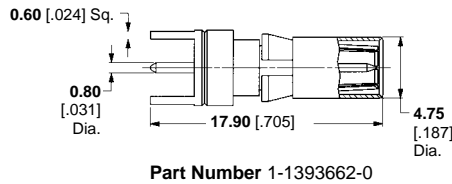
Material and Finish:

Outer Contact — Copper alloy, gold plated

Insulator — PTFE

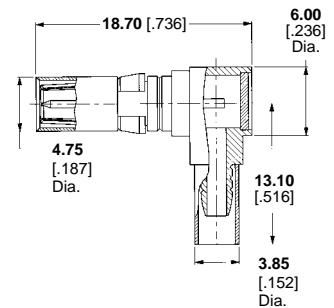
Note: These coaxial contacts are used in the Type M Receptacle Assemblies shown on page 3098.

Coaxial Contact for Female Connector, PC Board Mount (50 ohm)



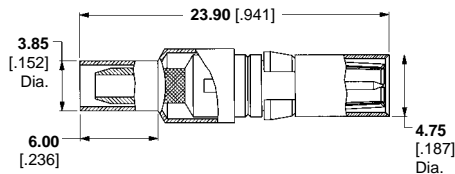
Part Number 1-1393662-0

Note: Contact will raise the connector assembly up 3.18 [.125] from the PC board surface.



Part Number 1393668-4
90° Right-Angle
for RG316 Cable

Coaxial Contacts for Female Connectors, Cable Termination (50 ohm)



Part Number 1392019-1 for RG316 Cable

For complete product information, order Catalog 1307515

High Current and Coaxial Contacts for Type M Pin Assemblies

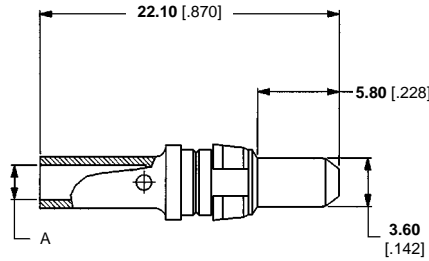
Material and Finish:

Contact — Brass, gold over nickel plated

Retaining Ring — Copper alloy

Note: These power contacts are used in the Type M Pin Assemblies shown on page 3097.

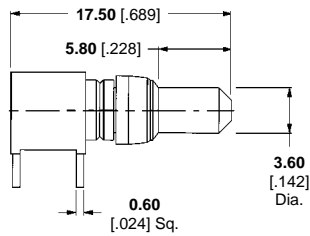
Male Power Contacts for Cable Termination



Part Number 148248-1

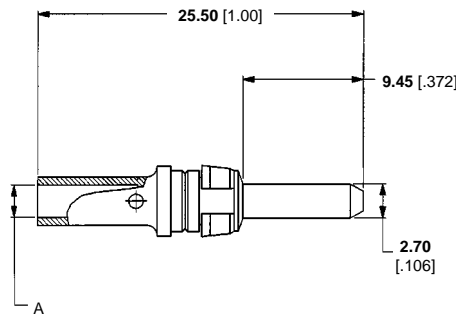
AWG	Contact Rated Current (Amperes)	Dim. A	Part Numbers	
			Solder	Crimp
8	40	4.80 .189	1393589-1	148430-1
12-14	20	2.80 .110	1393589-3	148248-1
16-18	10	1.70 .067	1393589-5	148407-1

Male Power Contact for PC Board Mount



Part Number 148354-1
(25 ampere rated current)

Male Power Contacts (MFBL) for Cable Termination



Part Number 148249-1

AWG	Contact Rated Current (Amperes)	Dim. A	Part Numbers
			Crimp
8	40	4.80 .189	148431-1
12-14	20	2.80 .110	148249-1
16-18	10	1.70 .067	148409-1

Coaxial Contacts

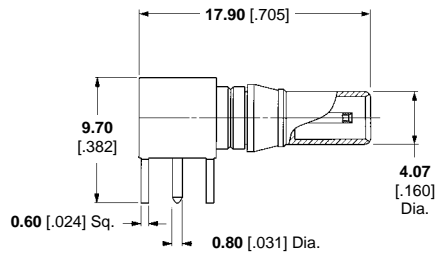
Material and Finish:

Inner Contact — Copper alloy, gold plated

Insulator — PTFE

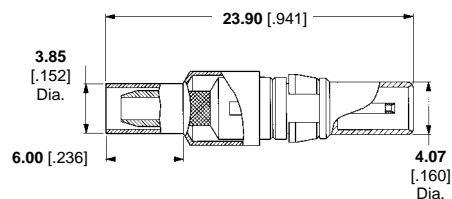
Note: These coaxial contacts are used in the Type M Pin Assemblies shown on page 3097.

Coaxial Contact for Male Connector PC Board Mount (50 ohm)



Part Number 1-1393662-4

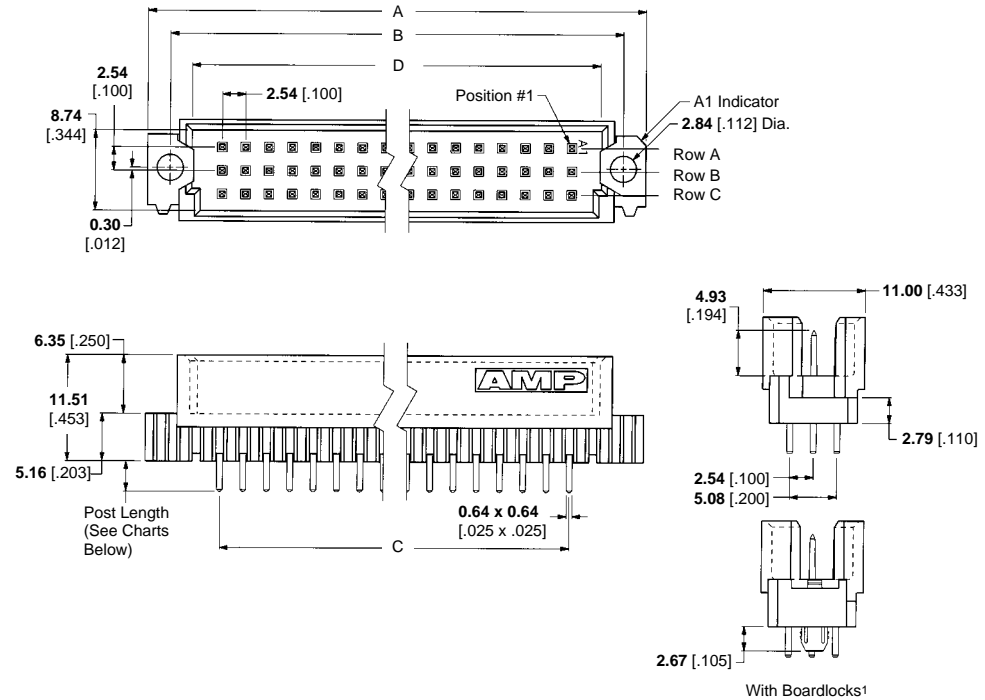
Coaxial Contacts for Male Connectors, Cable Termination (50 ohm)



Part Number 1392020-1 for RG316 Cable

For complete product information, order Catalog 1307515

Type R Vertical Pin Assemblies with Solder Posts



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Brass

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3092, 3093, 3094, 3103

Technical Documents:

DIN Specification 41612

IEC Specification 603-2

Application Specification 114-9014

Instruction Sheet 408-6784

Standard Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		3.30 [.130] Post Length	4.57 [.180] Post Length
96	A,B,C	95.00	90.00	78.74	85.29	II	650908-5	650470-5
		3.740	3.543	3.100	3.358		536035-5 ¹	—
						III	650908-9	650470-9
64	A,C	95.00	90.00	78.74	85.29	II	650933-5	650934-5
		3.740	3.543	3.100	3.358		536419-5 ¹	536420-5 ¹

¹With Boardlocks

Half Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		3.30 [.130] Post Length	4.57 [.180] Post Length
48	A,B,C	54.37	49.35	38.10	44.65	II	650479-5	650477-5
		2.140	1.943	1.500	1.758		536421-5 ¹	536422-5 ¹
						III	650479-9	—
32	A,C	54.37	49.35	38.10	44.65	II	650935-5	650936-5
		2.140	1.943	1.500	1.758		536423-5 ¹	536424-5 ¹

¹With Boardlocks

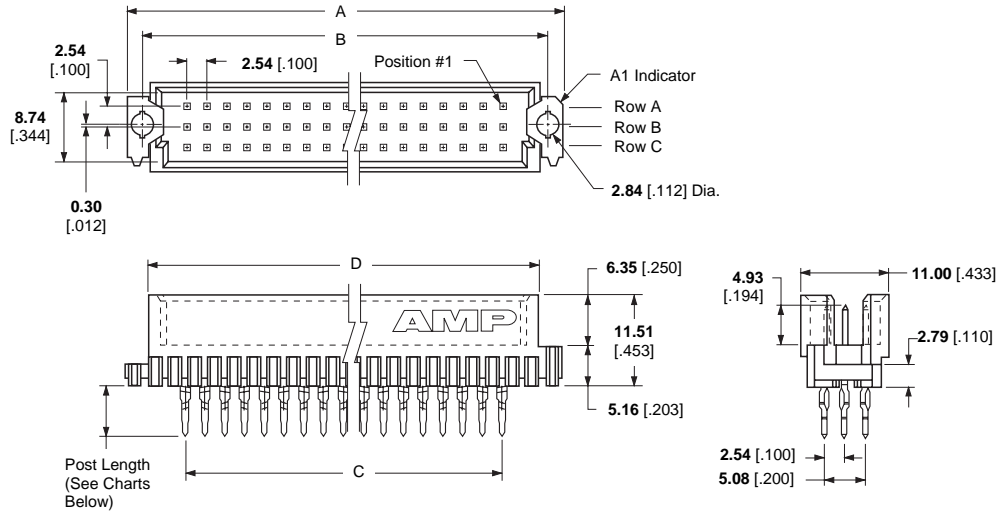
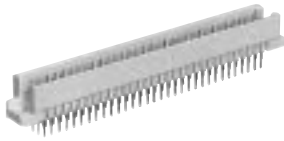
Expanded Size

No. of Positions	Rows Loaded	Dimensions				DIN Level	Part Numbers	
		A	B	C	D		3.30 [.130] Post Length	4.57 [.180] Post Length
120	A,B,C	115.19	110.31	99.06	105.61	II	650919-5	650910-5
		4.535	4.343	3.900	4.158		536131-5 ¹	536426-5 ¹
150	A,B,C	140.59	135.71	124.46	131.01	II	650922-5	650911-5
		5.535	5.343	4.900	5.158		536427-5 ¹	536428-5 ¹

¹With Boardlocks

For complete product information, order Catalog 1307515

Type R Vertical Pin Assemblies with ACTION PIN Posts (0.64[.025] Square)



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3092, 3093, 3094, 3103

Accessories — pages 3015

Technical Documents:

DIN Specification 41612

IEC Specification 603-2

Application Specification 114-9014

Instruction Sheets

408-6927, 408-9740

Standard Size (for PC Board Thicknesses 2.36 [0.093] and Above)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		6.35 [0.250] Post Length	13.23 [0.521] Post Length
96	A,B,C	95.00	90.00	78.74	88.01	II	650889-5	650909-5
		3.740	3.543	3.100	3.465	III	650889-9	1-650909-41
64	A,C	95.00	90.00	78.74	88.01	II	650912-5	650930-5
		3.740	3.543	3.100	3.465	III	—	1-650930-41

¹ Precious metal plating in contact area and for 5.08 [0.200] from tip of post; gold flash on remainder of post.

Half Size (for PC Board Thicknesses 2.36 [0.093] and Above)

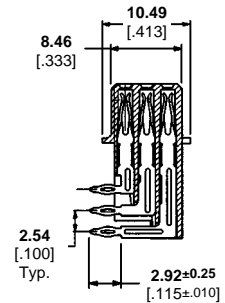
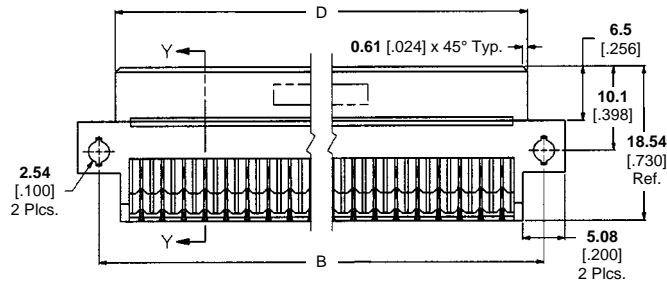
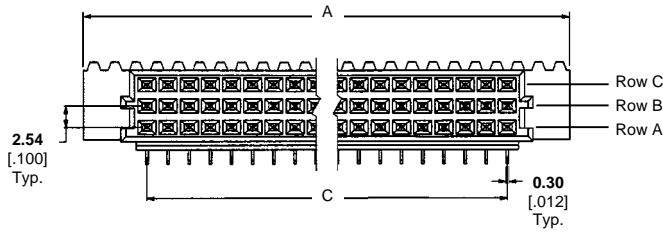
No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		6.35 [0.250] Post Length	13.23 [0.521] Post Length
48	A,B,C	54.37	49.35	38.10	47.37	II	650918-5	650917-5
		2.140	1.943	1.500	1.865	III	—	—
32	A,C	54.37	49.35	38.10	47.37	II	650931-5	650932-5
		2.140	1.943	1.500	1.865	III	—	—

Expanded Size (for PC Board Thicknesses 2.36 [0.093] and Above)

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		6.35 [0.250] Post Length	13.23 [0.521] Post Length
120	A,B,C	115.19	110.31	99.06	108.33	II	650921-5	650920-5
		4.535	4.343	3.900	4.265	III	—	—
150	A,B,C	140.59	135.71	124.46	133.73	II	650924-5	650923-5
		5.535	5.343	4.900	5.265	III	—	—

For complete product information, order Catalog 1307515

Type R Receptacle with Eye of Needle Compliant Pin



Material:

- Housing** — Polyester, grey
- Contacts** — Phosphor bronze
- DIN II Plating** — Meets performance requirements of DIN Level II.

Related Product Data:

- DIN Performance Levels** — page 3086
- Performance Specifications** — page 3087
- Mateable Connectors** — pages 3101, 3102, 3104

Standard Size

No. of Positions	Rows Loaded	Dimensions				DIN Level	Part Numbers
		A	B	C	D		
96	A,B,C	93.88 3.696	88.90 3.500	78.74 3.100	85.00 3.346	II	148292-5
	A,B A,C	93.88 3.696	88.90 3.500	78.74 3.100	85.00 3.346		
48	A,B,C	53.24 2.096	48.26 1.900	38.10 1.500	44.35 1.746	II	148359-4

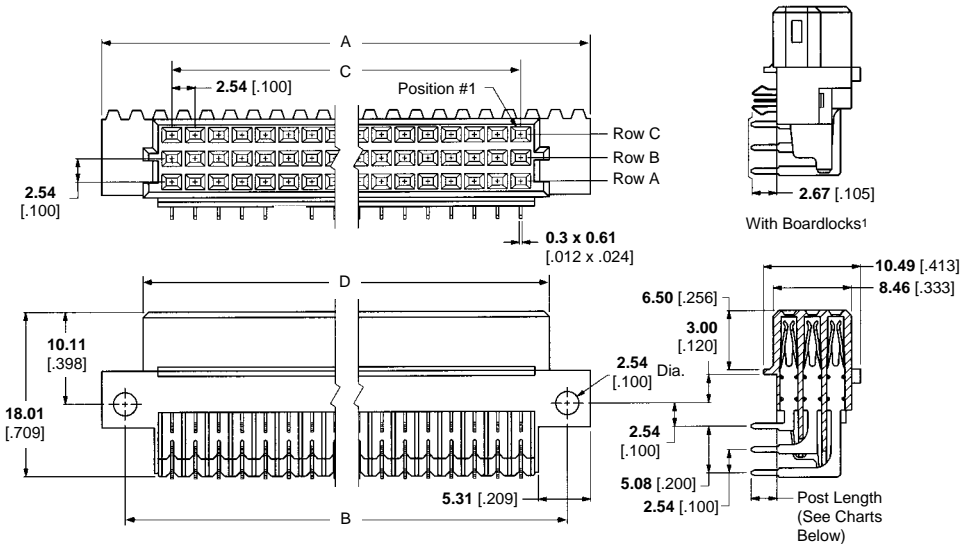
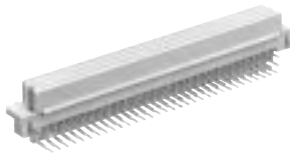
Expanded Size

No. of Positions	Rows Loaded	Dimensions				DIN Level	Part Numbers
		A	B	C	D		
150	A,B,C	139.60 5.496	134.62 5.300	124.46 4.900	130.71 5.146	II	148295-5
	A,B,C	114.20 4.496	109.22 4.300	99.06 3.900	105.31 4.146		

Note: Connectors on this page are toolless (flat rock)

For complete product information, order Catalog 1307515

Type R Right-Angle Receptacle Assemblies with Solder Posts (with and without Boardlocks)



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts and Boardlocks — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3091, 3101, 3102, 3103

Technical Documents:

DIN Specification 41612

IEC Specification 603-2

Application Specification 114-9014

Instruction Sheet 408-6784

Standard Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		2.79 [.110] Post Length	4.24 [.167] Post Length
96	A,B,C	93.87	88.90	78.74	85.00	II	650461-42	650462-42
		3.696	3.500	3.100	3.346		650461-5	650462-5
		650895-41,2	650896-5 ¹					
	A,C	650895-5 ¹	—					
		III	650461-9	—				
		650870-42	—					
64	A,C	93.87	88.90	78.74	85.00	II	650897-41,2	536431-5 ¹
		3.696	3.500	3.100	3.346		650897-5 ¹	—
		III	—	650871-9				
—	—	536431-9 ¹						

Half Size

No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		2.79 [.110] Post Length	4.24 [.167] Post Length
48	A,B,C	53.24	48.26	38.10	44.35	II	650868-42	650869-5
		2.096	1.900	1.500	1.746		650868-5	—
		650893-5 ¹	536432-5 ¹					
	A,C	650868-9	650869-9					
		III	650867-5	650958-5				
		536433-5 ¹	536434-5 ¹					

Expanded Size

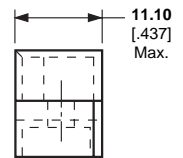
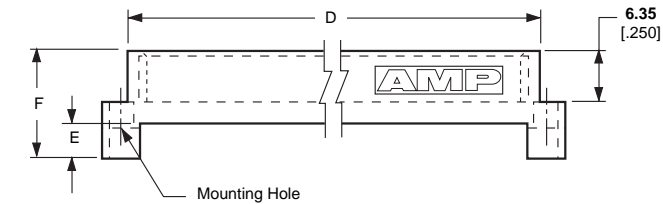
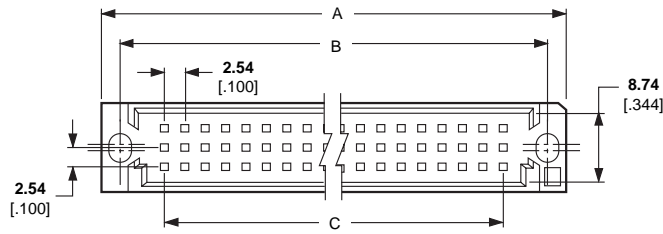
No. of Positions	Rows Loaded	Dimensions				DIN Levels	Part Numbers	
		A	B	C	D		2.79 [.110] Post Length	4.24 [.167] Post Length
150	A,B,C	139.60	134.62	124.46	130.61	II	650875-5	650877-5
		5.496	5.300	4.900	5.142		650959-5 ¹	—
		650874-42	—					
120	A,B,C	114.20	109.22	99.06	105.21	II	650874-5	—
		4.496	4.300	3.900	4.142		650899-41,2	—
		650899-5 ¹	—					

For complete product information, order Catalog 1307515

¹ With Boardlocks

² Contact plating .000030 Gold in contact area, tin lead on tails, all over .000050 Nickel.

Shrouds for Type C and Type R Standard and Half Size Connectors (96 and 48 Positions)



Material:

Polyester, grey, 94V-0 rated

Related Product Data:

Technical Documents:

Application Specification
114-9014

Standard Size

PC Board Thickness	Use With Post Length	Dimensions						Part Numbers	
		A	B	C	D	E	F	Without Mounting Holes	With Mounting Holes
3.18 .125	13.23	95.00	90.00	78.74	88.14	2.54	11.43	533236-4	535074-1
	.521	3.740	3.543	3.100	3.470	.100	.450		
16.99	95.00	90.00	78.74	88.14	6.35	15.24		533236-5	535074-2
	.669	3.740	3.543	3.100	3.470	.250	.600		
2.36 .093	13.23	95.00	90.00	78.74	88.14	3.43	12.32	533236-7	—
	.521	3.740	3.543	3.100	3.470	.135	.485		
16.99	95.00	90.00	78.74	88.14	7.24	16.13		533236-8	—
	.669	3.740	3.543	3.100	3.470	.285	.635		
1.57 .062	13.23	95.00	90.00	78.74	88.14	4.19	13.08	1-533236-0	—
	.521	3.740	3.543	3.100	3.470	.165	.515		
16.99	95.00	90.00	78.74	88.14	8.00	16.89		1-533236-1	—
	.669	3.740	3.543	3.100	3.470	.315	.665		

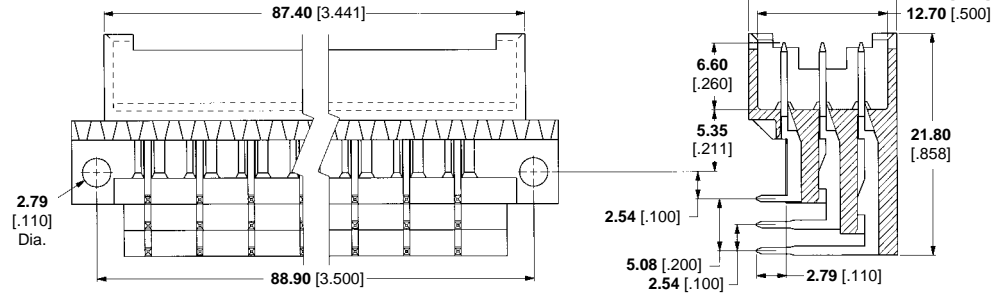
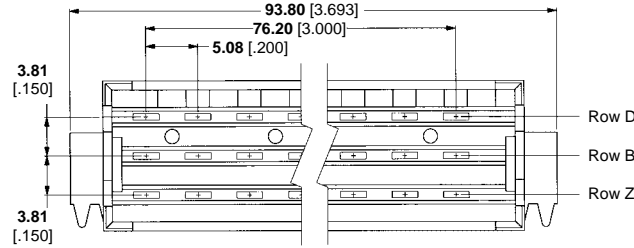
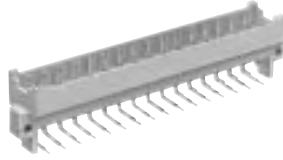
Half Size

PC Board Thickness	Use With Post Length	Dimensions						Part Numbers	
		A	B	C	D	E	F	Without Mounting Holes	With Mounting Holes
1.57 .062	13.23	54.15	44.65	38.10	47.50	4.19	13.08	—	650437-1
	.521	2.132	1.758	1.500	1.870	.165	.515		

Note: Shrouds are for use with all 96 and 48 position, 3 row, Type C and R Connectors mounted in 3.18 [.125], 2.36 [.093] and 1.57 [.062] thick PC boards. Twelve interference areas are located in selected cavities.

For complete product information, order Catalog 1307515

Type F Right-Angle Pin Assemblies with Solder Posts



Material:

Housing — Polyester, grey, 94V-0 rated

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — pages 3107, 3108

Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Instruction Sheet
408-6784

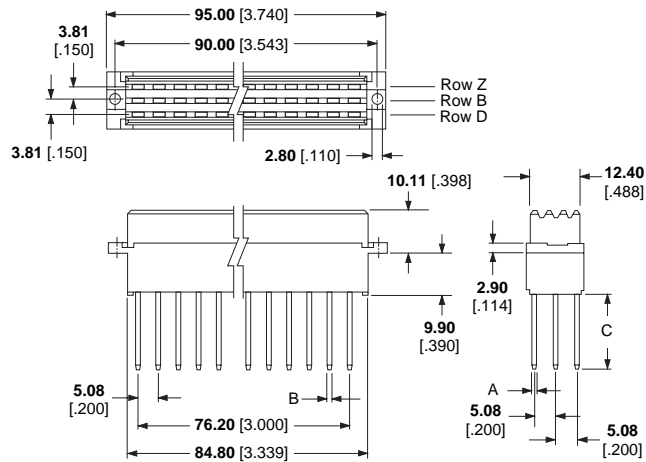
Standard Size

No. of Positions	Rows Loaded	DIN Levels	Part Numbers	
			—	MFBL*Z32
48	Z,B,D	II	2-164045-4	2-166095-4
		III	2-164045-8	—
32	Z,B	III	—	2-166096-8
32	Z,D	II	2-164306-4	—

*MFBL (Make First/Break Last)

For complete product information, order Catalog 1307515

Type F Vertical Receptacle Assemblies with Wrap Type and Solder Posts



Material:

Housing — Polycarbonate, grey, 94V-1 rated or polyester (see chart)

Contacts — Phosphor bronze

DIN II Plating — Meets performance requirements of DIN Level II.

DIN III Plating — Meets performance requirements of DIN Level III.

Related Product Data:

DIN Performance Levels — page 3086

Performance Specifications — page 3087

Mateable Connectors — page 3106

Technical Documents:

DIN Specification
41612

IEC Specification
603-2

Instruction Sheet
408-6784

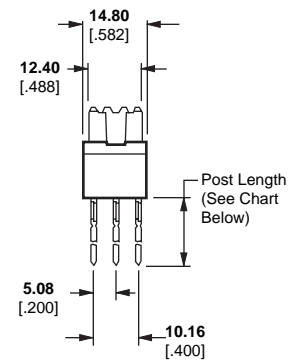
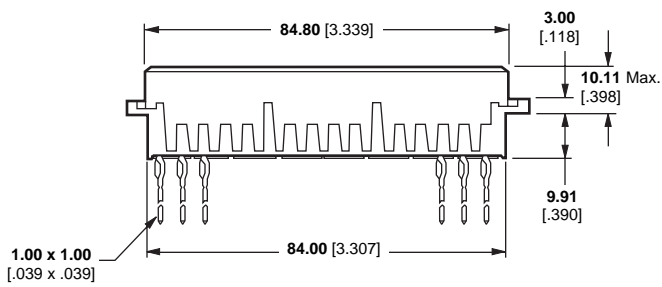
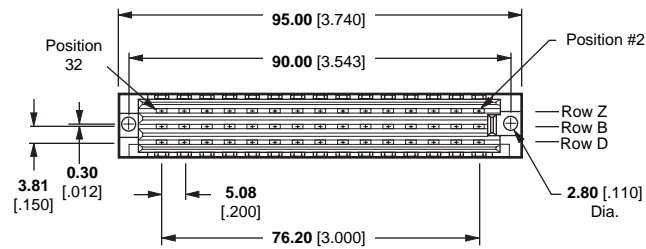
No. of Positions	Post Type	Rows Loaded	DIN Levels	Part Numbers
48	Wrap Type	Z,B,D	II	166717-4 ¹
	1.0 [.039] Square	Z,B,D	II	166733-4
32	4 [.157] Solder	Z,B	II	166732-4
	Wrap Type	Z,D	II	166719-4 ¹
	1.0 [.039] Square	Z,D	II	166951-4
	4 [.157] Solder	Z,D	II	166951-4

¹ Housing material is polyester, grey, 94V-0 rated.

Post Type	Post Dimensions		
	A	B	C
Wrap Type 1.0 [.039] Square	1.00 .039	1.00 .039	22.00 .866
4 [.157] Solder	0.60 .022	0.30 .012	4.00 .157

For complete product information, order Catalog 1307515

Type F Vertical Receptacle Assemblies with ACTION PIN Posts (1.00[.039] Square)



Material:

- Housing** — Polyester, grey, 94V-0 rated (except where noted)
- Contacts** — Phosphor bronze
- DIN II Plating** — Meets performance requirements of DIN Level II.
- DIN III Plating** — Meets performance requirements of DIN Level III.

Related Product Data:

- DIN Performance Levels** — page 3086
- Performance Specifications** — page 3087
- Mateable Connectors** — page 3106
- Application Tooling** — page 3110

Technical Documents:

- DIN Specification**
41612
- IEC Specification**
603-2
- Instruction Sheet**
408-6927

Standard Size (for PC Board Thicknesses 2.36 [.093] and Above)

No. of Positions	Rows Loaded	DIN Levels	Part Numbers	
			6 [.236] ¹ Post Length	Wrap Type 22 [.866] Post Length
48	Z,B,D	II	166648-4	166555-4
		III	2-166648-4 ²	—
32	Z,B	II	166649-4	—
		III	166649-8	166594-8
	Z,D	III	166728-8	166727-8

¹ Pre-notched to break off at 6.00 [.236] from bottom of connector. Connectors on this page are toolless (flat rock).
² Extended ends of posts already broken off (only for 2-166648-4).

For complete product information, order Catalog 1307515

Eurocard Connectors — Insertion Tooling

Eurocard connectors with ACTION PIN contacts allow high speed, solderless backplane construction through reliable press-fit application.

Board support fixtures are used to support PC boards or backplanes while connectors are being assembled to the boards or backplanes. Board support fixtures are to be supplied by the customer in accordance with AMP Application Specification No. 114-9014. Also, AMP Instruction Sheet No. 408-6927 provides AMP recommendations for manufacturing board support fixtures.

Application Press Options:

- SM-3 Pneumatic Machine – Part Number 8147000-2
- SM-10/20 Electric-Hydraulic Machine – Part Number 803880-6
- Manual Arbor Frame – Part Number 58024-1

Eurocard Connector Seating Tools

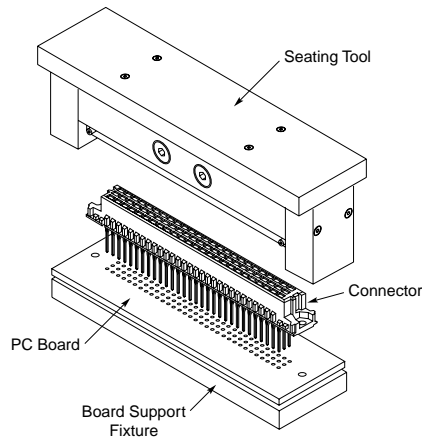
Type	Connector		Receptacle Assembly		Pin Assembly Tools
	Post Size		Standard Tools	Economy Tools	
B	0.64 x 0.64 .025 x .025		432805-1	—	—
	0.30 x 0.61 .012 x .024		1	1	
C	0.64 x 0.64 .025 x .025		432583-1	535072-1	—
	0.30 x 0.61 .012 x .024		1	1	
C (Half Size)	0.64 x 0.64 .025 x .025		432582-1	—	—
	0.30 x 0.61 .012 x .024		1	1	
F	0.64 x 0.64 .025 x .025		1	1	—
	1.00 x 1.00 .039 x .039				
M 24 Compact, PCI Rcpt.	0.64 x 0.64 .025 x .025		—	148454-1	—
M Crimp Power Contacts*	use Daniels crimping tool M 300-BT				
R	0.64 x 0.64 .025 x .025		—	—	768211-2 768216-2 ²
R (Half Size)	0.64 x 0.64 .025 x .025		—	—	768211-1 768216-1 ²
R (120 Position)	0.64 x 0.64 .025 x .025		—	—	768211-3 768216-3 ²
R (150 Position)	0.64 x 0.64 .025 x .025		—	—	768211-4 768216-4 ²

¹ Flat rock assembly; tooling not required
² Programmable tooling for MFBL pin assemblies
 * See customer drawing for positioner and crimp setting.

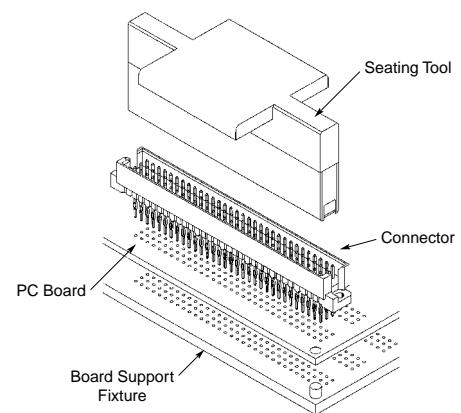
Eurocard Connector Removal Tools

Connector Type	Tail Length	Removal Tool Part Numbers
C (96 Position, 3 Row)	≤ 6.35 .250	534611-1
	12.70 .500	534611-2
	17.00 .669	534611-3
M (Power Contact)	—	106242-1

Receptacle Assembly Seating Tools



Pin Assembly Seating Tools



For complete product information, order Catalog 1307515

Technical Documents

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

- 408-6732 AMP Pneumatic Tool 91112-3
- 408-6784 AMP Eurocard Connectors (Soldering and Cleaning)
- 408-6927 Design Recommendations for Printed Circuit Board Support Fixture
- 408-6975 AMP Contact Removal Tip 265964-1
- 408-7777 AMP Manual Arbor Tool 91085-2
- 408-7909 AMP Hand Tool 90301-2
- 408-9027 Adapter Kit for Greenerd 3A and 3B Frame Assemblies
- 408-9052 AMP Seating Tools 58171-1, -2, -3 and -4 for Eurocard Connectors
- 408-9142 Contact Replacement Tool Kit 265871-7
- 408-9185 Contact Removal Tool 58209-1 for ACTION PIN Contacts
- 408-9222 AMP Hand Tool 90418-1
- 408-9623 AMP Seating Tool 535072-1
- 408-9740 AMP Seating Tools 768211-1, -2, -3 and -4
- 408-9828 Hand Tool Kit 768340-1 for Connector-Specific Kits
- 408-9840 Connector-Specific Kit 768352-1 for EuroLatch Connectors
- 408-9894 Programmable Tool
- 408-042-140 AMP (Holland) Hand Tool 169480-1

Note: Other technical documents may be available, call the AMP Technical Support Center 1-800-522-6752.

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Setup person.

- 114-9014 AMP Eurocard Connector Types B, C, Q, and R (Board-to-Board Application)
- 114-19004 AMP Eurocard Connector, Type F Receptacle
- 114-12026 Type M Coax Contacts
- 114-10014 Size VIII Power Contacts

For complete product information, order Catalog 1307515

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Flexible Film Products

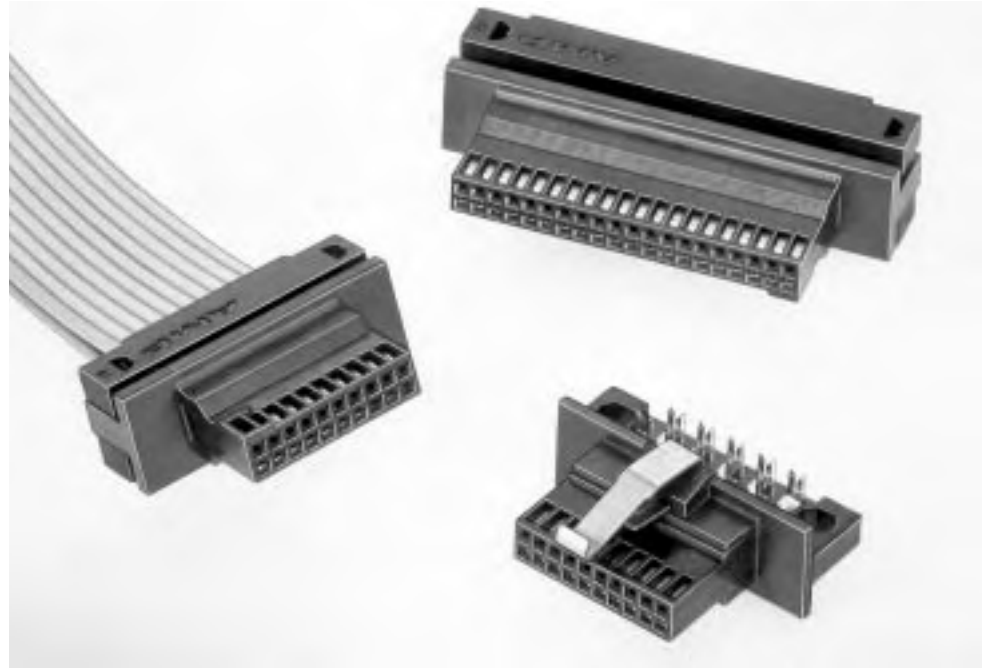
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Product Facts

- Double-row receptacle connectors provide cable-to-board connection capabilities for vertical headers (non-latching) and right-angle headers (latching and non-latching)
- IDC (Insulation Displacement Crimp) mass termination of solid or stranded round conductor .050 [1.27] centerline ribbon cable with PVC or polyethylene insulation
- Accommodates ribbon cable conductor sizes of 28 AWG [0.08-0.09 mm²] and 30 AWG [0.05 mm²] and insulation diameters up to .036 [0.91] maximum
- Reliable single beam receptacle contact design
- Duplex plated receptacle contacts; gold plated in mating area, bright tin-lead in termination area
- Terminating covers (sold separately) provide both strain relief and protection to the termination area
- Sizes of 10, 20, 30, 40, 50, 60, 70, 80 and 100 positions
- Connectors available with or without metal latch
- Connectors without latches are polarized to prevent mismatching
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association File No. LR7189



These double-row cable connectors, with a .050 x .050 [1.27 x 1.27] centerline contact spacing, provide cable-to-board connection capabilities for the AMPMODU 50/50 Grid Connector System. Cable connectors without a latch will mate with the vertical headers (Section 2, page 2024), while cable connectors with or without a latch can be used to mate with the right-angle headers (Section 2, page 2026).

The cable connectors feature reliable single-beam IDC (insulation displacement crimp) contacts which are duplex plated with .000030 [0.00076] gold. These contacts can be mass terminated to either solid or stranded round conductor ribbon cable with conductor sizes of 28 AWG [0.08-0.09 mm²] and 30 AWG [0.05 mm²] and a

maximum insulation diameter of .036 [0.91]. During termination, the terminating covers, which must be purchased separately, assist in guiding the wire into the IDC contacts, then provide strain relief when fully seated. Actual termination is accomplished with the AMP manual tooling shown on page 4004.

The latching version of the cable connector is equipped with a metal latch which provides positive retention of the receptacle cable connector when mated with a surface-mounted right-angle header. The cable connector without a metal latch features polarization to prevent mismatching. All connectors are available in sizes ranging from 10 through 100 positions (in 10 position increments).

Performance Specifications:

Mating Force — 6.4 oz (1.78 N) max. per contact

Unmating Force Without Latch — .5 oz [0.14 N] min. per contact

Durability — Tested to 200 cycles min.

Current Rating — (10°C T rise): .5 ampere per contact

Operating Temperature Range — -65°C to +105°C

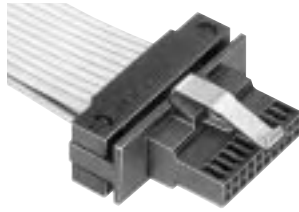
Termination Resistance — 25 milliohms max. (initial and final)

Insulation Resistance — 5000 megohms min. (initial)

Dielectric Withstanding Voltage — 300 VAC

For complete product information, order Catalog 1307819

Ribbon Cable-to-Board Receptacle Connectors, Double Row, .050 x .050 [1.27 x 1.27] Centerline



Material and Finish:

Housing — Thermoplastic, black, 94V-0 rated

Latch — Stainless steel

Contacts — Phosphor bronze; duplex plated .000030 [0.00076] minimum gold in mating area, .000050 [0.00127] minimum bright tin-lead in termination area, with entire contact underplated .000050 [0.00127] minimum nickel

Related Product Data:

Mating Headers — Section 2, page 2024, 2026 (latching)

Terminating Covers (Must be Purchased Separately, 2 Required per Connector) — below

Termination Tooling — page 4004

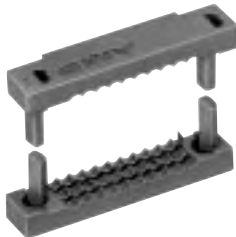
Performance Specifications — page 4002

Technical Documents:

Product Specification
108-1443

Application Specification
408-9817, 408-9909

Packaging: Tube



Material:

Glass-filled thermoplastic, black, 94V-0 rated

Related Product Data:

Connectors used with Covers — above

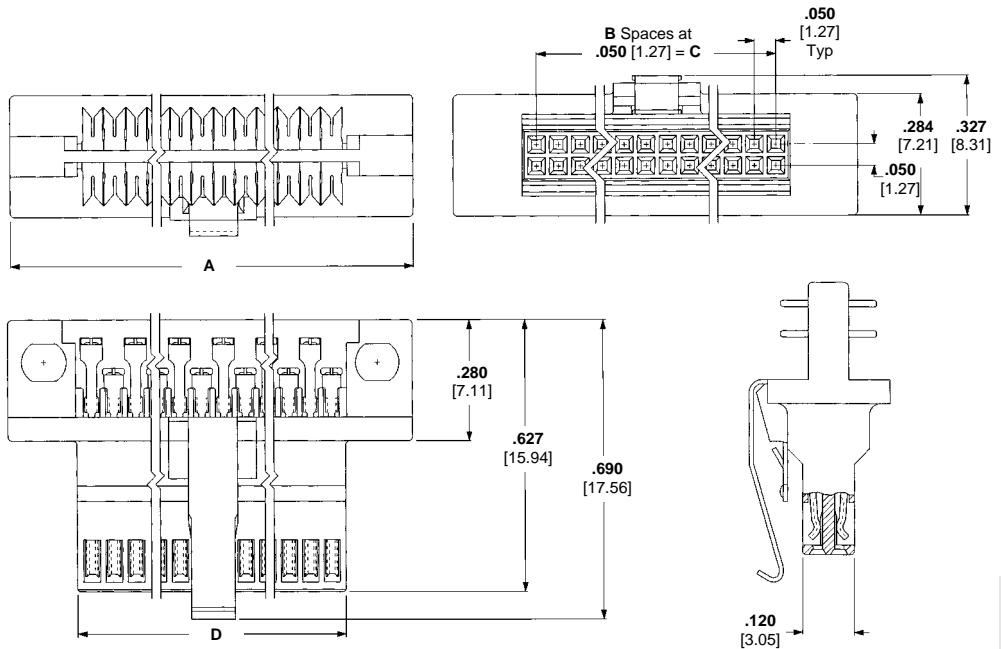
Termination Tooling — page 4004

Technical Documents:

Product Specification
108-1443

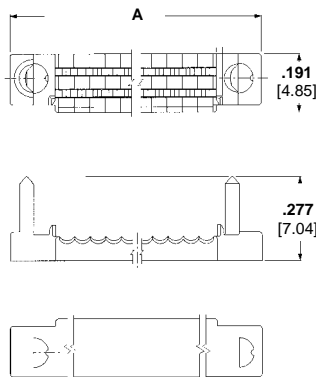
Application Specification
408-9817, 408-9909

Packaging: Plastic bag



No. of Positions	Dimensions				Receptacle Part Numbers	
	A	B	C	D	With Latch	Without Latch
10	.578 14.68	4	.200 5.08	.266 6.76	104892-1	104893-1
20	.828 21.03	9	.450 11.43	.516 13.11	104892-2	104893-2
30	1.078 27.38	14	.700 17.78	.766 19.46	104892-3	104893-3
40	1.328 33.73	19	.950 24.13	1.016 25.81	104892-4	104893-4
50	1.578 40.08	24	1.200 30.48	1.266 32.16	104892-5	104893-5
60	1.828 46.43	29	1.450 36.83	1.516 38.51	104892-6	104893-6
70	2.078 52.78	34	1.700 43.18	1.766 44.86	104892-7	104893-7
80	2.328 59.13	39	1.950 49.53	2.016 51.21	104892-8	104893-8
100	2.828 71.83	49	2.450 62.23	2.516 63.91	1-104892-0	—

Terminating Covers for Cable Connectors



No. of Positions	Dimension A	Terminator Cover Part Numbers
10	.565 14.35	104891-1
20	.815 20.70	104891-2
30	1.065 27.05	104891-3
40	1.315 33.82	104891-4
50	1.565 39.75	104891-5
60	1.815 46.10	104891-6
70	2.065 52.45	104891-7
80	2.315 58.80	104891-8
100	2.815 71.50	1-104891-0

Note: Terminating covers must be purchased separately, two are required for each cable connector.

For complete product information, order Catalog 1307819

Application Tooling for Cable Connectors

The AMP Manual Miniature Application Frame Assembly 91295-1, equipped with a Cover Closing Kit 543518-1, is used for the IDC termination of ribbon cable to the cable connectors shown on page 4003.

Prior to termination, the covers must be partially assembled onto a connector housing, the cable inserted between the covers and contacts and the covers preclosed by hand, clamping the cable in place.

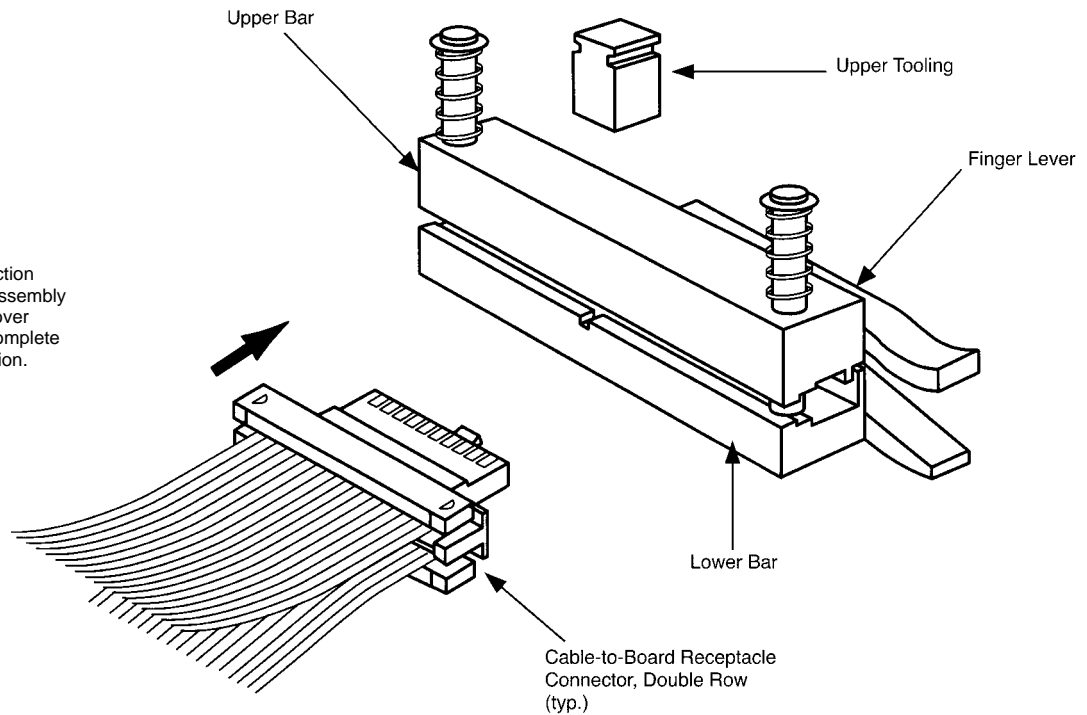
In the Manual Miniature Application Frame Assembly, the covers are fully seated to complete the mass termination and provide strain relief for the completed connection.



Photo 94522

Manual Miniature Application Frame Assembly 91295-1
with Cover Closing Kit 543518-1

For tooling information, call Technical Support Center **1-800-522-6752**.



Note: Refer to AMP Instruction Sheets 408-9817 (Frame Assembly 91295-1) and 408-9909 (Cover Closing Kit 543518-1) for complete termination/tooling information.

For complete product information, order Catalog 1307819

Product Facts

- **Preassembled housing and cover**
- **One step termination**
- **End and daisy chain termination**
- **Positive end latching of connector to universal header**
- **Terminates 30 AWG [0.05 mm²] solid and 32 AWG [0.03 mm²]* stranded .025 [0.64] centerline ribbon cable**
- **0.5 ampere current rating (limited by cable)**



The AMP-LATCH System 50 Ribbon Cable connector is a receptacle connector that will terminate ribbon cable on .025 [0.64] centerlines. It is available in select sizes from 10 to 100 positions and will accommodate 30 AWG [0.05 mm²] solid and 32 AWG [0.03 mm²] stranded conductors, and both TEFLON and PVC cable insulations.

The housing and cover are of a high temperature tolerant thermoplastic (black) with a 94V-0 rating. A beryllium copper single

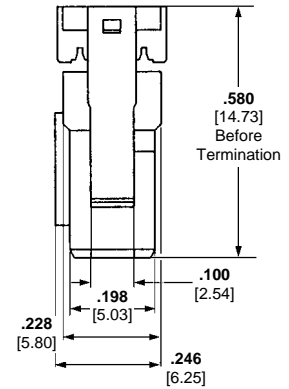
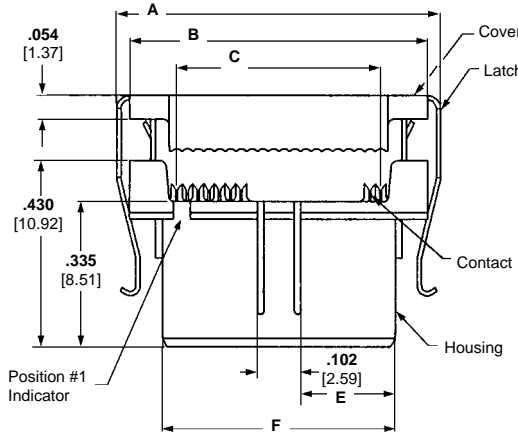
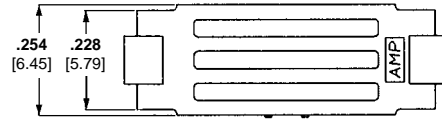
mating beam contact provides the interconnect between the conductor and the .015 [0.38] square posts on the .050 x .100 [1.27 x 2.54] grid. The contacts are plated with 30 gold duplex plating. The latching feature is located on the receptacle, not the header, and saves board space and eliminates future problems of "latch height compatibility."

Performance Specifications:

- Mating Force** — 4 oz. (1.11 N) max. per contact
- Unmating Force Without Latch** — .5 oz. (0.13 N) min. per contact
- Durability** — Tested to 150 cycles min.
- Current Rating** — .5 ampere per contact
- Operating Temperature Range** — -65°C to +105°C
- Insulation Resistance** — 5000 megohms min.
- Dielectric Withstanding Voltage** — 200 VAC

For complete product information, order Catalog 1307819

Double Row Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board, Ribbon Cable



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Latches—Stainless steel

Contacts—Beryllium copper, plated gold over nickel with tin-lead in termination area

Related Product Data:

Performance Characteristics—page 4005

Mateable Headers—Section 2, pages 2031, 2032, 2034 (Double Row), 2035, 2040

Application Tooling:

R-CAM 2A Ribbon Cable Assembly Machine —page 13019

R-CAM 3A Ribbon Cable Assembly Machine —page 13019

R-CAM 4 Ribbon Cable Assembly Machine —page 13019

Manual Arbor Frame Assembly,

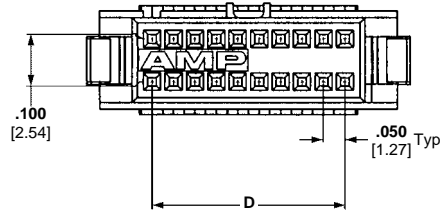
Part Number 91085-2 —page 13015

Pneumatic Auto-Cycle Unit,

Part Number 91112-3 —page 13016

Mates with Posts—.015 [0.38]



square, .125 [3.18] long, on .050 x .100 [1.27 x 2.54] grid



No. of Positions	Dimensions												Part Numbers
	A	B	C	D	E	F							
10	.510	12.95	.445	11.30	.225	5.72	.200	5.08	.096	2.44	.294	7.47	111196-1
14	.610	15.49	.545	13.84	.325	8.26	.300	7.62	.146	3.71	.394	10.01	111196-2
16	.660	16.76	.595	15.11	.375	9.52	.350	8.89	.171	4.34	.444	11.28	111196-3
20	.760	19.30	.695	17.65	.475	12.07	.450	11.43	.221	5.61	.544	13.82	111196-4
24	.860	20.32	.795	20.19	.575	14.61	.550	13.97	.271	6.88	.644	16.36	111196-5
26	.910	23.11	.845	21.46	.625	15.88	.600	15.24	.296	7.52	.694	17.63	111196-6
30	1.010	25.65	.945	24.00	.725	18.42	.700	17.78	.346	8.79	.794	20.17	111196-7
34	1.110	28.19	1.045	26.54	.825	20.96	.800	20.32	.396	10.06	.894	22.71	111196-8
40	1.260	32.00	1.195	30.35	.975	24.54	.950	24.13	.471	11.96	1.044	26.52	111196-9
44	1.360	34.54	1.295	32.89	1.075	27.31	1.050	26.67	.521	13.23	1.144	29.06	1-111196-0
50	1.510	38.35	1.445	36.70	1.225	31.12	1.200	30.48	.596	15.14	1.294	32.87	1-111196-1
60	1.760	44.70	1.695	43.05	1.475	37.47	1.450	36.83	.721	18.31	1.544	39.22	1-111196-2
64	1.860	47.24	1.795	45.59	1.575	40.00	1.550	39.37	.771	19.58	1.644	41.76	1-111196-3
68	1.960	49.78	1.895	48.13	1.675	42.55	1.650	41.91	.821	20.85	1.744	44.30	1-111196-7
72	2.060	52.32	1.995	50.67	1.775	45.08	1.750	44.45	.871	22.12	1.844	46.84	1-111196-4
80	2.260	57.40	2.195	55.75	1.975	50.17	1.950	49.53	.971	24.66	2.044	51.92	1-111196-5
100	2.760	70.10	2.695	68.45	2.475	62.87	2.450	62.23	1.221	31.01	2.544	64.62	1-111196-6

For complete product information, order Catalog 1307819

Product Facts

- .100 x .100 [2.54 X 2.54] mating grid for .050 [1.27] pitch ribbon cable
- Tuning fork contact offers a military approved design, at an economical cost
- Polarization options include military, plus center and military
- Choice of duplex gold plating on contact mating area
- Insulation displacement contacts for fast, economical mass terminations
- Contact design provides uniform latching of contacts and housing with connector cover
- Recessed cover with cable alignment feature
- Housing, cover and strain relief made of UL94V-0 rated thermoplastic material
- Selected 10 thru 64 position configurations available
- Accepts wire size range 28-26 AWG [0.08-0.15 mm²], solid or stranded
- Snap-on strain relief and choice of pull tabs available
- One-step termination with AMP-LATCH Novo tooling
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476 
- Certified by the Canadian Standards Association, File No. LR 7189 

Electrical Characteristics:

Contact Current Rating — 1 ampere (continuous)

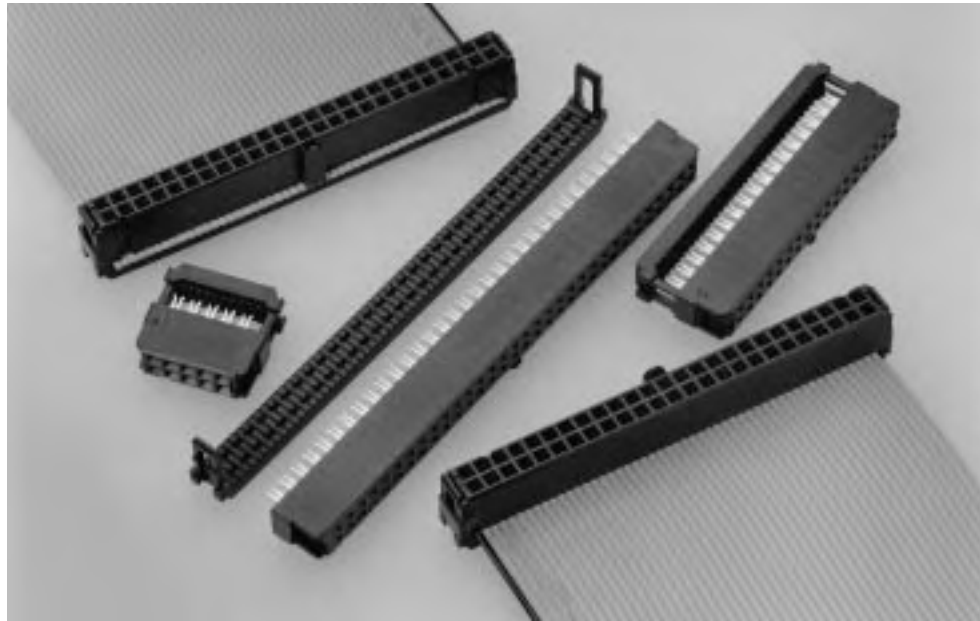
Operating Temperature — -55°C to +105°C

Dielectric Withstanding Voltage:

Receptacles (all) — 1000 Volts, RMS

Pin Connectors — 500 Volts, RMS

Ejection Style Pin Headers (all) — 1000 Volts, RMS



AMP-LATCH connectors use insulation displacement contacts (IDC), where each contact has a slotted-beam geometry to mass terminate the conductors. As a wire is pressed down into the slot, the beam tips pierce and displace the insulation. As the conductor is pressed farther into the slot, the contact provides sufficient conductor deformation to achieve a gas tight interface.

The design of the contact supplies residual spring pressure to maintain a long term gas tight connection. Since the connector is gas tight, it will not corrode or otherwise degrade from normal environmental exposure.

AMP-LATCH Novo receptacles offer a dual contact interface with all normal force created by metal-to-metal contact. This

provides a higher degree of contact reliability.

Novo receptacles feature two rows of contacts on 2.54 X 2.54 [.100 X .100] centerlines in select sizes from 10 to 64-positions. Contacts mate with 0.642 [.0252] or round posts with 6.22 [.245] max. and 4.45 [.175] min. lengths. The Novo tuning fork contact offers a military-approved design, and at a lower cost.

No. of Positions	Cable Centerlines	PCB Area	Mating Height
20	.050 1.27	0.47 in. ² 303 mm ²	0.565 14.35
	.039 1.00	0.134 in. ² 86.64 mm ²	0.390 9.91
	.025 0.64	0.213 in. ² 137 mm ²	0.584 14.83
	.050 1.27	1.01 in. ² 645 mm ²	0.565 14.25
50	.039 1.00	0.335 in. ² 216 mm ²	0.390 9.91
	.025 0.64	0.426 in. ² 275 mm ²	0.584 14.83

Chart gives an example of a 20-position and a 50-position configuration showing the optimum pc board space and mating connector system height. These factors are of prime importance when you consider the premium placed on system space.

Novo Receptacles, Military Polarized* .100 x .100 [2.54 x 2.54] Centers

Housing Assembly with Cover (Preassembled) and Strain Relief (Optional)



Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .175 [4.45] min. lengths.

Material and Finish:

Housing, Cover & Strain Relief—94V-0 rated thermoplastic, black
Contacts—Phosphor bronze, duplex plated

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:

Mateable Pin Headers:

Universal—pages 4025 thru 4031

High Temperature—pages 4023, 4024

Low Profile—pages 4013 thru 4022

Accessories:

Pull Tab—Page 4011

Strain Relief—Page 4011

Keying Plug—Page 4012

Application Tooling:

R-CAM 4 Cable Assembly Machine—Page 13019

R-CAM 3A Ribbon Cable Assembly Machine—Page 13019

R-CAM 2A Ribbon Cable Assembly Machine—Page 13019

Manual Arbor Tool—

Part Number 91085-2—Page 13015

Pneumatic Auto-Cycle Tool—

Part Number 91112-3—Page 13016

Technical Documents:

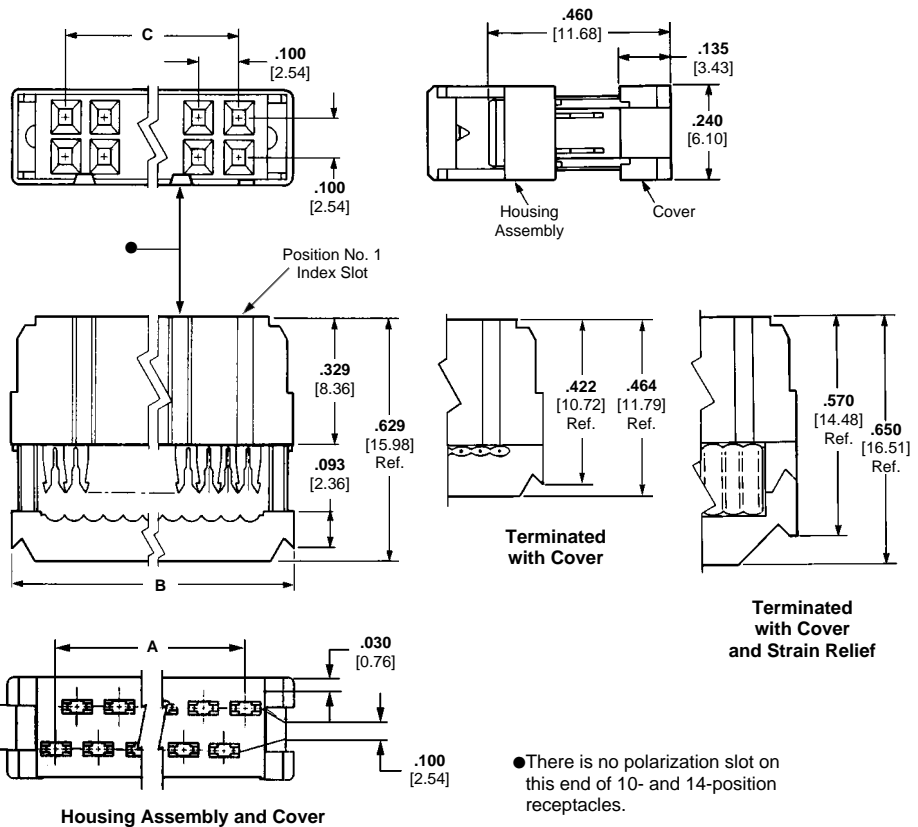
Product Specifications

108-40000 Novo and Novo Stackable Receptacles; 108-40004 Ribbon Cable, PVC Insulated

Application Specification

114-40005 Ribbon Cable Connectors

*These receptacles can be used in applications requiring non-polarization, as well as military polarization.



No. of Positions	Dimensions			Contact Plating	Strain Relief Part Numbers	Receptacle (Preassembled)
	A	B	C			
10	.450	.680	.400	Duplex ¹	499252-5	499997-1
	11.43	17.27	10.16	Duplex ²	499252-5	746290-1
14	.650	.880	.600	Duplex ¹	499252-9	499997-2
	16.51	22.35	15.24	Duplex ²	499252-9	746290-2
16	.750	.980	.700	Duplex ¹	499252-8	499997-3
	19.05	24.89	17.78	Duplex ²	499252-8	746290-3
20	.950	1.180	.900	Duplex ¹	499252-2	499997-4
	24.13	29.97	22.86	Duplex ²	499252-2	746290-4
24	1.150	1.380	1.100	Duplex ¹	1-499252-0	499997-5
	29.21	35.05	27.94	Duplex ²	1-499252-0	746290-5
26	1.250	1.480	1.200	Duplex ¹	499252-3	499997-6
	31.75	37.59	30.48	Duplex ²	499252-3	746290-6
30	1.450	1.680	1.400	Duplex ¹	1-499252-2	499997-7
	36.83	42.67	35.56	Duplex ²	1-499252-2	746290-7
34*	1.650	1.880	1.600	Duplex ¹	499252-6	499997-8
	41.91	47.75	40.64	Duplex ²	499252-6	746290-8
40*	1.950	2.180	1.900	Duplex ¹	499252-1	499997-9
	49.53	55.37	48.26	Duplex ²	499252-1	746290-9
50*	2.450	2.680	2.400	Duplex ¹	499252-4	1-499997-0
	62.23	68.07	60.96	Duplex ²	499252-4	1-746290-0
60	2.950	3.180	2.900	Duplex ¹	499252-7	1-499997-1
	74.93	80.77	73.66	Duplex ²	499252-7	1-746290-1
64	3.150	3.380	3.100	Duplex ¹	1-499252-3	1-499997-2
	80.01	85.85	78.74	Duplex ²	1-499252-3	1-746290-2

¹.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

².000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: These receptacles include a housing assembly and cover (preassembled). Strain reliefs may be purchased separately using the component part nos. listed above and on page 4011.

Novo Receptacles, Center & Military Polarized* .100 x .100 [2.54 x 2.54] Centers

Housing Assembly with Cover (Preassembled) and Strain Relief (Optional)



Contacts mate with .025 [0.64] sq. or round pins with .245 [6.22] max. and .175 [4.45] min. lengths.

Material and Finish:

Housing, Cover & Strain Relief—94V-0 rated thermoplastic, black
Contacts—Phosphor bronze, duplex plated

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Mateable Pin Headers:

Universal—pages 4025 thru 4031

High Temperature—pages 4023, 4024

Low Profile—pages 4013 thru 4022

Accessories:

Pull Tab—Page 4011

Strain Relief—Page 4011

Keying Plug—Page 4012

Application Tooling:

R-CAM 4 Cable Assembly Machine—Page 13019

R-CAM 3A Ribbon Cable Assembly Machine—Page 13019

R-CAM 2A Ribbon Cable Assembly Machine—Page 13019

Manual Arbor Tool—

Part Number 91085-2—Page 13015

Pneumatic Auto-Cycle Tool—

Part Number 91112-3—Page 13016

Technical Documents:

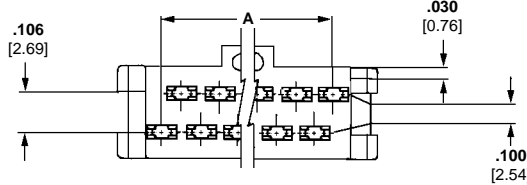
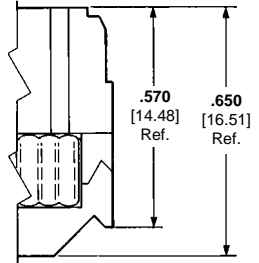
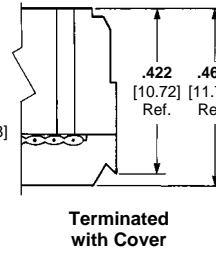
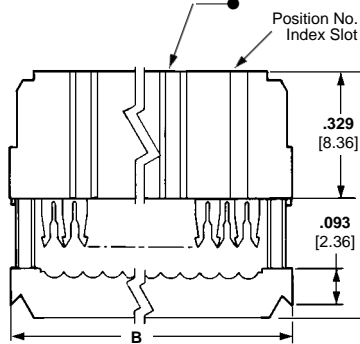
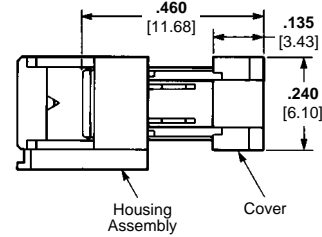
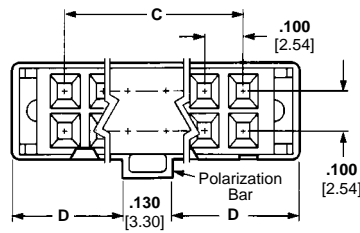
Product Specifications

108-40000 Novo and Novo Stackable Receptacles; 108-40004 Ribbon Cable, PVC Insulated

Application Specification

114-40005 Ribbon Cable Connectors

*These receptacles can be used in applications requiring center polarization.



● There is no polarization slot on this end of 10- and 14-position receptacles.

Housing Assembly and Cover

No. of Positions	Dimensions				Contact Plating	Strain Relief Part Numbers	Receptacle (Preassembled)
	A	B	C	D			
10	.450	.680	.400	.275	Duplex ¹	499252-5	746285-1
	11.43	17.27	10.16	6.99	Duplex ²	499252-5	746288-1
14	.650	.880	.600	.375	Duplex ¹	499252-9	746285-2
	16.51	22.35	15.24	9.53	Duplex ²	499252-9	746288-2
16	.750	.980	.700	.425	Duplex ¹	499252-8	746285-3
	19.05	24.89	17.78	10.80	Duplex ²	499252-8	746288-3
20	.950	1.180	.900	.525	Duplex ¹	499252-2	746285-4
	24.13	29.97	22.86	13.34	Duplex ²	499252-2	746288-4
24	1.150	1.380	1.100	.625	Duplex ¹	1-499252-0	746285-5
	29.21	35.05	27.94	15.88	Duplex ²	1-499252-0	746288-5
26	1.250	1.480	1.200	.675	Duplex ¹	499252-3	746285-6
	31.75	37.59	30.48	17.15	Duplex ²	499252-3	746288-6
30	1.450	1.680	1.400	.775	Duplex ¹	1-499252-2	746285-7
	36.83	42.67	35.56	19.69	Duplex ²	1-499252-2	746288-7
34*	1.650	1.880	1.600	.875	Duplex ¹	499252-6	746285-8
	41.91	47.75	40.64	22.23	Duplex ²	499252-6	746288-8
40*	1.950	2.180	1.900	1.025	Duplex ¹	499252-1	746285-9
	49.53	55.37	48.26	26.04	Duplex ²	499252-1	746288-9
50*	2.450	2.680	2.400	1.275	Duplex ¹	499252-4	1-746285-0
	62.23	68.07	60.96	32.39	Duplex ²	499252-4	1-746288-0
60	2.950	3.180	2.900	1.525	Duplex ¹	499252-7	1-746285-1
	74.93	80.77	73.66	38.74	Duplex ²	499252-7	1-746288-1
64	3.150	3.380	3.100	1.625	Duplex ¹	1-499252-3	1-746285-2
	80.01	85.85	78.74	41.28	Duplex ²	1-499252-3	1-746288-2

¹.000015 [0.00038] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

².000030 [0.00076] gold on post/pin mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: These receptacles include a housing assembly and cover (preassembled). Strain reliefs may be purchased separately using the component part nos. listed above and on page 4011.

Receptacles, Tulip Design, Military or Center & Military Polarized .100 x .100 [2.54 x 2.54] Centers

Material and Finish:

Housing, Cover & Strain Relief—
94V-0 rated glass reinforced
thermoplastic, blue

Contacts—Beryllium copper, duplex
plated .000030 [0.00076] min. gold over
.000050 [0.00127] nickel in contact
area; tin/lead over nickel in termination
area

Related Product Data:

Electrical Characteristics—page
4007

Mateable Connectors:

Mateable Pin Headers:

Low Profile—pages 4013 thru 4022

High Temperature—pages 4023,
4024

Universal—pages 4025 thru 4031

Accessories:

Pull Tab—Page 4011

Application Tooling:

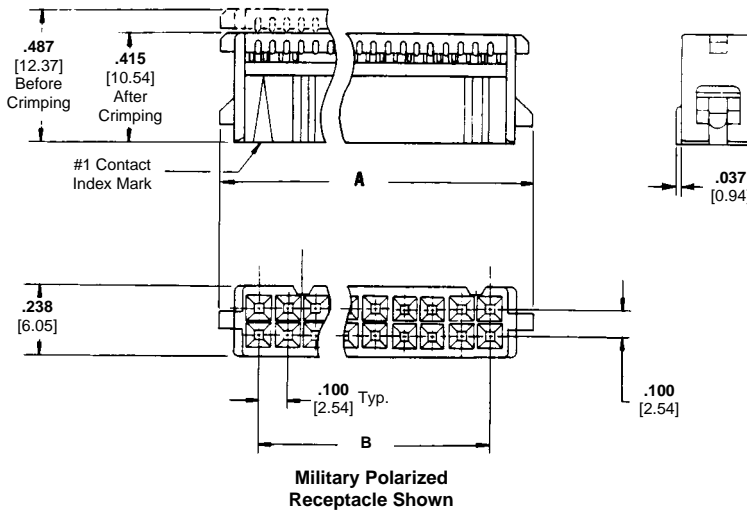
Hand Tool: 779-2100
use Die 779-2151

Bench Press (manual): 779-3200

use Platen 779-3130
use Base Plate 779-3151

Bench Press

(pneumatic): 779-3500XT
use Platen 779-3130
use Base Plate 779-3151



No. of Positions	Dimensions		Military Polarized		Center & Military Polarized	
	A	B	Receptacle	Receptacle w/Strain Relief	Receptacle	Receptacle w/Strain Relief
6	.476 12.09	.200 5.08	609-0600M	609-0601M	609-0630	609-0641
10	.676 17.17	.400 10.16	609-1000M	609-1001M	609-1030	609-1041
14	.876 22.25	.600 15.24	609-1400M	609-1401M	609-1430	609-1441
16	.976 24.79	.700 17.78	609-1600M	609-1601M	609-1630	609-1641
20	1.176 29.87	.900 22.86	609-2000M	609-2001M	609-2030	609-2041
24	1.376 34.95	1.100 27.94	609-2400M	609-2401M	609-2430	609-2441
26	1.476 37.49	1.200 30.48	609-2600M	609-2601M	609-2630	609-2641
34	1.876 47.65	1.600 40.64	609-3400M	609-3401M	609-3430	609-3441
36	1.976 50.19	1.700 43.18	609-3600M	609-3601M	609-3630	609-3641
40	2.176 55.27	1.900 48.26	609-4000M	609-4001M	609-4030	609-4041
50	2.676 67.97	2.400 60.95	609-5000M	609-5001M	609-5030	609-5041
60	3.176 80.67	2.900 73.66	609-6000M	609-6001M	609-6030	609-6041
64	3.376 85.75	3.100 78.74	609-6400M	609-6401M	609-6430	609-6441

**Note: Before ordering, see
Cross Reference in Section 15
for equivalent Tyco Electronics
Part Number.**

Strain Relief for Novo Receptacles

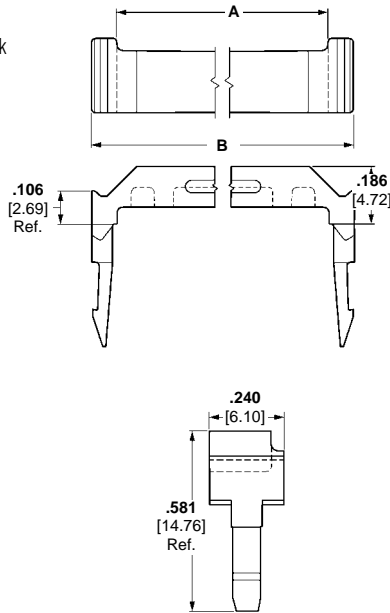
Material and Finish:

UL 94V-0 thermoplastic, color: black

Related Product Data:

Use with:

Receptacles—pages 4008, 4009



No. of Positions	Dimensions		Strain Relief Part Numbers
	A	B	
10	.520 13.21	.680 17.27	499252-5
14	.720 18.29	.880 22.35	499252-9
16	.820 20.83	.980 24.89	499252-8
20	1.020 25.91	1.180 29.97	499252-2
24	1.220 30.99	1.380 35.05	1-499252-0
26	1.320 33.53	1.480 37.59	499252-3
30	1.520 38.61	1.680 42.67	1-499252-2
34	1.720 43.69	1.880 47.75	499252-6
40	2.020 51.31	2.180 55.37	499252-1
44	2.220 56.39	2.380 60.45	1-499252-1
50	2.520 64.01	2.680 68.07	499252-4
60	3.020 76.71	3.180 80.77	499252-7
64	3.220 81.79	3.380 85.85	1-499252-3

Pull Tabs, Permanent (for Receptacles)

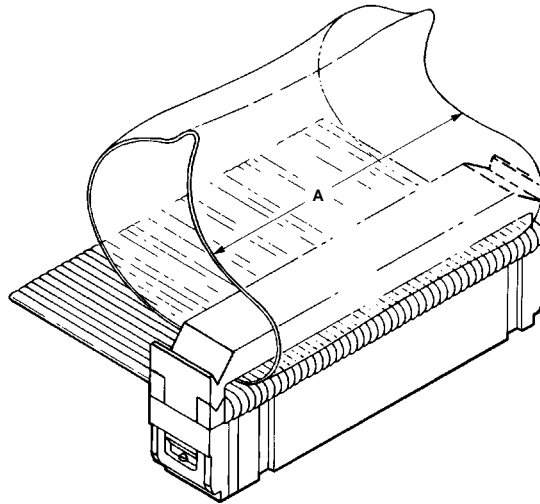
Material:

Natural color PVC, 94-VTM-1 rating (thin material)

Related Product Data:

Use with:

Receptacles—pages 4008 thru 4010



Note: This pull tab is installed manually between the cover and strain relief.

No. of Positions	Dimension A	Pull Tab Part Numbers
—	120.0 3048.0	88450-1
10	0.44 11.18	88450-2
14	0.64 16.26	88450-3
16	0.74 18.80	88450-4
20	0.88 22.35	88450-5
24	1.08 27.43	88450-6
26	1.18 29.97	88450-7
30	1.38 35.05	1-88450-2
34	1.58 40.13	88450-8
40	1.82 46.23	88450-9
50	2.32 58.93	1-88450-0
60	2.80 71.12	1-88450-1

Keying Plug for Novo Receptacles

Part Number 499712-1

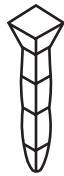
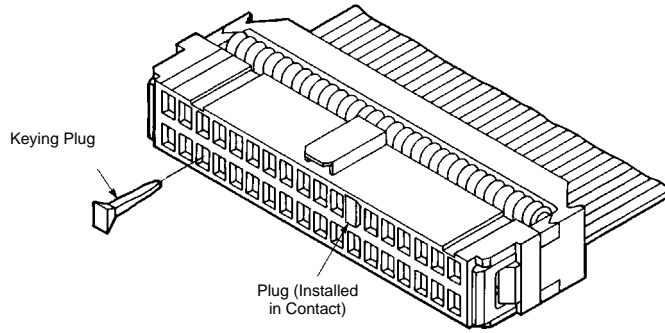
Material:

Black thermoplastic, 94V-0 rated

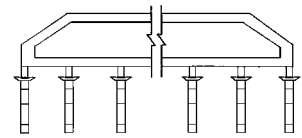
Related Product Data:

Use in:

Novo—pages 4008, 4009



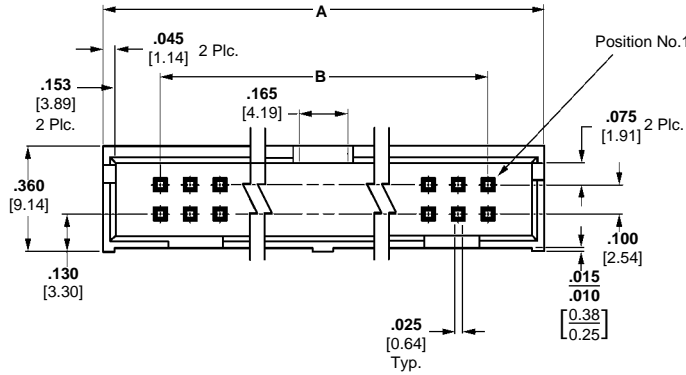
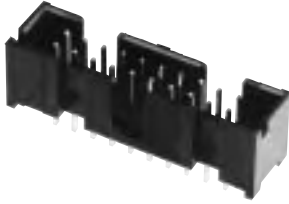
Key Plug
(Plugs into Contact)



Alternate Configuration
Keying Plug Part Number 104072-1
(10 Keying Plugs per Comb)

Low Profile Headers — Shrouded with .150 [3.18] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers, .120 [3.04] Solder Tail

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, flame retardant

Contacts—Copper alloy, duplex plated

Plating Specifications:

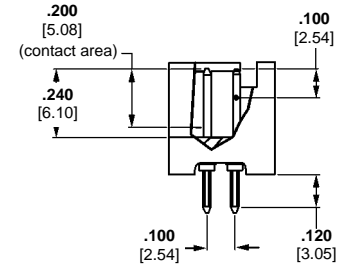
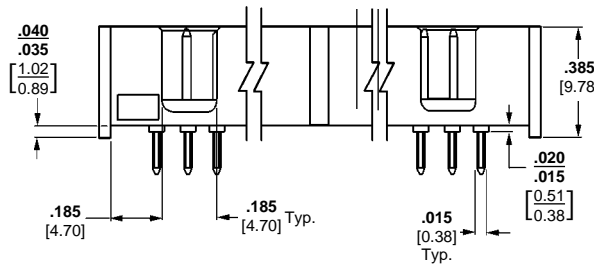
Duplex¹ — .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Duplex² — .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

Electrical Characteristics—page 4007

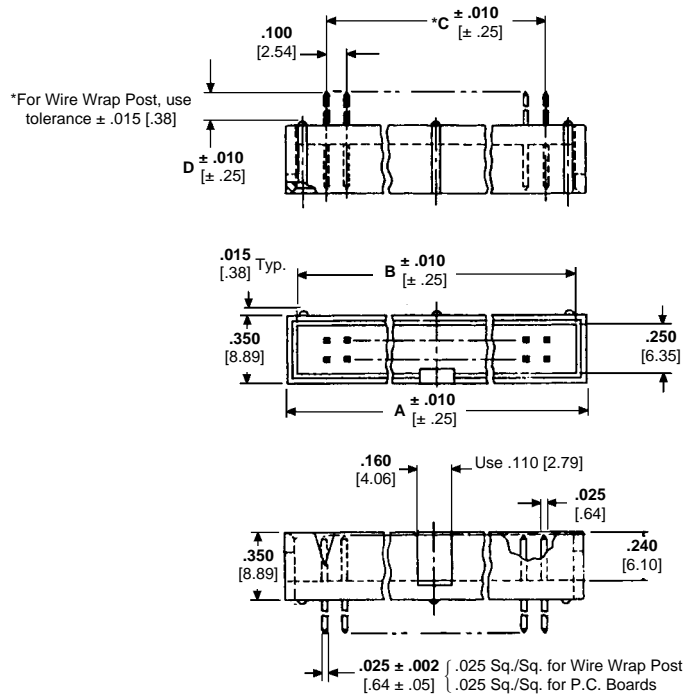
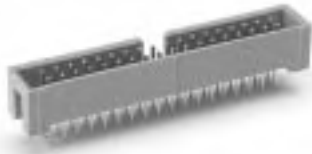
Mateable Connectors:
Pages 4008 thru 4010



No. of Positions	Dimensions		Part Numbers Post Plating	
	A	B	Duplex ¹	Duplex ²
10	.800 20.32	.400 10.16	103308-1	103309-1
14	1.000 25.40	.600 15.24	103308-2	103309-2
16	1.100 27.94	.700 17.78	103308-3	103309-3
20	1.300 33.02	.900 22.86	103308-5	103309-5
24	1.500 38.10	1.100 27.94	1-103308-3	—
26	1.600 40.64	1.200 30.48	103308-6	103309-6
34	2.000 50.80	1.600 40.64	103308-7	103309-7
40	2.300 58.42	1.900 48.26	103308-8	103309-8
44	2.500 63.50	2.100 53.34	103308-9	103309-9
50	2.800 71.12	2.400 60.96	1-103308-0	1-103309-0
60	3.300 83.82	2.900 73.66	1-103308-2	1-103309-2

Low Profile Headers — Shrouded with .150 [3.18] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers, .102 [2.59] and .610 [15.49] Solder Tail

.025 [0.64] Square Straight Post



Material and Finish:

Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel plating

Related Product Data:

Electrical Characteristics—page 4007

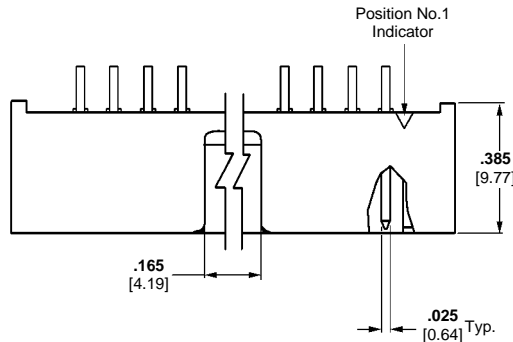
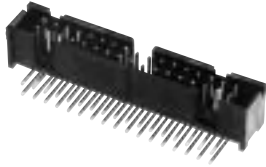
Mateable Connectors:
Pages 4008 thru 4010

No. of Positions	Dimensions					Part Numbers	
	Dimension "D"					Dimension "D"	
	A	B	C	.102 [2.59] For P.C. Boards	.610 [15.49] Wire Wrap Post		
6	.600 15.24	.500 12.70	.200 5.80	609-0627	609-0657		
8	.700 17.78	.600 15.24	.300 7.62	609-0827	—		
10	.800 20.32	.700 17.78	.400 10.16	609-1027	609-1057		
12	.900 22.86	.800 20.32	.500 12.70	609-1227	—		
14	1.000 25.40	.900 22.86	.600 15.24	609-1427	609-1457		
16	1.100 27.94	1.000 25.40	.700 17.75	609-1627	609-1657		
20	1.300 33.02	1.200 30.48	.900 22.86	609-2027	609-2057		
24	1.500 38.10	1.400 35.56	1.100 27.94	609-2427	609-2457		
26	1.600 40.64	1.500 38.10	1.200 30.48	609-2627	609-2657		
30	1.800 45.72	1.700 43.18	1.400 35.56	609-3027	609-3057		
34	2.000 50.80	1.900 48.26	1.600 40.64	609-3427	609-3457		
40	2.300 58.42	2.200 55.88	1.900 48.26	609-4027	609-4057		
50	2.800 71.12	2.700 68.58	2.400 60.96	609-5027	609-5057		
60	3.300 83.82	3.200 81.28	2.900 73.66	609-6027	609-6057		
64	3.500 88.90	3.400 86.36	3.100 78.74	609-6427	609-6457		

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers — Shrouded with .150 [3.18] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers, .135 [3.43] Solder Tail

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated, flame retardant

Contacts—Copper alloy, duplex plated

Plating Specifications:

Duplex¹ — .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Duplex² — .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

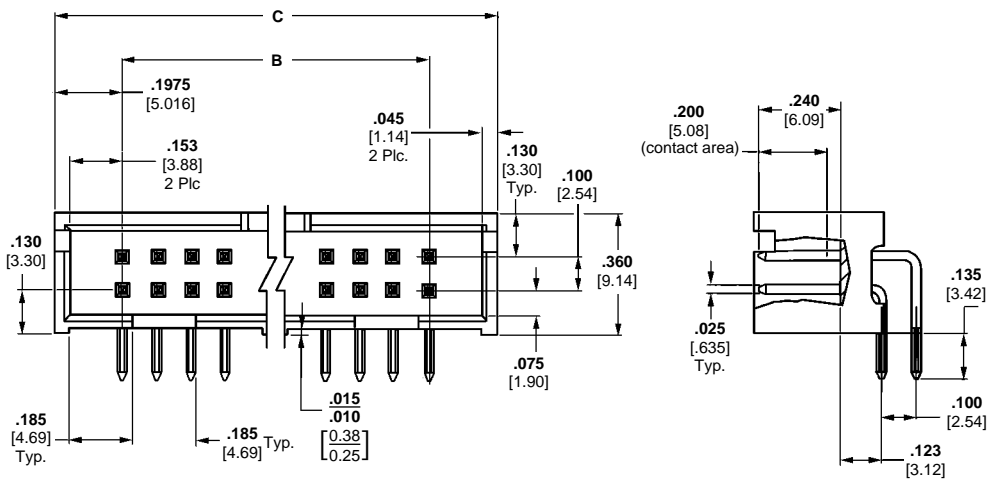
Electrical Characteristics—page 4007

Mateable Connectors:

Pages 4008 thru 4010

Accessories:

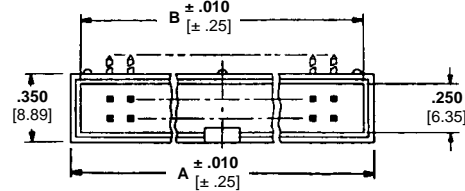
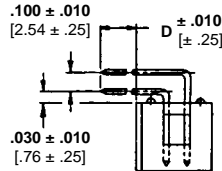
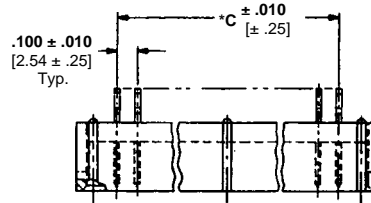
Snap-In Polarizer — page 4032



No. of Positions	Dimensions		Post Plating	Part Numbers
	B	C		
10	.400	.800	Duplex ¹	103310-1
	10.16	20.32	Duplex ²	103311-1
14	.600	1.000	Duplex ¹	103310-2
	15.24	25.40	Duplex ²	103311-2
16	.700	1.100	Duplex ¹	103310-3
	17.78	27.94	Duplex ²	103311-3
20	.900	1.300	Duplex ¹	103310-5
	22.86	33.02	Duplex ²	103311-5
26	1.200	1.600	Duplex ¹	103310-6
	30.48	40.64	Duplex ²	103311-6
34	1.600	2.000	Duplex ¹	103310-7
	40.64	50.80	Duplex ²	103311-7
40	1.900	2.300	Duplex ¹	103310-8
	48.26	58.42	Duplex ²	103311-8
44	2.100	2.500	Duplex ²	103311-9
	53.34	63.50		
50	2.400	2.800	Duplex ¹	1-103310-0
	60.96	71.12	Duplex ²	1-103311-0
60	2.900	3.300	Duplex ¹	1-103310-2
	73.66	83.82	Duplex ²	1-103311-2

Low Profile Headers—Shrouded with .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers, .102 [2.59] and .610 [15.49] Solder Tail

.025 [0.64] Square Right-Angle Post



Material and Finish:

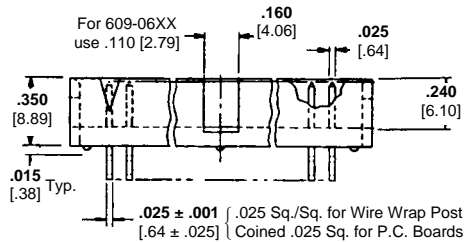
Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel plating

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

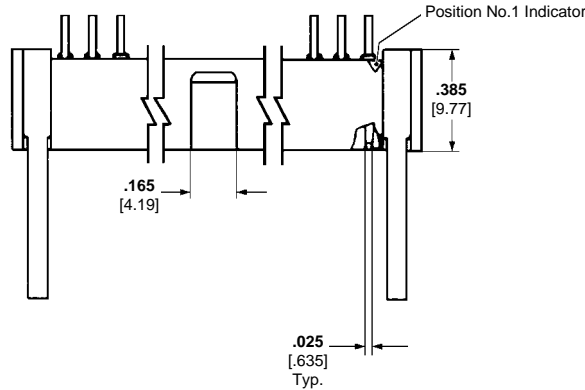
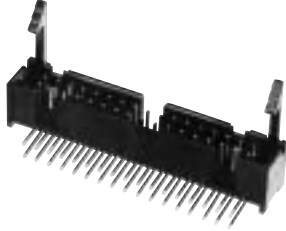


No. of Positions	Dimensions			Part Numbers Dimension "D"	
	A	B	C	.102 [2.59] For .062 [1.57] P.C. Boards	.610 [15.49] Wire Wrap Post
6	.600 15.24	.500 12.70	.200 5.80	609-0607	609-0647
10	.800 20.32	.700 17.78	.400 10.16	609-1007	609-1047
14	1.000 25.40	.900 22.86	.600 15.24	609-1407	609-1447
16	1.100 27.94	1.000 25.40	.700 17.75	609-1607	609-1647
20	1.300 33.02	1.200 30.48	.900 22.86	609-2007	609-2047
24	1.500 38.10	1.400 35.56	1.100 27.94	609-2407	609-2447
26	1.600 40.64	1.500 38.10	1.200 30.48	609-2607	609-2647
34	2.000 50.80	1.900 48.26	1.600 40.64	609-3407	609-3447
40	2.300 58.42	2.200 55.88	1.900 48.26	609-4007	609-4047
50	2.800 71.12	2.700 68.58	2.400 60.96	609-5007	609-5047
60	3.300 83.82	3.200 81.28	2.900 73.66	609-6007	609-6047
64	3.500 88.90	3.400 86.36	3.100 78.74	609-6407	609-6447

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers — Shrouded with Ejection Latches and .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers, .135 [3.42] Solder Tail

.025 [0.64] Square Right-Angle Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

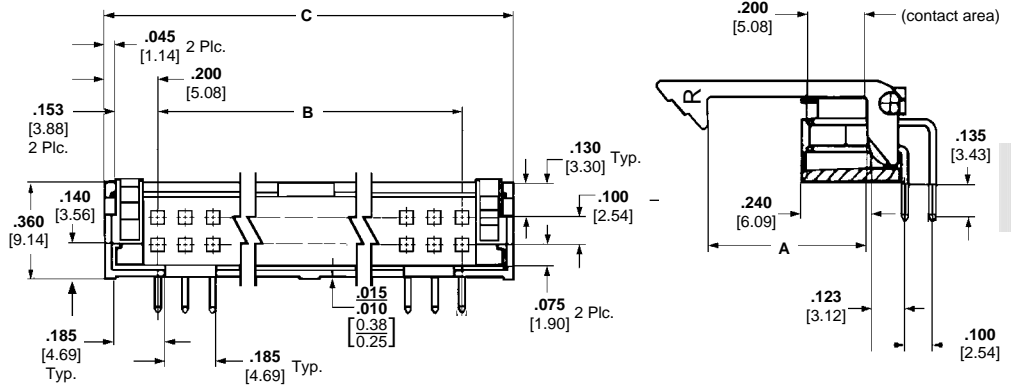
Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

Accessories:

Snap-In Polarizer — page 4032

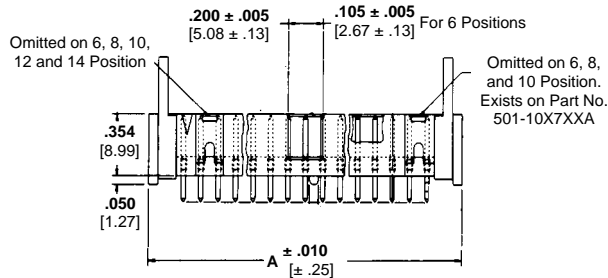
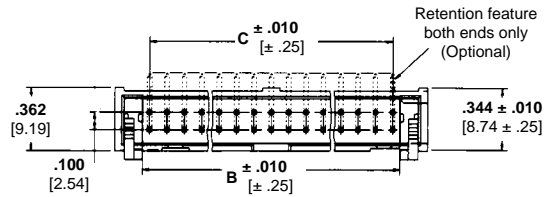


No. of Positions	Dimensions		Latching Height (See Notes 1 & 2)		Part Numbers
	B	C	A		
10	.400	.800	.585	14.9	104130-1
	10.16	20.32	.435	11.0	104315-1
14	.600	1.000	.585	14.9	104130-2
	15.24	25.40	.435	11.0	104315-2
16	.700	1.100	.585	14.9	104130-3
	17.78	27.94	.435	11.0	104315-3
20	.900	1.300	.585	14.9	104130-4
	22.86	33.02	.435	11.0	104315-4
26	1.200	1.600	.585	14.9	104130-5
	30.48	40.64	.435	11.0	104315-5
34	1.600	2.000	.585	14.9	104130-6
	40.64	50.80	.435	11.0	104315-6
40	1.900	2.300	.585	14.9	104130-7
	48.26	58.42	.435	11.0	104315-7
50	2.400	2.800	.585	14.9	104130-9
	60.96	71.12	.435	11.0	104315-9
60	2.900	3.300	.585	14.9	1-104130-0
	73.66	83.82	.435	11.0	1-104315-0

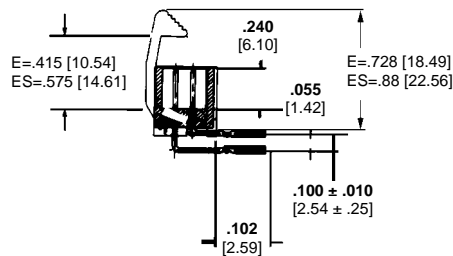
Notes: 1. .585 [14.9] latching height to be used when mating to a receptacle with strain relief.
2. .435 [11.0] latching height to be used when mating to a receptacle without strain relief.

Low Profile Headers—Shrouded with Ejection Latches and .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers, .102 [2.59] Solder Tail

.025 [0.64] Square Right-Angle Post



Right Angle Retention Pin



Material and Finish:

Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel .025 sq. pin w/coined edges

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

501 - XX XX

of Positions
Tail Style

E (Ejector)
ES Ejector for Strain Relief

Note: PCB retention feature available. Consult Tyco Electronics

No. of Positions	Dimensions			Part Numbers
	A	B	C	
6	.600 15.24	.280 7.11	.200 5.08	501-0607XX
10	.800 20.32	.480 12.19	.400 10.16	501-1007XX
12	.900 22.86	.580 14.73	.500 12.70	501-1207XX
14	1.000 25.40	.680 17.27	.600 15.24	501-1407XX
16	1.100 27.94	.780 19.81	.700 17.78	501-1607XX
20	1.300 33.02	.980 24.89	.900 22.86	501-2007XX
24	1.500 38.10	1.180 29.97	1.100 27.94	501-2407XX
26	1.600 40.64	1.280 32.51	1.200 30.48	501-2607XX
30	1.800 45.72	1.480 37.59	1.400 35.56	501-3007XX
34	2.000 50.80	1.680 42.67	1.600 40.64	501-3407XX
40	2.300 58.42	1.980 50.29	1.900 48.26	501-4007XX
50	2.800 71.12	2.480 62.99	2.400 60.96	501-5007XX
60	3.300 83.82	2.980 75.69	2.900 73.66	501-6007XX
64	3.500 88.90	3.180 80.77	3.100 78.74	501-6407XX

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers—Shrouded with Ejection Latches and .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers

.025 [0.64] Square Right-Angle Post



Material and Finish:

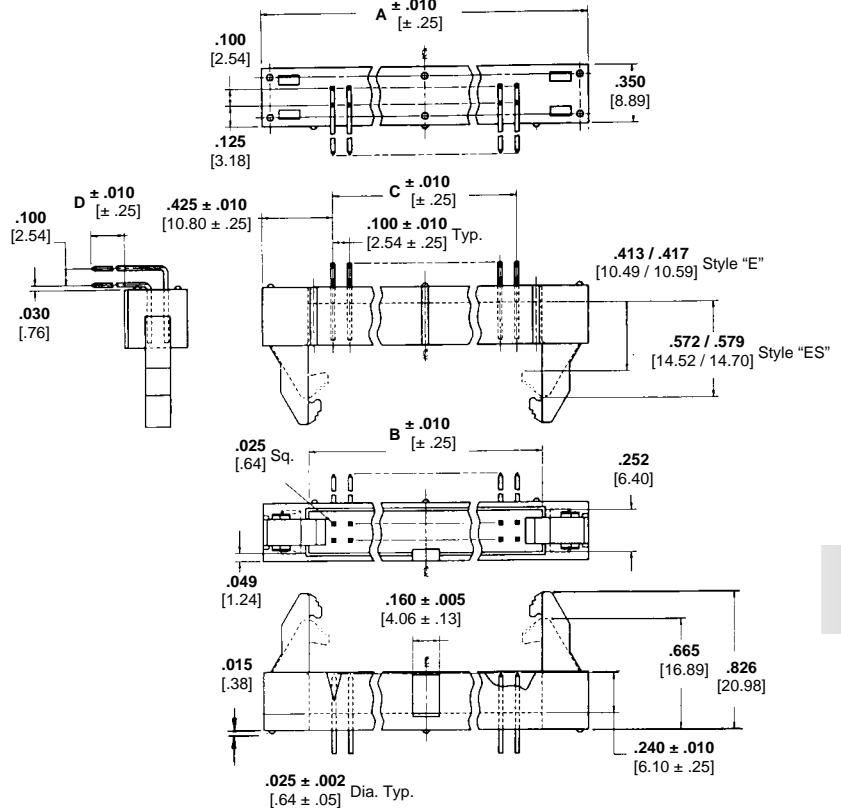
Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel in contact area; tin/lead over nickel in termination area

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010



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of Positions Tail Style E (Ejector)
ES Ejector for Strain Relief

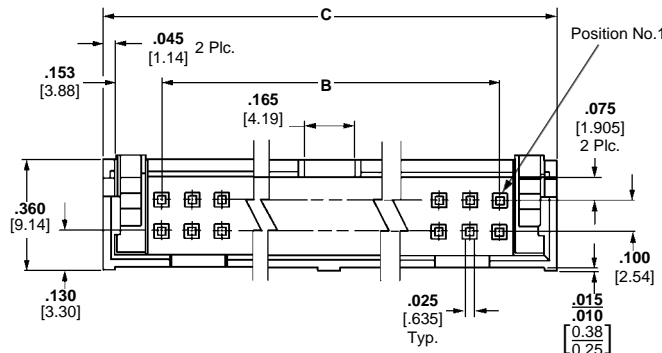
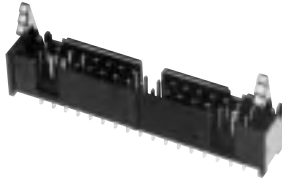
Note: .610 Wire Wrap Post and PCB retention versions available. Consult Tyco Electronics.

No. of Positions	Dimensions			Part Numbers Dimension "D"	
	A	B	C	.102 [2.59] For .062 [1.57] P.C. Boards	.165 [4.19] For .125 [3.18] P.C. Boards
8	1.150 29.21	.600 15.24	.300 7.26	609-0807XX	—
10	1.250 31.75	.700 17.78	.400 10.16	609-1007XX	609-1017XX
14	1.450 36.83	.900 22.86	.600 15.24	609-1407XX	609-1417XX
16	1.550 39.37	1.000 25.40	.700 17.78	609-1607XX	609-1617XX
20	1.750 44.45	1.200 30.48	.900 22.86	609-2007XX	609-2017XX
24	1.950 49.53	1.400 35.55	1.100 27.94	609-2407XX	609-2417XX
26	2.050 52.07	1.500 38.10	1.200 30.48	609-2607XX	609-2617XX
30	2.250 57.15	1.700 43.18	1.400 35.56	609-3007XX	609-3017XX
34	2.450 62.23	1.900 48.26	1.600 40.64	609-3407XX	609-3417XX
40	2.750 69.85	2.200 55.88	1.900 48.26	609-4007XX	609-4017XX
50	3.250 82.55	2.700 68.58	2.400 60.96	609-5007XX	609-5017XX
60	3.750 95.25	3.200 81.28	2.900 73.66	609-6007XX	609-6017XX
64	3.950 100.33	3.400 86.36	3.100 78.74	609-6407XX	609-6417XX

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers — Shrouded with Ejection Latches and .150 [3.18] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers, .120 [3.05] Solder Tail

.025 [0.64] Square Straight Post



Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

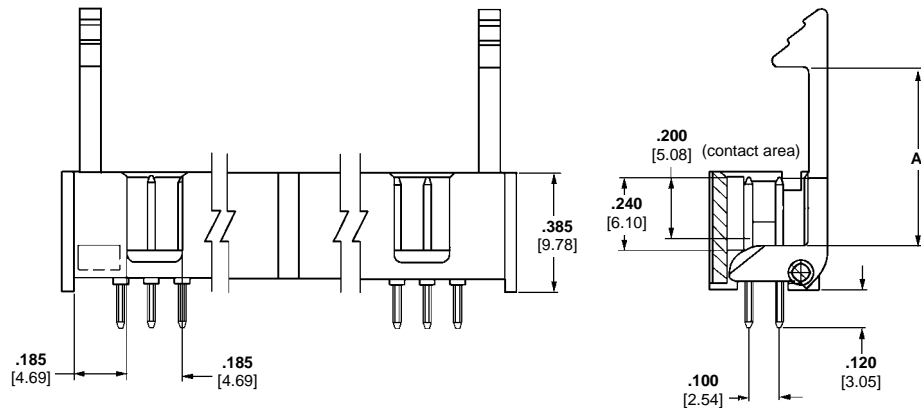
Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors: Pages 4008 thru 4010

Accessories:

Snap-In Polarizer — page 4032

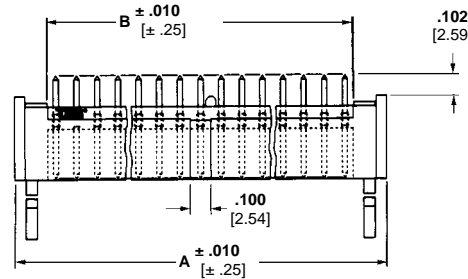
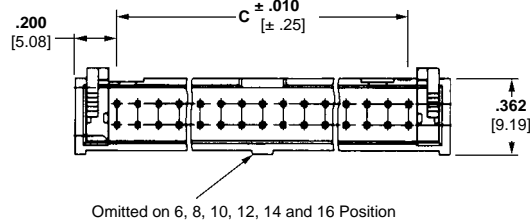


No. of Positions	Dimensions		Latching Height (See Notes 1 & 2)		Part Numbers
	B	C	A		
10	.400	.800	.585	14.9	104128-1
	10.16	20.32	.435	11.0	104313-1
14	.600	1.000	.585	14.9	104128-2
	15.24	25.40	.435	11.0	104313-2
16	.700	1.100	.585	14.9	104128-3
	17.78	27.94	.435	11.0	104313-3
20	.900	1.300	.585	14.9	104128-4
	22.86	33.02	.435	11.0	104313-4
26	1.200	1.600	.585	14.9	104128-5
	30.48	40.64	.435	11.0	104313-5
34	1.600	2.000	.585	14.9	104128-6
	40.64	50.80	.435	11.0	104313-6
40	1.900	2.300	.585	14.9	104128-7
	48.26	58.42	.435	11.0	104313-7
50	2.400	2.800	.585	14.9	104128-9
	60.96	71.12	.435	11.0	104313-9
60	2.900	3.300	.585	14.9	1-104128-0
	73.66	83.82	.435	11.0	1-104313-0

Notes: 1. .585 [14.9] latching height to be used when mating to a receptacle with strain relief.
2. .435 [11.0] latching height to be used when mating to a receptacle without strain relief.

Low Profile Headers—Shrouded with Ejection Latches and .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers, .102 [2.59] Solder Tail

.025 [0.64] Square Straight Post



Material and Finish:

Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel .025 sq. pin w/coined edges

Related Product Data:

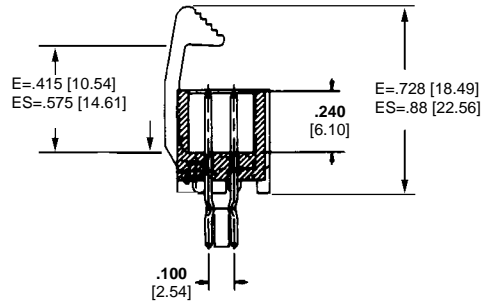
Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

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of Positions
Tail Style

E (Ejector)
ES Ejector for Strain Relief



Note: PCB retention version available. Consult Tyco Electronics

No. of Positions	Dimensions				Part Numbers		
	A		B			C	
6	.600	15.24	.280	7.11	.200	5.08	501-0627XX
10	.800	20.32	.480	12.19	.400	10.16	501-1027XX
12	.900	22.86	.580	14.73	.500	12.70	501-1227XX
14	1.000	25.40	.680	17.27	.600	15.24	501-1427XX
16	1.100	27.94	.780	19.81	.700	17.78	501-1627XX
20	1.300	33.02	.980	24.89	.900	22.86	501-2027XX
24	1.500	38.10	1.180	29.97	1.100	27.94	501-2427XX
26	1.600	40.64	1.280	32.51	1.200	30.48	501-2627XX
30	1.800	45.72	1.480	37.59	1.400	35.56	501-3027XX
34	2.000	50.80	1.680	42.67	1.600	40.64	501-3427XX
36	2.100	53.34	1.780	45.21	1.700	43.18	501-3627XX
40	2.300	58.42	1.980	50.29	1.900	48.26	501-4027XX
50	2.800	71.12	2.480	62.99	2.400	60.96	501-5027XX
60	3.300	83.82	2.980	75.69	2.900	73.66	501-6027XX
64	3.500	88.90	3.180	80.77	3.100	78.74	501-6427XX

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers—Shrouded with Ejection Latches and .150 [3.81] End Dimension, Double Row, .100 x .100 [2.54 x 2.54] Centers

.025 [0.64] Square Straight Post



Material and Finish:

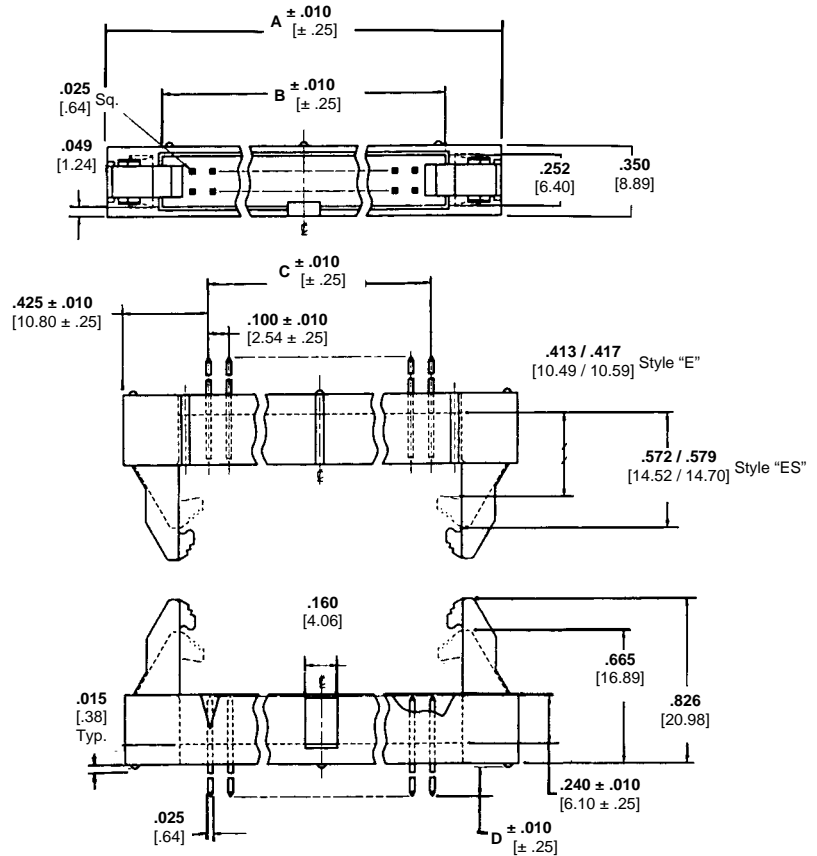
Housing—94V-0 rated glass reinforced thermoplastic, blue

Contacts—Phosphor bronze, plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel in contact area; tin/lead over nickel in termination area

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010



609 - XX XX

of Positions
Tail Style

E (Ejector)
ES Ejector for Strain Relief

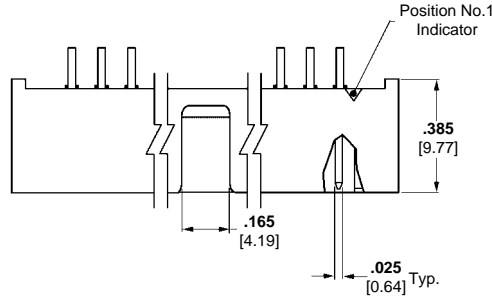
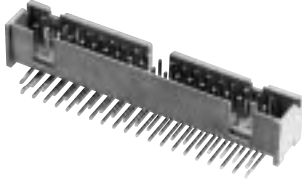
Note: .610 Wire Wrap Post and PCB retention versions available. Consult Tyco Electronics.

No. of Positions	Dimensions			Part Numbers	
	A	B	C	.102 [2.59] For .062 [1.57] P.C. Boards	.165 [4.19] For .125 [3.18] P.C. Boards
8	1.150 29.21	.600 15.24	.300 7.26	609-0827XX	609-0837XX
10	1.250 31.75	.700 17.78	.400 10.16	609-1027XX	609-1037XX
14	1.450 36.83	.900 22.86	.600 15.24	609-1427XX	609-1437XX
16	1.550 39.37	1.000 25.40	.700 17.78	609-1627XX	609-1637XX
20	1.750 44.45	1.200 30.48	.900 22.86	609-2027XX	609-2037XX
24	1.950 49.53	1.400 35.55	1.100 27.94	609-2427XX	609-2437XX
26	2.050 52.07	1.500 38.10	1.200 30.48	609-2627XX	609-2637XX
30	2.250 57.15	1.700 43.18	1.400 35.56	609-3027XX	—
34	2.450 62.23	1.900 48.26	1.600 40.64	609-3427XX	609-3437XX
40	2.750 69.85	2.200 55.88	1.900 48.26	609-4027XX	609-4037XX
50	3.250 82.55	2.700 68.58	2.400 60.96	609-5027XX	609-5037XX
60	3.750 95.25	3.200 81.28	2.900 73.66	609-6027XX	—
64	3.950 100.33	3.400 86.36	3.100 78.74	609-6427XX	609-6437XX

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Low Profile Headers — Shrouded High Temperature Housings, with .150 [3.81] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers

.025 [0.64] Square Right-Angle Post (with Board Retention Feature)



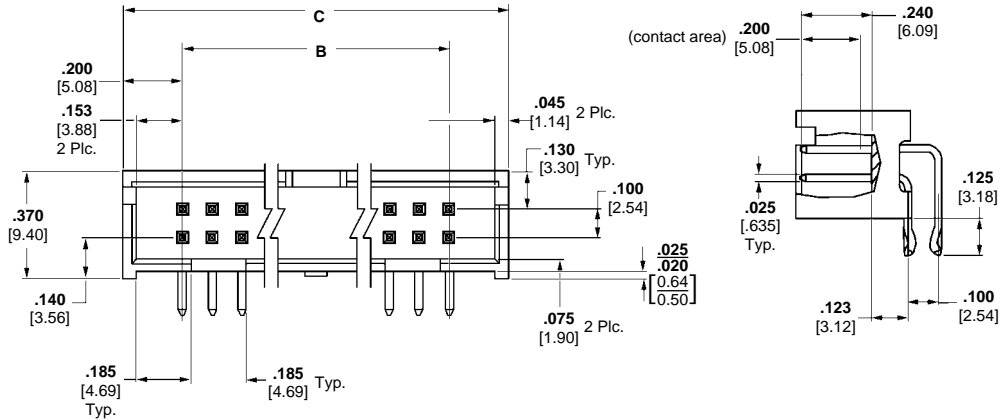
Material and Finish:

Housing—Grey thermoplastic, 94V-0 rated, flame retardant, high temperature compatible

Contacts—Copper alloy, duplex plated

Plating Specifications:

Duplex¹— .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel



Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:

Pages 4008 thru 4010

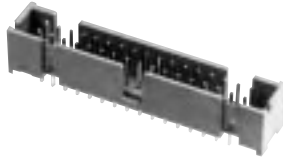
Accessories:

Snap-In Polarizer — page 4032

No. of Positions	Dimensions		Post Plating	Part Numbers
	B	C		
10	.400	.800	Duplex ¹	104340-1
	10.16	20.32	Duplex ²	104341-1
14	.600	1.000	Duplex ¹	104340-2
	15.24	25.40	Duplex ²	104341-2
20	.900	1.300	Duplex ¹	104340-4
	22.86	33.02	Duplex ²	104341-4
24	1.100	1.400	Duplex ²	104341-5
	27.94	35.56		
26	1.200	1.600	Duplex ²	104341-6
	30.48	40.64		
34	1.600	2.000	Duplex ²	104341-7
	40.64	50.80		
40	1.900	2.300	Duplex ¹	104340-8
	48.26	58.42	Duplex ²	104341-8
50	2.400	2.800	Duplex ¹	104340-9
	60.96	71.12	Duplex ²	104341-9

Low Profile Headers — Shrouded High Temperature Housings, with .150 [3.18] End Dimension Double Row, .100 x .100 [2.54 x 2.54] Centers

.025 [.064] Square Straight Post (with Board Retention Feature)



Material and Finish:

Housing—Grey thermoplastic, 94V-0 rated, flame retardant, high temperature compatible

Contacts—Copper alloy, duplex plated

Plating Specifications:

Duplex¹ — .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin-lead on solder area, with entire post underplated .000050 [0.00127] nickel

Related Product Data:

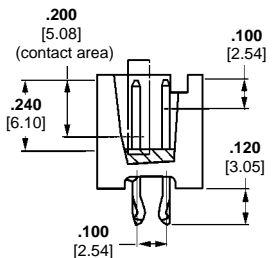
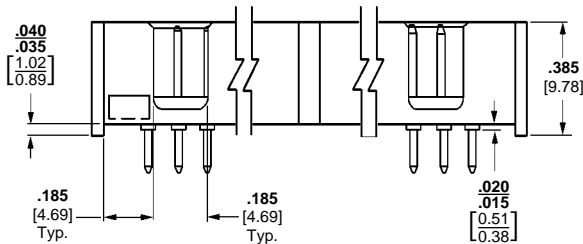
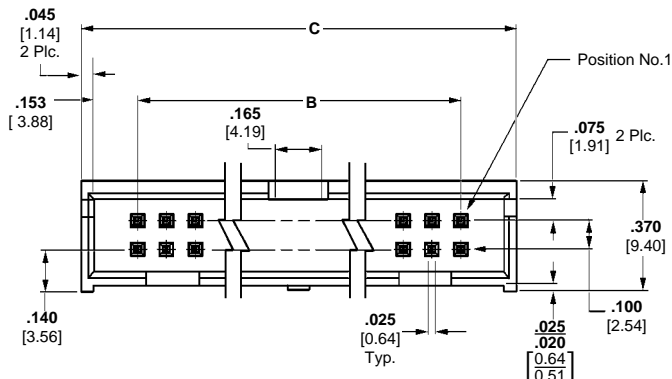
Electrical Characteristics—page 4007

Mateable Connectors:

Pages 4008 thru 4010

Accessories:

Snap-In Polarizer — page 4032



No. of Positions	Dimensions		Post Plating	Part Numbers
	B	C		
10	.400	.800	Duplex ¹	104338-1
	10.16	20.32	Duplex ²	104339-1
14	.600	1.000	Duplex ¹	104338-2
	15.24	25.40	Duplex ²	104339-2
16	.700	1.100	Duplex ¹	104338-3
	17.78	27.94	Duplex ²	104339-3
20	.900	1.300	Duplex ¹	104338-4
	22.86	33.02	Duplex ²	104339-4
24	1.100	1.400	Duplex ¹	104338-5
	27.94	35.56	Duplex ²	104339-5
26	1.200	1.600	Duplex ¹	104338-6
	30.48	40.64	Duplex ²	104339-6
34	1.600	2.000	Duplex ¹	104338-7
	40.64	50.80	Duplex ²	104339-7
40	1.900	2.300	Duplex ¹	104338-8
	48.26	58.42	Duplex ²	104339-8
50	2.400	2.800	Duplex ¹	104338-9
	60.96	71.12	Duplex ²	104339-9
60	2.900	3.300	Duplex ¹	1-104338-0
	73.66	83.82	Duplex ²	1-104339-0

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

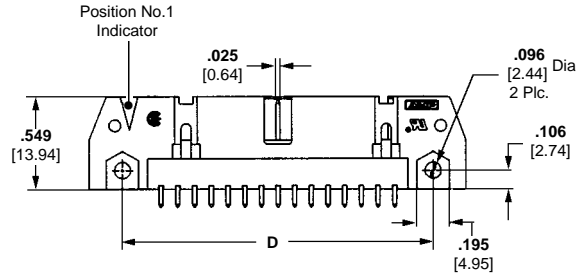
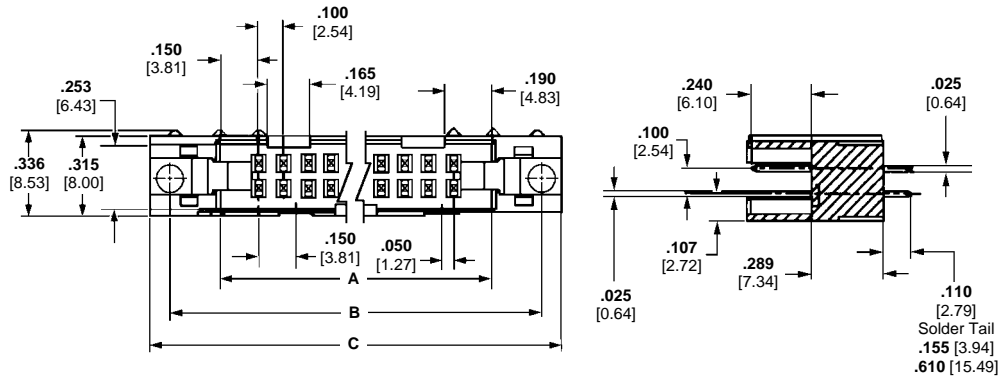
Straight-Thru, 4-Sided .025 [0.64] Sq. Posts



Pin Header
with Latches



Pin Header
without Latches



Material and Finish:

Housing & Latches—Black thermoplastic, 94V-0 rated

Contacts—Brass or phosphor bronze (at Tyco Electronics option); tin, gold or duplex plated (See chart, page 4026)

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

Accessories:

Snap-In Polarizer—page 4032

Technical Documents:

Product Specifications

108-40018 Pin Headers
108-40019 Pin Headers with ACTION PIN Contacts
108-40004 Ribbon Cable, PVC Insulated, AMP

No. of Positions	Dimensions					
	A	B	C	D	E	F
10	.700 17.78	1.100 27.94	1.260 32.00	.860 21.84	1.100 27.94	.400 10.16
14	.900 22.86	1.300 33.02	1.460 37.08	1.060 26.92	1.300 33.02	.600 15.24
16	1.000 25.40	1.400 35.56	1.560 39.62	1.180 29.46	1.400 35.56	.700 17.78
20	1.200 30.48	1.600 40.64	1.760 44.70	1.360 34.54	1.800 40.64	.900 22.86
24	1.400 35.56	1.800 45.72	1.960 49.78	1.560 39.62	1.800 45.72	1.100 27.94
26	1.500 38.10	1.900 48.26	2.060 52.32	1.660 42.16	1.900 48.26	1.200 30.48
34	1.900 48.26	2.300 58.42	2.460 62.48	2.060 52.32	2.300 58.42	1.600 40.64
40	2.200 55.88	2.600 66.04	2.760 70.10	2.360 59.94	2.600 66.04	1.900 48.26
50	2.700 68.58	3.100 78.74	3.260 82.80	2.860 72.64	3.100 78.74	2.400 60.98
60	3.200 81.28	3.600 91.44	3.760 95.50	3.360 85.34	3.600 91.44	2.900 73.66
64	3.400 86.36	3.800 96.52	3.960 100.58	3.560 90.42	3.800 96.52	3.100 78.74

- Notes:**
- Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
 - Pin headers in 10-position size have only slot for dual polarization, located as shown.
 - For information regarding latch/pin header applications and for ordering latches separately, refer to page 4031.

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the six-digit base number for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part number or kit number by adding the proper prefix and/or suffix numbers for the desired pin header size. The prefix/suffix numbers for all available sizes (10 thru 64 positions) are listed below.

No. of Positions	Add to Part Numbers	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
34		-8
40		-9
50	1-	-0
60	1-	-1
64	1-	-2

Mounting Information

4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers of pc boards. Typical applications and part nos. for ordering this hardware are presented below.

Note: 2-56 bolts and nuts may be used to mount pin headers with and without latches. If latches are to be used, the bolts must be positioned in the pin header before the latches are installed.

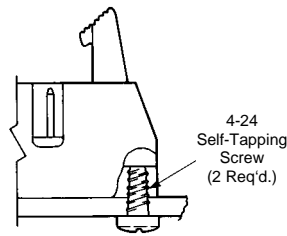
Post Length	Contact Plating	Pin Header Part No. (without Latches)	Pin Header Kit No. (with Latches)	
			Latch Part Number 102312-1 Mates with AMP-LATCH Receptacles without Strain Relief	Latch Part Number 102320-1 Mates with AMP-LATCH Receptacles with Strain Relief
.110 2.79	Duplex ¹	102153	499910	499922
	Duplex ²	102154	499160	499206
.155 3.94	Duplex ¹	102155	—	499923
	Duplex ²	102156	499374*	102321

¹.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

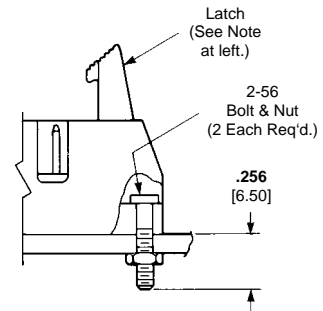
².000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: For information regarding latch/pin header applications and for ordering latches separately, refer to page 4031.

* Not available in 64 position.



Pin Header Mounting using 4-24 Self-Tapping Screws:
Part Numbers 19156-1 (for .062 [1.57] Thick PC Board)
19156-2 (for .093 [2.36] Thick PC Board)
19156-3 (for .125 [3.18] Thick PC Board)



Pin Header Mounting with 2-56 Bolts and Nuts:
Part Number 746383-1 (Bolt Only)
Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

Universal Ejection Style Pin Headers with ACTION PIN Contacts, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

Straight-Thru, 4-Sided .025 [0.64] Sq. Posts



Pin Header
without Latches

Material and Finish:

Housing—Black thermoplastic, 94V-0 rated

Contacts—Copper alloy; duplex plated

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:
Pages 4008 thru 4010

Accessories:

Snap-In Polarizer—page 4032

Technical Documents:

Product Specifications

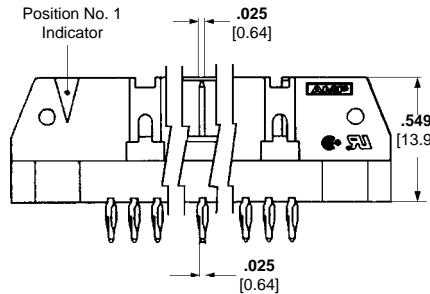
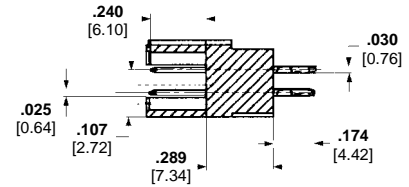
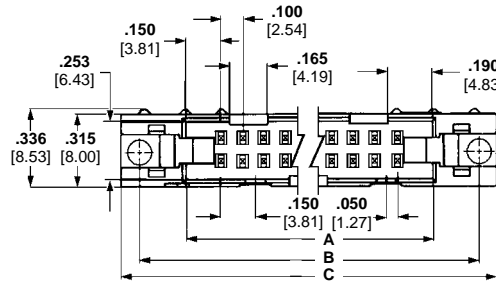
108-40018 Pin Headers
108-40019 Pin Headers with ACTION PIN Contacts
108-40004 Ribbon Cable, PVC Insulated

Ordering Information

When ordering a pin header, use the chart at the right to determine the six-digit base no. for the desired post length, and contact plating. Then, complete the part no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

Mounting Information

No mounting hardware is supplied by Tyco Electronics.



**ACTION PIN Contact
Insertion/Extraction Tool
Part Number 91241-1 (includes
Insertion/Extraction Tip
Part Number 126961-1 and
Extraction Tip Part Number
126961-2**

No. of Positions	Add to Part Numbers	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
30		-7
34		-8
40		-9
50	1-	-0
60	1-	-1
64	1-	-2

No. of Positions	Dimensions				
	A	B	C	D	E
10	.700 17.78	1.100 27.94	1.260 32.00	1.100 27.94	.400 10.16
14	.900 22.86	1.300 33.02	1.460 37.08	1.300 33.02	.600 15.24
16	1.000 25.40	1.400 35.56	1.560 39.62	1.400 35.56	.700 17.78
20	1.200 30.48	1.600 40.64	1.760 44.70	1.600 40.64	.900 22.86
24	1.400 35.56	1.800 45.72	1.960 49.78	1.800 45.72	1.100 27.94
26	1.500 38.10	1.900 48.26	2.060 52.32	1.900 48.26	1.200 30.48
34	1.900 48.26	2.300 58.42	2.460 62.48	2.300 58.42	1.600 40.64
40	2.200 55.88	2.600 66.04	2.760 70.10	2.600 66.04	1.900 48.26
50	2.700 68.58	3.100 78.74	3.260 82.80	3.100 78.74	2.400 60.96
60	3.200 81.28	3.600 91.44	3.760 95.50	3.600 91.44	2.900 73.66
64	3.400 86.36	3.800 96.52	3.960 100.58	3.800 96.52	3.100 78.74

- Notes:**
1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
 2. Pin headers in 10-position size have only slot for dual polarization, located as shown.
 3. For information regarding latch/pin header applications and for ordering latches separately, refer to page 4031.

Post Length	Contact Plating	Pin Header Part Number
		For .093-.125 [2.36-3.18] Thick PC Board
.174 4.42	Duplex ¹	499582

¹.000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: For information regarding latch/pin header applications and for ordering latches separately, refer to page 4031.

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

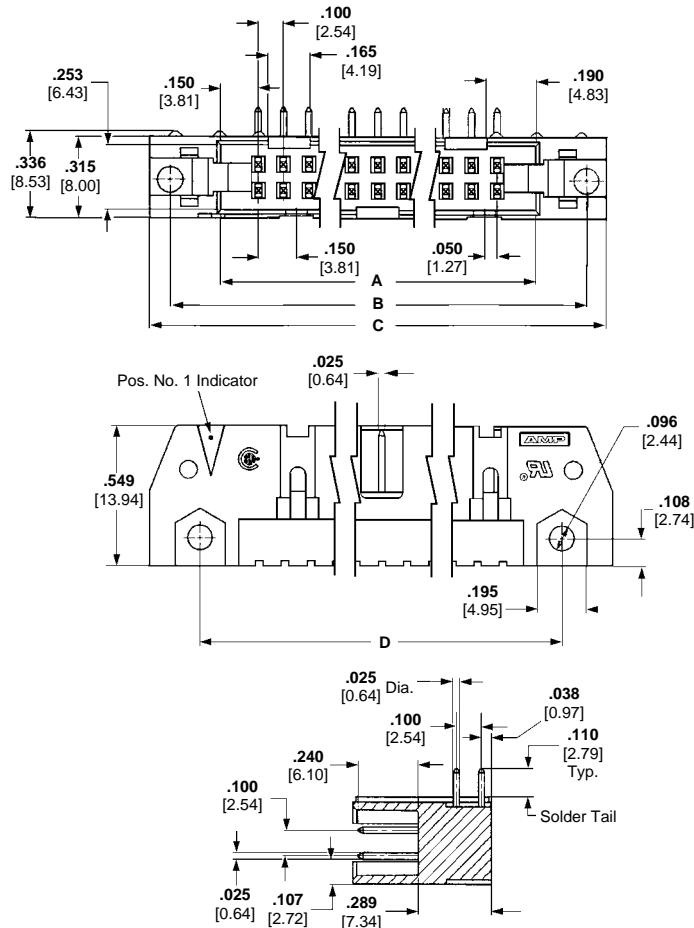
Right-Angle, 4-Sided .025 [0.64] Sq. Posts



Pin Header
with Latches



Pin Header
without Latches



Material and Finish:

Housing & Latches—Black thermoplastic, 94V-0 rated

Contacts—Phosphor bronze; duplex plated (See chart page 4029)

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors:

Pages 4008 thru 4010

Accessories:

Snap-In Polarizer—page 4032

Technical Documents:

Product Specifications

108-40018 Pin Headers
108-40019 Pin Headers with ACTION PIN Contacts
108-40004 Ribbon Cable, PVC Insulated

No. of Positions	Dimensions					
	A	B	C	D	E	F
10	.700 17.78	1.100 27.94	1.260 32.00	.860 21.84	.860 21.84	.400 10.16
14	.900 22.86	1.300 33.02	1.460 37.08	1.060 26.92	1.060 26.92	.600 15.24
16	1.000 25.40	1.400 35.56	1.560 39.62	1.180 29.46	1.180 29.46	.700 17.78
20	1.200 30.48	1.600 40.64	1.760 44.70	1.380 34.54	1.380 34.54	.900 22.86
24	1.400 35.56	1.800 45.72	1.960 49.78	1.560 39.62	1.560 39.62	1.100 27.94
26	1.500 38.10	1.900 48.26	2.060 52.32	1.660 42.16	1.660 42.16	1.200 30.48
34	1.900 48.26	2.300 58.42	2.460 62.48	2.060 52.32	2.060 52.32	1.600 40.64
40	2.200 55.88	2.600 66.04	2.760 70.10	2.360 59.94	2.360 59.94	1.900 48.26
50	2.700 68.58	3.100 78.74	3.260 82.80	2.860 72.64	2.860 72.64	2.400 60.98
60	3.200 81.28	3.600 91.44	3.760 95.50	3.360 85.34	3.360 85.34	2.900 73.66
64	3.400 86.36	3.800 96.52	3.960 100.58	3.560 90.42	3.560 90.42	3.100 78.74

Notes: 1. Pin headers in 10- and 14-position sizes have only one slot for snap-in polarizer (military polarization), located as shown.
2. Pin headers in 10-position size have only slot for dual polarization, located as shown.

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized .100 x .100 [2.54 x 2.54] Centers

Ordering Information

When ordering a pin header or pin header kit, use the chart at the right to determine the six-digit base no. for the desired post length, contact plating and latch configuration (Kits only). Then, complete the part no. or kit no. by adding the proper prefix and/or suffix no. for the desired pin header size. The prefix/suffix nos. for all available sizes (10 thru 64 positions) are listed below.

Post Length	Contact Plating	Pin Header Part Numbers (without Latches)	Pin Header Kit No. (with Latches)	
			Latch Part Number 102312-1 Mates with AMP-LATCH Receptacles without Strain Relief	Latch Part Number 102320-1 Mates with AMP-LATCH Receptacles with Strain Relief
.110 2.79	Duplex ¹	102159	499913	499786
	Duplex ²	102160	499345	499141
.155 3.94	Duplex ¹	102161	—	—
	Duplex ²	102162	—	102322*

¹.000015 [0.00038] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

².000030 [0.00076] gold on mating end, .000100-.000200 [0.00254-0.00508] bright tin-lead on termination end, with entire contact underplated .000050 [0.00127] nickel.

Note: For information regarding latch/pin header applications and for ordering latches separately, refer to page 4031.

* Not available in 24 position

No. of Positions	Add to Part Numbers	
	Prefix	Suffix
10		-1
14		-2
16		-3
20		-4
24		-5
26		-6
34		-8
40		-9
50	1-	-0
60	1-	-1
64	1-	-2

Mounting Information

No mounting hardware is supplied by Tyco Electronics.

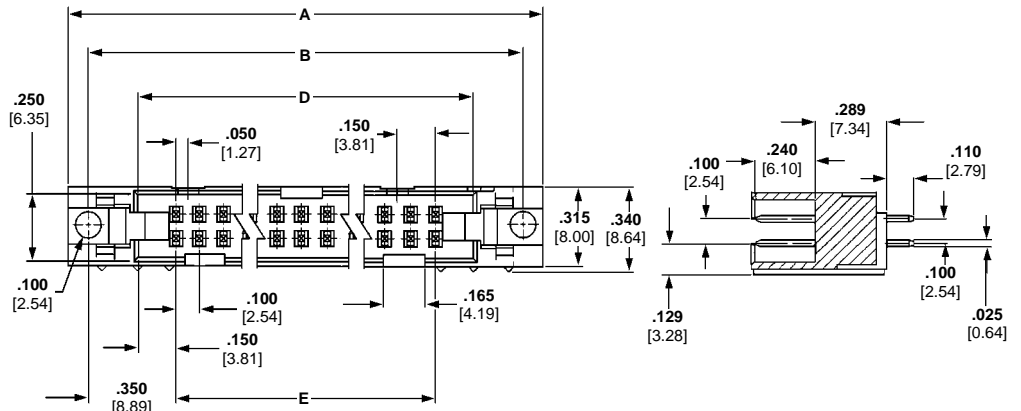
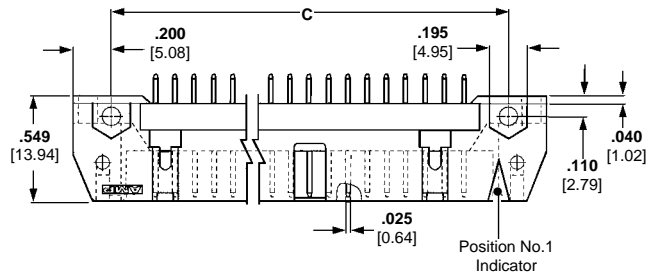
High Temperature, Thru-Hole (SMT Compatible) Universal Ejection Style Pin Header .100 x .100 [2.54 x 2.54], .025 [0.64] Sq. Posts



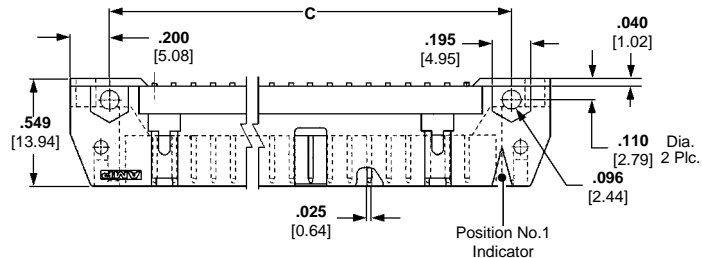
Straight-Thru—4-Sided



Right-Angle—4-Sided



Straight-Thru—4-Sided



Right-Angle—4-Sided

Material and Finish:

Housing—Red thermoplastic, 94V-0 rated

Contacts—Phosphor bronze or brass (at Tyco Electronics option), duplex plated .000030 [0.00076] gold on mating end, .000150 [0.0038] min. matte tin-lead on solder tail, with entire contact underplated .000050 [0.00127] nickel

Related Product Data:

Electrical Characteristics—page 4007

Mateable Connectors: Pages 4008 thru 4010

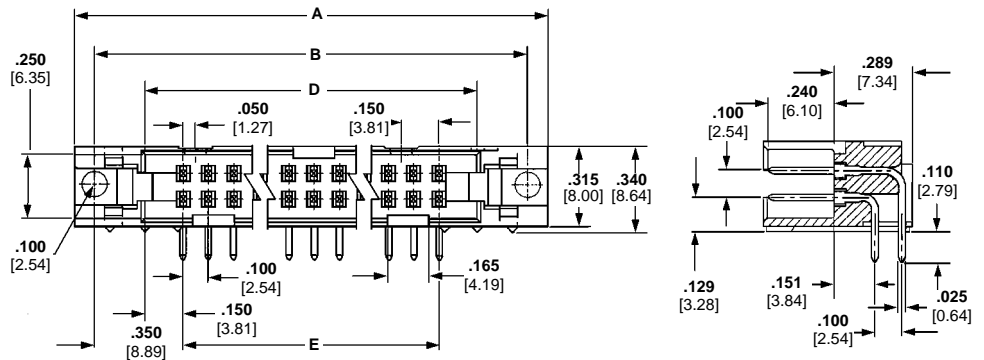
Accessories:

Snap-In Polarizer—page 4032

Technical Documents:

Product Specifications

108-40018 Pin Headers
108-40004 Ribbon Cable, PVC Insulated



High Temperature, Thru-Hole (SMT Compatible) Universal Ejection Style Pin Header .100 x .100 [2.54 x 2.54], .025 [0.64] Sq. Posts

No. of Positions	Dimensions					Part Numbers	
	A	B	C	D	E	Straight-Thru	Right-Angle
10	1.260 32.00	1.100 27.94	.860 21.84	.700 17.78	.400 10.16	111008-1	111105-1
14	1.460 37.08	1.300 33.02	1.060 26.92	.900 22.86	.600 15.24	111008-2	111105-2
16	1.560 39.62	1.400 35.56	1.160 29.46	1.000 25.40	.700 17.78	111008-3	111105-3
20	1.760 44.70	1.600 40.64	1.360 34.54	1.200 30.48	.900 22.86	111008-4	111105-4
24	1.960 49.78	1.800 40.64	1.560 39.62	1.400 35.56	1.100 27.94	111008-5	111105-5
26	2.060 52.32	1.900 48.26	1.660 42.16	1.500 38.10	1.200 30.48	111008-6	111105-6
34	2.460 62.48	2.300 58.42	2.060 52.32	1.900 48.26	1.600 40.64	111008-8	111105-8
40	2.760 70.10	2.600 66.04	2.360 59.94	2.200 55.88	1.900 48.26	111008-9	111105-9
50	3.260 82.80	3.100 78.74	2.860 72.64	2.700 68.58	2.400 60.98	1-111008-0	1-111105-0
60	3.760 95.50	3.600 91.44	3.360 85.34	3.200 81.28	2.900 73.66	1-111008-1	1-111105-1
64	3.960 100.58	3.800 96.52	3.560 90.42	3.400 86.36	3.100 78.74	1-111008-2	1-111105-2

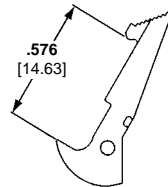
Notes: 1. 10- and 14-position pinless headers have only one slot for snap-in polarizer (military polarization).
2. 10-position pinless headers have only one slot for dual polarization.

Latches for Ejection Style Pin Headers

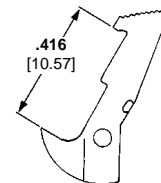
Material:

Red thermoplastic, 94V-0 Rated

Latch Part Number 111338-1
(see illustration below.)

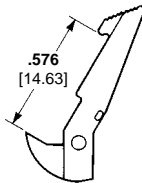


Latch Part Number 111293-1
(see illustration below.)

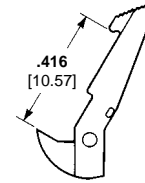


Material:

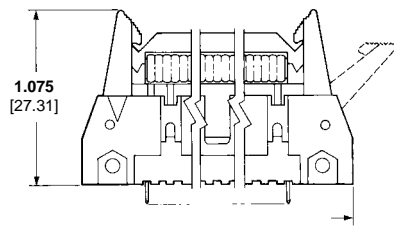
Black thermoplastic, 94V-0 Rated



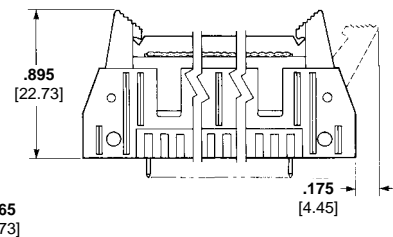
Latch Part Number 102320-1
(see illustration below.)



Latch Part Number 102312-1
(see illustration below.)



Use Latch Part Number 102320-1 or 111338-1 for AMP Receptacles with Strain Relief.



Use Latch Part Number 102312-1 or 111293-1 for AMP Receptacles without Strain Relief.

Pin Header Accessories

Polarizer, Snap-In (for Pin Connectors, Universal Pin Headers and Low Profile Pin Headers)

Part Numbers

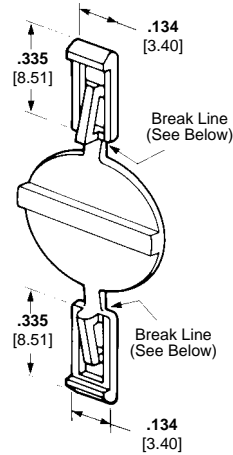
499991-2 (packaged 50 per bag)
499991-3 (packaged 1000 per box)

Material:

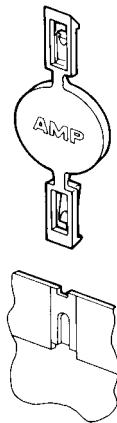
Black thermoplastic, 94V-0 rated

Related Product Data:

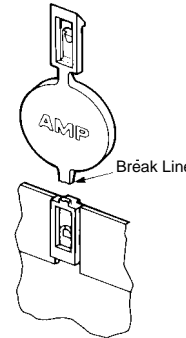
Universal Pin Headers —
pages 4025 thru 4031



The snap-in polarizer provides military polarization for pin connectors (without detent windows), Universal pin headers and Low Profile pin headers. Installation of the polarizer is as follows:



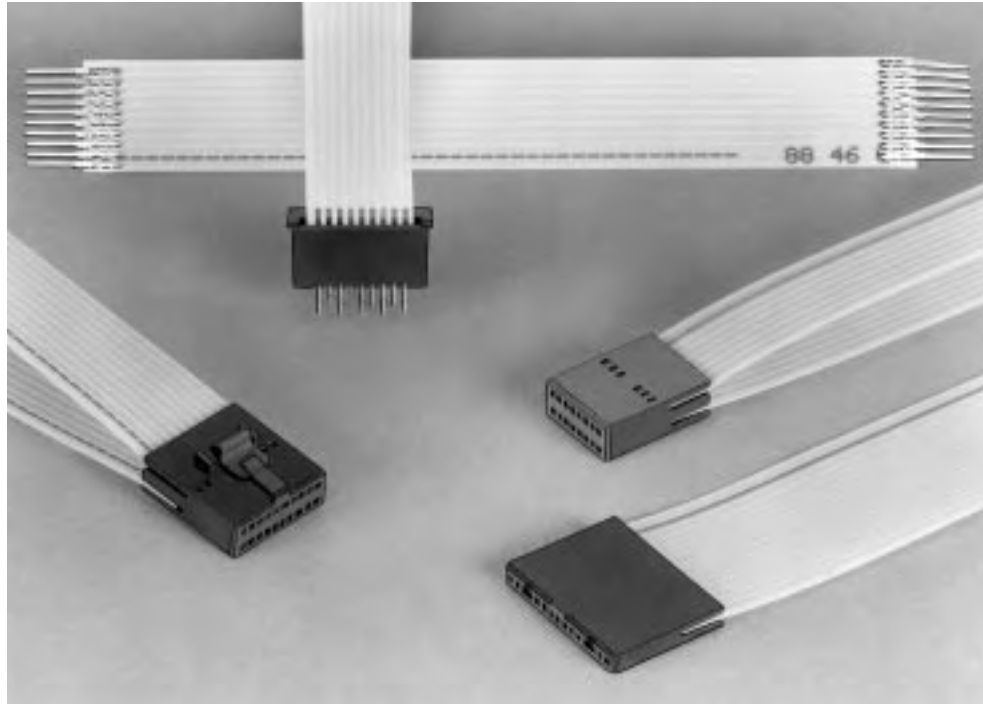
Orient the polarizer so that the polarizer latch is on the same side as the inner wall (post side) of the connector/header housing.



Slide the polarizer over the polarizing slot of the housing until the latch engages the hole. Snap off the tab at the break line next to the housing. Using the remaining polarizer, repeat the process for the other housing location.

.050 x .100 [1.27 x 2.54] Centerline Flexible Flat Conductor (FFC) Cable Connectors**Product Facts**

- Signal application only 1.5 amperes maximum signal circuit
- Single or double row connectors
- Mass termination
- Terminates flexible flat conductor (FFC) cable and flexible etched circuitry (FEC)
- Shielded cable provides for customizing
- Center latch housing providing positive latching



The cable-to-board .050 [1.27] center FFC receptacle connectors are part of the AMPMODU System 50 family for terminating flexible flat conductor cable and flexible etched circuitry.

The FFC receptacle uses a dual beam contact with 30 microinches of gold plating. The FFC receptacle connectors have an integral latch for positive locking to shrouded mating headers.

Flexible flat conductor cable is a planar parallel conductor cable. It can be used as a one-to-one connector or as a complex harness, allowing split-outs and special routing. The cable is comprised of .026 [0.66] wide x .003 [0.08] thick conductors made of copper per QQ-C-502 and insulated with a flame retardant polyester film.

The FFC contacts are available in receptacle and

solder tab. Receptacle contacts are made of phosphor bronze with a finish of plated gold duplex, while the solder tab contacts are finished in a bright tin-lead overall.

The complete product line provides solder tabs for board mounting at low cost and custom shielding of the cable.

For complete product information, order Catalog 82007

FFC Contacts, .050 x .100 [1.27 x 2.54] Centerline



Receptacle Strip



Solder Tab Strip

Material and Finish:

Phosphor bronze; plated gold duplex or bright tin-lead overall (See chart.)

Related Product Data:

Housings—pages 4035 thru 4038

Application Tooling— page 4059

Technical Documents:

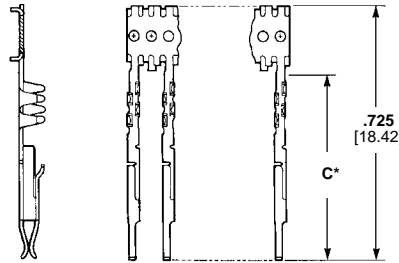
Product Specification

108-16022

Application Specification

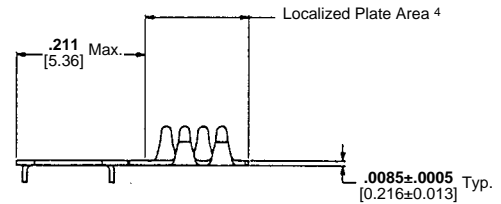
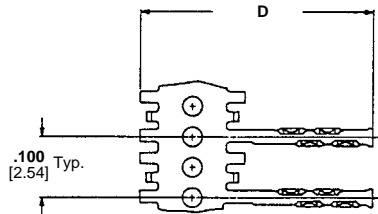
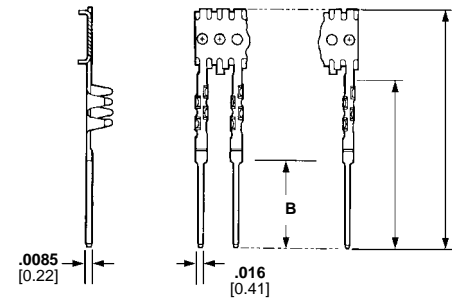
114-16008

Receptacle



Accepts .015 [0.38] Sq. Post
.125-.350 [3.18-8.89] Long

Solder Tab



		Contacts				Application Tooling Part Numbers	
Type	Configuration	Part Numbers/ Finish	Dimensions			Machine	Machine With Programmer
			B	C*	D		
Receptacle	Strip	487547-11	—	.520 13.21	.725 18.42		
	Strip	487923-12	.245 6.22	.480 12.19	.685 17.40		
Solder Tab	Strip	487923-3 ³	.245 6.22	.480 12.19	.685 17.40	224910-4 (120 V) 224910-6 (240 V)	318619-4 (120 V) 318619-6(240 V)
	Strip	487940-3 ²	.110 2.79	.345 8.76	.550 13.97		
Contact Splice	Strip	487941-2 ⁴	—	—	.385 9.78		

¹ Duplex plated .000030 [0.00076] gold on mating area, .000100 [0.00254] min. bright tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.
² Plated .000100 [0.00254] min. tin-lead over .000050 [0.00127] min. nickel.
³ Duplex plated .000015 [0.00038] gold on solder tab end, .000100 [0.00254] min. bright tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.
⁴ Plated .000150 [3.81µm] min. bright tin lead over .000050 [1.27µm] min. nickel.
 *After cut-off from carrier strip.

For complete product information, order Catalog 82007

Single Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board



Plain Style Housings



Latch Style Housings

Material and Finish:

Housing—Black thermoplastic, flame retardant, 94V-0 rated

Contacts—Phosphor bronze; plated gold duplex

Related Product Data:

Receptacle Contacts—page 4034

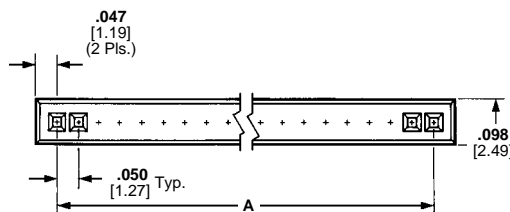
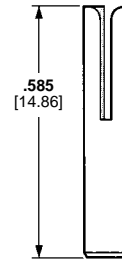
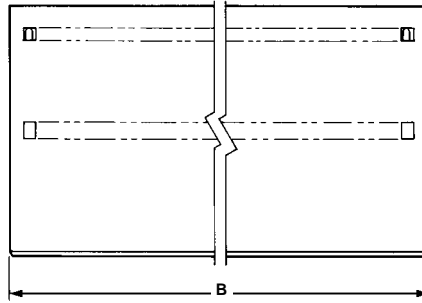
Mateable Headers—Section 2, pages 2029, 2030, 2033 (Single Row) and 2034 (Single Row)

Technical Documents:

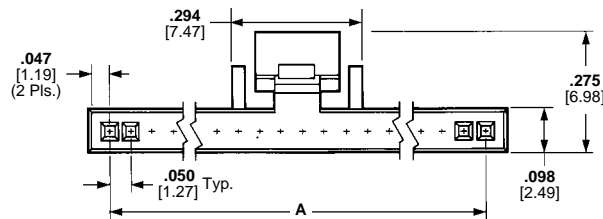
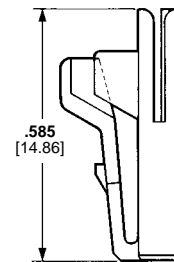
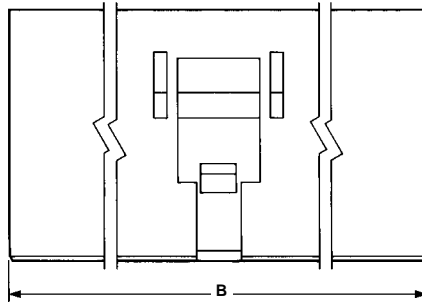
Product Specification
108-16022

Application Specification
114-16008

Plain Style Housings



Latch Style Housings



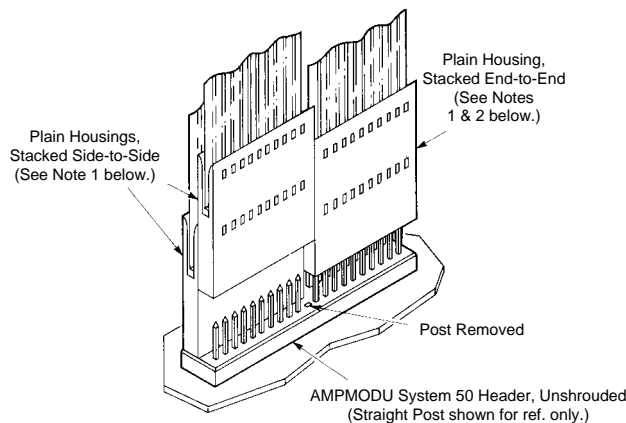
4 Ribbon and Flexible Flat Cable Products

For complete product information, order Catalog 82007

Single Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

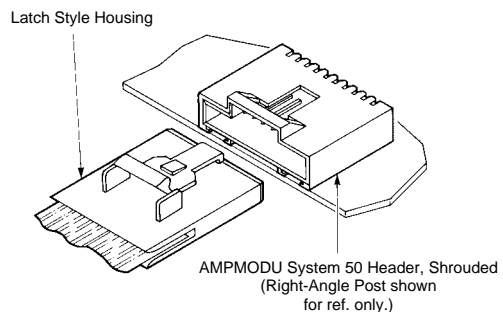
No. of Positions	Dimensions		Part Numbers	
	A	B	Plain Receptacle Housing	Latch Style Receptacle Housing
4	.150 3.18	.244 6.20	487544-1	487545-1
5	.200 5.08	.294 7.47	487544-2	487545-2
6	.250 6.35	.344 8.74	487544-3	487545-3
7	.300 7.62	.394 10.01	487544-4	487545-4
8	.350 8.89	.444 11.28	487544-5	487545-5
10	.450 11.43	.544 13.82	487544-7	487545-7
12	.550 13.97	.644 16.36	487544-9	487545-9
13	.600 15.24	.694 17.63	—	1-487545-0
15	.700 17.78	.794 20.17	1-487544-2	1-487545-2
16	.750 19.05	.844 21.43	1-487544-3	—
17	.800 20.32	.894 22.71	1-487544-4	1-487545-4
20	.950 24.13	1.044 26.52	1-487544-7	1-487545-7
22	1.050 26.67	1.144 29.06	1-487544-9	1-487545-9
25	1.200 30.48	1.294 32.87	2-487544-2	2-487545-2
26	1.250 31.75	1.343 34.11	—	2-487545-3
28	1.350 34.29	1.443 36.65	—	2-487545-5
30	1.450 36.83	1.544 39.22	—	2-487545-7
36	1.750 44.45	1.844 46.84	3-487544-3	3-487545-3
40	1.950 49.53	2.044 51.92	—	3-487545-7
45	2.200 55.88	2.294 58.27	—	4-487545-2
50	2.450 62.23	2.544 64.62	4-487544-7	4-487545-7

Note: Other sizes of receptacle housings (plain and latch style) can be made available, consult Tyco Electronics.



- Notes:**
1. Plain housings are side-to-side stackable on either straight or right-angle posted, unshrouded AMPMODU System 50 headers.
 2. For end-to-end stacking, the posts located between the adjoining housings must be removed to provide housing end clearance.

Typical Cable-to-Board Application of Plain Receptacle Housing



Typical Cable-to-Board Application of Latch Style Receptacle Housing

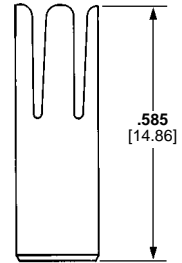
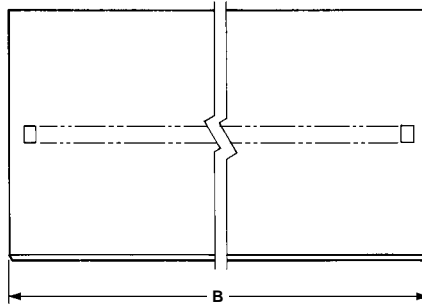
For complete product information, order Catalog 82007

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board

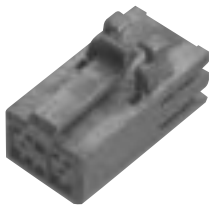


Plain Style Housings

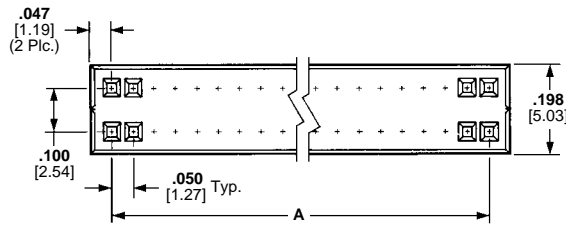
Plain Style Housings



Plain



Latch Style Housings



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Receptacle Contacts—page 4034

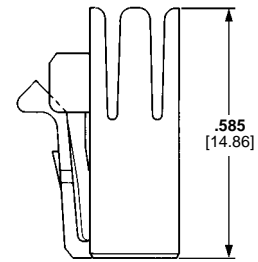
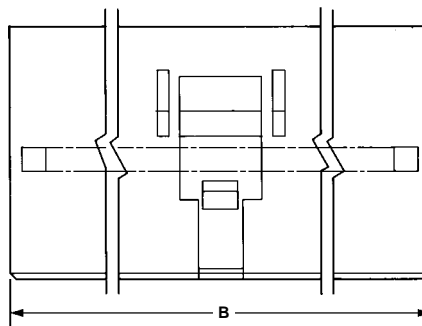
Mateable Headers—Section 2, pages 2031, 2032, 2034 (Double Row) and 2035

Latch Style Housings

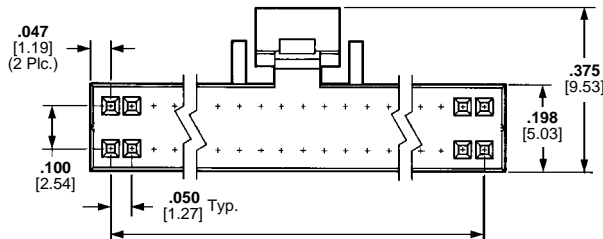
Technical Documents:

Product Specification
108-16022

Application Specification
114-16008



Latch

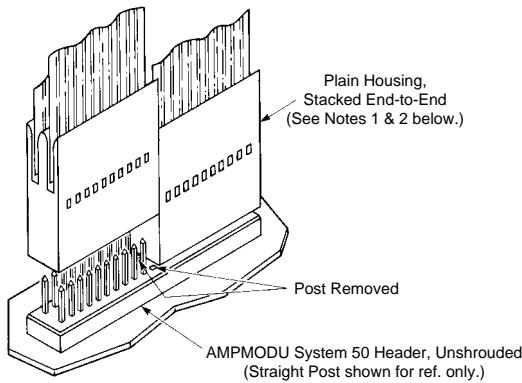


For complete product information, order Catalog 82007

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

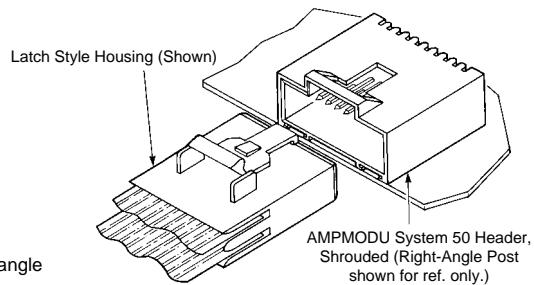
No. of Positions	Dimensions		Part Numbers	
	A	B	Plain Housing	Latch Style Housing
8	.150 3.81	.247 6.27	487938-8	487937-8
10	.200 5.08	.297 7.54	1-487938-0	1-487937-0
12	.250 6.35	.374 8.81	1-487938-2	1-487937-2
14	.300 7.62	.397 10.08	1-487938-4	1-487937-4
16	.350 .889	.447 11.35	1-487938-6	1-487937-6
20	.450 11.43	.547 13.89	2-487938-0	2-487937-0
24	.550 13.97	.647 16.43	2-487938-4	2-487937-4
26	.600 15.24	.697 17.7	2-487938-6	2-487937-6
30	.700 17.78	.797 20.24	3-487938-0	3-487937-0
34	.800 20.32	.897 22.78	3-487938-4	3-487937-4
40	.950 24.13	1.047 26.59	4-487938-0	4-487937-0
44	1.050 26.67	1.147 29.13	4-487938-4	4-487937-4
50	1.200 30.48	1.297 39.94	5-487938-0	5-487937-0
60	1.450 36.83	1.547 39.29	6-487938-0	6-487937-0
72	1.750 44.45	1.847 46.91	7-487938-2	7-487937-2
80	1.950 49.53	2.047 51.99	8-487938-0	8-487937-0
100	2.450 62.23	2.547 64.69	487938-1	487937-1

Note: Other sizes of receptacle housings, up to 120 positions, can be made available, consult Tyco Electronics.



- Notes:**
1. Plain housings are end-to-end stackable on either straight or right-angle posted, unshrouded AMPMODU System 50 headers.
 2. For end-to-end stacking, the two posts located between the adjoining housings must be removed to provide housing end clearance.

Typical Cable-to-Board Application of Plain Receptacle Housing



Typical Cable-to-Board Application of Latch Style Receptacle Housing

For complete product information, order Catalog 82007

.100 [2.54] Centerline Flexible Flat Conductor Contacts, Continuous Strip (for Sequential Termination)

Material and Finish:

Phosphor bronze; plated gold duplex or bright tin-lead overall (See chart below.)

Cable Thickness—.015 [0.38] max. (Other cable thicknesses available, consult Tyco Electronics.)

Conductor Width—.047 [1.19] min.

Related Product Data:

Unloaded Housings for:

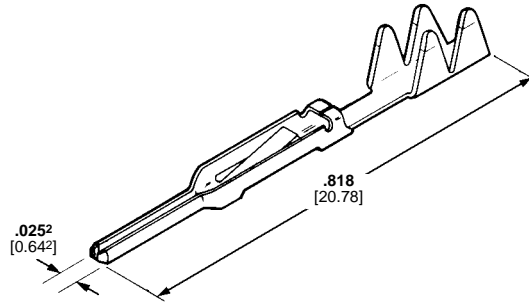
Pin Contacts—pages 4043, 4055 & 4046

Receptacle Contacts—pages 4041, 4044-4049

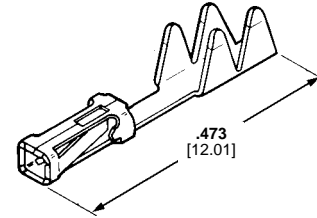
Application Tooling—page 4059

Technical Documents:

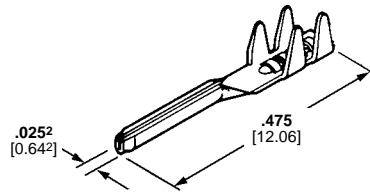
CSA LR 7189-140



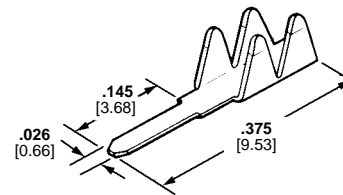
Pin Contact
(for use in housings)



Receptacle Contact
(accepts .0252 [0.642] pins)



Pin Contact
(for use without housings)



Solder Tab

Contacts for Flexible Flat Conductor Cable						Application Tooling	
Type	Configuration	Part Numbers				Machine	With Programmer
		Duplex ¹	Duplex ²	Tin-Lead ³	Duplex ⁴		
Pin (for use in housings)	Strip	88117-3	88117-4	88117-5	88117-2		
Receptacle (standard pressure)	Strip	487406-1	487406-2	487406-4	487406-3		
Receptacle (high pressure)*	Strip	487117-4	487117-5	487117-8	—	224910-1	318619-1
Solder Tab**	Strip	—	88997-5	88997-2	—		
Pin (for use without housing)	Strip	88976-3	—	88976-2	—		

*High pressure receptacle contacts are recommended for a maximum connector size of 15 positions.

**Recommended hole size for solder tabs is .031-.035 [0.79-0.89] diameter.

¹ Duplex plated .000015 [0.00038] gold on mating area, .000100 [0.00254] min. bright tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

² Duplex plated .000030 [0.00076] gold on mating area, .000100 [0.00254] min. bright tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

³ Plated .000100 [0.00254] min. bright tin-lead over .000050 [0.00127] min. nickel on entire contact.

⁴ Duplex plated .000050 [0.00127] gold on mating area, .000100 [0.00254] min. bright tin-lead in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

Note: Round wire contacts—Page 4040

For complete product information, order Catalog 82007

.100 [2.54] Centerline Round Wire Contacts, Continuous Strip and Loose Piece

Material and Finish:

Phosphor bronze; selectively gold plated, or plated bright tin-lead on entire contact (See chart below.)

Related Product Data:

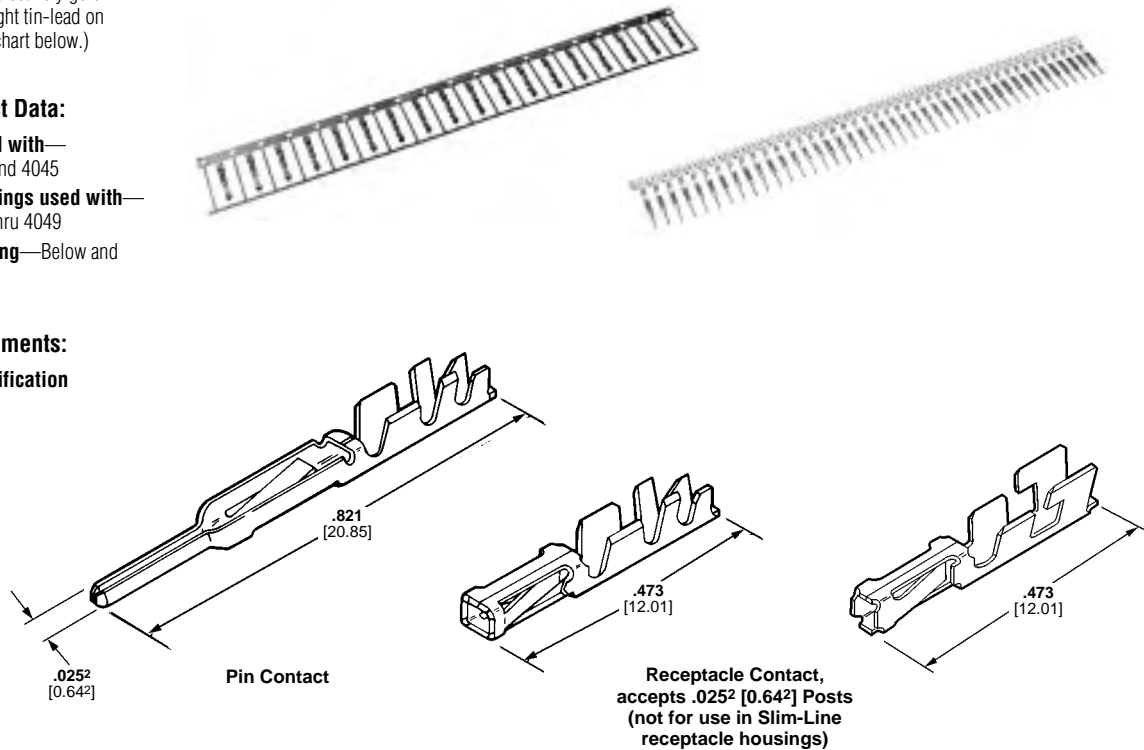
Pin Housing used with—
pages 4042, 4044 and 4045

Receptacle Housings used with—
pages 4043, 4046 thru 4049

Application Tooling—Below and page 4059

Technical Documents:

Application Specification
114-16003



Contact Type	Wire Size Range AWG	Ins. Dia. mm ²	Contact Finish	Strip Form Contact	Application Tooling Applicator Numbers for			Part Numbers			
					AMP-O-ELECTRIC ⁴ Machine No. 565435-5	AMPOMATOR CLS II ⁵ Machine No. 815800-1	AMP-O-MATIC* Machine No. 463345-1	Loose Piece Contact	Hand Tool	Instruction Sheet (IS)	
Pin	32-26	0.03-0.15	.025-.048 0.64-1.22	Sel. Gold ¹	88048-4	466242-1	—	466933-1	—	—	—
				Sel. Gold ²	88048-8	466242-1	—	466933-1	—	—	—
				Tin-Lead	88048-2	466242-1	—	466933-1	—	—	—
	26-22	0.12-0.4	.040-.056 1.02-1.42	Sel. Gold ¹	86557-6	466572-2	466572-1	466909-1	86561-6	90222-6	—
				Sel. Gold ²	86557-4	466572-2	466572-1	466909-1	86561-4	90222-6	7974
				Tin-Lead ³	1-86557-4	466572-2	466572-1	466909-1	86561-9	90222-6	—
24-22		.040-.056 1.02-1.42	Sel. Gold ¹	86656-2	687620-2	—	—	86658-2	90378-1	7953	
24-22		.040-.056 1.02-1.42	Sel. Gold ⁶	494033-2	567308-2	567308-1	—	494034-1	90378-1	—	
Receptacle	32-26	0.03-0.15	.025-.048 0.64-1.22	Sel. Gold ⁶	88017-2	466242-1	—	466933-1	88017-6	90313-2	7973
				Sel. Gold ¹	86566-2	466572-2	466572-1	466909-1	86571-2	90222-6	—
	26-22	0.12-0.4	.040-.056 1.02-1.42	Sel. Gold ²	86566-4	466572-2	466572-1	466909-1	86571-4	90222-6	7974
				Tin-Lead ³	86566-8	466572-2	466572-1	466909-1	86571-8	90222-6	—
24-22		.040-.056 1.02-1.42	Sel. Gold ¹	86655-2	567308-2	567308-1	—	86657-2	90378-1	7953	

*Side Feed Stripper/Crimper Machine Model II.

¹ Selectively plated .000015 [0.00038] gold on mating area, gold flash on remainder of contact, with entire contact underplated .00050 [0.00127] min. nickel.

² Selectively plated .000030 [0.00076] gold on mating area, gold flash on remainder of contact, with entire contact underplated .00050 [0.00127] min. nickel.

³ Plated .000100 [0.00254] min. bright tin-lead over .00050 [0.00127] min. nickel on entire contact.

⁴ Crimp Control Monitor **Part Number** 567561-2.

⁵ Crimp Control Monitor **Part Number** 567561-1.

⁶ .000015 [0.00038] min. gold on mating area, .000100 [0.00254] min. tin-lead on crimping area, over .000050 [0.00127] min. nickel underplate on entire contact.

Note: Use Extraction Tool Number **91092-1** for end locking lance slot and Extraction Tool Number **91093-1** for side locking lance slot.

1. Flexible film contacts – page 4039

For complete product information, order Catalog 82007

.100 [2.54] Centerline Single Row Slim-Line Receptacle Housings

Material:

Black thermoplastic, flame retardant, 94V-0 rated



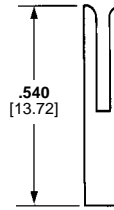
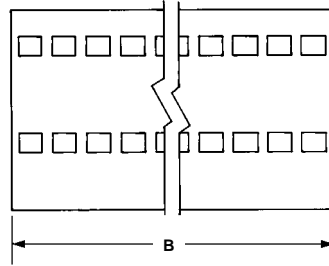
Plain Style Housing



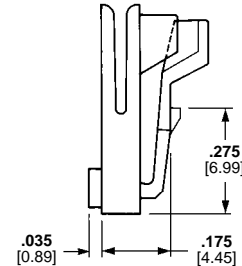
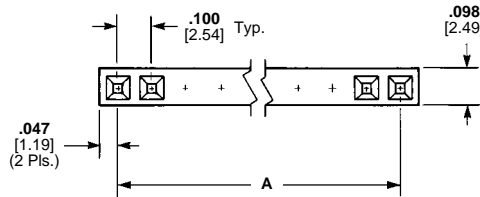
Latch Style Housing



Housing with Detent

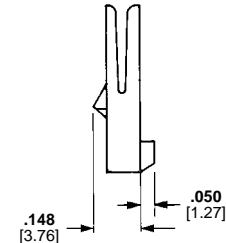


Plain



Latch

Note: Above dimensions are typical for all three styles shown on this page.



Detent

Related Product Data:

Receptacle Contacts—Strip, page 4039

Mateable Headers—Section 2, pages 2054, 2055, 2058, 2071, 2072, 2140-2142

Accessories (Keying Plug*)—page 4052

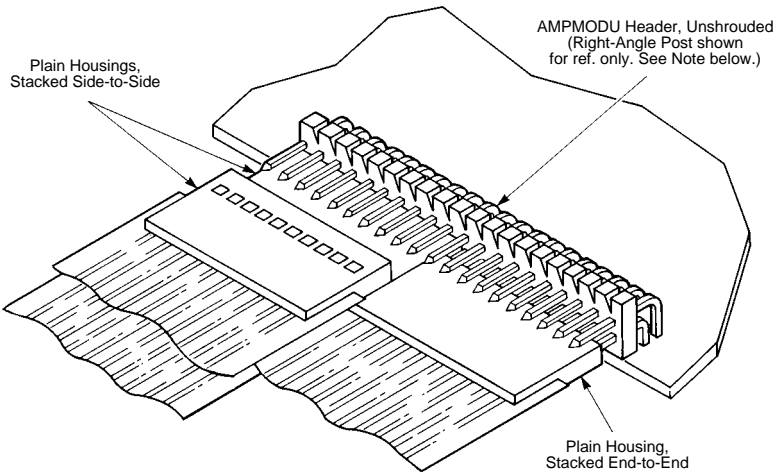
Application Tooling—page 4059

Technical Documents:

Product Specification
108-9024

Application Specification
114-16015

*Slim-line receptacle housings also can be supplied with filled cavities in the desired keying positions. Consult Tyco Electronics.



Note: Plain housings are side-to-side and end-to-end stackable on either straight or right-angle posted, unshrouded AMPMODU headers. Latch and detent styles are end-to-end stackable only.

Typical Cable-to-Board Application of Plain Receptacle Housing

For complete product information, order Catalog 82007

.100 [2.54] Centerline Single Row Slim-Line Receptacle Housings

No. of Positions	Dimensions		Receptacle Part Numbers			Extraction Tool
	A	B	Plain	Latch	Detent	
2	.100 2.54	.194 4.93	487378-1	487526-1	—	—
3	.200 5.08	.294 7.47	487378-2	487526-2	487769-1	—
4	.300 7.62	.394 10.01	487378-3	487526-3	487769-2	2-91200-4
5	.400 10.16	.494 12.55	487378-4	487526-4	487769-3	1-91200-9
6	.500 12.7	.594 15.09	487378-5	487526-5	487769-4	—
7	.600 15.24	.694 17.63	487378-6	487526-6	487769-5	91200-0
8	.700 17.78	.794 20.17	487378-7	487526-7	487769-6	2-91200-5
9	.800 20.32	.894 22.71	487378-8	487526-8	487769-7	—
10	.900 22.86	.994 25.25	487378-9	487526-9	487769-8	91200-5
11	1.000 25.4	1.094 27.79	1-487378-0	1-487526-0	487769-9	—
12	1.100 27.94	1.194 30.33	1-487378-1	1-487526-1	1-487769-0	—
13	1.200 30.48	1.294 32.87	1-487378-2	1-487526-2	1-487769-1	—
14	1.300 33.02	1.394 35.41	1-487378-3	1-487526-3	1-487769-2	—
15	1.400 35.56	1.494 37.95	1-487378-4	1-487526-4	1-487769-3	2-91200-3
16	1.500 38.1	1.594 40.49	1-487378-5	1-487526-5	1-487769-4	—
17	1.600 40.64	1.694 43.03	1-487378-6	1-487526-6	—	—
18	1.700 43.18	1.794 45.57	1-487378-7	1-487526-7	—	—
19	1.800 45.72	1.894 48.11	1-487378-8	1-487526-8	1-487769-7	91200-2
20	1.900 48.26	1.994 50.65	1-487378-9	1-487526-9	1-487769-8	—
21	2.000 50.8	2.094 53.19	2-487378-0	2-487526-0	—	—
22	2.100 53.34	2.194 55.73	2-487378-1	2-487526-1	2-487769-0	—
23	2.200 55.88	2.294 58.27	2-487378-2	2-487526-2	—	—
24	2.300 58.42	2.394 60.88	2-487378-3	2-487526-3	2-487769-2	—
25	2.400 60.96	2.494 63.35	2-487378-4	2-487526-4	—	2-91200-0
34	3.300 83.82	3.394 86.21	2-487378-5	—	—	—

Note: Other sizes of receptacle housings can be made available, consult Tyco Electronics.

For complete product information, order Catalog 82007

.100 [2.54] Centerline Single Row Pin Housings

Polarized Housings with Detent Window



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Pin Contacts:

Strip—page 4039

Round Wire—page 4040

Mateable Receptacle Housings—page 4044

Application Tooling—page 4059

Technical Documents:

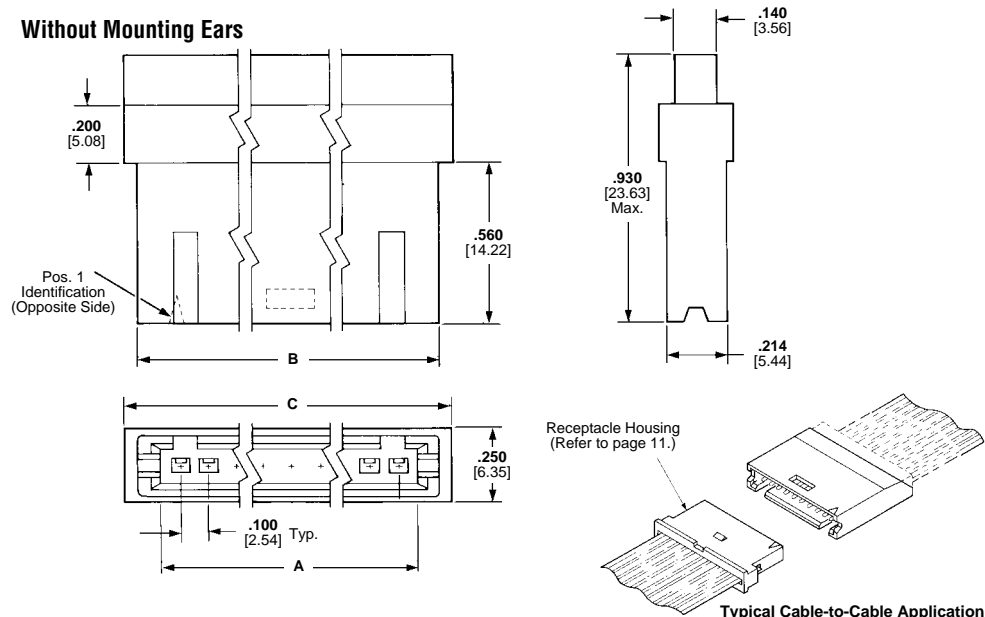
Product Specification

108-9024

Application Specification

114-16015

Without Mounting Ears



No. of Positions	Dimensions			Part Numbers	
	A	B	C	Pin Housing	Extraction Tool
3	.340 8.64	.460 11.68	.550 13.97	494032-2	1-91047-9
4	.440 11.18	.560 14.22	.650 16.51	485893-2	—
5	.540 13.71	.660 16.76	.750 19.05	485893-3	1-91047-8
6	.640 16.26	.760 19.3	.850 21.59	485893-4	—
7	.740 18.80	.860 21.84	.950 24.13	485893-5	—
8	.840 21.34	.960 24.38	1.050 26.67	485893-6	2-91047-6
9	.940 23.88	1.060 26.92	1.150 29.21	485893-7	91047-1
10	1.040 26.42	1.160 29.46	1.250 31.75	485893-8	1-91047-0
11	1.140 28.96	1.260 32	1.350 34.29	485893-9	—
12	1.240 31.50	1.360 34.54	1.450 36.83	1-485893-0	1-91047-4
13	1.340 34.04	1.460 37.08	1.550 39.37	1-485893-1	—
14	1.440 36.58	1.560 39.62	1.650 41.91	1-485893-2	1-91047-5
15	1.540 39.12	1.660 42.16	1.750 44.45	1-485893-3	1-91047-6
16	1.640 41.66	1.760 44.7	1.850 46.99	1-485893-4	—
18	1.840 46.74	1.960 49.78	2.050 52.07	1-485893-6	—
20	2.040 51.82	2.160 54.86	2.250 57.15	1-485893-8	91047-5
25	2.540 64.52	2.660 67.56	2.750 69.85	2-485893-3	—

Notes: 1. Other sizes of pin housings can be made available, consult Tyco Electronics.
2. Use Extraction Tool Number 91092-1 for round wire contacts.

For complete product information, order Catalog 82007

.100 [2.54] Centerline Single Row Receptacle Housings

Polarized Housings with Detent



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Receptacle Contacts:

Strip—page 4039

Round Wire—page 4040

Mateable Pin Housings—page 4043

Accessories:

Keying Plugs—page 4052

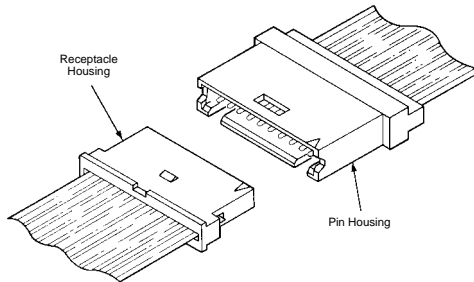
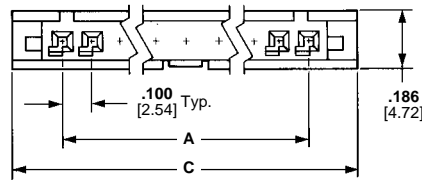
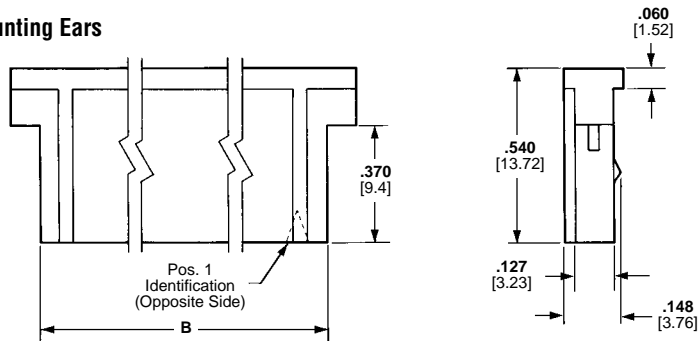
Application Tooling—page 4059

Technical Documents:

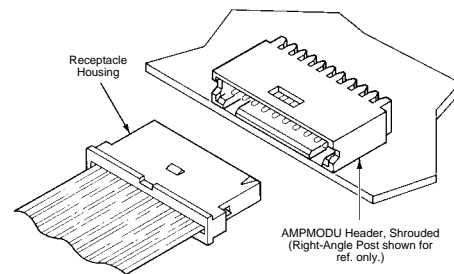
Product Specification
108-9024

Application Specification
114-16015

Without Mounting Ears



Typical Cable-to-Cable Application



Typical Cable-to-Board Application

No. of Positions	Dimensions						Part Numbers	
	A		B		C		Receptacle Housing	Extraction Tool
	Inch	mm	Inch	mm	Inch	mm		
3	.200	5.08	.320	8.13	.490	12.45	88859-9	1-91047-9
4	.300	7.62	.420	10.67	.590	14.00	1-88859-0	—
5	.400	10.16	.520	13.21	.690	17.58	1-88859-1	1-91047-8
6	.500	12.7	.620	15.75	.790	20.07	88859-1	—
7	.600	15.24	.720	18.29	.890	22.61	1-88859-2	—
8	.700	17.78	.820	20.83	.990	25.15	88859-2	2-91047-6
9	.800	20.32	.920	23.37	1.090	27.69	1-88859-3	91047-1
10	.900	22.86	1.020	25.91	1.190	30.23	88859-3	1-91047-0
11	1.000	25.4	1.120	28.45	1.290	32.77	1-88859-4	—
12	1.100	27.94	1.220	30.99	1.390	35.31	88859-4	1-91047-4
13	1.200	30.48	1.320	33.53	1.490	37.85	88859-5	—
14	1.300	33.02	1.420	36.07	1.590	40.39	88859-7	1-91047-5
15	1.400	35.56	1.520	38.61	1.690	42.93	88859-6	1-91047-6
16	1.500	38.1	1.620	41.15	1.790	45.47	1-88859-5	—
18	1.700	43.18	1.820	46.23	1.990	50.55	1-88859-7	—
19	1.800	45.72	1.920	48.77	2.090	53.09	1-88859-8	91047-2
20	1.900	48.26	2.020	51.31	2.190	55.63	88859-8	91047-5
22	2.100	53.34	2.220	56.39	2.390	60.71	2-88859-0	—
25	2.400	60.96	2.520	64.01	2.690	68.33	2-88859-3	—
26	2.500	63.5	2.620	66.55	2.790	70.87	2-88859-4	—
29	2.800	71.12	2.920	74.17	3.090	78.49	2-88859-7	91047-3
30	2.900	73.66	3.020	76.71	3.190	81.03	2-88859-8	—
32	3.100	78.74	3.220	81.79	3.390	86.11	3-88859-0	—
35	3.400	86.36	3.520	89.41	3.690	93.73	3-88859-3	1-91047-2

- Notes: 1. Use Extraction Tool No. 91092-1 for round wire contacts.
2. Receptacles mate with headers on page 4043.

For complete product information, order Catalog 82007

.100 [2.54] Centerline Double Row Pin Housings

Polarized Housings with Detent Windows, Shrouded 4 Sides



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Pin Contacts:

Strip—page 4039

Round Wire—page 4040

Mateable Receptacle:

Housings—pages 4047 thru 4049

Accessories—

Jackscrews—pages 4053, 4054

Application Tooling—

page 4059

Technical Documents:

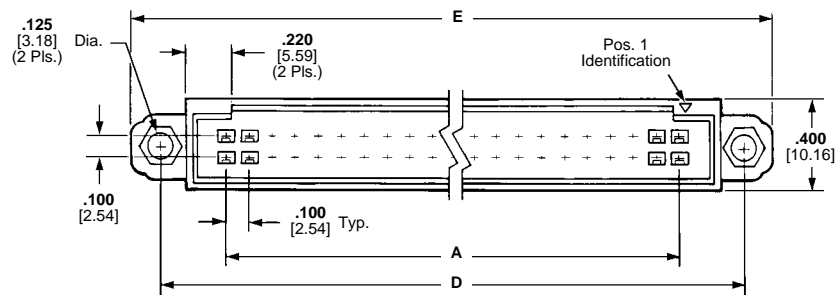
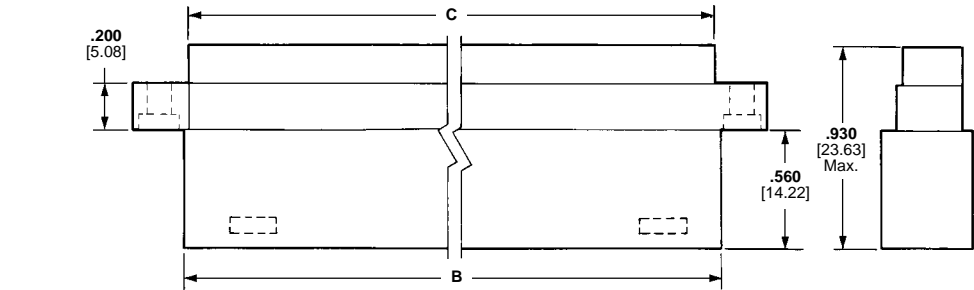
Product Specification

108-9024

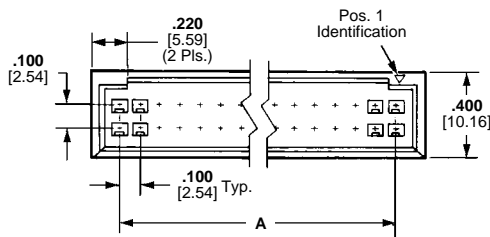
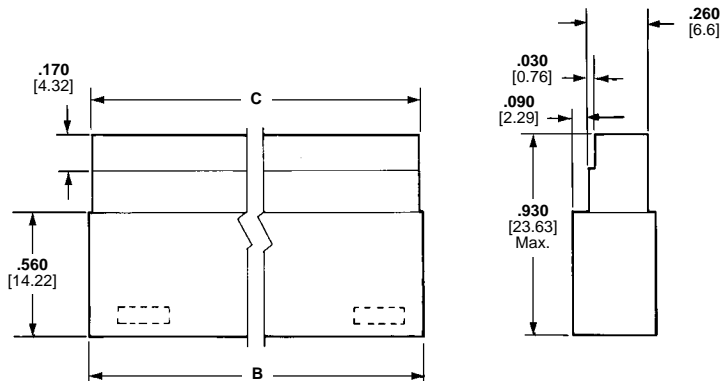
Application Specification

114-16015

With Mounting Ears



Without Mounting Ears

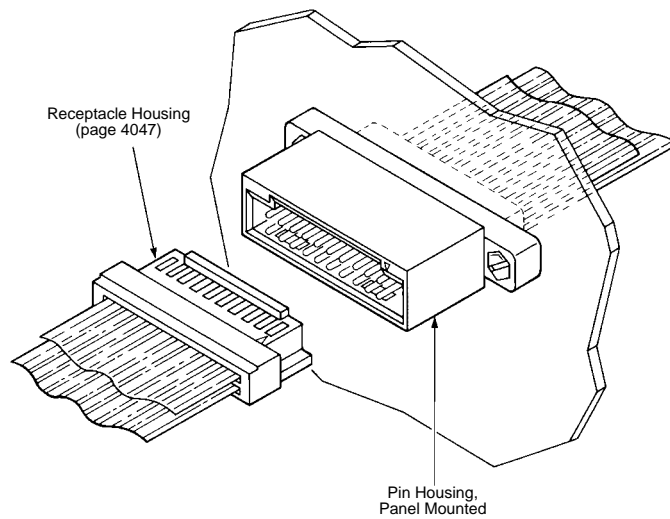


For complete product information, order Catalog 82007

.100 [2.54] Centerline Double Row Pin Housings

No. of Positions	Dimensions					Pin Housing Part Numbers		Extraction Tool
	A	B	C	D	E	With Mounting Ears	Without Mounting Ears	
6	.200 5.08	.580 14.73	.550 13.97	.810 20.57	1.060 26.92	3-88190-2	3-88189-2	1-91047-9
10	.400 10.16	.780 19.81	.750 19.05	1.010 25.65	1.260 32	3-88190-0	3-88189-0	1-91047-8
12	.500 12.7	.880 22.35	.850 21.59	—	—	—	3-88189-4	—
16	.700 17.78	1.080 27.43	1.050 26.67	1.310 33.27	1.560 39.62	3-88190-4	—	2-91047-6
18	.800 20.32	1.180 29.97	1.150 29.21	1.410 35.81	1.660 42.16	88190-6	88189-4	91047-1
20	.900 22.86	1.280 32.51	1.250 31.75	1.510 38.35	1.760 44.7	88190-8	88189-6	1-91047-0
24	1.100 27.94	1.480 37.59	1.450 36.83	1.710 43.43	1.960 49.78	1-88190-0	88189-8	1-91047-4
26	1.200 30.48	1.580 40.13	1.550 39.37	1.810 45.97	2.060 52.32	1-88190-2	1-88189-0	—
28	1.300 33.02	1.680 42.67	1.650 41.91	1.910 48.51	2.160 54.86	1-88190-4	—	1-91047-5
34	1.600 40.64	1.980 50.29	1.950 49.53	—	—	3-88190-8	3-88189-6	—
38	1.800 45.72	2.180 55.37	2.150 54.61	2.410 61.21	2.660 67.56	88190-2	88189-2	91047-2
40	1.900 48.26	2.280 57.91	2.250 57.15	2.510 63.75	2.760 70.1	1-88190-8	—	91047-5
50	2.400 60.96	2.780 70.61	2.750 69.85	3.010 76.45	3.260 82.8	88190-4	2-88189-0	—
66	3.200 81.28	3.580 90.93	3.550 90.17	3.810 96.77	4.060 103.12	2-88190-6	—	—
70	3.400 86.36	3.780 96.01	3.750 95.25	4.010 101.85	4.260 108.2	—	—	1-91047-2

- Notes:**
1. All housings listed above have no markings, except for AMP and Pos. 1 Identification, which are molded into the housing. Housings with special markings can be made available, consult Tyco Electronics.
 2. Housing sizes smaller than 20-position have only one detent window.
 3. Use Extraction Tool Number **91092-1** for round wire contacts.



Typical Cable-to-Cable Application

For complete product information, order Catalog 82007

.100 [2.54] Centerline Double Row Receptacle Housings

Polarized Housings with Detents



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Receptacle Contacts:

Strip—page 4039

Round Wire—page 4040

Mateable Pin Housings—
pages 4045, 4046

Mateable Headers—Section 2, page 2074

Accessories:

Jackscrews—pages 4053, 4054

Keying Plugs—page 4052

Application Tooling—

page 4059

Technical Documents:

Product Specification

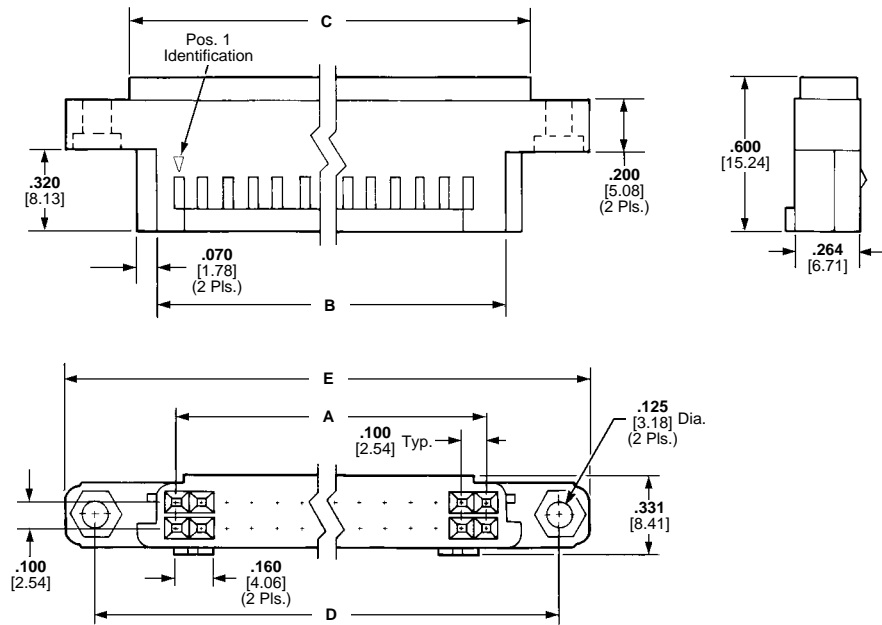
108-9024

Application Specification

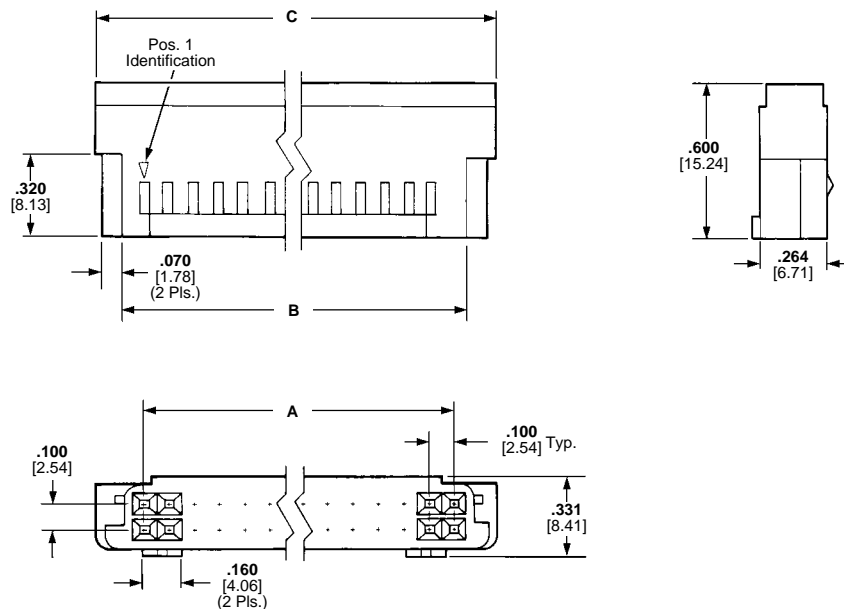
114-16015



With Mounting Ears



Without Mounting Ears

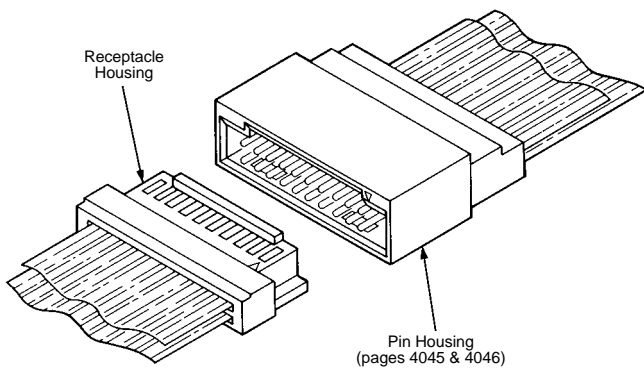


For complete product information, order Catalog 82007

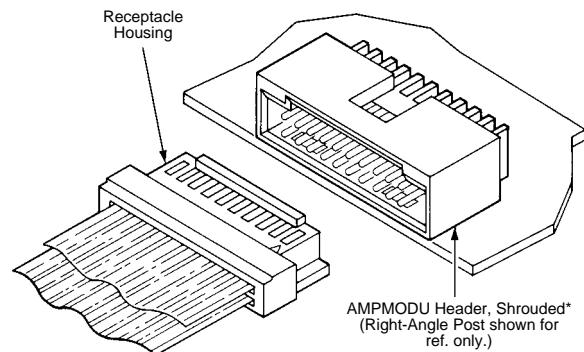
.100 [2.54] Centerline Double Row Receptacle Housings

No. of Positions	Dimensions					Receptacle Housing Part Numbers		Extraction Tool
	A	B	C	D	E	With Mounting Ears Dimensions A-E	Without Mounting Ears Dimensions A, B, C Only	
6	.200 5.08	.340 8.64	.550 13.97	.810 20.57	1.060 26.92	—	3-88179-2	—
8	.300 7.62	.440 11.18	.650 16.51	—	—	—	4-88179-0	2-91200-4
10	.400 10.16	.540 13.72	.750 19.05	1.010 25.65	1.260 32	88637-7	3-88179-0	1-91200-9
12	.500 12.7	.640 16.26	.850 21.59	1.110 28.19	1.360 34.54	—	3-88179-4	—
16	.700 17.78	.840 21.34	1.050 26.67	1.310 33.27	1.560 39.62	88637-3	—	—
18	.800 20.32	.940 23.88	1.150 29.21	1.410 35.81	1.660 42.16	88637-9	1-88179-0	—
20	.900 22.86	1.040 26.42	1.250 31.75	1.510 38.35	1.760 44.7	1-88637-1	88179-5	91200-5
24	1.100 27.94	1.240 31.5	1.450 36.83	1.710 43.43	1.960 49.78	1-88637-3	1-88179-4	—
26	1.200 30.48	1.340 34.04	1.550 39.37	1.810 45.97	2.060 52.32	1-88637-5	1-88179-6	—
28	1.300 33.02	1.440 36.58	1.650 41.91	1.910 48.51	2.160 54.86	1-88637-7	1-88179-8	—
34	1.600 40.64	1.740 44.2	1.950 49.53	2.210 56.13	2.460 62.48	—	3-88179-6	—
36	1.700 43.18	1.840 46.74	2.050 52.07	—	—	—	2-88179-0	—
38	1.800 45.72	1.940 49.28	2.150 54.61	2.410 61.21	2.660 67.56	2-88637-1	88179-6	91200-2
40	1.900 48.26	2.040 51.82	2.250 57.15	2.510 63.75	2.760 70.1	2-88637-3	2-88179-2	—
44	2.100 53.34	2.240 56.9	2.450 62.23	2.710 68.83	2.960 75.18	2-88637-5	2-88179-4	—
50	2.400 60.96	2.540 64.52	2.750 69.85	3.010 76.45	3.260 82.8	2-88637-7	1-88179-2	2-91200-0
58	2.800 71.12	2.940 74.68	3.150 80.01	3.410 86.61	3.660 92.96	2-88637-9	2-88179-6	91200-3
60	2.900 73.66	3.040 77.22	3.250 82.55	3.510 89.15	3.760 95.5	3-88637-1	—	—
66	3.200 81.28	3.340 84.84	3.550 90.17	3.810 96.77	4.060 103.12	3-88637-3	88179-8	91200-4
70	3.400 86.36	3.540 89.92	3.750 95.25	4.010 101.85	4.260 108.2	3-88637-5	—	—

- Notes:**
1. All housings listed above have no markings, except for AMP and Pos. 1 Identification, which are molded into the housing. Housings with special markings can be made available, consult Tyco Electronics.
 2. Housing sizes smaller than 20-position have only one detent.
 3. Use Extraction Tool Number **91093-1** for round wire contacts.



Typical Cable-to-Cable Application



*Mating AMPMODU shrouded headers have a .150 [3.81] end dimension (from inside shroud wall to centerline of first post).

Typical Cable-to-Board Application

For complete product information, order Catalog 82007

.100 [2.54] Centerline Double Row Receptacle Housings

With Center Polarization



Material:

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data:

Receptacle Contacts used with:
Strip—page 4039

Mateable Pin Headers—Section 2,
page 2074

Accessories:

Keying Plugs—page 4052

Application Tooling—page 4059

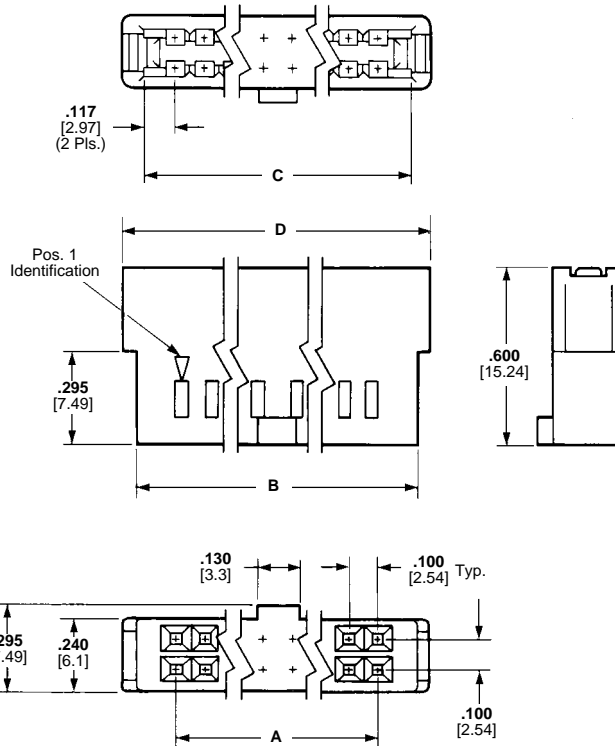
Technical Documents:

Product Specification

108-9024

Application Specification

114-16015



No. of Positions	Dimensions				Part Numbers	
	A	B	C	D	Receptacle Housing	Extraction Tool
10	.400 10.16	.680 17.27	.634 16.1	.750 19.05	487223-1	1-91200-9
14	.600 15.24	.880 22.35	.834 21.18	.950 24.13	487223-2	—
16	.700 17.78	.980 24.89	.934 23.72	1.050 26.67	487223-3	—
20	.900 22.86	1.180 29.97	1.134 28.8	1.250 31.75	487223-5	91200-5
24	1.100 27.94	1.380 35.05	1.334 33.88	1.450 36.83	487223-6	—
26	1.200 30.48	1.480 37.59	1.434 36.42	1.550 39.37	487223-7	—
30	1.400 35.56	1.680 42.67	1.634 41.5	1.750 44.45	487223-8	—
34	1.600 40.64	1.880 47.75	1.834 46.58	1.950 49.53	487223-9	—
40	1.900 48.26	2.180 55.37	2.134 54.2	2.250 57.15	1-487223-0	—
50	2.400 60.96	2.680 68.07	2.634 66.9	2.750 69.85	1-487223-2	2-91200-0
60	2.900 73.66	3.180 80.77	3.134 79.6	3.250 82.55	1-487223-5	—

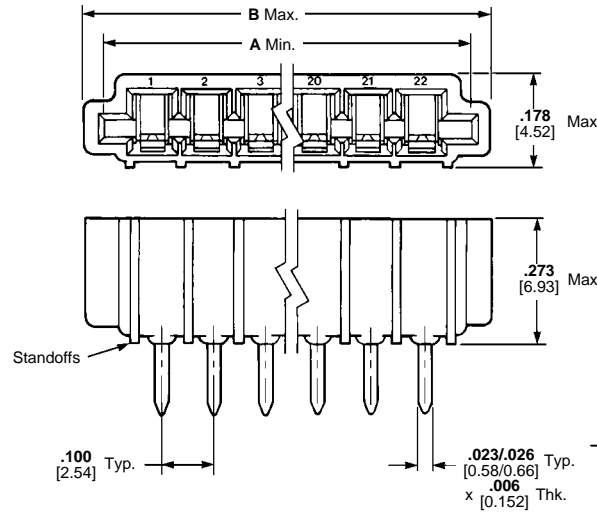
- Notes:**
1. Tin plated contacts are not recommended for use in receptacle housings larger than 40-position.
 2. Other housing sizes can be made available, consult Tyco Electronics.
 3. Use Extraction Tool, **Part Number** 91093-1, for round wire contacts.

For complete product information, order Catalog 82007

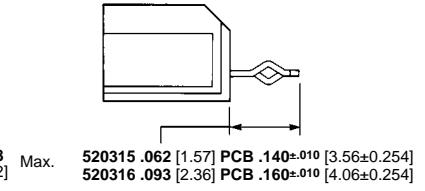
.100 [2.54] Centerline Trio-Mate Connectors



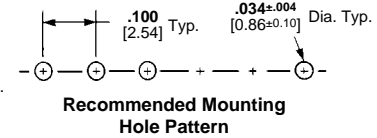
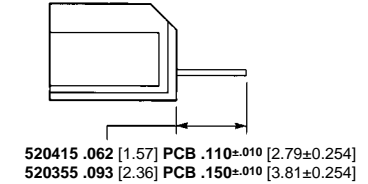
Vertical Cable Entry for .062 [1.57] and .093 [2.36] Thick Pc Boards



Z Bend Leg



Straight Leg



Material and Finish:

Housing—Black thermoplastic, glass reinforced, 94V-0 rated

Contacts—Phosphor bronze, tin plated

Related Product Data:

Cable with tin plated conductors with exposed ends

Technical Documents:

Product Specification

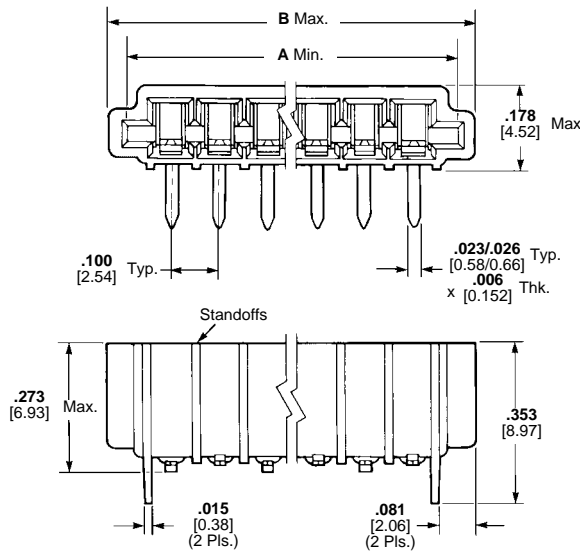
108-2038

Application Specification

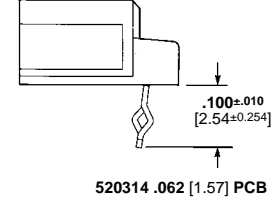
114-2052



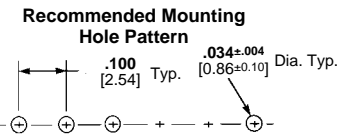
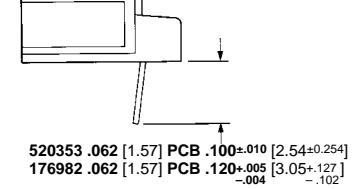
Horizontal Cable Entry for .062 [1.57] Thick Pc Boards



Z Bend Leg

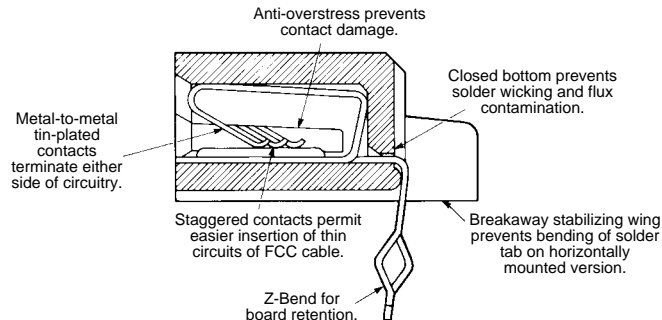


Straight Leg



Product Facts

- Accepts FFC cable, flexible etched circuitry or membrane switch circuitry .005 to .015 [0.13 to 0.38] thick in contact area
- High extraction force
- Reusable 25 times with same cable thickness
- Certified by Canadian Standards Association, File No. LR 53951-10



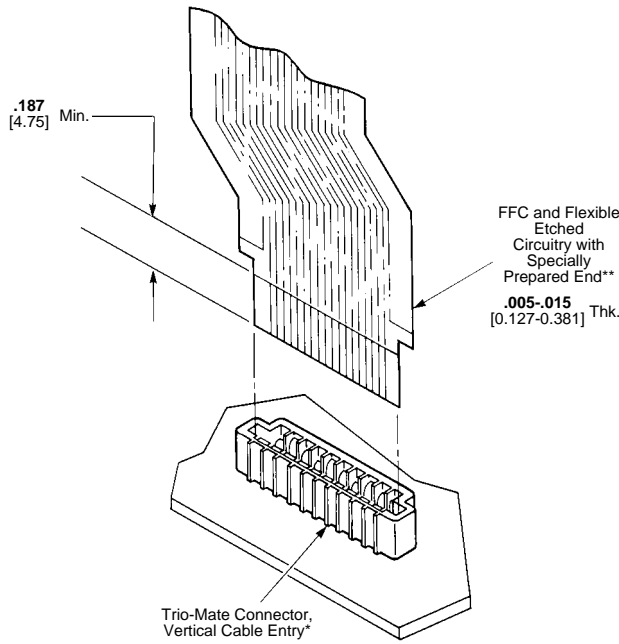
For complete product information, order Catalog 82007

.100 [2.54] Centerline Trio-Mate Connectors

No. of Positions	Dimensions		Part Numbers								
			Vertical Cable Entry				Horizontal Cable Entry				
	A	B	For .062 [1.57] Thk. Pc Board		For .093 [2.36] Thk. Pc Board		For .062 [1.57] Thk. Pc Board				
			Str.	Z Bend	Str.	Z Bend	Str.	Str.	Z Bend		
2	.306	7.77	.383	9.73	520415-2	520315-2	520355-2	520316-2	176982-2	520353-2	520314-2
3	.406	10.31	.483	12.27	520415-3	520315-3	520355-3	520316-3	176982-3	520353-3	520314-3
4	.506	12.85	.583	14.81	520415-4	520315-4	520355-4	520316-4	176982-4	520353-4	520314-4
5	.606	15.39	.683	17.35	520415-5	520315-5	520355-5	520316-5	176982-5	520353-5	520314-5
6	.706	17.93	.783	19.89	520415-6	520315-6	520355-6	520316-6	176982-6	520353-6	520314-6
7	.806	20.47	.883	22.43	520415-7	520315-7	520355-7	520316-7	176982-7	520353-7	520314-7
8	.906	23.01	.983	24.97	520415-8	520315-8	520355-8	520316-8	176982-8	520353-8	520314-8
9	1.006	25.55	1.083	27.51	520415-9	520315-9	520355-9	520316-9	176982-9	520353-9	520314-9
10	1.106	28.09	1.183	30.5	1-520415-0	1-520315-0	1-520355-0	1-520316-0	1-176982-0	1-520353-0	1-520314-0
11	1.206	30.63	1.283	32.59	1-520415-1	1-520315-1	1-520355-1	1-520316-1	1-176982-1	1-520353-1	1-520314-1
12	1.306	33.17	1.383	35.13	1-520415-2	1-520315-2	1-520355-2	1-520316-2	1-176982-2	1-520353-2	1-520314-2
13	1.406	35.71	1.483	37.67	1-520415-3	1-520315-3	1-520355-3	1-520316-3	1-176982-3	1-520353-3	1-520314-3
14	1.506	38.25	1.583	40.21	1-520415-4	1-520315-4	1-520355-4	1-520316-4	1-176982-4	1-520353-4	1-520314-4
15	1.606	40.79	1.683	42.75	1-520415-5	1-520315-5	1-520355-5	1-520316-5	1-176982-5	1-520353-5	1-520314-5
16	1.706	43.33	1.783	45.29	1-520415-6	1-520315-6	1-520355-6	1-520316-6	1-176982-6	1-520353-6	1-520314-6
17	1.806	45.87	1.883	47.83	1-520415-7	1-520315-7	1-520355-7	1-520316-7	1-176982-7	1-520353-7	1-520314-7
18	1.906	48.41	1.983	50.37	1-520415-8	1-520315-8	1-520355-8	1-520316-8	1-176982-8	1-520353-8	1-520314-8
19	2.006	50.95	2.083	52.91	1-520415-9	1-520315-9	1-520355-9	1-520316-9	1-176982-9	1-520353-9	1-520314-9
20	2.106	53.49	2.183	55.45	2-520415-0	2-520315-0	2-520355-0	2-520316-0	2-176982-0	2-520353-0	2-520314-0
21	2.206	56.03	2.283	57.99	2-520415-1	2-520315-1	2-520355-1	2-520316-1	2-176982-1	2-520353-1	2-520314-1
22	2.306	58.57	2.383	60.53	2-520415-2	2-520315-2	2-520355-2	2-520316-2	2-176982-2	2-520353-2	2-520314-2

4

Ribbon and Flexible Flat Cable Products



Electrical Characteristics:

- Dielectric Withstanding Voltage**—1.4 KVAC, one minute hold (AMP Specification No. 109-29-1)
- Insulation Resistance**—5000 megohms (min.), initial (AMP Specification No. 109-28-4)
- Capacitance**—1.0 pf (max.) (AMP Specification No. 109-47, Condition C)
- Current/Voltage**—250 VAC @ 1 ampere max.

Environmental Characteristics:

- Thermal Shock**—25 cycles between -55°C and +105°C for tin; between -55°C and +85°C for conductive ink (AMP Specification No. 109-22)
- Temperature/Humidity Cycling**—10 cycles between +25°C and +65°C at 95% RH (AMP Specification No. 109-23, Method III, Condition B, less Step 7a)
- Industrial Gas**—96 hours of 200 ppb each of nitrogen dioxide, sulfur dioxide and hydrogen sulfide
- Operating Temperature**—-55°C to 105°C for tin plated circuitry -55°C to 85°C for conductive ink

Mechanical Characteristics:

- Vibration**—10-55-10 Hz traversed in one minute at .06 [1.52] total excursion (AMP Specification No. 109-21-1, Condition A)
- Physical Shock**—100 G,s sawtooth in 6 milliseconds (AMP Specification No. 109-26-9, Condition I)

*Vertical cable entry configuration shown for reference only. Termination of either configuration is completed by simply inserting flexible etched circuitry into housing (prepared end on either side).

**Consult Tyco Electronics for additional information.

Note: Special preparation of flexible etched circuitry is required, refer to AMP Application Specification No. 114-2062.

Typical Flexible Etched Circuitry-to-Board Application

For complete product information, order Catalog 82007

Accessories, .100 [2.54] Centerline

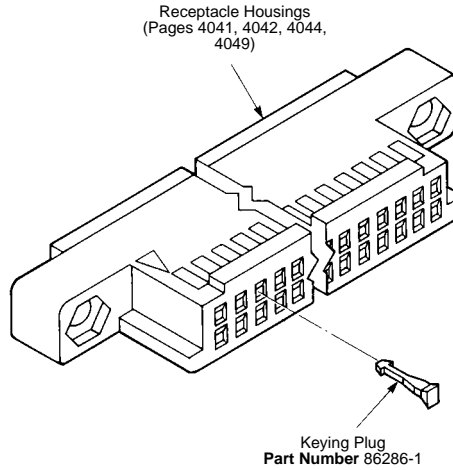
Keying Plugs for Receptacle Housings

Material:

Nylon



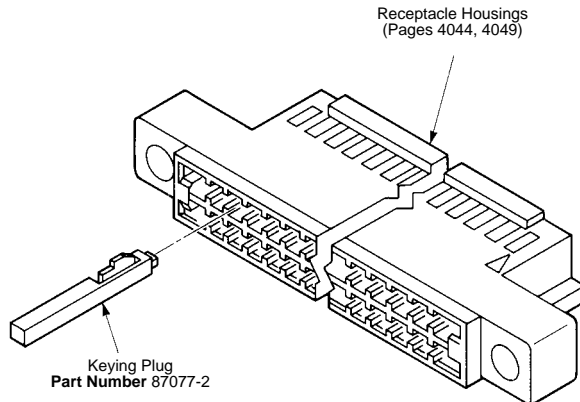
Keying Plug
Part Number 86286-1
 (Used with contact; plugs into contact)



Note: Keying plug, **Part Number 86286-1**, can be used in all .100 [2.54] centerline receptacle housings, except pcb edge connectors.



Keying Plug
Part Number 87077-2
 (Used without contact; plugs directly into back-end of housing)



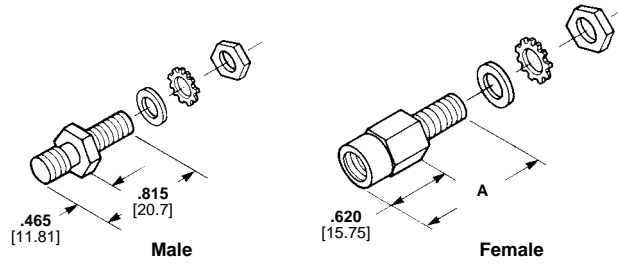
Note: Keying plug, **Part Number 87077-2**, can be used in all .100 [2.54] centerline receptacle housings, except slim-line versions and pcb edge connectors.

For complete product information, order Catalog 82007

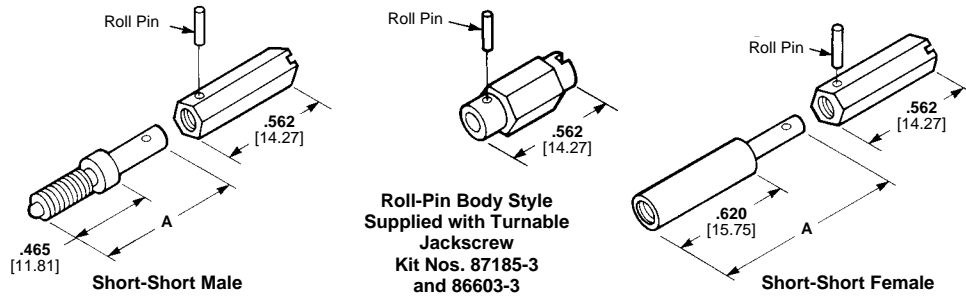
Accessories, .100 [2.54] Centerline

Jackscrews for Cable-to-Cable Applications

Fixed Jackscrews



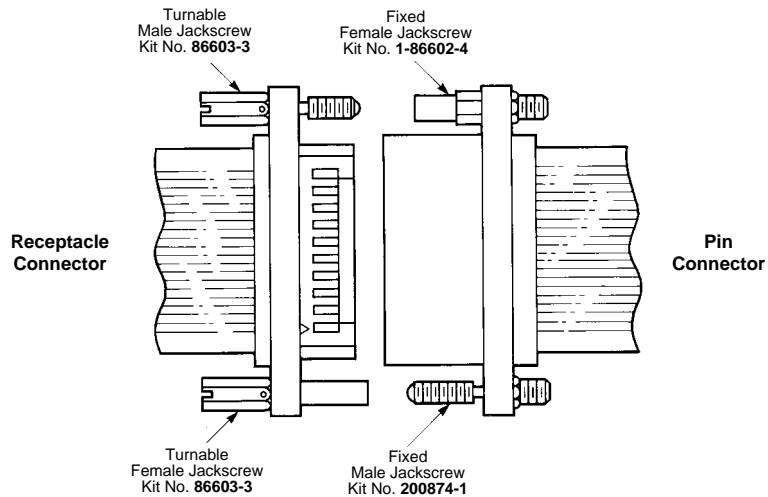
Turnable Jackscrews



Type	Material	Fixed Jackscrew		Turnable Jackscrew	
		Dim. A	Kit	Dim. A	Kit
Male	Stainless Steel	.815 20.7	200874-1	.812 20.62	87185-3
Female	Stainless Steel	1.095 27.81	1-86602-4	.972 24.69	86603-3

- Notes:**
1. These jackscrews can be used with all housings having mounting ears.
 2. Refer to AMP Instruction Sheets No. 408-6557 and 408-7126 for installation instructions.
 3. Other jackscrew kits are available, consult Tyco Electronics.

Typical Cable-to-Cable Application

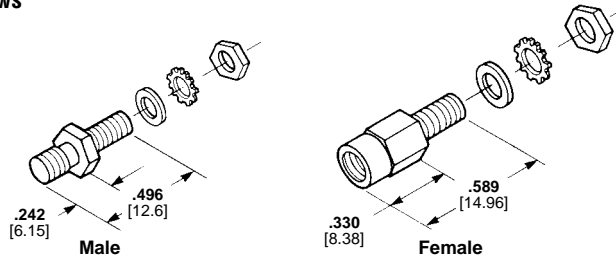


For complete product information, order Catalog 82007

Accessories, .100 [2.54] Centerline

Jackscrews for Cable-to-Board Applications

Fixed Jackscrews



Turnable Jackscrews

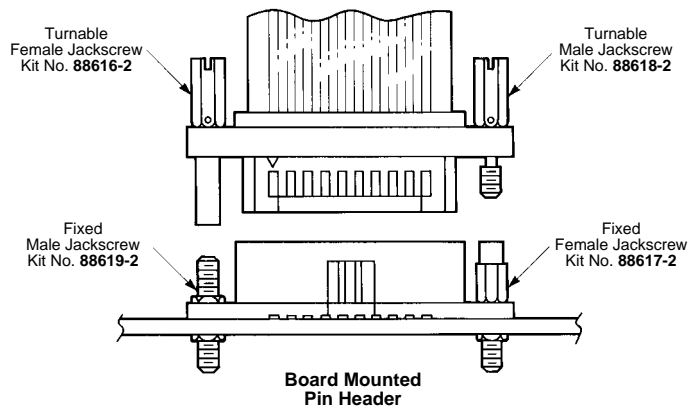


Type	Material	Part Numbers Jackscrew Kit No.
Fixed Male	Stainless Steel	88619-2
Turnable Male	Stainless Steel	88618-2
Fixed Female	Stainless Steel	88617-2
Turnable Female	Stainless Steel	88616-2

- Notes:** 1. Refer to AMP Instruction Sheets No. 408-6557 and 408-7126 for installation instructions.
2. Other jackscrew kits are available, consult Tyco Electronics.

Typical Cable-to-Board Application

Receptacle Connector



For complete product information, order Catalog 82007

1.00 [.039] FPC (Flexible Printed Circuit) Connectors
**Product Facts**

- High-density packaging
- Low-profile design
- Available in 4 thru 30 positions
- Choice of top or bottom contact styles
- Surface mount application
- Zero insertion force
- Durability—30 cycles
- Convenient embossed tape packaging

Technical Documents:**Product Specifications:**

108-5369—0.5 [.020] FPC Connector
 108-1393—1.0 [.039] FPC Connector

As the demands for higher-density packaging of electronic equipment increases, the use of flexible printed circuits (FPC) to reduce size, weight and assembly costs has expanded. FPC is finding wide acceptance in the computer industry, particularly in such applications as Lap Top, Notebook, Palm Top and Note Pad Computers. Other markets include: Disk Drives, Printers, Plotters, Copiers, Cellular Phones, and Medical Equipment.

AMP FPC connectors have been developed to meet the challenges of this expanding market. Available in 1.0 [.039] centerline spacing, they incorporate all the most wanted features: low profile, light-weight, AMP quality and economy, plus convenient embossed tape packaging.

FPC Connectors are available in 4 through 30 positions. A choice of top or bottom contact styles is provided. Contacts are phosphor bronze, tin-lead plated on the mating and solder tail end, and are highly durable.

For complete product information, order Catalog 82007



1.0 [.039] FPC Connectors

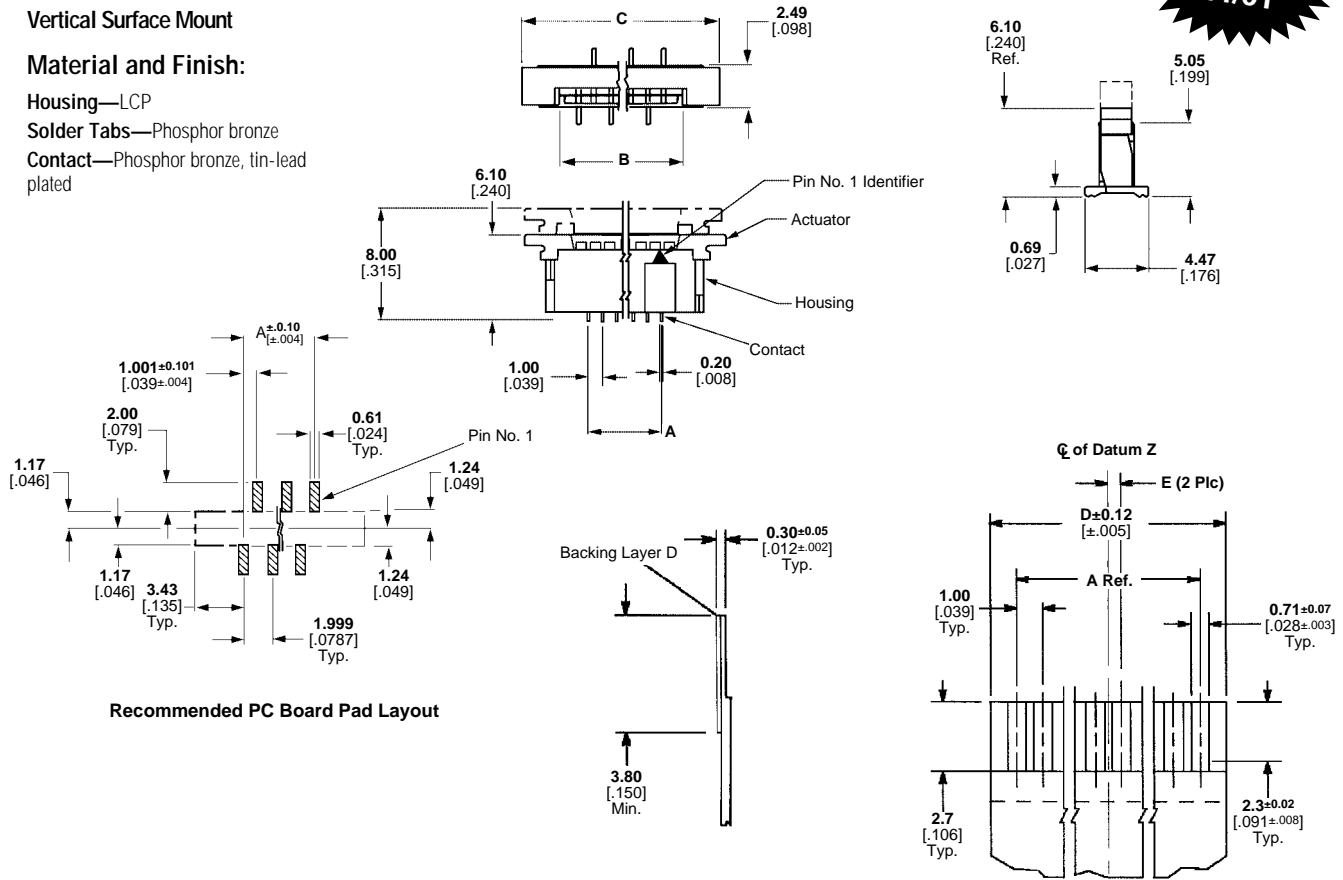
Vertical Surface Mount

Material and Finish:

Housing—LCP

Solder Tabs—Phosphor bronze

Contact—Phosphor bronze, tin-lead plated



Recommended PC Board Pad Layout

Recommended Flexible Printed Cable Layout

No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
4	3.00 .118	5.30 .209	11.91 .469	5.00 .197	0.50 .020	487953-4
5	4.00 .157	6.30 .249	12.93 .509	6.00 .236	—	487953-5
6	5.00 .197	7.30 .288	13.92 .548	7.00 .276	0.50 .020	487953-6
7	6.00 .236	8.30 .327	14.91 .587	8.00 .315	—	487953-7
8	7.00 .276	9.30 .367	15.93 .627	9.00 .354	0.50 .020	487953-8
9	8.00 .315	10.30 .406	16.92 .666	10.00 .394	—	487953-9
10	9.00 .354	11.30 .445	17.91 .705	11.00 .433	0.50 .020	1-487953-0
11	10.00 .394	12.30 .485	18.92 .745	12.00 .472	—	1-487953-1
12	11.00 .433	13.30 .525	19.91 .784	13.00 .512	0.50 .020	1-487953-2
13	12.00 .472	14.30 .564	20.93 .824	14.00 .551	—	1-487953-3
14	13.00 .512	15.30 .603	21.92 .863	15.00 .591	0.50 .020	1-487953-4
15	14.00 .551	16.30 .642	22.91 .902	16.00 .630	—	1-487953-5
16	15.00 .591	17.30 .682	23.93 .942	17.00 .669	0.50 .020	1-487953-6
17	16.00 .630	18.30 .721	24.92 .981	18.00 .709	—	1-487953-7

No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
18	17.00 .669	19.30 .760	25.91 1.020	19.00 .748	0.50 .020	1-487953-8
19	18.00 .709	20.30 .800	26.92 1.060	20.00 .787	—	1-487953-9
20	19.00 .748	21.30 .839	27.91 1.099	21.00 .827	0.50 .020	2-487953-0
21	20.00 .787	22.30 .879	28.93 1.139	22.00 .866	—	2-487953-1
22	21.00 .827	23.30 .918	29.92 1.179	23.00 .906	0.50 .020	2-487953-2
23	22.00 .866	24.30 .957	30.91 1.217	24.00 .945	—	2-487953-3
24	23.00 .906	25.30 .997	31.93 1.257	25.00 .984	0.50 .020	2-487953-4
25	24.00 .945	26.30 1.036	32.92 1.296	26.00 1.024	—	2-487953-5
26	25.00 .984	27.30 1.075	33.91 1.335	27.00 1.063	0.50 .020	2-487953-6
27	26.00 1.024	28.30 1.115	34.92 1.375	28.00 1.102	—	2-487953-7
28	27.00 1.063	29.30 1.154	35.92 1.414	29.00 1.142	0.50 .020	2-487953-8
29	28.00 1.102	30.30 1.194	36.93 1.454	30.00 1.181	—	2-487953-9
30	29.00 1.142	31.30 1.233	37.92 1.493	31.00 1.221	0.50 .020	3-487953-0

For complete product information, order Catalog 82007

1.0 [.039] FPC Connectors



Top Contact Type

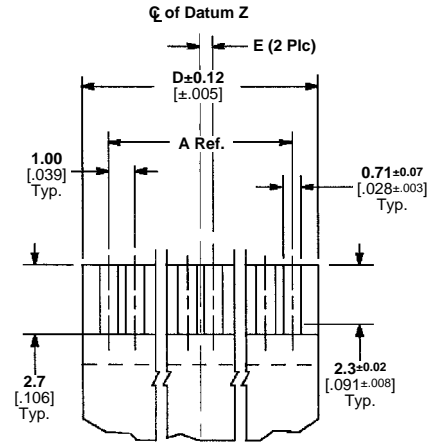
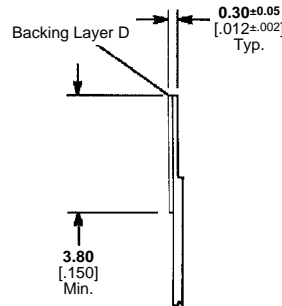
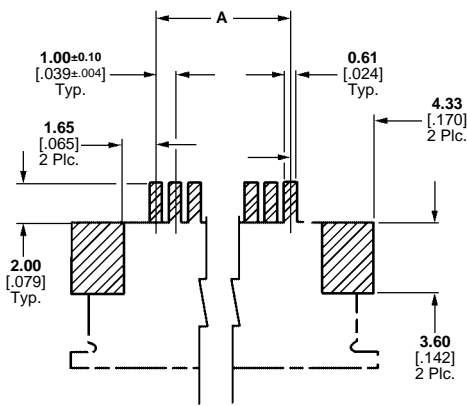
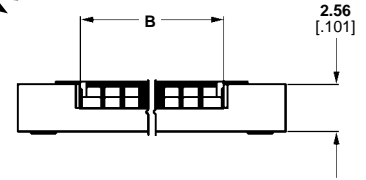
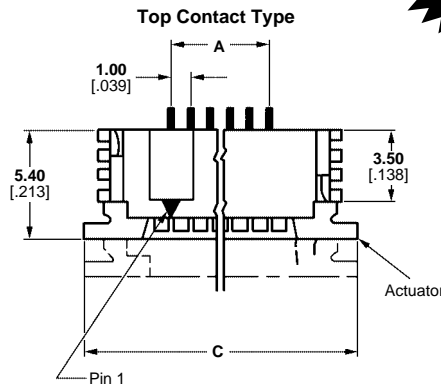
Material and Finish:

Housing—Thermoplastic, 94V-0 rated, beige

Slider—Thermoplastic, 94V-0 rated, black

Contact Finish—Phosphor bronze, plated 0.0038 [.000150] min. tin-lead

Solder Tabs—Phosphor bronze, plated 0.00127 [.000050] min. tin-lead



Recommended PC Board Pad Pattern

No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
4	3.00 .118	5.30 .209	11.91 .469	5.00 .197	0.50 .020	487951-4
5	4.00 .157	6.30 .249	12.93 .509	6.00 .236	—	487951-5
6	5.00 .197	7.30 .288	13.92 .548	7.00 .276	0.50 .020	487951-6
7	6.00 .236	8.30 .327	14.91 .587	8.00 .315	—	487951-7
8	7.00 .276	9.30 .367	15.93 .627	9.00 .354	0.50 .020	487951-8
9	8.00 .315	10.30 .406	16.92 .666	10.00 .394	—	487951-9
10	9.00 .354	11.30 .445	17.91 .705	11.00 .433	0.50 .020	1-487951-0
11	10.00 .394	12.30 .485	18.92 .745	12.00 .472	—	1-487951-1
12	11.00 .433	13.30 .525	19.91 .784	13.00 .512	0.50 .020	1-487951-2
13	12.00 .472	14.30 .564	20.93 .824	14.00 .551	—	1-487951-3
14	13.00 .512	15.30 .603	21.92 .863	15.00 .591	0.50 .020	1-487951-4
15	14.00 .551	16.30 .642	22.91 .902	16.00 .630	—	1-487951-5
16	15.00 .591	17.30 .682	23.93 .942	17.00 .669	0.50 .020	1-487951-6
17	16.00 .630	18.30 .721	24.92 .981	18.00 .709	—	1-487951-7

No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
18	17.00 .669	19.30 .760	25.91 1.020	19.00 .748	0.50 .020	1-487951-8
19	18.00 .709	20.30 .800	26.92 1.060	20.00 .787	—	1-487951-9
20	19.00 .748	21.30 .839	27.91 1.099	21.00 .827	0.50 .020	2-487951-0
21	20.00 .787	22.30 .879	28.93 1.139	22.00 .866	—	2-487951-1
22	21.00 .827	23.30 .918	29.92 1.179	23.00 .906	0.50 .020	2-487951-2
23	22.00 .866	24.30 .957	30.91 1.217	24.00 .945	—	2-487951-3
24	23.00 .906	25.30 .997	31.93 1.257	25.00 .984	0.50 .020	2-487951-4
25	24.00 .945	26.30 1.036	32.92 1.296	26.00 1.024	—	2-487951-5
26	25.00 .984	27.30 1.075	33.91 1.335	27.00 1.063	0.50 .020	2-487951-6
27	26.00 1.024	28.30 1.115	34.92 1.375	28.00 1.102	—	2-487951-7
28	27.00 1.063	29.30 1.154	35.92 1.414	29.00 1.142	0.50 .020	2-487951-8
29	28.00 1.102	30.30 1.194	36.93 1.454	30.00 1.181	—	2-487951-9
30	29.00 1.142	31.30 1.233	37.92 1.493	31.00 1.221	0.50 .020	3-487951-0

For complete product information, order Catalog 82007



1.0 [.039] FPC Connectors

Bottom Contact Type

Material and Finish:

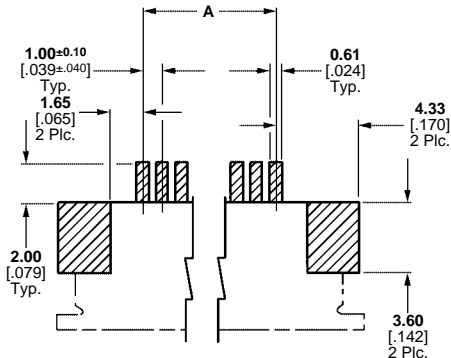
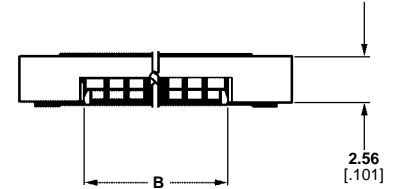
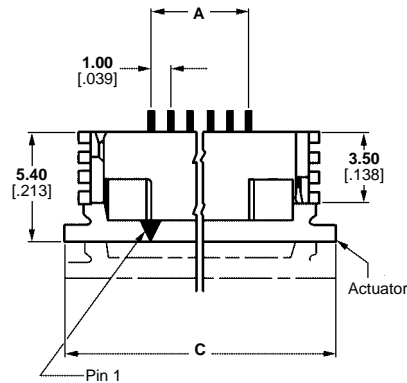
Housing—Thermoplastic, 94V-0 rated, beige

Slider—Thermoplastic, 94V-0 rated, black

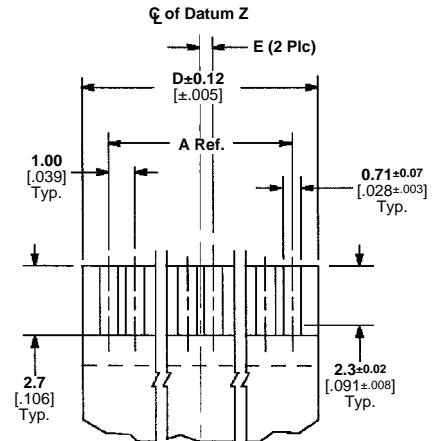
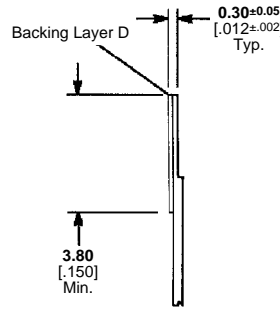
Contact Finish—Phosphor bronze, plated 0.0038 [.000150] min. tin-lead

Solder Tabs—Phosphor bronze, plated 0.00127 [.000050] min. tin-lead

Bottom Contact Type



Recommended PC Board Pad Pattern



No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
4	3.00 .118	5.30 .209	11.91 .469	5.00 .197	0.50 .020	487952-4
5	4.00 .157	6.30 .249	12.93 .509	6.00 .236	—	487952-5
6	5.00 .197	7.30 .288	13.92 .548	7.00 .276	0.50 .020	487952-6
7	6.00 .236	8.30 .327	14.91 .587	8.00 .315	—	487952-7
8	7.00 .276	9.30 .367	15.93 .627	9.00 .354	0.50 .020	487952-8
9	8.00 .315	10.30 .406	16.92 .666	10.00 .394	—	487952-9
10	9.00 .354	11.30 .445	17.91 .705	11.00 .433	0.50 .020	1-487952-0
11	10.00 .394	12.30 .485	18.92 .745	12.00 .472	—	1-487952-1
12	11.00 .433	13.30 .525	19.91 .784	13.00 .512	0.50 .020	1-487952-2
13	12.00 .472	14.30 .564	20.93 .824	14.00 .551	—	1-487952-3
14	13.00 .512	15.30 .603	21.92 .863	15.00 .591	0.50 .020	1-487952-4
15	14.00 .551	16.30 .642	22.91 .902	16.00 .630	—	1-487952-5
16	15.00 .591	17.30 .682	23.93 .942	17.00 .669	0.50 .020	1-487952-6
17	16.00 .630	18.30 .721	24.92 .981	18.00 .709	—	1-487952-7

No. of Positions	Dimensions					Part Numbers
	A	B	C	D	E	
18	17.00 .669	19.30 .760	25.91 1.020	19.00 .748	0.50 .020	1-487952-8
19	18.00 .709	20.30 .800	26.92 1.060	20.00 .787	—	1-487952-9
20	19.00 .748	21.30 .839	27.91 1.099	21.00 .827	0.50 .020	2-487952-0
21	20.00 .787	22.30 .879	28.93 1.139	22.00 .866	—	2-487952-1
22	21.00 .827	23.30 .918	29.92 1.179	23.00 .906	0.50 .020	2-487952-2
23	22.00 .866	24.30 .957	30.91 1.217	24.00 .945	—	2-487952-3
24	23.00 .906	25.30 .997	31.93 1.257	25.00 .984	0.50 .020	2-487952-4
25	24.00 .945	26.30 1.036	32.92 1.296	26.00 1.024	—	2-487952-5
26	25.00 .984	27.30 1.075	33.91 1.335	27.00 1.063	0.50 .020	2-487952-6
27	26.00 1.024	28.30 1.115	34.92 1.375	28.00 1.102	—	2-487952-7
28	27.00 1.063	29.30 1.154	35.92 1.414	29.00 1.142	0.50 .020	2-487952-8
29	28.00 1.102	30.30 1.194	36.93 1.454	30.00 1.181	—	2-487952-9
30	29.00 1.142	31.30 1.233	37.92 1.493	31.00 1.221	0.50 .020	3-487952-0

For complete product information, order Catalog 82007

Application Tooling for Flexible Film Contacts

Hand Crimping Tool Assemblies



Part Number 90273-5—for Multi-Crimp (408-9564)

Extraction Tools

Tool No. 91200-□*—for Receptacle Housings with **Side Locking Lance Slot** (408-7916)

Tool No. 91047-□*—for Receptacle and Pin Housings with **End Locking Lance Slot** (408-7384)

*Consult Tyco Electronics for specific dash nos.

For tooling information, contact the Technical Support Center:
1-800-522-6752.

The flexible film semiautomatic bench machine for terminating .050 [1.27] and .100 [2.54] centerline flexible flat conductor cable (FFC), flexible etched circuitry (FEC), and flexible printed wiring (FPW) with AMP FFC reel-mounted contacts. For each cable or circuitry, the contacts are automatically applied one-at-a-time in a straight sequence. To skip positions, an optional programmer control box is available. Crimp height is easily adjustable in .0002 [.0051] increments. Termination rates up to 200 contacts per minute.

Specifications:

Width—20.5 [520]
Depth—27.5 [700]
Height—18 [460] (with reel support)
Reel Size—24 [610] (max.)
Weight—100 lb. [45.4 kg]
Electrical Source—
120 VAC, 50/60 Hz, 7.0 A;
240 VAC, 50/60 Hz, 3.5 A

Flexible Film Termination Machine (Terminates Continuous Strip Contacts Sequentially)

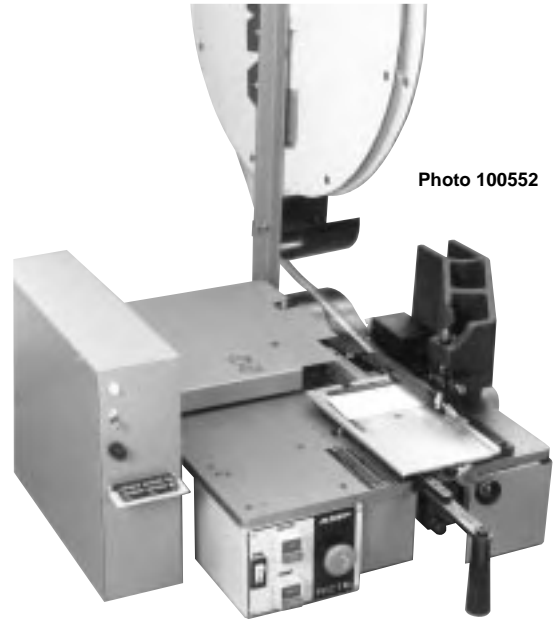


Photo 100552

Description	Machine Part Numbers	
	Machine	Machine With Programmer*
.100 [2.54] ϕ , Multi-Crimp, 120 V	224910-1	318619-1
.100 [2.54] ϕ , Multi-Crimp, 240 V	224910-2	318619-2
.100 [2.54] ϕ , ARINC, 120 V	224910-3	318619-3
.050 [1.27] ϕ , Multi-Crimp, 120 V	224910-4	318619-4
.050 [1.27] ϕ , Multi-Crimp, 240 V	224910-6	318619-6

*The Programmer Kit (**Part Number** 356484-1) may be purchased with a new machine, or separately for adding onto an existing machine.

Technical Documents

Customer Manuals

409-5835 (Part Numbers 224910 and 318619)
409-5880 Programmer Kit (Part Number 356484-1)



FFC Contact Positioning Hand Tool Kit
Part Number 91292-1
Instruction Sheet 408-9719

This tool is designed to bend FFC solder tabs on .100 [2.54] or .050 [1.27] centerline cable. The hand tool kit consists of a hand tool, three upper tool dies, one lower insert and a bench clamp.

Hand Tool

Part Number 91292-2

90° Staggered Tooling

Part Number 543470-1

90° Straight Tooling

Part Number 543479-1

90° Staggered Straight

(Z Bend Tooling)

Part Number 543471-1

(upper) and 543472-1 (lower)

Each upper tool die is used for one of three bending configurations, which include: 90° staggered, straight 90° and 90° staggered straight (Z bend). The lower insert is used only for the Z bend configuration.

The bench clamp enables the operator to use the hand tool mounted on an appropriate work bench.

For complete product information, order Catalog 82007

Engineering Notes

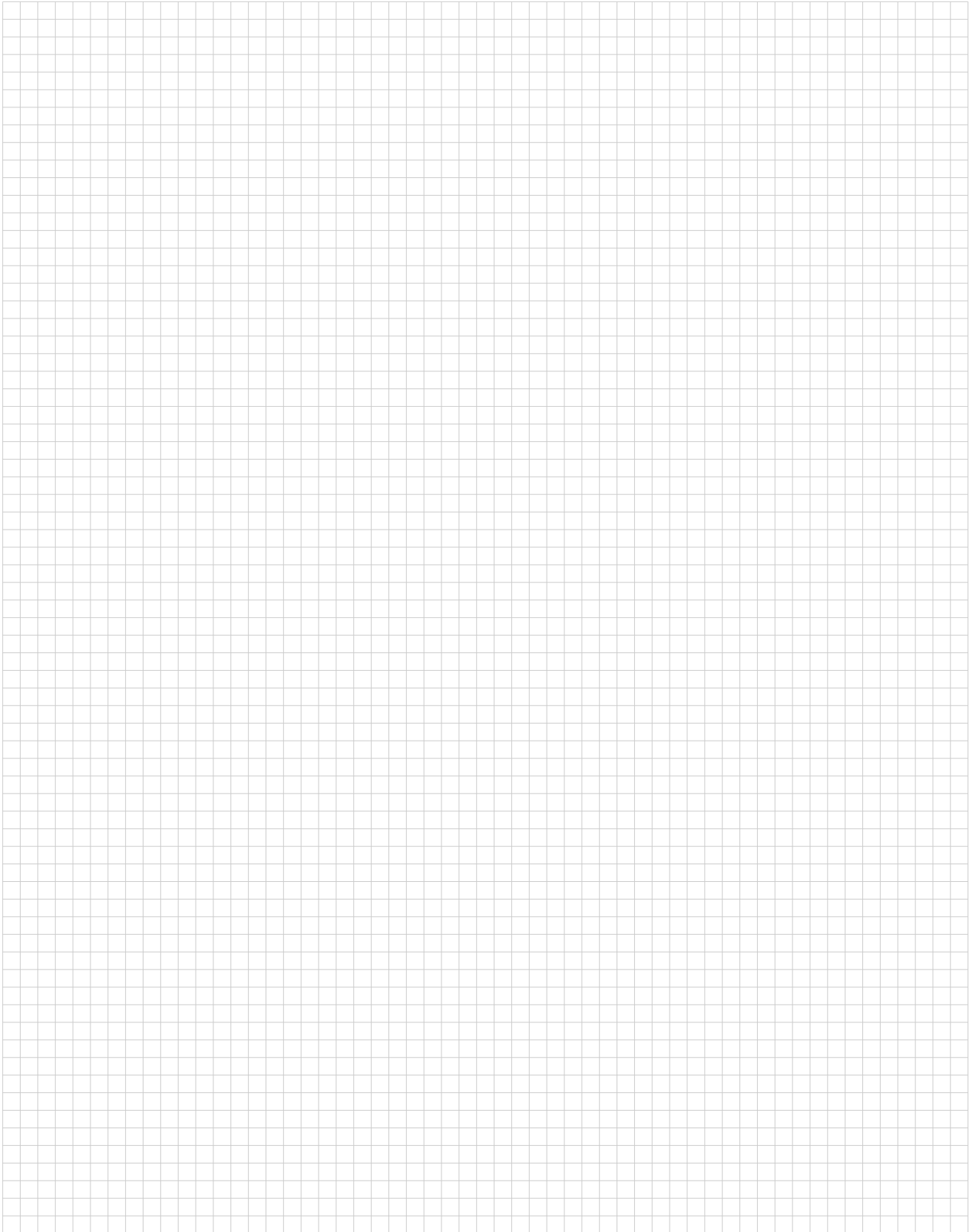


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SIP Sockets

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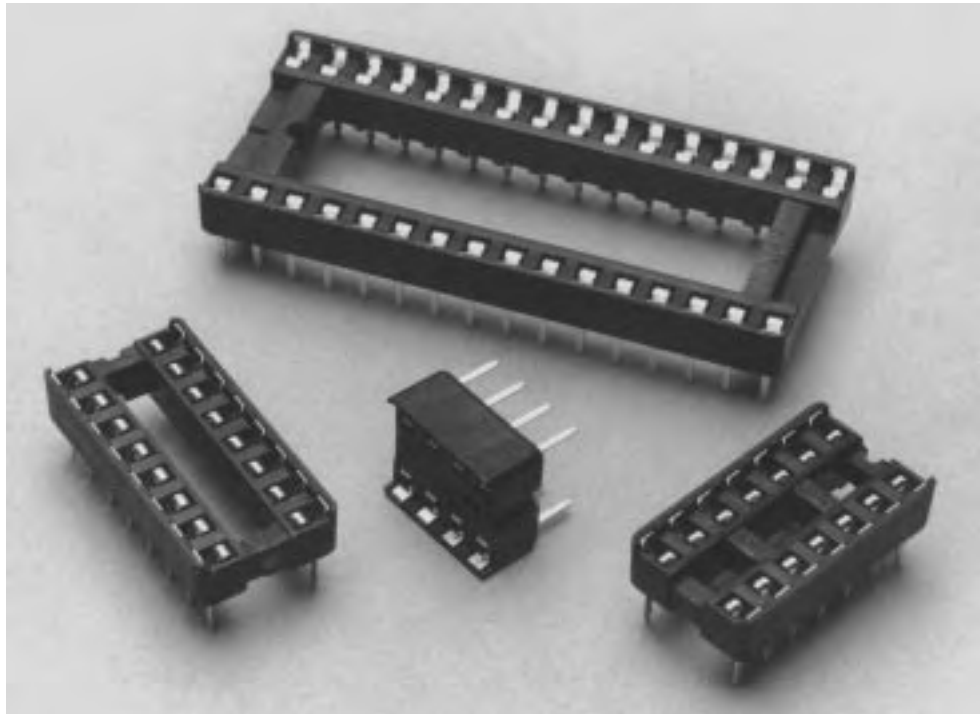
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Solder Tail Dual Leaf (DL) Contact

Product Facts

- Dual wiping contacts
- Face wipe contacts for high reliability and constant, low resistance
- Anti-overstress prevents contact damage
- Large target area with tapered lead-in ramps for easy DIP insertion
- Stackable end-to-end and side-to-side (brickwalling) for high board density
- Housing standoffs and slots facilitate board cleaning
- Family of 6 through 48 positions
- Retention-style tails or straight solder tails
- Visual polarization
- Designed for automatic machine insertion — DIP-to-socket or socket-to-board (tube loaded)
- Recognized under the Component Program of Underwriters Laboratories Inc., 
- Certified by Canadian Standards Association 

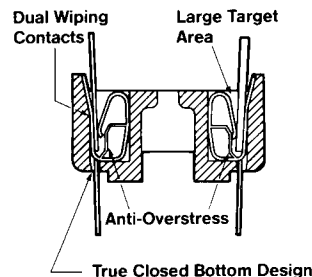


The Dual Leaf (DL) DIP socket family provides high quality at low cost with superior handling characteristics. Sockets are available in 6- through 48-position sizes with dual wiping contacts. The large target area of the contacts and tapered side ramps in the housing promote easy entry of a DIP package. Internal anti-overstress walls on standard versions prevent contact damage. The housings are compatible with commercially available automatic insertion equipment for socket-to-board or DIP-to-socket applications.

Standoffs provide board clearance for proper cleaning after soldering. Sockets are available with straight solder tails for clinching and are "true positioned" for automatic insertion into the pc board.

Performance Characteristics:

- Rating** — Signal application only
- Contact Resistance** — 20 milliohms max. (initial)
30 milliohms max. (after test)
- Dielectric Withstanding Voltage** — 1000 VRMS min.
- Insulation Resistance** — 10,000 megohms min. (initial)
- Capacitance** — 0.5 picofarad max.
- Operating Temperature** —
-40°C to +105°C (tin)
-55°C to +125°C (gold)
- Vibration** — 15 Gs, 10-2000 Hz with 100 ma current
- Shock** — 100 Gs sawtooth, 6 shocks
- Engaging Force** — 340 grams max. (initial)
- Separating Force** — 25 grams min. per Tyco Electronics Specification 108-1066 (Standard)



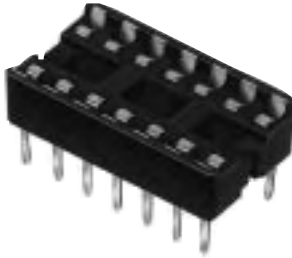
Dual Leaf (DL)

Sockets accept .008—.014
[0.2—0.36] thick IC leads

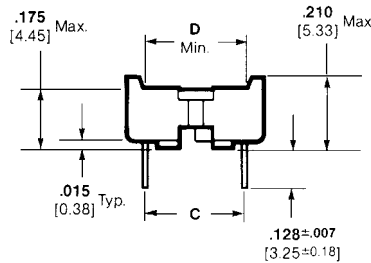
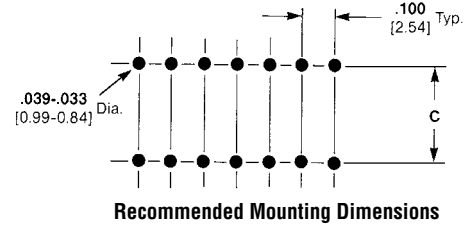
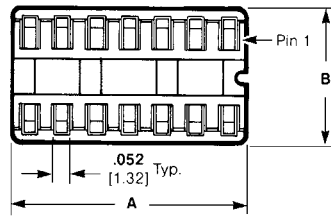
Material and Finish:

Housing — Glass-filled thermo-plastic, 94V-0 rated, black

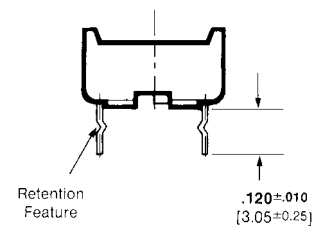
Contacts — Phosphor bronze or beryllium copper with tin or gold plating (see table)



Note: All socket positions have "True Closed Bottom" design which allows no solder or flux wicking at class 1 conditions of EIA 486.



Sockets with Straight Solder Tails



Sockets with Retention Feature Solder Tails

No. of Positions	Dimensions				Sockets with Straight Solder Tails ¹		Sockets with Retention Solder Tails ¹			
					Beryllium Copper	Phosphor Bronze	Beryllium Copper		Phosphor Bronze	
	A	B	C	D	.000030 [0.00076] ² Gold Plate	.000015 [0.00038] ² Gold Plate	Tinned	.000030 [0.00076] ² Gold Plate	Tinned	.000015 [0.00038] ² Gold Plate
6 ³	.295 7.49	.394 10.01	.300 7.62	.320 8.13	2-641296-2	2-641296-4	—	—	—	—
8 ³	.395 10.03	.394 10.01	.300 7.62	.320 8.13	2-640463-2	2-640463-4	2-641260-1	—	—	2-641260-4
14	.695 17.65	.394 10.01	.300 7.62	.320 8.13	2-641599-2	2-641599-4	2-641609-1	—	—	2-641609-4
16	.795 20.19	.394 10.01	.300 7.62	.320 8.13	2-641600-2	2-641600-4	2-641610-1	2-641610-2	—	2-641610-4
18	.895 22.73	.394 10.01	.300 7.62	.320 8.13	—	—	2-641611-1	—	—	—
20	.995 25.27	.394 10.01	.300 7.62	.320 8.13	2-641602-2	2-641602-4	2-641612-1	2-641612-2	—	2-641612-4
24	1.195 30.35	.394 10.01	.300 7.62	.320 8.13	2-641932-2	2-641932-4	2-641933-1	—	—	—
24	1.195 30.35	.694 17.63	.600 15.24	.620 15.75	2-641604-2	2-641604-4	641855-1	—	—	2-641614-4
28	1.395 35.43	.694 17.63	.600 15.24	.620 15.75	2-641605-2	2-641605-4	2-641615-1	2-641615-2	2-641615-3	2-641615-4
40	1.995 50.67	.694 17.63	.600 15.24	.620 15.75	2-641606-2	2-641606-4	2-641616-1	2-641616-2	—	—
42	2.095 53.21	.694 17.63	.600 15.24	.620 15.75	2-382374-2	—	—	—	—	—
48	2.395 60.83	.694 17.63	.600 15.24	.620 15.75	—	—	—	2-643576-2	—	2-643574-4

¹ ONLY sockets with straight solder tails are recommended for automatic insertion. All parts are packaged in plastic tubes. Sockets with retention feature are packaged in plastic tubes for handling and storage convenience only.

² Gold thickness in contact area; tin-lead plate on solder tails.

³ Closed frame design.

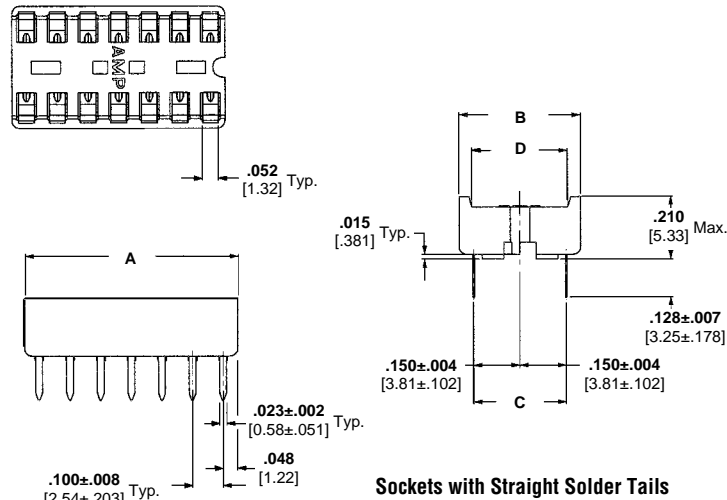
Dual Leaf (DL)

**Sockets accept .008—.014
[0.2—0.36] thick IC leads**

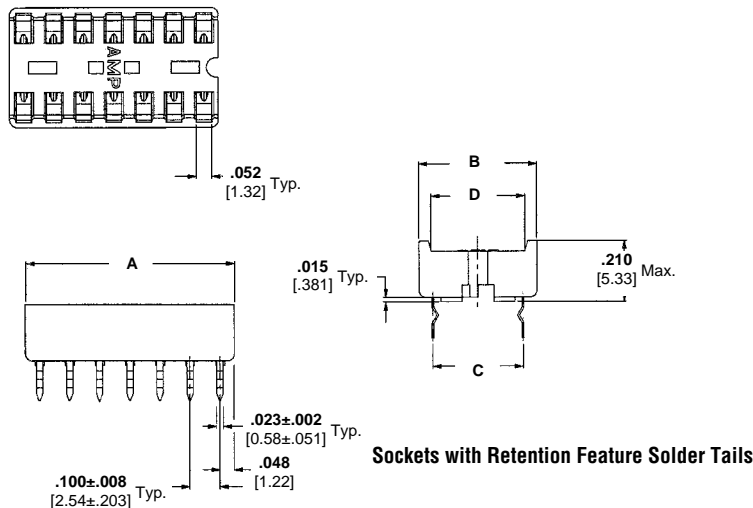
Material and Finish:

Housing — Glass-filled thermo-plastic, 94V-0 rated, black

Contacts — Phosphor bronze or beryllium copper with tin or gold plating (see table)



Sockets with Straight Solder Tails



Sockets with Retention Feature Solder Tails

No. of Positions	Dimensions				Sockets with Straight Solder Tails ¹		Sockets with Retention Solder Tails ¹		
	A	B	C	D	Beryllium Copper	Phosphor Bronze	Beryllium Copper		Phosphor Bronze
					.000030 [0.00076] ² Gold Plate	.000015 [0.00038] ² Gold Plate	Tinned	Tinned	.000015 [.00038] ² Gold Plate
14	.695 17.65	.394 10.01	.300 7.62	.320 8.13	—	2-640357-4	2-641261-1	—	—
16	.795 20.19	.394 10.01	.300 7.62	.320 8.13	2-640358-2	2-640358-4	2-641262-1	—	2-641262-4
18	.895 22.73	.394 10.01	.300 7.62	.320 8.13	—	2-640359-4	—	—	—
20	.995 25.27	.394 10.01	.300 7.62	.321 8.13	2-640464-2	2-640464-4	2-641264-1	—	2-641264-4
24	1.195 30.35	.694 17.63	.600 15.24	.620 15.75	2-640361-2	2-640361-4	2-641266-1	—	—
28	1.395 35.43	.694 17.63	.600 15.24	.620 15.75	2-640362-2	2-640362-4	2-641267-1	2-641267-3	2-641267-4
40	1.995 50.67	.694 17.63	.600 15.24	.620 15.75	2-640379-2	2-640379-4	2-641268-1	—	2-641268-4

¹ ONLY sockets with straight solder tails are recommended for automatic insertion. All parts are packaged in plastic tubes. Sockets with retention feature are packaged in plastic tubes for handling and storage convenience only.

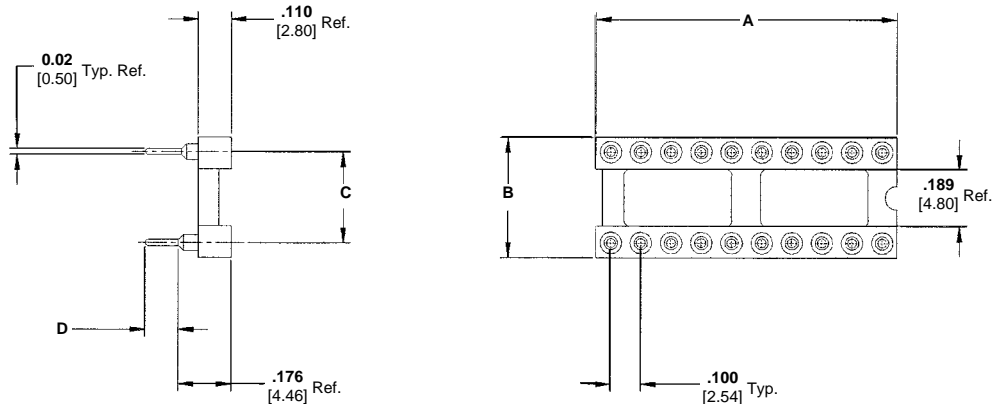
² Gold thickness in contact area; tin-lead plate on solder tails.

Open Frame

Material and Finish:

Housing — Glass-filled thermoplastic

Contacts — Beryllium copper



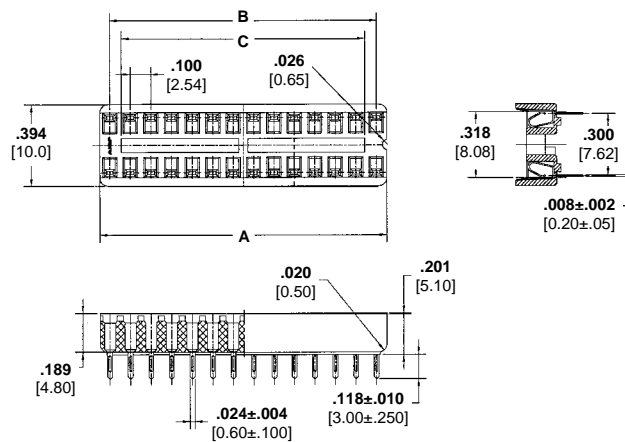
No. of Positions	Type/ Centerline	Dimensions				Part Numbers
		A	B	C	D	
20	.300	.996 25.3	.394 10.1	.300 7.62	.112 2.84	345721-4
20	Wire Wrap Tail .300	.996 25.3	.394 10.1	.300 7.62	.051 12.95	3-345848-5
24	Wire Wrap Tail .300	1.20 30.4	.394 10.1	.300 7.62	.051 12.95	3-345850-5
28	Auto Insertable .600	1.40 35.5	.694 17.7	.600 15.24	.114 2.90	345870-4
32	.600	1.60 40.6	.694 17.7	.600 15.24	.112 2.84	345729-1

Economy Ladder Style, .300 Centerline

Material and Finish:

Housing — Glass-filled thermoplastic, black

Contacts — Phosphor bronze with tin plating



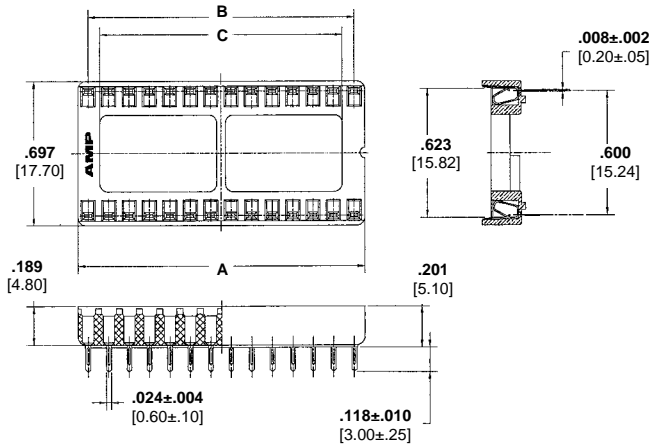
No. of Positions	Dimensions			Part Numbers .300 Centerline
	A	B	C	
6	7.62 .300	5.08 .200	2.10 .083	390261-1
8	10.16 .400	7.62 .300	4.76 .187	390261-2
14	17.78 .700	15.24 .600	12.38 .487	390261-3
16	20.32 .800	17.78 .700	14.92 .587	390261-4
18	22.86 .900	20.32 .800	17.46 .687	390261-5
20	25.40 1.400	22.86 .900	20.00 .787	390261-6
22	27.94 1.100	25.40 1.000	22.54 .887	390261-7
24	30.48 1.200	27.94 1.100	25.10 .988	390261-8
28	35.56 1.400	33.02 1.300	30.12 1.185	390261-9
32	40.64 1.600	38.10 1.500	35.20 1.386	1-390261-0

Economy Ladder Style, .600 Centerline

Material and Finish:

Housing — Glass-filled Thermoplastic, black

Contacts — Phosphor bronze with tin plating



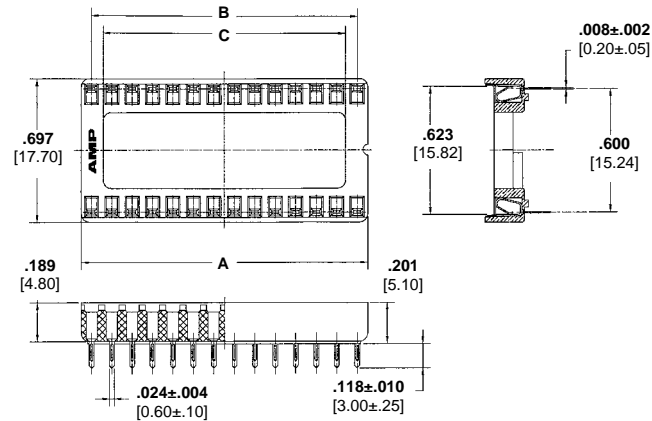
No. of Positions	Dimensions			Part Numbers .600 Centerline
	A	B	C	
24	30.48 1.200	27.94 1.100	25.10 .988	390262-1
28	35.56 1.400	33.02 1.300	30.12 1.185	390262-2
32	40.64 1.600	38.10 1.500	35.20 1.386	390262-3
40	50.80 2.000	48.26 1.900	45.36 1.790	390262-5
42	53.34 2.100	50.08 1.970	47.90 1.890	390262-6
48	60.96 2.400	58.42 2.300	55.52 2.190	390262-7

Economy Over-the-Component (OTC) Style, 15.24 Centerline

Material and Finish:

Housing — Glass-filled Thermoplastic, black

Contacts — Phosphor bronze with tin plating



No. of Positions	Dimensions			Part Numbers 15.24 Centerline
	A	B	C	
24	25.10 .988	27.94 1.100	30.48 1.200	390263-7
28	30.12 1.190	33.02 1.300	35.56 1.400	390263-1
32	35.20 1.390	38.10 1.500	40.64 1.600	390263-2
40	45.36 1.790	48.26 1.900	50.80 2.000	390263-4
42	47.90 1.890	50.08 1.970	53.34 2.100	390263-5
48	55.52 2.190	58.42 2.300	60.96 2.400	390263-6

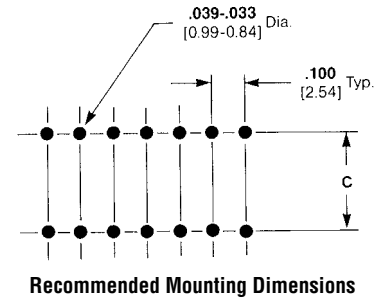
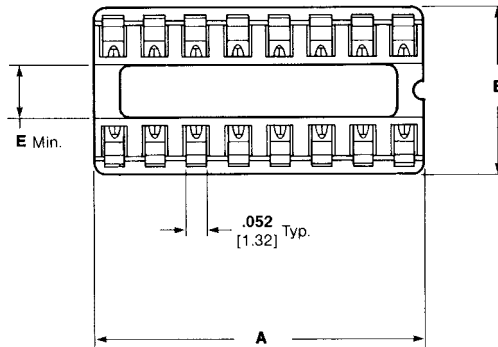
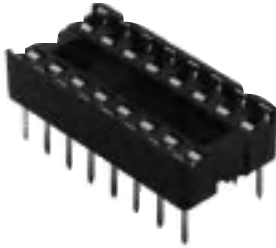
Dual Leaf (DL), Over-the-Component (OTC) Style

Sockets accept .008—.014 [0.2—0.36] thick IC leads

Material and Finish:

Housing — Glass-filled thermo-plastic, 94V-0 rated, black

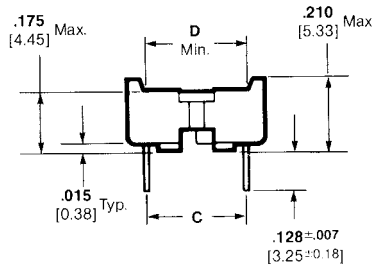
Contacts — Phosphor bronze or beryllium copper with gold plating (see table)



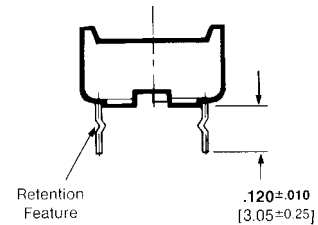
Recommended IC Leg Length:

- 1) .100 [2.54] min. for a reliable contact surface.
- 2) .120 [3.05] max. to allow IC body to seat on socket.
- 3) Longer legs may be used, but IC cannot be fully seated on seating plane.

Note: All socket positions have "True Closed Bottom" design which allows no solder or flux wicking at class 1 conditions of EIA 486.



Sockets with Straight Solder Tails



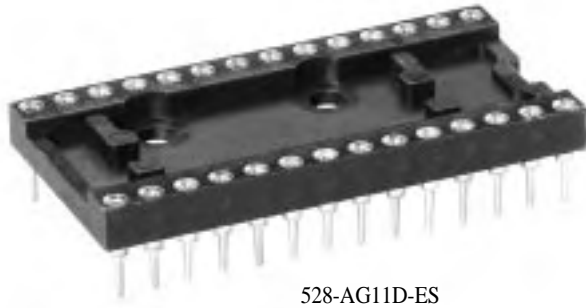
Sockets with Retention Feature Solder Tails

No. of Positions	Dimensions					Sockets with Straight Solder Tails		Sockets with Retention Solder Tails
						Beryllium Copper	Phosphor Bronze	Beryllium Copper
	A	B	C	D	E	.000030 [0.00076] ¹ Gold Plate	.000015 [0.00038] ¹ Gold Plate	.000030 [0.00076] ¹ Gold Plate
32	1.595 40.51	.694 17.63	.600 15.24	.620 15.75	.380 9.65	2-644018-2	2-644018-4	2-382189-2

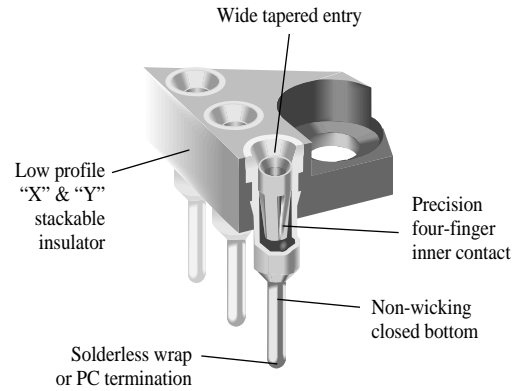
¹ Gold thickness in contact area with tin-lead plate on solder tails. All parts packaged in plastic tubes.

Four-Fingered Contact & Solid Insulator

500 Series




528-AG11D-ES



FEATURES:

The 500 Series Socket features a precision four-finger inner contact to produce the industry standard for high reliability screw machine sockets.

- Precision four-finger inner contact provides concentric funnel entry for easy flat and round lead insertion
- Machined (Premium Series) and stamped (Economy Series) contacts are available
- "X" & "Y" stackable
- Non-wicking, closed bottom sleeve gives 100% protection against flux and solder contamination. Choice of solderless wrap or PC termination
- Accommodates 6 through 40 pin DIPS, rectangular or round leads
-  Recognized under the Component Program of Underwriters Laboratories, Inc. file no. E111362
- Beryllium copper inner contact for maximum mechanical and electrical performance
- For extreme conditions involving shock and vibration, The AMP high retention series is available

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- PCB Hole Size Range: .035" ± .002" (0,89 ± 0,05) PC tail, .055" ± .003" (1,40 ± 0,08) solderless wrap
- IC Pin Dimension Range: .009" x .015" (0,23 x 0,38) through .011" x .020" (0,28 x 0,51) .016" to .021" (0,41 to 0,53) round lead, .105" (2,67) min. length

MATERIAL SPECIFICATIONS:

- Insulator.....Thermoplastic polyester, UL rated 94V-0
- SleeveMachined brass/formed copper
- ContactBeryllium copper
- Sleeve PlatingTin/lead or gold
- Contact PlatingPremium or Economy Series (ES) - gold or tin/lead
Economy Series (ESL) - low gold

PERFORMANCE SPECIFICATIONS:

MECHANICAL

- VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
- Shock.....Passed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
- DurabilityPassed MIL-STD-1344, Method 2016
- Normal Force125 Grams (4.4 oz.) average with .018" (0,46) dia. polished steel pin (Premium Series)
200 Grams (7.1 oz.) average with .018" (0,46) dia. polished steel pin (Economy Series)
- Inner Contact Retention ..
in Sleeve7.5 Lbs. per line average
- Sleeve Retention
in Plastic.....3.0 Lbs. per line minimum
- SolderabilityPassed MIL-STD-202F, Method 208
- Insertion ForcePremium - 134 Grams (4.7 oz.) average with a .018" (0,46) dia. polished steel pin
Economy - 179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
- Withdrawal Force63 Grams (2.2 oz.) average with a .018" (0,46) dia. polished steel pin (Premium and Economy)

ELECTRICAL

- Contact Resistance10 Milliohms max.
- Contact Rating.....3 Amps
- Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
- Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
- Dielectric Withstanding
Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

- HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
- Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
- Operation TemperatureGold inner contact -55°C to +125°C,
Tin/lead inner contact -55°C to +105°C

Four-Fingered Contact & Solid Insulator

500 Series

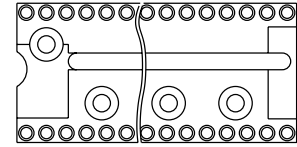


Figure 2

STANDARD CONFIGURATIONS

Number of Contacts	A	B*	C	Number of Contacts	A	B*	C
6	.300 (7,62)	.300 (7,62)	.400 (10,16)	24	1.200 (30,48)	.400 (10,16)	.500 (12,70)
8	.400 (10,16)			24	1.200 (30,48)	.600 (15,24)	.700 (45,72)
14	.700 (17,78)			28	1.400 (35,56)		
16	.800 (20,32)			32	1.600 (40,64)		
18	.900 (22,86)			36	1.800 (47,72)		
20	1.000 (25,40)			40	2.000 (50,80)		
22	1.150 (29,21)	.400 (10,16)	.500 (12,70)				

* Dimension B ± .005 (0,13)

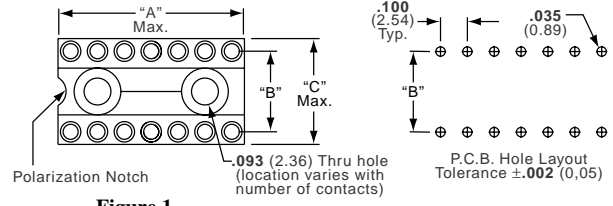
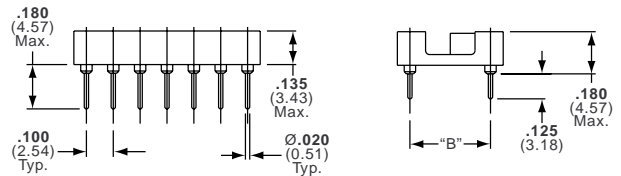


Figure 1



PART NUMBERS

Economy Series	Premium	Figure	Position	Centerline	Contact	Sleeve	Economy Series	Premium	Figure	Position	Centerline	Contact	Sleeve
506-AG10D-ES	506-AG10D	1	6	.300 (7,62)	Gold	Gold	524-AG65D-ES	524-AG65D	2	24	.400 (10,16)	Gold	Gold
506-AG10D-ESL	506-AG10D-ESL		6		Low Gold	Gold	524-AG65D-ESL	524-AG65D-ESL		24		Low Gold	Gold
506-AG11D-ES	506-AG11D		6		Gold	Tin/Lead	524-AG66D-ES	524-AG66D		24		Gold	Tin/Lead
506-AG11D-ESL	506-AG11D-ESL		6		Low Gold	Tin/Lead	524-AG66D-ESL	524-AG66D-ESL		24		Low Gold	Tin/Lead
506-AG12D-ES	506-AG12D		6		Tin/Lead	Tin/Lead	524-AG13D-ES	524-AG13D		24		Tin/Lead	Tin/Lead
508-AG10D-ES	508-AG10D		1		8	.300 (7,62)	Gold	Gold		524-AG10D-ES		524-AG10D	2
508-AG10D-ESL	508-AG10D-ESL	8		Low Gold	Gold		524-AG10D-ESL	524-AG10D-ESL	24	Low Gold	Gold		
508-AG11D-ES	508-AG11D	8		Gold	Tin/Lead		524-AG11D-ES	524-AG11D	24	Gold	Tin/Lead		
508-AG11D-ESL	508-AG11D-ESL	8		Low Gold	Tin/Lead		524-AG11D-ESL	524-AG11D-ESL	24	Low Gold	Tin/Lead		
508-AG12D-ES	508-AG12D	8		Tin/Lead	Tin/Lead		524-AG12D-ES	524-AG12D	24	Tin/Lead	Tin/Lead		
514-AG10D-ES	514-AG10D	1		14	.300 (7,62)		Gold	Gold	528-AG10D-ES	528-AG10D	2	28	
514-AG10D-ESL	514-AG10D-ESL		14	Low Gold		Gold	528-AG10D-ESL	528-AG10D-ESL	28	Low Gold		Gold	
514-AG11D-ES	514-AG11D		14	Gold		Tin/Lead	528-AG11D-ES	528-AG11D	28	Gold		Tin/Lead	
514-AG11D-ESL	514-AG11D-ESL		14	Low Gold		Tin/Lead	528-AG11D-ESL	528-AG11D-ESL	28	Low Gold		Tin/Lead	
514-AG12D-ES	514-AG12D		14	Tin/Lead		Tin/Lead	528-AG12D-ES	528-AG12D	28	Tin/Lead		Tin/Lead	
516-AG10D-ES	516-AG10D		1	16		.300 (7,62)	Gold	Gold	532-AG10D-ES	532-AG10D		2	32
516-AG10D-ESL	516-AG10D-ESL	16		Low Gold	Gold		532-AG10D-ESL	532-AG10D-ESL	32	Low Gold	Gold		
516-AG11D-ES	516-AG11D	16		Gold	Tin/Lead		532-AG11D-ES	532-AG11D	32	Gold	Tin/Lead		
516-AG11D-ESL	516-AG11D-ESL	16		Low Gold	Tin/Lead		532-AG11D-ESL	532-AG11D-ESL	32	Low Gold	Tin/Lead		
516-AG12D-ES	516-AG12D	16		Tin/Lead	Tin/Lead		532-AG12D-ES	532-AG12D	32	Tin/Lead	Tin/Lead		
518-AG10D-ES	518-AG10D	1		18	.300 (7,62)		Gold	Gold	536-AG10D-ES	536-AG10D	2		36
518-AG10D-ESL	518-AG10D-ESL		18	Low Gold		Gold	536-AG10D-ESL	536-AG10D-ESL	36	Low Gold		Gold	
518-AG11D-ES	518-AG11D		18	Gold		Tin/Lead	536-AG11D-ES	536-AG11D	36	Gold		Tin/Lead	
518-AG11D-ESL	518-AG11D-ESL		18	Low Gold		Tin/Lead	536-AG11D-ESL	536-AG11D-ESL	36	Low Gold		Tin/Lead	
518-AG12D-ES	518-AG12D		18	Tin/Lead		Tin/Lead	536-AG12D-ES	536-AG12D	36	Tin/Lead		Tin/Lead	
520-AG10D-ES	520-AG10D		1	20		.300 (7,62)	Gold	Gold	540-AG10D-ES	540-AG10D		2	40
520-AG10D-ESL	520-AG10D-ESL	20		Low Gold	Gold		540-AG10D-ESL	540-AG10D-ESL	40	Low Gold	Gold		
520-AG11D-ES	520-AG11D	20		Gold	Tin/Lead		540-AG11D-ES	540-AG11D	40	Gold	Tin/Lead		
520-AG11D-ESL	520-AG11D-ESL	20		Low Gold	Tin/Lead		540-AG11D-ESL	540-AG11D-ESL	40	Low Gold	Tin/Lead		
520-AG12D-ES	520-AG12D	20		Tin/Lead	Tin/Lead		540-AG12D-ES	540-AG12D	40	Tin/Lead	Tin/Lead		
522-AG10D-ES	522-AG10D	1		22	.400 (10,16)		Gold	Gold	Note: Part numbers in this chart and in detail shown refer to a .125" PC Tail Pin				
522-AG10D-ESL	522-AG10D-ESL		22	Low Gold		Gold							
522-AG11D-ES	522-AG11D		22	Gold		Tin/Lead							
522-AG11D-ESL	522-AG11D-ESL		22	Low Gold		Tin/Lead							
522-AG12D-ES	522-AG12D		22	Tin/Lead		Tin/Lead							

ECONOMY AND PREMIUM SERIES - .180" PC TAIL PINS

- 5XX-AG44D-XXX - Gold contact, tin/lead sleeve
- 5XX-AG45D-XXX - Gold contact, gold sleeve
- 5XX-AG143D-XXX - Tin/lead contact, tin/lead sleeve

For wire wrap sockets or 24 position on .400" (10,16) in high retention or .180 (4,57) tails, please consult Tyco Electronics.

HIGH RETENTION SERIES

- 5XX-AG34D - Gold contact, tin/lead sleeve
- 5XX-AG33D - Gold contact, gold sleeve
- 5XX-AG38D - Tin/lead contact, tin/lead sleeve

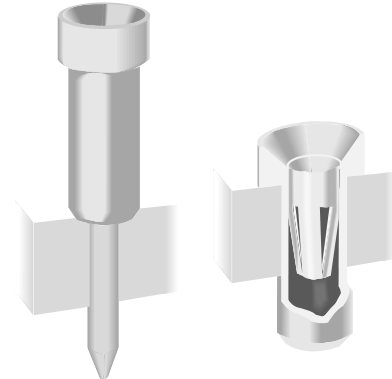
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Four-Fingered Contacts Disposable Carriers

700 Series



732-AG4D-ES



FEATURES:

A disposable aluminum carrier forms the backbone of the 700 Series socket, an innovative extension of the AMP precision four-fingered, inner contact concept. Conceived for IC applications requiring maximum air flow for cooling, the 700 Series eliminates heat entrapment associated with an insulator. Additional benefits are:

- Easy solder joint inspection-easy cleaning-easy repair
- “X” & “Y” stackability for circuit flexibility and optimum use of PCB real estate
- Gang insertion of socket pins into PC boards
- 100% non-wicking of flux and solder
- Standard or low profile PC board mounting
- Availability in 6 to 40 positions on .100”(2,54) centers and a wide variety of row spacing
- Machined (Premium Series) and stamped (Economy Series) contacts are available

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- IC Pin Dimension Range:.016" to .021" (0,41 to 0,53) dia., .105" (2,67) min. length
- PCB Hole Size Range: .035" ± .003" (0,89 ± 0,08) standard mount, .055 ± .001" (1,40 ± 0,03) low profile mount

MATERIAL SPECIFICATIONS:

- CarrierAluminum
- SleeveMachined brass
- ContactBeryllium copper
- Sleeve PlatingTin/lead or gold
- Contact PlatingPremium or Economy Series (ES) - gold or tin/lead
Economy Series (ESL) - low gold

PERFORMANCE SPECIFICATIONS:

MECHANICAL

- VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
- ShockPassed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
- DurabilityPassed MIL-STD-1344, Method 2016
- Normal Force125 Grams average with .018" (0,46) dia. polished steel pin (Premium Series)
200 Grams average with .018" (0,46) dia. polished steel pin (Economy Series)
- Inner Contact Retention
in Sleeve7.5 Lbs. per line average
- Sleeve Retention
in Plastic3.0 Lbs. per line minimum
- SolderabilityPassed MIL-STD-202F, Method 208
- Insertion ForcePremium - 134 Grams (4.7 oz.) average with a .018" (0,46) dia. polished steel pin
Economy - 179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
- Withdrawal Force 63 Grams (2.2 oz.) average with a (Premium and Economy) .018" (0,46) dia. polished steel pin

ELECTRICAL

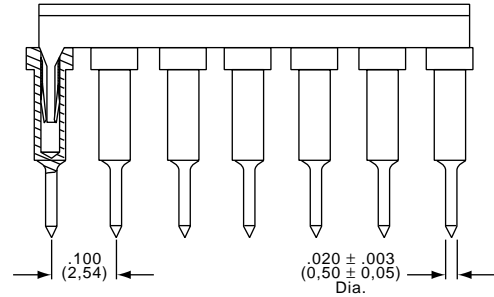
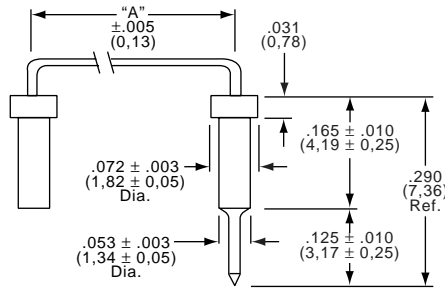
- Contact Resistance10 Milliohms max.
- Contact Rating3 Amps
- Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
- Insulation Resistance5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
- Dielectric Withstanding
Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

- HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
- Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
- Operation TemperatureGold inner contact -55°C to +125°C,
Tin/lead inner contact -55°C to +105°C

Four-Fingered Contacts Disposable Carriers

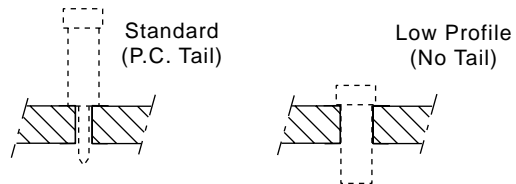
700 Series



REPLACEMENT SOCKET TERMINALS

	Standard Mount	Low Profile Mount
Gold Sleeve	LSG-1AG14-1	LSG-1DG17-1
Tin/Lead Sleeve	LSG-1AG14-14	LSG-1DG17-14

MOUNTING OPTIONS



STANDARD MOUNT PART NUMBERS

Economy Series Part Number	Premium Series Part Number	Number of Contacts	Contact Plating	Sleeve Plating	A	Economy Series Part Number	Premium Series Part Number	Number of Contacts	Contact Plating	Sleeve Plating	A
706-AG2D-ES 706-AG2D-ESL	706-AG1D 706-AG2D	6 6	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	.300 (7,62)	724-AG2D-ES 724-AG2D-ESL	724-AG1D 724-AG2D	24 24 24	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	.300 (7,62)
708-AG2D-ES 708-AG2D-ESL	708-AG1D 708-AG2D	8 8 8	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		724-AG22D-ES 724-AG22D-ESL	724-AG21D 724-AG22D	24 24 24	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	.400 (10,16)
714-AG2D-ES 714-AG2D-ESL	714-AG1D 714-AG2D	14 14 14	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		724-AG4D-ES 724-AG4D-ESL	724-AG3D 724-AG4D	24 24 24	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	.600 (15,24)
716-AG2D-ES 716-AG2D-ESL	716-AG1D 716-AG2D	16 16 16	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		728-AG4D-ES 728-AG4D-ESL	728-AG3D 728-AG4D	28 28 28	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	
718-AG2D-ES 718-AG2D-ESL	718-AG1D 718-AG2D	18 18 18	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		732-AG4D-ES 732-AG4D-ESL	732-AG3D 732-AG4D	32 32 32	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	
720-AG2D-ES 720-AG2D-ESL	720-AG1D 720-AG2D	20 20 20	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		736-AG4D-ES 736-AG4D-ESL	736-AG3D 736-AG4D	36 36 36	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	
722-AG2D-ES 722-AG2D-ESL	722-AG1D 722-AG2D	22 22 22	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead		740-AG4D-ES 740-AG4D-ESL	740-AG3D 740-AG4D	40 40 40	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead	
722-AG22D-ES 722-AG22D-ESL	722-AG21D 722-AG22D	22 22 22	Gold Gold Low Gold	Gold Tin/Lead Tin/Lead							

LOW PROFILE PART NUMBERS

Low Profile Part Number	Number of Contacts	Outer Sleeve Plating	A	Low Profile Part Number	Number of Contacts	Outer Sleeve Plating	A
706-AG10D 706-AG20D	6 6	Gold Tin/Lead	.300 (7,62)	724-AG10D 724-AG20D	24 24	Gold Tin/Lead	.300 (7,62)
708-AG10D 708-AG20D	8 8	Gold Tin/Lead		724-AG410D 724-AG420D	24 24	Gold Tin/Lead	.400 (10,16)
714-AG10D 714-AG20D	14 14	Gold Tin/Lead		724-AG30D 724-AG40D	24 24	Gold Tin/Lead	.600 (15,24)
716-AG10D 716-AG20D	16 16	Gold Tin/Lead		728-AG30D 728-AG40D	28 28	Gold Tin/Lead	
718-AG10D 718-AG20D	18 18	Gold Tin/Lead		732-AG30D 732-AG40D	32 32	Gold Tin/Lead	
720-AG10D 720-AG20D	20 20	Gold Tin/Lead		736-AG30D 736-AG40D	36 36	Gold Tin/Lead	
722-AG10D 722-AG20D	22 22	Gold Tin/Lead		740-AG30D 740-AG40D	40 40	Gold Tin/Lead	
722-AG310D 722-AG320D	22 22	Gold Tin/Lead					

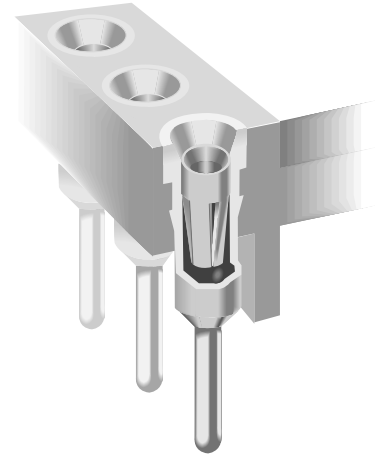
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Four-Fingered Contact Open Insulator

800 Series




828-AG11D-ES



FEATURES:

The 800 Series combines precision four-fingered inner contacts with an open ladder insulator to produce the ultimate high-reliability socket.

- Precision four-fingered inner contacts provide concentric funnel entry for easy flat and round lead insertion
- “X” & “Y” stackable. Open ladder for cooling, cleaning and inspection. Low profile
- Accommodates 8 through 64 pins DIPS, rectangular or round IC leads
- Non-wicking, closed bottom sleeve provides 100% protection against flux and solder contamination. Choice of solderless wrap or PC termination
-  Recognized under the Component Program of Underwriter Laboratories, Inc. File No. E111362
- Beryllium copper inner contact for maximum mechanical and electrical performance
- Machined (Premium Series) and stamped (Economy Series) contacts are available
- For extreme conditions involving shock and vibration, The AMP high retention force contact is available

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- PCB Hole Size Range: .035" ± .002" (0,89 ± 0,05) PC tail, .055" ± .003" (1,40 ± 0,08) solderless wrap
- IC Pin Dimension Range: .009" x .015" (0,23 x 0,38) through .011" x .020" (0,28 x 0,51) .016" to .021" (0,41 to 0,53) round lead .105" (2,67) min. length

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 SleeveMachined brass
 ContactBeryllium copper
 Sleeve PlatingTin/lead or gold
 Contact PlatingPremium or Economy Series (ES) - gold or tin/lead
 Economy Series (ESL) - low gold

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 ShockPassed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force125 Grams (4.4 oz.) average with .018" (0,46) dia. polished steel pin (Premium Series)
 200 Grams (7.1 oz.) average with .018" (0,46) dia. polished steel pin (Economy Series)
 Inner Contact Retention7.5 Lbs. per line average
 Sleeve Retention in Plastic3.0 Lbs. per line minimum
 SolderabilityPassed MIL-STD-202F, Method 208
 Insertion ForcePremium - 134 grams (4.7 oz.) average with a .018" (0,46) dia. polished steel pin
 Economy - 179 grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with a (Premium and Economy) .018" (0,46) dia. polished steel pin

ELECTRICAL

Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps
 Capacitance1 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C, Tin/lead inner contact -55°C to +105°C

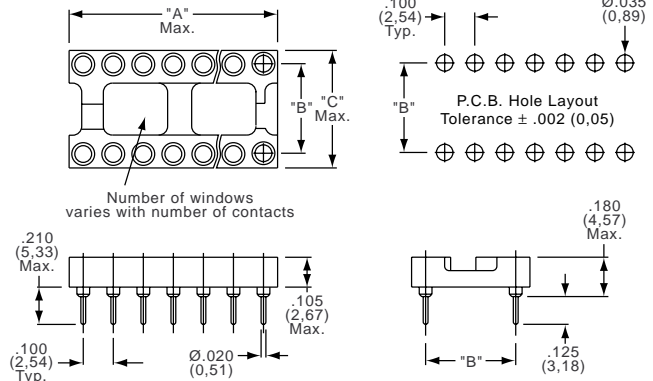
Four-Fingered Contact Open Insulator

800 Series

STANDARD CONFIGURATIONS

Number of Contacts	A	B*	C	Number of Contacts	A	B*	C		
8	.400 (10,16)	.300 (7,62)	.400 (10,16)	24	1.200 (30,48)	.600 (15,24)	.700 (17,78)		
14	.700 (17,78)			28	1.400 (35,56)				
16	.800 (20,32)			32	1.600 (40,64)				
18	.900 (22,86)			36	1.800 (45,72)				
20	1.000 (25,40)			40	2.000 (50,80)				
22	1.100 (27,94)	.400 (10,16)	.500 (12,70)	42	2.100 (53,34)				
24	1.200 (30,48)	.300 (7,62)	.400 (10,16)	48	2.400 (60,96)				
24		.400 (10,16)	.500 (12,70)	64	3.200 (81,28)			.900 (22,86)	1.000 (25,40)

* Dimension B ± .005
(0,13)



Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PART NUMBERS

Economy Series	Premium Series	Position	Centerline	Contact	Sleeve	Economy Series	Premium Series	Position	Centerline	Contact	Sleeve
348465	348465	6	.300 (7,62)	Gold	Tin/Lead	348479	348479	24		Gold	Tin/Lead
348466	348466	8	.300 (7,62)	Gold	Tin/Lead	824-AG10D-ES	824-AG10D	24	.600 (15,24)	Gold	Gold
808-AG10D-ES	808-AG10D	8		Gold	Gold	824-AG10D-ESL		24		Low Gold	Gold
808-AG10D-ESL		8		Low Gold	Gold	824-AG11D-ES	824-AG11D	24		Gold	Tin/Lead
808-AG11D-ES	808-AG11D	8		Gold	Tin/Lead	824-AG11D-ESL		24		Low Gold	Tin/Lead
808-AG11D-ESL		8		Low Gold	Tin/Lead	824-AG12D-ES	824-AG12D	24		Tin/Lead	Tin/Lead
348467	348467	10	.300 (7,62)	Gold	Tin/Lead	348474	348474	28	.300 (7,62)	Gold	Tin/Lead
348468	348468	14	.300 (7,62)	Gold	Tin/Lead	348477	348477	28	.400 (10,16)	Gold	Tin/Lead
814-AG10D-ES	814-AG10D	14		Gold	Gold	348480	348480	28		Gold	Tin/Lead
814-AG10D-ESL		14		Low Gold	Gold	828-AG10D-ES	828-AG10D	28	Gold	Gold	
814-AG11D-ES	814-AG11D	14		Gold	Tin/Lead	828-AG10D-ESL		28	Low Gold	Gold	
814-AG11D-ESL		14		Low Gold	Tin/Lead	828-AG11D-ES	828-AG11D	28	Gold	Tin/Lead	
814-AG12D-ES	814-AG12D	14	Tin/Lead	Tin/Lead	828-AG11D-ESL		28	Low Gold	Tin/Lead		
					828-AG12D-ES	828-AG12D	28	Tin/Lead	Tin/Lead		
348469	348469	16	.300 (7,62)	Gold	Tin/Lead	348478	348478	32	.400 (10,16)	Gold	Tin/Lead
816-AG10D-ES	816-AG10D	16		Gold	Gold	348481	348481	32		Gold	Tin/Lead
816-AG10D-ESL		16		Low Gold	Gold	832-AG10D-ES	832-AG10D	32	Gold	Gold	
816-AG11D-ES	816-AG11D	16		Gold	Tin/Lead	832-AG10D-ESL		32	Low Gold	Gold	
816-AG11D-ESL		16		Low Gold	Tin/Lead	832-AG11D-ES	832-AG11D	32	Gold	Tin/Lead	
816-AG12D-ES	816-AG12D	16	Tin/Lead	Tin/Lead	832-AG11D-ESL		32	Low Gold	Tin/Lead		
					832-AG12D-ES	832-AG12D	32	Tin/Lead	Tin/Lead		
348470	348470	18	.300 (7,62)	Gold	Tin/Lead	348482	348482	36		Gold	Tin/Lead
818-AG10D-ES	818-AG10D	18		Gold	Gold	836-AG10D-ES	836-AG10D	36	Gold	Gold	
818-AG10D-ESL		18		Low Gold	Gold	836-AG10D-ESL		36	Low Gold	Gold	
818-AG11D-ES	818-AG11D	18		Gold	Tin/Lead	836-AG11D-ES	836-AG11D	36	Gold	Tin/Lead	
818-AG11D-ESL		18		Low Gold	Tin/Lead	836-AG11D-ESL		36	Low Gold	Tin/Lead	
818-AG12D-ES	818-AG12D	18	Tin/Lead	Tin/Lead	836-AG12D-ES	836-AG12D	36	Tin/Lead	Tin/Lead		
348471	348471	20	.300 (7,62)	Gold	Tin/Lead	348483	348483	40		Gold	Tin/Lead
820-AG10D-ES	820-AG10D	20		Gold	Gold	840-AG10D-ES	840-AG10D	40	Gold	Gold	
820-AG10D-ESL		20		Low Gold	Gold	840-AG10D-ESL		40	Low Gold	Gold	
820-AG11D-ES	820-AG11D	20		Gold	Tin/Lead	840-AG11D-ES	840-AG11D	40	Gold	Tin/Lead	
820-AG11D-ESL		20		Low Gold	Tin/Lead	840-AG11D-ESL		40	Low Gold	Tin/Lead	
820-AG12D-ES	820-AG12D	20	Tin/Lead	Tin/Lead	840-AG12D-ES	840-AG12D	40	Tin/Lead	Tin/Lead		
348472	348472	22	.300 (7,62)	Gold	Tin/Lead	348484	348484	42		Gold	Tin/Lead
348475	348475	22	.400 (10,16)	Gold	Tin/Lead	842-AG10D-ES	842-AG10D	42		Gold	Tin/Lead
822-AG10D-ES	822-AG10D	22		Gold	Gold	842-AG10D-ESL		42	Low Gold	Gold	
822-AG10D-ESL		22		Low Gold	Gold	842-AG11D-ES	842-AG11D	42	Gold	Tin/Lead	
822-AG11D-ES	822-AG11D	22		Gold	Tin/Lead	842-AG11D-ESL		42	Low Gold	Tin/Lead	
822-AG11D-ESL		22		Low Gold	Tin/Lead	842-AG12D-ES	842-AG12D	42	Tin/Lead	Tin/Lead	
822-AG12D-ES	822-AG12D	22	Tin/Lead	Tin/Lead							
348473	348473	24	.300 (7,62)	Gold	Tin/Lead	348485	348485	48		Gold	Tin/Lead
824-AG30D-ES	824-AG30D	24		Gold	Gold	848-AG10D-ES	848-AG10D	48	Gold	Gold	
824-AG30D-ESL		24		Low Gold	Gold	848-AG10D-ESL		48	Low Gold	Gold	
824-AG31D-ES	824-AG31D	24		Gold	Tin/Lead	848-AG11D-ES	848-AG11D	48	Gold	Tin/Lead	
824-AG31D-ESL		24		Low Gold	Tin/Lead	848-AG11D-ESL		48	Low Gold	Tin/Lead	
824-AG32D-ES	824-AG32D	24	Tin/Lead	Tin/Lead	848-AG12D-ES	848-AG12D	48	Tin/Lead	Tin/Lead		
348476	348476	24	.400 (10,16)	Gold	Tin/Lead	348486	348486	50	.600 (15,24)	Gold	Tin/Lead
824-AG65D-ES	824-AG65D	24		Gold	Gold	348488	348488	50	.900 (22,86)	Gold	Tin/Lead
824-AG65D-ESL		24		Low Gold	Gold						
824-AG66D-ES	824-AG66D	24		Gold	Tin/Lead						
824-AG66D-ESL		24		Low Gold	Tin/Lead						
824-AG14D-ES	824-AG14D	24	Tin/Lead	Tin/Lead							

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Sockets

Four Fingered Contact Open Insulator

PART NUMBERS

Economy Series	Premium Series	Position	Centerline	Contact	Sleeve	Economy Series	Premium Series	Position	Centerline	Contact	Sleeve
348487	348487	52	.600 (15,24)	Gold	Tin/Lead	864-AG10D-ESL		64		Low Gold	Gold
						864-AG11D-ES	864-AG11D	64	.900 (22,86)	Gold	Tin/Lead
348489	348489	52	.900 (22,86)	Gold	Tin/Lead	864-AG11D-ESL		64		Low Gold	Tin/Lead
						864-AG12D-ES	864-AG12D	64		Tin/Lead	Tin/Lead
348490	348490	64	.900 (22,86)	Gold	Tin/Lead						
864-AG10D-ES	864-AG10D	64		Gold	Gold						

Economy and Premium Series - .180" (4,57) PC Tail Pins

- 8XX-AG44D-XXX - Gold contact, tin/lead sleeve
- 8XX-AG45D-XXX - Gold contact, gold sleeve
- 8XX-AG43D-XXX - Tin/lead contact, tin/lead sleeve

High Retention Series

- 8XX-AG34D - Gold contact, tin/lead sleeve
- 8XX-AG33D - Gold contact, gold sleeve
- 8XX-AG38D - Tin/lead contact, tin/lead sleeve

Note: Part numbers in this chart and in detail shown refer to a .125" (3,18) PC Tail Pin

For wire-wrap sockets or 24 position on .300" (7,62) or .400" (10,16) in high retention or .180" (4,57) tails, please consult Tyco Electronics.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Surface Mount

800 SM Series



814-AG11SM

FEATURES:

Tyco Electronics offers the precision machined 800SM Series which achieves compliancy to the board surface and is designed for high temperatures typical of vapor phase and infrared reflow soldering.

- "Butt" style terminals float in plastic housing for compliancy to board surface
- Precision four-fingered inner contacts provide concentric funnel entry for easy flat or round insertion

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- IC Pin Dimension Range: .009" x .015" (0,23 x 0,38) through .011" x .020" (0,28 x 0,51) .016" to .021" (0,41 to 0,53) round lead .105" (2,67) min. length

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 Outer SleeveBrass
 Contacts.....Beryllium copper
 Sleeve PlatingTin/lead
 Contact PlatingGold or tin/lead

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 Shock.....Passed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Inner Contact Retention7.5 Lbs. per line average
 SolderabilityPassed MIL-STD-202F, Method 208
 Insertion Force179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with a .018" (0,46) dia. polished steel pin

ELECTRICAL

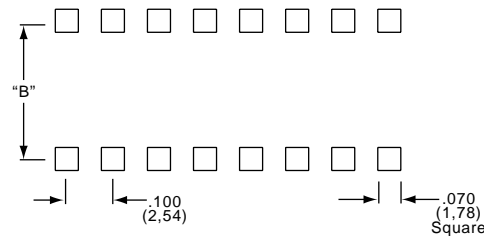
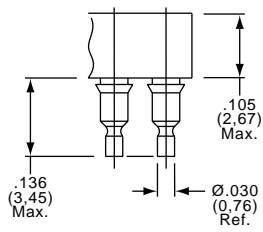
Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

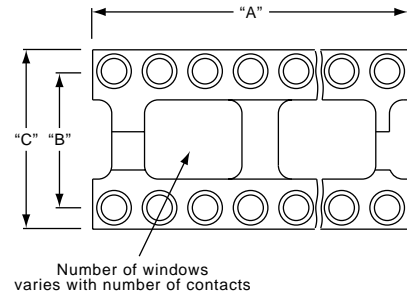
HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C, Tin/lead inner contact -55°C to +105°C

Surface Mount

800 SM Series



Recommended Pad Pattern
Tolerance ± .002 (0,05)



STANDARD CONFIGURATIONS

Number of Contacts	A	B*	C	Number of Contacts	A	B*	C		
8	.400 (10,16)	.300 (7,62)	.400 (10,16)	24	1.200 (30,48)	.600 (15,24)	.700 (17,78)		
14	.700 (17,78)			28	1.400 (35,36)				
16	.800 (20,32)			32	1.600 (40,64)				
18	.900 (22,86)			36	1.800 (45,72)				
20	1.000 (25,40)			40	2.000 (50,80)				
22	1.100 (27,94)	.400 (10,16)	.500 (12,70)	42	2.100 (53,34)				
24	1.200 (30,48)	.300 (7,62)	.400 (10,16)	48	2.400 (60,96)				
24	1.200 (30,48)	.400 (10,16)	.500 (12,70)	64	3.200 (81,28)			.900 (22,86)	1.000 (25,40)

* Dimension B ± .005
(0,13)

PART NUMBERS

Part Number	Position	Centerline	Contact	Part Number	Position	Centerline	Contact
808-AG11SM	8	.300	Gold	824-AG11SM	24	.600	Gold
808-AG12SM	8	(7,62)	Tin/Lead	824-AG12SM	24	(15,24)	Tin/Lead
814-AG11SM	14	.300	Gold	828-AG11SM	28	.600	Gold
814-AG12SM	14	(7,62)	Tin/Lead	828-AG12SM	28	(15,24)	Tin/Lead
816-AG11SM	16	.300	Gold	832-AG11SM	32	.600	Gold
816-AG12SM	16	(7,62)	Tin/Lead	832-AG12SM	32	(15,24)	Tin/Lead
818-AG11SM	18	.300	Gold	836-AG11SM	36	.600	Gold
818-AG12SM	18	(7,62)	Tin/Lead	836-AG12SM	36	(15,24)	Tin/Lead
820-AG11SM	20	.300	Gold	840-AG11SM	40	.600	Gold
820-AG12SM	20	(7,62)	Tin/Lead	840-AG12SM	40	(15,24)	Tin/Lead
822-AG11SM	22	.300	Gold	842-AG11SM	42	.600	Gold
822-AG12SM	22	(7,62)	Tin/Lead	842-AG12SM	42	(15,24)	Tin/Lead
824-AG31SM	24	.300	Gold	848-AG11SM	48	.600	Gold
824-AG32SM	24	(7,62)	Tin/Lead	848-AG12SM	48	(15,24)	Tin/Lead
824-AG66SM	24	.400	Gold	864-AG11SM	64	.900	Gold
824-AG14SM	24	(10,16)	Tin/Lead	864-AG12SM	64	(22,86)	Tin/Lead

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

DIP Insertion and Withdrawal Tools

TI/TW Series



T114-1

DIP WITHDRAWAL TOOL

Part Number	Description
T114-1	Simple tool that assists removal of DIP from top side of panel

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

The insertion and extraction of dual inline integrated circuit packages has always presented the problem of aligning all leads simultaneously. The TI/TW family of tools solve this problem with a range of tools for 8 thru 40 pin devices.

FEATURES:

- Smooth insertion and withdrawal of ICs.
- Prevents bending of IC leads while inserting and removing.
- Ensures greater socketing reliability.
- Uses limited amount of board space for support.
- Available in flexible roll pouch for convenient organization of service tool kit.



TI 8136-14/16

INSERTION TOOLS

Part Number	Accepts Components
TI8136-8	8 leads on .300 (7,62) centers
TI8136-14/16	14 and 16 leads on .300 (7,62) centers
TI8136-18/20	18 and 20 leads on .300 (7,62) centers
TI8136-22	22 leads on .400 (10,16) centers
TI8136-24/28	24 and 28 leads on .600 (15,24) centers
TI8136-32/40	32 thru 40 leads on .600 (15,24) centers



TW 8136-24/28

WITHDRAWAL TOOLS

Part Number	Accepts Components
TW8136-8	8 leads on .300 (7,62) centers
TW8136-14/20	14 and 16 leads on .300 (7,62) centers
TW8136-22	22 leads on .400 (10,16) centers
TW8136-24/28	24 and 28 leads on .600 (15,24) centers
TW8136-32/40	32 thru 40 leads on .600 (15,24) centers
TK8136-1G1	8 thru 40 position insertion and extraction tools in a 26-pocket, reinforced, double thick vinyl roll pouch

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

DIP Withdrawal Tools

TX Series

FEATURES:

- The extractor tool uses the shoulders of the IC socket or surface of the printed wiring board as a stable lifting platform, designed for no slippage or misalignment during removal of the IC, as often happens when using traditional IC removal tools.
- Can be grounded to protect delicate MOS devices from static discharge.
- Lead screw adjustment applies a constant parallel axial force, eliminating problems with bent or broken IC pins.
- These extractor tools remove soldered or socketed ICs from printed wiring boards. Soldered ICs are removed by applying heat to the soldered junction, while gently turning knob to exert a continuous force.

OPERATION:

Plunger button opens and closes support legs encasing the IC. Turning knob raises the IC from its socketed or soldered position.

IC WITHDRAWAL TOOL

The TX 8136 Family of precision lead extractor tools provide for a controlled, aligned and parallel withdrawal of ICs. This saves you many times the cost of the tool by protecting expensive IC devices from pin damage.



TX 8136-40

WITHDRAWAL TOOLS

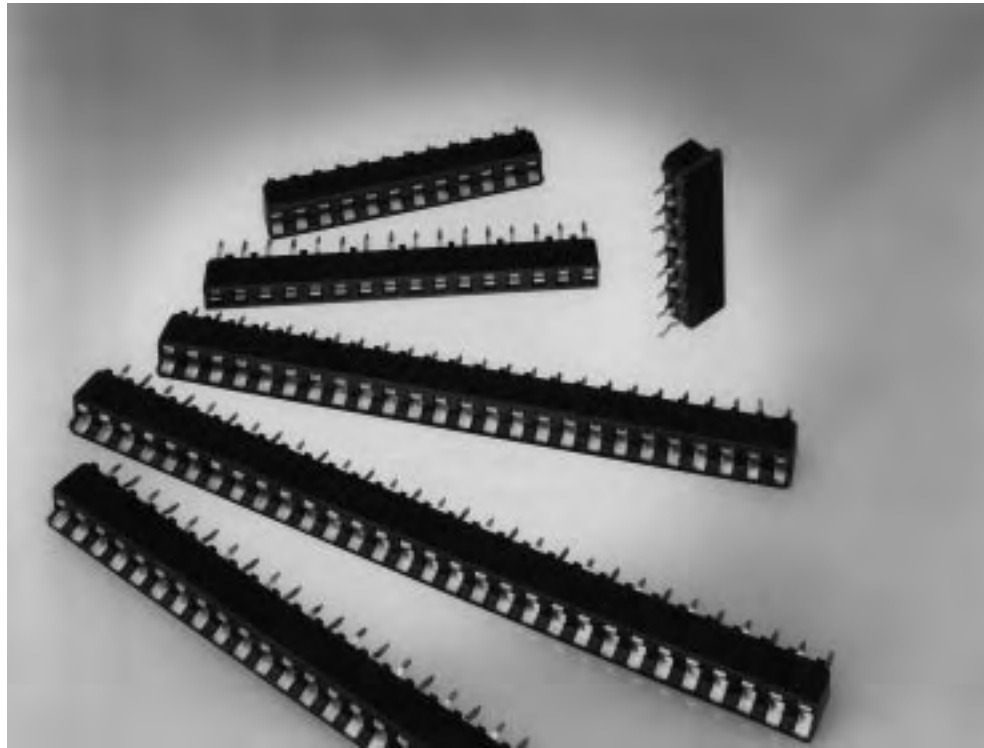
Part Number	Description
TX8136-14/20	14 to 20 pins .300" (7,62) rows
TX8136-22	22 pins .400" (10,16) rows
TX8136-24	24 pins .600 (15,24) rows
TX8136-40	40 pins .600 (15,24) rows
TX8136-64	64 pins .900" (22,86) rows

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Solder Tail Dual Leaf (DL) Contact

Product Facts

- Low Profile — .210 [5.33] max. seating plane above pc board
- Dual wiping contacts
- Face wipe contacts for high reliability and constant, low resistance
- Anti-overstress prevents contact damage
- Large target area with tapered lead-in ramps for easy SIP insertion
- “True closed bottom” design inhibits solder wicking and flux contamination
- Stackable end-to-end and side-to-side (brickwalling) for high board density
- Housing standoffs and slots facilitate board cleaning
- Family of 3 through 25 positions
- Retention-style solder tails
- Visual polarization
- Meets the material requirements of Table 23.1 of UL 1410 Standard for Television Receivers and Video Products
- Tin or gold plated beryllium copper or tin plated phosphor bronze contacts
- Designed to meet EIA RS-415, MIL-S-83734 and stringent computer specifications
- Recognized under the Component Program of Underwriters Laboratories Inc., File E28476
- Certified by Canadian Standards Association File No. LR 7189



The Dual Leaf (DL) SIP socket family provides high quality at low cost with superior handling characteristics. Sockets are available in 3- through 25-position sizes with dual wiping contacts in tin and gold plating over beryllium copper or economical tin plated phosphor bronze. The large target area of the contacts and tapered side ramps in the housing promote easy entry of a SIP package. Internal anti-overstress walls prevent contact damage. These stackable housings feature a “true closed bottom” design which prevents solder or flux wicking at class 1 conditions of EIA 486.

Standoffs provide board clearance for proper cleaning after soldering. Sockets are available with retention feature solder tails for self retention in the pc board during handling and flow soldering.

Housings are constructed from self-extinguishing glass-filled polyester, 94V-0 rated material and meet the material requirements of Table 23.1 of UL 1410 Standard for Television Receivers and Video Products.

The DL SIP Socket family meets the requirements of EIA RS-415, MIL-S-83734 and the most stringent specifications of main-frame computer manufacturers.

Performance Characteristics:

- Rating** — Signal application only
- Contact Resistance** — 20 milliohms max. (initial)
30 milliohms max. (after test)
- Dielectric Withstanding Voltage** — 1000 VRMS min.
- Insulation Resistance** — 5000 megohms min.
- Capacitance** — 0.5 picofarad max.
- Operating Temperature** —
-55°C to +105°C (tin)
-55°C to +125°C (gold)
- Vibration** — 15 Gs, 10-2000-10 Hz in 20 minutes
- Shock** — 100 Gs sawtooth, 6 shocks
- Engaging Force** — 340 grams [3.33 N] max. (.013 [0.33] pin)
- Separating Force** — 25 grams [0.24 N] (.008 [0.2] pin)

Technical Documents:

- Product Specification**
108-1066 Standard
- Application Specification**
114-1049

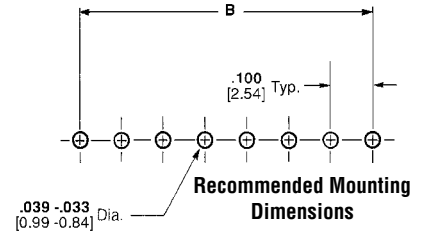
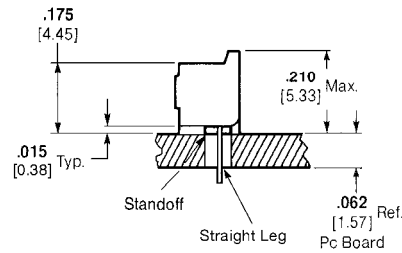
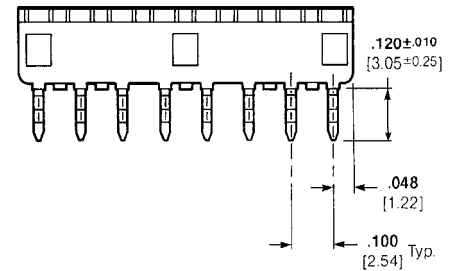
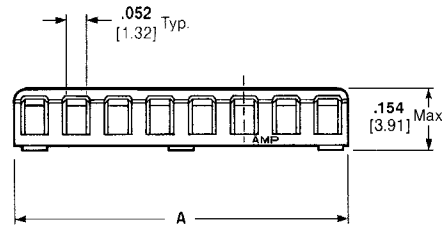
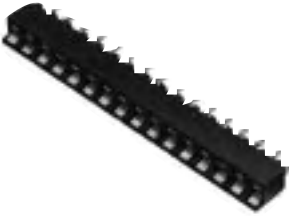
Solder Tail Dual Leaf (DL)

Sockets accept .008—.014 [0.2—0.36] thick x .030 [0.76] max. wide rectangular IC leads

Material and Finish:

Housing — Glass-filled thermo-plastic, 94V-0 rated, black

Contacts — Beryllium copper with gold or tin plating, or phosphor bronze with tin plating (see table)



No. of Positions	Dimensions		Straight Solder Tail		Retention Solder Tail		Package Quantities				
	A	B	Beryllium Copper	Phosphor Bronze	Beryllium Copper	Phosphor Bronze	Qty. Per Tray	Trays Per Box	Total Qty. Per Box		
			Tinned	.000030 [0.00076] Gold Plate	Tinned	Tinned				.000030 [0.00076] Gold Plate	
3	.295 7.49	.200 5.08	382437-1	—	382437-3	—	—	740	4	2960	
4	.395 10.03	.300 7.62	382438-1	—	382438-3	—	—	560	4	2240	
8	.795 20.19	.700 17.78	643640-1	643640-2	—	643640-6	—	643640-8	280	4	1120
9	.895 22.73	.800 20.32	—	—	—	643641-6	—	643641-8	240	4	960
10	.995 25.27	.900 22.86	643642-1	643642-2	—	643642-6	—	643642-8	220	4	880
11	1.095 27.81	1.000 25.40	—	643643-2	—	643643-6	—	643643-8	200	4	800
12	1.195 30.35	1.100 27.94	643644-1	—	643644-3	643644-6	—	643644-8	180	4	720
13	1.295 32.89	1.200 30.48	—	643645-2	643645-3	643645-6	—	—	160	4	640
14	1.395 35.43	1.300 33.02	643646-1	—	643646-3	643646-6	—	643646-8	160	4	640
15	1.495 37.97	1.400 35.56	643647-1	—	—	643647-6	—	643647-8	140	4	560
16	1.595 40.51	1.500 38.10	643648-1	—	643648-3	—	—	643648-8	140	4	560
17	1.695 43.05	1.600 40.64	643649-1	—	—	—	—	643649-8	120	4	480
18	1.795 45.59	1.700 43.18	643650-1	—	—	643650-6	—	—	120	4	480
19	1.895 48.13	1.800 45.72	—	—	643651-3	—	—	643651-8	100	4	400
20	1.995 50.75	1.900 48.26	643652-1	—	643652-3	643652-6	643652-7	—	100	4	400
21	2.095 53.21	2.000 50.80	643653-1	—	643653-3	643653-6	—	—	100	4	400
22	2.195 55.75	2.100 53.34	643654-1	—	—	—	—	—	100	4	400
23	2.295 58.29	2.200 55.88	—	—	—	643655-6	—	643655-8	80	4	320
24	2.395 60.83	2.300 58.42	—	—	2-643656-3*	—	—	—	16	140	2240
25	2.495 63.37	2.400 60.96	643657-1	643657-2	—	643657-6	—	—	80	4	320
29	2.895 73.53	2.800 71.12	—	—	643661-3	—	—	—	60	4	240
30	2.995 76.07	2.900 73.66	643662-1	—	643662-3	—	—	—	60	4	240

*Packaged in tubes.

Terminal Strips, Four-Fingered Contact

500 Series



510AG91D08ESL

FEATURES:

- Available in strips of 1 to 20
- Breakaway feature for breaking strips into any desired shorter lengths (no special tooling required)
- Contact features closed end construction eliminating any solder or flux wicking problems
- Two-piece tapered entry closed entry inner contact and outer sleeve
- Accepts any IC lead and component leads .016" - .021" (0,41 - 0,53) dia., .105" (2,67) minimum length
- Uses: microprocessor sockets, hybrid IC sockets, Q.I.L. sockets, component sockets and test points
- Machined (Premium Series) and stamped (Economy Series) contacts are available

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- PCB Hole Size Range: .035" ± .003" (0,89 ± 0,08) PC tail, .055" ± .003" (1,40 ± 0,08) Solderless wrap
- IC Pin Dimension Range: .009" x .015" (0,23 x 0,38) through .011" x .020" (0,28 x 0,51) .016" x .021" (0,41 x 0,53) round lead .105" (2,67) min. length

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 Inner Contact.....Beryllium copper, gold or tin/lead plated
 SleeveBrass, gold or tin/lead plated

PART NUMBERS

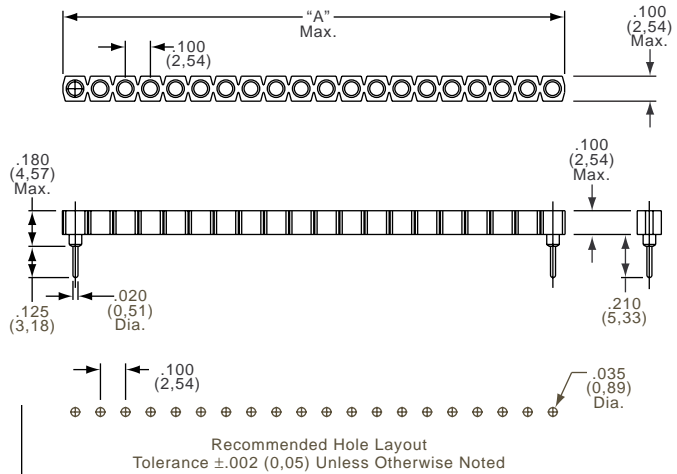
Economy Series	Premium Series	Number of Contacts	Contact Plating	Sleeve Plating	Dim. A
510AG90D10ES	510-AG90D-10	10	Gold	Gold	1.000 (25,40)
510AG90D10ESL			Low Gold	Gold	
510AG91D10ES	510-AG91D-10		Gold	Tin/Lead	
510AG91D10ESL			Low Gold	Tin/lead	
510AG92D10ES	510-AG92D-10	20	Tin/Lead	Tin/Lead	2.000 (50,80)
510AG90D20ES	510-AG90D-20		Gold	Gold	
510AG90D20ESL			Low Gold	Gold	
510AG91D20ES	510-AG91D-20		Gold	Tin/Lead	
510AG91D20ESL		Low Gold	Tin/lead		
510AG92D20ES	510-AG92D-20		Tin/Lead	Tin/Lead	

For sizes not shown or for wire-wrap termination, please consult Tyco Electronics.

ECONOMY AND PREMIUM SERIES - .180 PC TAIL PINS

510-AG45D-XX, 510AG45DXXES(L) - Gold Contact, Gold Sleeve
 510-AG44D-XX, 510AG44DXXES(L) - Gold Contact, Tin/Lead Sleeve
 510-AG42D-XX, 510AG42DXXES(L) - Tin/Lead Contact, Tin/Lead Sleeve

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 ShockPassed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force125 Grams (4.4 oz.) average with .018" (0,46) dia. polished steel pin (Premium Series)
200 Grams (7.1 oz.) average with .018" (0,46) dia. polished steel pin (Economy Series)
 Inner Contact Retention .. in Sleeve7.5 Lbs. per line average
 Sleeve Retention .. in Plastic.....3.0 Lbs. per line minimum
 SolderabilityPassed MIL-STD-202F, Method 208
 Insertion ForcePremium - 134 Grams (4.7 oz.) average with a .018" (0,46) dia. polished steel pin
Economy - 179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with a .018" (0,46) dia. polished steel pin



ELECTRICAL

Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C
Tin/lead inner contact -55°C to +105°C

Product Facts

- Metal latches eliminate breakage
- Reliable contact design for durability
- Heat resistant housings withstand most hostile environments
- Designed for robotic assembly to facilitate automatic manufacturing operations
- Very low insertion force for easy module insertion
- Positive polarization prevents misinsertion
- Recognized under the Component Program of Underwriters Laboratories Inc., File E28476 
- Certified by Canadian Standards Association File No. LR 7189 



Tyco Electronics offers a metal latch version of its MICRO-EDGE sockets. This feature eliminates the breakage associated with the misuse of SIMM sockets. In addition, the metal latches will prevent shaving and/or skiving, as happens with plastic latches, due to inconsistent manufacturing methods of the board edges.

The metal latch MICRO-EDGE sockets are available in .050 [1.27] centerline configurations.

All are available in vertical and angled/low profile designs, with and without center posts.

Performance Characteristics:

Current Rating — 1 ampere max.

Termination Resistance (Dry Circuit) — 30 milliohms max. (initial)

Dielectric Withstanding Voltage — 1.0 KVAC

Insulation Resistance — 10,000 megohms min. (initial)

Capacitance — 1.0 picofarad max.

Operating Temperature — -55°C to +105°C

Durability — 25 cycles min.

Technical Documents:

Product Specification
108-1095

Application Specification
114-1061

Instruction Sheet
408-9413

Vertical, .050 [1.27] Centerline

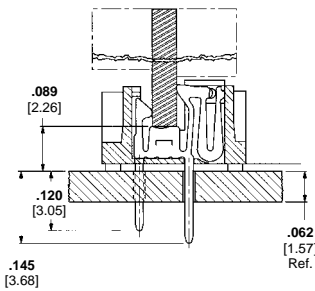
Single Row (Right Polarization)

Material and Finish:

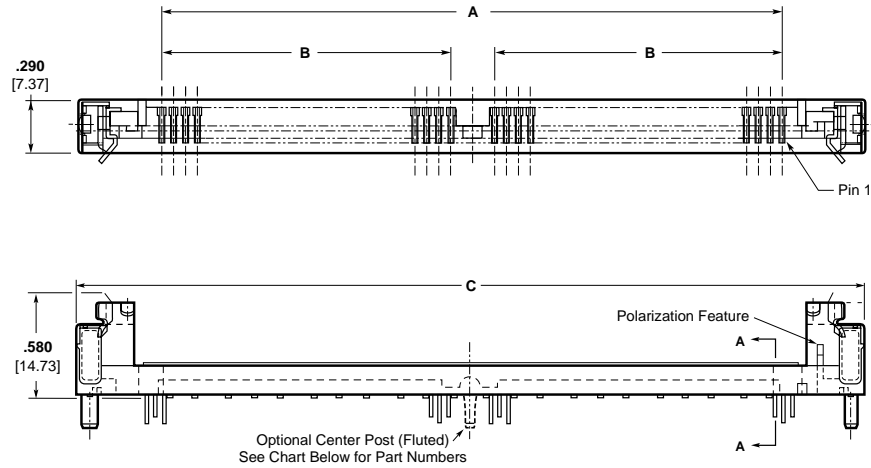
Housing — Liquid Crystal Polymer (LCP) UL 94V-0

Contacts — Phosphor bronze with .000200 [0.00508] min. thick tin-lead over .000050 [0.00127] min. thick nickel or .000030 [0.00076] min. thick gold on contact area and .000150 [0.0038] min. thick tin-lead on solder tails, all over .000050 [0.00127] min. thick nickel

Latch — Brass, nickel plated



Section A-A



No. of Positions	Dimensions			Part Numbers			
	A	B	C	Tin Plate		Gold Plate	
				With Fluted Center Post	Without Center Post	With Fluted Center Post	Without Center Post
72	3.750 95.25	1.750 44.45	4.550 115.57	822021-4	822019-4	822032-4	822031-4
80	4.150 105.41	1.950 49.53	4.950 125.73	822021-5	—	—	—

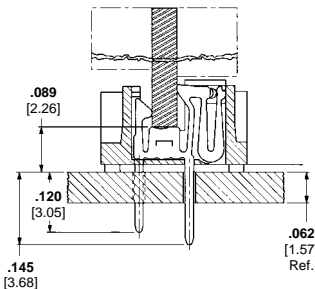
Single Row (Left Polarization)

Material and Finish:

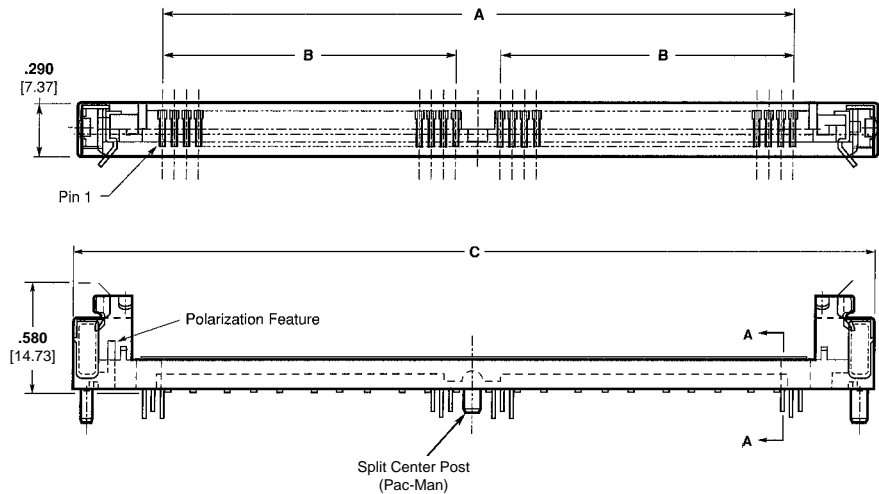
Housing — Liquid Crystal Polymer (LCP) UL 94V-0

Contacts — Phosphor bronze with .000200 [0.00508] min. thick tin-lead over .000050 [0.00127] min. thick nickel or .000030 [0.00076] min. thick gold on contact area and .000150 [0.0038] min. thick tin-lead on solder tails, all over .000050 [0.00127] min. thick nickel

Latch — Brass, nickel plated



Section A-A



No. of Positions	Dimensions			Part Numbers	
	A	B	C	Tin Plate	Gold Plate
				822030-3	821997-3
72	3.750 95.25	1.750 44.45	4.550 115.57	822030-3	821997-3
80	4.150 105.41	1.950 49.53	4.950 125.73	822030-4	—

22° Angular, .050 [1.27] Centerline

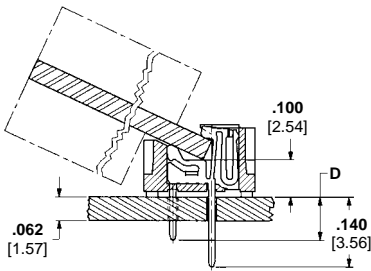
Low Profile (22°) Single Row with Optional Fluted or Split Retention Post

Material and Finish:

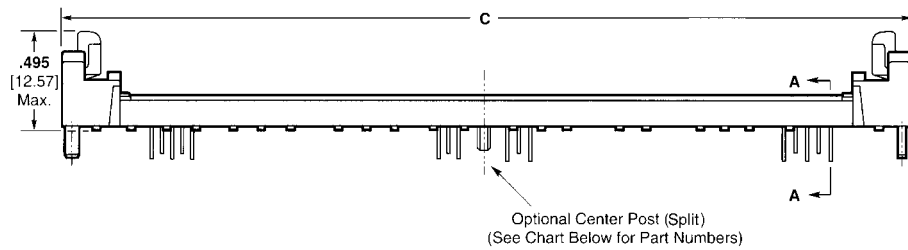
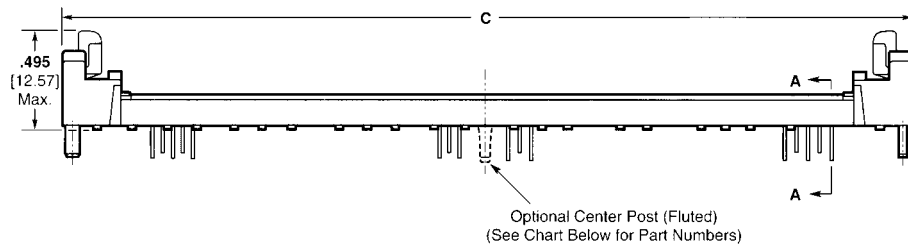
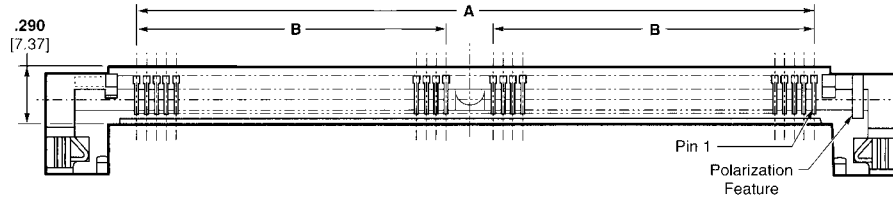
Housing — Liquid Crystal Polymer (LCP) UL 94V-0

Contacts — Phosphor bronze with .000200 [0.00508] min. thick tin-lead over .000050 [0.00127] min. thick nickel or .000030 [0.00076] min. thick gold on contact area and .000150 [0.0038] min. thick tin-lead on solder tails, all over .000050 [0.00127] min. thick nickel

Latch — Stainless steel





Section A-A



No. of Positions	Dimensions				Part Numbers					
	A	B	C	D	Tin Plate			Gold Plate		
					With Fluted Center Post	With Split Center Post	Without Center Post	With Fluted Center Post	With Split Center Post	Without Center Post
72	3.750	1.750	4.540	.115	822134-3	822110-3	822330-3	822137-3	822097-3	822138-3
	95.25	44.45	115.32	.140	—	822469-3	—	—	—	—
80	4.150	1.950	4.940	.115	822134-4	—	—	—	—	—
	105.41	49.53	125.48	.140	—	822469-4	—	—	—	—

Product Facts

- Accepts module boards in a thickness range of .047-.054 [1.19-1.37] to allow the use of JEDEC standard boards
- Polarized posts on socket provide a means of properly orienting the socket on the pc board
- Pin 1 indicator in the socket orients the module board to the socket
- .050 [1.27] centerline sockets offer three profile heights — .125 [3.18], .160 [4.06] and .250 [6.35] to allow the use of single- and dual-sided boards, and the placement of components beneath the module board if required
- Very low insertion force for easy module insertion
- Metal latches provide superior strength
- Center post on .050 [1.27] product provides retention in the pc board through the soldering process
- Recognized under the Component Program of Underwriters Laboratories Inc., File E28476 
- Certified by Canadian Standards Association File No. LR 7189 



Tyco Electronics developed the SIMM II Right Angle Sockets for interfacing Single In-Line Memory Module (SIMM) boards horizontally to the pc board while using a traditional cam-in approach. Available in .050 [1.27] centerline with gold and tin plating options, the sockets are designed to accept the JEDEC standard pc board thickness range of .047-.054 [1.19-1.37].

In order to allow for many different customer designs, the .050 [1.27] centerline sockets are available in three card slot heights — .125 [3.18], .160 [4.06] and .250 [6.35]. This multi-height capability allows customers to use single- or dual-sided module boards while providing the lowest overall height for packaging. The .125 [3.18] height version provides an extremely low profile interface while maintaining easy insertion and extraction within

restricted packaging specifications.

A very low insertion force is required to install the module board. To install, simply angle the module into the socket card slot, then pivot the module board into position where it is secured by the locking latches.

The housing is made from liquid crystal polymer (LCP), assuring strong durable ramps. The latches for the .125 [3.18] height versions are made from LCP while all other versions have metal latches. Polarizing posts coincide with mounting holes in the pc board to prevent misinsertion.

Performance Characteristics:

- Current Rating** — 1 ampere max.
- Termination Resistance (Dry Circuit)** — 20 milliohms max. (initial)
- Dielectric Withstanding Voltage** — 1 KVAC
- Insulation Resistance** — 10,000 megohms min. (initial)
- Operating Temperature** — -55°C to +85°C continuous, +105°C peak
- Durability** — 25 cycles min.

Technical Documents:

- Product Specification**
108-1297
- Application Specification**
114-1060

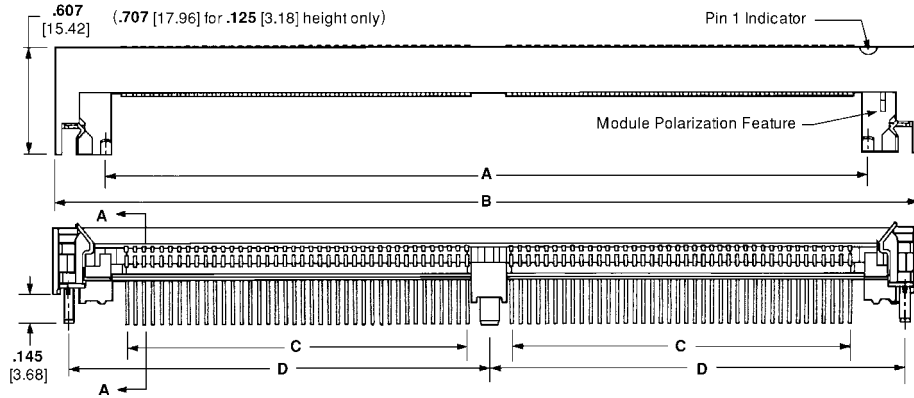
.050 [1.27] Centerline

Material and Finish:

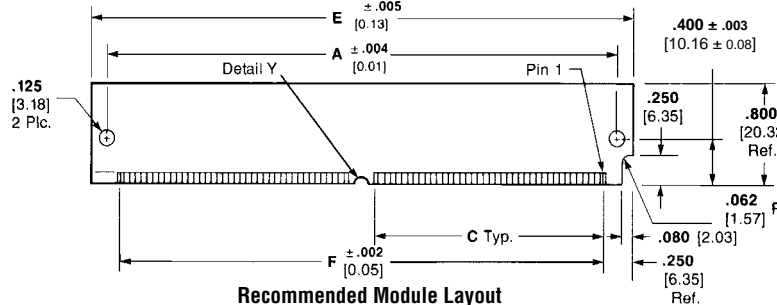
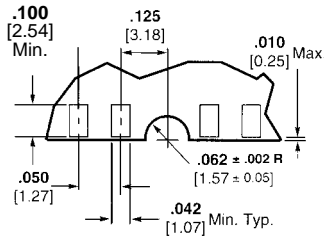
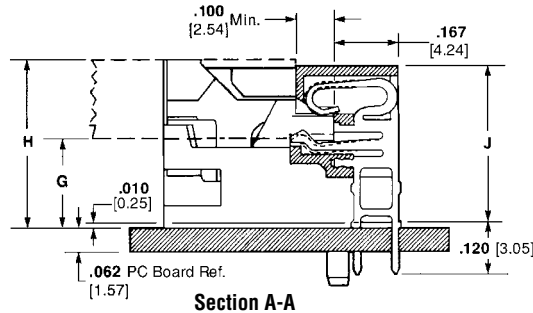
Housing — Liquid Crystal Polymer (LCP), glass filled, UL 94V-0

Contacts — Phosphor bronze with .000150 [0.0038] min. thick tin-lead over .000050 [0.00127] min. thick nickel or Duplex .000030 [0.00076] min. thick gold on contact area and .000150 [0.0038] min. thick tin-lead on solder tails, all over .000050 [0.00127] min. thick nickel

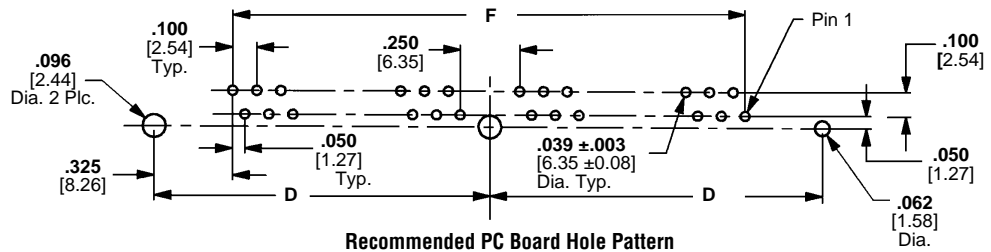
Latch — Brass with nickel plate on .160 [4.06] and .250 [6.35] height versions and LCP on .125 [3.18] version



Card Slot Height G	Dimensions	
	H	J
.125 3.18	.325 8.26	.304 7.72
.160 4.06	.360 9.14	.339 8.61
.250 6.35	.450 11.43	.429 10.90



Detail Y



No. of Positions	Dimensions						.125 [3.18] Height ¹		.160 [4.06] Height ²		.250 [6.35] Height ²	
	A	B	C	D	E	F	Gold Plate	Tin Plate	Gold Plate	Tin Plate	Gold Plate	
	72	3.984 101.19	4.550 115.57	1.750 44.45	2.200 55.88	4.250 107.95	3.750 95.25	7-382481-2	7-382482-2	7-382483-2	7-382486-2	7-382487-2
80	4.384 111.35	4.950 125.73	1.950 49.53	2.400 60.96	4.650 118.11	4.150 105.41	—	—	—	8-382486-0	—	

¹ Has plastic latches (plastic latches extend .707 [17.96] from back of housing).

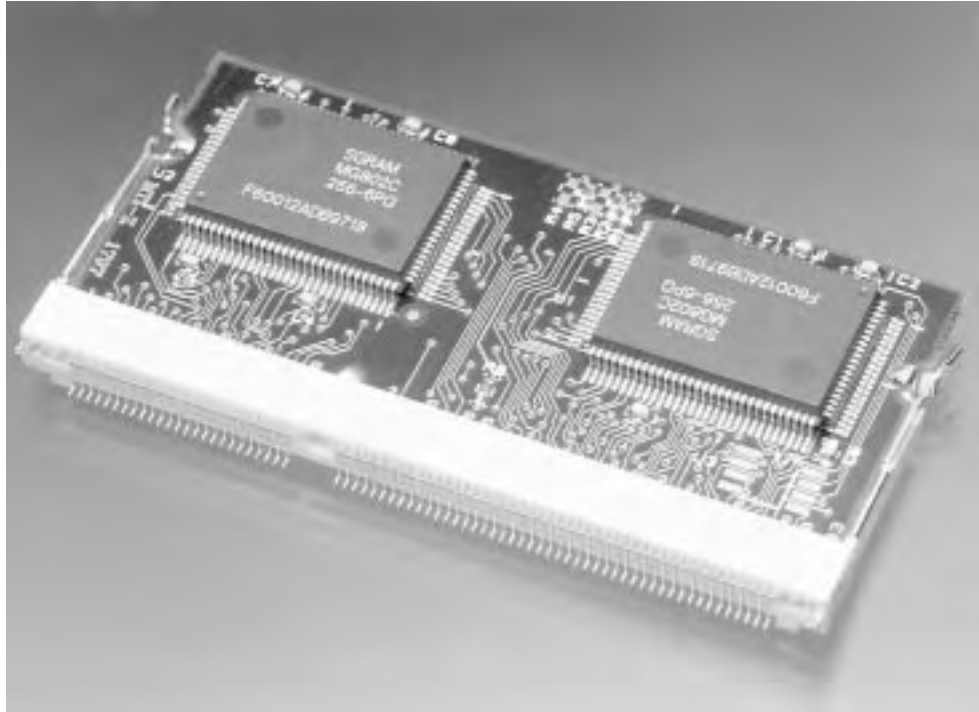
² Has metal latches.

Note: Metal latch version shown for purposes of illustration.

Dual Read-Out Sockets for SDRAM and SGRAM

Product Facts

- Sockets Dual Read-Out SDRAM and SGRAM
- Cam-in module loading provides easy insertion
- Positive wipe on pads during module insertion
- Contact performance in excess of 100 MHz
- Increased lead-in geometry reduces insertion force
- Module stabilization features



SO DIMM sockets are available in a 144-position dual read-out version for SDRAM (Synchronous Dynamic Random Access Memory) and a version for SGRAM (Synchronous Graphic Random Access Memory).

For use in Frame Buffer Memory applications, where height off the board is important, this socket is ideal because of its right angle, low vertical height design.

Sockets use 0.8mm centerline technology to provide more than triple the density of standard SIMM sockets and provide highly

reliable, low cost, space saving benefits. Easy aligning, cam-in module loading and dual locking levers provide for simple do-it-yourself upgrades.

The SDRAM version is available in four card slot heights of 2.1mm [.083 in.], 3.3mm [.130 in.], 3.7mm [.146 in.] and 8.0mm [.315 in.] for 3.3V power supplies.

The SGRAM version is available in two card slot heights; 3.7mm [.146] and 8.0 [.315] for 3.3V power supplies. Hard tray and tape-and-reel packaging are available for automatic placement. Contact Tyco Electronics for part number availability.

Performance Characteristics:

Operating Temperature — -55°C to +105°C

Termination Resistance (Dry Circuit) — 30 milliohms max., initial $\Delta R=20$ milliohms max., final

Dielectric Strength — 1.0 KVAC
Insulation Resistance — 10,000 megohms min.

Durability — 25 cycles

PCB Mating Force — 59.8 N [13.44 lb] max., initial

Technical Documents:

Product Specification
108-1739

For complete product information, order Catalog 1307767

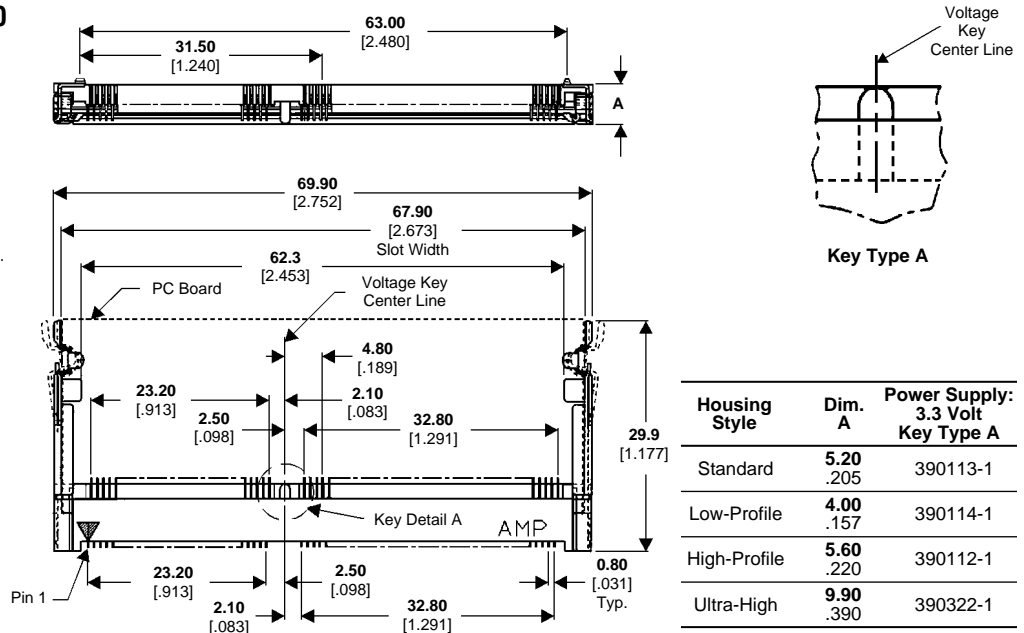
Dual Read-Out for SDRAM Memory Modules

144 Positions — 0.8 mm SO DIMM

Material and Finish:

Housing — Nylon, UL94V-0 rated; color: natural

Contact — Phosphor bronze with 0.00025 mm [.0000098 in.] min. thick gold over 0.001 mm [.0000393 in.] min. thick nickel in contact area and gold flash over 0.001 mm [.0000393 in.] min. thick nickel in soldering area.



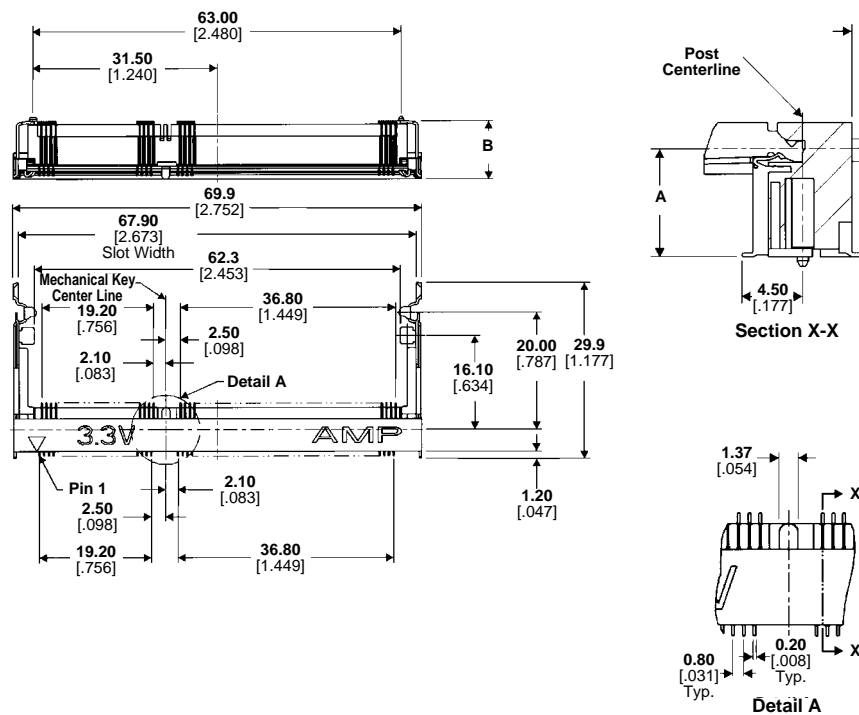
Dual Read-Out for SGRAM Memory Modules

144 Positions — 0.8 mm SO DIMM

Material and Finish

Housing — Nylon, UL94V-0 rated; color: natural

Contact — Phosphor bronze with 0.00025 mm [.0000098 in.] min. thick gold over 0.0013-0.004 mm [.000051-.000157 in.] thick nickel in contact area and 0.0033-0.0064 mm [.000150-.000250 in.] thick tin-lead over 0.0013-0.004 mm [.000051-.000157 in.] thick nickel in soldering area.





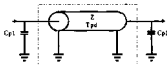
Dimensions		Part Numbers
A	B	
8.00 .315	9.90 .390	390110-1
3.70 .146	5.60 .220	390111-1

For complete product information, order Catalog 1307767

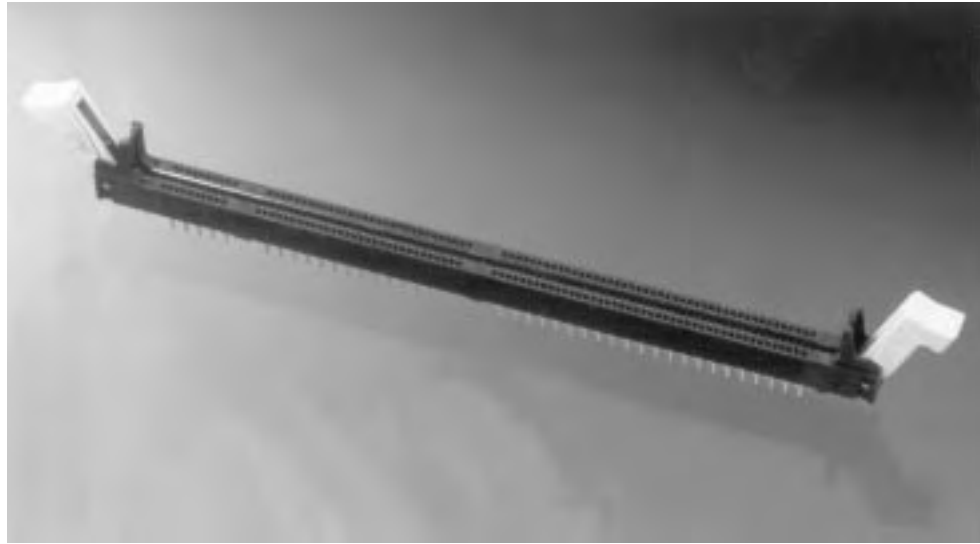
Dual Read-Out for 8 Byte Memory Modules

Product Facts

- Sockets Dual Read-Out 8-Byte DRAM DIMM boards for 64-bit data bus
- Staggered contact heights to reduce module insertion force
- Enhanced built-in lever-type module extractors
- Contact performance in excess of 100 MHz
- Multiple keying possibilities
- Socket-to-board hold-down features available
- Applicable to PC-100 & PC-133 Modules
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File E28476
- Certified by Canadian Standards Association  File No. LR 7189



AMP Single Line and MultiLine Models are available for DIMM II Sockets at www.amp.com/simulation or email at modeling@tycoelectronics.com



Available from Tyco Electronics is a family of DIMM sockets for 8-Byte DRAM Dual In-Line Memory Module technology.

The two-key¹ sockets are designed for 168-pin modules per JEDEC Standard MO-161. These sockets accept Standard Buffered DRAM, Synchronous DRAM and Non-Standard (Non-Buffered) DRAM modules in 5, 3.3 and future X.X volt versions. Advanced design keying provides damage protection for these various voltages.

The sockets provide twice the density of standard SIMM sockets while staying within present-day 1.27 [.050] centerline technology. In other words, the resultant pin I/O count is the same as if we were able to use 0.64 [.025] centerline spacing. The sockets have been designed to provide highly reliable, low-cost space saving benefits.

These sockets and modules provide increased memory capacity offered by 8 Byte DRAM for a 64-bit data bus. With module memory capacities that range from 2 MBytes to 512 MBytes, this module/socket combination is ideal for today's high end personal computers and work stations.

DIMM IIP (Performance Family) sockets are now available in some versions of 3.3 Volt Std. DRAM and Non-Std. (Non-Buffered) DRAM. See page 5029 for cross reference. For more information contact Tyco Electronics.

¹ A one-key version is also available.

Performance Characteristics:

Current Rating — .5 ampere per contact

Operating Temperature — -55°C to +105°C

Termination Resistance (Dry Circuit) — 20 milliohms max., initial

Dielectric Withstanding Voltage — 1.0 KVAC

Insulation Resistance — 10,000 megohms min., initial

Durability — 25 cycles min.

Mating Force — 4 oz. [1.112 N] max. per contact, initial

Technical Documents:

Product Specification
108-1582

Application Specification
114-1107

For complete product information, order Catalog 1307767

Vertical Dual Read-Out for 8 Byte Memory Modules

168 Positions — JEDEC MO-161

(Top view dimensions are the same for all variations.)

Base Part Numbers

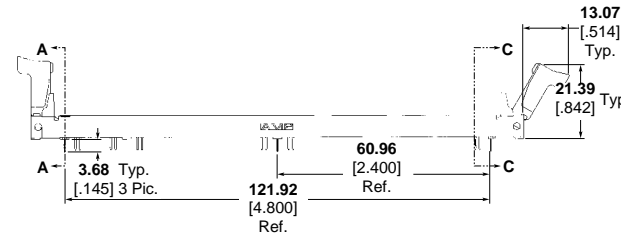
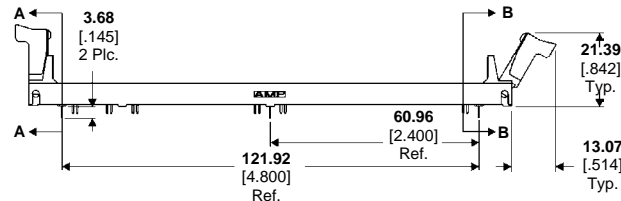
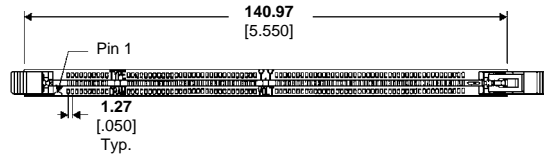
390074
390168

See table below showing complete part numbers.

Base Part Numbers

390215
390240

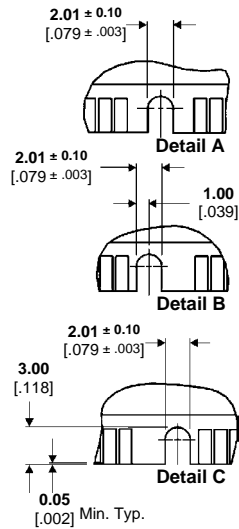
See table below showing complete part numbers.



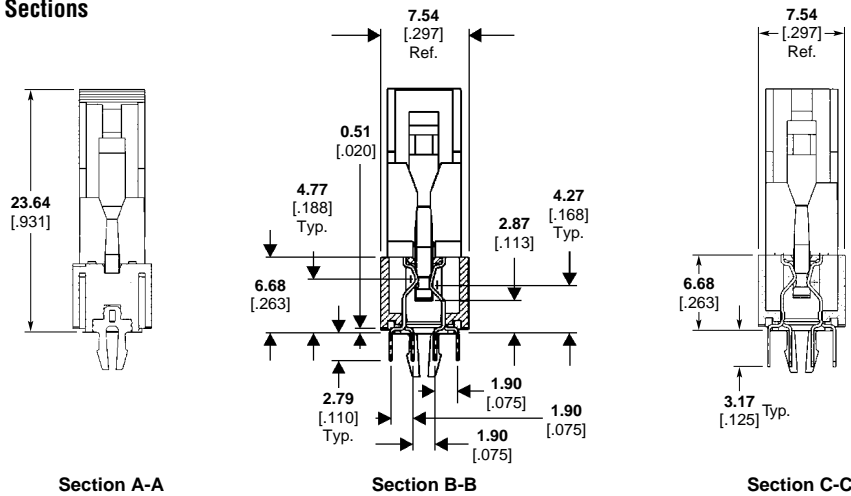
Material and Finish

Housing & Ejector— High temperature thermoplastic
Contact— Phosphor bronze with gold flash over 0.00051 [.000020] min. thick palladium-nickel over 0.00127 [.000050] min. thick nickel in contact area or 0.00381 [.000150] min. thick tin-lead over 0.00127 [.000050] min. thick nickel in solder area.

Module Keying Details



Cross Sections



Part Numbers		
Std. DRAM	Sync. DRAM	Non-Std. (Non-Buff.) DRAM
3.3 Volt	3.3 Volt	3.3 Volt
Key 1 = A Key 2 = A	Key 1 = B Key 2 = A	Key 1 = C Key 2 = A
390074-4 ¹	390074-5	390074-6 ¹
390215-4 ¹	390215-5 ¹	390215-6 ¹
390040-4 ²	390040-5 ²	390040-6 ²

Note: ¹ DIMM IIP (Performance Family) product available as replacement for these part numbers. See cross reference. Consult Tyco Electronics for additional information.
² Has plastic retention posts in place of metal boardlocks.

Cross Reference — Standard to DIMM IIP Sockets

Standard	DIMM IIP
390074-4	390168-4
390074-6	390168-1
390215-4	390240-4
390215-6	390240-1

For complete product information, order Catalog 1307767

Right Angle Dual Read-Out for 8 Byte Memory Modules
Product Facts

- Low profile design
- Three profile heights
- Standard and reverse footprints
- Three solder tail length options
- 3.3 volts

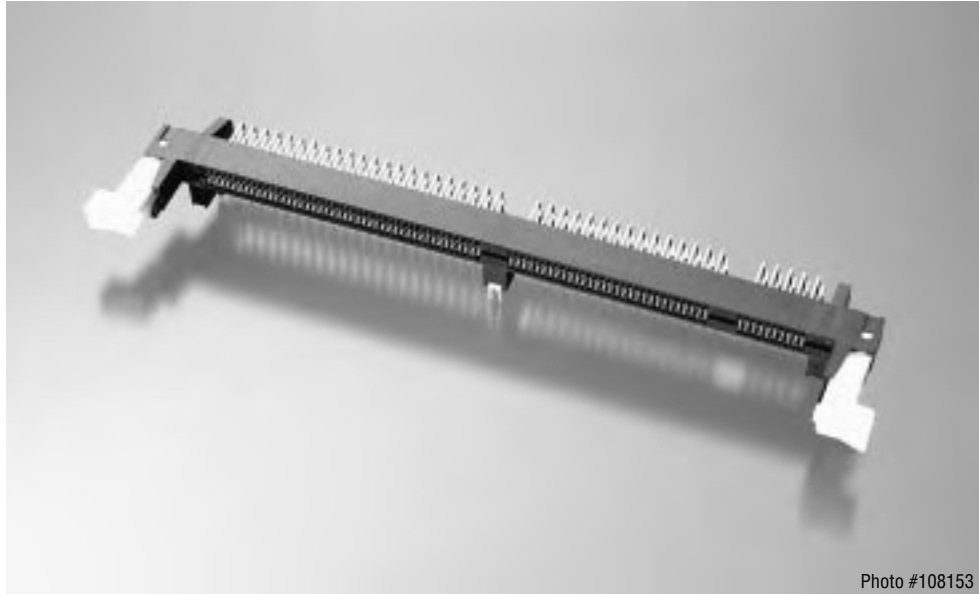
Material and Finish

Housing — High Temperature Nylon

Contact — Phosphor Bronze

Contact area — .0000003
 [0.0000076] min. thick gold flash over
 .000020 [0.00051] min. thick palladium
 nickel over .000050 [0.00127] min.
 thick nickel

Solder tail — .000150 [0.0038] min.
 thick tin lead over .00064 [0.0163] min.
 thick nickel



These 168 position sockets are designed to connect the DIMM II module, which is made to JEDEC specification MO-161, to the motherboard. It accepts an 8 byte

DRAM DIMM module in 64 bit data bus applications. The 1.27mm [.050] pitch style accommodates a module printed circuit board thickness of 1.27mm [.050].

Electrical Characteristics:

Voltage Rating — 30 VAC max.

Current — .5 amp max.

Operating Temperature Range —
 -55° to +105°C

Dielectric Withstanding Voltage —
 1000 VAC

Contact Resistance — 30 milliohms
 max.

Technical Documents:

Product Specification

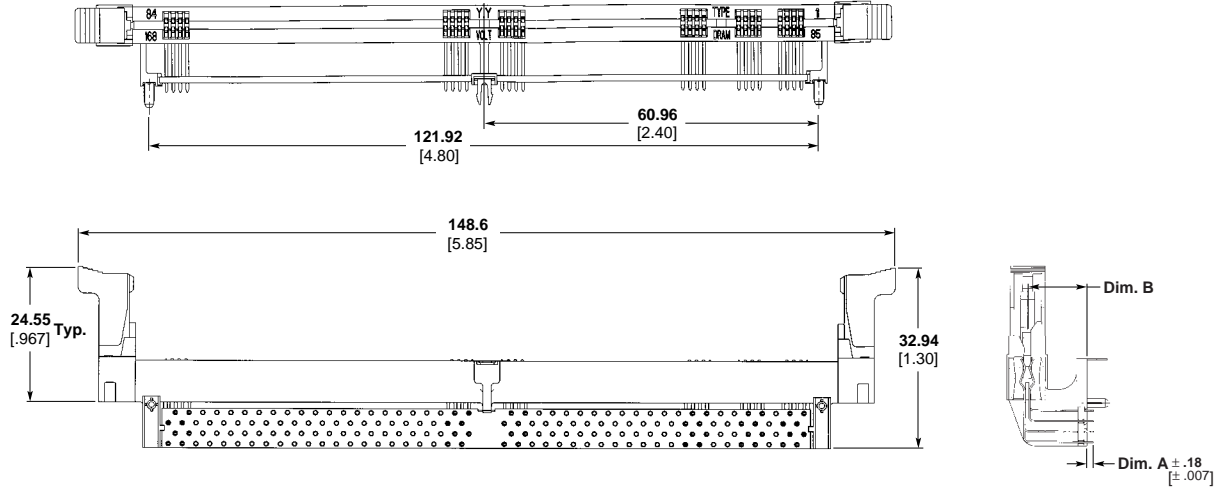
108-1756

Application Specification

114-1119

For complete product information, order Catalog 1307767

Right Angle Dual Read-Out for 8 Byte Memory Modules





DRAM Type	Footprint	Tail Length (Dim. A)	Housing Height (Dim. B)	Part Number
Standard DRAM (buffered)	Standard, with center barb	3.18 .125	10.92 .430	390175-4
	Standard, with center barb	1.96 .077	9.27 .365	1-390175-4
	Standard, with center barb	2.84 .112	7.11 .280	2-390175-4
	Reverse, with center barb	3.18 .125	10.92 .430	1-390171-4
	Standard, without center barb	1.96 .077	9.27 .365	390172-4
	Standard, without center barb	2.84 .112	9.27 .365	1-390172-4
Sync DRAM	Standard, with center barb	3.18 .125	10.92 .430	390175-5
	Standard, with center barb	1.96 .077	9.27 .365	1-390175-5
	Standard, with center barb	2.84 .112	7.11 .280	2-390175-5
	Reverse, with center barb	3.18 .125	10.92 .430	1-390171-5
	Standard, without center barb	1.96 .077	9.27 .365	390172-5
	Standard, without center barb	2.84 .112	9.27 .365	1-390172-5
NB DRAM (non-buffered)	Standard, with center barb	3.18 .125	10.92 .430	390175-6
	Standard, with center barb	1.96 .077	9.27 .365	1-390175-6
	Standard, with center barb	2.84 .112	7.11 .280	2-390175-6
	Reverse, with center barb	3.18 .125	10.92 .430	1-390171-6
	Standard, without center barb	1.96 .077	9.27 .365	390172-6
	Standard, without center barb	2.84 .112	9.27 .365	1-390172-6

For complete product information, order Catalog 1307767

25° Angular

Product Facts

- Low profile design
- Metal board hold-downs
- Accommodates EDO DRAM and SDRAM modules
- 3.3 volts
- Applicable to PC-100 & PC-133 modules
- Recognized under the Component Program of Underwriters Laboratories Inc., File E28476 
- Certified by Canadian Standards Association File No. LR 7189 

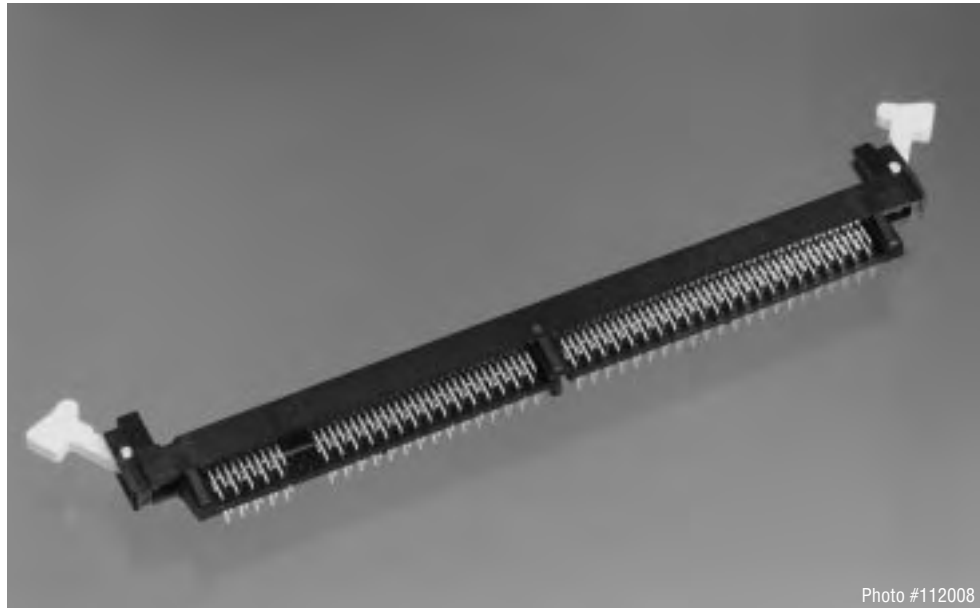


Photo #112008

Material and Finish:

Housing and Ejector — High Temperature Nylon

Contact — Phosphor Bronze

Contact area — .000003 [0.000076] min. thick gold flash over .000020 [0.00051] min. thick palladium nickel over .000050 [0.00127] min. thick nickel

Solder tail — .000150 [0.0038] min. thick tin lead over .000025 [0.00064] min. thick nickel

Technical Documents:

Product Specification
108-1801

Application Specification
114-1118

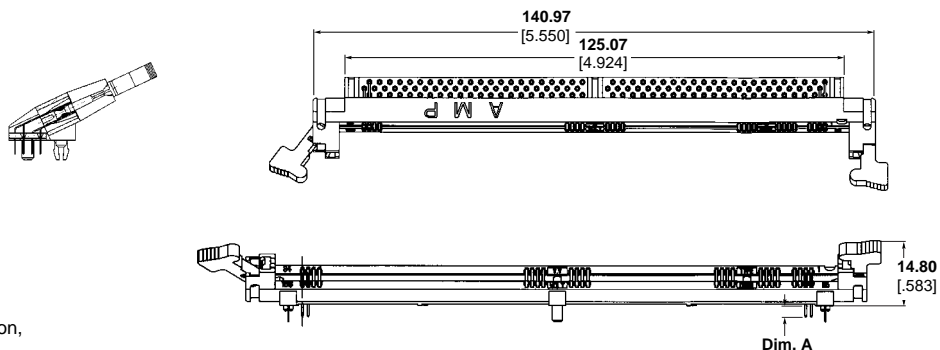
These 168 position sockets are designed to connect EDO DRAM and SDRAM modules to the motherboard. The connector allows the module to be

slanted at 25° from the motherboard, thereby lowering the total vertical dimension. Plastic alignment posts allow for easy insertion and

improved stability during module insertion, while metal hold-downs eliminate bowing. Positive locking extractors accommodate larger modules.



DRAM Type	Tail Length (Dim. A)	Part Numbers	
		Center Plastic Post	Center Metal Board Lock
Standard DRAM (buffered)	2.62 .103	390170-4	390195-4
	3.18 .125	390185-4	—
Sync DRAM	2.62 .103	390170-5	390195-5
	3.18 .125	390185-5	—
NB DRAM (non-buffered)	2.62 .103	390170-6	390195-6
	3.18 .125	390185-6	—

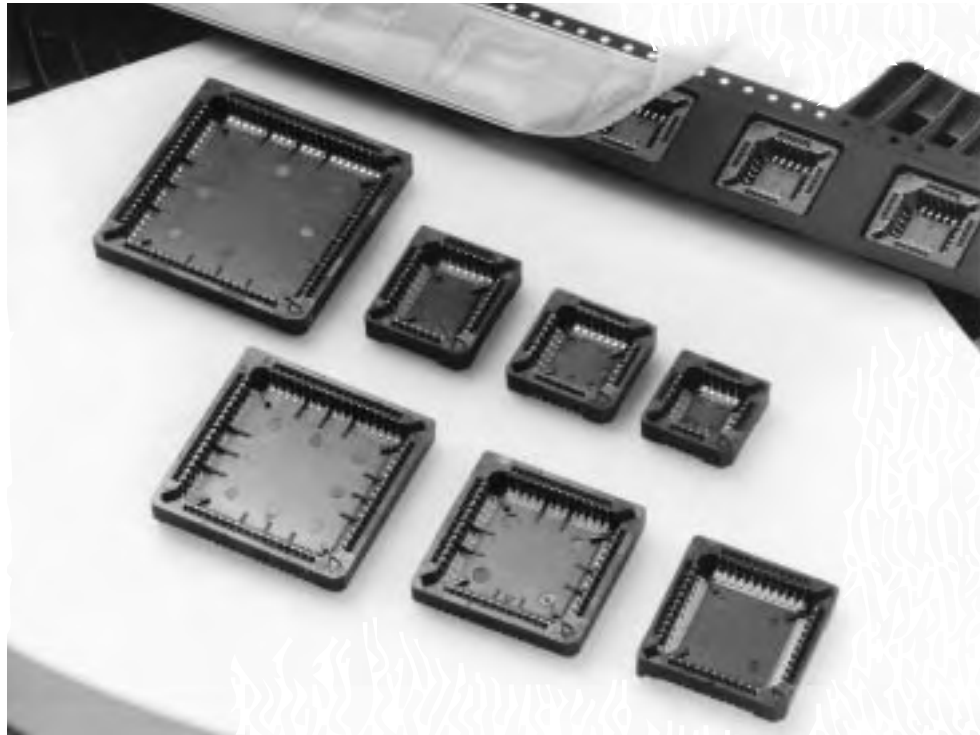
For vertical DIMM IIP sockets, see page 5029.



For complete product information, order Catalog 1307767

Product Facts

- Low profile — only 4.6 [.181] max. * for high density pc board stacking
- Compatible footprint allows for socket or direct mounting
- Housing slots accept extraction tool for easy PLCC removal
- Corner chamfer for PLCC orientation
- Available loose piece or tape mounted
- Plastic standoffs provide clearance for heat dissipation and cleaning operations
- Housings will withstand high temperature soldering
- Open bottom housing for convenient placement of socket on pattern, 100% inspection of solder joint, and penetration of heat source to the solder pad and surface mount contact
- Top contact slots allow test probing with PLCC device in place
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association File LR 7189A-97 



The AMP family of Low Profile Plastic Leaded Chip Carrier (PLCC) Sockets for surface mounting is designed to accommodate Plastic "J" leaded, tin plated devices made to JEDEC Specifications MS-018 (square packages) and MS-016-AE (rectangular packages).

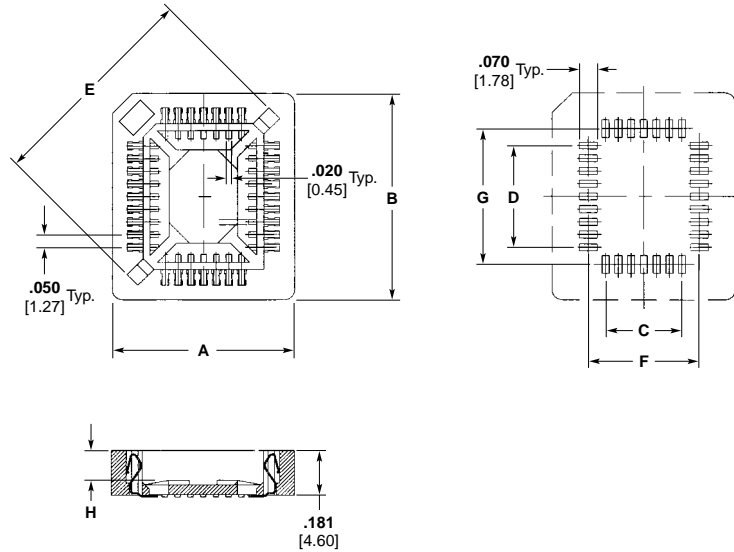
Available in 20, 28, 32, 44, 52, 68 and 84 positions, these sockets feature high normal force contacts made from phosphor bronze material with tin-lead over nickel plating. Sockets feature a one-piece housing that will withstand vapor-phase, I.R. or convection reflow soldering temperatures and prevent flux and solvent entrapment.

The low profile housing is only 4.6 [.181] high, maximum* allowing high density printed circuit board stacking. The open bottom design enables easy socket placement on the pc board footprint pattern facilitates inspection as well as permitting the heat source to penetrate to the solder pad and surface mount contact. The socket uses the same footprint pattern as the chip carrier.

Sockets are also available on embossed tape made to EIA Standard 481 which allows interchangeability of tape in commercially available pick-and-place equipment.

For complete product information, order Catalog 1307767

Small Outline Low Profile, Surface Mount



Number of positions	Dimensions								Tube		Tape/Reel		
	A	B	C	D	E	F	G	H	Part Number	Quantity per Carton	Part Number	Size Tape	Quantity per Carton
20	.364 14.36	.364 14.36	.200 5.08	.200 5.08	.645 16.38	.334 8.48	.334 8.48	.108 2.75	822499-3	8,580	3-822499-3	24mm	5,000
28	.664 16.90	.664 16.90	.300 7.62	.300 7.62	.790 20.00	.434 11.02	.434 11.02	.108 2.75	822499-2	7,260	3-822499-2	24mm	4,000
32	.664 16.90	.767 19.50	.300 7.62	.400 10.16	.861 21.89	.434 11.02	.534 13.56	.102 2.60	822498-1	6,380	3-822498-1	32mm	4,000
44	.866 22.00	.866 22.00	.500 12.70	.500 12.70	1.07 27.20	.634 16.10	.634 16.10	.116 2.95	822499-1	4,160	3-822499-1	44mm	2,100

WITHDRAWAL TOOL FOR PLCC'S

The PCS Series Extraction Tool is designed for the removal of JEDEC dimensioned "J" leaded 4-sided plastic leaded chip carrier with leads on .050" (12,7) centers. A "Universal" tool, it is compatible with most competitor's PLCC sockets.



TX 8136-20/84 PCS

FEATURES:

- Fits all sizes : 20 thru 84 positions
- Positive engagement and tool action assures smooth, level extraction of device
- Spring assisted release of device from tool after extraction

OPERATION:

1. Holding tool between thumb and 1st or 2nd finger at ribbed area of legs. Expand or contract legs to engage tongs in extraction slots of socket.
2. Push tool down to insure legs seat flush with the top of the socket. This will assure extraction tongs are properly positioned under device.
3. Squeeze legs between thumb and finger. Tool action will extract device in smooth positive motion.
4. Relaxing pressure on legs releases device from tool.

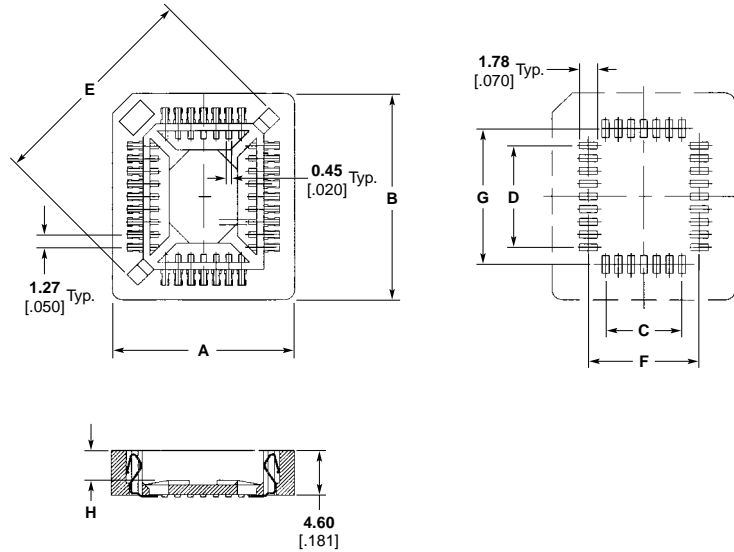
For complete product information, order Catalog 1307767

Industry Standard Low Profile, Surface Mount

Materials and Finish

Housing — Thermoplastic, UL 94V-0 rated

Contacts — Phosphor bronze with 0.00254 [.000100] 90/10 Tin-lead over 0.00127 [.000050] min. nickel all over



No. of Pos.	Dimensions								Tube		Tape/Reel		
	A	B	C	D	E	F	G	H	Part No.	Quantity Per Carton	Part No.	Size Tape	Quantity Per Carton
20	15.58 .613	15.58 .613	5.08 .200	5.08 .200	16.38 .645	8.48 .334	8.48 .334	2.75 .108	822472-1	11700	3-822472-1	24mm	5000
28	18.12 .713	18.12 .713	7.62 .300	7.62 .300	20.00 .790	11.02 .434	11.02 .434	2.75 .108	822472-2	9900	4-822472-2	32mm	4000
32	18.12 .713	20.66 .813	7.62 .300	10.16 .400	21.89 .861	11.02 .434	13.56 .534	2.60 .102	822472-3	8700	3-822472-3	32mm	4000
44	23.20 .913	23.20 .913	12.70 .500	12.70 .500	27.20 1.07	16.10 .634	16.10 .634	2.90 .114	822472-4	6240	3-822472-4	44mm	2100
52	25.74 1.01	25.74 1.01	15.24 .600	15.24 .600	30.78 1.21	18.64 .734	18.64 .734	2.75 .108	822472-5	3220	3-822472-5	44mm	2100
68	30.82 1.21	30.82 1.21	20.32 .800	20.32 .800	37.98 1.50	23.72 .934	23.72 .934	2.90 .114	822472-6	3420	3-822472-6	44mm	1800
84	35.90 1.41	35.90 1.41	25.40 1.00	25.40 1.00	45.20 1.78	28.80 1.13	28.80 1.13	2.90 .114	822472-7	2346	3-822472-7	56mm	1000



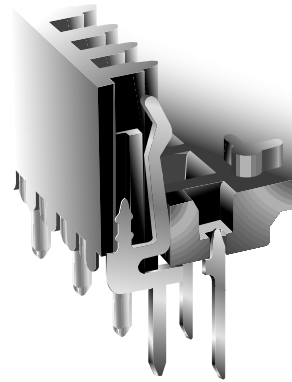
For complete product information, order Catalog 1307767

Thru-Hole

PCS Series




PCS-068A-1



FEATURES:

The PCS Series Chip Carrier sockets accepts Jeduc Type "A" plastic leaded chip carriers on .050" (1.27) centers. These dependable sockets combine positive retention of the package with high normal force to insure outstanding electrical and mechanical performance. The solder tail design allows through-hole board patterns on .100" (2.54) grid.

- High Normal force, 200 grams (7.1 oz.) min.
- Internal standoff insures proper positioning of chip carrier in socket
- Visual aids external to socket assure easy registration to printed wiring board
- Easy access for probing installed chip carrier
- Standoffs and four drain holes aid in cleaning
- PLCC Extraction Tool TX8136-20/84 PCS, see page 5034
- Accepts JEDEC PLCC's MO-047 AA-AH (20-84), MO-052 AE (32 RECT)
-  Recognized under the Component Program of Underwriters Laboratories, Inc. file no. E111362

MATERIAL SPECIFICATIONS:

Insulator.....PPS, UL rated 94V-0
 ContactPhosphor bronze
 PlatingTin/lead

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 Shock.....Passed MIL-STD-1344, Method 2004.1, Condition A, 50 G's
 Durability50 Cycles minimum
 Normal Force200 Grams (7.1 oz.) minimum when mated to nominal size PLCC device
 Mating Force310 Grams (11.0 oz.) per line maximum when mated to maximum size PLCC device
 Unmating Force.....31 Grams (1.1 oz) per line minimum when mated to minimum size PLCC device
 SolderabilityPassed MIL-STD-202, Method 208
 Contact Retention in Plastic2.0 Lbs. per line minimum

ELECTRICAL

Contact Resistance30 Milliohms max.
 Contact Rating.....1 Amp
 Capacitance1 pF max. @ 1 kHz, MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....1 x 10⁴ Megohms per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage600 VAC per MIL-STD-1344, Method 3001.1

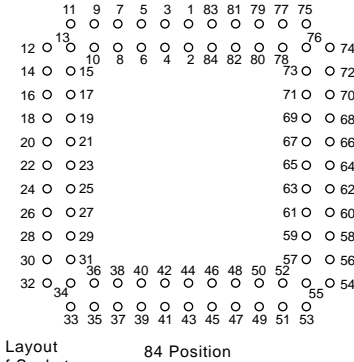
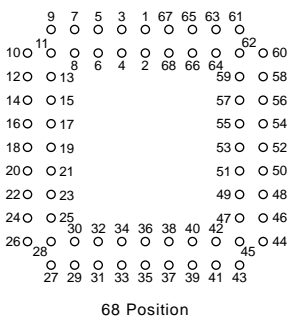
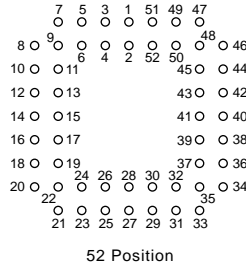
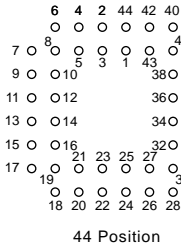
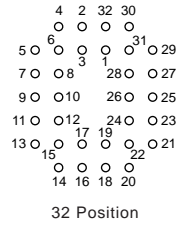
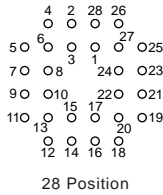
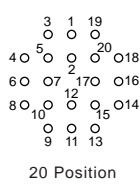
ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Type II
 Operation Temperature-55°C to +105°C

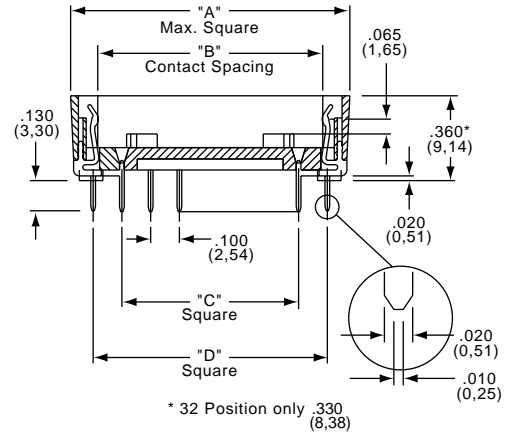
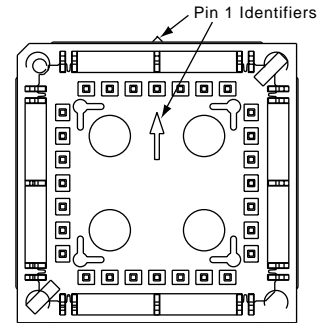
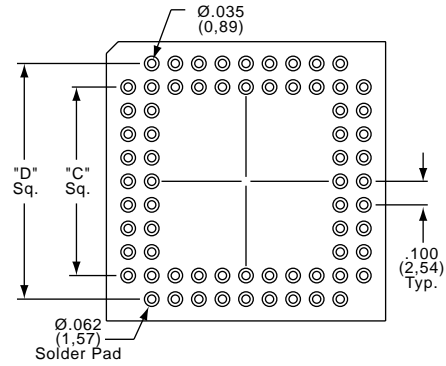
For complete product information, order Catalog 1308409

Thru-Hole

PCS Series



Recommended Hole Layout
Viewed from the Top of Socket
Tolerance ±.002 Unless Otherwise Noted



STANDARD CONFIGURATIONS

Part Number	Number of Contacts	A	B*	C	D	E
PCS-020A-1	20	.590 (14,98)	.360 (9,14)	.200 (5,08)	.400 (10,16)	.395/.385 (10,03/9,78)
PCS-028A-1	28	.690 (17,52)	.460 (11,68)	.300 (7,62)	.500 (12,70)	.495/.485 (12,57/12,32)
PCS-044A-1	44	.890 (22,60)	.660 (16,76)	.500 (12,70)	.700 (17,78)	.695/.685 (17,65/17,40)
PCS-052A-1	52	.990 (25,15)	.760 (19,30)	.600 (15,24)	.800 (20,32)	.795/.785 (20,19/19,94)
PCS-068A-1	68	1.190 (30,22)	.960 (24,46)	.800 (20,32)	1.000 (25,40)	.995/.985 (25,27/25,02)
PCS-084A-1	84	1.390 (35,31)	1.160 (29,54)	1.000 (25,40)	1.200 (30,48)	1.195/1.185 (30,35/30,10)

* Dimension B ± .010 (0,25)

32 POSITION RECTANGULAR

Part Number	Number of Contacts	A		B*		C		D		E	
		Long Side	Short Side	Long Side	Short Side	Long Side	Short Side	Long Side	Short Side	Long Side	Short Side
PCS-032A-1	32	.790 (20,07)	.690 (17,53)	.564 (14,33)	.464 (11,79)	.400 (10,16)	.300 (7,62)	.600 (15,24)	.500 (12,70)	.595/.585 (15,11/14,86)	.495/.485 (12,57/12,32)

* Dimension B ± .010 (0,25)

For complete product information, order Catalog 1308409

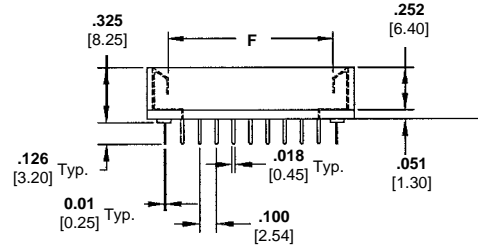
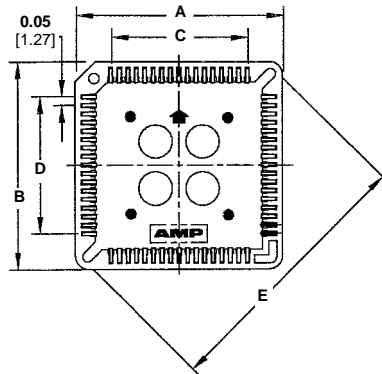
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Thru-Hole, Economy

Material and Finish:

Housing — Thermoplastic UL94V-0

Contacts — Phosphor bronze with tin-lead over nickel



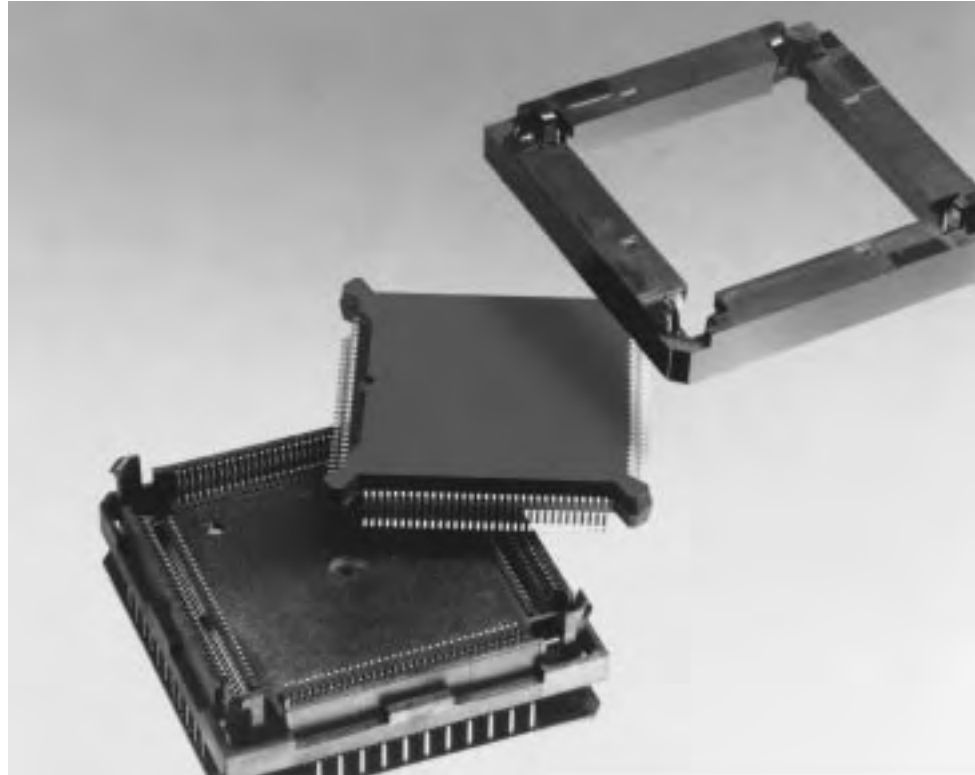
Positions	Dimensions						Part Numbers
	A	B	C	D	E	F	
20	0.62 15.56	0.62 15.56	0.20 5.08	0.20 5.08	0.68 17.20	0.35 8.90	822473-1
28	0.71 18.10	0.71 18.10	0.30 7.62	0.30 7.62	0.82 20.70	0.45 11.46	822473-2
32	0.71 18.10	0.81 20.54	0.30 7.62	0.40 10.16	0.90 22.65	0.45 11.36	822473-3
44	0.92 23.18	0.92 23.18	0.50 12.70	0.50 12.70	1.08 27.50	0.66 16.74	822473-4
52	1.01 25.72	1.01 25.72	0.60 15.24	0.60 15.24	1.24 31.50	0.76 19.30	822473-5
68	1.21 30.80	1.21 30.80	0.80 20.32	0.80 20.32	1.54 39.00	0.96 24.38	822473-6
84	1.41 35.88	1.41 35.88	1.00 25.40	1.00 25.40	1.82 46.15	1.16 29.42	822473-7

For complete product information, order Catalog 1308409

Standard

Product Facts

- .025 [0.64] centerline for high density, low cost packaging
- Low profile permits even higher density packaging with only .375 [9.53] maximum height pc boards
- High normal force and positive engagement allows for reliable service to minimize field failures
- Protective cover separates and safeguards IC leads during handling and insertion
- Closed-bottom housing aids in prevention of solder bridging between contacts
- Contacts absorb mating and reaction forces for board and housing protection
- Economical design makes socketing of semi-conductor devices more attractive
- .020 [0.51] minimum wipe contact insures reliability of tin-to-tin interface
- High temperature materials
- Sockets can be spaced a minimum of .150 [3.81] from each other



The two-piece design of the AMP socket eases the problems of handling the gullwing-leaded PQFP packages. The IC is first inserted into the plastic cover and then, using the insertion tool, the cover is secured over the socket housing to insert the chip into the socket. The completed assembly presents a low .375 [9.53] profile to permit close stacking of pc boards.

The cover, which is separately available, contains slots that not only protect and separate the leads, but also for proper lead-to-contact registration between chip and socket. In addition, the cover provides a rugged cost-effective method of protecting the PQFP IC during shipping, handling and assembly. Visual and mechanical polarization for proper orientation of cover and housing during mating,

while spring latches in the four corners secure the cover to the housing.

Tin plated socket contacts provide a minimum .020 [0.51] wipe and exert a high normal force to the IC leads. The solder legs are arranged on a .075 x .100 [1.91 x 2.54] three-row grid to permit easy trace routing.

High-temperature housing materials and a sealed bottom allow the socket to withstand the rigors of flow soldering lines and other automated assembly. Standoffs ease flux cleaning.

Available in 100- and 132-position sizes, the socket features short leads and low capacitance, making it highly compatible with high-speed circuits.

Performance Characteristics:

Current Rating — 1 ampere max.

Operating Temperature — +55°C to +105°C

Dielectric Withstanding Voltage — 750 VAC min.

Capacitance (Adjacent Contacts) — 1 picofarad max.

Durability — 15 insertion/withdrawal cycles

Technical Documents:

Product Specification
108-1223

Application Specification
114-1070

Test Report
501-90

Instruction Sheets
408-3289 Hand Tools
408-9772 Pneumatic Tools

Standard

Materials and Finish:

Housing — High temperature thermoplastic, 94V-0 rated, black

Cover — Polyphenylene sulfide (PPS), 94V-0 rated, black

Contacts — Phosphor bronze with .000200 [0.00508] tin over .000050 [0.00127] nickel

Insertion Hand Tools

100 Position

Part Number 822253-1

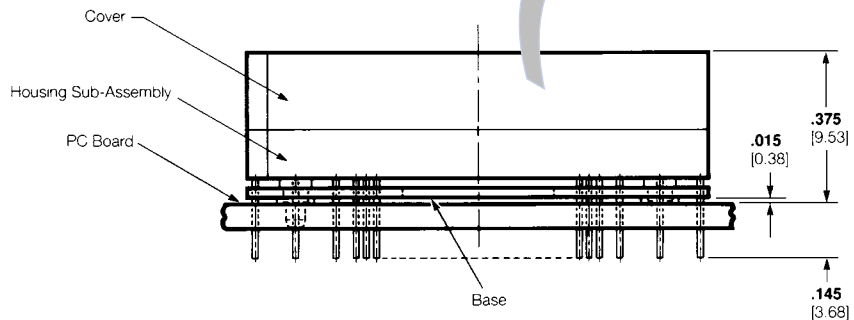
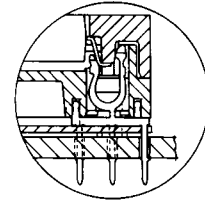
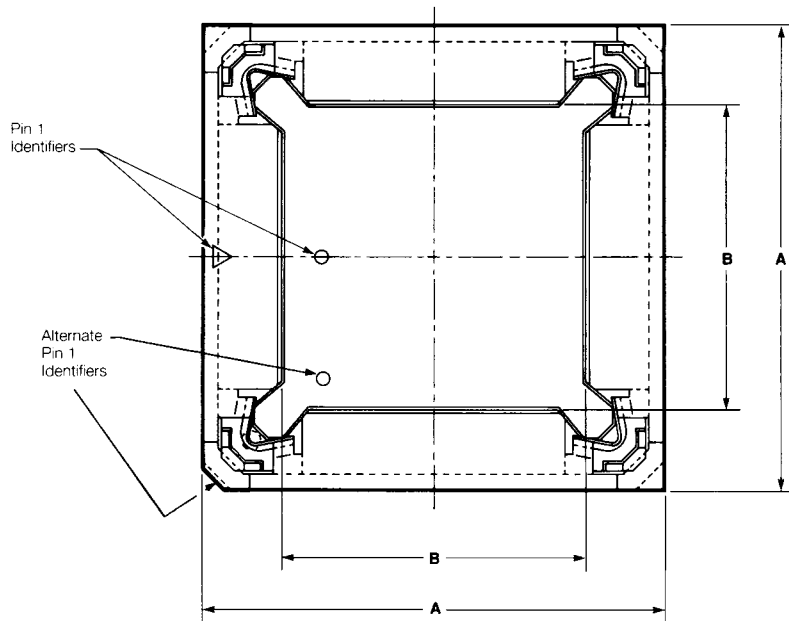
132 Position

Part Number 822253-2



Extraction Tool

Part Number 822254-1



No. of Positions	Dimensions		Conventional AMP Sockets	Replacement for 3M TEXTOL sockets	
	A	B	Housing Sub-Assembly	Housing Sub-Assembly	Cover
100	1.140 28.96	.750 19.05	821949-4 ¹	822064-4 ²	821939-1
132	1.340 34.04	.950 24.13	821949-5 ¹	822064-5	821942-1

¹ Conventional footprint.

² Reverse footprint.

Packaging Quantities:

100 Position — 19 Pcs./Tube, 54 Tubes/Box, Total = 1026 Pcs./Box

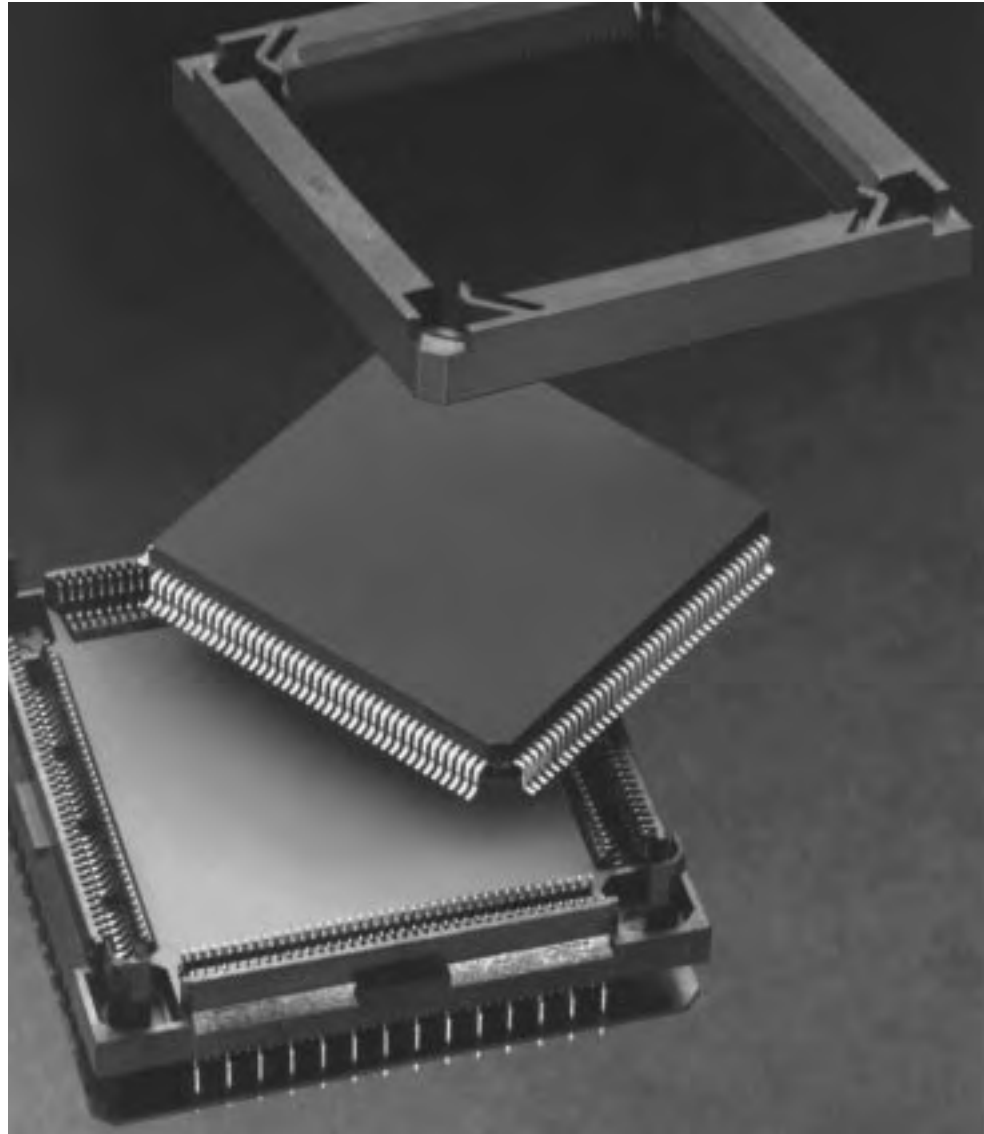
132 Position — 16 Pcs./Tube, 45 Tubes/Box, Total = 720 Pcs./Box

Metric

JEDEC (EIAJ) Metric Quad Flat Pack ICs

Product Facts

- Closed bottom design prevents solder wicking and bridging
- Standoffs facilitate flushing of solder fluxes from under socket
- Horizontal normal force reduces the stress on latches
- Contact wiping removes oxides from package leads
- High pressure tin contacts provide high normal force for interface reliability
- Molded separation ribs for contact to lead alignment
- Components molded of high temperature materials
- Mechanical and visual polarization allows pin #1 alignment
- Cover provides means for handling and testing bumperless packages
- Cover secures device for handling regardless of corner configuration
- Socket design is not sensitive to package stand-off dimension
- Socketing eases prototype evaluation
- Socketing provides reparability in the field
- Socketing enables equipment configuration at the manufacturing level
- Socketing minimizes device damage problems due to SMT temperatures
- Socketing allows field updating
- Socketing utilizes conventional through-hole soldering processes
- Socket design is compatible with robotic assembly



The AMP Metric PQFP socket provides a method for through-hole socketing of JEDEC (EIAJ) bumperless metric quad flat pack devices. The socket is designed to accept PQFP-style 28mm x 28mm packages on .65mm spacing per proposed JEDEC (EIAJ) Standard MO-108.

The socket features a two-piece design that allows the device to be first inserted into the plastic cover. Then the cover with the device is secured over the socket

housing using the AMP insertion tool. This system protects the delicate gullwing leads and ensures proper lead-to-contact registration.

Available in 144- and 160-position versions, the socket features high temperature housing materials and a sealed bottom allowing it to withstand the rigors of flow soldering lines and automated assembly.

Technical Documents:**Product Specification**

108-1348

Application Specification

114-1070

Instruction Sheets

408-3289 Hand Tools

408-9772 Pneumatic Tool

Metric

For JEDEC Metric Quad Flat Pack ICs

Materials and Finish:

Housing and Cover — High temperature thermoplastic, 94V-0 rated

Contacts — Phosphor bronze with 0.00508 [.000200] tin-lead over 0.00127 [.000050] nickel

Performance Characteristics:

Voltage Rating — 250 VAC

Termination Resistance, Dry Circuit — 20 milliohms max, initial

Dielectric Withstanding Voltage — 750 VAC

Insulation Resistance — 5000 megohms

Capacitance — 1 picofarad max.

Durability — 15 cycles

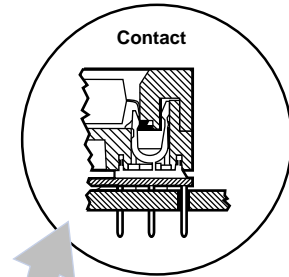
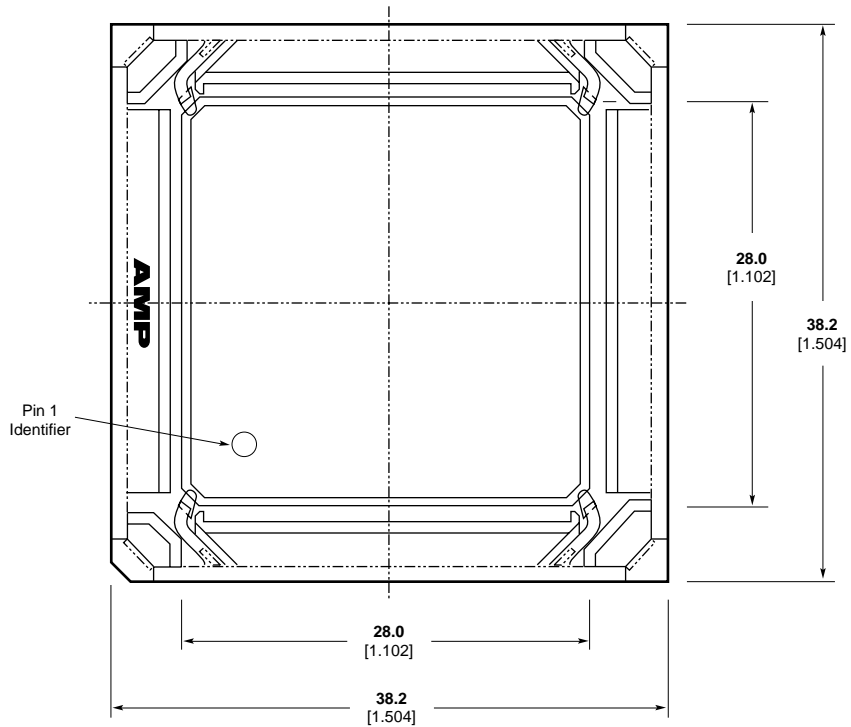
Mating Force — 2.22 N [.5 lb.] max.

Contact Retention — 3.34 N [12 oz.]

Physical Shock — 50 Gs

Vibration — 15 Gs

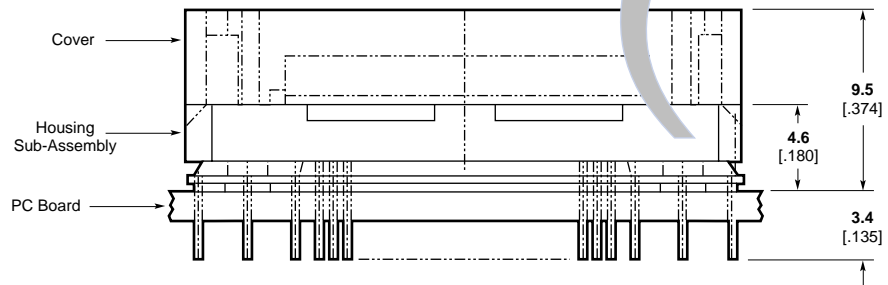
Temperature Rating — 255°C to 1105°C



Insertion Hand Tool



Part Number 822253-4



Extraction Tool



Part Number 822254-1

No. of Positions	Part Numbers	
	Housing Sub-Assembly	Cover
144	822114-3	822115-3
160	822114-4	822115-4

Packaging Quantities:

Cover shipped separately in antistatic tubes, 14 pcs./tube
Housing Assembly shipped in antistatic tubes, 14 pcs./tube

HOLTITE Series Press-Fit Sockets, Zero Profile



HOLTITE 8134-HC-5P3 Sockets

FEATURES:

The solderless zero-profile HOLTITE Socket contact is designed to be press-fit into the plated-thru hole of a printed wiring board. This unique design allows the plated-thru hole to become the component socket. The outer conical shape of the HOLTITE Socket contact sizes the plated-thru hole when pressed into place. The precision-machined geometry allows for the controlled displacement of plated material without damaging the hole, or affecting the normal mechanical and electrical contact performance.

- **Lowest socket profile**
The profile of the printed wiring board with the HOLTITE Socket contact installed is less than the length of the IC or component lead, offering the lowest socketing profile, permitting card rack spacing as low as .400", identical to that of direct soldering.
- **Precision-machined, tapered-entry, four finger contact**
The underlying contact design used in the HOLTITE Socket system has a proven record of reliability after more than fifteen years' usage in both commercial and military applications.
- **Retains minimum component lead lengths**
The socketing technique provides the shortest distance between the component seating plane and the contact engagement zone for maximum retention of short component leads.
- **Maximum heat dissipation**
Open contact design permits air flow through the board, increasing heat dissipation and extending component life.
- **Solderless, gas-tight, press-fit insertion**
The solderless, pluggable system saves the time and cost of soldering, plus minimizing the potential for heat damage, warpage and corrosive residue contamination.
- **Removes artwork design restrictions**
Use of the HOLTITE Socket solderless system removes certain artwork restrictions necessary for wave soldering and solder joint construction. Line spacing can be made as tight as electrical parameters allow without solder bridging or the need for soldermask. Terminal areas can be reduced in diameter without the need of a base for solder fillets. Ground plane areas can be increased without concern for heat-induced warpage.
- **Immediate conversion to the HOLTITE Socket system**
Existing printed wiring designs can be converted by simply changing the drilled hole diameter prior to plating.

MATERIAL SPECIFICATIONS:

Carrier Strip.....MYLAR
 ContactBeryllium copper
 Finish.....Gold or tin/lead plated

PERFORMANCE SPECIFICATIONS: 5P HOLTITE SOCKETS

MECHANICAL

VibrationPassed MIL-STD-202, Method 204, 20 G's
 DurabilityPassed MIL-STD-1344, Method 2016, 50 cycles
 Insertion Force92 Grams (3.2 oz.) average with a .018" polished steel pin and a .043" plated thru hole
 Withdrawal Force103 Grams (3.6 oz.) average with a .018" polished steel pin and a .043" plated thru hole
 Contact Retention in Board 5 Lb. minimum

ELECTRICAL

Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps

ENVIRONMENTAL

HumidityPassed MIL-STD-202, Method 106
 Thermal ShockPassed MIL-STD-202, Method 107, Cond. F
 Operation Temp.Gold contact -55°C to +125°C,
 Tin/lead contact -55°C to +105°C

For performance specifications on 6P, 8P and 12P HOLTITE Sockets, please consult Tyco Electronics.



HOLTITE Series Press-Fit Sockets, Zero Profile

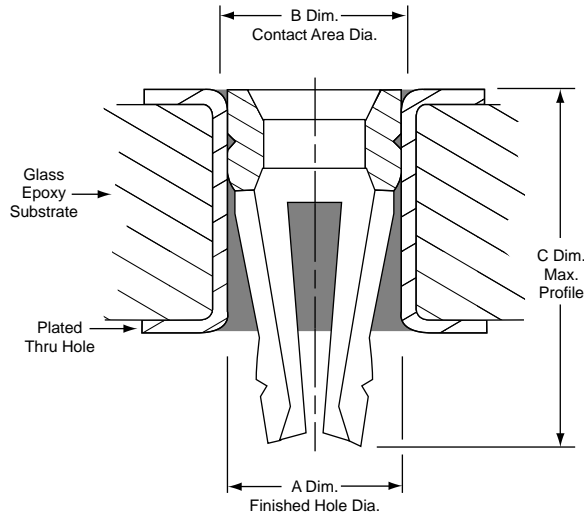


TABLE 1: PART NUMBERS

Military Part Number	Augat Part Number
M83505/6-001	M8134-HC-5P2
M83505/6-002	M8134-HC-6P2
M83505/6-003	M8134-HC-8P2
M83505/6-004	M8134-HC-12P2

RECOMMENDED HOLE SIZE AND LEAD SIZE

Part Number	Recommended Lead Size	Recommended Primary Drill Size	A Dim. Finished Plated-Thru Hole Size	B Dim. Contact Diameter	C Dim. Maximum Profile	Board Thickness	Plated-Thru Hole Finish
8134-HC-5P2 (Gold)	Rectangular Lead .011 x .018 (±.002) (0,28 x 0,46) (±0,05)	.0453 (1,15)	.041 ± .002 (1,04 ± 0,05)	.044 ± .0005 (1,12 ± 0,01)	.100 (2,54)	.030 (0,75) Minimum	.0003 - .0005 (0,0076 - 0,0127) Electro-deposited Tin/Lead over .001 (0,0254) Minimum Thick Electro Deposited Copper Plate
8134-HC-5P3 (Tin/Lead)	or Round Lead .016 - .021 (0,406 - 0,533) Diameter						
8134-HC-6P2 (Gold)	Round Lead .020 - .030 (0,51 - 0,76) Diameter	.0635 (1,61)	.058 ± .002 (1,47 ± 0,05)	.0625 ± .0005 (1,59 ± 0,01)	.140 (3,56)		
8134-HC-6P3 (Tin/Lead)							
8134-HC-8P2 (Gold)	Round Lead .025 - .035 (0,64 - 0,89) Diameter	.0875 (2,22)	.082 ± .002 (2,08 ± 0,05)	.0860 ± .0005 (2,18 ± 0,01)	.160 (4,06)	.050 (1,27) Minimum	
8134-HC-8P3 (Tin/Lead)	Also suitable for use with .025 sq. post						
8134-HC-12P2 (Gold)	Round Lead .035 - .045 (0,89 - 1,14) Diameter	.0875 (2,22)	.082 ± .002 (2,08 ± 0,05)	.0860 ± .0005 (2,18 ± 0,01)	.160 (4,06)	.050 (1,27) Minimum	
8134-HC-12P3 (Tin/Lead)							

Oversized Holtite

When recommended plated thru hole size has been exceeded by .002 (0,05) or less:
Part Numbers: 8134-HC-14P2 for 5P2; 8134-HC-14P3 for 5P3.

Gold Holtite Bulk Package are available qualified to MIL-S-83505.

See Table 1 for part numbers.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

HOLTITE Series Press-Fit Sockets, Zero Profile, on Reel



322-HCS5P2-100

HOLTITE SOCKET SIP PATTERN REELS

Part Number	Contact Plating	Number of Contacts per Pattern	Contact Style	Part Number	Contact Plating	Number of Contacts per Pattern	Contact Style
322-HCS5P2-100	Gold	2500 Contacts per Reel	5P2	322-HCS8P2-100	Gold	2500 Contacts per Reel	8P2
322-HCS5P3-100	Tin/Lead		5P3	322-HCS8P3-100	Tin/Lead		8P3
322-HCS6P2-100	Gold		6P2	322-HCS14P2-100*	Gold		14P2
322-HCS6P3-100	Tin/Lead		6P3	322-HCS14P3-100*	Tin/Lead		14P3



322-HCS5P2-314

HOLTITE SOCKET DIP PATTERN REELS

Part Number	Contact Plating	Number of Contacts per Pattern	Number of Patterns per Reel	Row Spacing	Contact Style	Contacts per Reel
322-HCS5P2-300	Gold	Universal on .100"	—	.300"	5P Series	5000
322-HCS5P3-300	Tin/Lead					
322-HCS5P2-308	Gold					
322-HCS5P3-308	Tin/Lead	8 Positions on .100"	625			
322-HCS5P2-314	Gold	14 Positions on .100"	357			
322-HCS5P3-314	Tin/Lead					
322-HCS5P2-316	Gold					
322-HCS5P3-316	Tin/Lead	16 Positions on .100"	313			
322-HCS5P2-318	Gold	18 Positions on .100"	278			
322-HCS5P3-318	Tin/Lead					
322-HCS5P2-320	Gold	20 Positions on .100"	250			
322-HCS5P3-320	Tin/Lead					
322-HCS5P2-400	Gold	Universal on .100"	—	.400"	5P Series	5000
322-HCS5P3-400	Tin/Lead					
322-HCS5P2-422	Gold					
322-HCS5P3-422	Tin/Lead	22 Positions on .100"	227			
322-HCS5P2-424	Gold	24 Positions on .100"	208			
322-HCS5P3-424	Tin/Lead					
322-HCS5P2-600	Gold	Universal on .100"	—	.600"	5P Series	5000
322-HCS5P3-600	Tin/Lead					
322-HCS5P2-624	Gold					
322-HCS5P3-624	Tin/Lead	24 Positions on .100"	208			
322-HCS5P2-628	Gold	28 Positions on .100"	179			
322-HCS5P3-628	Tin/Lead					
322-HCS5P2-632	Gold	32 Positions on .100"	156			
322-HCS5P3-632	Tin/Lead					
322-HCS5P2-636	Gold	36 Positions on .100"	139			
322-HCS5P3-636	Tin/Lead					
322-HCS5P2-640	Gold					
322-HCS5P3-640	Tin/Lead	40 Positions on .100"	125			

Application notes and tooling information appear on page 5046 & 5047.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

HOLTITE Socket Application Notes

OVERVIEW

The AMP HOLTITE Socket contact is a solderless, zero-profile contact designed to be contained within the barrel of a plated-thru hole. The unique design allows the contact and the plated-thru hole to form a zero-profile component socket which provides both the normal forces and the low contact resistance required to mechanically retain and electrically interconnect a broad range of electronic parts and components.

The outer shape of the HOLTITE Socket contact allows the plated-thru hole to elastically conform during insertion. The precision machined geometry allows for the controlled deformation of plated material without damaging the plated-thru hole or affecting the normal electrical and mechanical contact performance.

MATERIALS AND DESIGN

HOLTITE Socket contacts are precision machined from double-drawn solid beryllium-copper wire, and then heat treated. Beryllium copper is used because of its spring properties after heat treating. The copper affords excellent conductivity, while the beryllium lends hardness and durability to the finished contact.

The HOLTITE Socket contact has been machined as a seamless heat treated part, which gives it more uniform and repeatable spring properties than those of a stamped contact used in an identical through hole diameter. This uniformity of normal forces minimizes variations in contact resistance and is designed for the proper insertion/withdrawal forces on mating parts.

The HOLTITE Socket contact has been designed to provide a solderless gas tight electrical connection with mating parts. The angled contact opening greatly facilitates lead entry (especially important when automatically inserting IC's), and reduces the possibility of lead or plating damage. Two locking collars provide contact retention through a controlled elastic deformation, and a machined groove between the collars provides a relief for the compressive radial forces of the plated-thru hole plating material. Concentration of the forces and elastic deformation in this manner locks the contact in place.

A transition region below the lower collar serves as a relief area for any plastic deformation of plating material that may occur as the contact is inserted into the plated-thru hole. This relief provides the consistency of contact normal forces over slight variations in hole size, because plated-thru hole walls (under prescribed plating tolerances) will not come into contact with the beam of the HOLTITE Socket fingers.

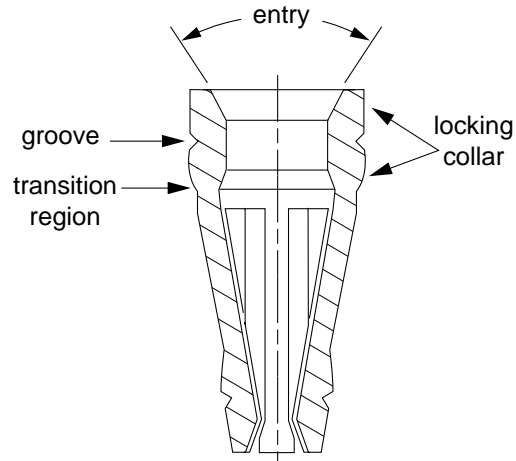


Figure 4
Profile Cross-Section

HOLE REQUIREMENTS

The fingers of 5P series HOLTITE Socket contacts will protrude out of circuit boards that are less than 3/32" (2,38 mm) thick. Care in board handling should be exercised in this case to prevent damage to the exposed contact fingers. This is not a concern in board thicknesses of 3/32" or greater because the contact fingers are entirely contained within the plated-thru hole.

The press fit technology used for installing HOLTITE Socket contacts is directly dependent on the hole size tolerance. The tolerances of the primary and finished hole sizes in a printed circuit board must be sufficiently narrow for adequate compressive stress between the hole walls and the locking collars of the contact.

The primary (drilled) hole size is a very important dimension. Finished hole tolerances should NOT be maintained by drilling over-sized holes and then plating down to the correct size, because copper and tin/lead alone will not create the compressive forces necessary to retain the HOLTITE Socket contact over time and temperature ranges. Drilling undersized holes, on the other hand, may introduce problems such as excessive contact insertion forces, board warpage and crazing around the hole. Holes should be drilled from the component insertion side of the board, whenever possible, to avoid creating drill-exit burrs on the press-fit portion of the thru-hole.

HOLTITE Socket Application Notes

SOCKET ASSEMBLY AND TOOLING

A HOLTITE Socket is created in the circuit board by inserting a Holtite contact directly into a plated-thru hole. The selective loading of contacts into plated-thru holes defines the socket outline. There are several alternatives for loading contacts into a plated-thru hole, ranging from "one at a time" hand loading tools available from Tyco Electronics to a simple flat press.

HOLTITE SOCKET PRINTED WIRING CONTACT KIT

Part Number 398-HK-001 (Gold HOLTITE Sockets) and 398-HK-002 (Tin/Lead HOLTITE Sockets)

This "starter" kit is primarily designed to allow the loading of HOLTITE Socket contacts into a limited number of prototype boards as well as random individual loading into production boards.

The kit consists of: 5P Series and 6P Series HOLTITE Socket contacts, combination insertion tool and NO-GO gages for each, and a spring-loaded seating tool. The two insertion tools are color coded. The red end of each tool is NO-GO gage used for "quick check" hole size inspection. The insertion portion of the tools is designed to remove HOLTITE Socket contacts from their carrier cards and selectively insert them into plated-thru holes. Individual pressing and seating is then accomplished with the spring-loaded seating tools.

Quantities of approximately 1,000 5P and 2000 6P Series HOLTITE Socket contacts are supplied on cards with .100" grid spacing.



398-HK-001 (Gold HOLTITE Sockets)
or
398-HK-002 (Tin/Lead HOLTITE Sockets)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

SPRING LOADED HAND TOOL



399-HT-114

HOLTITE SOCKET TIPS

Tip # 399-HT-112 is for use with 5P HOLTITE Sockets and is blue in color.

Tip #399-HT-113 is for use with 6P, 8P, & 12P HOLTITE Sockets and is white in color.



399-HT-112

399-HT-113

PNEUMATIC HAND TOOL SYSTEM

This is a pneumatically operated system designed to individually seat Holtite contacts after they have been inserted into plated-thru holes. The system consists of a small control box connected by pneumatic tubing to a hand held impact tool. The tip of the hand tool is inserted into the contact and impact button is depressed. The contact is accurately seated into plated-thru hole. Pressure adjustments of the control box and variable tip sizes on the hand tool, allow this system to work with any size HOLTITE Sockets contact.

This system is particularly useful when loading random contacts, and is designed for low-volume production. The contact seating method provided by this system works very well in conjunction with HOLTITE Sockets contacts packaged on mylar carrier strips. The contacts, in this case remain secured in the MYLAR carrier until they have been seated in the plated-thru hole. The mylar carrier, at that point can be removed and discarded.

Holtite contacts in mylar are most commonly packaged on reels in the form of continuous strips. Custom socket patterns can be produced to satisfy individual customer requirements.

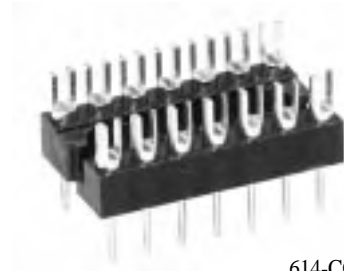


736-M0020

5
Sockets

Plug Adapter Assemblies

600 Series



614-CG1

FEATURES:

The 600 Series is a high quality machined pin molded adaptor which is used to assemble hybrid and special network circuits. The .018" (0,46) diameter precision pin allows the adaptor to be plugged into socket or wire wrappable panels repeatedly.

- Precision machined pins
- Used for interposing discrete components
- Terminals are the same dimension as IC board patterns
- Option of round, solder pocket or slotted pin styles
- Thermoplastic polyester insulators
- Large variety of styles:
 - 8, 14, 16, 20 pins - .300" (7,62) between rows
 - 22 pins - .400" (10,16) between rows
 - 14, 16, 24, 28, 32, 36, and 40 pins - .600" (15,24) between rows
 - 14 & 16 pins - .800" (20,32) between rows

MATERIAL SPECIFICATIONS:

InsulatorThermoplastic polyester, UL rated 94V-0
 PinsPhosphor bronze, gold or tin/lead plated

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationTested to a frequency range of 10 to 2,000 Hz and returned to 10Hz in three perpendicular planes at a double amplitude of .06" (1,52) or 20 G's, whichever was less per MIL-STD-202, Method 204

Mechanical Shock.....Will meet the requirements of MIL-STD-202, Method 213 when subjected to a shock test at 150 G's acceleration

ELECTRICAL

Current Rating.....5 Amps when tested with a 30-gauge wire attached. Terminal will have a maximum 30°C temperature rise above ambient

CapacitanceAt a test frequency of 1 KHz, adjacent and/or terminal all at guard potential

Adjacent terminal:
 AG and CG solder tail.....36pF
 BG (solder pocket)42pF

Opposite Terminal:
 AG and CG solder tail.....025pF
 BG (solder pocket)034pF

Dielectric Withstanding ..

Voltage1,000 VRMS @ 30 inches mercury, .500 VRMS when tested @ 0.9 inches mercury, tested per MIL-STD-202, Method 301

Insulation Resistance1 x 10¹² Ohms, tested to MIL-STD 202, Method 302, tested @ 500 Volts

ENVIRONMENTAL

Thermal Shock.....No visual damage when tested in accordance with MIL-STD-202, Method 107, test condition F for 5 consecutive cycles of -65°C to +150°C

Operating Temperatures.....-65°C to +125°C

Salt SprayNo visual evidence of corrosion on Gold terminals when tested per MIL-STD-202, Method 101 Test condition B for 48 hours and a 5% salt solution

Plug Adapter Assemblies

600 Series

STANDARD CONFIGURATIONS

Number of Pins	Pin Style	Gold Part Number	Tin Part Number	"A" Max.	"B" Typ.	"C" *	"D ₁ " **	"D ₂ " **	"D ₃ " **	Figure
8	Round	608-AG1	608-AG1T	.400 (10,16)	.300 (7,62)	.300 (7,62)	—	—	—	1A
	Solder Pocket	608-BG1	608-BG1T							1B
	Slotted	608-CG1	608-CG1T							1C
14	Round	614-AG1	614-AG1T	.700 (17,78)	.600 (15,24)	.300 (7,62)	—	—	—	1A
	Solder Pocket	614-BG1	614-BG1T							1B
	Slotted	614-CG1	614-CG1T							1C
14	Round	614-AG3	614-AG3T	.700 (17,78)	.600 (15,24)	.600 (15,24)	.400 (10,16)	—	—	2A
	Solder Pocket	614-BG3	614-BG3T							2B
	Slotted	614-CG3	614-CG3T							2C
14	Round	614-AG2	614-AG2T	.750 (19,05)	.600 (15,24)	.800 (20,32)	—	—	—	3A
	Solder Pocket	614-BG2	614-BG2T							3B
	Slotted	614-CG2	614-CG2T							3C
16	Round	616-AG1	616-AG1T	.800 (20,32)	.700 (17,78)	.300 (7,62)	—	—	—	1A
	Solder Pocket	616-BG1	616-BG1T							1B
	Slotted	616-CG1	616-CG1T							1C
16	Round	616-AG3	616-AG3T	.800 (20,32)	.700 (17,78)	.600 (15,24)	.400 (10,16)	—	—	2A
	Solder Pocket	616-BG3	616-BG3T							2B
	Slotted	616-CG3	616-CG3T							2C
16	Round	616-AG2	616-AG2T	.850 (21,59)	.700 (17,78)	.800 (20,32)	—	—	—	3A
	Solder Pocket	616-BG2	616-BG2T							3B
	Slotted	616-CG2	616-CG2T							3C
18	Round	618-AG1	618-AG1T	.900 (22,86)	.800 (20,32)	.300 (7,62)	—	—	—	1A
	Solder Pocket	618-BG1	618-BG1T							1B
	Slotted	618-CG1	618-CG1T							1C
20	Round	620-AG1	620-AG1T	1,000 (25,90)	.900 (22,86)	.300 (7,62)	—	—	—	1A
	Solder Pocket	620-BG1	620-BG1T							1B
	Slotted	620-CG1	620-CG1T							1C
22	Round	622-AG1	622-AG1T	1,150 (29,21)	1,000 (25,90)	.400 (10,16)	—	—	—	1A
	Solder Pocket	622-BG1	622-BG1T							1B
	Slotted	622-CG1	622-CG1T							1C
24	Round	624-AG1	624-AG1T	1,200 (30,98)	1,100 (27,94)	.600 (15,24)	.900 (22,86)	.400 (10,16)	—	2A
	Solder Pocket	624-BG1	624-BG1T							2B
	Slotted	624-CG1	624-CG1T							2C
28	Round	628-AG2	628-AG2T	1,400 (35,56)	1,300 (33,02)	.600 (15,24)	.900 (22,86)	.400 (10,16)	—	2A
	Solder Pocket	628-BG2	628-BG2T							2B
	Slotted	628-CG2	628-CG2T							2C
32	Round	632-AG2	632-AG2T	1,600 (40,64)	1,500 (38,10)	.600 (15,24)	.900 (22,86)	.400 (10,16)	—	2A
	Solder Pocket	632-BG2	632-BG2T							2B
	Slotted	632-CG2	632-CG2T							2C
36	Round	636-AG1	636-AG1T	1,800 (45,72)	1,700 (43,18)	.600 (15,24)	1,500 (38,10)	.900 (22,86)	.400 (10,16)	2A
	Solder Pocket	636-BG1	636-BG1T							2B
	Slotted	636-CG1	636-CG1T							2C
40	Round	640-AG1	640-AG1T	2,000 (50,80)	1,900 (48,26)	.600 (15,24)	1,500 (38,10)	.900 (22,86)	.400 (10,16)	2A
	Solder Pocket	640-BG1	640-BG1T							2B
	Slotted	640-CG1	640-CG1T							2C

* Dimension C ± .010 (0,25)

** Dimension D₁, D₂, D₃ ± .005 (0,13)

Solderless Wrap Styles:

3 Level Solderless Wrap: add "F" to printed circuit Part Number. Ex. 608-AG1TF

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

5 Sockets

Plug Adapter Assemblies

600 Series

SOLDER STYLE TERMINALS

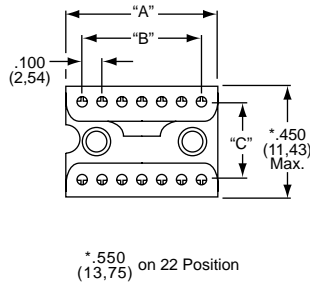


Fig. 1

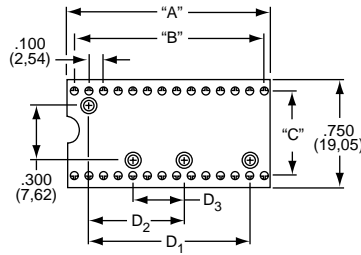


Fig. 2

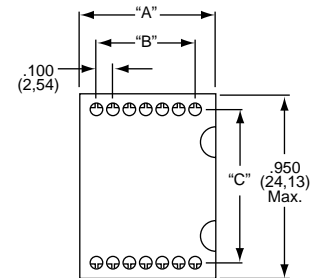


Fig. 3

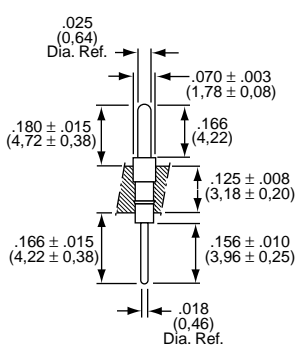


Figure A
8128-41P6 (Gold)

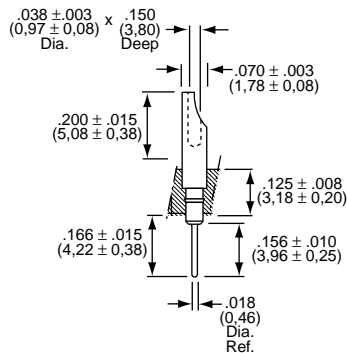


Figure B
8128-40P10 (Gold)

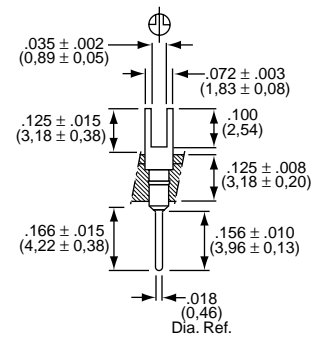


Figure C
8128-39P6 (Gold)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Transistor Adapter Plugs

600-AG Series



608-AG22

FEATURES:

The 600-AG family of FR4 glass epoxy machined pin adaptors, converts standard 6 thru 10 lead round style transistor packages to standard 14 and 16 pin I.C. formats. These adaptors are used to mount circuits directly to wire wrappable panels that have 14 or 16 pin sockets, plug directly into DIP sockets or solder directly to printed wiring panels.

- TO-5 adaptors with .300" (7,62) centers between rows of pins, mount directly to any 14 or 16 pin packaging panel
- Feed thru pins/style, for convenient use as test points
- .018" (0,46) Dia. pins for multiple insertion into socket contacts
- .026" (0,66) Dia. mounting holes enable mounting transistor directly or for mounting a transistor socket for greater flexibility
- Adaptors with .600" (15,24) centers designed for use on universal packaging panels
- Traces plated with electro tin for easy soldering

MATERIAL SPECIFICATIONS:

Insulator.....0.062" (1,57) Thick FR4 glass epoxy,
UL rated 94V-2 or better
PlatingElectro tin
PinPhosphor bronze
PlatingGold

PERFORMANCE SPECIFICATIONS:

MECHANICAL

SolderabilityPassed MIL-STD-202, Method 208

ELECTRICAL

Capacitance4 pF
Bulk Resistance.....10 Milliohms max.
Current Rating.....5 Amps DC per pin
Operating Voltage500 Volts, not to exceed limit
of interconnected device
Dielectric Withstanding
Voltage1,000 Volts @ sea level, 300 Volts @ 50,000 feet
Insulation Resistance..... 2×10^7 Ohms

ENVIRONMENTAL

Operating Temperature-50^o C to +125^o C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Transistor Adapter Plugs

600-AG Series

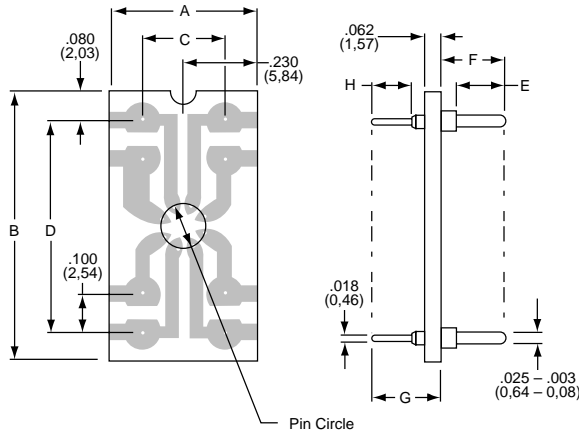


Figure 1
606-AG10
608-AG21
608-AG22

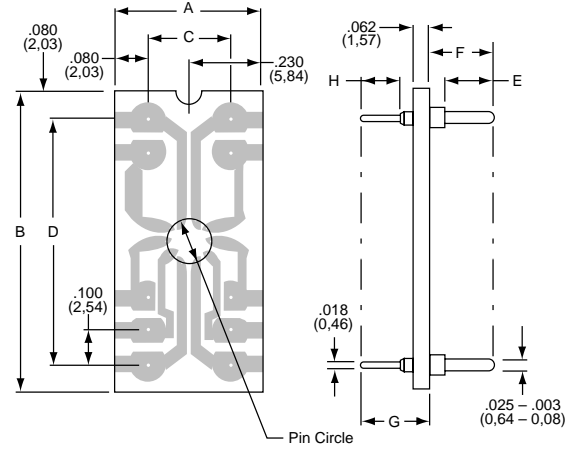


Figure 2
610-AG22

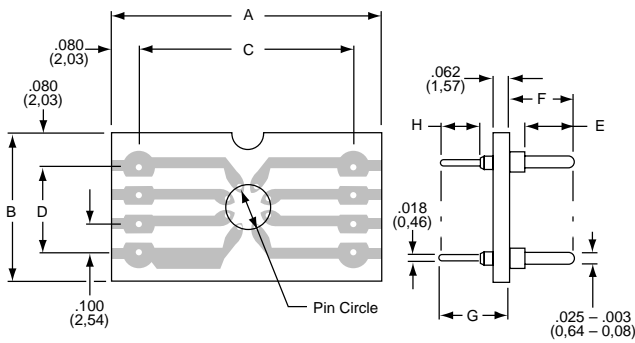


Figure 3
608-AG19

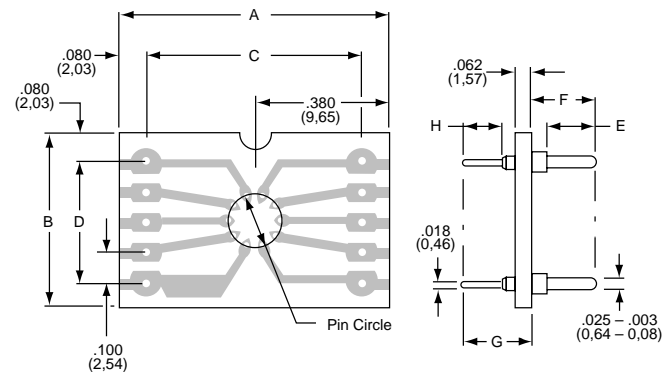


Figure 4
610-AG19

PART NUMBERS / STANDARD CONFIGURATIONS

Part Number	Figure	Pin Count <small>NO PIN POSITIONS 9 & 12</small>	Pin Circle	A *	B *	C **	D Ref.	E **	F ***	G **	H ***
606-AG10	1	6	.200 (5,08)	.460 (11,68)	.860 (21,84)	.300 (7,62)	.700 (17,78)	.166 (4,22)	.218 (5,54)	.259 (6,58)	.156 (3,96)
608-AG19	3	8	.230 (5,84)	.760 (19,30)	.460 (11,68)	.600 (15,24)	.300 (7,62)				
608-AG21	1	8	.200 (5,08)	.460 (11,68)	.860 (21,84)	.300 (7,62)	.700 (17,78)				
608-AG22	1	8	.230 (5,84)	.460 (11,68)	.860 (21,84)	.300 (7,62)	.700 (17,78)				
610-AG19	4	10	.230 (5,84)	.760 (19,30)	.560 (14,20)	.600 (15,24)	.400 (10,16)				
610-AG22	2	10	.230 (5,84)	.460 (11,68)	.860 (21,84)	.300 (7,62)	.700 (17,78)				

* Dimension A, B ± .010

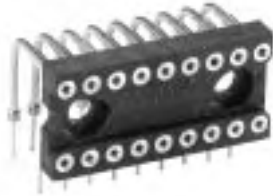
** Dimension C, E, G ± .005

*** Dimension F, H ± .015

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Numerical Display Sockets

500 Series



518-AG7D



516-AG21D



508-AG8D

FEATURES:

Offers a wide range of LED and ganged unit sockets to allow for total flexibility and size variations while incorporating the design features of our standard 500 Series sockets.

- Two-piece tapered entry socket terminal — four-fingered, gold plated inner contact and machined tin/lead plated outer sleeve.
- Available in either solderless wrap or printed circuit termination.
- Horizontal or right angle mounting.

MATERIAL SPECIFICATIONS (Figures 1, 2, 3):

Inner ContactFour-fingered beryllium copper, gold
 Outer SleeveMachined brass, tin/lead plated
 Insulator.....Thermoplastic polyester UL rated 94V-0

MATERIAL SPECIFICATIONS (Figure 4):

Inner ContactFour-fingered beryllium copper, gold
 Outer SleeveBrass, tin/lead plated
 BoardGlass epoxy, tin-plated copper circuitry
 TerminalPhosphor bronze, solder-coated
 SpacerDelrin

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 Shock.....Passed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force200 Grams (7.0 oz.) average with .018" (0,46) dia. polished steel pin
 Insertion Force179 Grams (6.3 oz.) average with .018 (0,46)" dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with .018" (0,46) dia. polished steel pin
 SolderabilityPassed MIL-STD-202F, Method 208
 Sleeve Retention
 in Plastic3.5 Lbs. per line minimum solderless wrap; 3.0 Lbs. PC tail
 Inner Contact
 Retention7.5 Lbs. per line average

ELECTRICAL

Contact Resistance10 Milliohms
 Contact Rating.....3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding
 Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C
 Tin/lead inner contact -55°C to +105°C



Angle Mount DIP Sockets

500 Series

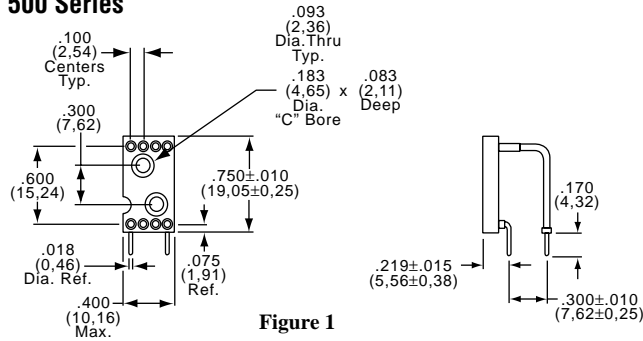


Figure 1

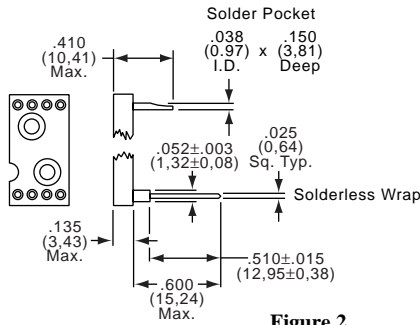


Figure 2

PART NUMBERS / STANDARD CONFIGURATIONS

Part Number	Figure	Number of Contacts	Description
508-AG8D	1	8	Right angle mtg., printed circuit
508-AG4A	2	8	Horizontal mtg., solder pocket
508-AG4F	2	8	Horizontal mtg., 3 level solderless wrap

PART NUMBER / STANDARD CONFIGURATIONS

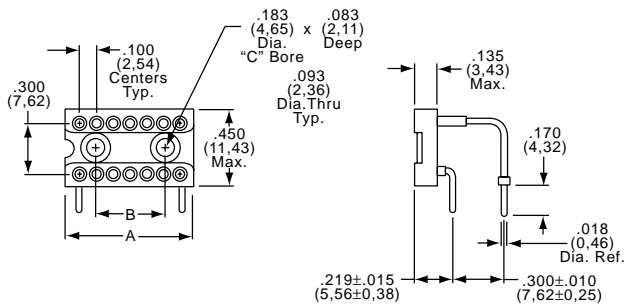


Figure 3
Horizontal Right Angle

Part Number	Number of Contacts	A Max.	B	Description
508-AG7D	8	.400 (10.16)	One Hole Only	Right angle mtg., printed circuit
514-AG7D	14	.700 (17.78)	.400 (10.16)	
516-AG7D	16	.800 (20.32)	.500 (12.70)	
518-AG7D	18	.900 (22.86)	.600 (15.24)	
520-AG7D	20	1.000 (25.40)	.500 (12.70)	

PART NUMBER / STANDARD CONFIGURATIONS

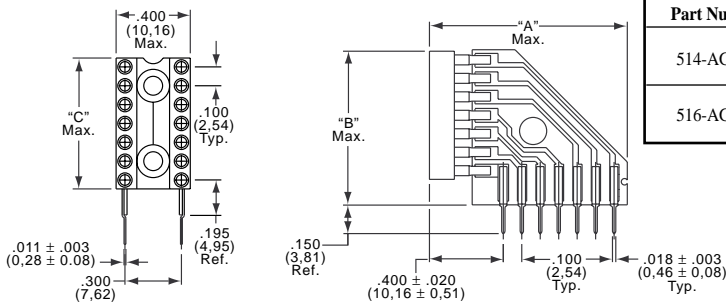


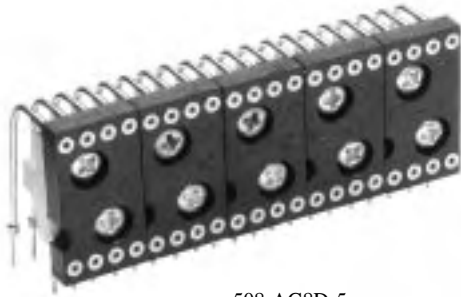
Figure 4
Vertical Right Angle

Part Number	Number of Contacts	"A" Max.	"B" Max.	"C" Max.
514-AG21D	14	1.100 (27.49)	.900 (22.86)	.700 (17.78)
516-AG21D	16	1.220 (30.99)	1.010 (25.65)	.800 (20.32)

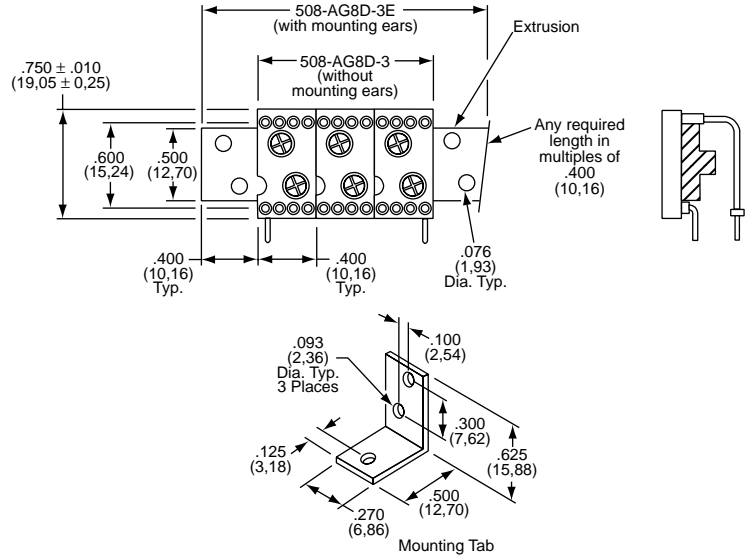
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Ganged DIP Sockets

500 Series



508-AG8D-5



GANGED UNIT ASSEMBLIES:

The 508 Series numbers in part block are individual sockets. Add required dash number to appropriate socket part number for ganged unit assemblies. With or without extrusion extension (serves as mounting ears). Units with extrusion extensions are furnished with four No. 2 x 1/4" long self-tapping screws.

EXTRUSION:

Extrusion for ganging also available separately, part number 508-5G1. Simply add suffix number to indicate required length. Each extrusion is furnished with No. 2 x 1/4" long self-tapping screws, quantity same as number of holes in extrusion.

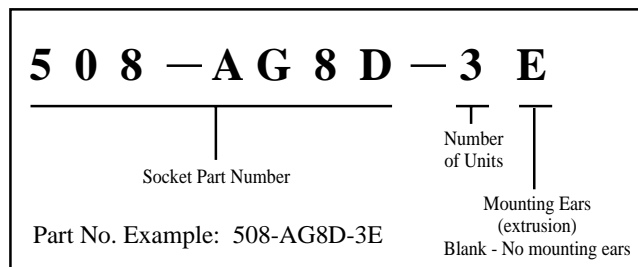
MOUNTING TAB:

Part number 508-4P1 is used for mounting ganged unit assemblies. Sold separately if required.

MATERIAL SPECIFICATIONS:

Inner Contact.....Four-fingered beryllium copper, gold
 Outer SleeveMachined brass, tin/lead plated
 Insulator.....Thermoplastic polyester UL rated 94V-0
 ExtrusionVinyl
 Mounting TabStainless steel .032 (0,81) thick

HOW TO ORDER



PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 ShockPassed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force200 Grams (7.0 oz.) average with .018" (0,46) dia. polished steel pin
 Insertion Force179 Grams (6.3 oz.) average with .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with .018" (0,46) dia. polished steel pin
 SolderabilityPassed MIL-STD-202F, Method 208
 Sleeve Retention in Plastic3.0 Lbs. per line minimum PC tail
 Inner Contact Retention7.5 Lbs. per line average

ELECTRICAL

Contact Resistance10 Milliohms
 Contact Rating3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C
 Tin/lead inner contact -55°C to +105°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Crystal Socket Assemblies

8000-AG & 8004-1G Series



8000-AG2

FEATURES:

The crystal socket assembly is a high quality component manufactured with superior materials designed for dependable mechanical and electrical life. Developed for use with a broad spectrum of crystal sizes, the crystal package can easily be inserted and removed without removing and adjusting latches and/or screws. Once the crystal has been installed it will not shake loose even under severe vibration.

- 8000 Series miniature style is designed to accommodate HC-6/μ, HC-13μ HC-14/μ, HC-27μ, HC-36/μ and HC-48/μ crystal sizes
- 8004 Series subminiature style is designed to accommodate HC-18/μ, HC-25μ, HC-42/μ, HC-43/μ, HC-49/μ and HC-50/μ crystal sizes
- Contact designs include flow-solder, horizontal solder eyelet and right angle solder eyelet tails, in both machined sleeve and stamped contact variations
- Provides maximum protection of crystal devices in severe shock and vibration environments
- Insulators offered in teflon and nylon materials
- Broad range of clip and contact materials
- Acts as additional heat sink to protect crystal against temperature variations

MATERIAL SPECIFICATIONS:

InsulatorsTeflon or blue nylon
 Contacts.....Beryllium copper
 Contact PlatingGold or tin
 Holding ClipsBeryllium copper alloy, cadmium plated with gold iridite

PERFORMANCE SPECIFICATIONS: 8000 SERIES

MECHANICAL

Vibration10 to 2,000 Hz at 15 G's with crystal mounted, no movement of crystal or damage assembly

ELECTRICAL

Bulk Resistance.....15 Milliohms @ 30 millivolts
 Capacitance to Ground (Contact to Holding Clip)5pF @ 1,000 Hz
 Capacitance Between Contacts3pf @ 1,000 Hz
 Dielectric Withstanding Voltage2,500 RMS @ sea level, 400 RMS @ 70,000 ft.

ENVIRONMENTAL

Temperature Range (For Crystal Socket Only)-55°C to + 125°C
 Salt Spray5% for 48 hours, no breakdown of plating or damage to base metal

PERFORMANCE SPECIFICATIONS: 8004 SERIES

MECHANICAL

Vibration10 to 2,000 Hz @ 15 G's

ELECTRICAL

Bulk Resistance.....10 Milliohms
 Capacitance to Ground (Contact to Holding Clip)8pF
 Capacitance Between Contacts5 pF
 Dielectric Withstanding Voltage2,500 RMS

ENVIRONMENTAL

Temperature Range (For Crystal Socket Only)-55°C to + 125°C
 Salt Spray5% solutions for 48 hours

Crystal Socket Assemblies

8000-AG & 8004-1G Series

PART NUMBER / STANDARD CONFIGURATIONS

Accepts .017 (0,43) Diameter Leads Crystal Styles: HC-18μ, HC-43μ, HC-49μ						
Socket Part Number	Figure	Description	Contact Material	Contact Design	Contact Plating	Insulation Material
8004-23G1	2	Printed circuit mount with anti-rotating tab	Beryllium Copper	Machined	Gold	Teflon
Accepts .040 (1,02) Diameter Leads Crystal Styles: HC-25μ, HC-42μ, HC-50μ						
Socket Part Number	Figure	Description	Contact Material	Contact Design	Contact Plating	Insulation Material
8004-1G16	2	Printed circuit mount with anti-rotating tab	Beryllium Copper	Machined	Gold	Teflon
8004-1G4	1	Printed circuit mount with anti-rotating tab	Phosphor Bronze	Stamped		
8004-1G23	2	Printed circuit mount without anti-rotating tab	Beryllium Copper	Machined		
8004-1G1	1	Horizontal mount with anti-rotating tab	Phosphor Bronze	Stamped		
8004-1G2	1	Horizontal mount without anti-rotating tab				
8004-1G3	1	Printed circuit mount with anti-rotating tab				
8004-1G26	1	Horizontal mount without anti-rotating tab	Beryllium Copper			
Accepts .050 (1,27) Diameter Leads Crystal Styles: HC-6μ, HC-13μ, HC-14μ, HC-27μ, HC-36μ, HC-48μ						
Socket Part Number	Figure	Description	Contact Material	Contact Design	Contact Plating	Insulation Material
8000-AG1	3	Horizontal mount with anti-rotating tab	Phosphor Bronze	Stamped	Gold	Teflon
8000-AG2	3	Horizontal mount without anti-rotating tab				
8000-AG9	4	Printed circuit mount with anti-rotating tab				
8000-AG3	3					
8000-AG36	5				Tin	Nylon
8000-AG4	3	Printed circuit mount without anti-rotating tab			Gold	Teflon

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

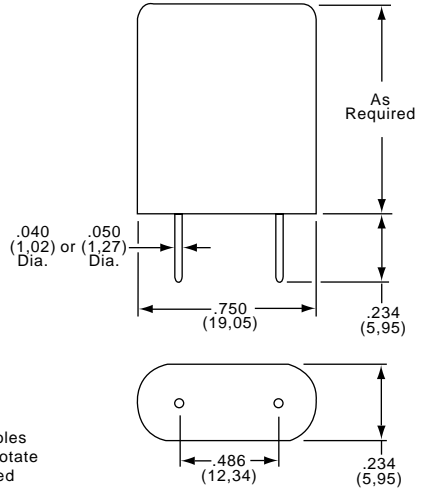
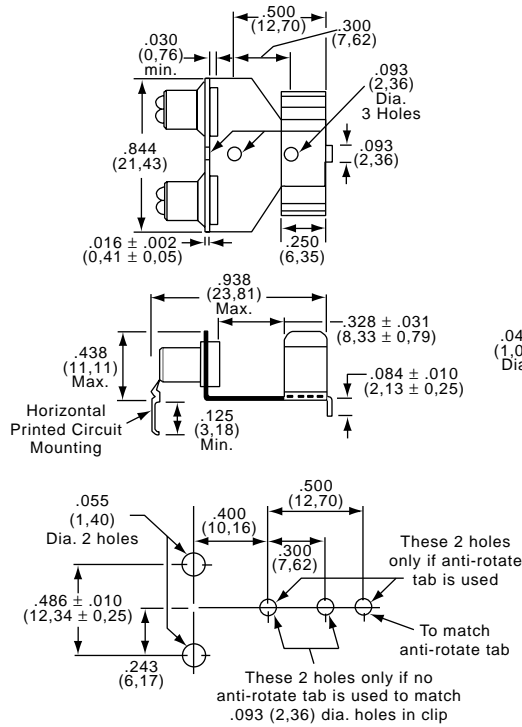
Crystal Socket Assemblies

8000-AG & 8004-1G Series

FIGURE 5



8000-AG36



Crystal Outline Drawing

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Programming Jumper Plug Assemblies

8136-875 Series



8136-475G8

FEATURES:

8136-475 Series of programmed jumper plugs offer the unique combination of low cost and flexible signal path selection. Standard configurations are supplied programmed across rows. Special configurations are available side by side and across row, intermixed programmed signal path variations.

- Low profile; only .100" (2,54) high, "X" & "Y" stackability
- Available with gold or tin plating
- Available in standard units of 1,2,3,4,7,8,9 (double pin)
- Jumper pin assembly spans .300" (7,62) centers to connect opposing contacts in I.C. patterns, or .100" (2,54) centers to connect adjacent pins
- Also available in special configurations combining .100" (2,54) center shorting pins with .300" (7,62) center pins
- To allow greater flexibility, individual jumper pins and insulators are available for installation by the customer (simple press assembly)

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 PinPhosphor bronze
 PlatingGold or tin

PERFORMANCE SPECIFICATIONS:

MECHANICAL

SolderabilityMIL-STD-202, Method 208

ELECTRICAL

Current Rating.....3 Amps DC
 Operating Voltage.....500 Volts RMS at atmospheric pressure
 Dielectric Withstanding
 Voltage2,500 Volts RMS for 5 seconds
 Bulk Resistance.....10 Milliohms at .020 Amps DC
 Insulation Resistance..... 2×10^9 Ohms at 90% relative humidity

ENVIRONMENTAL

Operating Temperature-65°C to +125°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Programming Jumper Plug Assemblies

8136-475 Series

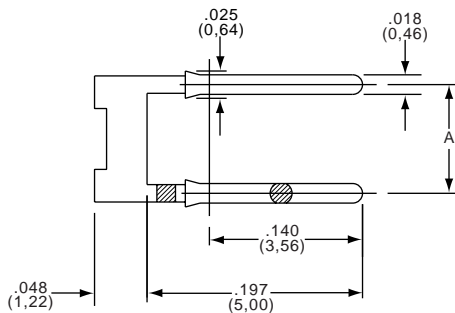
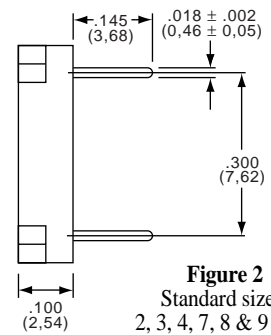
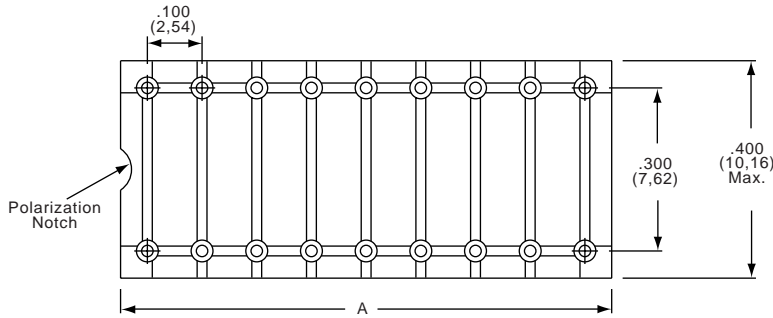


Figure 3
Jumper pin

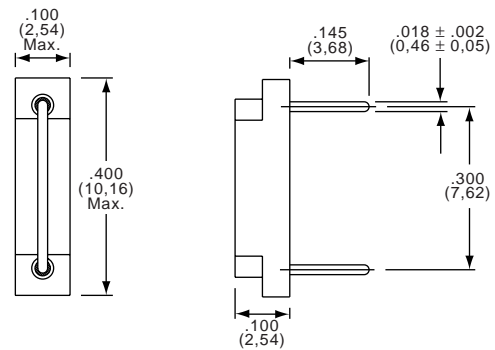


Figure 1
Single unit

INSULATOR ONLY

Size	Part Number	Dimension A
Insulator-1 Unit	8136-477P1	.100 (2,54)
Insulator-2 Units	8136-652P6	.200 (5,08)
Insulator-3 Units	8136-652P1	.300 (7,62)
Insulator-4 Units	8136-652P2	.400 (10,16)
Insulator-7 Units	8136-652P3	.700 (17,78)
Insulator-8 Units	8136-652P4	.800 (20,32)
Insulator-9 Units	8136-652P5	.900 (22,86)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PART NUMBER / STANDARD CONFIGURATIONS

Gold Part Number	Figure	Number of Units	Dim. A
8136-475G1	1	1	----
8136-475G2	2	2	.200 (5,08)
8136-475G3	2	3	.300 (7,62)
8136-475G4	2	4	.400 (10,16)
8136-475G7	2	7	.700 (17,78)
8136-475G8	2	8	.800 (20,32)
8136-475G9	2	9	.900 (22,86)
8136-651P2 (gold)	3	Jumper Pin	.100 (2,54)
8136-651P3 (tin)	3	Jumper Pin	.100 (2,54)
8136-650P2 (gold)	3	Jumper Pin	.300 (7,62)
8136-650P3 (tin)	3	Jumper Pin	.300 (7,62)

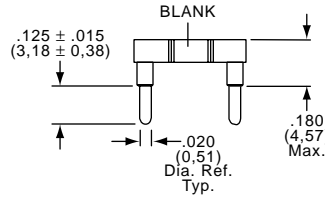
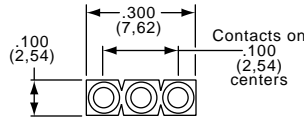
* For tin-plated version of Figs. 1&2, use suffix "T" after part number.
Example: 8136-475G1T.

Fuse Sockets

500 Series



510-21232



FEATURES:

AMP offers a SIP style socket for use with PC fuses.

- Precision four-finger inner contact provides concentric funnel entry for easy flat and round lead insertion
- Non-wicking, closed bottom sleeve gives 100% protection against flux and solder contamination
- BeCu inner contact for maximum mechanical and electrical performance

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- PCB Hole Size Range: .035" ± .003" (0,89 ± 0,08) PC tail
- IC Pin Dimension Range: .009" x .015" (0,23 x 0,38) through .011" x .020" (0,28 x 0,51) .016" to .021" (0,41 to 0,53) round lead, .105"(2,67) min. length

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 Inner Contact.....Four-fingered beryllium copper, gold over nickel plated
 Outer SleeveMachined brass, gold over nickel or tin/lead over copper plated

PART NUMBER

Part Number	Contact Plating	Sleeve Plating
510-21114	Gold	Tin/Lead
510-21232	Tin/Lead	Tin/Lead

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 Shock.....Passed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force200 Grams (7.1 oz.) average with a .018" (0,46) dia. polished steel pin
 Inner Contact Retention7.5 Lbs. per line average
 Sleeve Retention in Plastic.....3.0 Lbs. per line minimum
 SolderabilityPassed MIL-STD-202F, Method 208
 Insertion Force179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with a .018" (0,46) dia. polished steel pin

ELECTRICAL

Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation Temperature....Gold inner contact -55°C to +125°C
 Tin/lead inner contact -55°C to +105°C

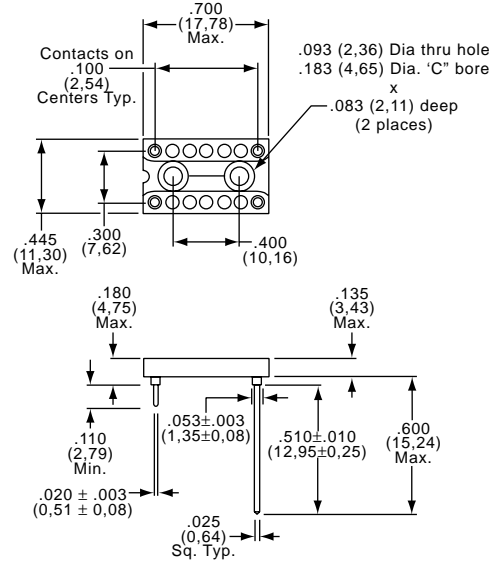


Crystal Oscillator Sockets

500 Series



504-AG11D



FEATURES:

- Accommodates any component leads with .016" to .021" (0,41 x 0,53) diameter
- Withstands most severe environmental conditions including military requirements of high shock and vibration
- Low profile
- Contact features closed end construction eliminating any solder or flux wicking problems
- Two-piece tapered entry socket terminal features a four-finger, inner contact and machined outer sleeve

APPLICATION DIMENSIONS:

- PCB Thickness Range: Standard .062" and .092" (1,57 and 2,34)
- PCB Hole Size Range: .035" ± .003" (0,89 ± 0,08) PC tail, .055" ± .003" (1,40 ± 0,08) solderless wrap
- IC Pin Dimension Range: .016" to .021" (0,41 to 0,53) round lead, .105"(2,67) min. length

MATERIAL SPECIFICATIONS:

Insulator.....Thermoplastic polyester, UL rated 94V-0
 Inner Contact.....Four-fingered beryllium copper, gold over nickel plated
 Outer SleeveMachined brass, gold over nickel or tin/lead over copper plated

PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Number of Contacts	Contact Plating	Sleeve Plating	Termination Style
504-AG10D	4	Gold	Gold	Printed Circuit
504-AG11D			Tin/Lead	
504-AG12D		Tin/Lead	Tin/Lead	
504-AG10F		Gold	Gold	Solderless Wire Wrap
504-AG11F			Tin/Lead	

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005.1, Condition II, 10 G's
 Shock.....Passed MIL-STD-1344, Method 2004.1, Condition C, 100 G's
 DurabilityPassed MIL-STD-1344, Method 2016
 Normal Force200 Grams (7.1 oz.) average with .018" (0,46) dia. polished steel pin
 Inner Contact Retention7.5 Lbs. per line average
 Sleeve Retention in Plastic.....3.0 Lbs. per line minimum
 SolderabilityPassed MIL-STD-202F, Method 208
 Insertion Force179 Grams (6.3 oz.) average with a .018" (0,46) dia. polished steel pin
 Withdrawal Force63 Grams (2.2 oz.) average with a .018" (0,46) dia. polished steel pin

ELECTRICAL

Contact Resistance10 Milliohms max.
 Contact Rating.....3 Amps
 Capacitance1.0 pF per MIL-STD-202, Method 305 (contact to contact)
 Insulation Resistance.....5,000 Megohms min. @ 500 VDC per MIL-STD-1344, Method 3003.1
 Dielectric Withstanding Voltage1,000 Volts RMS per MIL-STD-1344, Method 3001.1

ENVIRONMENTAL

HumidityPassed MIL-STD-1344, Method 1002.2, Cond. II
 Thermal ShockPassed MIL-STD-1344, Method 1003.1, Cond. A
 Operation TemperatureGold inner contact -55°C to +125°C
 Tin/lead inner contact -55°C to +105°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Transistor & IC Low Profile Sockets

8059 Series



8059-2G7

FEATURES:

The 8059 Series TO-5 transistor sockets are manufactured with a beryllium copper precision four fingered inner contact and brass outer sleeve. Insulators are molded in five brilliant polyamide colors, for rapid visual identification of socket pin count or pin circle. This inexpensive family of transistor sockets is available with either gold or tin/lead sleeves for even more economy.

- Ultra low profile
- Closed entry design -no distortion or damage to contact with misaligned or oversized lead
- Gold plated contacts, choice of gold or tin/lead plated leads
- Sockets accept .016 to .020 (0,41 to 0,51) diameter leads
- Five brilliant colors for easy identification when mounted on PCB
- Closed end sleeve design completely eliminates the possibility of flux or solder wicking into the contact area
- Large tapered entry for easy insertion of transistor devices

MATERIAL SPECIFICATIONS:

Insulator.....Glass filled polyamide nylon, UL rated 94V-0
 SleeveBrass
 ContactBeryllium copper
 Plating
 ContactGold
 SleeveTin/lead or gold

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD-1344, Method 2005, 15 G's, 10 to 2,000 cycles
 Mechanical Shock.....Passed MIL-STD-1344, Method 2004, 10 G's, 1 to 9,000 cycles
 Durability50 Insertions and withdrawals, MIL-S-83502/1, Sec 4.7.12
 Insertion Force4.0 lb. Max., .020 dia. +.0000 probe -.0002
 Withdrawal Force14 Grams (1/2 oz.) min., .016 dia. +.0002 probe -.0001
 SolderabilityMIL-STD-202, Method 208

ELECTRICAL

Bulk Contact
 Resistance20 Milliohms max per MIL-S-83502/1
 Current Rating.....3 Amps DC
 Operating Voltage.....750 VDC
 Dielectric Withstading
 Voltage600 VAC per MIL-STD-1344, Method 3001
 Insulation Resistance.....2 x 10⁶ Megohms, MIL-STD-1344, Method 3003
 Capacitance2pF Max., MIL-STD-202, Method 305

ENVIRONMENTAL

Operating Temperature-55°C to +125°C
 Corrosive Atmosphere30 Milliohms, amonium polysulfide 10 ppm per MIL-S-83502/1 sec. 4.7.17
 Moisture Resistance30 Milliohms max., MIL-STD 202, Method 106
 Thermal ShockMIL-STD-1344, Method 1003

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Transistor & IC Low Profile Sockets

8059 Series

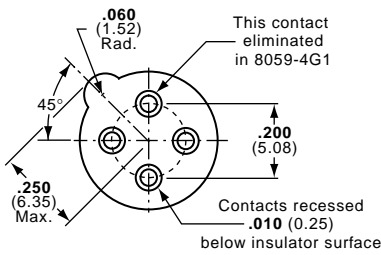


Figure 1

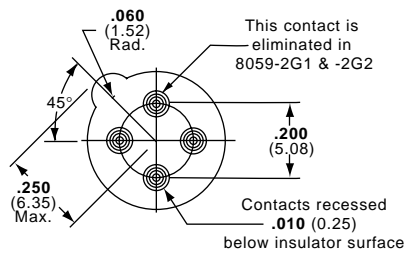


Figure 2

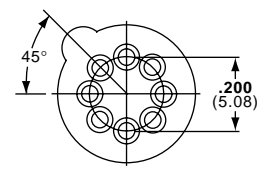


Figure 3

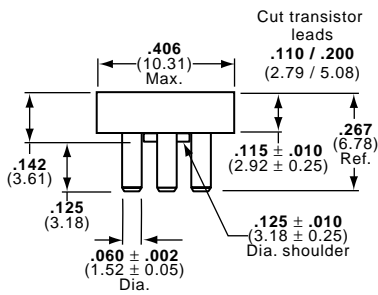


Figure A

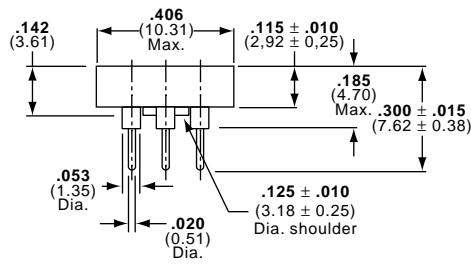


Figure B

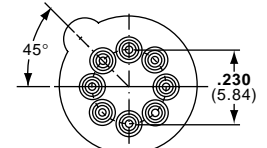


Figure 4

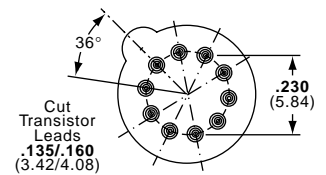


Figure 5

PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Figure	Number of Contacts	Pin Circle	Contact Plating	Sleeve Plating	Insulator Color
8059-4G1	1, A	3	.200 (5,08)	Gold	Gold	Red
8059-2G1	2, B			Gold	Gold	
8059-2G2				Gold	Tin/Lead	
8059-4G4	1, A	4		Gold	Gold	Blue
8059-2G3	2, B			Gold	Gold	
8059-2G4				Gold	Tin/Lead	
8059-2G5	3, B	8		Gold	Gold	Green
8059-2G6				Gold	Tin/Lead	
8059-2G7			Gold	Gold		
8059-2G8	4, B		Gold	Tin/Lead	Orange	
8059-2G9			Gold	Gold		
8059-2G10	5, B		10	.230 (5,84)	Gold	Tin/Lead

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Transistor Sockets

8058 & 8060 Series



8060-1G11



8060-1G6

FEATURES:

The 8058/8060 family of teflon sockets, with beryllium copper contacts, offers many features which allow them to be utilized in the most severe applications. Low profile for close board spacing, closed sleeve for 100% prevention of solder and flux wicking. A choice of many terminal styles for greater packaging selection and ease of use. Many of these sockets meet or exceed MIL-S-83502/2 and MIL-S-83502/5.

- Two-piece socket terminal - four fingered inner contact and machined outer sleeve
- Low profile for tight space applications
- Sockets accept 0,41/.016 to 0,51/.020 diameter leads
- Printed circuit, solder pocket and turret style terminations available
- Closed entry-design no distortion or damage to contact with misaligned or oversized leads

MATERIAL SPECIFICATIONS:

InsulatorTeflon
 SleeveBrass
 Contact PlatingBeryllium copper
 PlatingContact gold, sleeve gold

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

MECHANICAL

VibrationPassed MIL-STD -1344, Method 2005, 15 G's, 10 to 2,000 cycles
 Mechanical ShockPassed MIL-STD -1344, Method 2004, 10 G's, 1 to 9,000 cycles
 Durability50 Insertions and withdrawals, MIL-S-83502/ 1, Sec. 4.7.12
 Insertion Force4.0 lb. max., .020 dia. +.0000 probe -.0002
 Withdrawal Force14 Grams (1/2 oz.) min. .016 dia. +.0002 probe -.0001
 SolderabilityMIL-STD- 202, Method 208

ELECTRICAL

Bulk Contact
 Resistance20 Milliohms max. per MIL-S-83502/1
 Current Rating3 Amp DC, contact rating
 Operating Voltage500 VDC @ atmospheric pressure
 Dielectric Withstanding
 Voltage600 VAC per MIL-STD -1344 , Method 3001
 Insulation Resistance2 x 10⁶ Megohms, MIL-STD -1344, Method 3003
 Capacitance2 pF Max., MIL-STD -202, Method 305

ENVIRONMENTAL

Operating Temperature-55°C to +125°C
 Corrosive Atmosphere30 milliohms, ammonium polysulfide 10 ppm per MIL-S-83502/1 Sec. 4.7.17
 Moisture Resistance30 Milliohms max., MIL-STD -202, Method 106
 Thermal ShockMIL-STD -1344, Method 1003



Sockets

Transistor Sockets

8058 & 8060 Series

PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Figure	No. of Contacts	Pin Circle	A	B	C	D	E*	F Max.	Terminal Style	Mounting Hole	Transistor Lead Length	Polarization Figure
M8058-45G1	1	3	.200	.200	.265	.373	.410	.160	.406	Turret	B	.156/.218	N
M8058-1G29	3	3	.200	.200	.270	.373	.410	.140	.351	Solder Pocket			
8058-1G29	3	3	.200	.200	.270	.373	.410	.140	.351	Printed Circuit	—	.125/.155	P
8058-1G23	4	3	.200	.200	.270	.373	.410	.302	.544				
M8058-1G23	4	3	.200	.200	.270	.373	.410	.302	N/A	Wirewrap	B	.156/.218	N
8058-1G59	6	3	.200	.200	.165	N/A	.410	.125	N/A				
8058-38G6	6	3	.200	.200	.165	N/A	.410	.315	N/A	Turret	B	.156/.218	N
8058-1G62	7	3	.200	.200	.270	.373	.410	.500	.703				
M8058-45G2	1	4	.200	.200	.265	.373	.410	N/A	.406	Solder Pocket	B	.156/.218	N
M8058-1G30	3	4	.200	.200	.265	.373	.410	.140	.377				
8058-1G30	3	4	.200	.200	.270	.373	.410	.140	.347	Printed Circuit	—	.125/.155	P
M8058-1G24	4	4	.200	.200	.270	.373	.410	.347	.550				
8058-1G24	4	4	.200	.200	.270	.373	.410	.317	.550	Wirewrap	B	.156/.218	N
8058-1G63	7	4	.200	.200	.270	.373	.410	.500	.703				
8058-1G58	2	5	.200	.200	.270	.373	.410	.094	.331	Turret	B	.156/.218	N
8058-1G61	3	5	.200	.200	.270	.373	.410	.140	.336	Solder Pocket			
M8058-1G39	2	6 at 45°	.200	.200	.270	.373	.410	.094	.300	Turret	B	.156/.218	N
8058-1G43	3	6 at 60°	.200	.200	.270	.373	.410	.140	.370	Solder Pocket			
M8058-1G18	3	6 at 45°	.200	.200	.270	.373	.410	.140	.370	Printed Circuit	—	.125/.155	P
8058-1G42	4	6 at 60°	.200	.200	.270	.373	.410	.317	.561				
M8058-1G33	4	6 at 45°	.200	.200	.270	.373	.410	.317	.561	Turret	B	.156/.218	N
8058-1G48	6	6 at 60°	.200	.200	.165	N/A	.410	.125	N/A				
8058-1G52	6	6 at 45°	.200	.200	.165	N/A	.410	.125	N/A	Solder Pocket	B	.156/.218	N
M8058-1G37	2	8	.200	.200	.270	.373	.410	.094	.336				
M8058-1G19	3	8	.200	.200	.270	.373	.410	.140	.377	Printed Circuit	—	.125/.155	P
8058-1G19	3	8	.200	.200	.270	.373	.410	.140	.377				
8058-1G57	3	8	.200	.200	.270	.373	.410	.140	.315	Turret	B	.156/.218	N
M8058-1G32	4	8	.200	.200	.270	.373	.410	.317	.550				
8058-1G32	4	8	.200	.200	.270	.373	.410	.317	.550	Solder Pocket	B	.156/.218	N
8058-39G1	5	8	.200	.330	.375	.373	.410	.187	.505				
8058-39G3	5	8	.200	.380	.375	.373	.410	.150	.470	Printed Circuit	—	.125/.155	P
8058-39G5	5	8	.200	.380	.375	.373	.410	.150	.470				
8058-1G49	6	8	.200	.200	.165	N/A	.410	.125	N/A	Turret	B	.156/.218	N
8058-1G47	2	8	.230	.230	.270	.373	.410	.094	.300				
8058-1G46	3	8	.230	.230	.270	.373	.410	.138	.346	Solder Pocket	B	.156/.218	N
8058-1G45	4	8	.230	.230	.270	.373	.410	.302	.534				
8058-39G4	5	8	.230	.380	.375	.373	.410	.155	.467	Printed Circuit	—	.125/.165	P
8058-39G6	5	8	.230	.380	.375	.373	.410	.150	.467				
8058-1G50	6	8	.230	.230	.165	N/A	.410	.125	N/A	Turret	B	.156/.218	N
M8058-1G38	2	10	.230	.230	.270	.373	.410	.094	.331				
M8058-1G22	3	10	.230	.230	.270	.373	.410	.141	.377	Solder Pocket	B	.156/.218	N
M8058-1G31	4	10	.230	.230	.270	.373	.410	.317	.561				
8058-1G31	4	10	.230	.230	.270	.373	.410	.317	.561	Printed Circuit	—	.125/.155	P
8058-24G1	5	10	.230	.380	.375	.373	.410	.187	.505				
8058-1G34	6	10	.230	.230	.165	N/A	.410	.125	N/A	Turret	B	.156/.218	N
M8058-1G91	6	10	.230	.230	.165	N/A	.410	.125	N/A				
8058-1G55	5	12	.250	.380	.375	.373	.410	.155	.467	Solder Pocket	B	.156/.218	N
8058-1G51	6	12	.280	.280	.165	N/A	.410	.125	N/A				

* Dimension E ± .031
(0,79)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Transistor Sockets

8058 & 8060 Series

PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Figure	Number of Contacts	Pin Circle	A	B	C	D	E*	F Max.	Terminal Style	Mtg. Hole Figure	Transistor Lead Length	Polarization Figure
8060-1G5	3	3	.100	.100	.268	.227	.255	.146	.350	Solder Pocket	A	.156/.218	N
8060-1G17	3	3	.100	.100	.320	.227	.255	.084	.427				
8060-1G9	2	3	.100	.100	.268	.227	.255	.094	.372	Turret	—	.125/.155	P
8060-1G11	4	3	.100	.100	.330	.227	.255	.240	.580				
8060-1G7	5	3	.100	.200	.410	.227	.255	.170	.616	Printed Circuit	—	.125/.155	P
8060-1G3	6	3	.100	.150	.195	N/A	.255	.103	N/A				
8060-1G13	6	3	.100	.100	.195	N/A	.255	.103	N/A	Solder Pocket	A	.156/.218	N
8060-1G6	3	4	.100	.100	.265	.227	.255	.146	.350				
8060-1G10	2	4	.100	.100	.265	.227	.255	.094	.310	Turret	—	.125/.155	P
8060-1G12	4	4	.100	.100	.330	.227	.255	.240	.553				
8060-1G8	5	4	.100	.200	.390	.227	.255	.187	.530	Printed Circuit	—	.125/.155	P
8060-1G4	6	4	.100	.150	.195	N/A	.255	.103	N/A				
8060-1G22	6	4	.100	.100	.195	N/A	.255	.295	N/A				

* Dimension E ± .031
(0,79)

All part number prefixed with (M) meet MIL-83502/1 or MIL-83502/6.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Transistor Sockets

8058 & 8060 Series

Figure A
Recommended Chassis Cutout
for all 8060 Series panel
mount applications

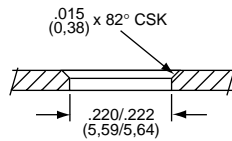


Figure B
Recommended Chassis Cutout
for all 8058 Series panel
mount applications

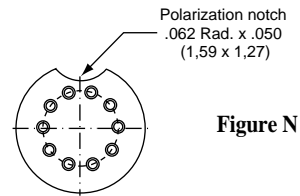
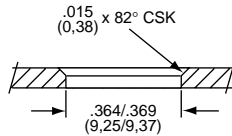


Figure N

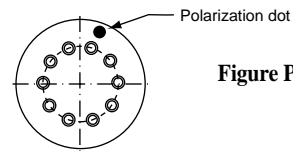


Figure P

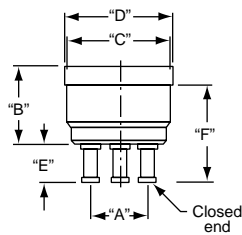


Figure 1

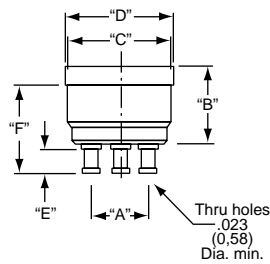


Figure 2

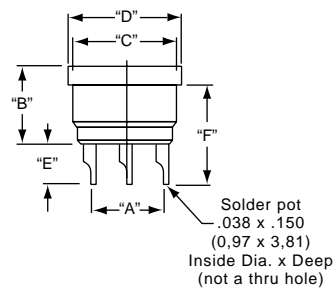


Figure 3

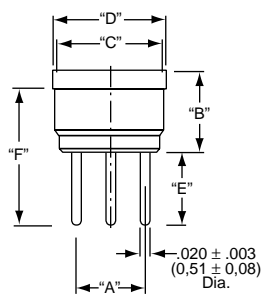


Figure 4

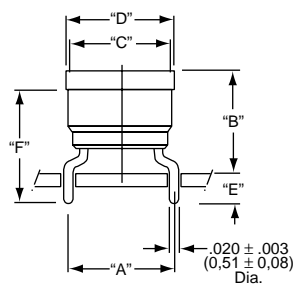


Figure 5

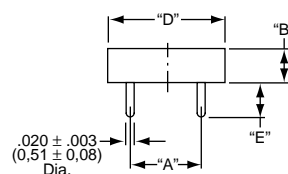


Figure 6

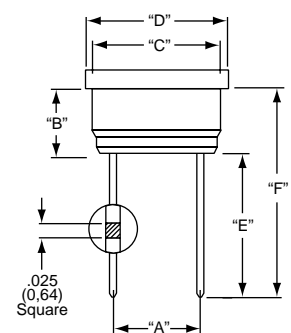


Figure 7

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Lamp Sockets

8060 Series

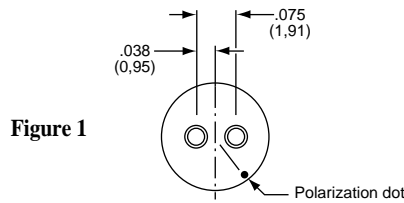


Figure 1

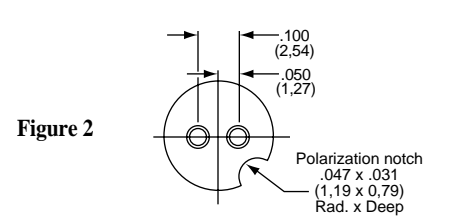


Figure 2

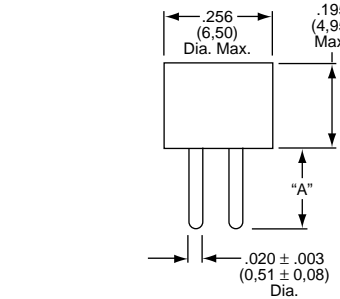


Figure 3

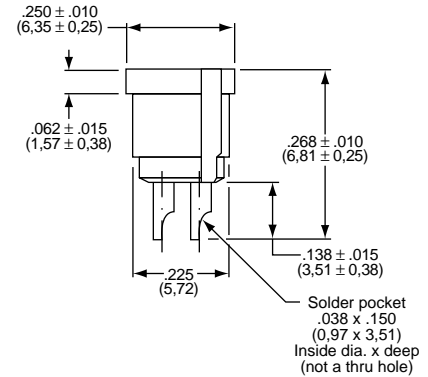
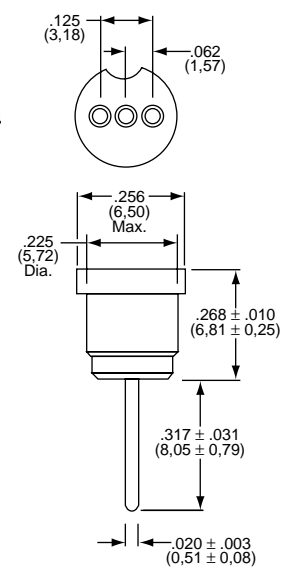
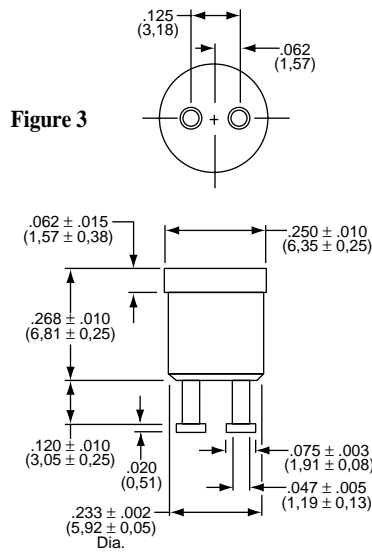


Figure 4



Recommended mounting hole .221 ± .001 (5,61 ± 0,03) - Break leading edge .015 (0,38) x 82° countersink

PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Figure	Accept Lead Diameter	Cut Component Lead Length	A
8060-1G23	1	.016 - .020 (0,41 - 0,51)	.125 (3,18) minimum	.105 (2,67)
8060-1G25				.305 (7,75)
8060-1G34	2	.025 (0,63)		—
8060-1G16	3			—
8060-1G20	4	.016 - .020 (0,41 - 0,51)		.317 (8,05)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

TO-3 Power Transistor Sockets

8080-1G Series



8080-1G7

FEATURES:

The 8080-1G family of TO-3 Power Transistor Sockets is used for both small and large signal devices. Used in power supplies, power amplifiers, sweep amplifiers, and machine controlled equipment. These sockets are designed to constantly perform.

- Contact rating 10 amps. 20 Amps for 8080-1G44 VDE style
- Sockets accept components with .040 (1,02) .002 -.003 (+0,05 -0,08) diameter lead or .060 (1,52) +.002 -.003 (+0,05 -0,08) diameter leads
- Integral mounting saddle has 20 inch pounds min. thread strength
- Diallyl phthalate and phenolic insulators

MATERIAL SPECIFICATIONS:

- Insulator.....Black phenolic or green diallyl phthalate, UL rated 94V-0
- Mounting Saddle.....Brass, heat treated
- Saddle PlatingElectro-tin
- Insulating WasherMica .003 (0,08) thick
Ordered separately-part number 8038-3P1, Fig. 2
- Contacts.....Beryllium copper
- Contact PlatingTin, silver or gold

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

MECHANICAL

- Vibration10 - 2,000 Hz, MIL-STD-202, Method 204, Condition B, transistor installed
- Durability50 Insertions per MIL-STD-12883
- Insertion Force6 Pounds max. per MIL-STD-12883
- Withdrawal Force18 Pounds min., 6 pounds max. per MIL-STD-12883
- Thread Strength.....20 Inch pounds minimum

ELECTRICAL

- Bulk Resistance.....Gold 15 milliohms, per MIL-STD-12883
Tin 25 milliohms max.
Silver 25 milliohms max.
- Current Rating.....10 Amps DC
- Insulation Resistance.....1,000 Megohms per MIL-STD-202
- Dielectric Withstanding
Voltage1,500 Volts RMS

ENVIRONMENTAL

- Operating Temperature-55°C to +125°C.
- Mechanical Shock.....Passed MIL-STD-12833, with transistor inserted at test gage



TO-3 Power Transistor Sockets

8080-1G Series

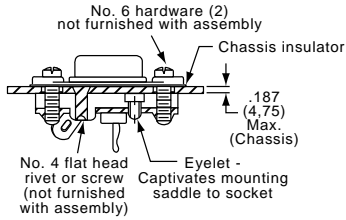


Figure 1

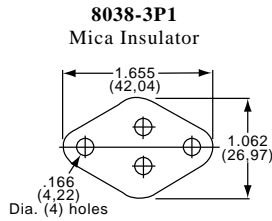
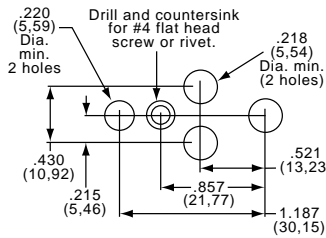


Figure 2

Recommended Chassis Cutout Standard



Recommended Chassis Cutout 8080-1G17 and 8080-1G45

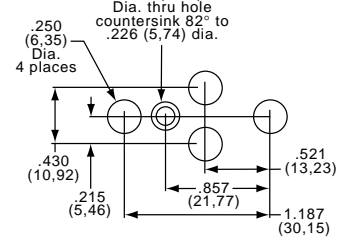


Figure 3

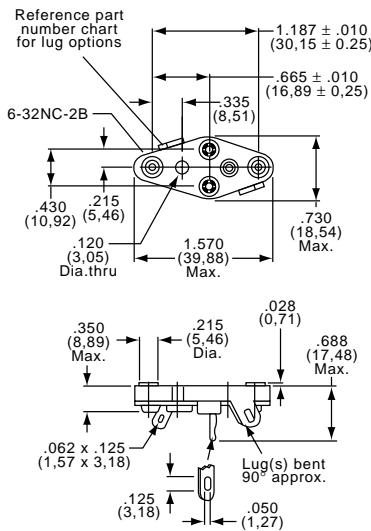


Figure 4

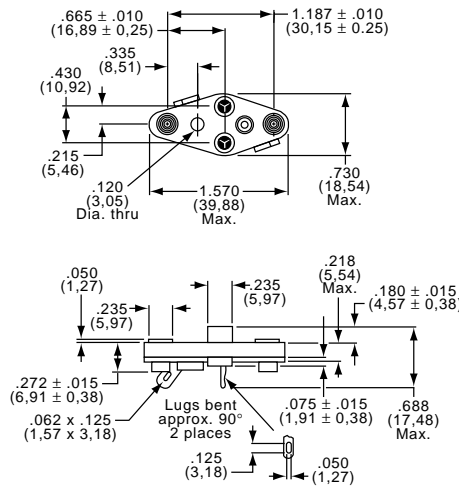


Figure 5

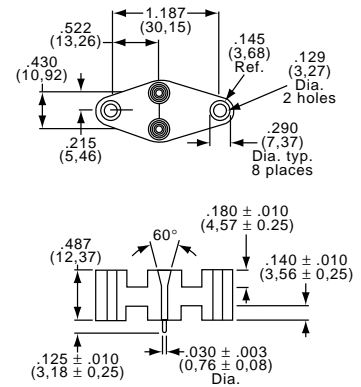


Figure 6

PART NUMBER / STANDARD CONFIGURATIONS

.040 Diameter Pin				
Part Number	Insulator	Contact Plating	Solder Lugs	Figure
8080-1G1	Phenolic	Electro-Tin	Two Solder Lugs	4
8080-1G45				5
8080-1G13	Diallyl Phthalate	Silver	Two Solder Lugs	4
8080-1G27	Phenolic			
8080-1G2	Diallyl Phthalate	Gold	Two Solder Lugs	4
8080-1G7	Phenolic			
8080-1G10	Diallyl Phthalate	Electro-Tin	Two Solder Lugs	4
8080-1G3	Phenolic			
8080-1G24	Diallyl Phthalate	Silver	One Solder Lug	4
8080-1G29	Phenolic			
8080-1G4	Diallyl Phthalate	Gold	One Solder Lug	4
8080-1G9	Phenolic			
8080-1G25	Diallyl Phthalate	Gold/Tin/Lead	P.C. Mount	7
8080-1G44	Thermoplastic Polyester			

PART NUMBER / STANDARD CONFIGURATIONS

.060 Diameter Pin				
Part Number	Insulator	Contact Plating	Solder Lugs	Figure
8080-1G15	Phenolic	Electro-Tin	Two Solder Lugs	4
8080-1G17				5
8080-1G31	Diallyl Phthalate	Silver	Two Solder Lugs	4
8080-1G32	Phenolic			
8080-1G16	Diallyl Phthalate	Gold	Two Solder Lugs	4
8080-1G33	Phenolic			
8080-1G34	Diallyl Phthalate	Electro-Tin	No Lugs	4
8080-1G20	Phenolic			
8080-1G14	Phenolic	Silver	One Solder Lug	4
8080-1G35	Diallyl Phthalate			
8080-1G36	Phenolic	Gold	One Solder Lug	4
8080-1G37	Diallyl Phthalate			
8080-1G38	Phenolic	Gold	One Solder Lug	4
8080-1G39	Diallyl Phthalate			

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Push Fit Test Jacks

8000 Series



8000-M65

FEATURES:

(8000-MG, 8007, and 8011 Series)

The 8000 Series is a line of sub-miniature "Push-Fit" test jacks used in many applications such as meter probe inputs, crystal sockets, circuit test point identification and many others. A complete line of test points which will accommodate .040 (1,02); .050 (1,27); .080 (2,03) and .090 (2,29) diameter pins.

- Teflon insulator for extreme environments
- Gold or tin plating available
- Brightly colored Nylon for fast test point identification
- Tapered entry to guide test probe

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

PERFORMANCE SPECIFICATIONS:

ELECTRICAL

Bulk Contact	
Resistance	10 Milliohms maximum
Current Rating	5 Amps DC
Operating Voltage	1,500 Volts RMS @ sea level
	350 Volts RMS @ 50,000 feet
Dielectric Withstanding	
Voltage	2,500 Volts RMS @ sea level
	500 Volts RMS @ 50,000 feet
Insulation Resistance.....	5,000 x 10 ⁶ Ohms
Capacitance	4pF @ 5 MHz.

ENVIRONMENTAL

Operating Temperature	-65°C to +125°C
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Push Fit Test Jacks

8000 Series

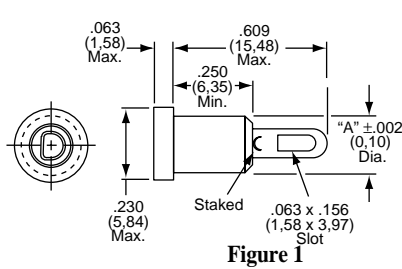


Figure 1

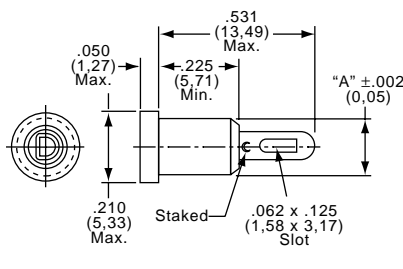


Figure 2

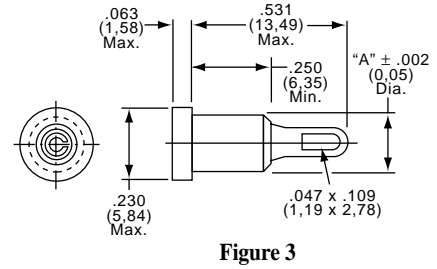


Figure 3

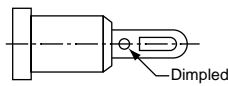
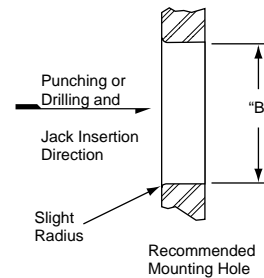


Figure 1A



PART NUMBER / STANDARD CONFIGURATIONS

Part Number	Figure	A *	Insulator Material & Color	Contact Material and Plating	Mtg. Hole B **	Probe Diameter	Part Number	Figure	A *	Insulator Material & Color	Contact Material and Plating	Mtg. Hole B **	Probe Diameter
8007-1G1	2	.175	TEFLON, Natural	Phos. Bronze, Gold	.162	.040	8011-8G7	3	.177	Nylon, Green	Beryllium Copper, Tin	.172	.080
8007-1G5				Phosphor Bronze, Tin			8011-8G8			Nylon, White			
8000-MG3	1	.185		Phos. Bronze, Gold			8011-8G9			Nylon, Orange			
8000-MG4				Phosphor Bronze, Tin			8011-8G10			Nylon, Yellow			
8000-MG5	1A	.177	Nylon, Blue	Phos. Bronze, Gold	.172	.050	8011-8G11			Nylon, Brown			
8000-MG6			Phosphor Bronze, Tin	8011-8G12			Nylon, Gray						
8000-MG8			Nylon, White	8011-8G13			Nylon, Purple						
8011-8G1	3	.177	Nylon, Blue	Beryllium Copper, Tin	.172	.080	8011-8G6			Nylon, Blue			
8011-8G2			Nylon, Black				8011-8G15			Nylon, Black			
8011-8G3			Nylon, Red				8011-8G16			Nylon, Red			

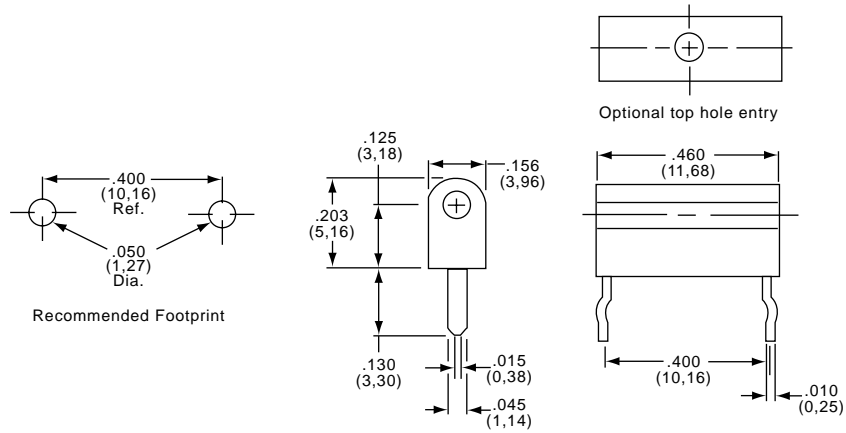
* Dimension "A" ± .002 (0.05)

** Dimension "B" ± .001 (0.03)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Printed Circuit Test Jacks

8041 Series Commercial



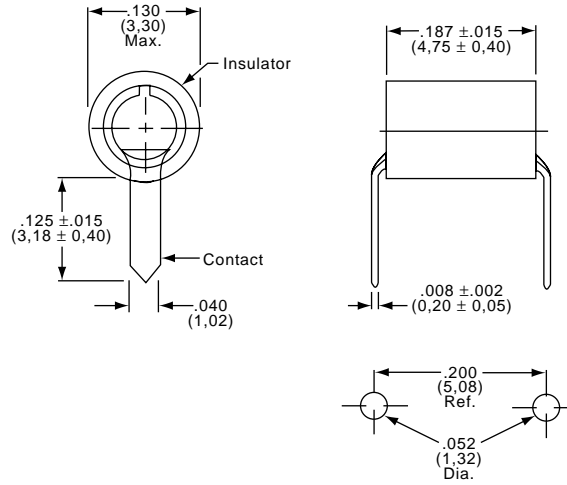
PART NUMBER / STANDARD CONFIGURATIONS

	Side Entry Hole	Top and Side Entry Hole
Insulator Color	Part Number	Part Number
White	8041-1G9	8041-1G9-1
Red	8041-1G4	8041-1G4-1
Black	8041-1G6	8041-1G6-1
Brown	8041-1G3	8041-1G3-1
Green	8041-1G7	8041-1G7-1
Orange	8041-1G5	8041-1G5-1
Blue	8041-1G8	8041-1G8-1
Yellow	8041-1G2	8041-1G2-1
Gray	8041-1G10	8041-1G10-1
Violet	8041-1G11	8041-1G11-1

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Micro-Miniature Test Jacks

8046 Series Commercial



PART NUMBER / STANDARD CONFIGURATIONS

40 Micro-inches Gold	Insulator Color
8046-1G1	Natural
8046-1G2	Yellow
8046-1G3	Brown
8046-1G4	Red
8046-1G5	Orange
8046-1G6	Black
8046-1G7	Green
8046-1G8	Blue
8046-1G9	Gray
8046-1G10	Violet
8046-1G11	White

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Table of Contents

DIP Switches

Slide Actuator (GD Series)	6002
Extended or Flush Actuator (AD Series)	6003
Flush Actuator (AD Series)	6003
Piano Actuator (AD Series)	6004
Rotary DIP Switches (MRD and DRD "E" Series)	6005-6008

Slide Switches

Auto-insertable (ASE/F Series)	6009-6012
Process Sealed (SE Series)	6013
Miniature Low-Profile Economy (STS Series)	6014-6017
Vertical & Right-Angle, Single or Dual Actuator (MSS Series)	6018-6019
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Low Profile, Right Angle, Instrumentation Grade (MMS Series)	6021
Micro Size, Instrumentation Grade (SSJ, MMS, SSB, SSA Series)	6022-6025
Wiping Contacts, Consumer Grade (SL, SLS, SLSA Series)	6026-6028
Rolling Contacts, Miniature, Economy Grade (SLS Series)	6029-6030

Toggle Switches

Tiny (TT Series)	6031-6037
Baton (MAT & MTA-WW Series)	6038-6039
Short Mustang (MTG Series)	6040
Long Mustang and Miniature Locking (MTL Series)	6041-6042
Short Toggle, Right Angle, and Vertical Right Angle (MTM-PC, MTM-RA, MTM-VRA, MTA-RA, MTA-VRA Series)	6043-6045

Tact Switches

6 x 6 mm, Through Hole (FSMJ Series)	6046
6 x 6 mm, Right Angle (FSMRAJ Series)	6047
12 x 12 mm, Flush or Extended Actuators (FSM100-104 Series)	6048

Pushbutton Switches

Tiny (TP, TPA, TPB, TPC, TPD, TPF Series)	6049-6056
Subminiature (MPA3, MPB Series)	6057
15/32 Bushing, Mustang, Wire Lug or PC Tails (MPG Series)	6058
Snap Action (MPS Series)	6059-6061
Accessories	6062
PC Mount, Colored Button, Illuminated or Non-Illuminated (TP-200 Series)	6063-6064

Industrial Controls

22 mm (Reliant'22 Series)	6065-6071
30 mm (Series 6000)	6072-6074
16 mm (Command Series)	6075-6077

Knobs

Machined Aluminum (K Series)	6078-6085
Molded Phenolic (P Series)	6086-6094

Power Tool Switches

140 Series, 8649 Series, PT Series	6095
Custom Power Tool Switches	6096

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

DIP Switches, Low Profile, Slide Actuator, Through Hole and Surface Mount

Features:

- Conventional gold wiping contact system
- Available in PC and surface mount configurations
- Traditional tape seal standard
- 95% minimum solder coverage (90/10 tin lead)
- Withstands wave soldering temperature of 245°C for 3-5 seconds
- Heat deflection temperature of 260°C for surface mount compatibility
- End stackable (GDS version)
- Auto-insertable (GDS and GDB version)
- Vacuum pick and place compatible (GDS, GDB and GDH)
- Half pitch .050" terminal spacing (GDH version)
- Available in optional tape & reel packaging

Environmental Specifications:

Operating Temperature— -30°C to +85°C
Storage Temperature— -45°C to +100°C

Material Specifications:

Moving Contact—Gold over nickel over copper alloy
Fixed Contact—Gold over copper alloy
Base Material—PPS UL94V-0
Cover Material—PPS UL94V-0
Actuator Material—High temperature polyester/polyamide
Terminal—Tin lead plated over nickel over copper alloy

Typical Performance Characteristics:

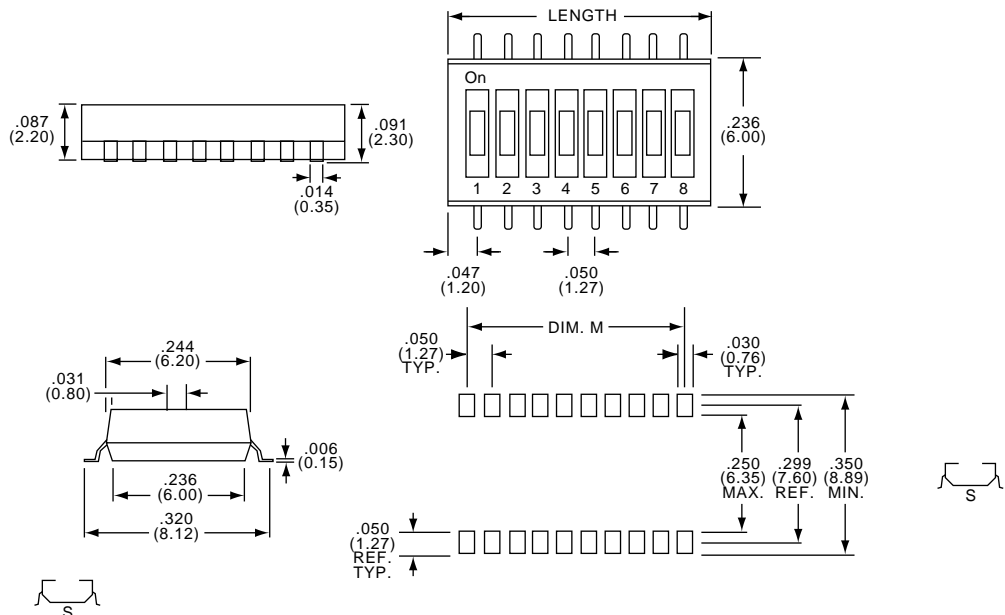
Contact Rating—0.4 VA 25ma @ 24 VDC
Initial Contact Resistance—100 Milliohms max.
Insulation Resistance—100 Megohms min. @ 250 VDC
Dielectric Strength—300 VAC
Life Expectancy—1,000 Cycles
Operating Force—60-600 Grams

GDH

Half Pitch .050" Terminal Spacing



GDH08S



S Model	Tape & Reel	Poles	Length	Dim. M
GDH02S	GDH02STR	2	.144(3.66)	.050(1.27)
GDH04S	GDH04STR	4	.244(6.20)	.150(3.81)
GDH06S	GDH06STR	6	.344(8.75)	.250(6.35)
GDH08S	GDH08STR	8	.444(11.29)	.350(8.89)
GDH10S	GDH10STR	10	.544(13.82)	.450(11.43)

For complete product information, order Catalog 1308390

DIP Switches, Extended or Flush Actuator, Auto Insertable, Through Hole and Surface Mount

FEATURES:

- Available in PC and surface mount termination versions.
- High pressure wiping contact allows aqueous or solvent cleaning without tape seal.
- Auto-insertable
- Tape Seal version for vacuum pick-n-place
- Unique design can withstand vapor phase reflow or wave soldering conditions.
- Gas tight contacts
- Shipped in the off position

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-30°C to + 85°
 Storage Temperature-45°C to + 100°C
 Solder Heat Resistance.....245°C ± 5°C with switch in “off” position 30 seconds when mounted on a .060” thick PCB per MIL-STD202, Method 210
 Cleaning.....Aqueous solution or solvent

MATERIAL SPECIFICATIONS:

	Base	Cover	Actuator
PC	Polyester	Polyester	Polyester
SMT	PPS	PPS	Polyamide

TYPICAL PERFORMANCE CHARACTERISTICS:

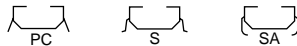
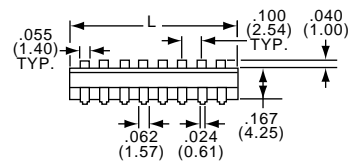
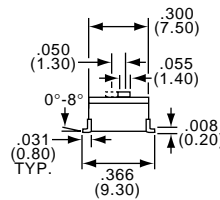
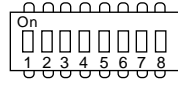
Contact Rating0.4 VA @ 20 VDC max.
 Initial Contact Resistance50 Milliohms max.
 Insulation Resistance1,000 Megohms min. @ 100 VDC
 Dielectric Strength500 VAC
 Operating ForceLess than 1,000 grams
 Actuator TravelAD/R Series 1.30mm/.050” piano style 25°
 Life Expectancy1,000 Cycles



ADE



ADE08



“S” Termination Shown

Extended Actuator

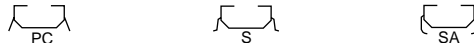
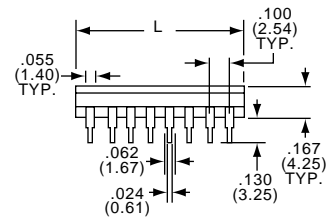
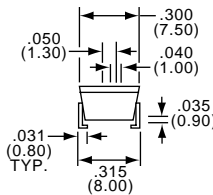
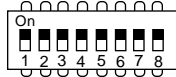
PC Term.	“S” Term.	“SA” Term.	No. of Positions	Actuator Style
ADE02	ADE02S	ADE02SA	2	Slide
ADE03	ADE03S	ADE03SA	3	Slide
ADE04	ADE04S	ADE04SA	4	Slide
ADE05	ADE05S	ADE05SA	5	Slide
ADE06	ADE06S	ADE06SA	6	Slide
ADE07	ADE07S	ADE07SA	7	Slide
ADE08	ADE08S	ADE08SA	8	Slide
ADE09	ADE09S	ADE09SA	9	Slide
ADE10	ADE10S	ADE10SA	10	Slide
ADE12	ADE12S	ADE12SA	12	Slide

See Page 6004 for PC Pad Layout and “L” dimensions.

ADF



ADF08S



“SA” Termination Shown

Flush Actuator

PC Term	“PC” Term. w/Tape.	“S” Term.	“S” Term. w/Tape Seal	Tape & Reel	“SA” Term.	“SA” Term. w/Tape Seal	No. of Positions	Actuator Style
ADF02	ADF02T	ADF02S	ADF02ST	ADF02STTR	ADF02SA	ADF02SAT	2	Slide
ADF03	ADF03T	ADF03S	ADF03ST	ADF03STTR	ADF03SA	ADF03SAT	3	Slide
ADF04	ADF04T	ADF04S	ADF04ST	ADF04STTR	ADF04SA	ADF04SAT	4	Slide
ADF05	ADF05T	ADF05S	ADF05ST	ADF05STTR	ADF05SA	ADF05SAT	5	Slide
ADF06	ADF06T	ADF06S	ADF06ST	ADF06STTR	ADF06SA	ADF06SAT	6	Slide
ADF07	ADF07T	ADF07S	ADF07ST	ADF07STTR	ADF07SA	ADF07SAT	7	Slide
ADF08	ADF08T	ADF08S	ADF08ST	ADF08STTR	ADF08SA	ADF08SAT	8	Slide
ADF09	ADF09T	ADF09S	ADF09ST	ADF09STTR	ADF09SA	ADF09SAT	9	Slide
ADF10	ADF10T	ADF10S	ADF10ST	ADF10STTR	ADF10SA	ADF10SAT	10	Slide
ADF12	ADF12T	ADF12S	ADF12ST	ADF12STTR	ADF12SA	ADF12SAT	12	Slide

Tape seal version for vacuum pick and place.

See Page 6004 for PC Pad Layout and “L” Dimensions.

For complete product information, order Catalog 1308390

DIP Switches, Piano Actuator, Auto Insertable, and Through Hole, and Surface Mount

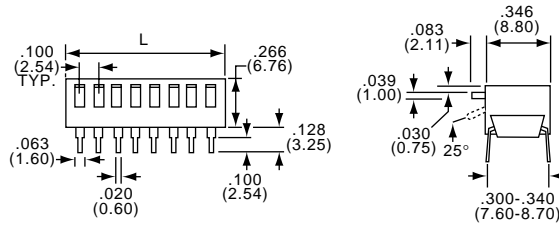
ADP



ADP04S

Piano Actuator

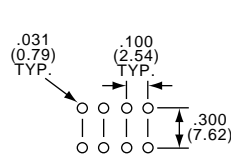
“PC” Termination Shown



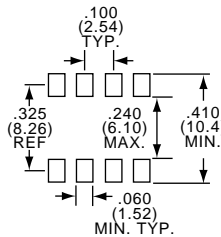
Poles	Bodylength "L"	Poles	Bodylength "L"
2	0.278" (7.06mm)	7	0.778" (19.76mm)
3	0.378" (9.60mm)	8	0.878" (22.30mm)
4	0.478" (12.14mm)	9	0.978" (24.84mm)
5	0.578" (14.68mm)	10	1.078" (27.38mm)
6	0.678" (17.22mm)	12	1.250" (32.51mm)

Lever Down "On"	Lever Up "On"	Lever Down "On"	Lever Up "On"	Lever Down "On"	Lever Up "On"	No. of Positions	Actuator Style
ADP02	ADPA02	ADP02S	ADPA02S	ADP02SA	ADPA02SA	2	Piano
ADP04	ADPA04	ADP04S	ADPA04S	ADP04SA	ADPA04SA	4	Piano
ADP05	ADPA05	ADP05S	ADPA05S	ADP05SA	ADPA05SA	5	Piano
ADP06	ADPA06	ADP06S	ADPA06S	ADP06SA	ADPA06SA	6	Piano
ADP07	ADPA07	ADP07S	ADPA07S	ADP07SA	ADPA07SA	7	Piano
ADP08	ADPA08	ADP08S	ADPA08S	ADP08SA	ADPA08SA	8	Piano
ADP09	ADPA09	ADP09S	ADPA09S	ADP09SA	ADPA09SA	9	Piano
ADP10	ADPA10	ADP10S	ADPA10S	ADP10SA	ADPA10SA	10	Piano

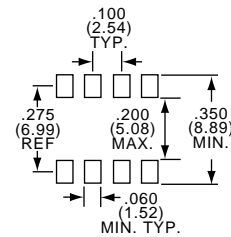
TERMINATION OPTIONS



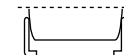
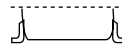
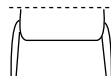
PC Termination



S Termination



SA Termination



For complete product information, order Catalog 1308390

Rotary DIP Switches, Low Profile, Process Sealed, 7MM, Through Hole and Surface Mount

FEATURES:

- 40% PCB area space savings
- 50% Lower in profile
- Hexadecimal or binary code, complement available
- Deflection temperature of 250°C for SMT reflow soldering
- Gold contacts, tin/lead terminals
- Sealed "O" ring design

MATERIAL SPECIFICATIONS:

Fixed Contacts/Terminals.....Brass, gold plated / tin/lead
 Moving Contacts.....BeCu, gold plated
 Case MaterialPPS UL94V-0
 RotorNylon UL94V-0
 Cover MaterialPPS UL94V-0
 O-RingFluoro Rubber

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-10°C to +85°C
 Storage Temperature.....-45°C to +100°C
 Solder Heat ResistanceMIL-STD 202F, Method 210
 IR Process CapabilityEIA-364-56 Level II (250°C peak)

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC
 Initial Contact Resistance50m Max. @ 2 VDC 10mA
 Insulation Resistance1,000 Megohms max.
 Dielectric Strength300 VAC for 1 minute
 Actuator Travel.....36° 10 Position, 22.5° 16 position
 Operating Force200 Grams avg.
 Life Expectancy20,000 Steps, mechanical



MRD10



MRD10S

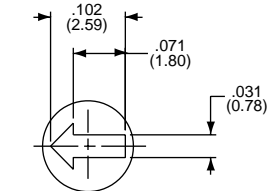
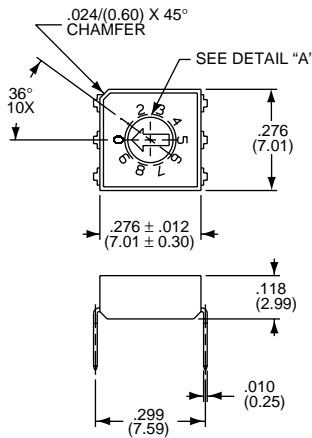


MRD16C

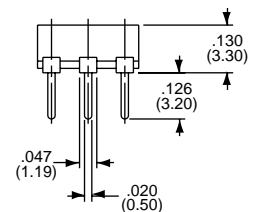


MRD16S

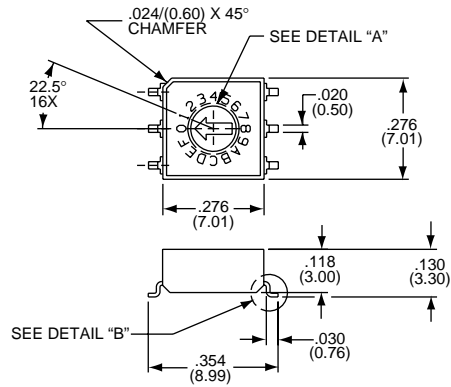
P.C. MOUNT



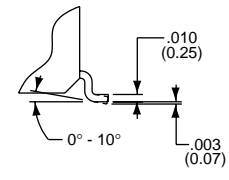
DETAIL "A"
SCALE 8:1



SURFACE MOUNT



DETAIL "B"
SCALE 8:1



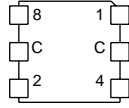
For complete product information, order Catalog 1308390



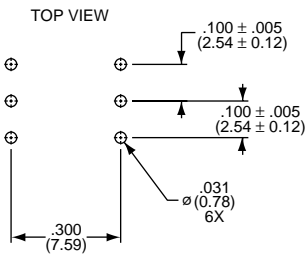
Switches

Rotary DIP Switches, Low Profile, Process Sealed, 7MM, Through Hole and Surface Mount

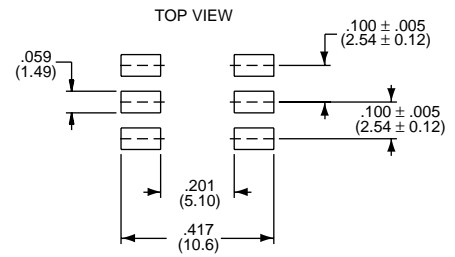
TERMINAL IDENTIFICATION
VIEWED FROM BOTTOM SWITCH



P.C. LAYOUT (THRU HOLE)



P.C. LAYOUT (SURFACE MOUNT)



TRUTH TABLES

10-Position, BCD (red actuator)

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X
2			X	X			X	X		
4					X	X	X	X		
8									X	X

16-Position, Hexadecimal (green actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X		X		X		X
2			X	X			X	X			X	X			X	X
4					X	X	X	X					X	X	X	X
8									X	X	X	X	X	X	X	X

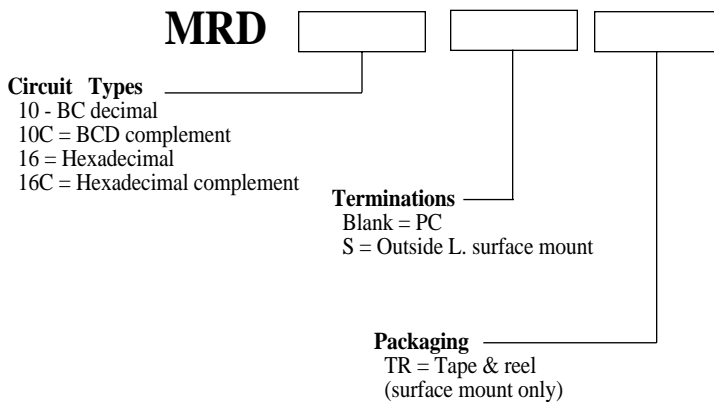
10-Position, BCD Complement (orange actuator)

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X	
2	X	X			X	X			X	X
4	X	X	X	X					X	X
8	X	X	X	X	X	X	X	X		

16-Position Hexadecimal Complement (white actuator)

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X		X		X		X	
2	X	X			X	X			X	X			X	X		
4	X	X	X	X					X	X	X	X				
8	X	X	X	X	X	X	X	X								

HOW TO ORDER



Color Code	
Circuit Type	Actuator Color
10	Red
10C	Orange
16	Green
16C	White

For complete product information, order Catalog 1308390

Rotary Dip Switches, Process Sealed, Through Hole and Surface Mount

The Alcoswitch "E" version of the DR series rotary Dip switch is a process sealed switch. With an actuator "O" ring seal, this switch withstands the stringent 60°C, one minute immersion

"Bubble" Test. Compliance with the "Bubble" test indicated the compatibility of DRD "E" Series with the harshness of soldering and cleaning processes.

MATERIAL SPECIFICATIONS:

- ContactsGold flashed copper alloy
- TerminalsTin lead plated brass
- Base, Rotor, CasePC, Glass filled PBT resin (blue case)
SMT, Polyimide (white case)
- Movable Contact.....Gold flashed copper alloy
- Ball Support Plate.....Copper alloy
- Detent SpringStainless steel (spring)

TYPICAL PERFORMANCE CHARACTERISTICS:

- Contact Rating0.4 VA @ 20 VDC max.
- Initial Contact Resistance50 Milliohms max. @ 2 VDC
- Insulation Resistance1,000 Megohms min. @100 VDC
- Dielectric Strength300 VAC RMS @ sea level
- Operating Force6 Oz.-in. nom.
- SMT Operating Force.....3 Oz.-in. nom.
- Life Expectancy20,000 Steps

ENVIRONMENTAL SPECIFICATIONS:

- Operating Temperature.....-22°F to +185°F (-30°C to +85°C)
- Storage Temperature.....-49°F to 212°F (-45°C to +100°C)
- Vibration Resistance.....Subjected to vibration of 10-55hz per second with a total amplitude of .06 in. in 3 mutually perpendicular directions for 2 hours each
- Shock ResistanceWill withstand 50G acceleration in 3 different planes for a period of 11 milliseconds
- Salt Spray TestWithstands an atmosphere of 5% salt water at temperature of 50°C
- Hydrogen Sulfide TestWithstands an atmosphere of 15-20 PPM hydrogen sulfide gas at temperature of 40°C for 240 hours
- Atmospheric TestWithstands an atmosphere of 30-50 PPM sulfite gas at a temperature of 40°C for 240 hours
- Solder Heat ResistanceWithstands 5 sec. flow solder bath of 260°C when mounted on a .06" thick PC board per MIL-STD 202, Method 210
- Bubble Test.....Withstands submersion in 60°C Flouriert for 1 min. without leakage



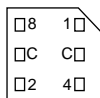
DRD10E



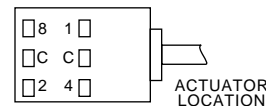
DRD16CE

TRUTH TABLES

Terminal Identification (view from bottom of the switch)



VIEW FROM BOTTOM OF THE SWITCH



ACTUATOR LOCATION

NOTE: COMMON TERMINALS ARE CONNECTED INTERNALLY.

Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X
2			X	X			X	X		
4					X	X	X	X		
8									X	X

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1		X		X		X		X		X		X		X		X
2			X	X			X	X			X	X			X	X
4					X	X	X	X					X	X	X	X
8									X	X	X	X	X	X	X	X

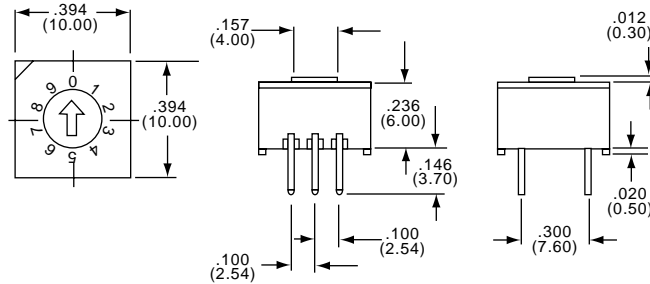
Pos.	0	1	2	3	4	5	6	7	8	9
C	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X	
2	X	X			X	X			X	X
4	X	X	X	X					X	X
8	X	X	X	X	X	X	X	X		

Pos.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1	X		X		X		X		X		X		X		X	
2	X	X			X	X			X	X			X	X		
4	X	X	X	X					X	X	X	X				
8	X	X	X	X	X	X	X	X								

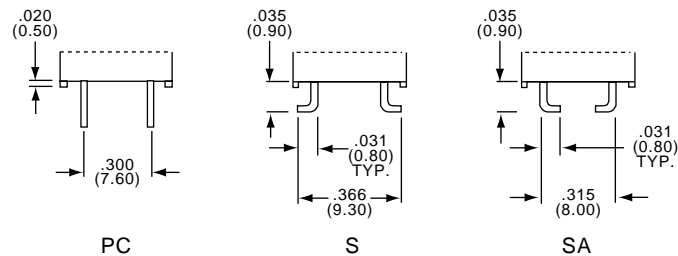
For complete product information, order Catalog 1308390

Rotary DIP Switches, Process Sealed, Through Hole and Surface Mount

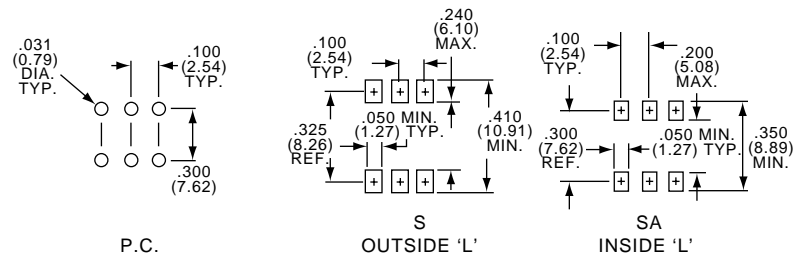
"D" FLUSH ACTUATOR



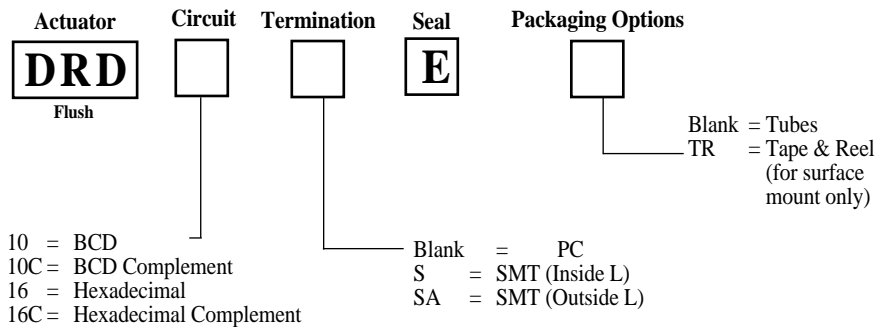
TERMINATIONS



LAYOUTS



HOW TO ORDER



For complete product information, order Catalog 1308390

Slide Switches, Auto-insertable, Through Hole and Surface Mount

FEATURES:

- Unique design allows ASE/F to withstand aqueous or solvent cleaning processes.
- High temperature anti-static plastic construction will withstand most surface mount, vapor phase reflow or wave soldering conditions.
- Three standard types:
ASF – DIP package with flush actuator allows auto insertion on standard IC equipment. Standard tape seal and closed case construction provide process seal.

- ASFO–Open extended flush actuator without tape seal.
- ASE–extended actuator open-ended case allows washout after process cleaning.
- 2, 4 and 6 pole versions available with top or side actuator.
- Bifurcated double wipe contacts provide dependable, telecom grade switching.
- Industry standard .100 x .300 pin spacing

MATERIAL SPECIFICATIONS:

ContactsGold: .000030" over .000100" nickel
 Silver: .000050" over nickel flash
 Case MaterialPolyester
 Actuator MaterialPolyester
 Terminal/Fixed ContactsCopper alloy

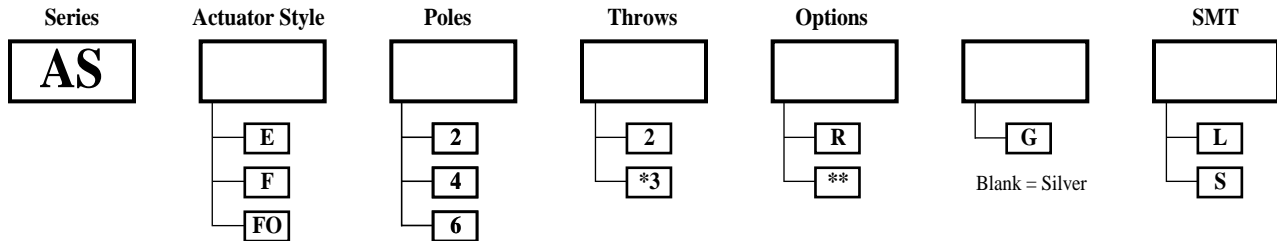
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 VDC max. shorting type
 Silver: 300mA @ 115 VAC 28 VDC
 Insulation Resistance1,000 Megohms @ 500 VDC min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Contact TimingShorting
 Life Expectancy10,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-40°C to +80°C (-40°F to +176°F)
 Storage Temperature.....-40°C to +80°C (-40°F to +176°F)

PART NUMBERING



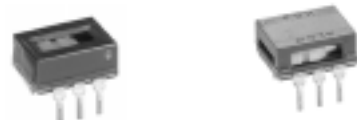
ASF: Tape seal, closed (sealed) case, flush top actuator.
 ASE: Open ended case, extended top or side actuator.
 ASFO: Open ended case, flush top or side actuator.

Silver plated contacts/terminals on all models.
 Standard actuator color is white.
 E= Extended actuator
 F= Flush actuator
 FO= Open ended without tape seal
 G= Gold contacts
 R= Side actuator
 *3= Throw available in 4 pole only
 L= SMT terminal configuration
 S= SMT terminal reverse L configuration (Refer to page 6011 for pad layout)



ASE22R

ASE62G



ASF22

ASF22R

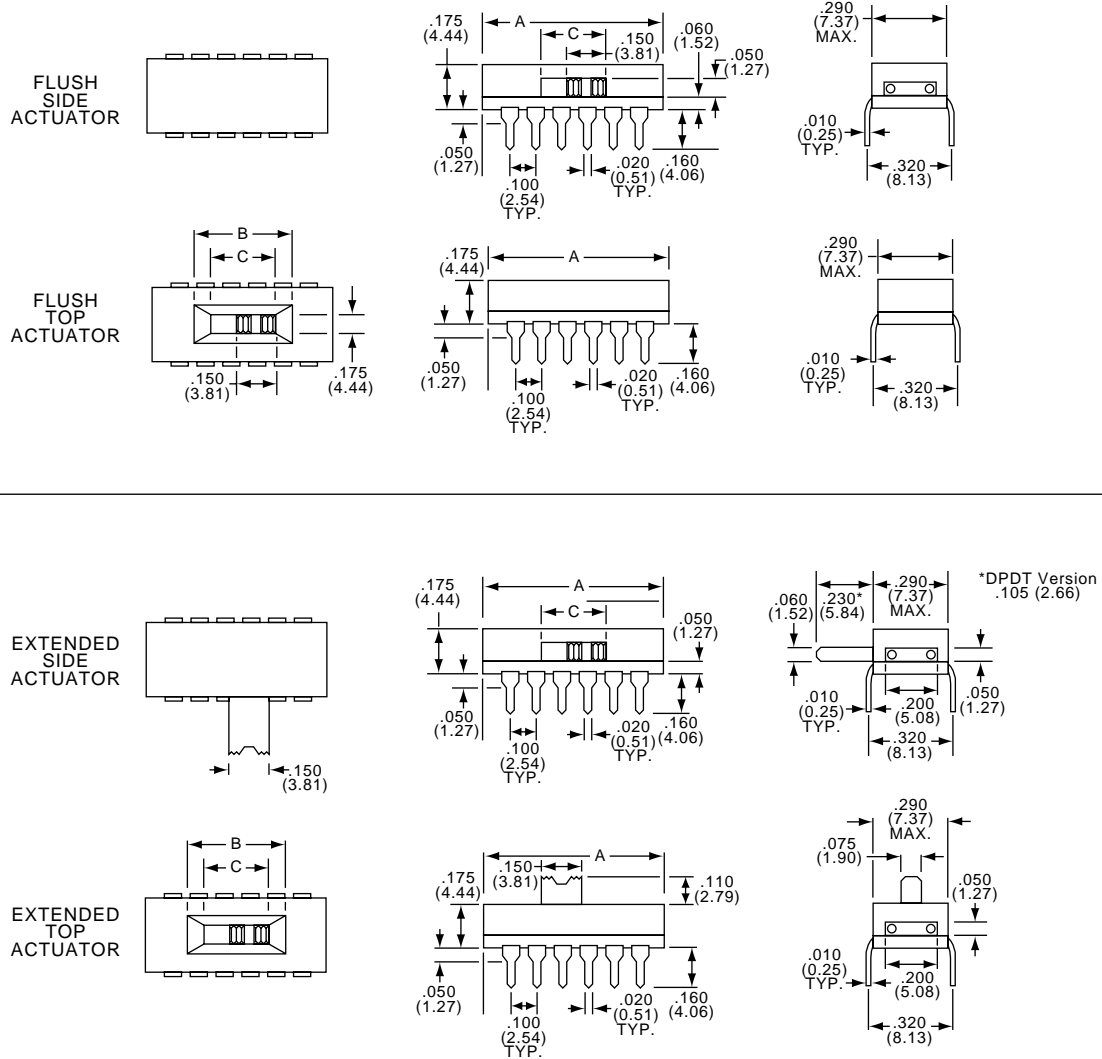
**Flush side actuator "R" versions are supplied with open ended case and without tape seal.

Note: For SPDT requirements, order DPDT version and use either set of contacts for SPDT switching.

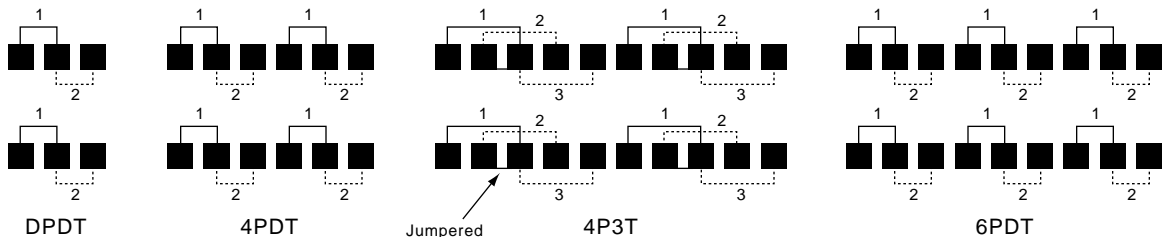
For complete product information, order Catalog 1308390

Slide Switches, Auto-insertable, Through Hole and Surface Mount

ASE/F SERIES DIMENSIONS



CIRCUIT DIAGRAMS



DIMENSION CHART

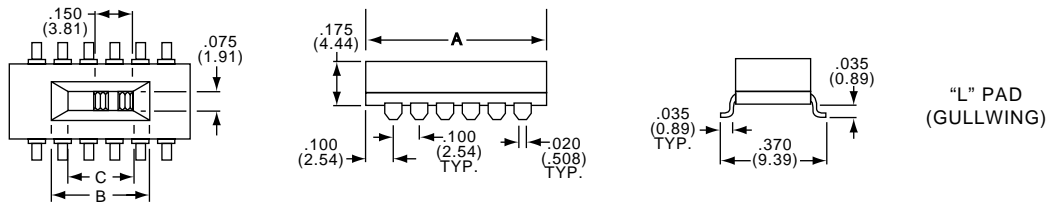
Configuration	Body Length Dimension "A"	Bevel Length Dimension "B"	Slot Length Dimension "C"
DPDT	.400/10.2mm	.370/9.4mm	.260/6.6mm
4PDT	.700/17.8mm	.370/9.4mm	.260/6.6mm
4P3T	1.10/27.9mm	.470/11.9mm	.360/9.1mm
6PDT	1.00/25.4mm	.370/9.4mm	.260/6.6mm

NOTE: For SPDT requirements order DPDT version and use either set of contacts for SPDT switching.

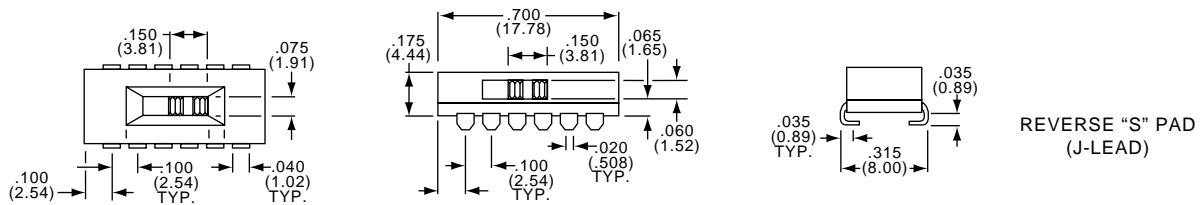
For complete product information, order Catalog 1308390

Slide Switches, Auto-insertable, Through Hole and Surface Mount

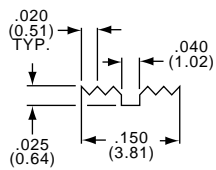
“L” PAD



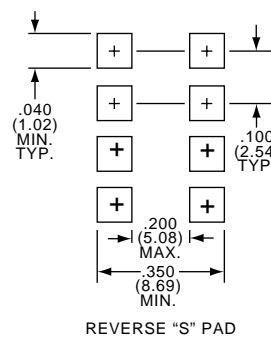
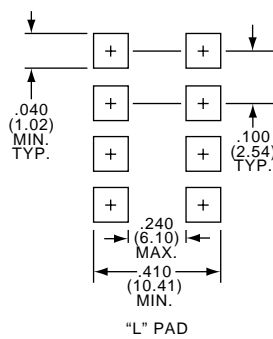
REVERSE “S” PAD



ACTUATOR DETAILS



PAD LAYOUT



For complete product information, order Catalog 1308390

Slide Switches, Auto-insertable, Through Hole and Surface Mount

MATERIAL SPECIFICATIONS:

ContactsGold over nickel over copper alloy
 Silver over nickel flash over copper alloy
 Case Material/BasePolyester
 Actuator MaterialPolyester
 Movable ContactBeryllium copper
 Terminal/Fixed ContactsCopper alloy, terminals tin lead plate (90/10)
 Terminal SealInsert molded
 Process SealTape seal on ASF upright version

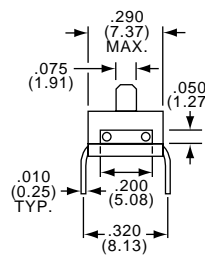
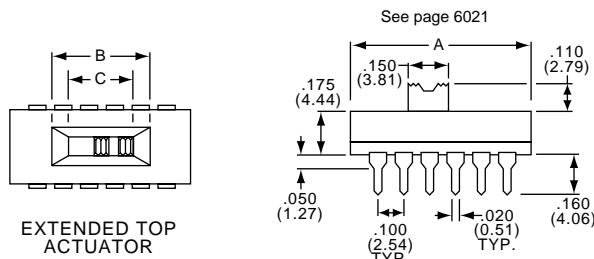
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 VDC max.
 Silver: 300 milliamps @ 115 VAC max.
 28 VDC
 Initial Contact Resistance40 Milliohms max.
 Contact TimingShorting
 Insulation Resistance1,000 Megohms @ 500 VDC min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Actuation Force950 Grams max.
 Life Expectancy10,000 Cycles

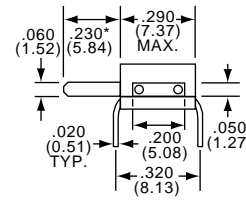
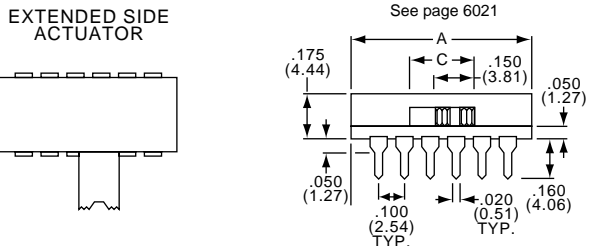
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-40°C to +80°C (-40°F to +176°F)
 Storage Temperature-40°C to +80°C (-40°F to +176°F)
 Solder Heat ResistanceWithstands vapor phase, reflow and wave soldering processes

NOTE: Refer to page 6009 for additional options and dimensions.

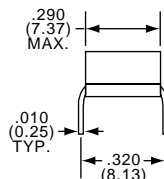
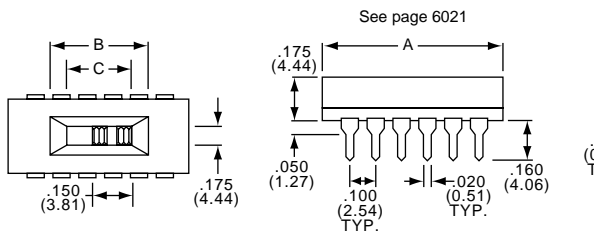


Model	Type	Contact	Mounting Style
ASE22	DPDT	Silver	Upright
ASE22G	DPDT	Gold	Upright
ASE42	4PDT	Silver	Upright
ASE42G	4PDT	Gold	Upright
ASE43	4P3T	Silver	Upright
ASE43G	4P3T	Gold	Upright
ASE62	6PDT	Silver	Upright
ASE62G	6PDT	Gold	Upright



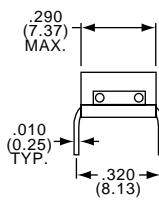
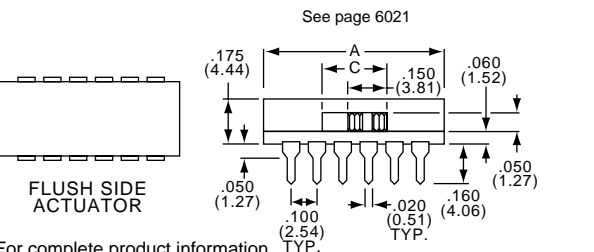
Model	Type	Contact	Mounting Style
ASE22R	DPDT	Silver	Right Angle
ASE22RG	DPDT	Gold	Right Angle
ASE42R	4PDT	Silver	Right Angle
ASE42RG	4PDT	Gold	Right Angle
ASE43R	4P3T	Silver	Right Angle
ASE43RG	4P3T	Gold	Right Angle
ASE62R	6PDT	Silver	Right Angle
ASE62RG	6PDT	Gold	Right Angle

*.105 (2.67) ASE22R, ASE22RG



Model	Type	Contact	Slide Type	Mounting Style
ASF(*22	DPDT	Silver	Flush	Upright
ASF(*22G	DPDT	Gold	Flush	Upright
ASF(*42	4PDT	Silver	Flush	Upright
ASF(*42G	4PDT	Gold	Flush	Upright
ASF(*43	4P3T	Silver	Flush	Upright
ASF(*43G	4P3T	Gold	Flush	Upright
ASF(*62	6PDT	Silver	Flush	Upright
ASF(*62G	6PDT	Gold	Flush	Upright

*ASF: TAPE SEAL, CLOSED (SEALED) CASE
 *ASFO: NO TAPE SEAL, OPEN ENDED CASE



Model	Type	Contact	Slide Type	Mounting Style
ASF22R	DPDT	Silver	Flush	Right Angle
ASF22RG	DPDT	Gold	Flush	Right Angle
ASF42R	4PDT	Silver	Flush	Right Angle
ASF42RG	4PDT	Gold	Flush	Right Angle
ASF43R	4P3T	Silver	Flush	Right Angle
ASF43RG	4P3T	Gold	Flush	Right Angle
ASF62R	6PDT	Silver	Flush	Right Angle
ASF62RG	6PDT	Gold	Flush	Right Angle

NO TAPE SEAL, OPEN ENDED CASE

For complete product information, order Catalog 1308390

Slide Switches, Process Sealed, Space Saver, Retention Feature

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, Gold plate
 Case MaterialPolyester (UL94 V-O)
 Frame MaterialCopper alloy nickel plate
 Terminal SealEpoxy
 Process SealSilicone rubber boot
 TerminalsTin lead

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA @ 20 VDC
 Initial Contact Resistance50 Milliohms max.
 Contact TimingBreak before make
 Insulation Resistance500 Megohms @ 250 VDC
 Dielectric Strength500 VAC for 1 min.
 Actuation Force100 to 500 Grams
 Actuator Travel......087
 Life Expectancy10,000 Cycles

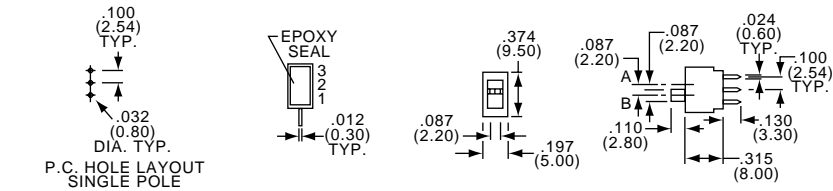
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to + 176°F (-20°C to + 80°C)
 Storage Temperature.....-40°F to + 176°F (-40°C to + 80°C)
 Solder Heat ResistanceRef. MIL-STD-202, Method 210

SPDT



SE1DGPC

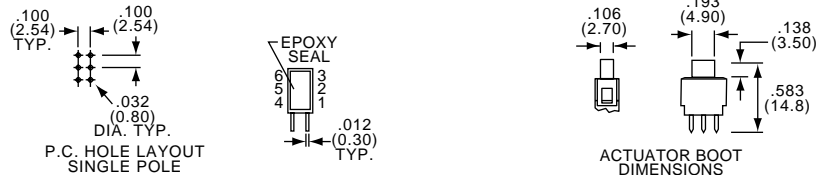


DPDT

Extra compact double pole saves PCB real estate.



SE2DGPC

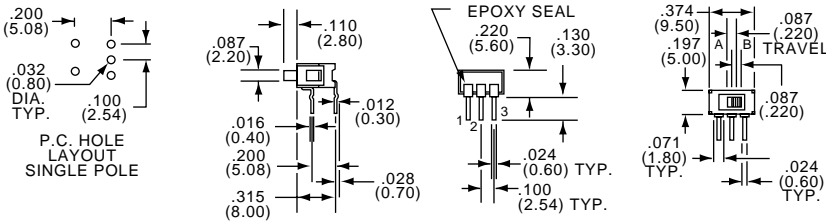


Model	Type				Model	Type			
SE1DGPC	SPDT	On	None	On	SE2DGPC	DPDT	On	None	On
SE1EGPC	SPDT	On	Off	On	SE2EGPC	DPDT	On	Off	On
Terminals Connected		1-2		2-3	Terminals Connected		1-2, 4-5		2-3, 5-6

SPDT



SE1DGRA

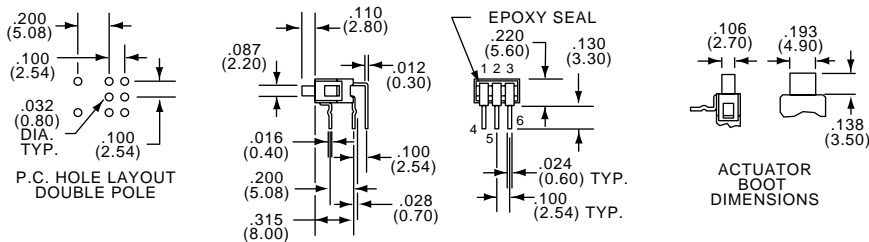


DPDT

Extra compact double pole saves PCB real estate.



SE2DGRA



Model	Type				Model	Type			
SE1DGRA	SPDT	On	None	On	SE2DGRA	DPDT	On	None	On
SE1EGRA	SPDT	On	Off	On	SE2EGRA	DPDT	On	Off	On
Terminals Connected		1-2		2-3	Terminals Connected		1-2, 4-5		2-3, 5-6

For complete product information, order Catalog 1308390

Slide Switches, Miniature, Low Profile, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver clad copper alloy
 Case MaterialSteel zinc plated
 Actuator MaterialPolyester (UL 94HB)
 Terminal SealEpoxy
 Terminals/Fixed ContactsSilver plate copper alloy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature..... -5°F to 140°F (-15°C to +60°C)
 Storage Temperature.....-4°F to +158°F (-20°C to +70°C)
 Solder Heat ResistanceMIL-STD-202, Method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

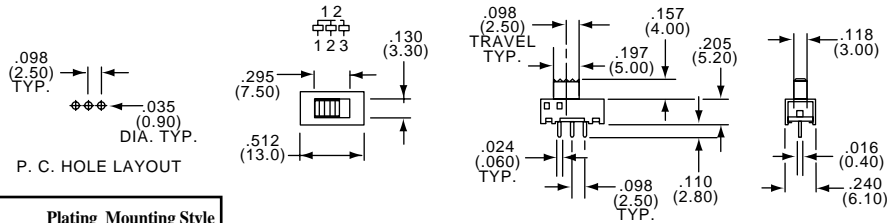
Contact Rating300 mA @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingMake-before-break
 Insulation Resistance100 Megohms min. @ 500 VDC
 Dielectric Strength500 VAC
 Actuation Force250 Grams, +150 Grams, -100 Grams
 Actuator Travel.....0.098"
 Life Expectancy10,000 Cycles

NOTICE: Bifurcated contact produces double wiping, self-cleaning contacts.

SPDT



STS121PC

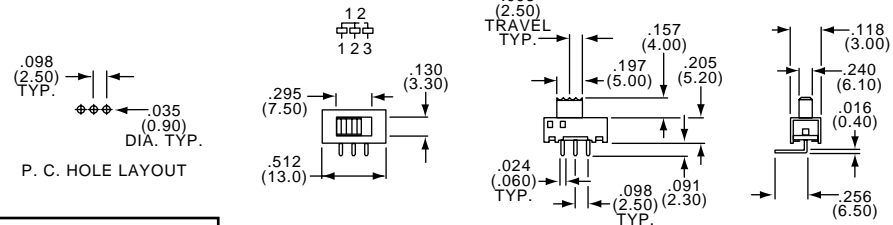


Model	Plating	Mounting Style
STS121PC	Silver	Upright

SPDT



STS121RA

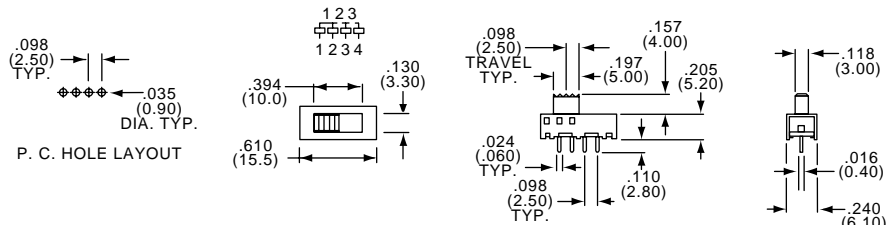


Model	Plating	Mounting Style
STS121RA	Silver	Right Angle

SP3T



STS131PC

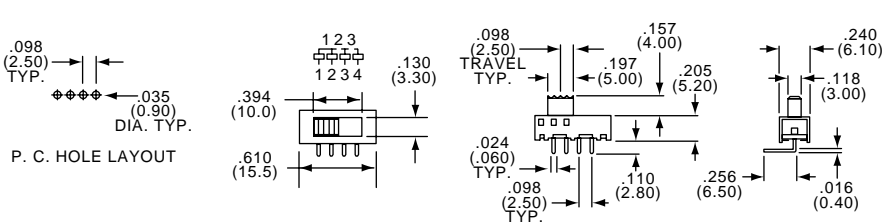


Model	Plating	Mounting Style
STS131PC	Silver	Upright

SP3T



STS131RA



Model	Plating	Mounting Style
STS131RA	Silver	Right Angle

For complete product information, order Catalog 1308390

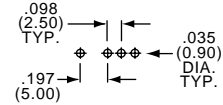
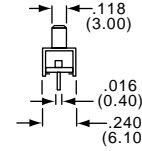
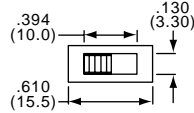
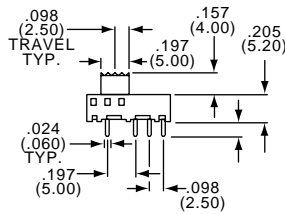
Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE 6014 FOR PRODUCT SPECIFICATIONS

SP3T



STS1300PC

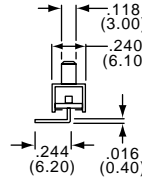
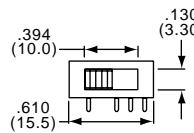


P. C. HOLE LAYOUT

SP3T



STS1300RA

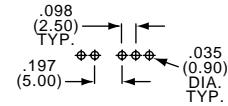
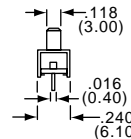
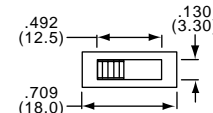
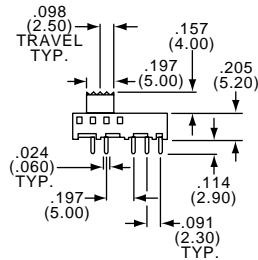


Model	Plating	Mounting Style
STS1300PC	Silver	Upright
STS1300RA	Silver	Right Angle

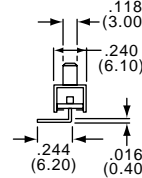
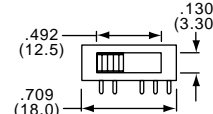
SP4T



STS1400PC



P. C. HOLE LAYOUT

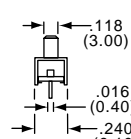
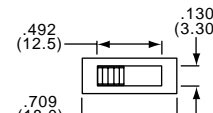
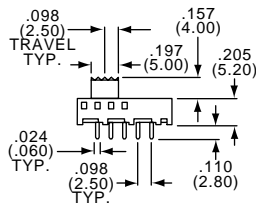


Model	Plating	Mounting Style
STS1400PC	Silver	Upright
STS1400RA	Silver	Right Angle

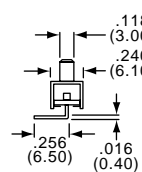
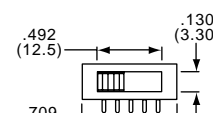
SP4T



STS141RA



P.C. HOLE LAYOUT



Model	Plating	Mounting Style
STS141PC	Silver	Upright
STS141RA	Silver	Right Angle

For complete product information, order Catalog 1308390

Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE 6014 FOR PRODUCT SPECIFICATIONS

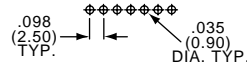
SP5T



STS151PC

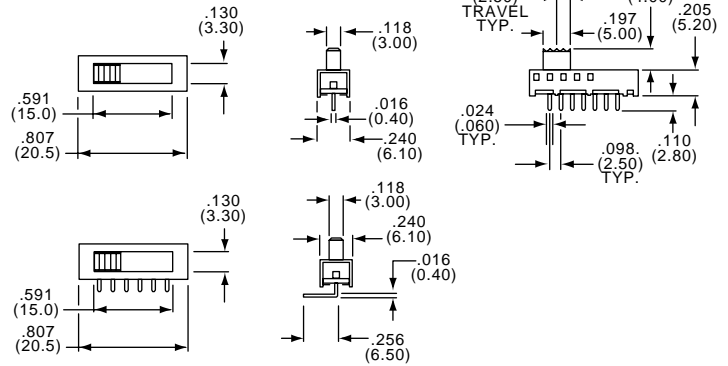


STS151RA



P.C. HOLE LAYOUT

Model	Plating	Mounting Style
STS151PC	Silver	Upright
STS151RA	Silver	Right Angle



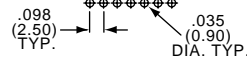
SP6T



STS161PC

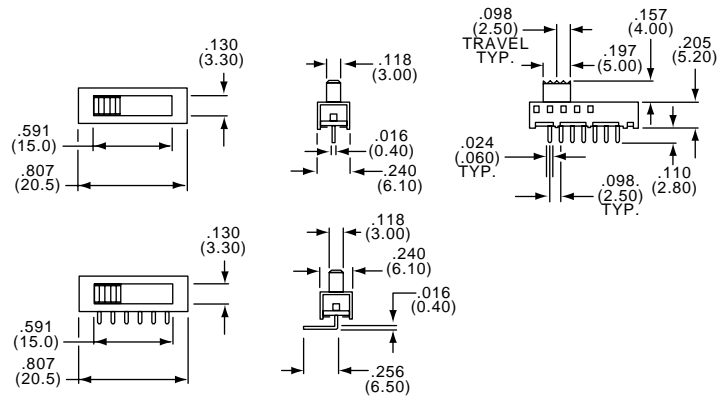


STS161RA



P.C. HOLE LAYOUT

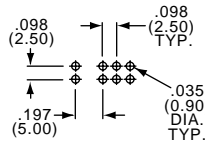
Model	Plating	Mounting Style
STS161PC	Silver	Upright
STS161RA	Silver	Right Angle



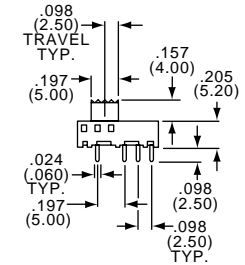
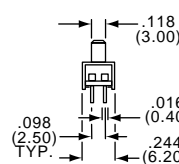
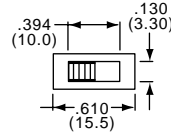
DP3T



STS2300PC



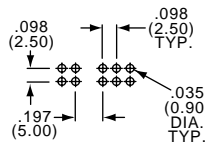
P. C. HOLE LAYOUT



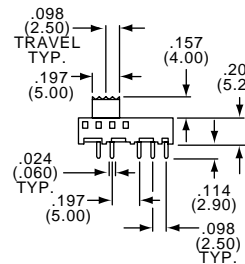
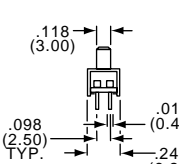
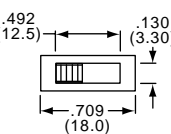
DP4T



STS2400PC



P. C. HOLE LAYOUT

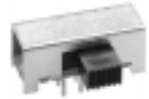


Model	Type	Plating	Mounting Style
STS2300PC	DP3T	Silver	Upright
STS2400PC	DP4T	Silver	Upright

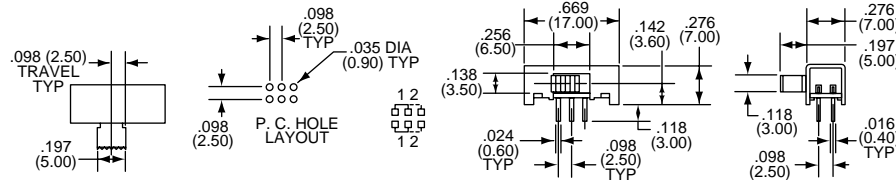
Slide Switches, Miniature, Low Profile, Economy Grade

SEE PAGE 6014 FOR PRODUCT SPECIFICATIONS

DPDT



STSA220RA

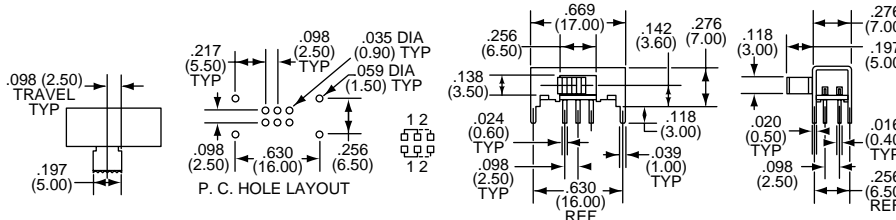


Model	Plating	Mounting Style
STSA220RA	Silver	Right Angle

DPDT



STSA220RA1

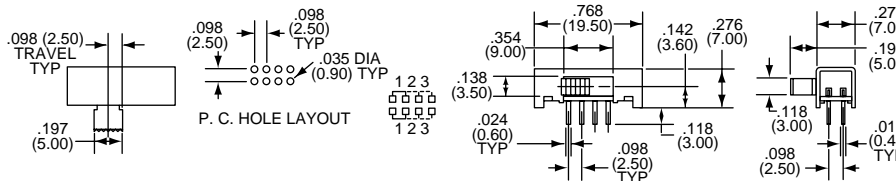


Model	Plating	Mounting Style
STSA220RA1	Silver	Right Angle

DP3T



STSA230RA

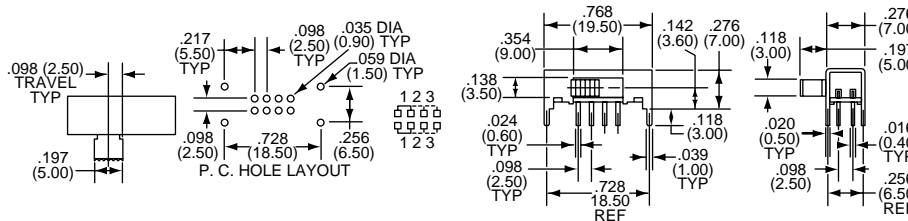


Model	Plating	Mounting Style
STSA230RA	Silver	Right Angle

DP3T



STSA230RA1

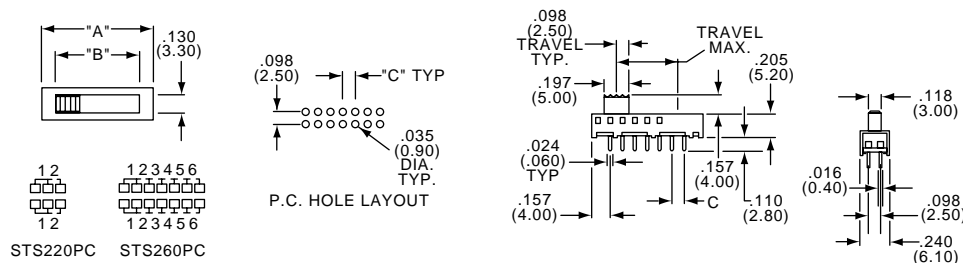


Model	Plating	Mounting Style
STSA230RA1	Silver	Right Angle

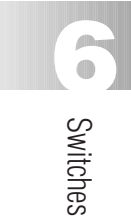
DP6T/DP5T/DP4T/
DP3T/DP2T



STS220PC



Model	Type	Dim.A	Dim.B	Dim.C	Travel Max.	Pin Holes	Model	Type	Dim.A	Dim.B	Dim.C	Travel Max.	Pin Holes
STS220PC	DP2T	.512(13.0)	.295(7.50)	.098(2.50)	.098(2.50)	6	STS250PC	DP5T	.807(20.5)	.591(15.0)	5 Places	.394(10.0)	12
STS230PC	DP3T	.610(15.5)	.394(10.0)	3 Places	.197(5.00)	8	STS260PC	DP6T	.906(23.0)	.689(17.5)	6 Places	.492(12.5)	14
STS240PC	DP4T	.709(18.0)	.492(12.5)	4 Places	.295(7.50)	10							



Slide Switches, Vertical, Single or Dual Actuator

MATERIAL SPECIFICATIONS:

ContactsCopper w/gold plate over nickel
 Case MaterialHigh temperature polyester (94-VO)
 Actuator MaterialPolyester (94-VO)
 TerminalsCopper w/gold over nickel
 Terminal SealEpoxy standard: single pole, optional: double pole

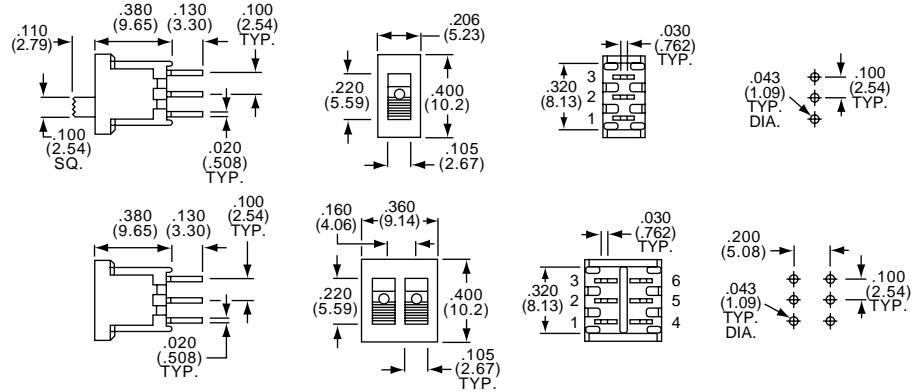
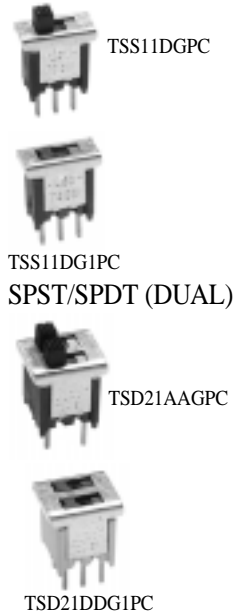
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA max. @ 20 VDC or peak AC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingNon-shorting
 Insulation Resistance1,000 Megohms min. @ 500 VDC
 Dielectric Strength1,000 Volts RMS @ sea level
 Plunger/Actuator Travel120"
 Life Expectancy60,000-80,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature-4°F to + 176°F (-20°C to + 80°C)
 Storage Temperature-4°F to + 176°F (-20°C to + 80°C)

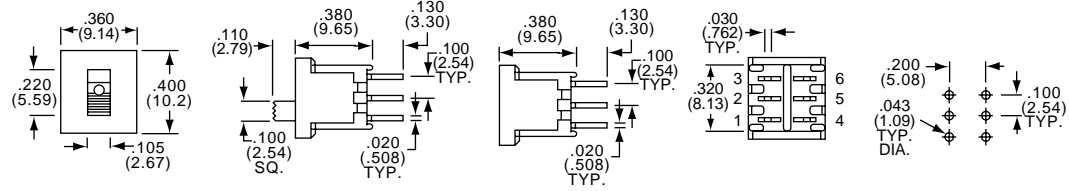
SPST/SPDT



Extended Actuator						Extended Dual Actuator						
Model	Type	Act. Code	P. K9	■	■	Model	Type	Act. Code	P. K9	■	■	
TSS11AGPC	SPST	A		On	None	Off	TSD21AAGPC	2 x SPST	A	On	None	Off
TSS11DGPC	SPDT	D		On	None	On	TSD21DDGPC	2 x SPDT	D	On	None	On
TSS11EGPC	SPDT	E		On	Off	On						
Flush Actuator						Flush Dual Actuator						
TSS11AG1PC	SPST	A		On	None	Off	TSD21DDG1PC	2 x SPDT	D	On	None	On
TSS11DG1PC	SPDT	D		On	None	On						
TSS11EG1PC	SPDT	E		On	Off	On						

Note: No center terminals on "A" action switches.

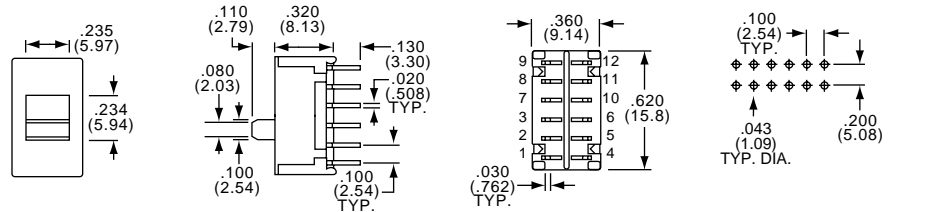
DPST/DPDT



Extended Actuator						Flush Actuator						
Model	Type	Act. Code	P. K9	■	■	Model	Type	Act. Code	P. K9	■	■	
TSS21KGPC	DPST	K		On	None	Off	TSS21KG1PC	DPST	K	On	None	Off
TSS21NGPC	DPDT	N		On	None	On	TSS21NG1PC	DPDT	N	On	None	On
TSS21PGPC	DPDT	P		On	Off	On	TSD21RG1PC	DPDT	P	On	Off	On

Note: No center terminals on "K" action switches.

4PDT



Extended Actuator		Act. Code		P. K9		
Model	Type			■	■	■
TSS41NGPC	4PDT	N		On	None	On

For complete product information, order Catalog 1308390

Slide Switches, Right Angle, Single or Dual Actuator

SEE PAGE 6018 FOR PRODUCT SPECIFICATIONS

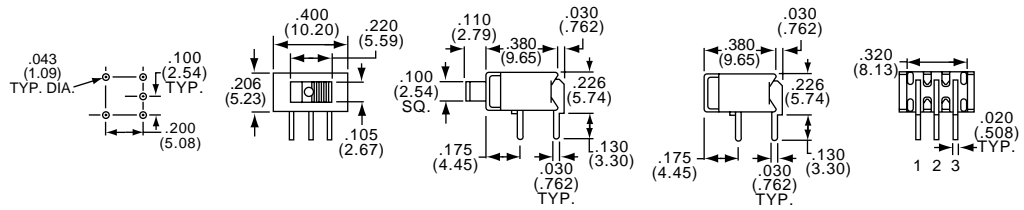
SPDT



TSS11DGRA



TSS11DG1RA



Extended Actuator						Flush Actuator					
Model	Type	Act. Code	P.	K9	■	Model	Type	Act. Code	P.	K9	■
TSS11DGRA	SPDT	D	On	None	On	TSS11DG1RA	SPDT	D	On	None	On
TSS11EGRA	SPDT	E	On	Off	On	TSS11EG1RA	SPDT	E	On	Off	On

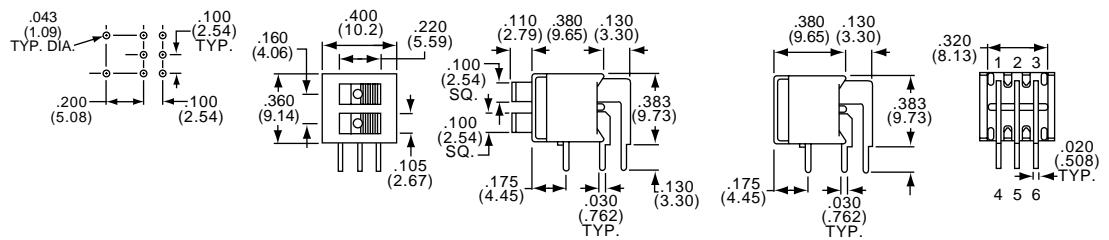
SPDT (DUAL)



TSD21DDGRA



TSD21DDG1RA



Extended Dual Actuator						Flush Dual Actuator					
Model	Type	Act. Code	P.	K9	■	Model	Type	Act. Code	P.	K9	■
TSD21DDGRA	2 x SPDT	D	On	None	On	TSD21DDG1RA	2 x SPDT	D	On	None	On
TSD21EEGRA	2 x SPDT	E	On	Off	On	TSD21EEG1RA	2 x SPDT	E	On	Off	On

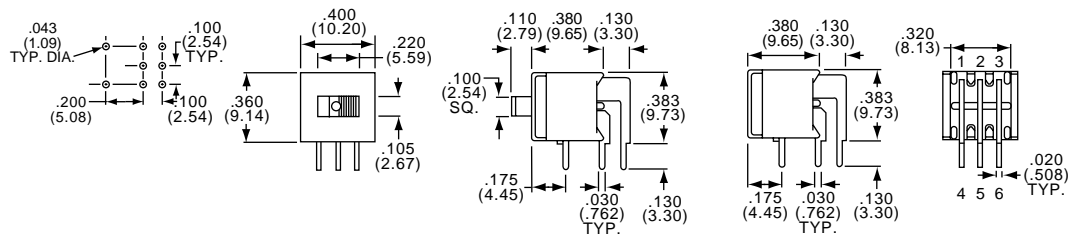
DPDT



TSS21NGRA



TSS21PG1RA

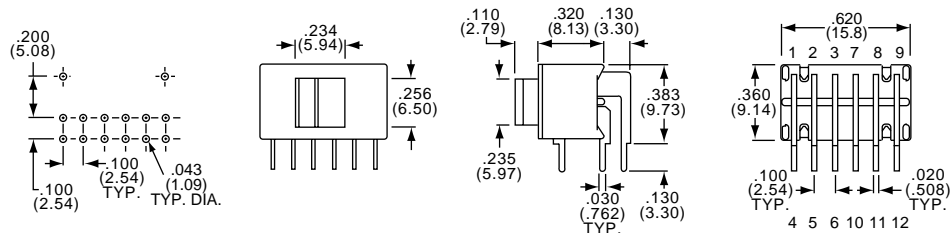


Extended Actuator						Flush Actuator					
Model	Type	Act. Code	P.	K9	■	Model	Type	Act. Code	P.	K9	■
TSS21PAGRA	SP3T	PA	On	On	On	TSS21NG1RA	DPDT	N	On	None	On
TSS21NGRA	DPDT	N	On	None	On	TSS21PG1RA	DPDT	P	On	Off	On
TSS21PGRA	DPDT	P	On	Off	On						

4PDT



TSS41NGRA



Extended Actuator					
Model	Type	Act. Code	P.	K9	■
TSS41NGRA	4PDT	N	On	None	On

Slide Switches, Extended Baton Style Actuator, Low Profile, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsGold or silver over copper alloy
 Frame MaterialSteel
 Actuator MaterialPolycarbonate (UL 94 V-2)
 Terminals/Fixed Contacts.....Gold or silver plate
 Terminal SealEpoxy

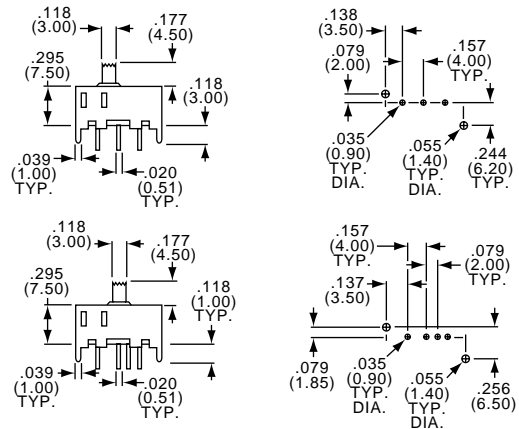
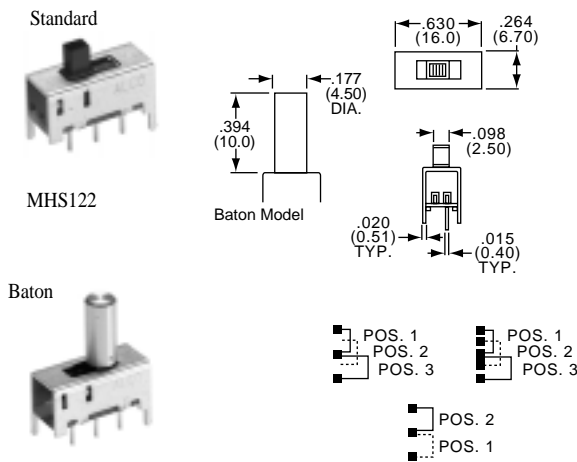
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +212°F (-20°C to +100°C)
 Storage Temperature.....-40°F to +212°F (-40°C to + 100°C)
 Recommended CleaningNo chlorine base or Freon can be used.
 Aqueous or 100% ethanol.

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA 20 VDC or peak AC
 Silver: 300 mA @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingMake-before-break
 Insulation Resistance1000 Megohms min.
 Dielectric Strength500 Volts RMS @ sea level
 Actuation Force250 Grams (+200g/-150g)
 Actuator Travel.....0.079"
 Life Expectancy15,000 Cycles

SPDT/SP3T

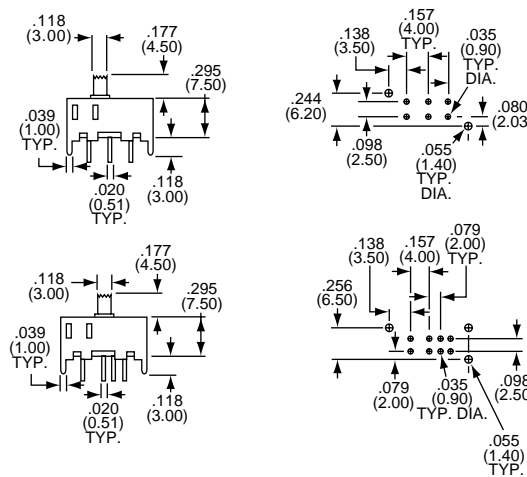
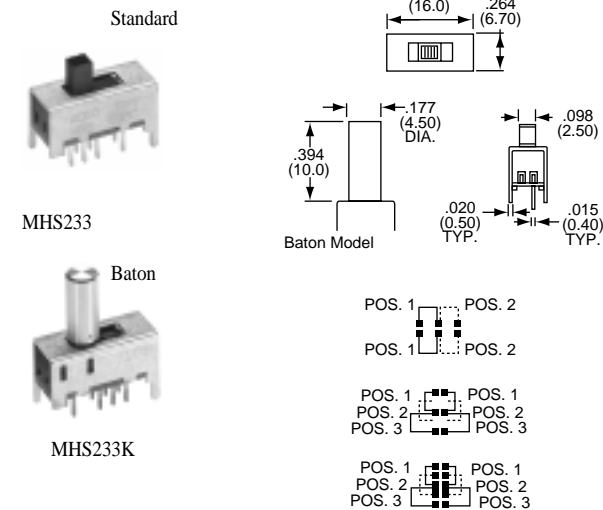


MHS122
MHS123

MHS133

Standard Model	Baton Model	Type	On	Off	None	Contacts
MHS122	MHS122K	SPDT	On	None	On	Silver
MHS123	MHS123K	SPDT	On	Off	On	Silver
MHS133	MHS133K	SP3T	On	On	On	Silver
MHS122G	MHS122KG	SPDT	On	None	On	Gold
MHS123G	MHS123KG	SPDT	On	Off	On	Gold
MHS133G	MHS133KG	SP3T	On	On	On	Gold

DPDT/DP3T



MHS222
MHS223

MHS233

Standard Model	Baton Model	Type	On	Off	None	Contacts
MHS222	MHS222K	DPDT	On	None	On	Silver
MHS223	MHS223K	DPDT	On	Off	On	Silver
MHS233	MHS233K	DP3T	On	On	On	Silver
MHS222G	MHS222KG	DPDT	On	None	On	Gold

For complete product information, order Catalog 1308390

Slide Switches, Low Profile, Right Angle, Instrumentation Grade

SEE PAGE 6020 FOR PRODUCT SPECIFICATIONS

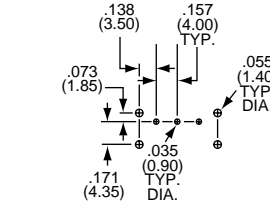
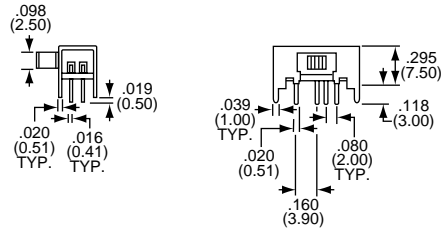
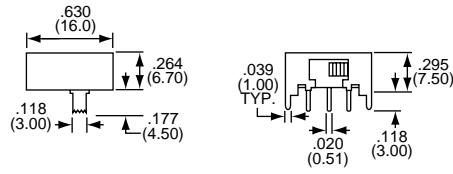
SPDT/SP3T



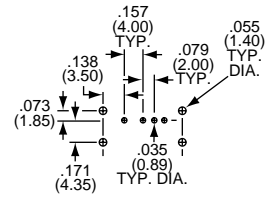
MHS122RA



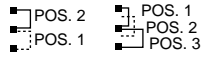
MHS133GRA



MHS122/123



MHS133



Model	Type	On	Off	On	Contacts	Actuator Travel
MHS122RA	SPDT	On	None	On	Silver	.158
MHS123RA	SPDT	On	Off	On	Silver	.079
MHS133RA	SP3T	On	On	On	Silver	.079
MHS122GRA	SPDT	On	None	On	Gold	.158
MHS123GRA	SPDT	On	Off	On	Gold	.079
MHS133GRA	SP3T	On	On	On	Gold	.079

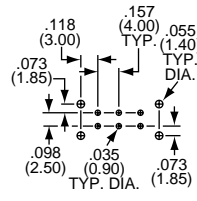
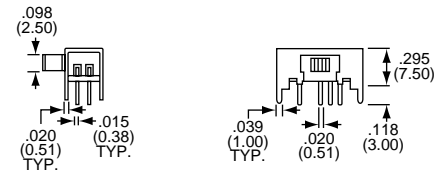
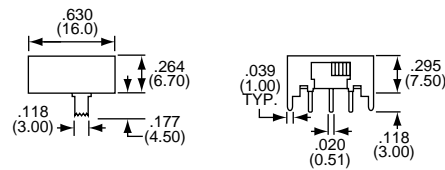
DPDT/DP3T



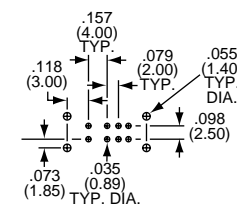
MHS222RA



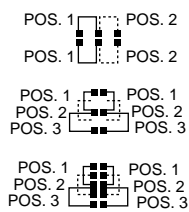
MHS233GRA



MHS222/223



MHS233

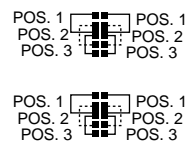
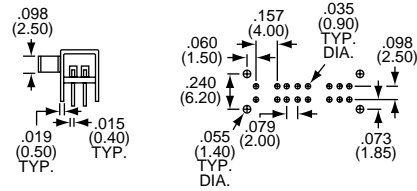
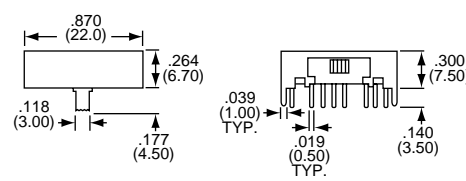


Model	Type	On	Off	On	Contacts	Actuator Travel
MHS222RA	DPDT	On	None	On	Silver	.158
MHS223RA	DPDT	On	Off	On	Silver	.079
MHS233RA	DP3T	On	On	On	Silver	.079
MHS222GRA	SPDT	On	None	On	Gold	.158
MHS233GRA	DP3T	On	On	On	Gold	.079

4P3T



MHS433RA



Model	Type	On	On	On	Contacts	Actuator Travel
MHS433RA	4P3T	On	On	On	Silver	.079

For complete product information, order Catalog 1308390

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate over copper alloy
 Cover Base MaterialPolyester
 Actuator MaterialPolyacetal
 TerminalsSilver plate over copper alloy
 Terminal SealMolded in

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....-4°F to +140°F (-20°C to +60°C)
 Solder Heat Resistance270°C+10°C, 5 seconds per MIL-STD-202,
 Method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

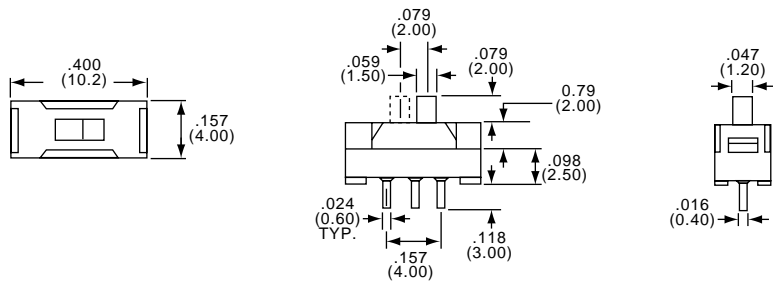
Contact Rating100 Milliamps @ 12 VDC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingShorting – bifurcated contacts
 Insulation Resistance100 Megohms min.
 Dielectric Strength500 Volts RMS @ sea level
 Actuation Force250 Grams, (+200g, -150g)
 Actuator Travel.....0.079"
 Life Expectancy10,000 Cycles

SPDT



SSJ12

Model	Plating	Mounting Style
SSJ12	Silver	Upright

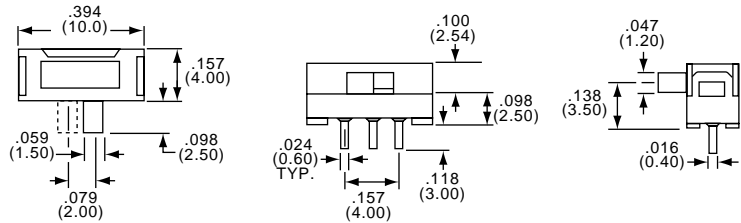


SPDT



SSJ12R

Model	Plating	Mounting Style
SSJ12R	Silver	Right Angle

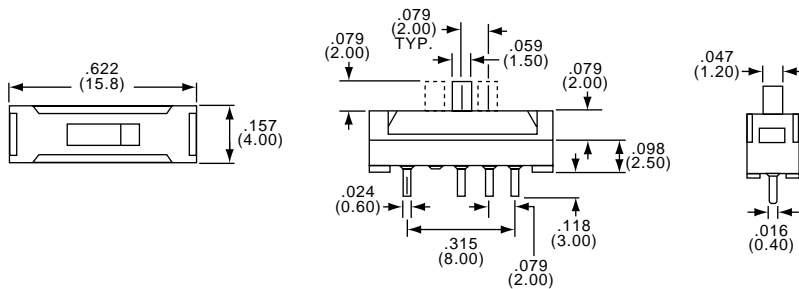


SP3T



SSJ13

Model	Plating	Mounting Style
SSJ13	Silver	Upright



For complete product information, order Catalog 1308390

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate over copper alloy
 Case MaterialPolyacetal UL94HB
 Actuator MaterialPolyester UL94HB
 TerminalsSilver plate over copper alloy
 Terminal SealEpoxy
 Terminal Board.....UL 94 V-O

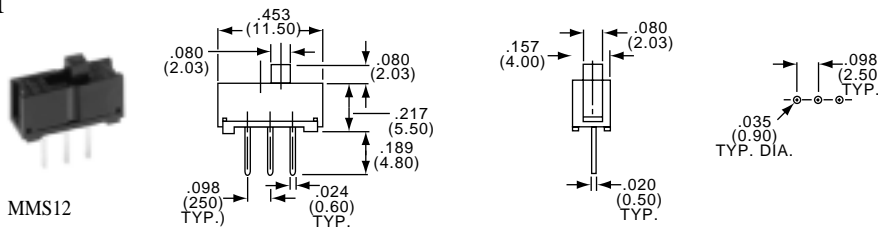
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating100 mA @ 30 VDC or peak AC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingShorting
 Insulation Resistance1,000 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force200 ± 150 Grams
 Life Expectancy10,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....+14°F to +140°F (-10°C to +60°C)
 Solder Heat Resistance230 ± 150 grams ± 5°C for 3 seconds per MIL-STD-202, Method 210

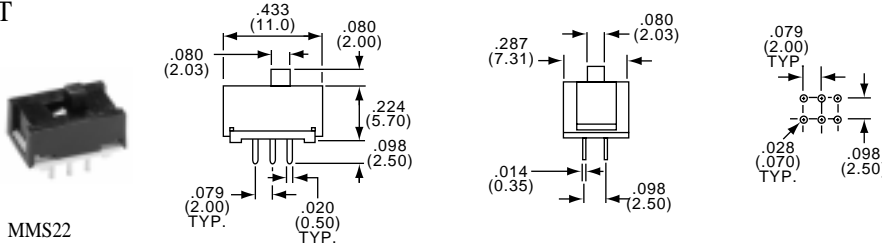
SPDT



MMS12

Model	Type	Plating	Mounting Style
MMS12	SPDT	Silver	Upright

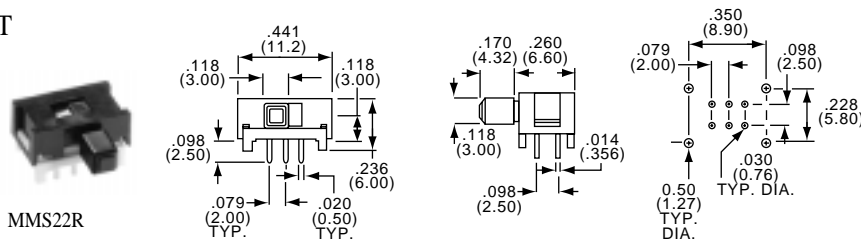
DPDT



MMS22

Model	Type	Plating	Mounting Style
MMS22	DPDT	Silver	Upright

DPDT



MMS22R

Model	Type	Plating	Mounting Style
MMS22R	DPDT	Silver	Right Angle

6
Switches

For complete product information, order Catalog 1308390

Slide Switches, Micro Size, Instrumentation Grade

MATERIAL SPECIFICATIONS:

ContactsSilver or gold plate
 Case MaterialPolyester PPS UL94VO
 Actuator MaterialPolyamide UL94HB
 Cover MaterialPolyamide UL94HB
 TerminalsSilver or gold plate
 Terminal SealEpoxy

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
 Storage Temperature.....-40°F to +194°F (-40°C to +90°C)
 Solder Heat Resistance260°C (+500°F) for 5 seconds
 per MIL-STD-202, Method 210

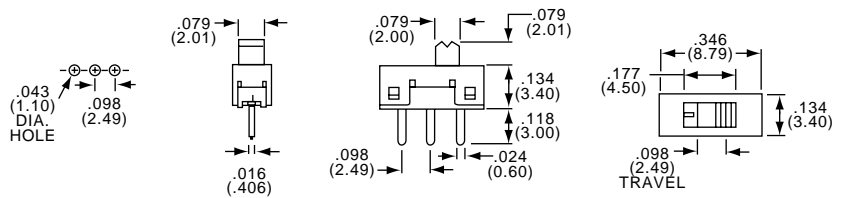
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 0.4 VA max. @ 20 VDC or peak AC
 Silver: 100 Milliamps @ 30 VDC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingBreak-Before-Make
 Insulation Resistance100 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force250 ± 100 Grams
 Actuator Travel......098" (2.49)
 Life Expectancy10,000 Cycles

SPDT



SSA12

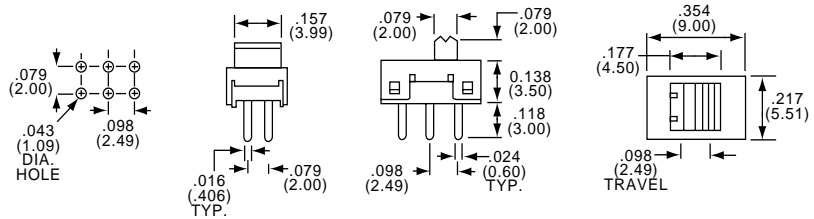


Model	Plating	Mounting Style
SSA12	Silver	Upright
SSA12G	Gold	Upright

DPDT



SSA22



Model	Plating	Mounting Style
SSA22	Silver	Upright
SSA22G	Gold	Upright



Switches

For complete product information, order Catalog 1308390

Slide Switches, PC Tails, Wiping Contact, Consumer Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate over copper alloy
 Case MaterialSteel
 Actuator MaterialPolycarbonate
 Terminals/Fixed Contacts.....Silver plate over brass
 Terminal SealEpoxy

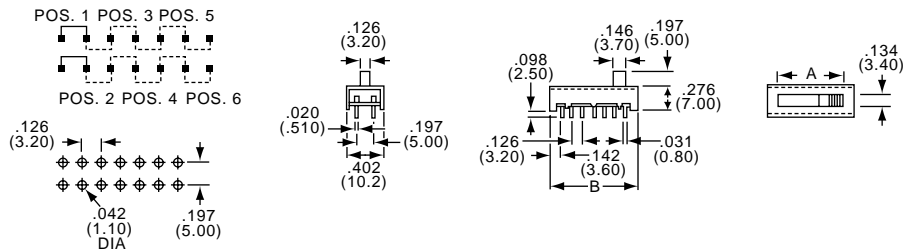
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating250 mA @ 125 VAC, 150 mA @ 12 VDC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingBreak before make
 Insulation Resistance500 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force250 Grams + 150 - 100
 Actuator Travel.....126" (3.20)
 Life Expectancy10,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....14°F to +140°F (-10°C to +60°C)

2 TO 6 POSITIONS

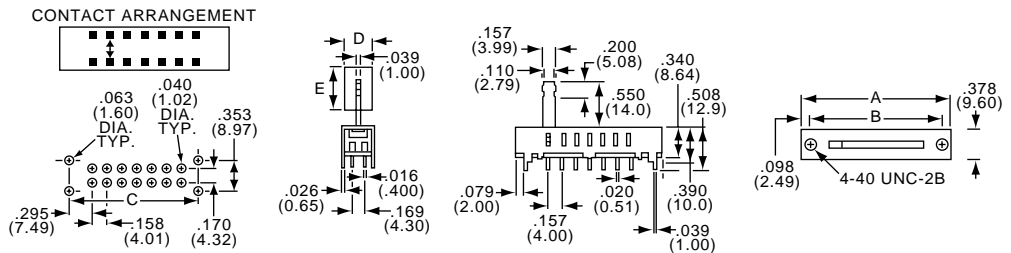


Model	Type	Dim.A	Dim.B
SLS220PC	2 Positions	.272(6.91)	.535(13.59)
SLS230PC	3 Positions	.398(10.11)	.661(16.79)
SLS240PCA	4 Positions	.524(13.31)	.787(19.99)
SLS250PC	5 Positions	.650(16.51)	.913(23.19)
SLS260PC	6 Positions	.776(19.71)	1.039(26.39)

SL Series

Slide Switches, PC Tails, Lever or Knob Actuator

2 TO 10 POSITIONS



Model	Type	Dim. A	Dim. B	Dim. C	Knob Only	Description	Dim. D	Dim. E
SL220	2 Positions	.95(24.13)	.750(19.05)	.750(19.05)	KSS10A	Aluminum-Clear Anodize	.270(6.86)	.500(12.70)
SL330	3 Positions	1.11(28.19)	.910(23.1)	.910(23.1)	KSS10B	Aluminum-Black Anodize	.270(6.86)	.500(12.70)
SL550	5 Positions	1.42(36.07)	1.22(30.99)	1.22(31.1)	KSS20A	Aluminum-Clear Anodize	.305(7.75)	.512(13.00)
SL660	6 Positions	1.58(40.13)	1.38(35.05)	1.38(35.1)	KSS20B	Aluminum-Black Anodize	.305(7.75)	.512(13.00)
SL770	7 Positions	1.74(44.20)	1.54(39.12)	1.54(39.1)				
SL880	8 Positions	1.89(48.01)	1.70(43.18)	1.70(43.1)				
SL1000	10 Positions	2.21(56.13)	2.01(51.05)	2.01(51.5)				

SL770

For complete product information, order Catalog 1308390

Slide Switches, Wiping Contacts, Consumer Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate
 Case MaterialSteel
 Actuator MaterialPhenolic
 Terminals/Fixed Contacts.....Silver plate
 Terminal SealEpoxy

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating500 mA @ 125 VAC, 200 mA @ 12 VDC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingBreak before make
 Insulation Resistance500 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force150-500 Grams
 Plunger/Actuator Travel:106 (2.69)
 Life Expectancy10,000 Cycles

ENVIRONMENTAL SPECIFICATIONS:

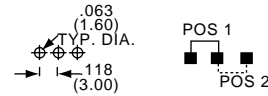
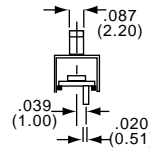
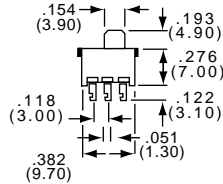
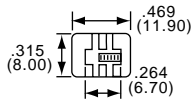
Operating Temperature.....-4°F to + 185°F (-20°C to + 85°C)
 Storage Temperature.....-40°F to + 212°F (-40°C to + 100°C)
 Solder Heat Resistance+300°C (+572°F) for 5 seconds

SPDT



Lug

SLS1201



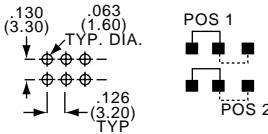
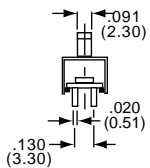
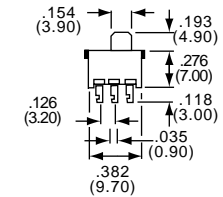
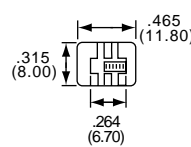
Model	Type	Mounting	Terminals	Contacts
SLS1201	SPDT	Less Tabs	Lug, Silver Plated	

DPDT



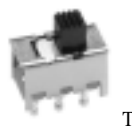
Lug

SLS2201



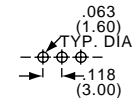
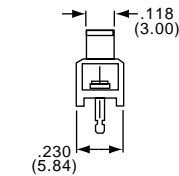
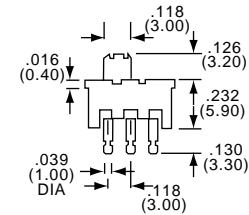
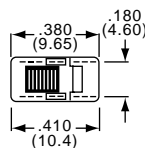
Model	Type	Mounting	Terminals	Contacts
SLS2201	DPDT	Less Tabs	Lug, Silver Plated	

SPDT



Turret

SLSA1201



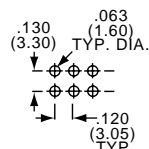
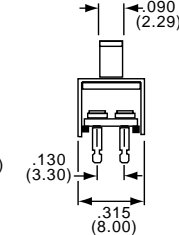
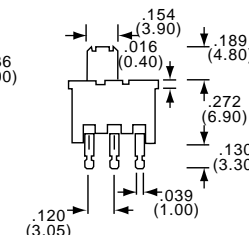
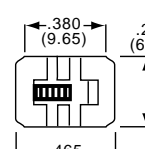
Model	Type	Mounting	Terminals	Contacts
SLSA1201	SPDT	Less Tabs	Turret, Silver Plated	

DPDT



Turret

SLSA2201



Model	Type	Mounting	Terminals	Contacts
SLSA2201	DPDT	Less Tabs	Turret, Silver Plated	

For complete product information, order Catalog 1308390

Slide Switches, Miniature, Rolling Contact, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver over nickel plate over copper alloy
 Case MaterialTin plate over steel
 Actuator MaterialPolycarbonate
 Terminals/Fixed Contacts.....Silver over nickel plate over copper alloy

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating250 mA @ 125 VAC, 150 mA @ 12 VDC
 Initial Contact Resistance30 Milliohms max.
 Contact TimingBreak before make
 Insulation Resistance500 Megohms min.
 Dielectric Strength500 VAC
 Actuation Force150 to 400 Grams
 Actuator Travel.....0.126" (3.20)
 Life Expectancy6,000 Cycles

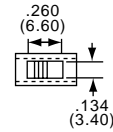
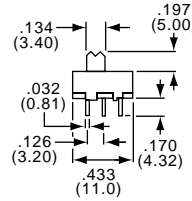
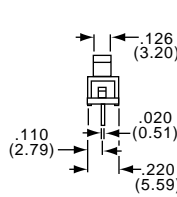
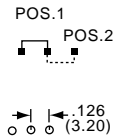
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....14°F to +140°F (-10°C to +60°C)

SPDT



SLS121PC

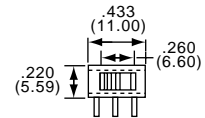
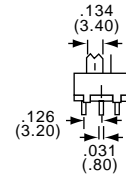
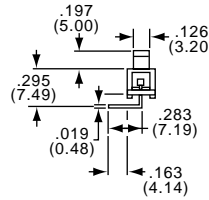
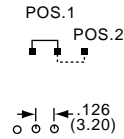


Model	Mounting Style
SLS121PC	Printed Circuit

SPDT



SLS121RA

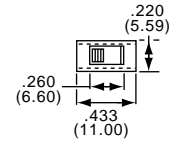
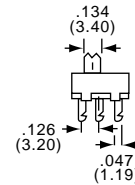
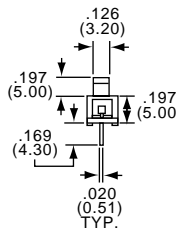
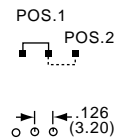


Model	Mounting Style
SLS121RA	Right Angle PC

SPDT



SLS1211

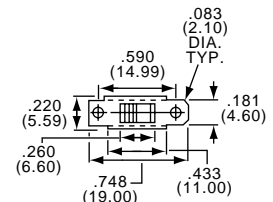
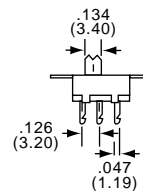
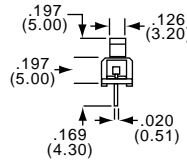
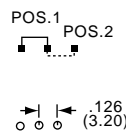


Model	Mounting Style
SLS1211	Printed Circuit

SPDT



SLS121



Model	Mounting Style
SLS121	Panel Mounted

For complete product information, order Catalog 1308390

Slide Switches, Miniature, Rolling Contact, Economy Grade

MATERIAL SPECIFICATIONS:

ContactsSilver plate
 Case MaterialSteel
 Actuator MaterialPolycarbonate
 Terminals/Fixed Contacts.....Silver over nickel

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....+14°F to +140°F (-10°C to +60°C)
 Solder Heat Resistance+260°C for 5 seconds

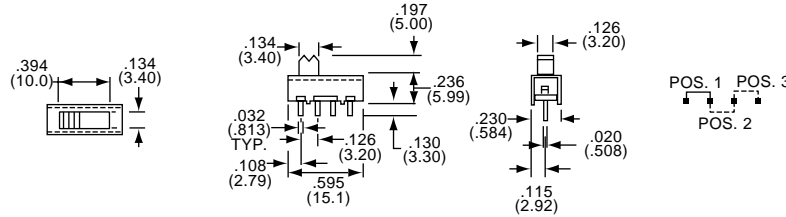
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating250mA @ 125 VAC
 150mA @ 12VDC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-Before-Make
 Insulation Resistance>50 Megohms.
 Dielectric Strength500 Volts RMS @ sea level
 Actuation Force340 ± 57 Grams
 Plunger/Actuator Travel:260" to .512"
 Life Expectancy>10,000 Cycles at no load

SP3T



SLS131PC

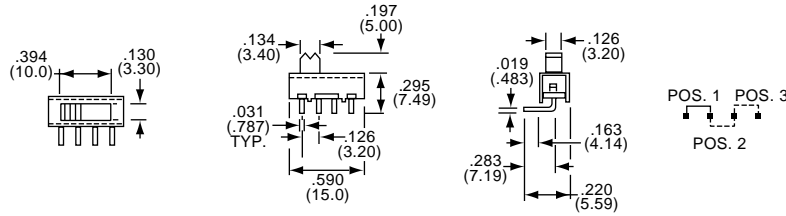


Model	Mounting Style
SLS131PC	Printed Circuit

SP3T

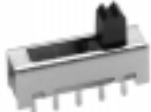


SLS131RA

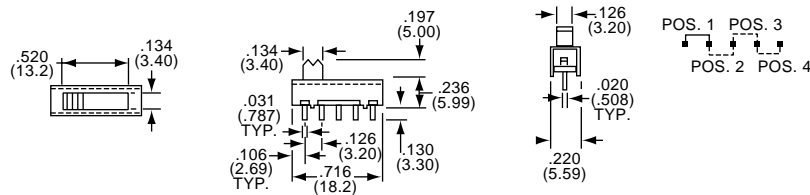


Model	Mounting Style
SLS131RA	Right Angle PC

SP4T



SLS141PC

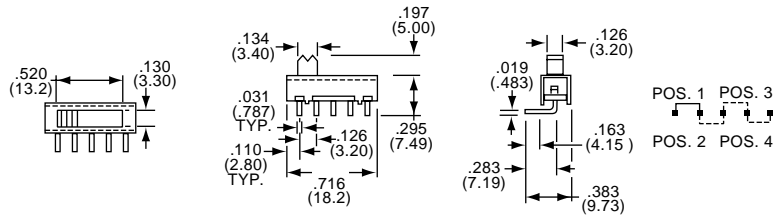


Model	Mounting Style
SLS141PC	Printed Circuit

SP4T



SLS141RA

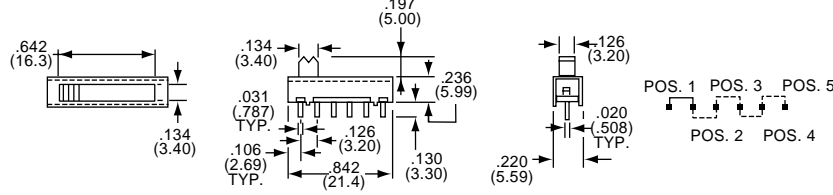


Model	Mounting Style
SLS141RA	Right Angle PC

SP5T



SLS151PC

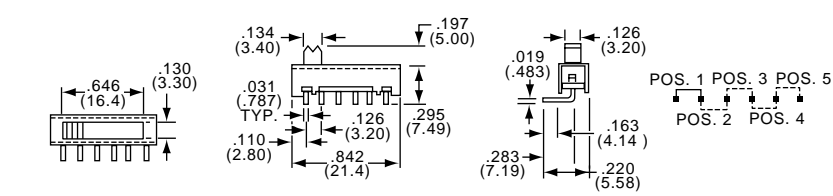


Model	Mounting Style
SLS151PC	Printed Circuit

SP5T



SLS151RA



Model	Mounting Style
SLS151RA	Right Angle PC



Toggle Switches, Tiny, Vertical

MATERIAL SPECIFICATIONS:

Contacts.....Gold over nickel or silver plate
 Case Material.....Thermoplastic 94V-0
 Terminals/Fixed Contacts.....Tin lead plate
 Terminal Seal.....Epoxy on single pole, optional
 on double pole

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-22°F to +185°F (-30°C to +85°C)
 Storage Temperature.....-67°F to +185°F (-55°C to +85°C)
 U.L. (File E-46765).....Silver only

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating..... 0.4 VA max. @ 20 VDC or peak
 AC or 3A @ 125 VAC or 28 VDC
 (2 pos.), 2 A
 Initial Contact Resistance.....20 Milliohms max.
 Contact Timing.....Break before Make
 Insulation Resistance.....1,000 Megohms 500 VDC min.
 Dielectric Strength.....1,000 Volts RMS @ sea level
 Plunger/Actuator Travel......26"
 High Torque Bushing ShoulderYes
 Life Expectancy.....See page 6036

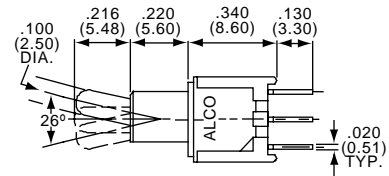
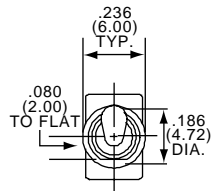
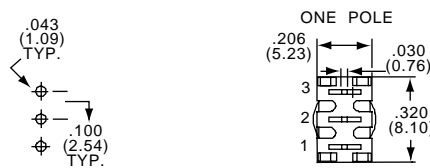
* Refer to Page 6036 for Other Options *

APPLICATION NOTE: TT21PA types are usable as SP3T when externally shunted.

1 POLE



TT11DGPC1



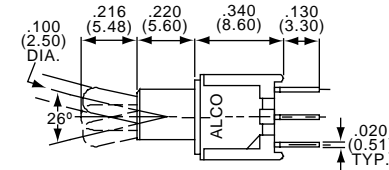
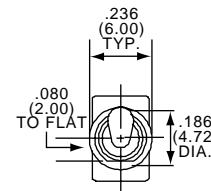
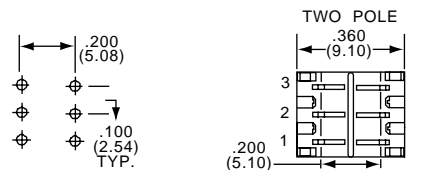
Model	Type	Act. Code	P. K8	On	None	Off
TT11AGPC1	SPST	A		On	None	Off
TT11DGPC1	SPDT	D		On	None	On
TT11EGPC1	SPDT	E		On	Off	On

Note: No center terminal on "A" switches

2 POLE



TT21NGPC1



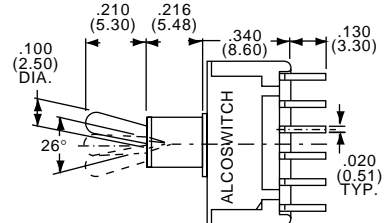
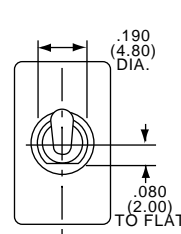
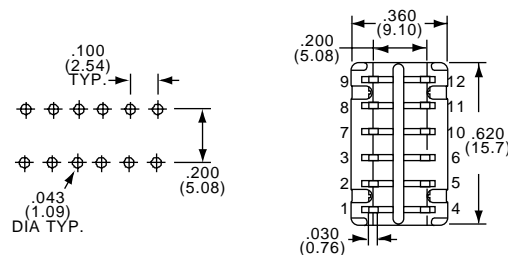
Model	Type	Act. Code	P. K8	On	None	Off
TT21KGPC1	DPST	K		On	None	Off
TT21NGPC1	DPDT	N		On	None	On
TT21PGPC1	DPDT	P		On	Off	On
TT21PAGPC1	SP3T	PA		On	On	On

Note: No center terminal on "K" switches

4 POLE



TT41NGPC1



Model	Type	Act. Code	P. K8	On	None	On
TT41NGPC1	4PDT	N		On	None	On

For complete product information, order Catalog 1308390



Toggle Switches, Tiny, Right Angle, Flat Actuator

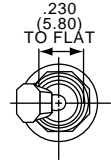
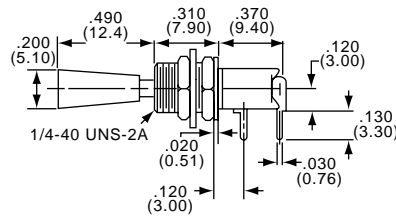
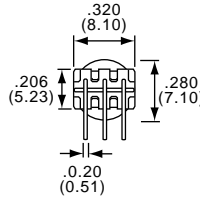
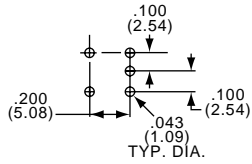
SEE PAGE 6031 FOR PRODUCT SPECIFICATIONS

1 & 2 POLE FLAT

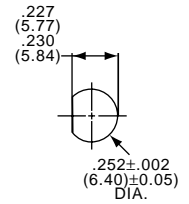
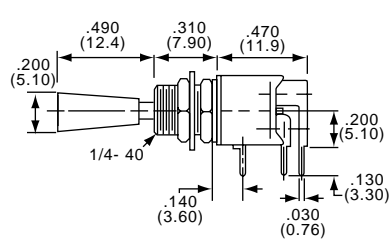
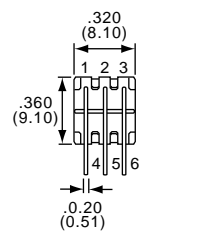
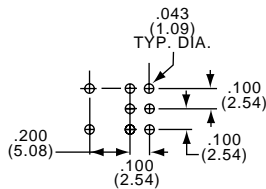
* Refer to Page 6036 for Other Options *



TT11DGRA7T1/4
Horizontal Actuation



TT21NGRA7T1/4
Horizontal Actuation



Model	Type	Act. Code	P. K8	↙	↓	↘
TT11DGRA7T1/4	SPDT	D		On	None	On
TT11EGRA7T1/4	SPDT	E		On	Off	On
TT11FGRA7T1/4	SPDT	F		On	None	(On)
TT21NGRA7T1/4	DPDT	N		On	None	On
TT21PGRA7T1/4	DPDT	P		On	Off	On
TT21PAGRA7T1/4	SP3T	PA		On	On	On

(On) indicates momentary position

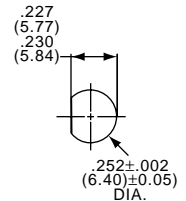
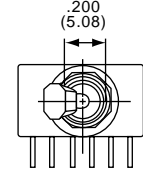
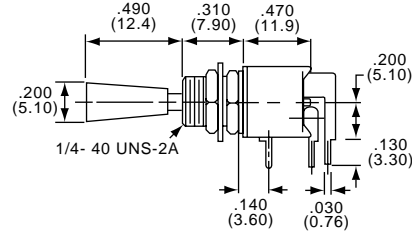
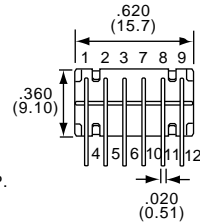
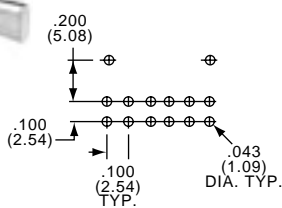
Pinned for Anti-Rotation

Note: Hardware Included

4 POLE FLAT



TT41NGRA7T1/4
Horizontal Actuation



Model	Type	Act. Code	P. K8	↙	↓	↘
TT41NGRA7T1/4	4PDT	N		On	None	On

Pinned for Anti-Rotation

Note: Hardware Included

For complete product information, order Catalog 1308390

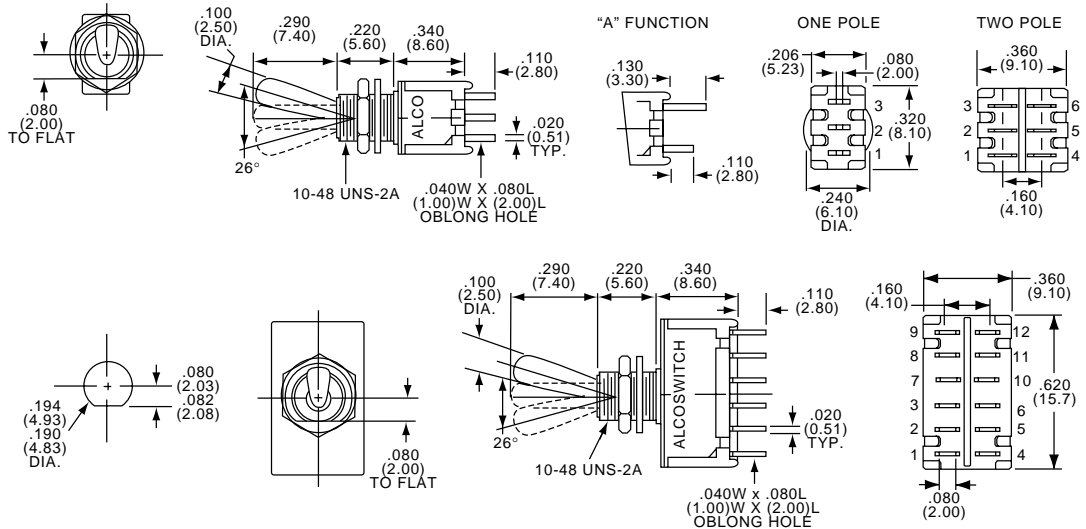


Toggle Switches, Tiny, Wire Lug, Round or Flat Actuators

SEE PAGE 6031 FOR PRODUCT SPECIFICATIONS

NOTICE: Wire lug terminals accept two No. 20 AWG wires.

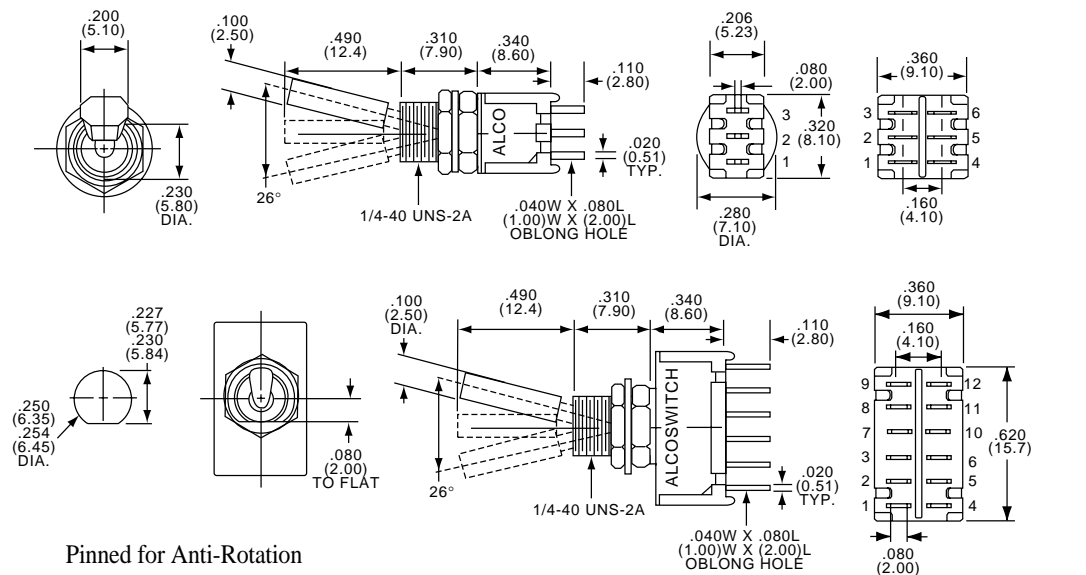
1 & 2 POLE



Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
TT13A2T	SPST	A		On	None	Off	TT23N2T	DPDT	N		On	None	On
TT13D2T	SPDT	D		On	None	On	TT23P2T	DPDT	P		On	Off	On
TT13E2T	SPDT	E		On	Off	On	TT43N2T	4PDT	N		On	None	On
TT23K2T	DPST	K		On	None	Off							

Note: No center terminal "A" or "K" action switches.

1 & 2 POLE



Pinned for Anti-Rotation

Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
TT13D7T1/4	SPDT	D		On	None	On	TT23P7T1/4	DPDT	P		On	Off	On
TT13E7T1/4	SPDT	E		On	Off	On	TT43N7T1/4	4PDT	N		On	None	On
TT23N7T1/4	DPST	N		On	None	On	TT43P7T1/4	4PDT	P		On	Off	On

For complete product information, order Catalog 1308390



Toggle Switches, Tiny, Wire Lug, Long Actuators

SEE PAGE 6031 FOR PRODUCT SPECIFICATIONS

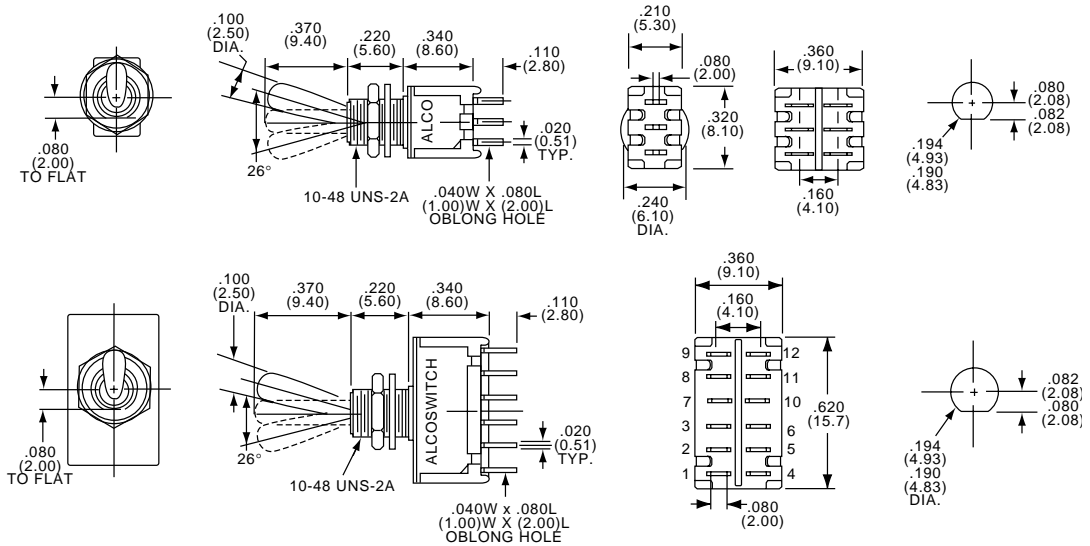
1 & 2 POLE



TT13D3
T



TT23N3T



Model	Type	Act. Code	P. K8	↖	↓	↗	Model	Type	Act. Code	P. K8	↖	↓	↗
TT13A3T	SPST	A		On	None	Off	TT23P3T	DPDT	P		On	Off	On
TT13D3T	SPDT	D		On	None	On	TT23PA3T	SP3T	PA		On	On	On
TT13E3T	SPDT	E		On	Off	On	TT43N3T	4PDT	N		On	None	On
TT23K3T	DPST	K		On	None	Off	TT43P3T	4PDT	P		On	Off	On
TT23N3T	DPDT	N		On	None	On							

Note: No center terminal on "A" or "K" action switches.

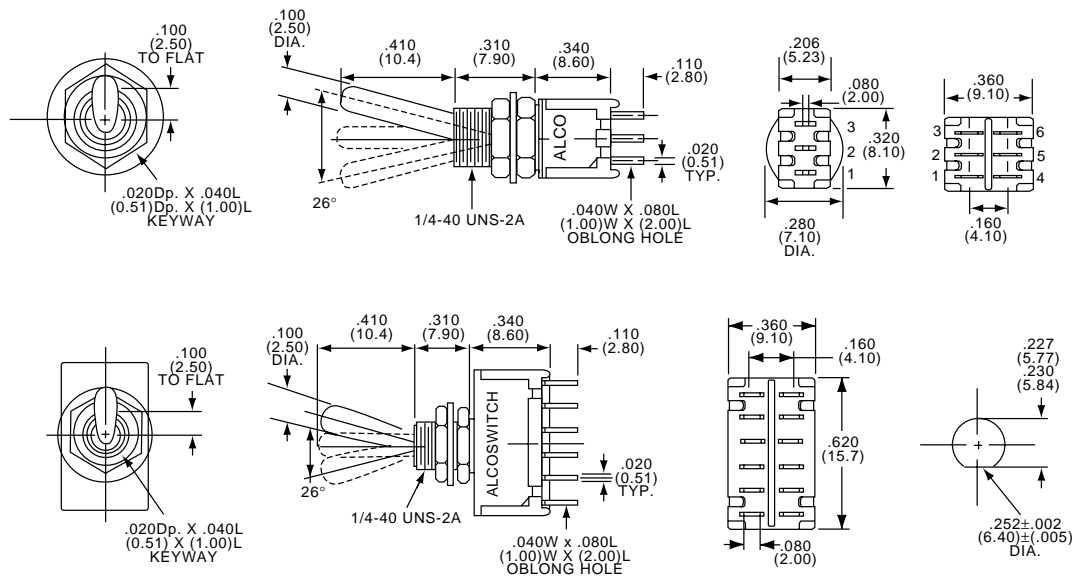
1 & 2 POLE



TT13A9T1/4



TT23N9T1/4



Model	Type	Act. Code	P. K8	↖	↓	↗	Model	Type	Act. Code	P. K8	↖	↓	↗
TT13A9T1/4	SPST	A		On	None	Off	TT23P9T1/4	DPDT	P		On	Off	On
TT13D9T1/4	SPDT	D		On	None	On	TT23PA9T1/4	SP3T	PA		On	On	On
TT13E9T1/4	SPDT	E		On	Off	On	TT43N9T1/4	4PDT	N		On	None	On
TT23K9T1/4	DPST	K		On	None	Off	TT43P9T1/4	4PDT	P		On	Off	On
TT23N9T1/4	DPDT	N		On	None	On							

Note: No center terminal on "A" or "K" action switches.

4 POLE



TT43N9T1/4

For complete product information, order Catalog 1308390



Toggle Switches, Tiny, Part Number Matrix

E = Environ.* sealed toggle (splash proof)

Series: **T**

No. of Poles:
 1 = one pole
 2 = two pole
 4 = four pole
 Note: 4 pole not available in "ES" version

Ratings:
 1 = 0.4 VA gold
 3 = 3 A Ω** silver

One Pole	2 & 4 Pole	
A	K	On None Off~
D	N	On None On
E	P	On Off On
F	R	On None (On)
	PA	On On On

(On) indicates momentary position

Gold
Blank=Silver

Terminations
 PC = Printed Circuit
 Blank = Wire Lugs
 RA = Right Angle
 VRA = Vertical Right Angle
 WW = Wire Wrap
 RW = Right Angle Wire Wrap

Bushing:
 T1/4=1/4-40
 T=10-48
 Blank= Unthreaded

Seal: ~
 ES: Process Sealed

Actuators:
 1 .21"
 2 .29"
 3 .37"
 4 .280"
 6 .590"
 7 .485"
 8 .530" - Locking Toggle (only)
 9 .415"

Color:
 9=White
 2=Red
 0=Black

Specify Color

APPLICATION NOTE:

For surface mount termination, use the "TST" series.

For 3 pole refer to the MT Series on page 6038

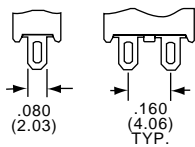
One Pole	0.4VA	80,000 (2 Pos.)	60,000 (3 Pos.)
Two Pole	3 Amp	20,000 (2 Pos.)	10,000 (3 Pos.)
Four Pole	0.4VA	80,000 (2 Pos.)	60,000 (3 Pos.)
	3 Amp	20,000 (2 Pos.)	10,000 (3 Pos.)

1,2,3,4,6	10-48 bushing
7,8,9	1/4-40 bushing

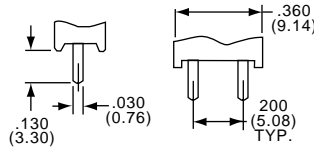
*	Not available on 7 actuator or with VRA.
**	Not available in RA.
Ω	Available in PC & WL only.
~	Available in WL & PC only.

TERMINATIONS

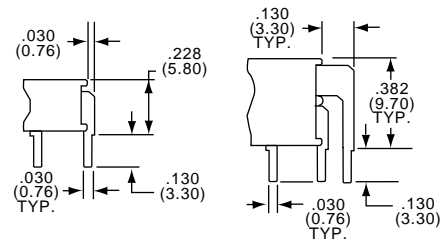
WIRE LUG



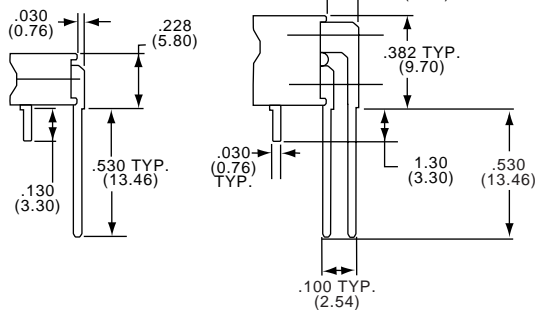
PC



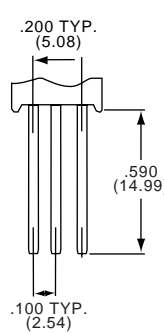
RA



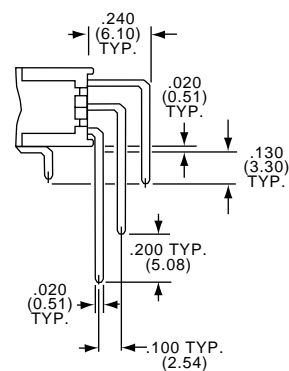
RW



W/W



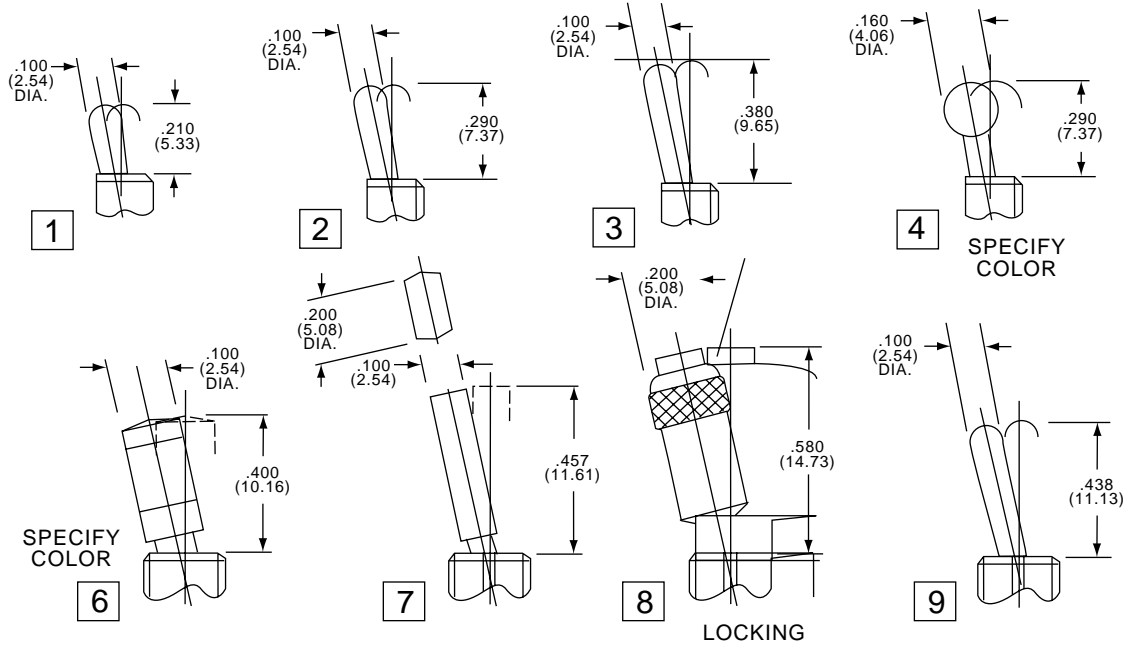
VRA



For complete product information, order Catalog 1308390

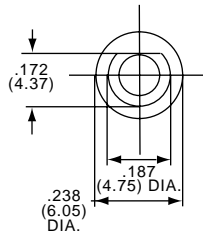
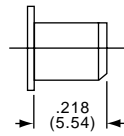


Toggle Switches, Tiny, Actuator and Bushing Options

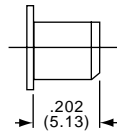


BUSHINGS

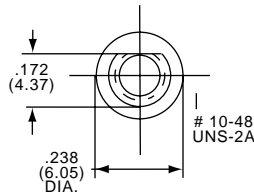
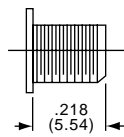
BLANK



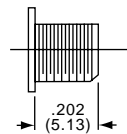
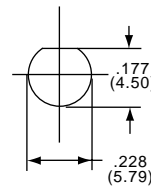
VRA VERSIONS



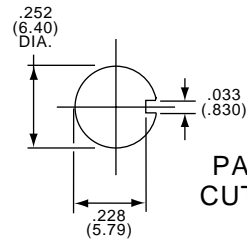
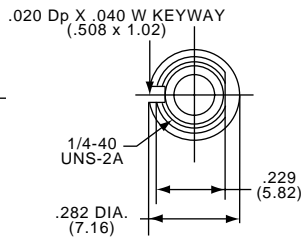
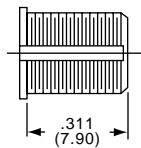
T



VRA VERSIONS

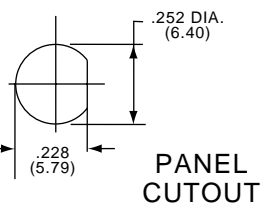
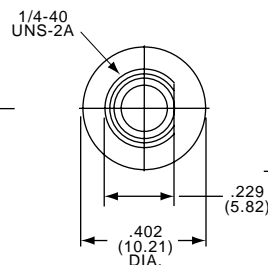
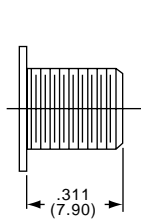


T1/4



*T1/4

*VERSION USED ON TTE (Environmentally Sealed) Series



For complete product information, order Catalog 1308390



Toggle Switches, Baton, Wire Lug, 6 Amp

MATERIAL SPECIFICATIONS:

ContactsGold flash over silver
 Actuator MaterialChrome plated copper alloy
 Case MaterialThermoset 94V-0
 TerminalsGold flash
 Terminal SealInsert molded

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature -20°C to +80°C (-4°F to +176°F)
 Storage Temperature -40°C to +80°C (-40°F to +176°F)
 UL Available when ordering . . . Consult factory.

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating6 A @ 125 VAC, 3 A @ 250 VAC
 Initial Contact Resistance.....20 Milliohms max.
 Contact Timing.....Break before make
 Insulation Resistance1,000 Megohms min. @ 500 VDC
 min. for 1 minute
 Dielectric Strength1,500 VAC
 Actuation Force05-1.5 kg.
 Actuator Travel24° (26° on MTL Series)
 High Torque Bushing ShoulderStandard
 Life ExpectancySee chart below.

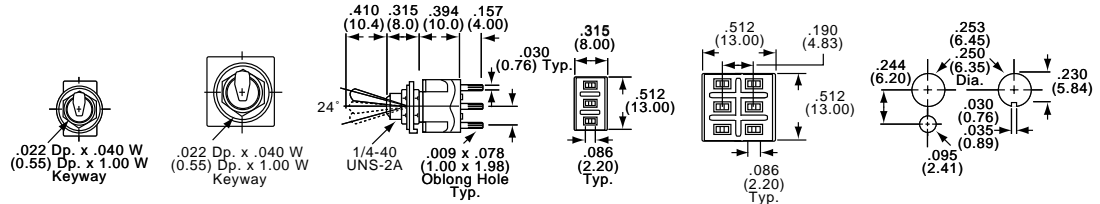
SPDT/DPDT/SP3T



MTA106D



MTA206N



Model	Type	Act. Code	P. K8	↘	↓	↙	Special Details	Model	Type	Act. Code	P. K8	↘	↓	↙	Special Details
MTA106D	SPDT	1		On	None	On	Wire Lug	MTA206N	DPDT	2		On	None	On	Wire Lug
MTA106E	SPDT	5		On	Off	On	Wire Lug	MTA206P	DPDT	6		On	Off	On	Wire Lug
MTA106F	SPDT	1		On	None(On)		Wire Lug	MTA206R	DPDT	2		On	None (On)		Wire Lug
MTA106G	SPDT	5		(On)	Off	(On)	Wire Lug	MTA206S	DPDT	6		(On)	Off	(On)	Wire Lug
MTA106H	SPDT	5		On	Off	(On)	Wire Lug	MTA206T	DPDT	6		On	Off	On	Wire Lug
				(On) indicates momentary position.				*MTA206PA	SP3T	11		On	On	On	Wire Lug
								*MTA206SA	SP3T	11		(On)	On	(On)	Wire Lug
								*MTA206TA	SP3T	11		On	On	(On)	Wire Lug
								(On) indicates momentary position.							
								* Note: PA, SA & TA types have case .100(2.50) longer than other types.							

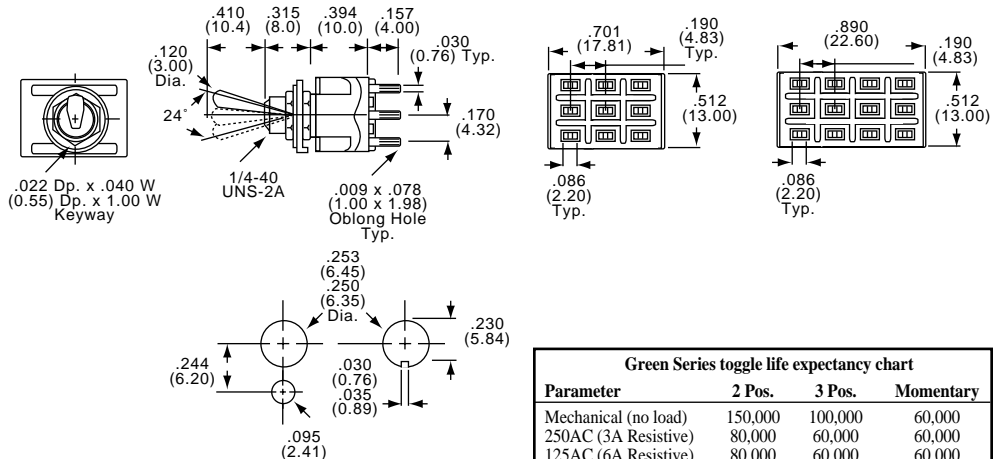
3PDT/4PDT/DP3T



MTA306D



MTA406N



Parameter	2 Pos.	3 Pos.	Momentary
Mechanical (no load)	150,000	100,000	60,000
250AC (3A Resistive)	80,000	60,000	60,000
125AC (6A Resistive)	80,000	60,000	60,000
28DC(4) (Resistive)	60,000	50,000	40,000

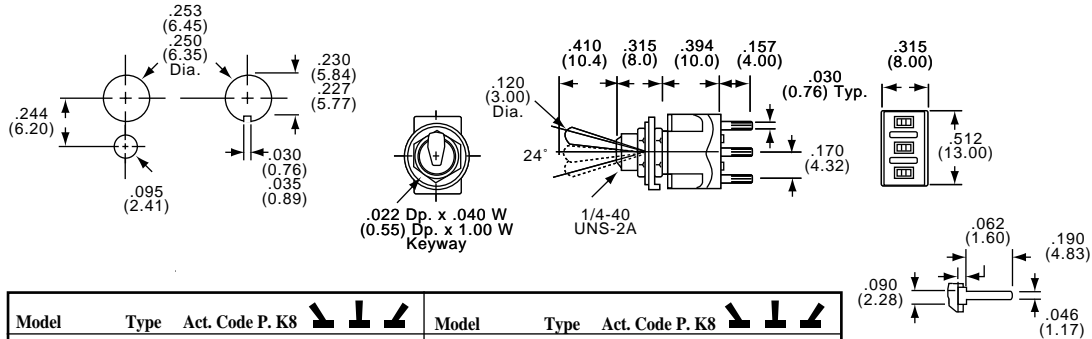
Model	Type	Act. Code	P. K8	↘	↓	↙	Special Details	Model	Type	Act. Code	P. K8	↘	↓	↙	Special Details
MTA306D	3PDT	3		On	None	On	Wire Lug	MTA406N	4PDT	4		On	None	On	Wire Lug
MTA306E	3PDT	7		On	Off	On	Wire Lug	MTA406P	4PDT	8		On	Off	On	Wire Lug
MTA306F	3PDT	3		On	None (On)		Wire Lug	*MTA406PA	DP3T	12		On	On	On	Wire Lug
MTA306H	3PDT	7		On	Off	(On)	Wire Lug								
				(On) indicates momentary position.				*Note: PA types have case .100(2.50) longer than other types.							



Toggle Switches, Baton, PC Tail, 6 Amp

SEE PAGE 6038 FOR PRODUCT SPECIFICATIONS

SPDT

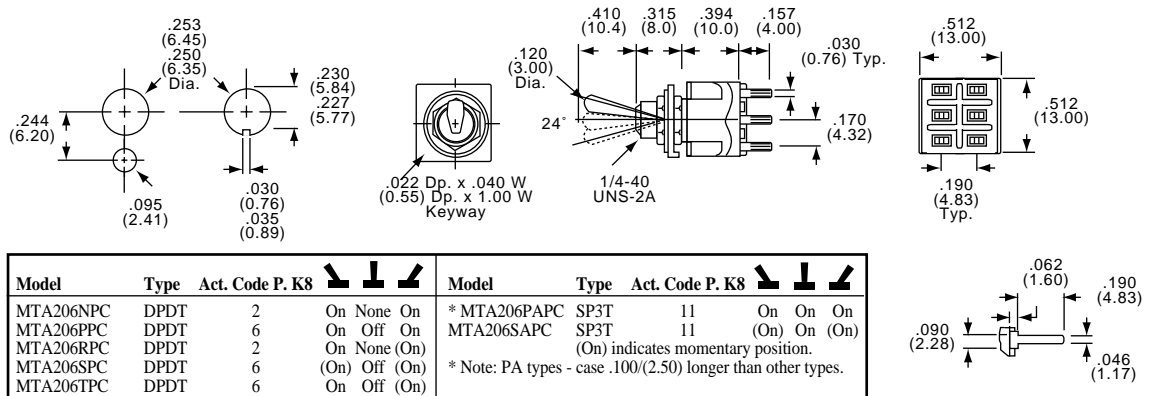


MTA106DPC

Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
MTA106DPC	SPDT	1		On	None	On	MTA106GPC	SPDT	5	(On)	Off	(On)	
MTA106EPC	SPDT	5		On	Off	On	MTA106HPC	SPDT	5		On	Off	(On)
MTA106FPC	SPDT	1		On	None	(On)							

(On) indicates momentary position.

DPDT/SP3T

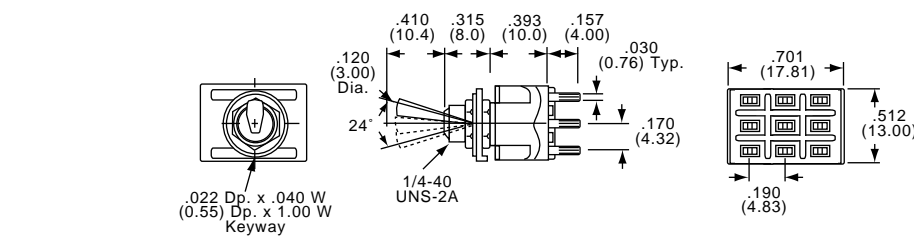


MTA206NPC

Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
MTA206NPC	DPDT	2		On	None	On	* MTA206PAPC	SP3T	11		On	On	On
MTA206PPC	DPDT	6		On	Off	On	MTA206SAPC	SP3T	11		(On)	On	(On)
MTA206RPC	DPDT	2		On	None	(On)							
MTA206SPC	DPDT	6		(On)	Off	(On)							
MTA206TPC	DPDT	6		On	Off	(On)							

(On) indicates momentary position.
* Note: PA types - case .100(2.50) longer than other types.

3PDT

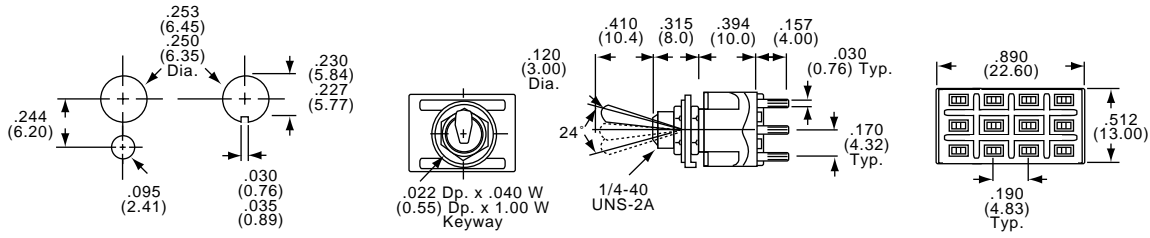


MTA306DPC

Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
MTA306DPC	3PDT	3		On	None	On	MTA306FPC	3PDT	3		On	None	(On)
MTA306EPC	3PDT	7		On	Off	On	MTA306HPC	3PDT	7		On	Off	(On)

(On) indicates momentary position.

4PDT/DP3T



MTA406NPC

Model	Type	Act. Code	P. K8	↘	↓	↙	Model	Type	Act. Code	P. K8	↘	↓	↙
MTA406NPC	4PDT	4		On	None	On	MTA406PAPC	DP3T	12		On	On	On
MTA406PPC	4PDT	8		On	Off	On							





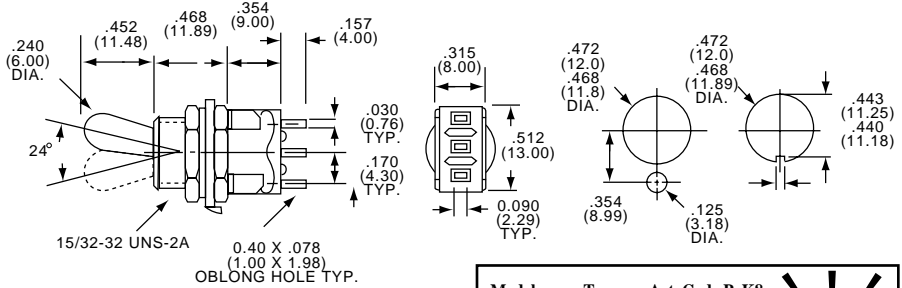
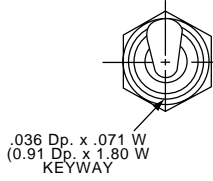
Toggle Switches, Short Mustang, 15/32 Bushing, Wire Lug, 6 Amp

SEE PAGE 6038 FOR PRODUCT SPECIFICATIONS

SPDT



MTG106D



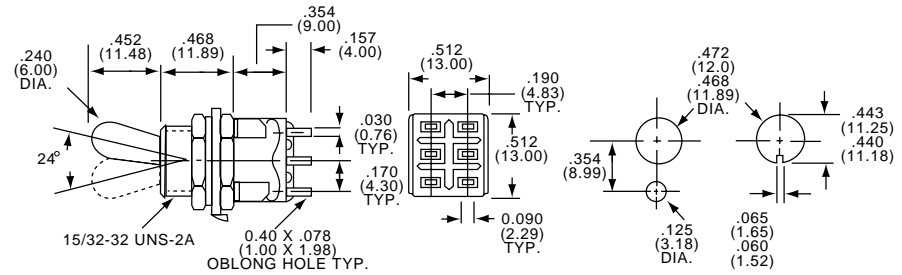
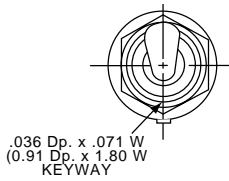
Model	Type	Act. Code P. K8	↖	↓	↗
MTG106D	SPDT	1	On	None	On
MTG106E	SPDT	5	On	Off	On
MTG106F	SPDT	1	On	None	On
MTG106G	SPDT	5	(On)	Off	(On)
MTG106H	SPDT	5	On	Off	(On)

(On) indicates momentary position.

DPDT/SP3T



MTG206N



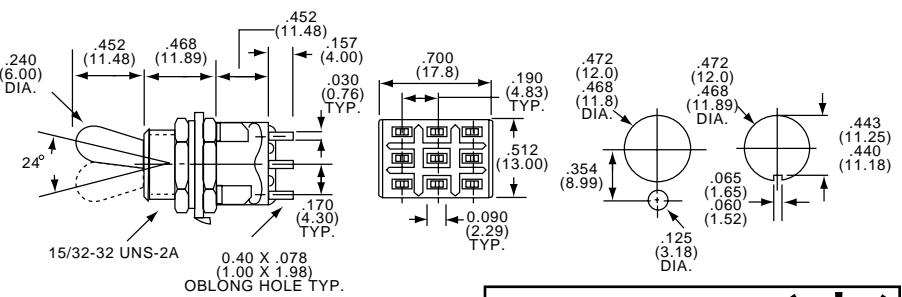
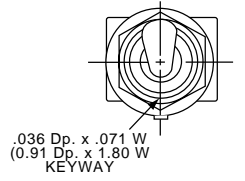
Model	Type	Act. Code P. K8	↖	↓	↗	Model	Type	Act. Code P. K8	↖	↓	↗
MTG206N	DPDT	2	On	None	On	MTG206S	DPDT	2	(On)	Off	(On)
MTG206P	DPDT	6	On	Off	On	*MTG206T	DPDT	6	On	Off	(On)
MTG206R	DPDT	2	On	None	(On)	*MTG206PA	SP3T	11	On	On	On

(On) indicates momentary position.
*Note: PA types have case .100(2.50) longer than other types.

3PDT



MTG306D

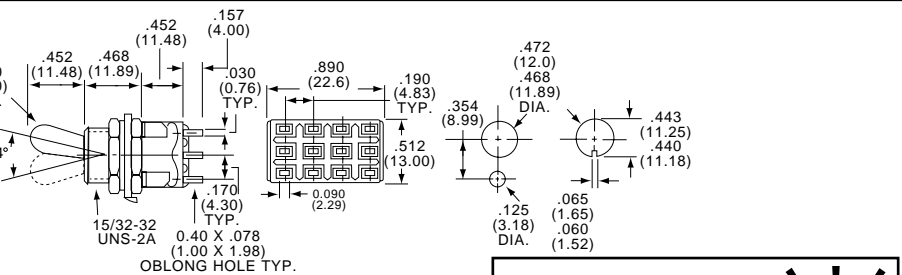
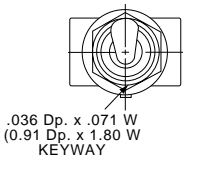


Model	Type	Act. Code P. K8	↖	↓	↗
MTG306D	3PDT	3	On	None	On
MTG306E	3PDT	7	On	Off	On

4PDT



MTG406N



Model	Type	Act. Code P. K8	↖	↓	↗
MTG406N	4PDT	4	On	None	On
MTG406P	4PDT	8	On	Off	On



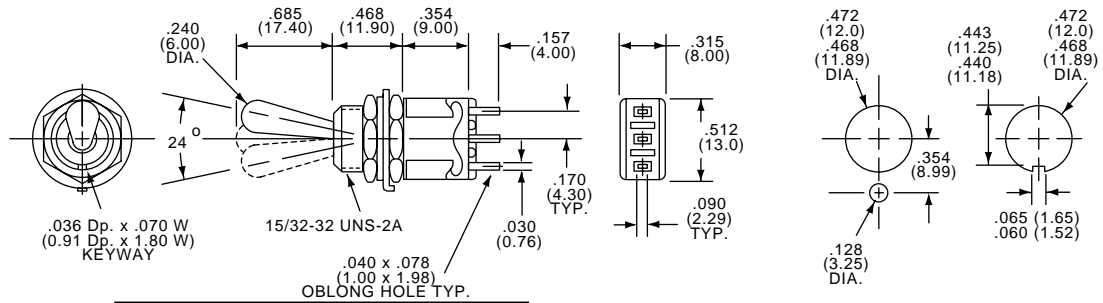
Toggle Switches, Long Mustang, 15/32 Bushing, Wire Lug, 6 Amp

SEE PAGE 6038 FOR PRODUCT SPECIFICATIONS

SPDT



MTG126D

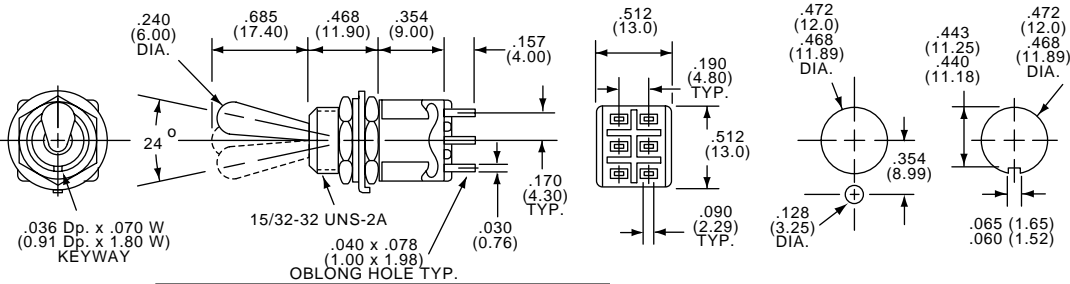


Model	Type	Act. Code P. K8	On	None	On
MTG126D	SPDT	1	On	None	On
MTG126E	SPDT	5	On	Off	On

DPDT/SP3T



MTG226N



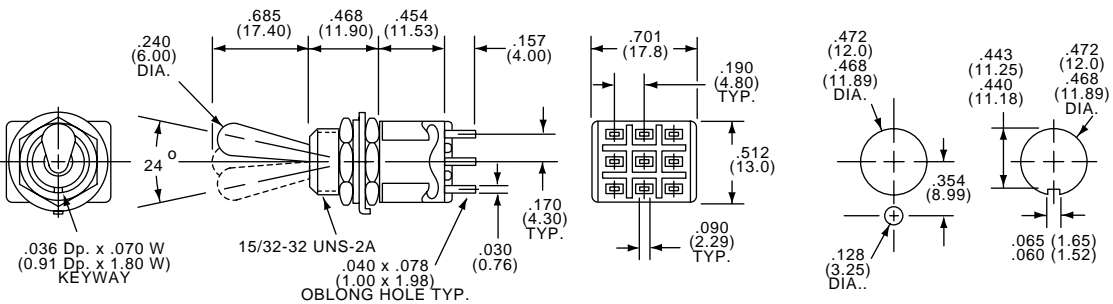
Model	Type	Act. Code P. K8	On	None	On
MTG226N	DPDT	2	On	None	On
MTG226P	DPDT	6	On	Off	On
*MTG226PA	SP3T	11	On	On	On

*Note: PA types have case .100/(2.50) longer than other types.

3PDT



MTG326D

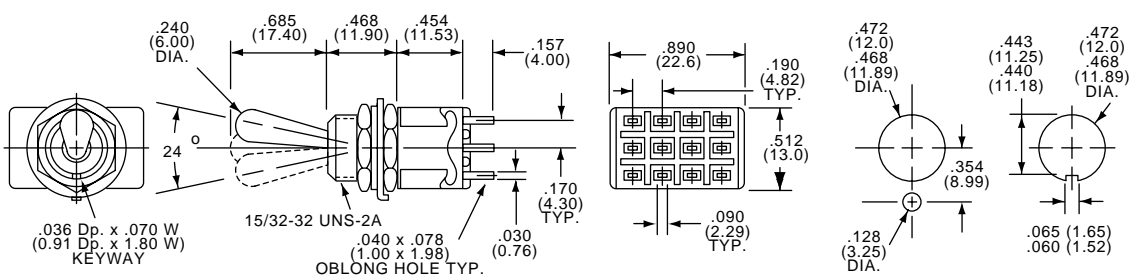


Model	Type	Act. Code P. K8	On	None	On
MTG326D	3PDT	3	On	None	On

4PDT



MTG426N



Model	Type	Act. Code P. K8	On	None	On
MTG426N	4PDT	4	On	None	On



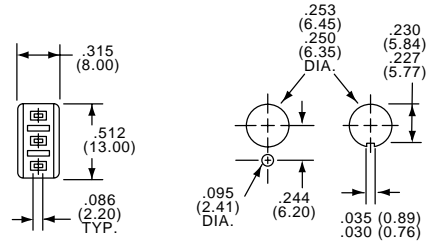
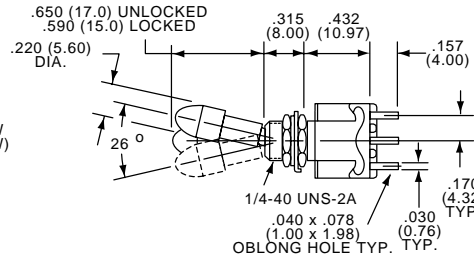
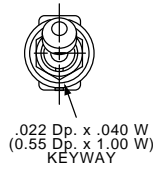
Toggle Switches, Miniature Locking, 1/4-40 Bushing, Wire Lug, 6 Amp

SEE PAGE 6038 FOR PRODUCT SPECIFICATIONS

SPDT



MTL106D

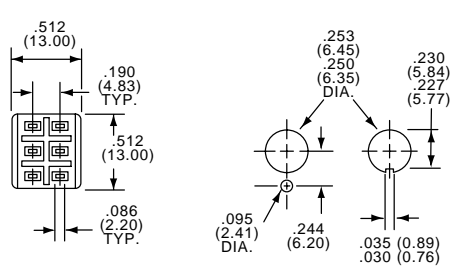
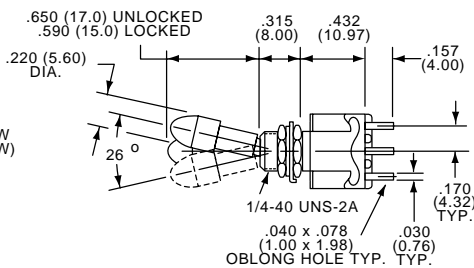
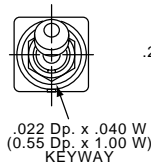


Model	Type	Act. Code	P. K8	↖	⬇	↗
MTL106D	SPDT	1		On	None	On
MTL106E	SPDT	5		On	Off	On

DPDT/SP3T



MTL206N



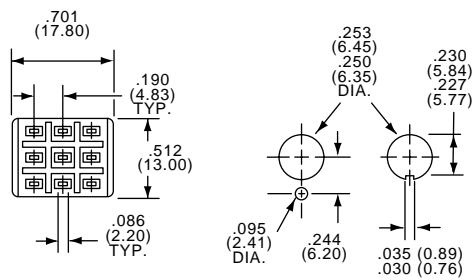
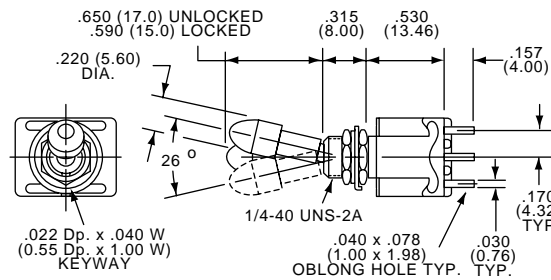
Model	Type	Act. Code	P. K8	↖	⬇	↗
MTL206N	DPDT	2		On	None	On
MTL206P	DPDT	6		On	Off	On
MTL206S	DPDT	6		(On)	Off	(On)
*MTL206PA	SP3T	11		On	On	On

(On) indicates momentary position.
*Note: PA types have case .100(2.50) longer than other types.

3PDT



MTL306D

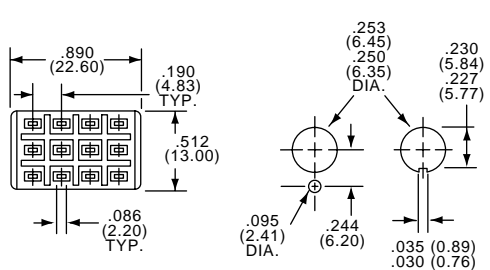
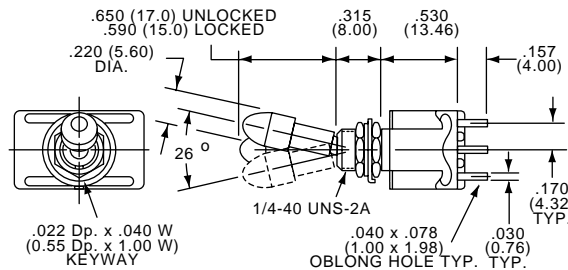


Model	Type	Act. Code	P. K8	↖	⬇	↗
MTL306D	3PDT	3		On	None	On

4PDT/DP3T



MTL406N



Model	Type	Act. Code	P. K8	↖	⬇	↗
MTL406N	4PDT	4		On	None	On
*MTL406PA	DP3T	12		On	On	On

*Note: PA types have case .100(2.50) longer than other types.

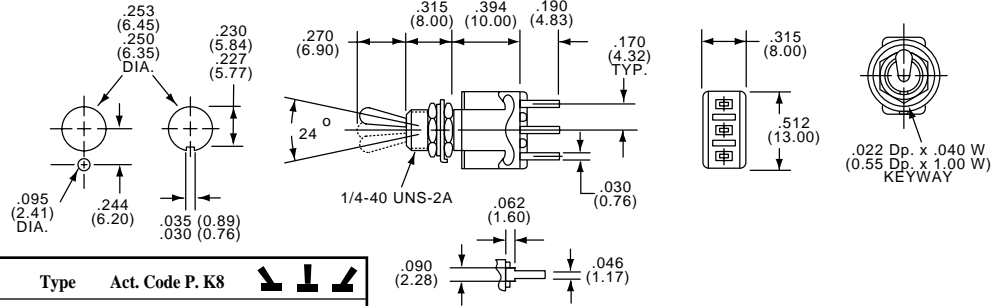
For complete product information, order Catalog 1308390



Toggle Switches, Short Toggle, PC Tail, 6 Amp

SEE PAGE 6038 FOR PRODUCT SPECIFICATIONS

SPDT

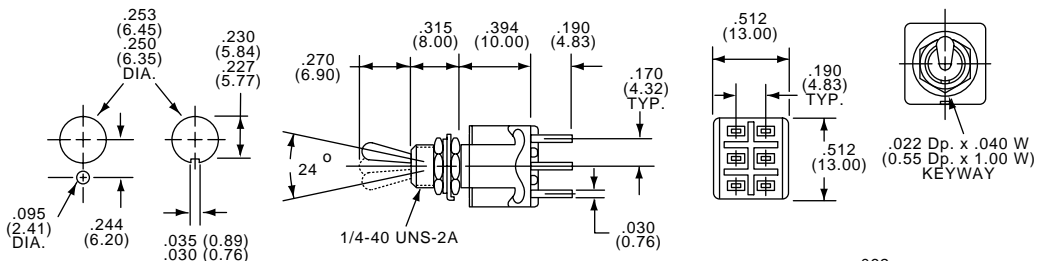


MTM106DPC

Model	Type	Act. Code	P. K8	Switch Symbol
MTM106DPC	SPDT	1		On None On
MTM106EPC	SPDT	5		On Off On
MTM106FPC	SPDT	1		On None(On)

(On) indicates momentary position.

DPDT/SP3T

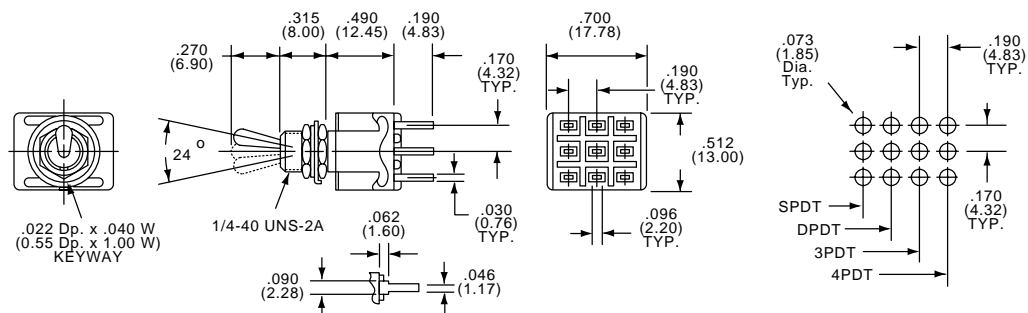


MTM206NPC

Model	Type	Act. Code	P. K8	Switch Symbol
MTM206NPC	DPDT	2		On None On
MTM206SPC	DPDT	6		(On) Off (On)
*MTM206PAPC	SP3T	11		On On On

(On) indicates momentary position.
 *Note: PA types have case .100/(2.50) longer than other types.

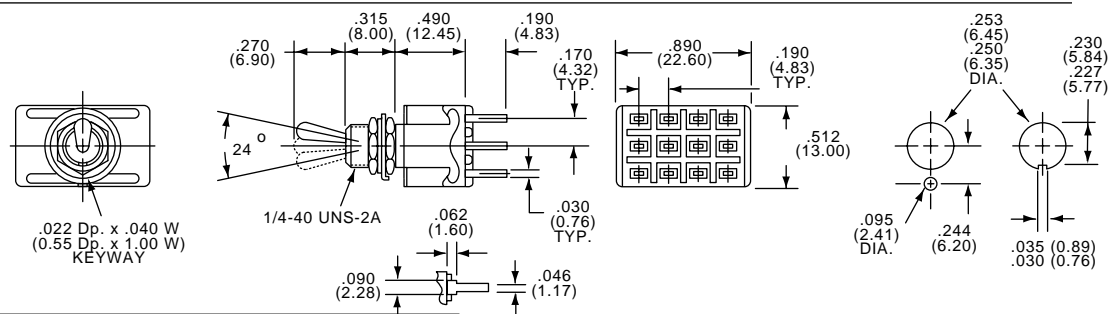
3PDT



MTM306DPC

Model	Type	Act. Code	P. K8	Switch Symbol
MTM306DPC	3PDT	3		On None On

4PDT



MTM406NPC

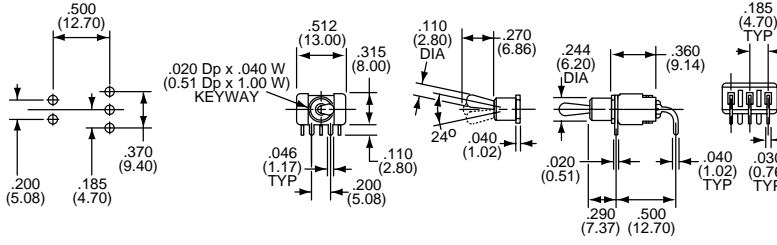
Model	Type	Act. Code	P. K8	Switch Symbol
MTM406NPC	4PDT	4		On None On

6
Switches



Toggle Switches, Right Angle, Threaded or Unthreaded Bushing, 6 Amp

SPDT
Short Toggle

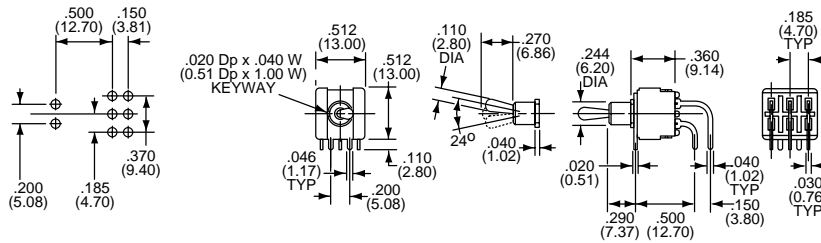


Horizontal Actuation

Model	Type	Act. Code	P. K8	Toggle	Bushing
MTM8106DRA	SPDT	1	On None On	.270	.250
MTM8106ERA	SPDT	5	On Off On	.270	.250
MTM8106FRA	SPDT	1	(On)None On	.270	.250

(On) indicates momentary position.

DPDT
Short Toggle

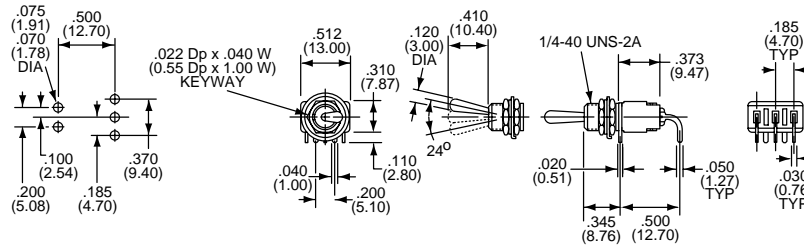


Horizontal Actuation

Model	Type	Act. Code	P. K8	Toggle	Bushing
MTM8206NRA	DPDT	2	On None On	.270	.250
MTM8206PRA	DPDT	6	On Off On	.270	.250
MTM8206RRA	DPDT	2	(On) None On	.270	.250

(On) indicates momentary position.

SPDT
Standard Toggle

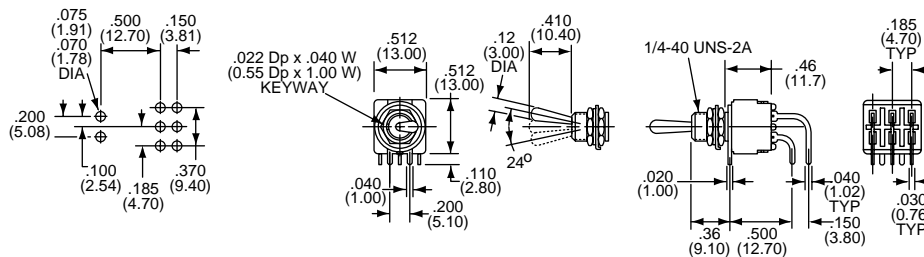


Horizontal Actuation

Model	Type	Act. Code	P. K8	Toggle	Bushing
MTA8106DRA	SPDT	1	On None On	.410	1/4-40
MTA8106ERA	SPDT	5	On Off On	.410	1/4-40
MTA8106FRA	SPDT	1	(On) None On	.410	1/4-40

(On) indicates momentary position.

DPDT
Standard Toggle



Horizontal Actuation

For complete product information, order Catalog 1308390

Model	Type	Act. Code	P. K8	Toggle	Bushing
MTA8206NRA	DPDT	2	On None On	.410	1/4-40
MTA8206PRA	DPDT	6	On Off On	.410	1/4-40
MTA8206RRA	DPDT	2	(On) None On	.410	1/4-40

(On) indicates momentary position.

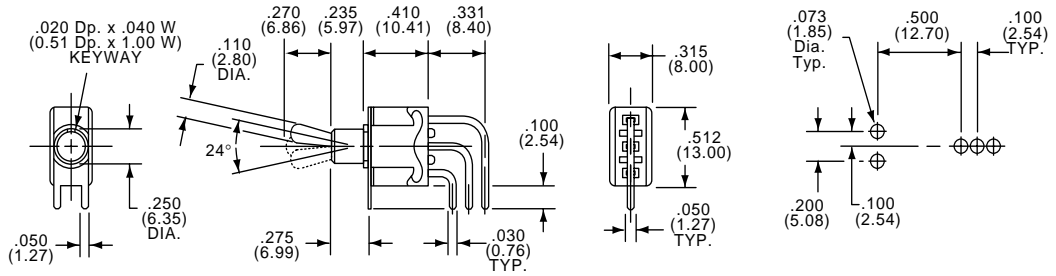


Toggle Switches, Vertical Right Angle, Threaded or Unthreaded Bushing, 6 Amp

SPDT



MTM8106DVRA
Vertical Actuation

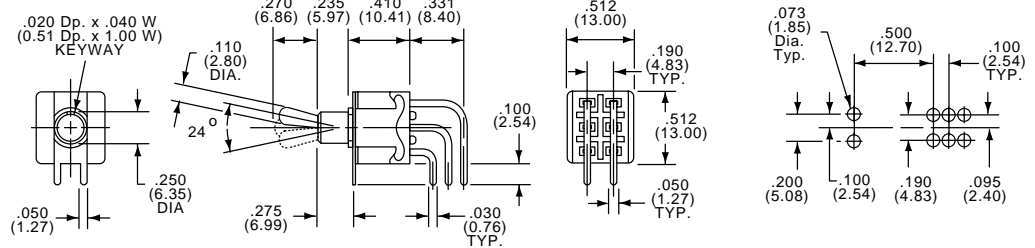


Model	Type	Act. Code	P. K8	Short Toggle	Bushing
MTM8106DVRA	SPDT	1	On None On	.270	.250
MTM8106EVRA	SPDT	5	On Off On	.270	.250

DPDT



MTM8206NVRA
Vertical Actuation



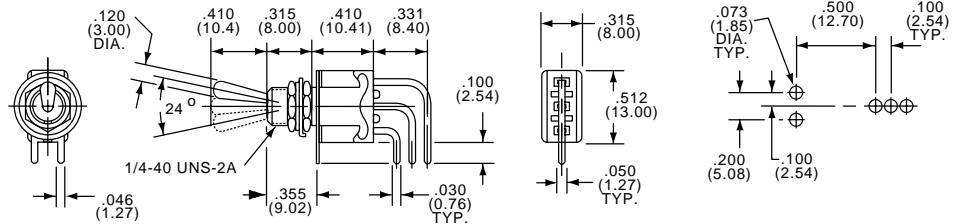
Model	Type	Act. Code	P. K8	Short Toggle	Bushing
MTM8206NVRA	DPDT	1	On None On	.270	.250
MTM8206PVRA	DPDT	5	On Off On	.270	.250
MTM8206RVRA	DPDT	1	On None (On)	.270	.250

(On) indicates momentary position.

SPDT



MTA8106DVRA
Vertical Actuation



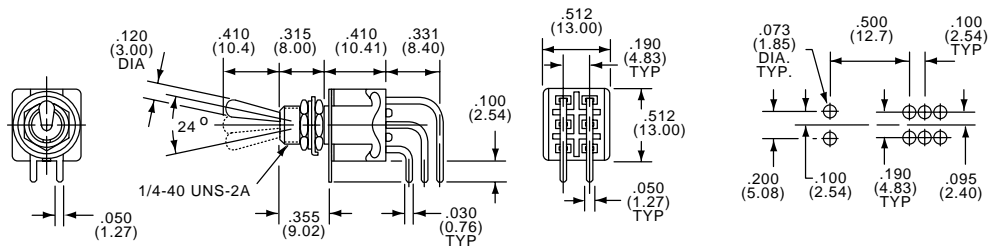
Model	Type	Act. Code	P. K8	Long Toggle	Bushing
MTA8106DVRA	SPDT	1	On None On	.410	1/4-40
MTA8106EVRA	SPDT	5	On Off On	.410	1/4-40
MTA8106FVRA	SPDT	1	On None (On)	.410	1/4-40

(On) indicates momentary position.

DPDT



MTA8206NVRA
Vertical Actuation



Model	Type	Act. Code	P. K8	Long Toggle	Bushing
MTA8206NVRA	DPDT	1	On None On	.410	1/4-40
MTA8206PVRA	DPST	5	On Off On	.410	1/4-40

For complete product information, order Catalog 1308390

Tact Switches, 6 x 6mm, Through Hole

MATERIAL SPECIFICATIONS:

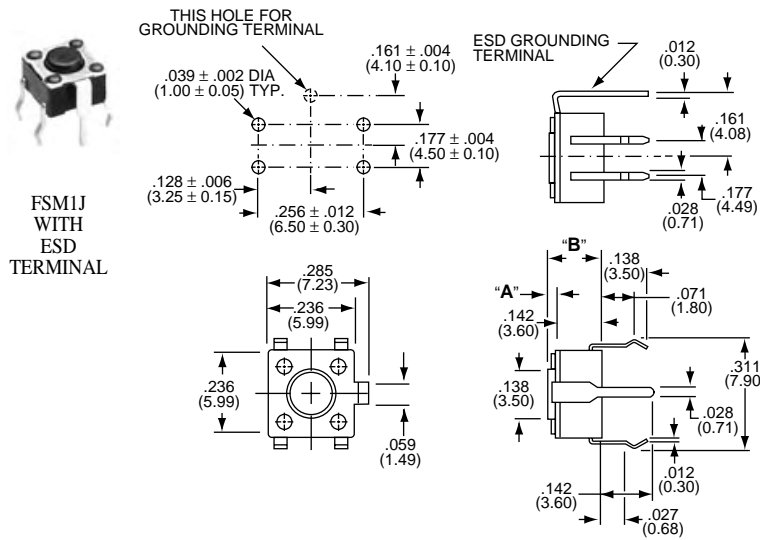
ContactsCopper alloy, silver plate
 Case.....Polyamide
 Actuator ButtonPolyacetal Resin
 FrameSteel, tin plate
 TerminalsCopper alloy, silver plate

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating50 mA @ 12 VDC
 Initial Contact Resistance100 Milliohms max.
 Insulation Resistance100 Megohms min. @ 100 VDC
 Dielectric Strength250 VAC
 Actuation Force160 Grams AVG (STD.)
 Actuator Travel......012" (0,3)
 Electrostatic Discharge
 w/ESD Ground Terminal5Kv w/no discharge
 Life Expectancy100,000 Cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
 Storage Temperature.....-22°F to +176°F (-30°C to +80°C)

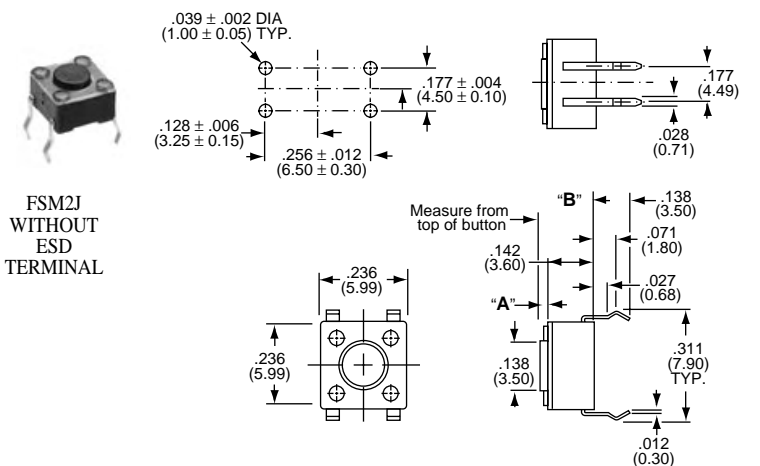


FSM1J WITH ESD TERMINAL

6 x 6 mm

Type		
SPST	Off	(On)
	(On) indicates momentary position.	

Part Number	Dim. A	Dim B	Button Color
FSM1J	.028" (0,70)	.169" (4,30)	Black
FSM3J	.055" (1,40)	.196" (5,00)	Black
FSM5J	.134" (3,40)	.276" (7,00)	Blue
FSM7J	.232" (5,90)	.374" (9,50)	Black
FSM9J	.146" (3,70)	.287" (7,30)	Ivory
FSM11J	.173" (4,40)	.315" (8,00)	White
FSM13J	.370" (9,40)	.512" (13,00)	Black
FSM15J	.527" (13,40)	.669" (17,00)	Black
FSM17J	.193" (4,90)	.335" (8,51)	Black



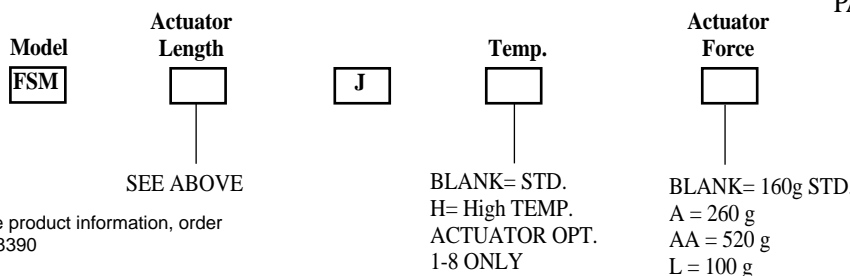
FSM2J WITHOUT ESD TERMINAL

6 x 6 mm

Type		
SPST	Off	(On)
	(On) indicates momentary position.	

Part Number	Dim. A	Dim B	Button Color
FSM2J	.028" (0,70)	.169" (4,30)	Black
FSM4J	.055" (1,40)	.196" (5,00)	Black
FSM6J	.134" (3,40)	.276" (7,00)	Blue
FSM8J	.232" (5,90)	.374" (9,50)	Black
FSM10J	.146" (3,70)	.287" (7,30)	Ivory
FSM12J	.173" (4,40)	.315" (8,00)	White
FSM14J	.370" (9,40)	.512" (13,00)	Black
FSM16J	.527" (13,40)	.669" (17,00)	Black
FSM18J	.193" (4,90)	.335" (8,51)	Black

PART NUMBERING SEQUENCE



For complete product information, order Catalog 1308390

Tact Switches, 12 x 12mm, Flush or Extended Actuators

MATERIAL SPECIFICATIONS:

ContactsCopper alloy, silver plate
 Case.....Polyester
 Actuator ButtonPolyacetal Resin
 FramePolyamide
 TerminalsCopper alloy

TYPICAL PERFORMANCE CHARACTERISTICS:

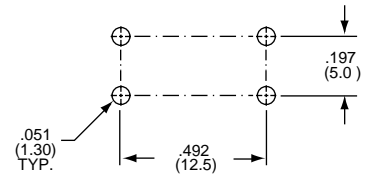
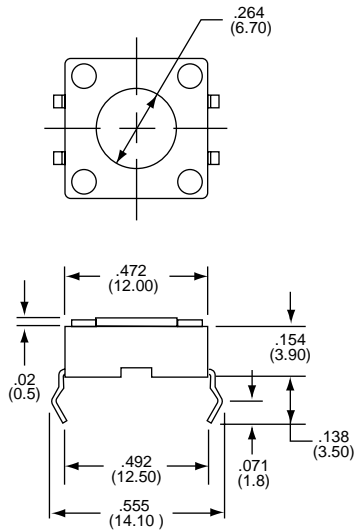
Contact Rating50 mA @ 12 VDC
 Initial Contact Resistance100 Milliohms max.
 Insulation Resistance100 Megohms min. @100 VDC
 Dielectric Strength250 VAC
 Actuation Force160 Grams AVG.
 Actuator Travel......012"(0.3)
 Life Expectancy100,000 cycles

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....4°F to +158°F (-20°C to +70°C)
 Storage Temperature.....-22°F to +176°F (-30°C to +80°C)



FSM100

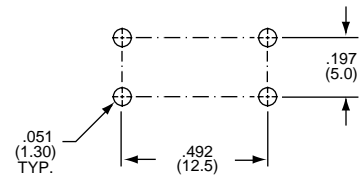
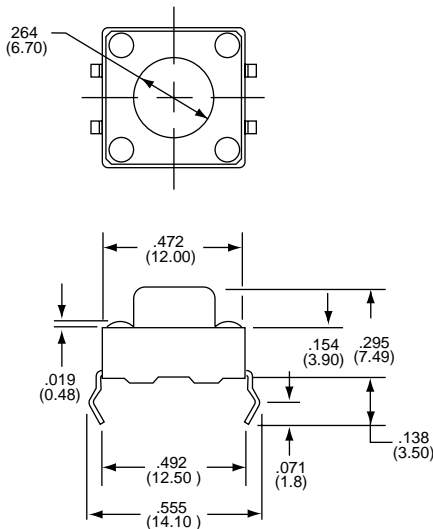


Model	Type		
FSM100	SPST	Off	(On)

(On) indicates momentary position.



FSM101



Model	Type		
FSM101	SPST	Off	(On)

(On) indicates momentary position.

For complete product information, order Catalog 1308390



Pushbutton Switches, Tiny, Vertical or Right Angle

* Refer to Page 6056 for Additional Options *

MATERIAL SPECIFICATIONS:

ContactsGold - gold plate, silver - silver plate
 Case MaterialHigh temperature polyester
 Actuator MaterialPolyamide
 Terminals/Fixed Contacts.....Tin lead plate
 Terminal SealSP epoxy, DP epoxy optional

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingGold: 4 VA max @ 20 VDC or peak AC
 Silver: 1 Amp @ 125 VAC or 28 DC resistive
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms @ 500VDC min.
 Dielectric Strength1,000 Volts @ sea level
 Actuation Force50 to 400 Grams
 Plunger/Actuator Travel030" (.762)
 Life ExpectancySee page 6056

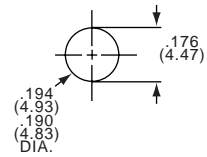
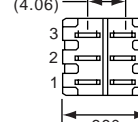
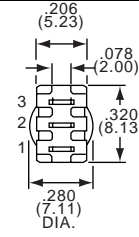
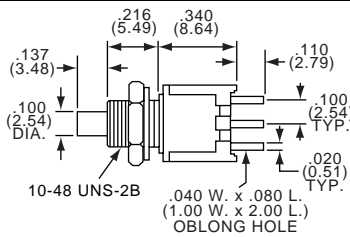
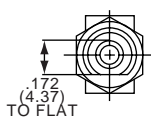
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-22°F to +149°F (-30°C to +65°C)
 Storage Temperature.....-22°F to +149°F (-30°C to +65°C)

1 & 2 POLE



TPC23M



TPC13C

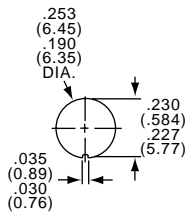
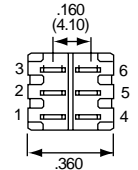
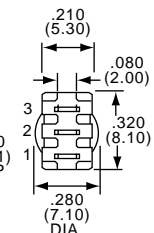
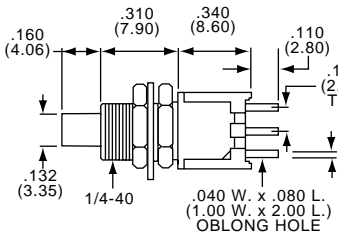
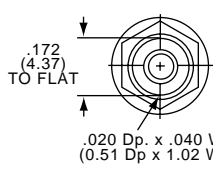
Model	Type	Act. Code P. K9	Action	Contact Type
TPC13C(*)	SPST	C	N.O. Momentary	Silver
TPC13F(*)	SPDT	F	Momentary	Silver
TPC23M(*)	DPST	M	N.O. Momentary	Silver
TPC23R(*)	DPDT	R	Momentary	Silver

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
 Note: No center terminal on "C" or "M" action switches.

1 & 2 POLE



TPF23M



TPF13C

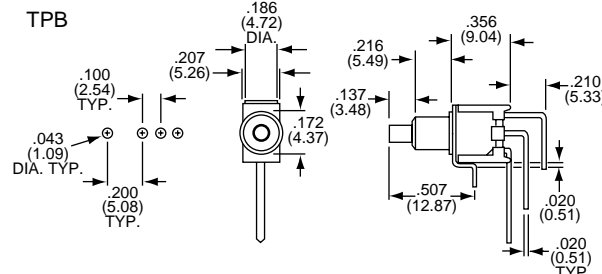
Model	Type	Act. Code P. K9	Action	Contact Type
TPF13C(*)	SPST	C	N.O. Momentary	Silver
TPF13F(*)	SPDT	F	Momentary	Silver
TPF23M(*)	DPST	M	N.O. Momentary	Silver
TPF23R(*)	DPDT	R	Momentary	Silver

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
 Note: No center terminal on "C" or "M" action switches.

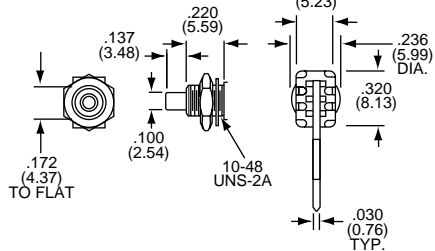
TPB



TPB11FGVRA



TPC



Model	Type	Act. Code P. K9	Action	Contact Type
TPB11CGVRA(*)	SPST	C	N.O. Momentary	Gold
TPB11FGVRA(*)	SPDT	F	Momentary	Gold
TPC11CGVRA(*)	SPST	C	N.O. Momentary	Gold
TPC11FGVRA(*)	SPDT	F	Momentary	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
 Note: No center terminal on "C" action switches.

For complete product information, order Catalog 1308390



Pushbutton Switches, Tiny, Single or Dual Actuators, Straight or Right Angle

MATERIAL SPECIFICATIONS:

ContactsGold over nickel barrier
 Case MaterialHigh temperature polyester
 Actuator MaterialPolyamide
 Terminals/Fixed Contacts.....Tin lead plate
 Terminal SealSP epoxy, DP epoxy optional

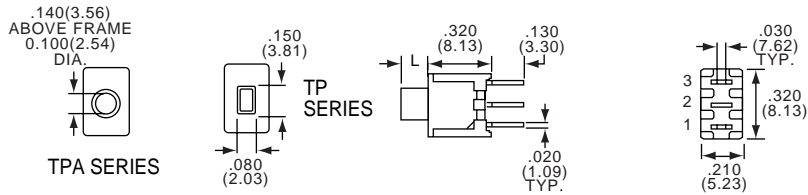
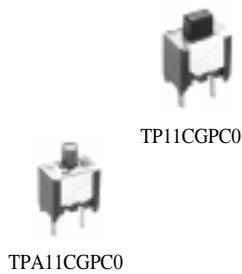
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC or peak AC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak before make
 Insulation Resistance1,000 Megohms @ 500 VDC min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Actuation Force50 to 400 Grams
 Plunger/Actuator Travel030" (.762)
 Life ExpectancySee page 6056

ENVIRONMENTAL SPECIFICATIONS:

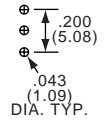
Operating Temperature.....-22°F to +149°F (-30°C to +65°C)
 Storage Temperature.....-22°F to +149°F (-30°C to +65°C)

SPST/SPDT

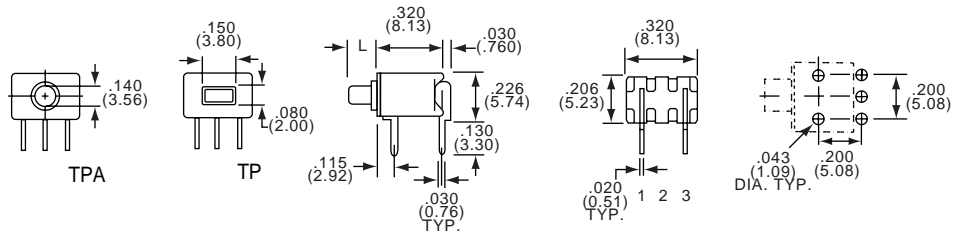


Model	Actuator Type	Dim.L	Type	Act. Code	P. K9	Action	Contact Type
TP11CGPC(*)	SQ.	.125	SPST	C		N.O. Momentary	Gold
TP11FGPC(*)	SQ.	.125	SPDT	F		Momentary	Gold
TPA11CGPC(*)	RND.	.150	SPST	C		N.O. Momentary	Gold
TPA11FGPC(*)	RND.	.150	SPDT	F		Momentary	Gold

Note: No center terminal on "C" action switch.
 (*) Specify button color by adding suffix number: (0) Black, (2) Red.



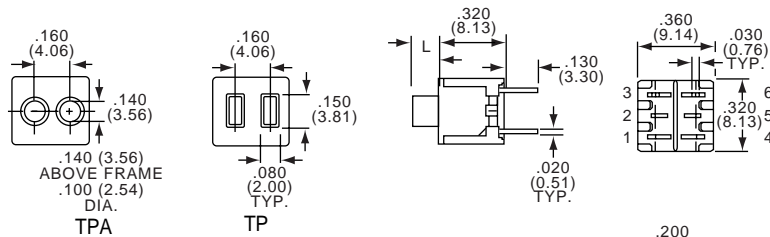
SPST/SPDT



Model	Actuator Type	Dim.L	Type	Act. Code	P. K9	Action	Contact Type
TP11CGRA(*)	SQ.	.125	SPST	C		N.O. Momentary	Gold
TP11FGRA(*)	SQ.	.125	SPDT	F		Momentary	Gold
TPA11CGRA(*)	RND.	.150	SPST	C		N.O. Momentary	Gold
TPA11FGRA(*)	RND.	.150	SPDT	F		Momentary	Gold

Note: No center terminal on "C" action switch.
 (*) Specify button color by adding suffix number: (0) Black, (2) Red.

SPST/SPDT (DUAL)



Model	Actuator Type	Dim.L	Type	Act. Code	P. K9	Action	Contact Type
TP21CCGPC(*)	SQ.	.125	2xSPST	C		N.O. Momentary	Gold
TPA21CCGPC(*)	RND.	.150	2xSPST	C		N.O. Momentary	Gold
TPA21FFGPC(*)	RND.	.150	2xSPDT	F		Momentary	Gold

Note: No center terminal on "C" action switch.
 (*) Specify button color by adding suffix number: (0) Black, (2) Red.

For complete product information, order Catalog 1308390

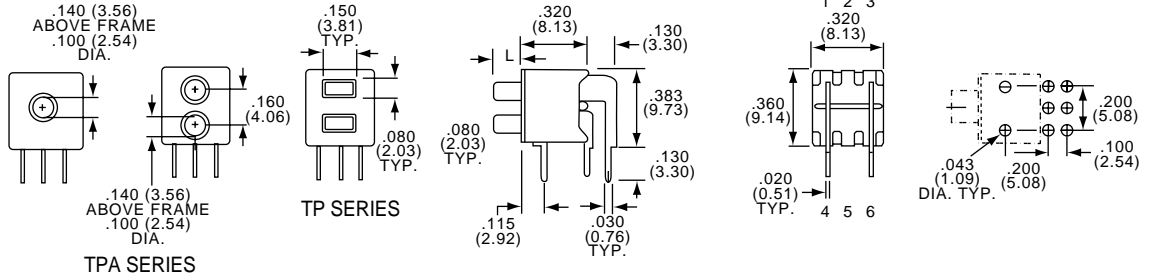


Pushbutton Switches, Tiny, Single or Dual Actuators, Right Angle

TP/TPA Series



TP21CCGRA0



SEE PAGE 6051 FOR PRODUCT SPECIFICATIONS

SPST/SPDT (DUAL)
DPST

Model	Actuator Type	Dim.L	Type	Act. Code P. K9	Action	Contact Type
TP21CCGRA(*)	SQ.	.125	2xSPST	C	N.O. Momentary	Gold
TP21FFGRA(*)	SQ.	.125	2xSPDT	F	Momentary	Gold
TPA21MGRA(*)	RND.	.150	DPST	M	N.O. Momentary	Gold
TPA21CCGRA(*)	RND.	.150	2xSPST	C	N.O. Momentary	Gold
TPA21FFGRA(*)	RND.	.150	2xSPDT	F	Momentary	Gold

Note: No center terminal on "C" or "M" action switch.
 (*) Specify button color by adding suffix number: (0) Black, (2) Red.

TPB/TPC Series

Pushbutton Switches, Tiny, Unthreaded or 10-48 Bushing, Straight

MATERIAL SPECIFICATIONS:

ContactsGold over nickel barrier
 Case MaterialHigh temperature polyester
 Actuator MaterialPolyamide
 Terminals/Fixed Contacts.....Tin lead plate
 Terminal SealSP epoxy, DP epoxy optional

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC or peak AC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms @ 500VDC min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Actuation Force26 Kg.
 Plunger/Actuator Travel030" (.762)
 Life ExpectancySee page 6056

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-22°F to +149°F (-30°C to +65°C)
 Storage Temperature.....-22°F to +149°F (-30°C to +65°C)

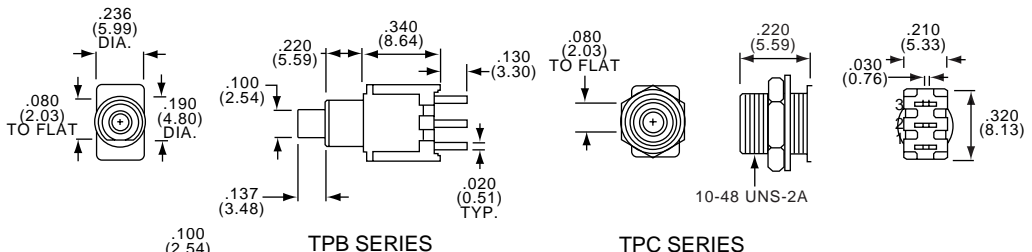
SPST/SPDT



TPB11CGPC



TPC11FGPC



Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPB11CGPC(*)	SPST	C	N.O. Momentary	.188	Gold
TPB11FGPC(*)	SPDT	F	Momentary	.188	Gold
TPC11CGPC(*)	SPST	C	N.O. Momentary	10-48	Gold
TPC11FGPC(*)	SPDT	F	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
 Note: No center terminal on "C" action switch.

For complete product information, order Catalog 1308390



Pushbutton Switches, Tiny, Unthreaded or 10-48 Bushing, Straight or Right Angle

* Refer to Page 6056 for Additional Options *

SEE PAGE 6052 FOR PRODUCT SPECIFICATIONS

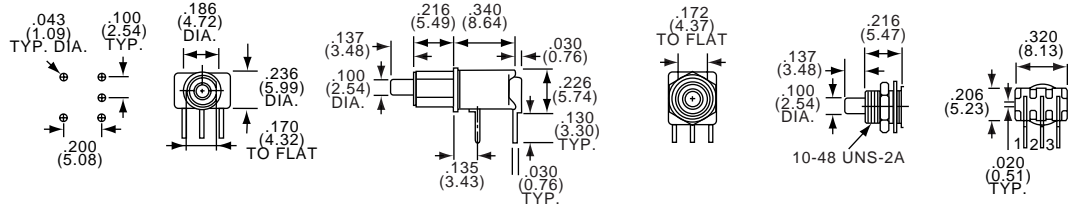
DPST/DPDT



TPB11CGRA



TPC11CGRA



TPB SERIES

TPC SERIES

Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPB11CGRA(*)	SPST	C	N.O. Momentary	.188	Gold
TPB11FGRA(*)	SPDT	F	Momentary	.188	Gold
TPC11CGRA(*)	SPST	C	N.O. Momentary	10-48	Gold
TPC11FGRA(*)	SPDT	F	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "C" action switch.

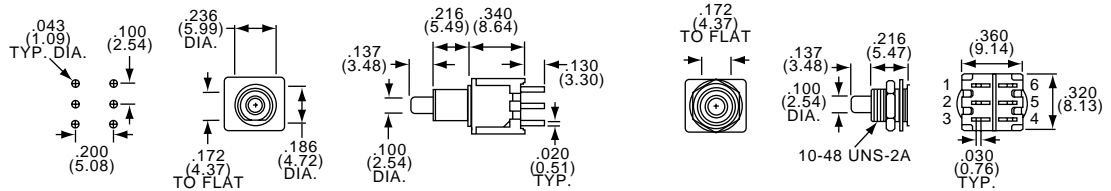
DPST/DPDT



TPB21MGPC



TPC21RGPC



TPB SERIES

TPC SERIES

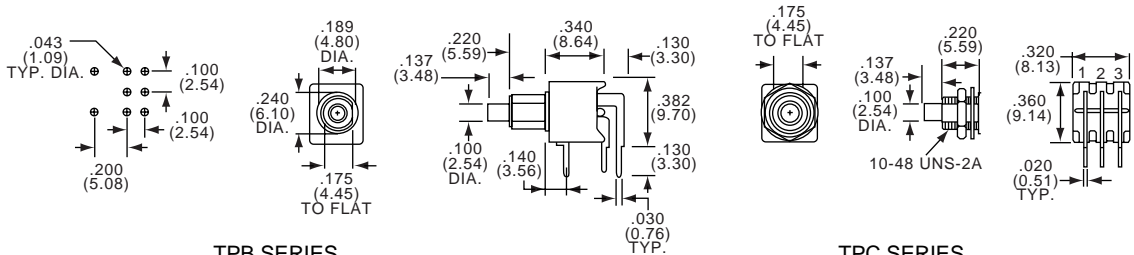
Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPB21MGPC(*)	DPST	M	N.O. Momentary	.188	Gold
TPB21RGPC(*)	DPDT	R	Momentary	.188	Gold
TPC21MGPC(*)	DPST	M	N.O. Momentary	10-48	Gold
TPC21RGPC(*)	DPDT	R	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.

DPST/DPDT



TPC21MGRA



TPB SERIES

TPC SERIES

Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPB21MGRA(*)	DPST	M	N.O. Momentary	.188	Gold
TPB21RGRA(*)	DPDT	R	Momentary	.188	Gold
TPC21MGRA(*)	DPST	M	N.O. Momentary	10-48	Gold
TPC21RGRA(*)	DPDT	R	Momentary	10-48	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red.
Note: No center terminal on "M" action switch.

For complete product information, order Catalog 1308390



Pushbutton Switches, Tiny, Unthreaded or 1/4-40 Bushing, Vertical

* Refer to Page 6056 for Additional Options *

MATERIAL SPECIFICATIONS:

- ContactsGold over nickel barrier
- Case MaterialHigh temperature polyester
- Actuator MaterialPolyamide
- Terminals/Fixed Contacts.....Tin lead plate
- Terminal SealSP epoxy, DP epoxy optional

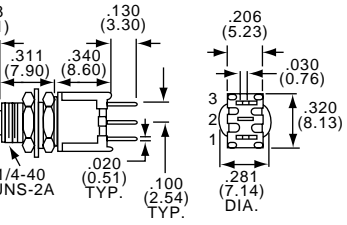
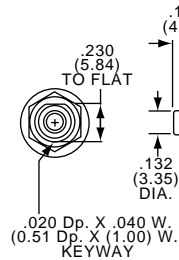
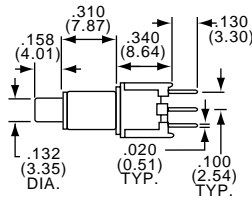
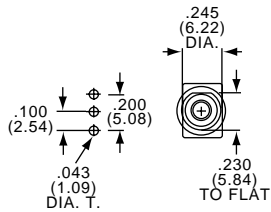
ENVIRONMENTAL SPECIFICATIONS:

- Operating Temperature.....-22°F to +149°F (-30°C to +65°C)
- Storage Temperature.....-22°F to +149°F (-30°C to +65°C)

TYPICAL PERFORMANCE CHARACTERISTICS:

- Contact Rating0.4 VA Max. @ 20 VDC or peak AC
- Initial Contact Resistance20 Milliohms max.
- Contact TimingBreak-before-make
- Insulation Resistance1,000 Megohms @ 500 VDC min.
- Dielectric Strength1,000 Volts RMS @ sea level
- Actuation Force50 to 400 Grams
- Plunger/Actuator Travel030" (.762)
- Life ExpectancySee page 6056

SPST/SPDT



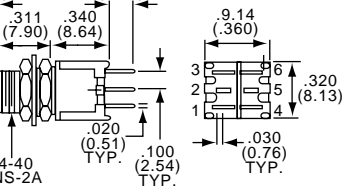
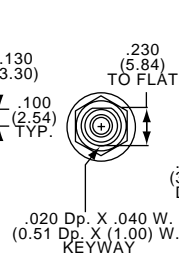
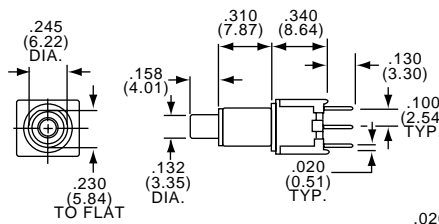
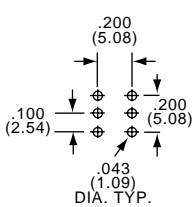
TPD SERIES

TPF SERIES

Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPD11CGPC(*)	SPST	C	N.O. Momentary	.250	Gold
TPD11FGPC(*)	SPDT	F	Momentary	.250	Gold
TPF11CGPC(*)	SPST	C	N.O. Momentary	1/4-40	Gold
TPF11FGPC(*)	SPDT	F	Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red, (6) Blue.
NOTE: No center terminal on "C" action switch.

DPST/DPDT



TPD SERIES

TPF SERIES

Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPD21MGPC(*)	DPST	M	N.O. Momentary	.250	Gold
TPD21RGPC(*)	DPDT	R	Momentary	.250	Gold
TPF21MGPC(*)	DPST	M	N.O. Momentary	1/4-40	Gold
TPF21RGPC(*)	DPDT	R	Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red, (6) Blue.

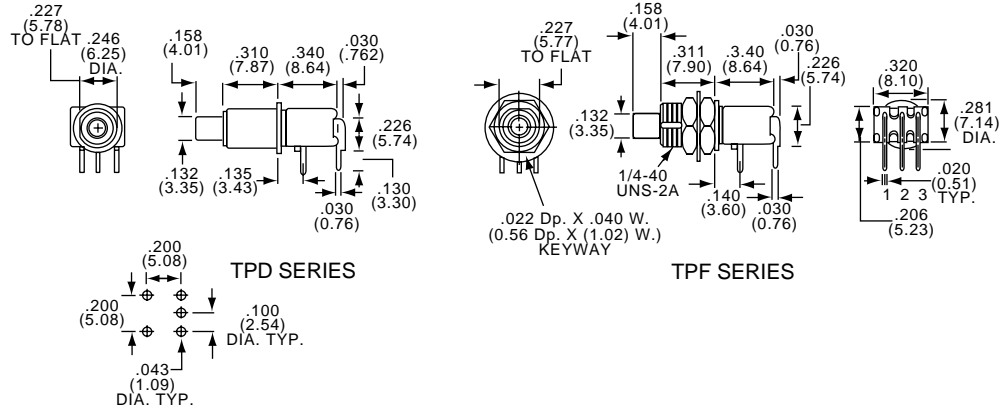
Note: No center terminals on "M" Action switches.

For complete product information, order Catalog 1308390



SPST/SPDT

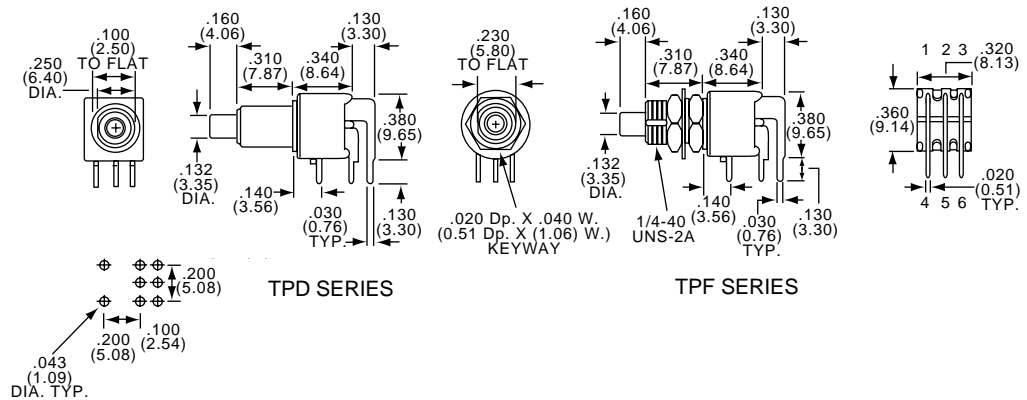
Pushbutton Switches, Tiny, Unthreaded or 1/4-40 Bushing, Right Angle



Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPD11CGRA(*)	SPST	C	N.O. Momentary	.250	Gold
TPD11FGRA(*)	SPDT	F	Momentary	.250	Gold
TPF11CGRA(*)	SPDT	C	N.O. Momentary	1/4-40	Gold
TPF11FGRA(*)	SPDT	F	Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red, (6) Blue.
 Note: No center terminal on "C" action switch.

DPST/DPDT



Model	Type	Act. Code P. K9	Action	Bushing Dia.	Contact Type
TPD21MFRA(*)	DPST	M	N.O. Momentary	.250	Gold
TPD21MGRA(*)	DPST	M	N.O. Momentary	.250	Gold
TPD21RGRA(*)	DPDT	R	Momentary	.250	Gold
TPF21MGRA(*)	DPST	M	N.O. Momentary	1/4-40	Gold
TPF21RGRA(*)	DPDT	R	Momentary	1/4-40	Gold

(*) Specify button color by adding suffix number: (0) Black, (2) Red, (6) Blue.
 Note: No center terminal on "M" Action switches.



Switches

For complete product information, order Catalog 1308390



Pushbutton Switches, Tiny, Part Number Matrix

MATERIAL SPECIFICATIONS:

ContactsGold - gold plate, silver - silver plate
 Case MaterialHigh temperature polyester
 Actuator MaterialPolyamide
 Terminals/Fixed Contacts.....Tin lead plate
 Terminal SealSP epoxy, DP epoxy optional

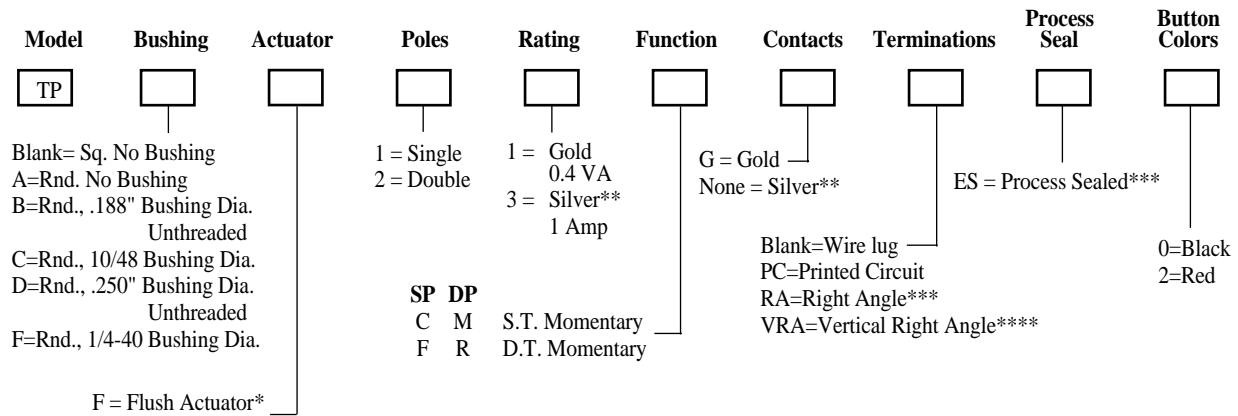
TYPICAL PERFORMANCE CHARACTERISTICS:

Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms @ 500VDC min.
 Dielectric Strength1,000 Volts @ sea level
 Actuation Force50 to 400 Grams
 Plunger/Actuator Travel030" (.762)
 Life ExpectancySee below

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-22°F to +149°F (-30°C to +65°C)
 Storage Temperature.....-22°F to +149°F (-30°C to +65°C)

PART NUMBERING MATRIX



- * Available with "B" and "C" bushing only
- ** Silver - available only in wire lug and PC termination with "B" and "C" bushing and flush actuator
- *** Right angle, ES available with "B" and "C" bushing only
- **** Available only in single pole

Application Note:

For 3 pole and 4 pole, refer to pages and 6058 . . . "MP Series"

Pushbuttons	1 Pole	2 Pole
0.4 (Gold Plate)	100,000	80,000
1A (Silver Plate)	60,000	50,000

PROCESS SEAL VERSION NOT AVAILABLE



TP



TPA

PROCESS SEAL VERSION AVAILABLE



TPB



TPC



TPD



TPF

SERIES (TP)

For complete product information, order Catalog 1308390

Pushbutton Switches, Sub-Miniature, Panel Mount

MPA3 Series

MATERIAL SPECIFICATIONS:

ContactsSilver clad
 Case MaterialThermoset
 Actuator MaterialPolyamide
 TerminalsSilver plate

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating3 A @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Actuation Force10 oz. SPST, 16 oz. SPDT average
 Actuator Travel100" (2.54)
 Life Expectancy10,000 Cycles

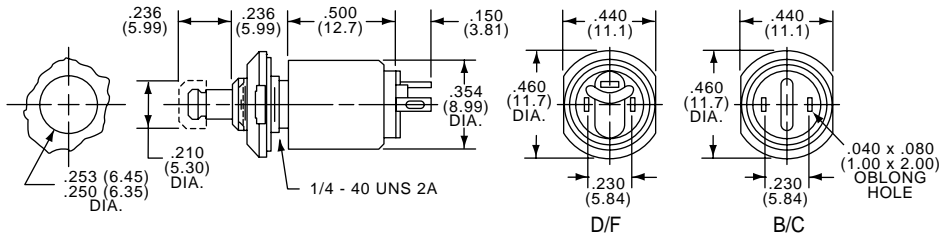
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)
 Storage Temperature.....-40°F to +176°F (-40°C to +80°C)

SPST/SPDT



MPA103C



Model	Type	Act. Code P. K9	Action	Contact Rating
MPA103B	SPST	14	Normally closed, momentary	3 Amps
MPA103C	SPST	13	Normally open, momentary	3 Amps
MPA103D	SPDT	16	Push on/push off- (tactile)	3 Amps
MPA103F	SPDT	15	Momentary - (tactile)	3 Amps

Black Cap supplied. Other colors available, order separately. (See Cap C5 and C8 on Page 6062.)

MPB Series

Pushbutton Switches, Miniature, Over-Travel

MATERIAL SPECIFICATIONS:

ContactsSilver plate
 Case MaterialThermoset
 Actuator MaterialPolyamide
 TerminalsSilver plate

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating3 A @ 125 VAC
 Initial Contact Resistance20 Milliohms max.
 Insulation Resistance1,000 Megohms min.
 Dielectric Strength1,000 Volts RMS @ sea level
 Actuator Travel100" (2.54) Overtravel .059" (1.5mm)
 Life Expectancy20,000 Cycles

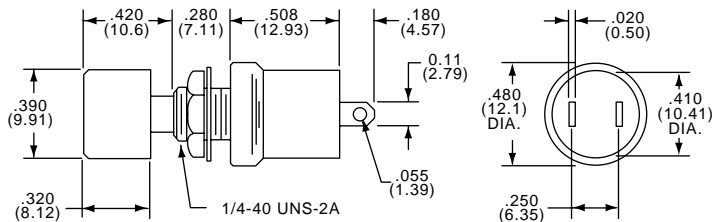
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....+14°F to +140°F (-10°C to +60°C)
 Storage Temperature.....+5°F to +158°F (-15°C to +70°C)

SPST



MPB103B



Model	Type	Act. Code P. K9	Action	Actuator Color
MPB103B	SPST	14	Normally Closed	Black
MPB103C	SPST	13	Normally Open	Red

For complete product information, order Catalog 1308390

Pushbutton Switches, 15/32 Bushing, Mustang, Wire Lug or PC Tails, 6 Amp

MATERIAL SPECIFICATIONS:

ContactsSilver clad copper with gold flash
 Case MaterialThermoset
 TerminalsCopper with gold flash finish
 Terminal SealMolded in

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating6 A @ 125 VAC, 3 A @ 250 VAC
 Initial Contact Resistance10 Milliohms max.
 Contact TimingBreak-before-make
 Insulation Resistance1,000 Megohms min.
 Dielectric Strength1,500 Volts RMS @ sea level
 Actuation Force1.3 to 2.7 lbs.
 Actuator Travel138" (3.51)
 Life Expectancy50,000 Actuations

ENVIRONMENTAL SPECIFICATIONS:

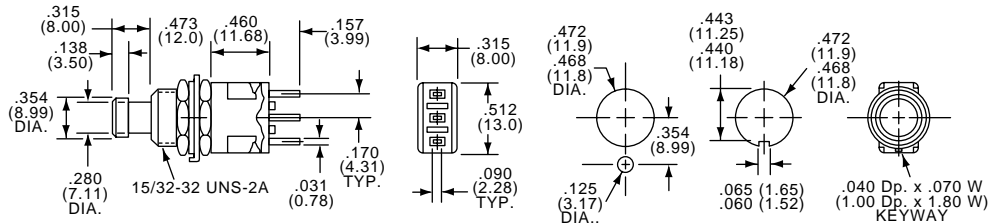
Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
 Storage Temperature.....-40F to +176°F (-40°C to +80°C)

SPDT

Black Cap supplied.



MPG106D



Model	Type	Act. Code P. K9	Action	Terminals
MPG106D	SPDT	23	Push on/Push off	Wire Lug
MPG106F	SPDT	19	Momentary	Wire Lug

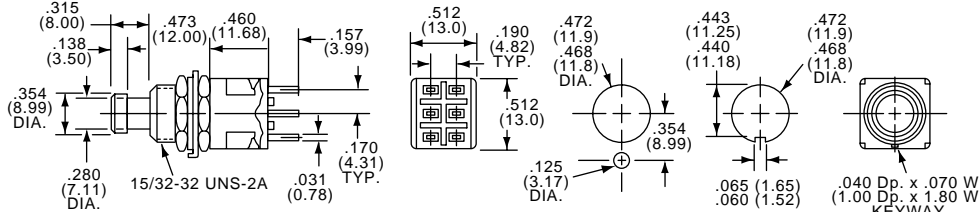
Other Caps Available, order separately (See Cap Model C22 and C23 on page 6062.)

DPDT

Black Cap supplied.



MPG206NPC



Model	Type	Act. Code P. K9	Action	Terminals
MPG206N	DPDT	24	Push on/Push off	Wire Lug
MPG206R	DPDT	20	Momentary	Wire Lug
MPG206NPC	DPDT	24	Push on/Push off	PC
MPG206RPC	DPDT	20	Momentary	PC

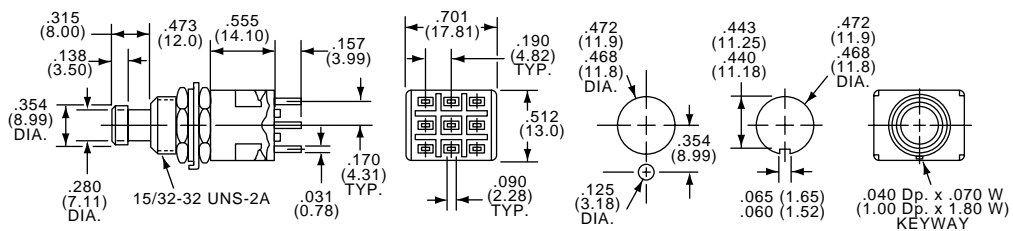
Other Caps Available, order separately (See Cap Model C22 and C23 on page 6062.)

3PDT

Black Cap supplied.



MPG306D



Model	Type	Act. Code P. K9	Action	Terminals
MPG306D	3PDT	25	Push on/Push off	Wire Lug
MPG306F	3PDT	21	Momentary	Wire Lug

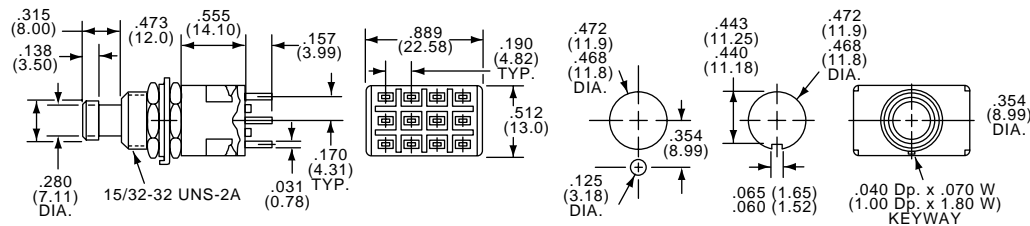
Other Caps Available, order separately (See Cap Model C22 and C23 on page 6062.)

4PDT

Black Cap supplied.



MPG406N



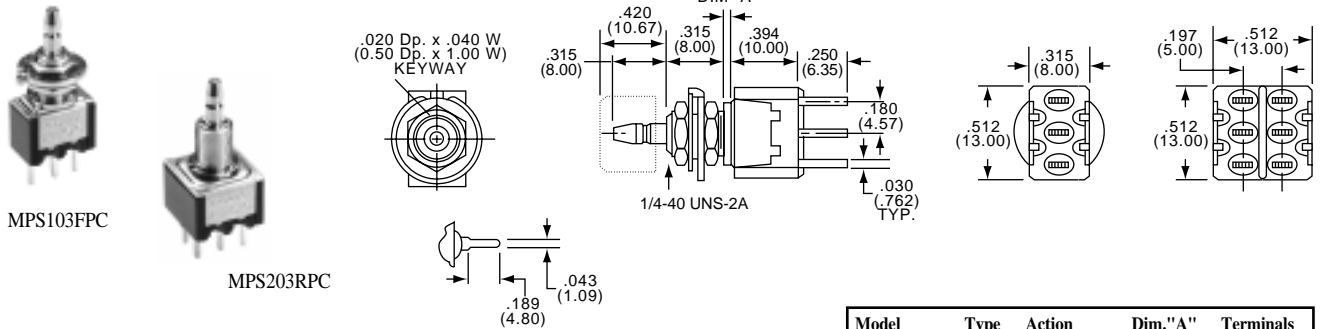
Model	Type	Act. Code P. K9	Action	Terminals
MPG406N	4PDT	26	Push on/Pushoff	Wire Lug
MPG406R	4PDT	22	Momentary	Wire Lug

Other Caps Available, order separately (See Cap Model C22 and C23 on page 6062.)

Pushbutton Switches, Snap Action, PC or Wire Wrap Tails, 3 Amp

SEE PAGE 6059 FOR PRODUCT SPECIFICATIONS

SPDT/DPDT



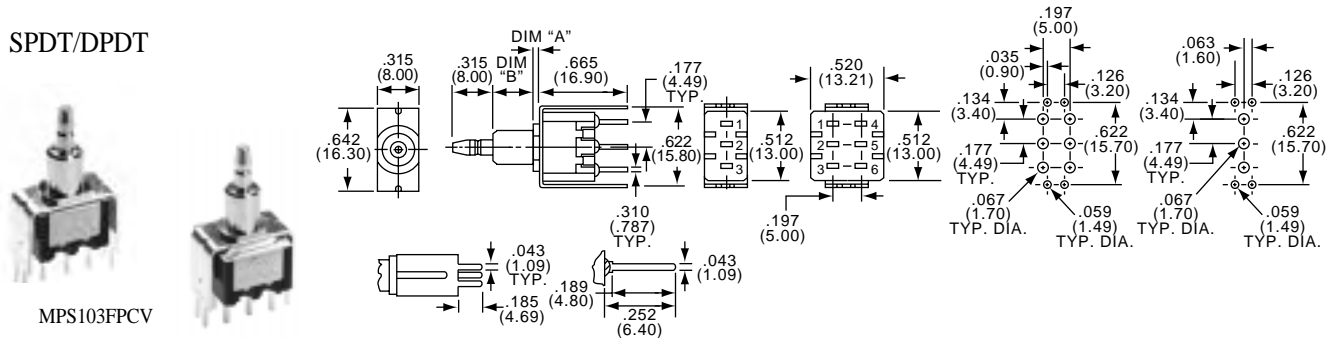
MPS103FPC

MPS203RPC

Model	Type	Action	Dim."A"	Terminals
MPS103DPC	SPDT	Push-on/Off	.100	PC Terminals
MPS103FPC	SPDT	Momentary	.040	PC Terminals
MPS203NPC	DPDT	Push-on/Off	.100	PC Terminals
MPS203RPC	DPDT	Momentary	.040	PC Terminals

Caps not supplied, order separately. (See Cap Model C22 and C23 on Page 6062.)

SPDT/DPDT



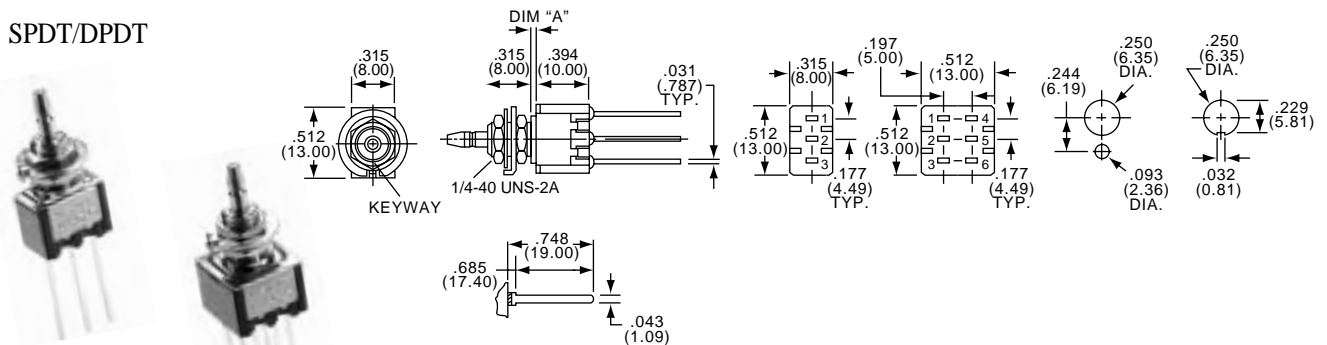
MPS103FPCV

MPS203RPCV

Model	Type	Action	Dim."A"	Dim."B"	Terminals
MPS103DPCV	SPDT	Push-on/Off	.080(2.03)	.315(8.00)	PC w/support
MPS103FPCV	SPDT	Momentary	.040(1.01)	.295(7.49)	PC w/support
MPS203RPCV	DPDT	Momentary	.040(1.01)	.295(7.49)	PC w/support

Caps not supplied, order separately. (See Cap Model C22 and C23 on Page 6062.)

SPDT/DPDT



MPS103FWW

MPS203RWW

Model	Type	Action	Dim."A"	Terminals
MPS103FWW	SPDT	Momentary	.040(1.01)	Extended PC
MPS203NWW	DPDT	Push-on/Off	.100(2.54)	Extended PC
MPS203RWW	DPDT	Momentary	.040(1.01)	Extended PC

Caps not supplied, order separately. (See Cap Model C22 and C23 on Page 6062.)

For complete product information, order Catalog 1308390

Pushbutton Switches, Snap Action, Right Angle, 3 Amp

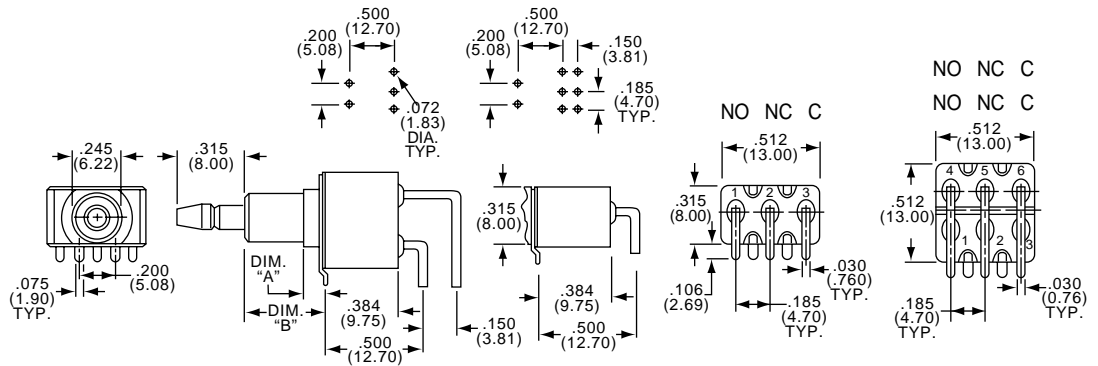
SPDT/DPDT



MPS103DRA



MPS203NRA



SEE PAGE 6028 FOR PRODUCT SPECIFICATIONS

Model	Type	Action	Dim."A"	Dim."B"	Terminals
MPS103DRA	SPDT	Push-on/Off	.100(2.54)	.423(10.7)	Right Angle PC
MPS103FRA	SPDT	Momentary	.060(1.52)	.364(9.24)	Right Angle PC
MPS203NRA	DPDT	Push-on/Off	.100(2.54)	.423(10.7)	Right Angle PC
MPS203RRA	DPDT	Momentary	.060(1.52)	.364(9.24)	Right Angle PC

Caps not supplied, order separately.
(See Cap Model C22 and C23 on Page 6062.)

MSP3/MSPS

Pushbutton Switches, 2.5mm Travel, Panel Mount

MATERIAL SPECIFICATIONS:

ContactsSilver plate over copper alloy
Case MaterialThermoplastic
Actuator MaterialThermoplastic
TerminalsSilver plate

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact RatingMSP103 - 3 Amps @ 125 VAC
(with over travel) .059" (1.5mm)
MSPS103 - 0.5 Amps @ 125 VAC
(Butt contact)
Initial Contact Resistance100 Milliohms
Contact TimingBreak-before-make
Insulation Resistance1,000 Megohms min.
Dielectric Strength1,000 Volts RMS @ sea level
Life Expectancy10,000 Cycles
Travel2.5 mm

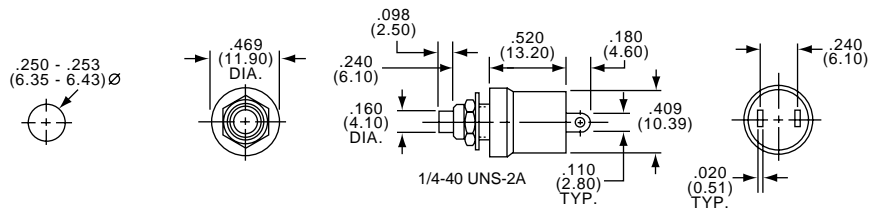
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +176°F (-20°C to +80°C)
Storage Temperature.....+5°F to +153°F (-15°C to +75°C)

SPST



MSP103B

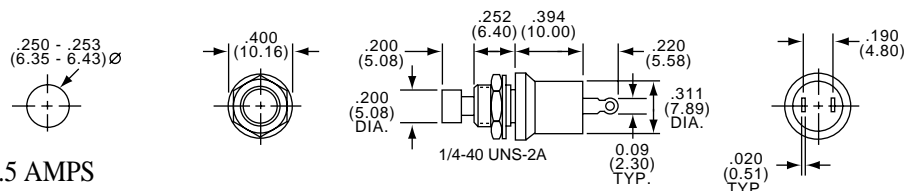


3 AMPS

Model	Type	Act. Code P. K9	Momentary Action	Bushing Length	Actuator Color
MSP103B	SPST	14	Normally Closed	.236	Black
MSP103C	SPST	13	Normally Open	.236	Red
MSP103CO	SPST	13	Normally Open	.236	Black
MSP103C2	SPST	13	Normally Open	.374	Red



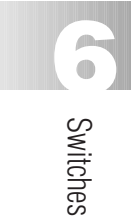
MSPS103B



0.5 AMPS

Model	Type	Act. Code P. K9	Momentary Action	Bushing Length	Actuator Color
MSPS103B	SPST	14	Normally Closed	.245	Black
MSPS103C	SPST	13	Normally Open	.245	Red
MSPS103C0	SPST	13	Normally Open	.245	Black

For complete product information,
order Catalog 1308390



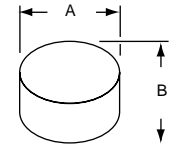
Pushbutton Switches, Accessories

CAPS



Model	ID.	Description	Use Guard	Color	"A" Diameter	B Height
C5(*)	Snapfit	Small plastic cap for MPA3 Series	-	(0), (2), (5), (9)	.195	.120
C8(*)	Snapfit	Large plastic cap for MPA3 Series	-	(0), (2), (5), (9)	.310	.160
C9(*)	Snapfit	Spare color cap for MPG Series	-	(0), (2), (4), (6), (9), (12)	.354	.138
C12(*)	Threaded**	Small plastic cap	G12	(0), (2), (5)	.392	.317
C13(*)	Threaded**	Large plastic cap	G13	(0), (2), (5)	.587	.390
C14(*)	Threaded**	Small metal cap	-	Chrome only	.177	.283
C14L(*)	Threaded**	Large metal cap	-	Chrome only	.313	.315
C22(*)	Snapfit	MPS/MSPM/MPE/MPA6	G12	(0), (2), (3), (4), (5), (6), (9)	.394	.315
C23(*)	Snapfit	MPS/MSPM/MPE/MPA6	G13	(0), (2), (3), (4), (5), (6), (9)	.590	.394
C33(*)	Snapfit	Square button for MPSR	-	(0), (2), (6), (9)	.378SQ.	.201

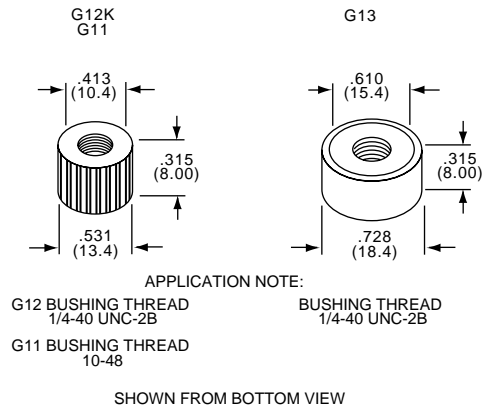
(*) Specify color by adding suffix number: (0) Black, (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White, (12) Pink.



**Threaded 3-56 UNF-2B

Model	Type	Color	Finish	Can be Used with Cap
G11A	10-48	Clear aluminum	Plain	C22 —
G11B	10-48	Black aluminum	Plain	C22 —
G11C	10-48	Chromed Brass	Plain	C22 —
G12A	1/4-40	Clear aluminum	Plain	C12 C22
G12B	1/4-40	Black aluminum	Plain	C12 C22
G12C	1/4-40	Chromed brass	Plain	C12 C22
G12KA	1/4-40	Clear aluminum	Knurled	C12 C22
G12KB	1/4-40	Black aluminum	Knurled	C12 C22
G12KC	1/4-40	Chromed brass	Knurled	C12 C22
G13A	1/4-40	Clear aluminum	Plain	C13 C23
G13B	1/4-40	Black aluminum	Plain	C13 C23
G13C	1/4-40	Chromed brass	Plain	C13 C23
G13KA	1/4-40	Clear aluminum	Knurled	C13 C23
G13KB	1/4-40	Black aluminum	Knurled	C13 C23
G13KC	1/4-40	Chromed brass	Knurled	C13 C23
Model	Type	Color	Finish	
G15*	15/32"	Clear aluminum	Plain	

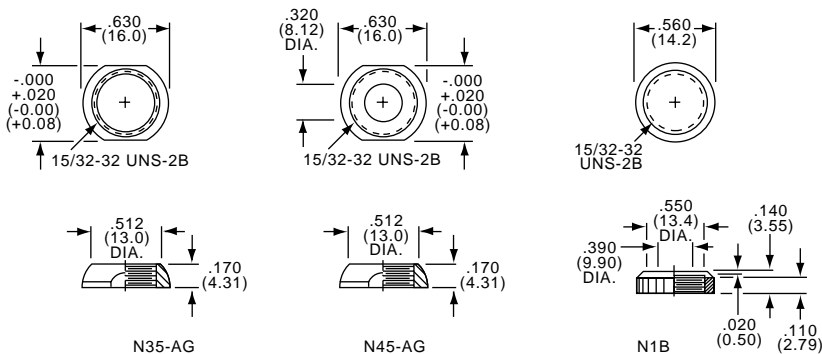
*G15 Model used on the MSPF Series



GUARDS



DECORATIVE HARDWARE



Model	Type	Description
N1B	15/32"	"Perfect Fit" knurled nut
N35-AG	15/32"	Decorative nut (supplied on switch)
N45-AG	15/32"	"Perfect Fit" decorative nut

For complete product information, order Catalog 1308390

Pushbutton Switches, PC Mount, Colored Button, Illuminated or Non-Illuminated

MATERIAL SPECIFICATIONS:

ContactsSilver plated
 Case MaterialPolyester
 Actuator MaterialPolyamide
 TerminalsSilver plated
 Terminal SealEpoxy
 Button Material.....Polycarbonate

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature.....-10°C to + 70°C (+14°F to +158°F)
 Storage Temperature.....-25°C to + 85°C (-13°F to +185°F)
 Solder Heat Resistance270°C 3 seconds, per MIL-STD-202, Method 210

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA Max. @ 20 VDC
 Initial Contact Resistance50 Milliohms max.
 Contact TimingBreak-Before-Make
 Insulation Resistance1,000 Megohms @ 500 VDC
 Dielectric Strength500 VAC
 Actuation Force200 Grams average
 Plunger/Actuator Travel059" (1.50)
 Life Expectancy10,000 Cycles

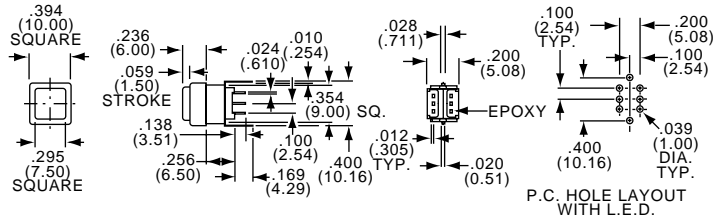
DPDT

Momentary



TP2M2AL2FA8

Momentary			
Non-Illuminated (No LED)	Type	Button Color	
TP1MA2FA8	DPDT	Red	
Illuminated (with LED)	Type	Led/Button	
TP2M2AL2FA8	DPDT	Red	
TP2M4AL4FA8	DPDT	Yellow	
TP2M5AL5FA8	DPDT	Green	



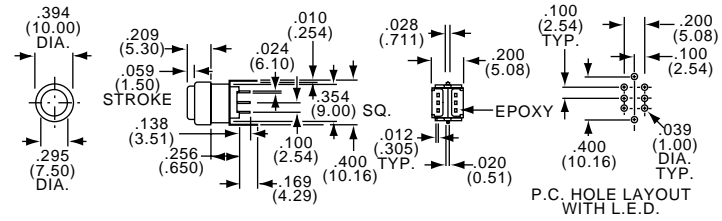
DPDT

Momentary



TP2M2CL2FC8

Momentary			
Non-Illuminated (No LED)	Type	Button Color	
TP1MC2FC8	DPDT	Red	
TP1MC4FC8	DPDT	Yellow	
TP1MC5FC8	DPDT	Green	
Illuminated (with LED)	Type	LED/Button	
TP2M2CL2FC8	DPDT	Red	
TP2M4CL4FC8	DPDT	Yellow	
TP2M5CL5FC8	DPDT	Green	



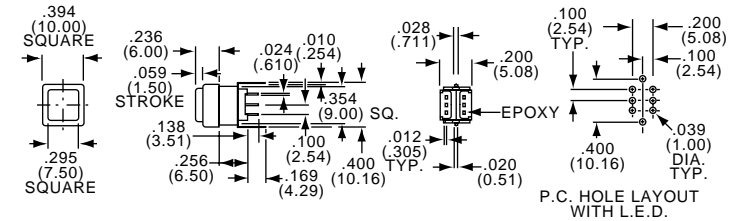
DPDT

Latching



TP2L2AL2FA8

Maintained			
Non-Illuminated (No LED)	Type	Button Color	
TP1LA2FA8	DPDT	Red	
TP1LA4FA8	DPDT	Yellow	
TP1LA5FA8	DPDT	Green	
Illuminated (with LED)	Type	LED/Button	
TP2L2AL2FA8	DPDT	Red	
TP2L4AL4FA8	DPDT	Yellow	
TP2L5AL5FA8	DPDT	Green	



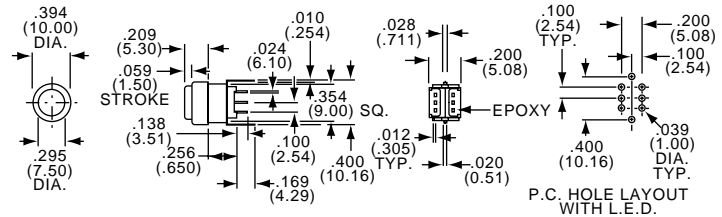
DPDT

Latching



TP2L2CL2FC8

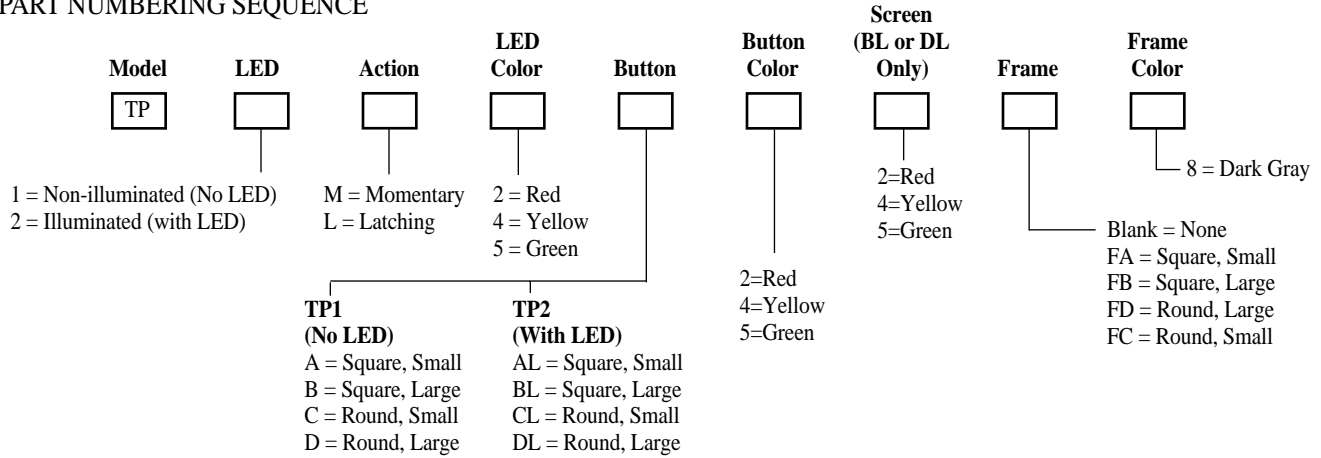
Maintained			
Non-Illuminated (No LED)	Type	Button Color	
TP1LC2FC8	DPDT	Red	
Illuminated (with LED)	Type	LED/Button	
TP2L2CL2FC8	DPDT	Red	
TP2L4CL4FC8	DPDT	Yellow	
TP2L5CL5FC8	DPDT	Green	



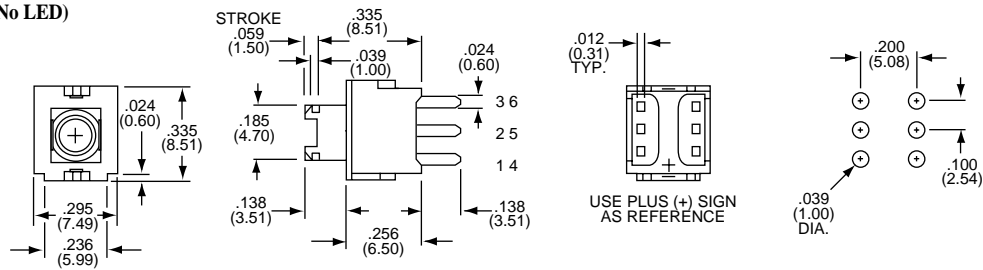
For complete product information, order Catalog 1308390

Pushbutton Switches, Part Number Matrix

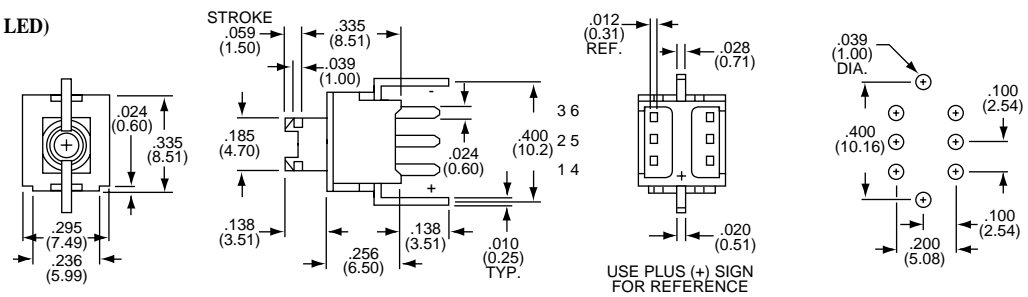
PART NUMBERING SEQUENCE



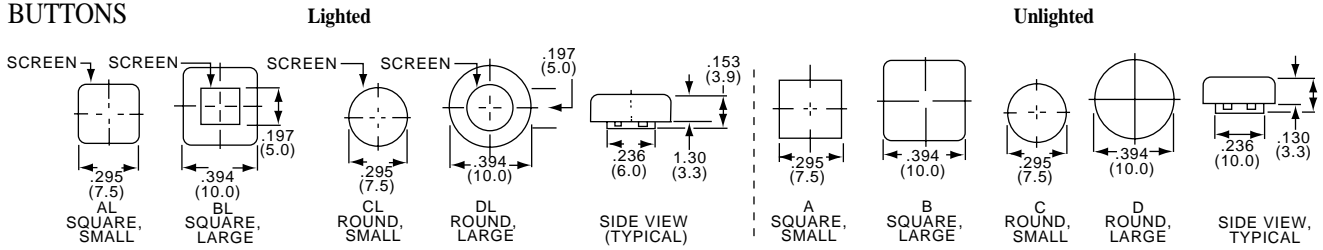
TP1M Non-Illuminated (No LED)
TP1L



TP2M Illuminated (With LED)
TP2L

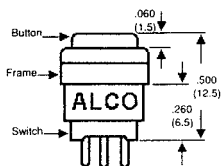


BUTTONS

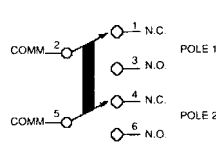


ASSEMBLY NOTES

Mount frame to switch, taking notice that tab orientation is necessary.
Mount button to switch by noting proper orientation of flats on plunger, then snap in place.



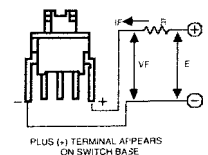
TYPICAL SWITCH CIRCUIT DIAGRAM



LED SPECIFICATIONS

Color	VR	IF	Operating Current	VF Nom.	VF Max.
(2) Red	5VDC	30mA	20mA	2.0V	2.8V
(5) Green	5VDC	20mA	15mA	2.0V	2.8V
(4) Yellow	5VDC	20mA	15mA	1.9V	2.5V

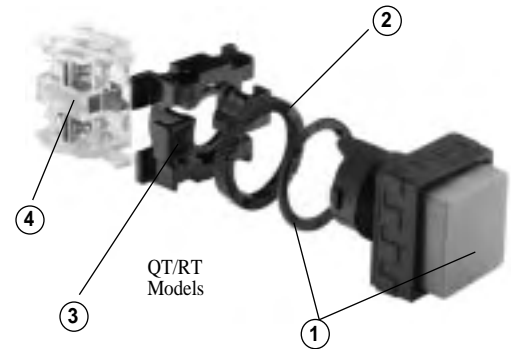
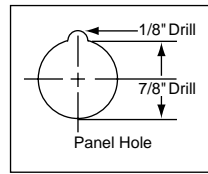
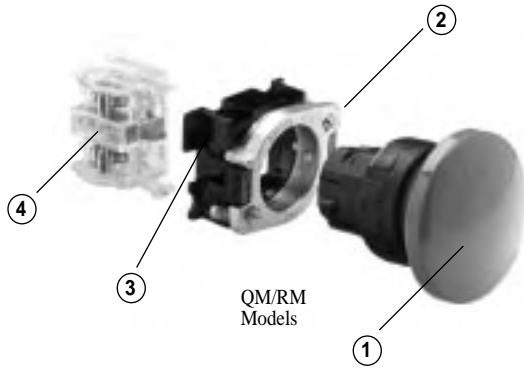
Current applied to LED must be lower than forward current (IF) indicated. Value of the resistor is calculated by the formula:
 $R = \frac{E-VF}{IF}$
Specifications subject to change without notice.



Pushbutton Switches, 22mm, Oil-Tight, Round

FEATURES

- Fits 7/8" (22mm) diameter holes
- Full size buttons
- Meets NEMA 1, 12 and 13
- Rugged heavy-duty metal bushing, or thermoplastic bushings for full installation
- Matte black beveled frame finish
- IP65 protection level
- Snap-block contacts
- 6A @ 600VAC
- Easy "no tool" mounting
- Choice of screw terminals or dual .110/.250 quick connects
- Double-break silver contacts standard, gold plated optional
- Stackable



INSTALLATION & ASSEMBLY

- Engage the operator (1) into the 22.5mm dia. mounting hole.
- Engage metal ring (2) with operator (bayonet lock). Tighten set screws against back of panel.
- Snap the contact blocks (4) on the support(3).
- Snap the support (3) complete with contact blocks (4) on the metal ring (2).

- Engage the operator and seal (1) into the 22.5mm dia. mounting hole.
- Mount back-up nut (2) on bushing and then tighten against panel.
- Snap the contact blocks (4) on the support (3).
- Snap the support (3) complete the contact blocks (4) onto operator (1).

MOMENTARY

Metal Bushings

Contact blocks not supplied, order separately.
(See page 6070.)

Model	Type
RM010(*)	Flush Button
RM020(*)	Extended Button
RM015(*)	Extended Guard

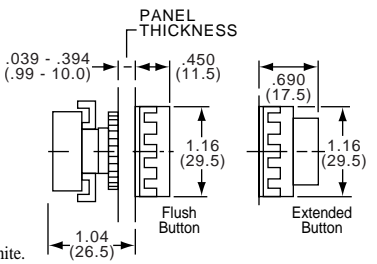
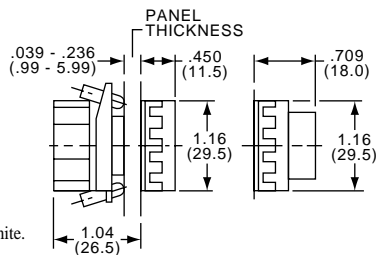
(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.
Note: Front beveled frame is black.

Thermoplastic Bushings (Threaded)

Contact blocks not supplied, order separately.
(See page 6070.)

Model	Type
RT010(*)	Flush Button
RT020(*)	Extended Button

(*) Specify color by adding suffix number:
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.
Note: Front beveled frame is black.

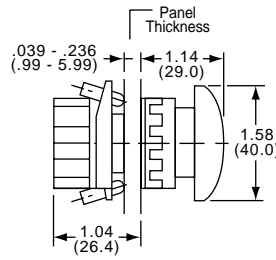


For complete product information, order Catalog 1308390

Pushbutton Switches, 22mm, Oil-Tight, Round or Mushroom or Dual Button



RM0502



MOMENTARY

Mushroom

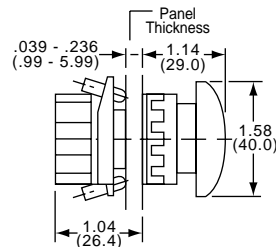
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type	Bushing
RM0502	Mushroom, Red	Metal, Bayonet
RT0502	Mushroom, Red	Thermoplastic, Threaded Bushing
RM0500	Mushroom, Black	Metal, Bayonet
RT0500	Mushroom, Black	Thermoplastic, Threaded Bushing
RM0552	Mushroom, Red	Metal, Bayonet (Wobble)

Note: Front beveled frame is black.



RM0652



PUSH-TO-LOCK, TWIST-RELEASE

Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

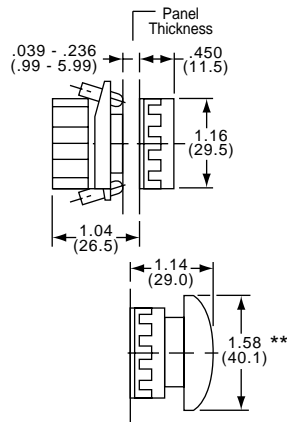
Note: Use F40/V40 for N.C. contacts, and FAO/VAO for N.O. contacts.

Model	Type	Arrow
RM0652	Mushroom, Red	White

Note: Front beveled frame is black.



RM030



MAINTAINED

Contact blocks not supplied, order separately. (See page 6070.)

Note: Use F40/V40 for N.C. contacts and FAO/VAO for N.O. contacts.

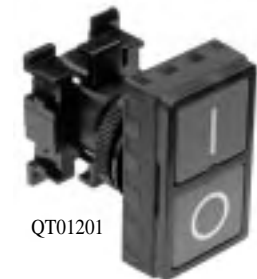
Model	Type
RM030(*)	Flush Button
RM0450	Mushroom, Black
RM0452	Mushroom, Red
RM0532	Push-Pull, Mushroom, Red

(*) Specify color by adding suffix number:

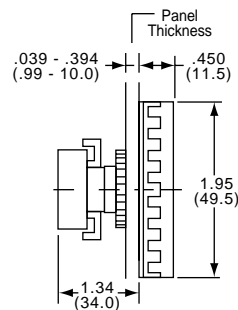
(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.

** Note: RM0532 mushroom 35mm Dia. (1.38)



QT01201



MOMENTARY DUAL OPERATOR*

Threaded Thermoplastic bushing

Contact blocks not supplied, order separately. (See page 6070.)

Black buttons available.

Model	Color	Legend
QT01201	Green, Red	As Shown
QT012STSTH	Green, Red	Start & Stop Horizontal

*Not oil tight construction, not sealed; meets NEMA 1 only.

Note: Front beveled frame is black.

For complete product information, order Catalog 1308390

Pushbutton or Keylock or Selector Switches, 22mm, Oil-Tight

MOMENTARY



QM010

Metal Bushings

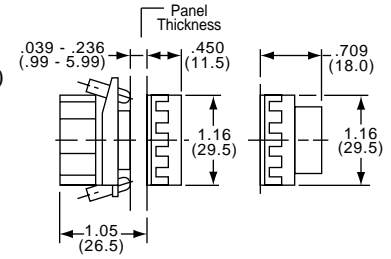
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type
QM010(*)	Flush Button
QM020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



QT010

Thermoplastic Bushings (Threaded)

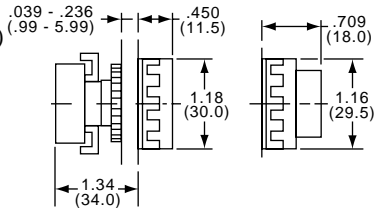
Contact blocks not supplied, order separately. (See page 6070.)

Model	Type
QT010(*)	Flush Button
QT020(*)	Extended Button

(*) Specify color by adding suffix number:

(0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (8) Grey, (9) White.

Note: Front beveled frame is black.



RM3040

RM200/201 with 2 keys

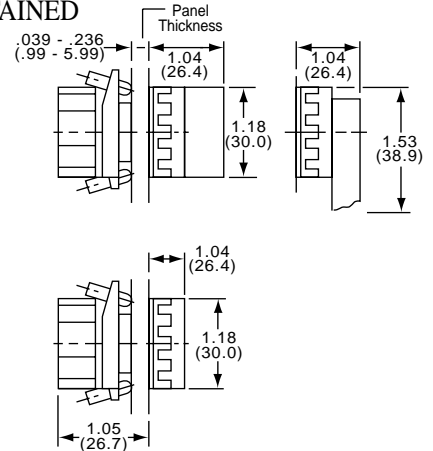
2 POSITION SELECTORS/KEYLOCK MAINTAINED

Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	Throw	CAM	Remove Key
RM4040	Maintained, Black	120°	1	Long Selector
RM3040	Maintained, Black	120°	1	Selector
RM200	Maintained	60°	1	⊙
RM201	Maintained	60°	1	⊗
RM250	Momentary, Right	60°	1	⊙
RM204	Maintained	120°	1	⊗
RM205	Maintained	120°	1	⊗
E1	Spare Key			⊗

Note: Front beveled frame is black.



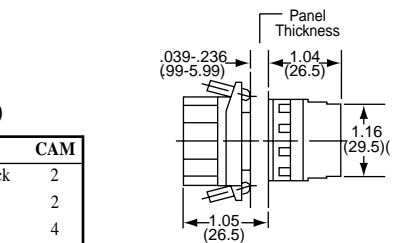
3 POSITION SELECTORS

Short Handle, Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	CAM	Model	Action	CAM
RM3100	Maintained, Black	2	RM3700	Momentary, Right Side, Black	2
RM3120	Maintained, Black	3	RM3800	Double Momentary, Black	2
RM3130	Maintained, Black	4	RM3830	Double Momentary, Black	4

Note: Front beveled frame is black.



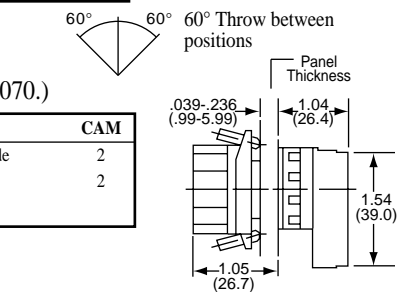
RM3100

Long Handle, Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	CAM	Model	Action	CAM
RM4100	Maintained	2	RM4700	Momentary, Right Side	2
RM4120	Maintained	3	RM4800	Double Momentary	2
RM4130	Maintained	4			

Note: Front beveled frame is black.



RM4100

For complete product information, order Catalog 1308390



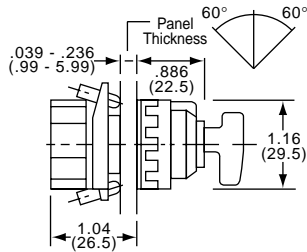
Switches

Keylock or Pushbutton Switches, 22mm, Oil-Tight or Pilot Lights

3 POSITION KEYLOCK SELECTOR
MAINTAINED OR MOMENTARY



Supplied with 2 keys



Metal Bushings

Contact blocks not supplied, order separately. (See page 6070.)

Model	Action	CAM	Remove Key	Model	Action	CAM	Remove Key
RM210	Maintained	2	⊖	RM243	Maintained	4	⊖
RM220	Maintained	2	⊗	RM270	Mom. Right Side	2	⊗
RM222	Maintained	3	⊗	RM272	Mom. Right Side	3	⊗
RM230	Maintained	2	⊗	RM273	Mom. Right Side	4	⊗
RM232	Maintained	3	⊗	RM280	Mom. Both Sides	2	⊖
RM233	Maintained	4	⊗	E1	Spare Key		
RM240	Maintained	2	⊗				

Note: Front beveled frame is black.

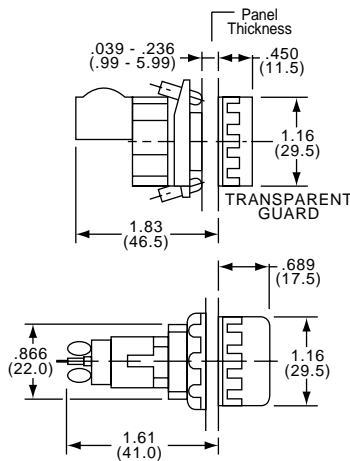


QM600 (RM600)

Metal Bushing



SR601 Threaded Thermoplastic Bushing Front lampable



PILOT LIGHTS (FULL VOLTAGE TYPE)

Lamps: order separately, miniature bayonet base.

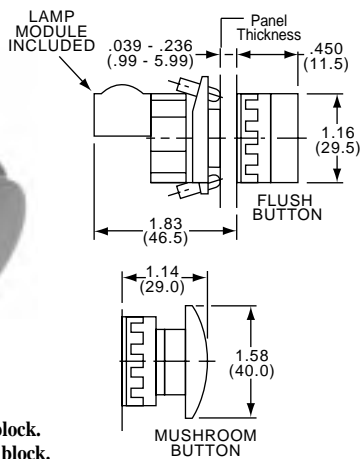
Lamps: use G3 1/2 on QM600(*), use T3 1/4 on SR601(*), RM600(*). Custom legends available.

Model	Type
QM600(*)	Square pilot light, metal bushing
SR601(*)	Round pilot light, plastic bushing screw turn
RM600(*)	Round pilot light, metal bushing

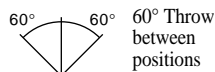
(*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.



RM120



Application Note:
+V40/F40 used for N.C contact block.
+VA0/FA0 used for N.O. contact block.



ILLUMINATED/ROUND MOMENTARY/MAINTAINED

Metal Bushing

Contact blocks not supplied, order separately. (See page 6070.)

Lamps: Use T-3 1/4 or G3 1/2 incandescent or neon lamps.

Model	Action	Type	Cam Type
RM120(*)	Momentary	Extended Button	
RM122(*)	Momentary	Guarded Button	
+ RM130(*)	Maintained	Flush Button	} Push-On - Push-Off See Application Note
+ RM145(*)	Maintained	Mushroom	
RM150(*)	Momentary	Mushroom	
RM1652	Twist Release	Mushroom, Red	
Illuminated Selectors			
RM650(*)	Maintained	2-Pos. Selector**	1
RM653(*)	Maintained	3-Pos. Selector**	2

When operating from line voltage use step down transformers 5BO or 570.

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: RM145 and RM150 available only in red, yellow, green.

**Use G3 1/2 lamps only.

Note: Front beveled frame is black.

For complete product information, order Catalog 1308390

Pushbutton Switches, 22mm, Oil-Tight, Round or Square Buttons



QM122

SQUARE, MOMENTARY ILLUMINATED

Metal Bushing

Contact blocks not supplied, order separately. (See page 6070.)

Lamp circuit isolated. Order lamps separately.

Custom legends available.

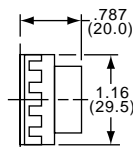
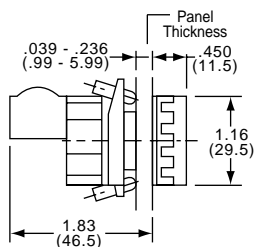
Model	Type
QM122(*)	Flush Button
QM120(*)	Extended Button

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: Front beveled frame is black.



QM120



ROUND, MOMENTARY ILLUMINATED

Thermoplastic

Contact blocks not supplied, order separately. (See page 6070.)

Lamps: use T-3 1/4 or G3 1/2 incandescent or neon lamps.

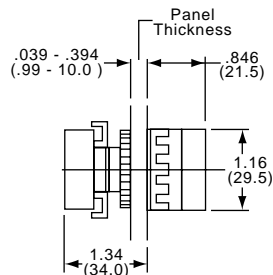


RT120

Model	Action	Type
RT120(*)	Momentary	Extended Button

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.

Note: Front beveled frame is black.



For complete product information, order Catalog 1308390

Standard Contact Blocks

An almost unlimited number of circuit control options are possible using various combinations of contact blocks. Up to twelve "V" or "F" family modular blocks may be used with any operator in the Reliant 22, 2200 or 6000 series, depending on circuit requirements and operator design. The exclusive SNAP-BLOC design permits assembly without the use of tools – no screws or hardware to get lost. Choose either screw terminals or dual

male .110"/.250" quick connect terminals. Plunger color indicates closure mode. The double break silver contacts are enclosed in a tough transparent polycarbonate housing, permitting visual inspection of contacts. Designed-in rocking action assures long, reliable life; over several million operations in normal use. Operating temperature range: -20°C to +70°C.

Application Notes

1. Up to 6 contact blocks may be stacked and snap-mounted in either the upper and/or lower position on the back on any Reliant 22, Series 4000 or 6000 operator.
2. In order to maintain optimum insulating distances when contact blocks are stacked, wiring connections should be in same polarity for operation above 300VAC.
3. Blocks may be prewired and snapped into place for easier assembly.
4. Remove blocks by simply prying tabs. Small screwdriver is all that is necessary.

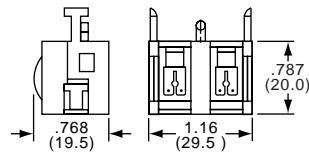
F&V Contact blocks are UL recognized. File Number E-45364
CSA LR-20785-19 CE MARK

ELECTRICAL CONTACT RATINGS

Condition	Function	Standard Series (600 VAC Max.)		
		120V	300V	600V
AC Operation				
Inductive Loads	Make	30A	12A	6A
	Continuous	6A	6A	6A
	Break	.350 P.F. min.	3A	1.2A
Resistive Loads	Make, Continuous	6A	6A	6A
	Carry & Break	.750 P.F. min.		
DC Operation				
Inductive & Resistive Loads	Make	1.1A		
	Continuous Carry & Break	6A	6A	6A



F40



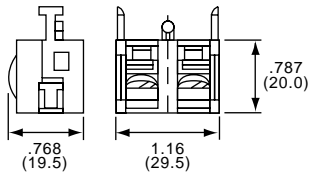
QUICK CONNECT

Model	Contacts	Plunger Color
F40	Normally Closed	Red
F50	Normally Open	Green
FA0	N.O. Early Make	Yellow
FR0	N.C. Late Break	Black

Note: FA0 and FR0 contacts "overlap."



V40



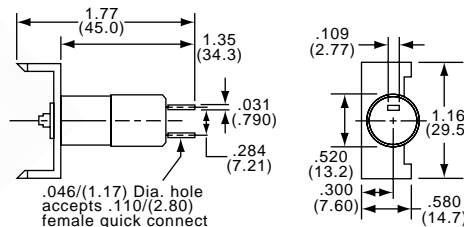
SCREW TERMINAL

Model	Contacts	Plunger Color
V40	Normally Closed	Red
V50	Normally Open	Green
VA0	N.O. Early Make	Yellow
VR0	N.C. Late Break	Black

Note: "V" Series is available with gold plated contacts; order V40G, V50G, VA0G, VR0G. Note: VA0 and VR0 contacts "overlap."



101B1



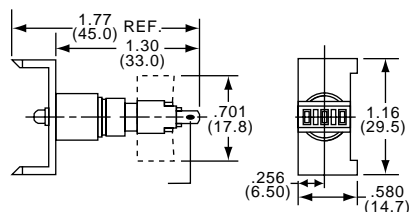
ELECTRONIC DUTY CONTACT BLOCKS

Hermetically sealed reed contact block for logic level use. Use with any pushbutton or with 2 or 3 position selector keylock, having cam type 4 or 5. Rating: 5VA (100ma @ 50 VDC max.) Contact resistance: 100 milliohms max.

Model	Contacts
101B1	SPST, Normally Closed
101C1	SPST, Normally Open
V50D	*Dummy Contact Block

Note: Unit accepts .110/(2.80) female quick connect.

*Note: Use dummy V50 block (shown) when used with selector operator. Order separately.



ALTERNATE ACTION MAINTAINED CONTACTS

Instrument grade double throw contacts
Converts any momentary pushbutton or mushroom operator to push-on/push-off control. 6A @ 125 VAC, 3A @ 250 VAC. Solder terminals or quick connect.

Model	Contacts	Action
106D1	SPDT	Push-On/Push-Off
206N1	DPDT	Push-On/Push-Off
406N1	4PDT	Push-On/Push-Off

For complete product information, order Catalog 1308390

Series 6000 and Reliant'22 Contact Selection

- Determine how many contacts are required for the application, and what contact closure sequence is needed for each contact.
 - 2-Position Operators: There are only two practical possibilities for contact closure sequence. Using "O" to indicate an open and "X" to indicate a closed contact, the options are shown in the table to the right. All Reliant 22 and Series 6000 2-position selection selector and keylock operators provide these options.
 - 3-Position Operators: There are six practical possibilities for contact closure sequence. Using "O" to indicate an open contact, and "X" to indicate a closed contact, the options are shown in the table to the right. Four different cam types are available to provide various combinations of contact closure sequence. Cam Type 2 (see table below) provides the most popular closure sequence, and Cam Type 3 provides all six possibilities, depending on the contact block models chosen. Note that each operator has an upper and lower contact block location, and that the cam profiles are different for upper and lower locations, except for Cam Type 2.
- Make a truth table similar to that shown in the example at the bottom of the page, in which each contact required by the circuit of the application is represented. Up to 12 contacts may be used for each operator, depending on the sequences required and the types of contact blocks chosen.
- Refer to the contact sequence table (below). Find the cam type that will provide all of the required contact closure sequences, and note which contact block model will be needed for each circuit contact.
- Now refer to one of the tables on the next page to find the operator model that has the cam type needed in the application and that provides the desired features with respect to action (maintained or momentary) type of actuator (lever or key), etc.

0	1
left	right
O	X
X	O

2	0	1
left	center	right
O	O	X
X	O	O
O	X	X
X	X	O
O	X	O
X	O	X

CONTACT CLOSURE SEQUENCE CHART

Model	CAM Type 1 upper & lower locations	
	0	1
V40 or F40 Red	X	0
V50 or F50 Green	0	X
VA0 or FA0 Yellow	0	-X
VR0 or FR0 Black	X	-0
I01B1	X	-0
I01C1	0	X

CAM Type 2		CAM Type 3		CAM Type 4	
upper location	lower location	upper location	lower location	upper location	lower location
2 0 1	2 0 1	2 0 1	2 0 1	2 0 1	2 0 1
X 0 0	X 0 0	X 0 0	0 X 0	0 X -X	X -X 0
0 0 X	0 0 X	0 0 X	0 0 X	X 0 0	0 0 X
0 X- X	0 X- X	0 X- X	X 0 X	X 0 0	0 0 X
X- X 0	X- X 0	X- X 0	X- X 0	0 X- X	X- X 0
				0 X- X	X- X 0
				X 0 0	0- 0 X

X = Closed 0 = Open

Example: An "Off-On-Reset" circuit control requires a 3-position or 2-position keylock switch. The key is to be removable in the "OFF" and "ON" position and the "Reset" position must be momentary (spring return from right to center). All contacts are open in the "Off" position, and two contacts are closed in the "On" position. In the "Reset" position a third contact must close and one of the contacts

in the "on" position must open. This contact closure sequence is shown by the following truth table:

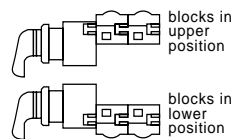
Contact Number	Off (2)	On (0)	Reset (1)
1	O	X	X
2	O	X	O
3	O	O	X

Referring to the Contact Closure Sequence Table, it is seen that cam Type 3 provides these sequences. In addition, the contact block models that should be used are given; model VA0 (or FA0 for contact No. 1, to be installed in the upper contact block location; model V40 (or F40) for contact No. 2, to be installed in the lower

contact block location; and model V50 (or F50) for contact No. 3, which may be used in either the upper or lower contact block location, behind one of the other two blocks. Reference to the operator model listings shows that model RM272 provides cam Type 3 and has desired momentary action and key removability.

SELECTOR & KEYLOCK OPERATORS

ALCOSWITCH selector and keylock operators, in combination with the contact blocks listed on page 6070, are designed to fulfill the circuit requirements of almost any 2- or 3-position control application. Each operator has two locations (upper and lower) into which contact blocks may be snap-mounted. Up to size contact blocks may be stacked in each location, the maximum number depending on the contact block models chosen and the contact closure sequences required. (Note: only one logic level block may be used in each location.)



For complete product information, order Catalog 1308390

Pushbutton Switches, 30mm, Round or Mushroom Buttons



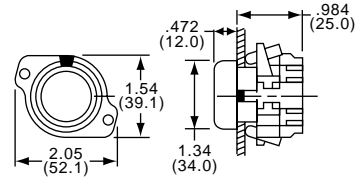
M60102

FLUSH GUARD MOMENTARY

Metal Bushing
 Replaces T6010
 Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6010(*)	Momentary

(*) Specify color by adding suffix number:
 (0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



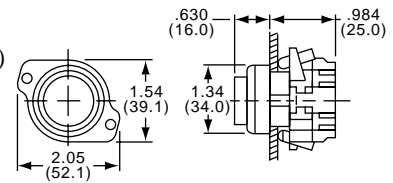
M60200

EXTENDED BUTTON MOMENTARY

Metal Bushing
 Replaces T6020
 Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6020(*)	Momentary

(*) Specify color by adding suffix number:
 (0) Black, (2) Red, (4) Yellow, (5) Green, (6) Blue, (9) White.



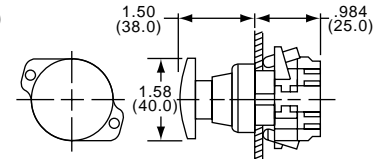
M60572

MUSHROOM HEAD MOMENTARY PUSH MAINTAINED

Metal Bushing
 Replaces T6020/M6050
 Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details	Color
M6057(*)	Momentary	(*)
M60532	Push-Pull	Red
M60652	Push-Lock/Twist To Release	Red

(*) Specify color by adding suffix number:
 (0) Black, (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White.

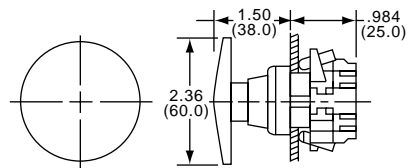


M60582

LARGE MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing
 Replaces T6051/M6051
 Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details	Color
M60582	Momentary	Red



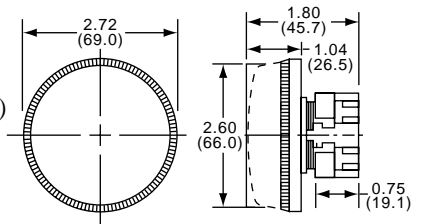
M60802

LARGE GUARDED MUSHROOM HEAD MOMENTARY PUSH

Metal Bushing. Heavy duty metal bushing and guard.
 Contact blocks not supplied, order separately. (See page 6070.)

Model	Special Details
M6080(*)	Momentary

(*) Specify color by adding suffix number: (0) Black, (2) Red, (5) Green.



For complete product information, order Catalog 1308390

Selector Switches or Joysticks, 30mm, Oil-Tight

5-POSITION JOYSTICK (4 Active & Center-Off)



M65500

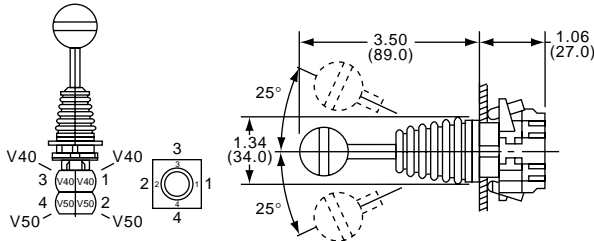
Metal Bushing

Maintained or momentary model with or without mechanical latch. Inherent design requires use of two N.O. and N.C. Contact blocks not supplied, order separately. (See page 6070.) Supplied with legend plate (1-2-3-4), black knob.

CONTACT ARRANGEMENT

Contact blocks should be placed as shown. All contacts are held open in neutral position. Each number contact closed when activated. Model M6531- is similar to M65510, but has only two active positions, requires one N.O. and one N.C. contact block.

Note: All positions are mutually exclusive and action must pass through neutral for all changes of operator level.



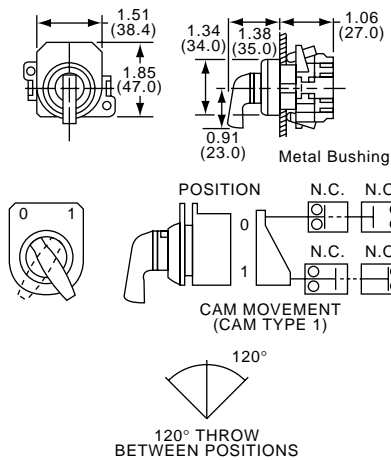
Model	Action	(On)	Off	(On)	(On)	(On)
M65310	Momentary, No Latch					
M65500	Maintained, No Latch	On	On	Off	On	On
M65510	Momentary, No Latch	(On)	(On)	Off	(On)	(On)
M65810	Momentary w/Latch	(On)	(On)	Off	(On)	(On)

(On) indicates momentary position.

2-POSITION SELECTOR MAINTAINED



M64022



Metal Bushing

Contact blocks not supplied, order separately. (See page 6070.) Legend plate included. Replaces T6402 Series.

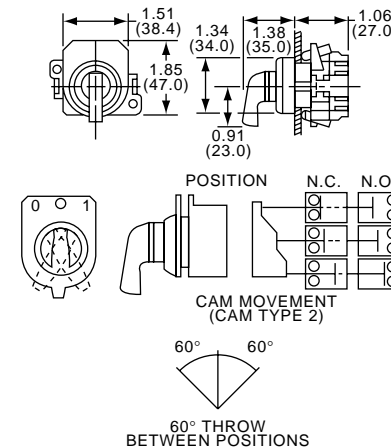
Model	Action	Lever	Position Number
M6402(*)	Maintained	Long	0 1

(*) Specify color by adding suffix number: (0) Black, (2) Red.

3-POSITION SELECTOR MAINTAINED OR MOMENTARY



M64120



Metal Bushing

Contact blocks not supplied, order separately. (See page 6070.) Legend plate included. Replaces T6400 Series.

Model	Action	Lever	Cam	Position Number
M6410(*)	Maintained	Long	2	2 0 1
M6412(*)	Maintained	Long	3	2 0 1
M6470(*)	Mom. 1 Side	Long	2	2 0 ←1
M6480(*)	Mom. 2 Sides	Long	2	2 →0 ←1

(*) Specify color by adding suffix number: (0) Black, (2) Red.

For complete product information, order Catalog 1308390

Keylock or Pushbutton Switches, 30mm, Oil-Tight



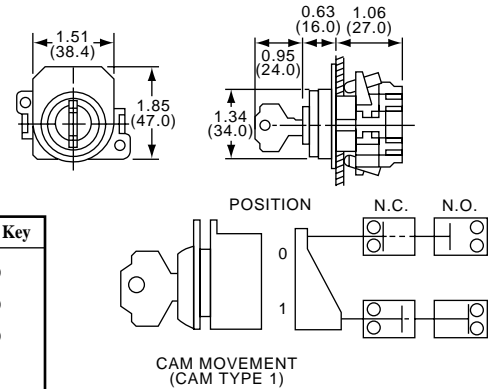
M6200

**2 POSITION KEY SELECTOR
MAINTAINED OR MOMENTARY**

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page 6070) Replaces T6200 Series.

Model	Action	Cam	Position Number	Throw	Remove Key
M6200	Maintained	1	0 1	60°	⊖
M6201	Maintained	1	0 1	60°	⊗
M6250	Momentary	1	0 ← 1	60°	⊖
G001	Additional Keys				

← Indicates momentary return position



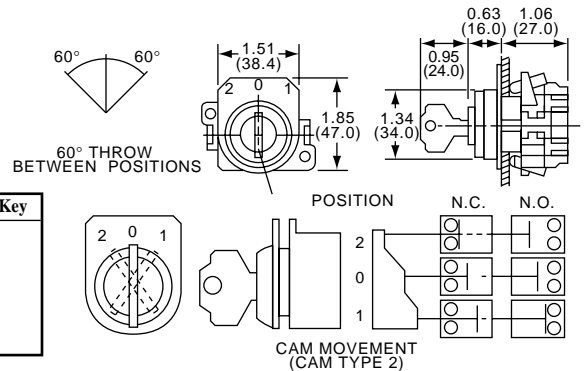
M6270

**3 POSITION KEY SELECTOR
MAINTAINED OR MOMENTARY**

Metal Bushing
Supplied with two keys and legend plate.
Contact blocks not supplied, order separately.
(See page 6070.) Replaces T6200 Series.

Model	Action	Cam	Position Number	Remove Key
M6210	Maintained	2	2 0 1	⊖
M6270	Mom. 1 Side	2	2 0 ← 1	⊗
M6280	Mom. 2 Sides	2	2 → 0 ← 1	⊖
G001	Additional Keys			

← Indicates momentary return position



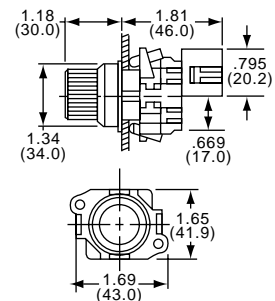
M61202406

ILLUMINATED EXTENDED BUTTON MOMENTARY

Metal Bushing
miniature bayonet base lamps. Lamp circuit is isolated. Contact blocks not supplied, order separately. (See page 6070) Replaces T6120.

Model	Special Details
M6120(*)406	Momentary

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.



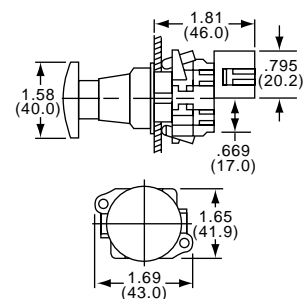
M61502406

**ILLUMINATED MUSHROOM
MAINTAINED OR MOMENTARY**

Metal Bushing
Contact block not supplied, order separately. (See page 6070.)
Uses miniature bayonet base lamps. Lamp circuit is isolated.
(Replaces T6150)

Model	Special Details
M6150(*)406	Momentary
M6153(*)406	Maintained, Push-Pull

(*) Specify color by adding suffix number: (2) Red, (4) Yellow, (5) Green, (9) White.



For complete product information, order Catalog 1308390

Pushbutton Switches, 16mm, Illuminated

FEATURES:

Command Series Illuminated Pushbuttons are instrument-grade switches having snap-acting double break contacts, silver clad and gold plated to satisfy the requirements of logic level and power switching. **Contacts are electrically independent of one another and are isolated from the lamp circuit.** Tactile feel is excellent and maintained models have latching feature for visible indication of status. Uses T1-3/4 midget flanged base lamp, relampable from front of panel. Legends may be provided using printed transparent tape affixed to inner button. Oiltight models meet NEMA 1, 12 & 13 requirements. UL Recognized, File E-51302, CSA LR-20479

Note: Recommended panel thickness 4mm max.

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
 5 A @ 250 VAC or 24 VDC (Resistive)
 Initial Contact Resistance20 Milliohms max.
 Insulation Resistance100 Megohms min.
 Dielectric Strength1,500 VAC
 Life Expectancy100,000 Operations @ rated current

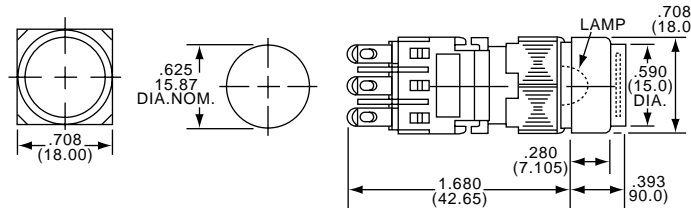
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

ROUND



164EL11



Non-Oiltight	Oiltight	Contact	Action
164EL11	165EL11	1 N.O. & N.C.	Momentary
164EL22	165EL22	2 N.O. & N.C.	Momentary
164EL33	165EL33	3 N.O. & N.C.	Momentary
164EL511	165EL511	1 N.O. & N.C.	Push on/Push off
164EL522	165EL522	2 N.O. & N.C.	Push on/Push off
164EL533	165EL533	3 N.O. & N.C.	Push on/Push off

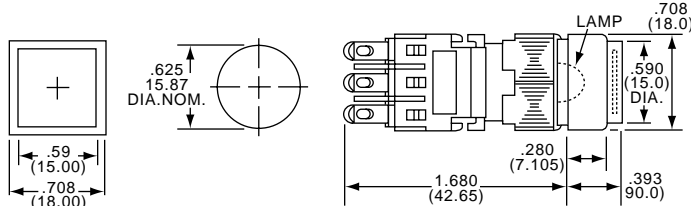
Application Note: For lens sets and lamps, see page 6077

SQUARE

Lens set and lamps not supplied.



164SL11



Non-Oiltight	Oiltight	Contact	Action
164SL11	165SL11	1 N.O. & N.C.	Momentary
164SL22	165SL22	2 N.O. & N.C.	Momentary
164SL33	165SL33	3 N.O. & N.C.	Momentary
164SL511	165SL511	1 N.O. & N.C.	Push on/Push off
164SL522	165SL522	2 N.O. & N.C.	Push on/Push off
164SL533	165SL533	3 N.O. & N.C.	Push on/Push off

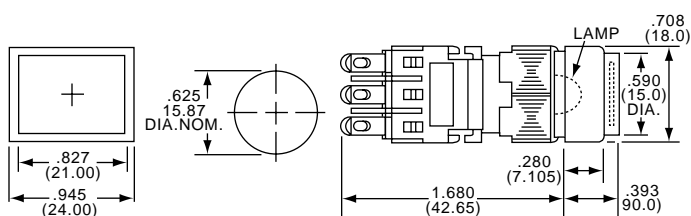
Application Note: For lens sets and lamps, see page 6077

RECTANGULAR

Lens set and lamps not supplied.



164TL11



Non-Oiltight	Oiltight	Contact	Action
164TL11	165TL11	1 N.O. & N.C.	Momentary
164TL22	165TL22	2 N.O. & N.C.	Momentary
164TL33	165TL33	3 N.O. & N.C.	Momentary
164TL511	165TL511	1 N.O. & N.C.	Push on/Push off
164TL522	165TL522	2 N.O. & N.C.	Push on/Push off
164TL533	165TL533	3 N.O. & N.C.	Push on/Push off

Application Note: For lens sets and lamps, see page 6077

Selector or Keylock Switches, 16mm

FEATURES:

Command Series Selector & Keylock Switches are 2 & 3-position rotary types with snap-cutting double break contacts. All models have 90° throw. Contacts are silver-clad and gold-plated to provide reliable operation at logic levels as well as for power switching applications. Contacts are electrically isolated from one another. Keylock types are supplied with two keys. Oiltight models meet NEMA 1, 12 & 13 requirements. PC/Wirewrap terminations also available. Consult factory.

UL Recognized File E-51302

CSA LR-20479

MATERIAL SPECIFICATIONS:

ContactsGold plate over silver clad

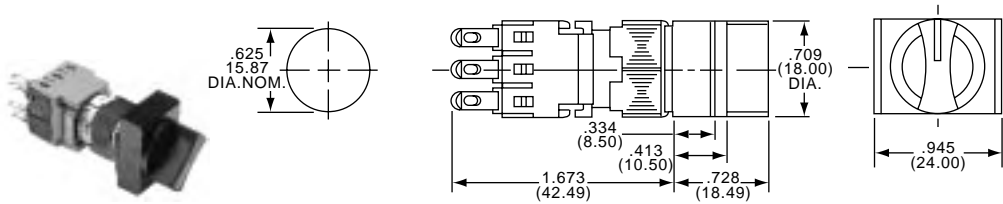
TYPICAL PERFORMANCE CHARACTERISTICS:

Contact Rating0.4 VA @ 20 VDC or Peak AC
 5 A @ 250 VAC or 24 VDC (Resistive)
 Initial Contact Resistance20 Milliohms max.
 Insulation Resistance100 Megohms min.
 Dielectric Strength1,500 VAC
 Life Expectancy100,000 Operations at rated current

ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +158°F (-20°C to +70°C)

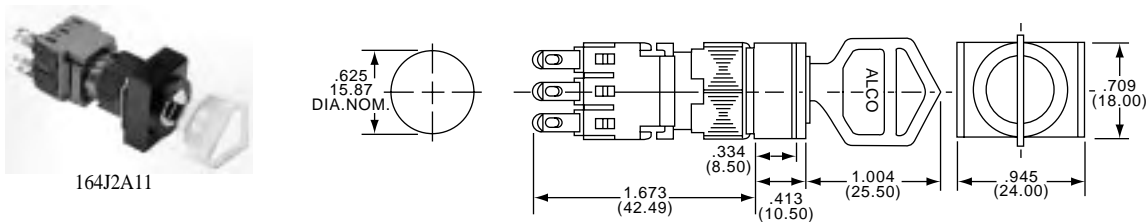
SELECTORS



164P2B11

Non-Oiltight	Oiltight	Contact	Action
164P2B11	165P2B11	1N.O. & N.C.	2 Pos. Maintained
164P2B22	165P2B22	2N.O. & N.C.	2 Pos. Maintained
164P2B33	165P2B33	3N.O. & N.C.	2 Pos. Maintained
164P0B22		2N.O. & N.C.	2 Pos. Momentary Right
164P0B33		3N.O. & N.C.	2 Pos. Momentary Right
164P3B22	165P3B22	2N.O. & N.C.	3 Pos. Center Off/Maintained
164P3B33	165P3B33	3N.O. & N.C.	3 Pos. Center Off

KEYLOCKS



164J2A11

2 Position Keylocks				3 Position Keylocks			
Non-Oiltight	Oiltight	Contact	Action	Non-Oiltight	Oiltight	Contact	Action
164J2A11	165J2A11	1N.O. & N.C.	Maintained, key pull left	164J3A22	165J3A2	2N.O. & N.C.	Maintained, key pull left
164J2A22	165J2A22	2N.O. & N.C.	Maintained, key pull left	164J3A33	165J3A33	3N.O. & N.C.	Maintained, key pull left
164J2A33	165J2A33	3N.O. & N.C.	Maintained, key pull left	164J3E22	165J3E22	2N.O. & N.C.	Maintained, key pull center
164J2B11	165J2B11	1N.O. & N.C.	Maintained, key pull both	164J3E33	165J3E33	3N.O. & N.C.	Maintained, key pull center
164J2B22	165J2B22	2N.O. & N.C.	Maintained, key pull both	164J3C22	165J3C22	2N.O. & N.C.	Maintained, key pull all
164J2B33	165J2B33	3N.O. & N.C.	Maintained, key pull both	164J3C33	165J3C33	3N.O. & N.C.	Maintained, key pull all
164J0A11		1N.O. & N.C.	Momentary right, key pull left	164J7A22	165J7A22	2N.O. & N.C.	Momentary right, key pull left
164J0A22		2N.O. & N.C.	Momentary right, key pull left				
164J0A33		3N.O. & N.C.	Momentary right, key pull left				

Application Note: Spare key part number for 164J-165J Series is 164KA

For complete product information, order Catalog 1308390

Pilot Light Indicators or Lens Sets, 16mm

FEATURES

Command Series Pilot Light Indicators match the appearance of both lighted and unlighted Command Series pushbuttons. The same lens buttons are snapped into place and legends may be easily inserted. Illumination is from T - 1 3/4 midget flange based lamps, which are installed from the front panel. Lenses and lamps are ordered separately and be sure to specify color. Oiltight models meet NEMA 1, 12 & 13 requirements. UL File No. E-51302 CSA LR-20479

TYPICAL PERFORMANCE CHARACTERISTICS:

LAMP DISSIPATION 1.2W MAX.
 Insulation Resistance100 Megohms min.
 Dielectric Strength1,500 VAC

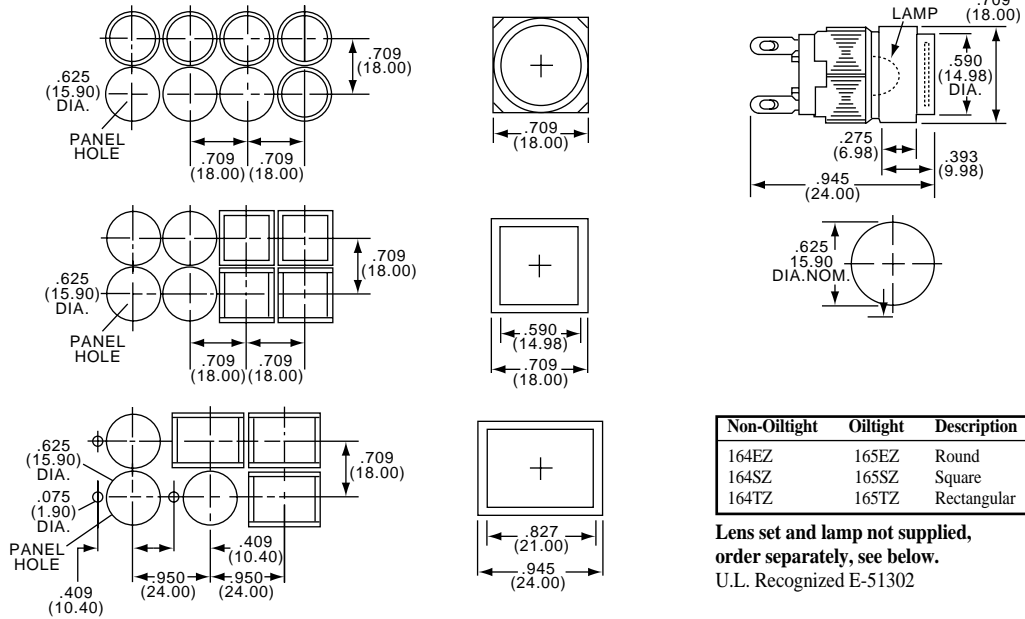
ENVIRONMENTAL SPECIFICATIONS:

Operating Temperature.....-4°F to +122°F (-20°C to +50°C)

PILOT LIGHT INDICATORS



164EZ

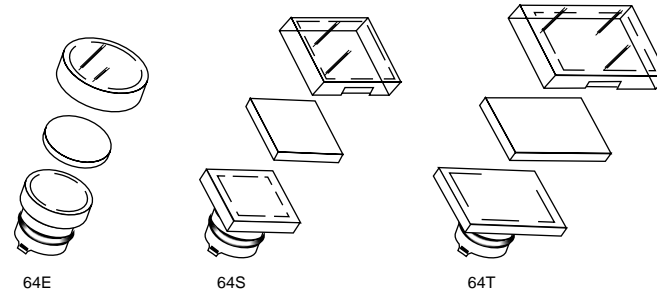


Lens set and lamp not supplied, order separately, see below.
 U.L. Recognized E-51302

LENS SET



64E



Model	Description
64E(*)	Round lens set
64S(*)	Square lens set
64T(*)	Rectangular lens set

All fit oiltight and non-oiltight indicators.
 (*) Specify color by adding suffix number: (2) Red, (3) Orange, (4) Yellow, (5) Green, (6) Blue, (9) White/Clear.

Application Note:
 Lens sets include, button, diffuser and cap.

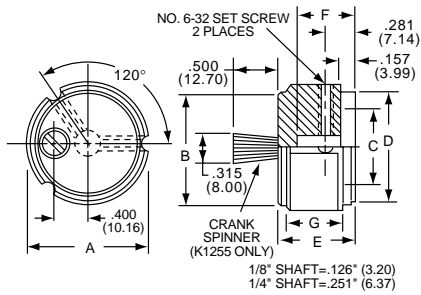
For complete product information, order Catalog 1308390

Knobs, Machined Aluminum

K SERIES



K700B1/4



3 Flute Design with and without Indicator Line

Model	Color	A	B	C	D	E	F	G
K500A1/8	Natural	.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)	.512(13.0)
K500A1/4	Natural	.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)	.512(13.0)
K500B1/8	Black	.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)	.512(13.0)
K500B1/4	Black	.500(12.7)	.430(10.9)	.374(9.50)	.430(10.9)	.625(15.9)	.429(10.9)	.512(13.0)
K700A1/4	Natural	.740(18.8)	.655(16.6)	.591(15.0)	.655(16.6)	.625(15.9)	.429(10.9)	.512(13.0)
K700B1/4	Black	.740(18.8)	.655(16.6)	.591(15.0)	.655(16.6)	.625(15.9)	.429(10.9)	.512(13.0)
K900A1/4	Natural	.937(23.8)	.817(20.8)	.709(18.0)	.817(20.8)	.625(15.9)	.429(10.9)	.512(13.0)
K900B1/4	Black	.937(23.8)	.817(20.8)	.709(18.0)	.817(20.8)	.625(15.9)	.429(10.9)	.512(13.0)
K1250A1/4	Natural	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)
K1250B1/4	Black	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)
Less Indicator								
K1251A1/4	Natural	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)
K1251B1/4	Black	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)
With Crank Spinner + Less Indicator								
K1255AS1/4	Natural	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)
K1255BS1/4	Black	1.25(31.8)	1.11(28.2)	.984(25.0)	1.11(28.2)	.750(19.1)	.554(14.1)	.630(16.00)

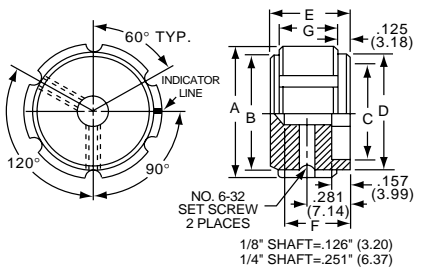
KA SERIES



KA500A1/4



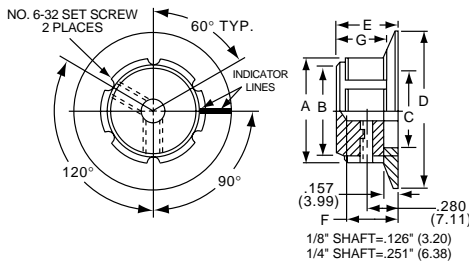
KA700B1/4



6 Flute Design with Indicator Line

Model	Color	A	B	C	D	E	F	G
KA500A1/8	Natural	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.512(13.0)	.430(10.9)
KA500A1/4	Natural	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.512(13.0)	.430(10.9)
KA500B1/8	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.512(13.0)	.430(10.9)
KA500B1/4	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.625(15.9)	.512(13.0)	.430(10.9)
KA700A1/4	Natural	.750(19.1)	.655(16.6)	.590(15.0)	.655(16.6)	.625(15.9)	.512(13.0)	.430(10.9)
KA700B1/4	Black	.750(19.1)	.655(16.6)	.590(15.0)	.655(16.6)	.625(15.9)	.512(13.0)	.430(10.9)
KA900A1/4	Natural	.937(23.8)	.817(20.8)	.700(17.8)	.817(20.8)	.625(15.9)	.512(13.0)	.430(10.9)
KA900B1/4	Black	.937(23.8)	.817(20.8)	.700(17.8)	.817(20.8)	.625(15.9)	.512(13.0)	.430(10.9)
KA1250A1/4	Natural	1.25(31.8)	1.11(28.2)	.985(25.0)	1.11(28.2)	.750(19.1)	.630(16.0)	.554(14.1)
KA1250B1/4	Black	1.25(31.8)	1.11(28.2)	.985(25.0)	1.11(28.2)	.750(19.1)	.630(16.0)	.554(14.1)

KAS SERIES



6 Flute Design with Aluminum Skirt and Indicator Lines

Model	Color	A	B	C	D	E	F	G
KAS500A1/8	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)	.430(10.9)
KAS500A1/4	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)	.430(10.9)
KAS500B1/8	Black	.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)	.430(10.9)
KAS500B1/4	Black	.500(12.7)	.430(10.9)	.380(9.65)	.740(18.8)	.630(16.0)	.510(13.0)	.430(10.9)
KAS700A1/4	Natural	.750(19.1)	.650(16.5)	.590(15.0)	1.14(29.0)	.630(16.0)	.510(13.0)	.430(10.9)
KAS700B1/4	Black	.750(19.1)	.650(16.5)	.590(15.0)	1.14(29.0)	.630(16.0)	.510(13.0)	.430(10.9)
KAS900A1/4	Natural	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.630(16.0)	.510(13.0)	.430(10.9)
KAS900B1/4	Black	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.630(16.0)	.510(13.0)	.430(10.9)

For complete product information, order Catalog 1308390

Knobs, Machined Aluminum

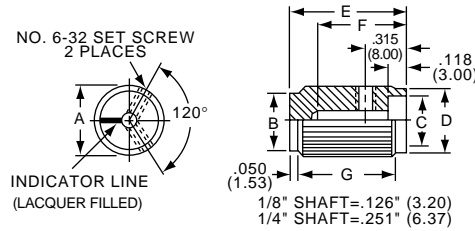
KB SERIES



KB500A1/4



KB900B1/4



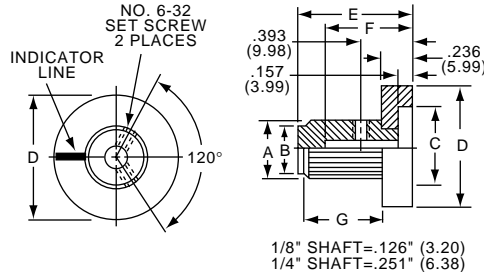
Control Knob with Straight Knurl and Top Line Indicator

Model	Color	A	B	C	D	E	F	G
KB500A1/8	Natural	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.630(16.0)	.610(15.5)
KB500A1/4	Natural	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.630(16.0)	.610(15.5)
KB500B1/8	Black	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.630(16.0)	.610(15.5)
KB500B1/4	Black	.500(12.7)	.433(11.0)	.394(10.0)	.472(12.0)	.787(20.0)	.630(16.0)	.610(15.5)
KB700A1/4	Natural	.750(19.0)	.673(17.1)	.581(15.0)	.705(17.9)	.787(20.0)	.630(16.0)	.610(15.5)
KB700B1/4	Black	.750(19.0)	.673(17.1)	.581(15.0)	.705(17.9)	.787(20.0)	.630(16.0)	.610(15.5)
KB900A1/4	Natural	.930(23.6)	.866(22.0)	.710(18.0)	.902(22.9)	.787(20.0)	.630(16.0)	.610(15.5)
KB900B1/4	Black	.930(23.6)	.866(22.0)	.710(18.0)	.902(22.9)	.787(20.0)	.630(16.0)	.610(15.5)

KBS SERIES



KBS500A101/4



Control Knob with Straight Knurl and Skirt

Model	Color	A	B	C	D	E	F	G
With 0-9 Numerals (36°)								
KBS500A101/8	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)	.655(16.7)
KBS500A101/4	Natural	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)	.655(16.7)
KBS500B101/8	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)	.655(16.7)
KBS500B101/4	Black	.500(12.7)	.433(11.0)	.708(18.0)	1.00(25.4)	.950(24.1)	.826(21.0)	.655(16.7)

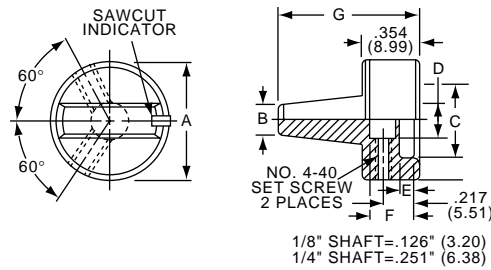
KCB SERIES



KCB500A1/4



KCB700B1/4



Control Knob with Sawcut Indicator

Model	Color	A	B	C	D	E	F	G
KCB500A1/8	Natural	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)	.750(19.1)
KCB500A1/4	Natural	.500(12.7)	.197(5.08)	.374(9.50)	.252(6.40)	.118(3.00)	.335(8.51)	.750(19.1)
KCB500B1/8	Black	.500(12.7)	.197(5.08)	.374(9.50)	.126(3.20)	.118(3.00)	.335(8.51)	.750(19.1)
KCB500B1/4	Black	.500(12.7)	.197(5.08)	.374(9.50)	.252(6.40)	.118(3.00)	.335(8.51)	.750(19.1)
KCB600A1/8	Natural	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)	.750(19.1)
KCB600A1/4	Natural	.618(15.7)	.197(5.08)	.394(10.0)	.252(6.40)	.118(3.00)	.335(8.51)	.750(19.1)
KCB600B1/8	Black	.618(15.7)	.197(5.08)	.394(10.0)	.126(3.20)	.118(3.00)	.335(8.51)	.750(19.1)
KCB600B1/4	Black	.618(15.7)	.197(5.08)	.394(10.0)	.252(6.40)	.118(3.00)	.335(8.51)	.750(19.1)
KCB700A1/4	Natural	.746(18.8)	.197(5.08)	.512(13.0)	.250(6.35)	.118(3.00)	.335(8.51)	.898(22.8)
KCB700B1/4	Black	.746(18.8)	.197(5.08)	.512(13.0)	.250(6.35)	.118(3.00)	.335(8.51)	.898(22.8)
KCB900A1/4	Natural	.937(23.8)	.197(5.08)	.709(18.0)	.250(6.35)	.118(3.00)	.335(8.51)	.898(22.8)
KCB900B1/4	Black	.937(23.8)	.197(5.08)	.709(18.0)	.250(6.35)	.118(3.00)	.335(8.51)	.898(22.8)

6

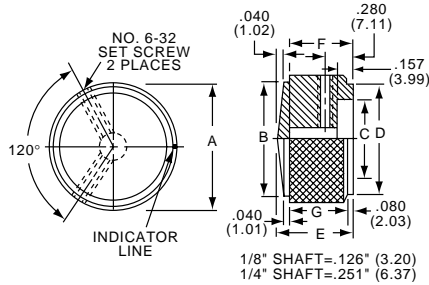
Switches

Knobs, Machined Aluminum

KD SERIES



KD1250B1/4



Diamond Knurl with Indicator Line								
Model	Color	A	B	C	D	E	F	G
KD500A1/8	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
KD500A1/4	Natural	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
KD500B1/8	Black	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
KD500B1/4	Black	.500(12.7)	.430(10.9)	.380(9.65)	.430(10.9)	.630(16.0)	.510(13.0)	.470(11.9)
KD700A1/4	Natural	.750(19.1)	.660(16.8)	.590(15.0)	.660(16.8)	.630(16.0)	.510(13.0)	.470(11.9)
KD700B1/4	Black	.750(19.1)	.660(16.8)	.590(15.0)	.660(16.8)	.630(16.0)	.510(13.0)	.470(11.9)
KD900A1/4	Natural	.940(23.9)	.820(20.8)	.710(18.0)	.820(20.8)	.630(16.0)	.510(13.0)	.470(11.9)
KD900B1/4	Black	.940(23.9)	.820(20.8)	.710(18.0)	.820(20.8)	.630(16.0)	.510(13.0)	.470(11.9)
KD1250A1/4	Natural	1.25(31.8)	1.11(28.2)	.980(24.9)	1.11(28.2)	.750(19.1)	.630(16.0)	.590(15.0)
KD1250B1/4	Black	1.25(31.8)	1.11(28.2)	.980(24.9)	1.11(28.2)	.750(19.1)	.630(16.0)	.590(15.0)

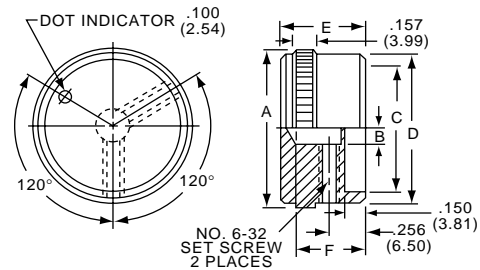
KE SERIES



KE900AB1/4



KE500AB1/4

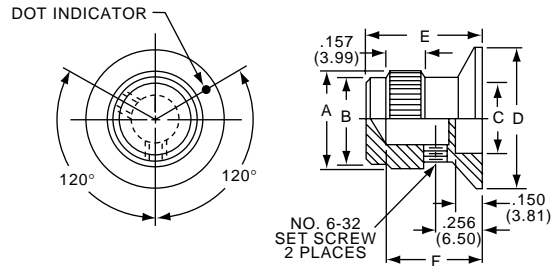


Knurl Grip with Top Dot Indicator							
Model	Color	A	B	C	D	E	F
KE500AB1/8	Ntl. - Blk.	.500(12.7)	.126(3.20)	.382(9.70)	.460(11.7)	.625(15.9)	.512(13.0)
KE500AB1/4	Ntl. - Blk.	.500(12.7)	.126(3.20)	.382(9.70)	.460(11.7)	.625(15.9)	.512(13.0)
KE700AB1/4	Ntl. - Blk.	.740(18.8)	.251(6.38)	.630(16.0)	.708(18.0)	.625(15.9)	.512(13.0)
KE900AB1/4	Ntl. - Blk.	.93(23.8)	.251(6.38)	.787(20.0)	.900(22.9)	.625(15.9)	.512(13.0)
KE1250AB1/4	Ntl. - Blk.	1.25(31.8)	.251(6.38)	1.06(26.9)	1.17(29.7)	.625(15.9)	.512(13.0)

KES SERIES



KES500AB1/4



Knurl Grip with Dot Indicator on Skirt							
Model	Color	A	B	C	D	E	F
KES500AB1/8	Ntl. - Blk.	.500(12.7)	.460(11.7)	.382(9.70)	.750(19.1)	.625(15.9)	.512(13.0)
KES500AB1/4	Ntl. - Blk.	.500(12.7)	.460(11.7)	.382(9.70)	.750(19.1)	.625(15.9)	.512(13.0)
KES700AB1/4	Ntl. - Blk.	.750(19.1)	.710(18.1)	.630(16.0)	1.13(28.7)	.625(15.9)	.512(13.0)
KES900AB1/4	Ntl. - Blk.	.937(23.8)	.897(22.8)	.787(20.0)	1.44(36.6)	.625(15.9)	.512(13.0)

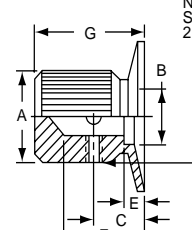
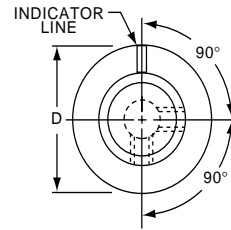
For complete product information, order Catalog 1308390

Knobs, Machined Aluminum

KFS SERIES



KFS400B1/8



1/8" SHAFT=.126" (3.20)
1/4" SHAFT=.251" (6.38)

NO. 6-32
SET SCREW
2 PLACES,
EXCEPT
KFS400B1/8:
NO. 4-40
SET SCREW
2 PLACES

Straight Knurl with Indicator on Skirt								
Model	Color	A	B	C	D	E	F	G
KFS400B1/8	Black Matte	.380(9.65)	.382(9.70)	.256(6.50)	.500(12.7)	.098(2.49)	.469(11.9)	0.591(15.0)
KFS500B1/8	Black Matte	.500(12.7)	.382(9.70)	.252(6.48)	.630(16.0)	.161(4.09)	.469(11.9)	.630(16.0)
KFS600B1/8	Black Matte	.618(15.7)	.280(7.11)	.382(9.70)	1.00(25.4)	.161(4.09)	.630(16.0)	0.811(20.6)

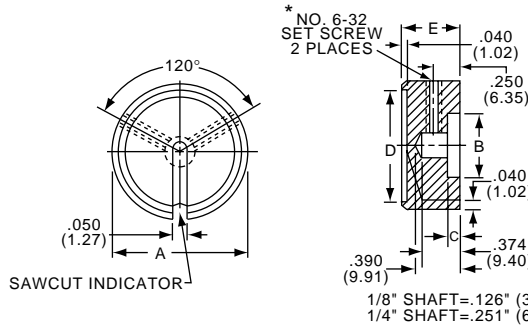
KHF SERIES



KHF500A1/4



KHF900A1/4



KHF500, 700, 900 1 set screw

* NO. 6-32
SET SCREW
2 PLACES

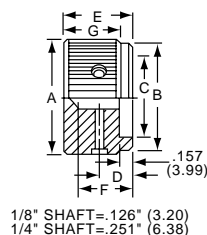
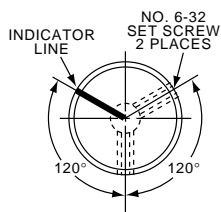
1/8" SHAFT=.126" (3.20)
1/4" SHAFT=.251" (6.37)

Plain Body with Top and Side Sawcut Indicator						
Model	Color	A	B	C	D	E
KHF500A1/4	Natural	.500(12.7)	.374(9.50)	.118(3.00)	.342(8.69)	.563(14.3)
KHF700A1/4	Natural	.740(18.8)	.590(15.0)	.118(3.00)	.592(15.0)	.563(14.3)
KHF900A1/4	Natural	.937(23.8)	.708(18.0)	.118(3.00)	.779(19.8)	.563(14.3)
* KHF1250A1/4	Natural	1.23(31.8)	.984(25.0)	.118(3.00)	1.08(27.5)	.563(14.3)

KLN SERIES



KLN500A1/4



1/8" SHAFT=.126" (3.20)
1/4" SHAFT=.251" (6.38)

Straight Knurl with Top and Side Indicator								
Model	Color	A	B	C	D	E	F	G
KLN500A1/8	Natural	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN500A1/4	Natural	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN500B1/8	Black	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN500B1/4	Black	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN500S1/8	Smoke	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN500S1/4	Smoke	.500(12.7)	0.445(11.3)	.374(9.50)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN700A1/4	Natural	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN700B1/4	Black	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN700S1/4	Smoke	.740(18.8)	.685(17.4)	.591(15.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN900A1/4	Natural	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN900B1/4	Black	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN900S1/4	Smoke	.937(23.8)	.882(22.4)	0.709(18.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN1250A1/4	Natural	1.25(31.8)	1.20(30.5)	.984(25.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN1250B1/4	Black	1.25(31.8)	1.20(30.5)	.984(25.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)
KLN1250S1/4	Smoke	1.25(31.8)	1.20(30.5)	.984(25.0)	.281(7.14)	.625(15.9)	.512(13.0)	.527(13.4)

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Knobs, Machined Aluminum

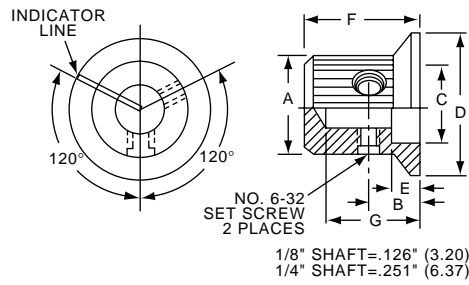
KLNS SERIES



KLNS500B1/8



KLNS900B1/4

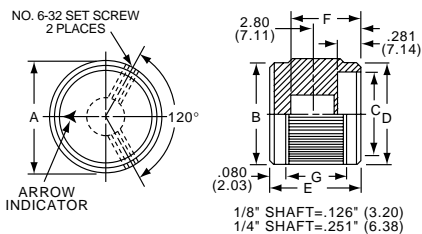


Straight Knurl with Indicator Line on Top, Side and Skirt								
Model	Color	A	B	C	D	E	F	G
KLNS500A1/8	Natural	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS500A1/4	Natural	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS500B1/8	Black	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS500B1/4	Black	.500(12.7)	.280(7.11)	.380(9.65)	.750(19.0)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS700A1/4	Natural	.750(19.0)	.280(7.11)	.590(14.9)	1.13(28.7)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS700B1/4	Black	.750(19.0)	.280(7.11)	.590(14.9)	1.13(28.7)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS900A1/4	Natural	.940(23.9)	.280(7.11)	.710(18.0)	1.40(35.5)	.160(4.07)	.630(16.0)	.510(13.0)
KLNS900B1/4	Black	.940(23.9)	.280(7.11)	.710(18.0)	1.40(35.5)	.160(4.07)	.630(16.0)	.510(13.0)

KN SERIES



KN501A1/4



Straight Knurl with Arrowhead Indicator								
Model	Color	A	B	C	D	E	F	G
KN501A1/8	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN501A1/4	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN501B1/8	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN501B1/4	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN701A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.956(24.28)
KN701B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.956(24.28)
Two Toned	Body-Top							
KN501BA1/8	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN501BA1/4	Blk. - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.3)	.625(15.9)	.512(13.0)	.956(24.28)
KN701BA1/8	Blk. - Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.956(24.28)
KN701BA1/4	Blk. - Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.956(24.28)

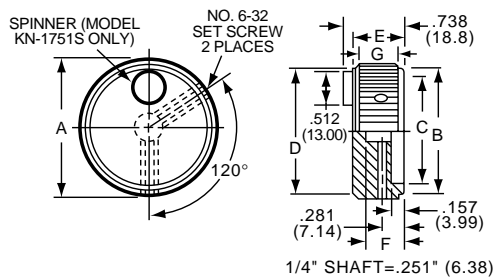
KN SERIES



KN1751AS1/4



KN1751B1/4



Straight Knurl with & without "Fingertip" Spinner								
Model	Color	A	B	C	D	E	F	G
Less Indicator								
KN1751A1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.0)	.508(12.9)	.480(12.2)
KN1751B1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
Body - Top								
KN1751AB1/4	Ntl. - Blk.	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
KN1751BB1/4	Blk. - Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
With Indicator								
KN1750A1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
KN1750B1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
With Spinner/Less Indicator								
KN1751AS1/4	Natural	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)
KN1751BS1/4	Black	1.75(44.5)	1.55(39.4)	1.38(35.1)	1.65(41.9)	.620(15.8)	.508(12.9)	.480(12.2)

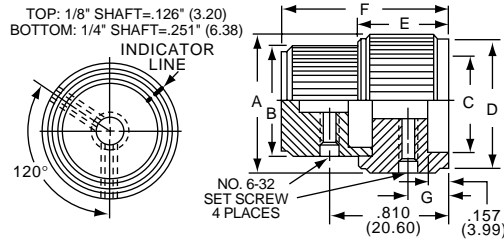
For complete product information, order Catalog 1308390

Knobs, Machined Aluminum

KN SERIES



KN5700B1/4



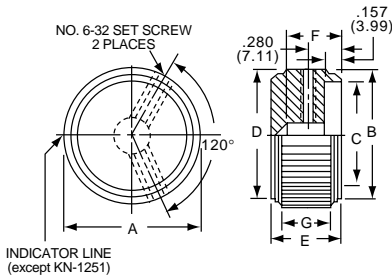
Concentric Set with Straight Knurl with Indicator Lines								
Model	Color	A	B	C	D	E	F	G
KN5700A1/4	Natural	.750(19.1)	.500(12.7)	.590(15.0)	.700(17.8)	.625(15.9)	1.16(29.5)	.281(7.14)
KN5700B1/4	Black	.750(19.1)	.500(12.7)	.590(15.0)	.700(17.8)	.625(15.9)	1.16(29.5)	.281(7.14)

KN SERIES



KN500A1/4

KN900BA1/4

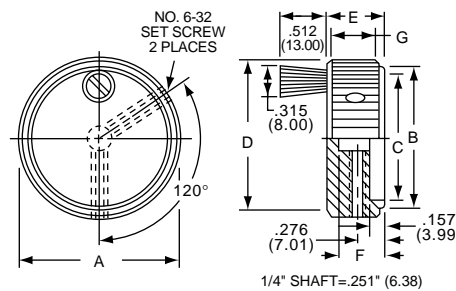


Straight Knurl with & without Indicator Line Diameter Dimensions								
Model	Color Body-Top	A	B	C	D	E	F	G
KN500A1/8	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500A1/4	Natural	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500B1/8	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500B1/4	Black	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN700A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN700B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN900A1/4	Natural	.949(24.1)	.894(22.7)	.696(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN900B1/4	Black	.949(24.1)	.894(22.7)	.696(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.7)
KN1250A1/8	Natural	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN1250B1/4	Black	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
Two-Toned								
KN500AB1/8	Ntl - Blk.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500AB1/4	Ntl - Blk.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500BA1/8	Blk - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN500BA1/4	Blk - Ntl.	.500(12.7)	.445(11.3)	.374(9.50)	.445(11.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN700AB1/4	Ntl - Blk.	.750(19.1)	.695(17.7)	.445(11.5)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN700BA1/4	Blk - Ntl.	.750(19.1)	.695(17.7)	.445(11.5)	.695(17.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN900AB1/4	Ntl - Blk.	.949(24.1)	.894(22.7)	.695(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.6)
KN900BA1/4	Blk - Ntl.	.949(24.1)	.894(22.7)	.695(17.7)	.894(22.7)	.625(15.9)	.512(13.0)	.456(11.7)
KN1250AB1/4	Ntl - Blk.	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
KN1250BA1/4	Blk - Ntl.	1.25(31.8)	1.20(30.5)	.984(25.0)	1.20(30.5)	.625(15.9)	.512(13.0)	.456(11.6)
Less Indicator								
KN1251A1/4	Natural	1.25(31.8)	1.20(30.5)	.984(25.0)	1.25(31.7)	.625(15.9)	.512(13.0)	.456(11.7)
KN1251B1/4	Black	1.25(31.8)	1.20(30.5)	.984(25.0)	1.25(31.7)	.625(15.9)	.512(13.0)	.456(11.7)

KN SERIES



KN1755BS1/4



Straight Knurl with "Crank" Spinner								
Model	Color Body-Top/Spin	A	B	C	D	E	F	G
KN1755AS1/4	Natural	1.76(44.7)	1.56(39.5)	.138(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
KN1755BS1/4	Black	1.76(44.7)	1.56(39.5)	.138(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
KN1755ABS1/4	Ntl.-Blk./Blk.	1.76(44.7)	1.56(39.5)	1.38(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)
KN1755BAS1/4	Blk.-Ntl. Blk.	1.76(44.7)	1.56(39.5)	1.38(35.0)	1.65(41.8)	.630(16.0)	.512(13.0)	.492(12.5)

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6
Switches

Knobs, Machined Aluminum

KNS SERIES



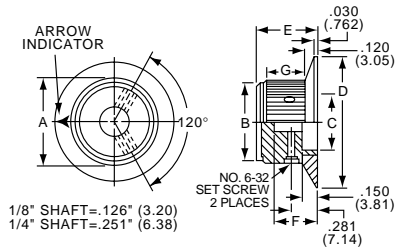
KNS501A1/4



KNS701B1/4



KNS701BA1/4

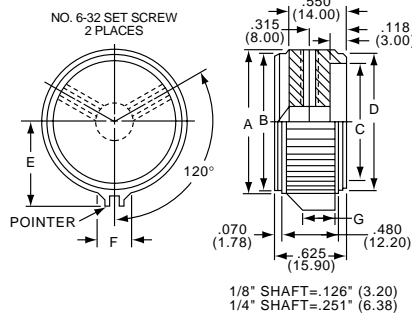


Straight Knurl with Arrowhead Indicator on Skirt								
Model	Color	A	B	C	D	E	F	G
KNS501A1/8	Natural	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS501A1/4	Natural	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS501B1/8	Black	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS501B1/4	Black	.500(12.7)	.445(11.3)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS701A1/4	Natural	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
KNS701B1/4	Black	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
Two-Toned Body-Top/Skirt								
KNS501BA1/8	Blk.- Ntl.	.500(12.7)	.695(17.7)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS501BA1/4	Blk.- Ntl.	.500(12.7)	.695(17.7)	.370(9.40)	.750(19.1)	.625(15.9)	.512(13.0)	.428(10.9)
KNS701BA1/8	Blk.- Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)
KNS701BA1/4	Blk.- Ntl.	.750(19.1)	.695(17.7)	.590(15.0)	1.12(28.5)	.625(15.9)	.512(13.0)	.428(10.9)

KPN SERIES



KPN500B1/8

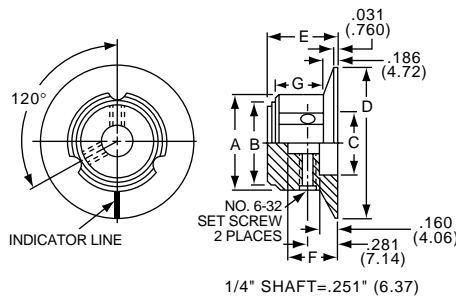


Straight Knurl with Pointer and Indicator Line								
Model	Color Body-Top	A	B	C	D	E	F	G
KPN500A1/8	Natural	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
KPN500A1/4	Natural	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
KPN500B1/8	Black	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
KPN500B1/4	Black	.500(12.7)	.445(11.3)	.372(9.45)	.445(11.3)	.368(9.35)	.195(4.95)	.354(8.99)
KPN700A1/4	Natural	.750(19.1)	.445(11.3)	.590(15.0)	.695(17.7)	.515(13.1)	.234(5.99)	.394(10.0)
KPN700B1/4	Black	.750(19.1)	.445(11.3)	.590(15.0)	.695(17.7)	.515(13.1)	.234(5.99)	.394(10.0)
KPN900A1/4	Natural	.937(23.8)	.445(11.3)	.692(17.6)	.882(22.4)	.630(16.0)	.276(7.01)	.354(8.99)
KPN900B1/4	Black	.937(23.8)	.445(11.3)	.692(17.6)	.882(22.4)	.630(16.0)	.276(7.01)	.354(8.99)

KS SERIES



KS500A1/4



KS900B1/4

3 Flute Design with Aluminum Skirt and Indicator Line								
Model	Color	A	B	C	D	E	F	G
KS500A1/8	Natural	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
KS500A1/4	Natural	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
KS500B1/8	Black	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
KS500B1/4	Black	.500(12.7)	.430(10.9)	.360(9.14)	.750(19.1)	.620(15.8)	.510(13.0)	.430(10.9)
KS700A1/4	Natural	.750(19.0)	.650(16.5)	.590(14.9)	1.12(28.4)	.620(15.8)	.510(13.0)	.430(10.9)
KS700B1/4	Black	.750(19.0)	.650(16.5)	.590(14.9)	1.12(28.4)	.620(15.8)	.510(13.0)	.430(10.9)
KS900A1/4	Natural	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.620(15.8)	.510(13.0)	.430(10.9)
KS900B1/4	Black	.940(23.9)	.820(20.8)	.710(18.0)	1.40(35.6)	.620(15.8)	.510(13.0)	.430(10.9)

For complete product information, order Catalog 1308390

Knobs, Machined Aluminum

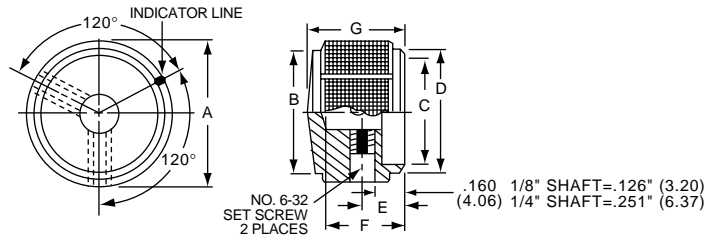
KT SERIES



KT500A1/4

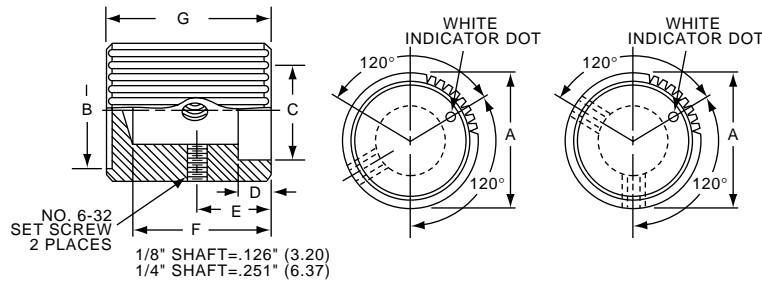


KT700A1/4



Square Serration with Indicator Line								
Model	Color	A	B	C	D	E	F	G
KT500A1/8	Natural	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
KT500A1/4	Natural	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
KT500B1/8	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
KT500B1/4	Black	.500(12.7)	.430(10.9)	.375(9.53)	.430(10.9)	.280(7.11)	.510(13.0)	.630(16.0)
KT700A1/4	Natural	.740(18.8)	.650(16.5)	.590(15.0)	.650(16.5)	.280(7.11)	.510(13.0)	.630(16.0)
KT700B1/4	Black	.740(18.8)	.650(16.5)	.590(15.0)	.650(16.5)	.280(7.11)	.510(13.0)	.630(16.0)
KT900A1/4	Natural	.940(23.9)	.816(20.7)	.710(18.0)	.816(20.7)	.280(7.11)	.510(13.0)	.630(16.0)
KT900B1/4	Black	.940(23.9)	.816(20.7)	.710(18.0)	.816(20.7)	.280(7.11)	.510(13.0)	.630(16.0)
KT1250A1/4	Natural	1.25(31.8)	1.12(28.5)	.985(25.0)	1.12(28.5)	.280(7.11)	.630(16.0)	.750(19.01)
KT1250B1/4	Black	1.25(31.8)	1.12(28.5)	.985(25.0)	1.12(28.5)	.280(7.11)	.630(16.0)	.750(19.01)

KU SERIES



Note: KU401B1/8 and KU402B1/8 use one set screw only. Located 180° from indicator dot.

Serrated Diamond Trim Cut with Dot Indicator								
Model	Color	A	B	C	D	E	F	G
KU401B1/8	Black	.374(9.50)	.283(7.19)	.276(7.01)	.098(2.49)	.177(4.50)	.236(5.99)	.299(7.60)
KU402B1/8	Black	.374(9.50)	.283(7.19)	.276(7.01)	.098(2.49)	.197(5.00)	.354(8.99)	.449(11.40)
KU500B1/8	Black	.500(12.7)	.409(10.4)	.374(9.50)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)
KU500B1/4	Black	.500(12.7)	.409(10.4)	.374(9.50)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)
KU700B1/4	Black	.740(18.8)	.650(16.5)	.591(15.0)	.118(3.00)	.276(7.01)	.512(13.0)	.598(15.2)

KUS SERIES

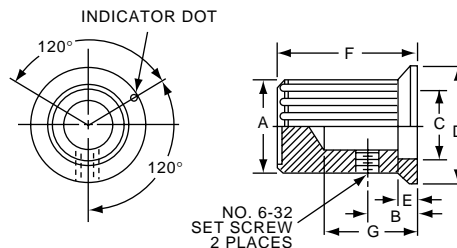


KUS402B1/8



KUS700B1/4

For complete product information, order Catalog 1308390



Serrated Diamond Trim Cut with Dot Indicator								
Model	Color	A	B	C	D	E	F	G
KUS402B1/8	Black	.374(9.50)	.197(5.00)	.276(7.01)	.520(13.2)	.098(2.49)	.450(11.4)	.354(8.99)
KUS500B1/8	Black	.500(12.7)	.276(7.01)	.374(9.50)	.700(17.8)	.118(3.00)	.600(15.2)	.512(13.0)
KUS500B1/4	Black	.500(12.7)	.276(7.01)	.374(9.50)	.700(17.8)	.118(3.00)	.600(15.2)	.512(13.0)
KUS700B1/4	Black	.740(18.8)	.276(7.01)	.591(15.0)	1.03(26.2)	.118(3.00)	.600(15.2)	.512(13.0)

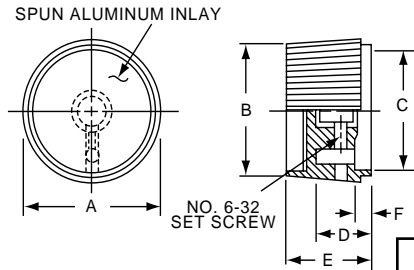
Note: KUS402B1/8 has #4.40 setscrew

Knobs, Molded Phenolic

PH SERIES



PH15181/4



Straight Knurl Less Indicator Line						
Model	A	B	C	D	E	F
PH15181/4	.996(25.3)	.972(24.7)	.799(20.3)	.472(12.0)	.669(17.0)	.157(3.99)
PH14171/4	1.19(30.2)	1.16(29.5)	.988(25.1)	.445(11.6)	.669(17.0)	.079(2.01)
PH13161/4	1.40(35.6)	1.34(34.0)	1.20(30.5)	.512(13.0)	.906(23.0)	.142(3.61)

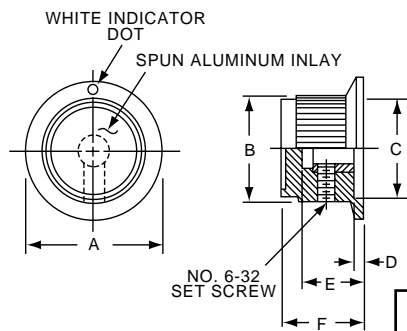
PK SERIES



PK50B1/8



PK701/4

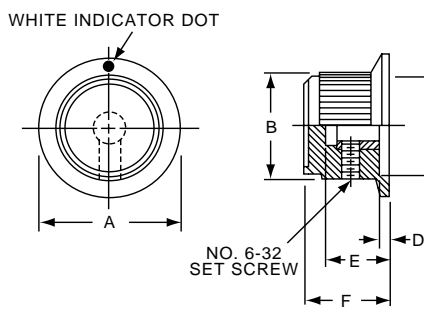


Straight Knurl with Dot Indicator on Skirt						
Model	A	B	C	D	E	F
PK50B1/8	.748(19.0)	.570(14.5)	.472(12.0)	.055(1.40)	.460(11.7)	.550(14.0)
PK50B1/4	.748(19.0)	.570(14.5)	.472(12.0)	.055(1.40)	.460(11.7)	.550(14.0)
PK70B1/4	.984(25.0)	.728(18.5)	.642(16.3)	.079(2.01)	.500(12.7)	.590(15.0)
PK90B1/4	1.25(31.8)	.985(25.0)	.819(20.8)	.098(2.49)	.470(11.9)	.595(15.1)

PKT SERIES



PKT60B1/8

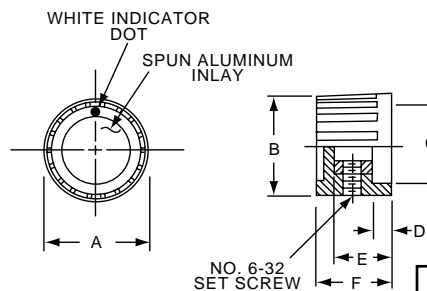


Black Spin Cap with "Diamond Cut"						
Model	A	B	C	D	E	F
PKT60B1/8	.750(19.1)	.600(15.2)	.560(14.2)	.060(1.52)	.400(10.2)	.530(13.5)
PKT60B1/4	.750(19.1)	.600(15.2)	.560(14.2)	.060(1.52)	.400(10.2)	.530(13.5)
PKT70B1/4	1.00(25.4)	.740(18.8)	.630(16.0)	.080(2.03)	.500(12.7)	.630(16.0)
PKT100B1/4	1.25(31.8)	1.00(25.4)	.860(21.8)	.100(2.54)	.500(12.7)	.630(16.0)

PK SERIES



PK1100B1/4



Serrated with Dot Indicator on Top						
Model	A	B	C	D	E	F
PK1100B1/8	.700(17.8)	.643(16.3)	.575(14.6)	.138(3.51)	.440(11.2)	.530(13.5)
PK1100B1/4	.700(17.8)	.643(16.3)	.575(14.6)	.138(3.51)	.440(11.2)	.530(13.5)

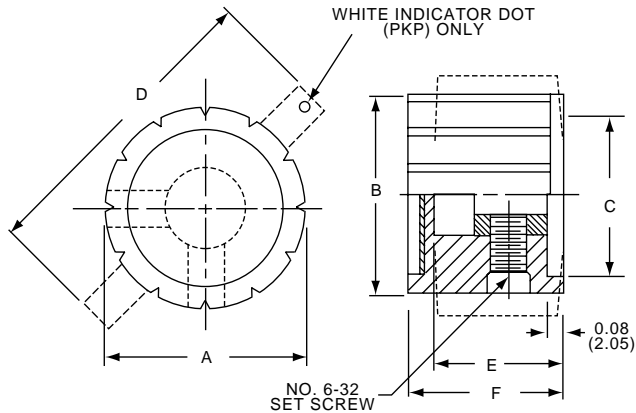
For complete product information, order Catalog 1308390

Knobs, Molded Phenolic

PK SERIES



PKP194B1/4



Serrated with Bar Point and Dot Indicator						
Model	A	B	C	D	E	F
*PK1108B1/4	1.00(25.4)	.980(24.9)	.840(21.3)		.620(15.7)	.800(20.3)
PKP194B1/4	1.00(25.9)	1.02(25.9)	.800(20.3)	1.60(40.6)	.590(15.0)	.840(21.3)

*Note: Supplied with one set screw.

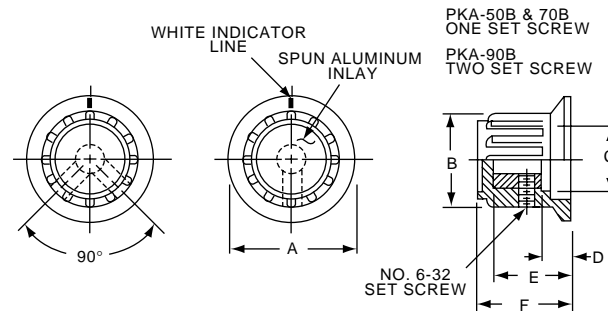
PKA SERIES



PKA50B1/4



PKA90B1/4



Ribbed with Line Indicator on Skirt						
Model	A	B	C	D	E	F
PKA50B1/8	.795(20.2)	.580(14.7)	.540(13.7)	.080(2.03)	.450(11.4)	.590(15.0)
PKA50B1/4	.795(20.2)	.580(14.7)	.540(13.7)	.080(2.03)	.450(11.4)	.590(15.0)
PKA55B1/8	.780(19.8)	.580(14.7)	.475(12.1)	.135(3.43)	.585(14.9)	.675(17.2)
PKA70B1/4	.980(24.9)	.740(18.8)	.680(17.3)	.118(3.00)	.650(16.5)	.750(19.1)
PKA90B1/4	1.38(34.6)	.970(24.6)	.670(17.0)	.195(4.95)	.750(19.1)	.840(21.3)

PKAP SERIES

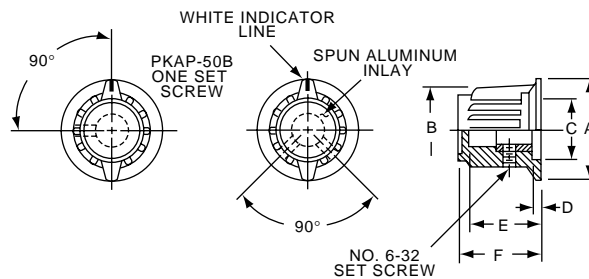


PKAP50B1/8



PKAP90B1/4

For complete product information, order Catalog 1308390



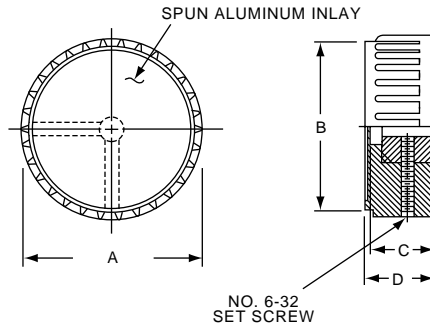
Ribbed with Skirt and Pointer with Indicator Line						
Model	A	B	C	D	E	F
PKAP50B1/8	.787(20.0)	.693(17.6)	.508(12.9)	.082(2.08)	.579(14.7)	.689(17.5)
PKAP50B1/4	.787(20.0)	.693(17.6)	.508(12.9)	.082(2.08)	.579(14.7)	.689(17.5)
PKAP70B1/4	.976(24.8)	.874(22.1)	.668(17.0)	.150(3.81)	.634(16.1)	.748(19.0)
PKAP90B1/4	1.36(34.6)	1.29(32.8)	.673(17.1)	.197(5.00)	.740(18.8)	.846(21.5)

Knobs, Molded Phenolic

PKB SERIES



PKB90B1/4



Fluted with Indicator Line On Skirt						
Model	A	B	C	D	E	F
PKB70B1/4	1.12(28.3)	.750(19.1)	.670(17.0)	.118(3.00)	.505(12.8)	.600(15.2)
PKB90B1/4	1.50(38.1)	1.02(25.8)	.800(20.3)	.145(3.68)	.705(17.9)	.820(20.8)

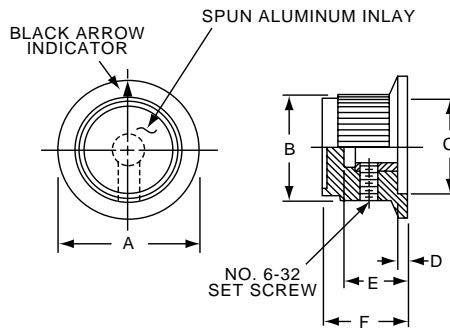
PKD SERIES



PKD60B1/4



PKD100B1/4



Straight Knurl Aluminum Skirt w/Arrow Indicator						
Model	A	B	C	D	E	F
PKD60B1/8	.800(20.3)	.600(15.2)	.480(12.2)	.050(1.27)	.370(9.40)	.520(13.2)
PKD60B1/4	.800(20.3)	.600(15.2)	.480(12.2)	.050(1.27)	.370(9.40)	.520(13.2)
PKD70B1/4	1.02(25.9)	.750(19.1)	.700(17.8)	.080(2.03)	.490(12.5)	.610(15.5)
PKD100B1/4	1.29(32.8)	1.00(25.4)	.865(22.0)	.050(1.27)	.500(12.7)	.590(15.0)

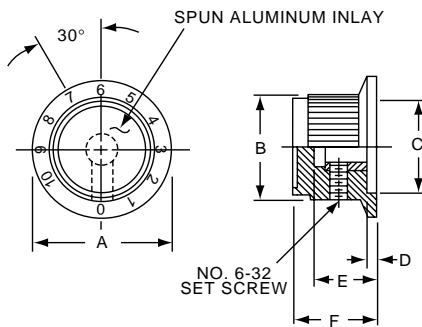
PKD SERIES



PKD60B101/8



PKD100B101/4



Straight Knurl Skirt w/0-10 Numerals						
Model	A	B	C	D	E	F
PKD60B101/8	.800(2.03)	.600(15.2)	.480(12.2)	.050(1.27)	.370(9.40)	.520(13.2)
PKD60B101/4	.800(2.03)	.600(15.2)	.480(12.2)	.050(1.27)	.370(9.40)	.520(13.2)
PKD70B101/4	1.02(25.9)	.750(19.1)	.700(17.8)	.080(2.03)	.490(12.5)	.610(15.5)
PKD100B101/4	1.29(32.8)	1.00(25.4)	.865(22.0)	.050(1.27)	.500(12.7)	.590(15.0)

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Knobs, Molded Phenolic

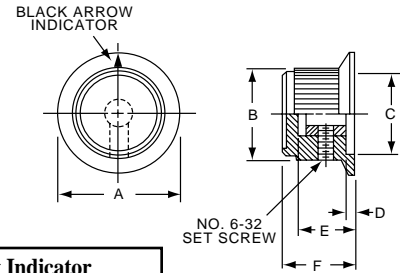
PKDT SERIES



PKDT60B1/4



PKDT100B1/4



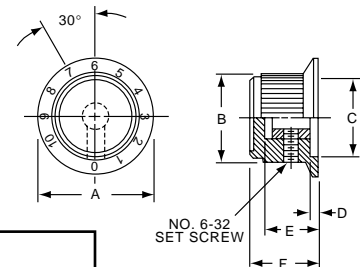
Black Spin Cap with "Diamond Cut" and Arrow Indicator

Model	A	B	C	D	E	F
PKDT60B1/8	.778(19.8)	.605(15.4)	.490(12.5)	.060(1.53)	.392(9.96)	.562(14.3)
PKDT60B1/4	.778(19.8)	.605(15.4)	.490(12.5)	.060(1.53)	.392(9.96)	.562(14.3)
PKDT70B1/4	1.03(26.0)	.738(18.8)	.720(18.3)	.098(2.49)	.500(12.7)	.635(16.1)
PKDT100B1/4	1.29(32.8)	1.02(25.9)	.860(21.8)	.042(1.07)	.500(12.7)	.638(16.2)

PKDT SERIES



PKDT100B101/4



Black Spin Cap with "Diamond Cut" & 0-10 Numerals

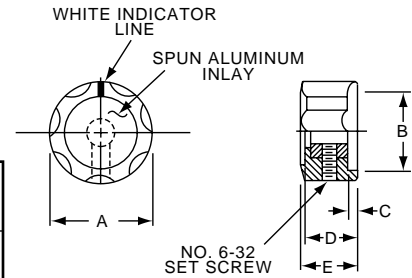
Model	A	B	C	D	E	F
PKDT60B101/8	.778(19.8)	.605(15.4)	.560(12.5)	.060(1.53)	.392(9.96)	.562(14.3)
PKDT60B101/4	.778(19.8)	.605(15.4)	.560(12.5)	.060(1.53)	.392(9.96)	.562(14.3)
PKDT70B101/4	1.03(26.0)	.738(18.8)	.720(18.3)	.098(2.49)	.500(12.7)	.635(16.1)
PKDT100B101/4	1.29(32.8)	1.02(25.9)	.860(21.8)	.042(1.07)	.500(12.7)	.638(16.2)

PKE SERIES

PKE60B1/8



PKE90B1/4



Fluted with Indicator Line

Model	A	B	C	D	E
PKE60B1/8	.626(15.9)	.472(12.0)	.091(2.31)	.394(10.0)	.472(12.0)
PKE60B1/4	.626(15.9)	.472(12.0)	.091(2.31)	.394(10.0)	.472(12.0)
PKE90B1/4	.890(22.6)	.724(18.4)	.098(2.49)	.480(12.2)	.512(13.0)

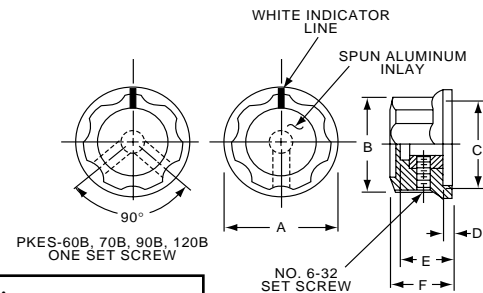
PKES SERIES



PKES60B1/4



PKES70B1/4



Fluted with Skirt and Indicator Line

Model	A	B	C	D	E	F
PKES60B1/8	.748(19.0)	.618(15.7)	.460(11.7)	.090(2.29)	.370(9.40)	.470(11.9)
PKES60B1/4	.748(19.0)	.618(15.7)	.460(11.7)	.090(2.29)	.370(9.40)	.470(11.9)
PKES70B1/4	.855(21.7)	.744(18.9)	.705(17.9)	.080(2.03)	.421(10.7)	.526(13.4)
PKES90B1/4	1.01(25.7)	.889(22.6)	.846(21.5)	.079(2.01)	.421(10.7)	.570(14.5)
PKES120B1/4	1.30(32.9)	1.16(29.5)	1.02(25.9)	.118(3.00)	.500(12.7)	.628(16.0)
PKES140B1/4	1.50(38.1)	1.37(34.9)	1.22(30.9)	.118(3.00)	.540(13.7)	.693(17.6)
PKES150B1/4	1.77(44.9)	1.55(39.4)	1.41(35.9)	.118(3.00)	.733(18.6)	.831(21.1)

Knobs, Molded Phenolic

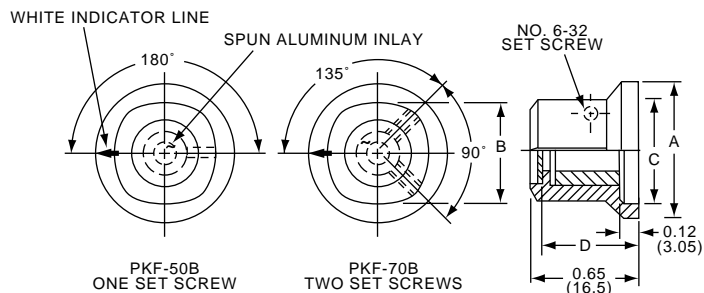
PKF SERIES



PKF50B1/8



PKF70B1/4



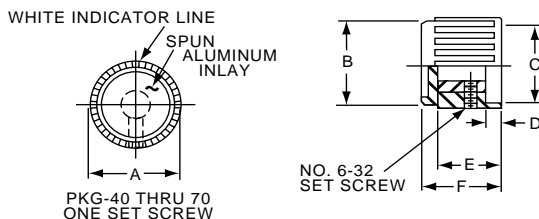
Plain Quadrate with Indicator Line & Arrow

Model	A	B	C	D
PKF50B1/8	.670(17.0)	.450(11.4)	.530(13.5)	.520(13.2)
PKF50B1/4	.670(17.0)	.450(11.4)	.530(13.5)	.520(13.2)
PKF70B1/4	.830(21.0)	.610(15.5)	.580(14.7)	.580(14.7)

PKG SERIES



PKG40B1/8



Ribbed with Indicator Line

Model	A	B	C	D	E	F
*PKG40B1/8	.437(11.1)	.410(10.4)	.304(7.72)	.079(2.00)	.385(9.78)	.472(12.0)
PKG50B1/8	.551(14.0)	.500(12.7)	.442(10.7)	.056(1.42)	.395(10.03)	.512(13.0)
PKG50B1/4	.551(14.0)	.500(12.7)	.442(10.7)	.056(1.42)	.395(10.03)	.512(13.0)

*Note: Knob uses #4-40 set screw

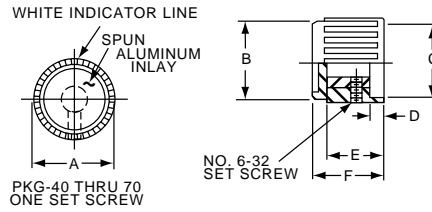
For complete product information, order Catalog 1308390

Knobs, Molded Phenolic

PKG SERIES



PKG70B1/8

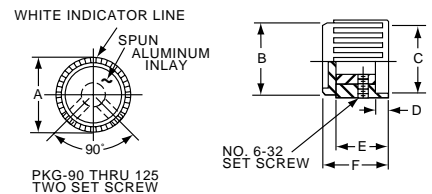


Ribbed with Indicator Line						
Model	A	B	C	D	E	F
PKG60B1/8	.660(16.8)	.615(15.6)	.551(14.0)	.080(2.03)	.430(10.9)	.551(14.0)
PKG60B1/4	.660(16.8)	.615(15.6)	.551(14.0)	.080(2.03)	.430(10.9)	.551(14.0)
PKG70B1/8	.740(18.8)	.698(17.7)	.591(15.0)	.080(2.03)	.453(11.5)	.559(14.2)
PKG70B1/4	.740(18.8)	.698(17.7)	.591(15.0)	.080(2.03)	.453(11.5)	.559(14.2)

PKG SERIES



PKG90B1/4

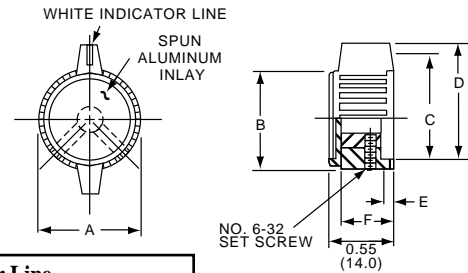


Ribbed with Indicator Line						
Model	A	B	C	D	E	F
PKG90B1/8	.862(21.9)	.811(20.6)	.710(18.0)	.080(2.03)	.450(11.4)	.550(14.0)
PKG90B1/4	.862(21.9)	.811(20.6)	.710(18.0)	.080(2.03)	.450(11.4)	.550(14.0)
PKG100B1/8	1.06(26.9)	1.01(25.5)	.920(23.4)	.080(2.03)	.430(10.9)	.555(14.1)
PKG125B1/4	1.25(31.7)	1.20(30.4)	.690(17.5)	.080(2.03)	.430(10.9)	.565(14.4)

PKGP SERIES



PKGP70B1/4



Ribbed with Bar Pointers and Indicator Line						
Model	A	B	C	D	E	F
PKGP70B1/4	.740(18.8)	.700(17.8)	.590(15.0)	.990(25.2)	.080(2.03)	.460(11.7)
PKGP90B1/4	.860(21.8)	.810(20.6)	.700(17.8)	1.28(32.5)	.080(2.03)	.460(11.7)
PKGP100B1/4	1.05(26.2)	1.00(25.4)	.900(22.9)	1.62(41.2)	.080(2.03)	.480(12.2)

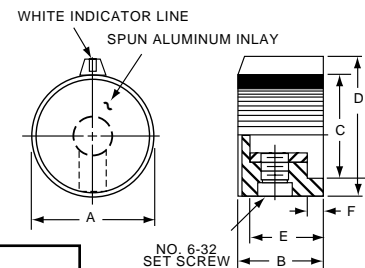
PKJ SERIES



PKJ50B1/8



PKJ70B1/4



Straight Knurl with Aluminum Spin Plate						
Model	A	B	C	D	E	F
PKJ50B1/8	.520(13.2)	.518(13.2)	.350(8.89)	.595(15.1)	.435(11.1)	.125(3.18)
*PKJ50B1/4	.520(13.2)	.518(13.2)	.350(8.89)	.595(15.1)	.435(11.1)	.125(3.18)
PKJ60B1/4	.630(16.0)	.530(13.5)	.468(11.9)	.758(19.3)	.440(11.2)	.110(2.79)
PKJ70B1/4	.760(19.3)	.555(14.1)	.545(13.8)	.915(23.2)	.450(11.4)	.118(3.00)

*Note: Knob uses #4-40 set screw

For complete product information, order Catalog 1308390

Knobs, Molded Phenolic

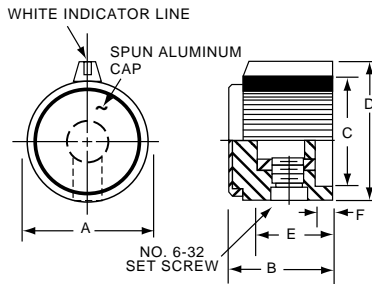
PKJT SERIES



PKJT50B1/4



PKJT70B1/4

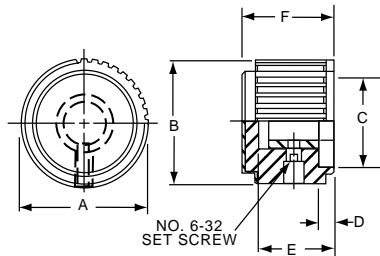


Straight Knurl with Aluminum Spin Plate						
Model	A	B	C	D	E	F
PKJT50B1/8	.515(13.1)	.585(14.9)	.350(8.89)	.595(15.1)	.414(10.5)	.130(3.30)
*PKJT50B1/4	.515(13.1)	.585(14.9)	.350(8.89)	.595(15.1)	.414(10.5)	.130(3.30)
PKJT60B1/4	.640(16.3)	.605(15.4)	.470(11.9)	.760(19.3)	.445(11.3)	.120(3.05)
PKJT70B1/4	.760(19.3)	.625(15.9)	.550(14.0)	.915(23.2)	.445(11.3)	.120(3.05)

PKNT SERIES



PKNT60B1/4

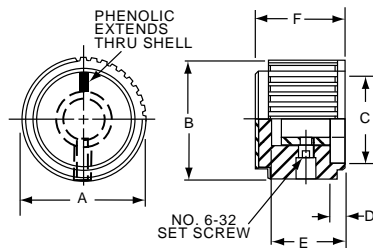


Black Spin Cap with "Diamond Cut" Less Indicator						
Model	A	B	C	D	E	F
PKNT60B1/8	.591(15.0)	.575(14.6)	.394(10.0)	.079(2.01)	.374(9.50)	.472(12.0)
PKNT60B1/4	.591(15.0)	.575(14.6)	.394(10.0)	.079(2.01)	.374(9.50)	.472(12.0)
PKNT70B1/4	.795(20.2)	.748(19.0)	.748(19.0)	.098(2.49)	.484(12.3)	.591(15.0)
PKNT90B1/4	.980(24.9)	.957(24.3)	.748(19.0)	.098(2.49)	.590(15.0)	.700(17.8)

PKN SERIES



PKN60B1/8

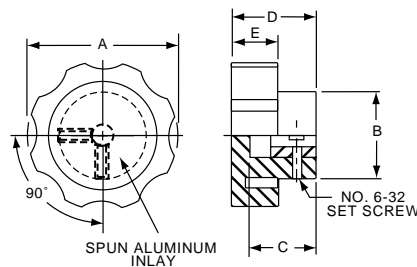


Line Indicator on Natural Aluminum Spin Cap						
Model	A	B	C	D	E	F
PKN60B1/8	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.453(11.5)
PKN60B1/4	.591(15.0)	.579(14.7)	.394(10.0)	.079(2.01)	.394(10.0)	.453(11.5)
PKN70B1/4	.787(20.0)	.764(19.4)	.571(14.5)	.098(2.49)	.492(12.5)	.591(15.0)
PKN90B1/4	.984(25.0)	.957(24.3)	.748(19.0)	.098(2.49)	.591(15.0)	.689(17.5)

PKR SERIES



PKR175B1/4



High Torque Fluted Knobs					
Model	A	B	C	D	E
PKR125B1/4	1.18(29.9)	.785(19.9)	.468(11.9)	.615(15.6)	.300(7.62)
PKR175B1/4	1.77(44.9)	1.02(25.9)	.788(20.0)	1.00(25.4)	.364(9.25)

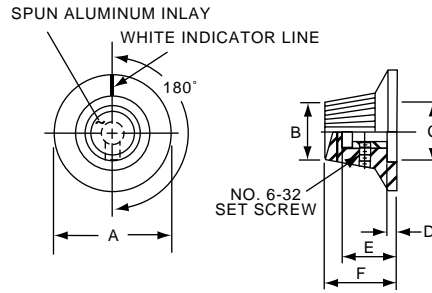
For complete product information, order Catalog 1308390

Knobs, Molded Phenolic

PKS SERIES



PKS1104B1/4

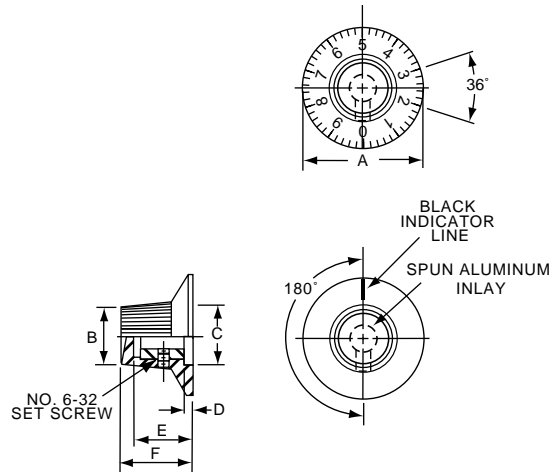


Straight Knurl with Indicator Line on Skirt						
Model	A	B	C	D	E	F
PKS1104B1/4	1.12(28.5)	.567(14.4)	.620(15.8)	.090(2.29)	.510(12.95)	.670(17.0)

PKS SERIES



PKS1106B1/4

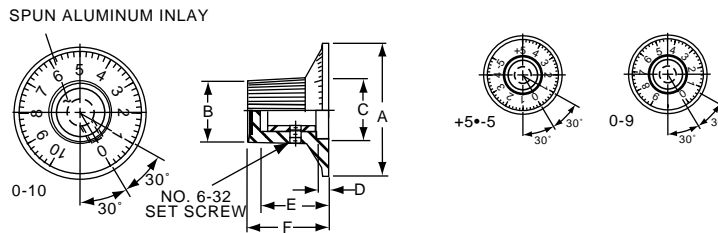


Straight Knurl Aluminum Skirt Has Line or 0-9 Numbers							
Model	A	B	C	D	E	F	Marking
PKS1106B1/4	1.17(29.6)	.571(14.5)	.618(15.7)	.098(2.49)	.516(13.1)	.670(17.0)	Line
PKS1105B101/4	1.17(29.6)	.571(14.5)	.618(15.7)	.098(2.49)	.516(13.1)	.670(17.0)	Numbers

PKS SERIES



PKS1132B51/4



PKS1132B91/4

Choice of Indicator Line or 0-9, 0-10, -5+5 Numerals							
Model	A	B	C	D	E	F	Marking
PKS1132B51/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.642(16.3)	.748(19.0)	+5-0-5
PKS1132B91/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.642(16.3)	.748(19.0)	0-9
PKS1132B101/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.642(16.3)	.748(19.0)	0-10
*PKS1132B1/4	1.18(30.0)	.551(14.0)	.551(14.0)	.118(30.0)	.642(16.3)	.748(19.0)	Blank

*1 Set screw 180° from indicator line.

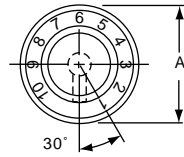
For complete product information, order Catalog 1308390

Knobs, Molded Phenolic

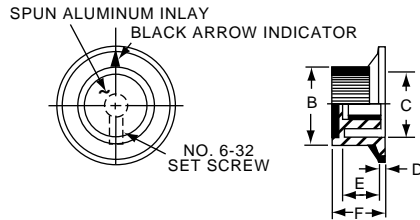
PKS SERIES



PKS90B1/4



PKS90B101/4

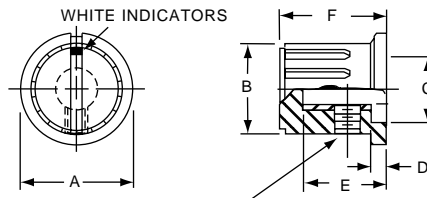


Straight Knurl with Aluminum Skirt Choice of Arrow or 1-10 Numbers							
Model	A	B	C	D	E	F	Marking
PKS90B1/4	1.42(36.1)	.917(23.3)	.780(19.8)	.065(1.65)	.490(12.5)	.596(15.1)	Arrow
PKS90B101/4	1.42(36.1)	.917(23.3)	.780(19.8)	.065(1.65)	.490(12.5)	.596(15.1)	Numbers

PKX SERIES



PKX50B1/8



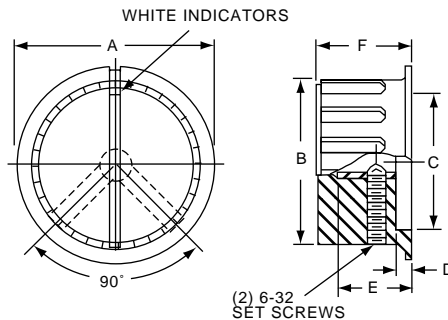
(1) 6-32 SET SCREW EXCEPT
PKX-50, (1) 4-40 AND
PKX-100, (2) 6-32

Ribbed Body, Matte Finish with White Square Indicator on Top						
Model	A	B	C	D	E	F
PKX50B1/8	.590(15.0)	.472(12.0)	.374(9.49)	.059(1.50)	.450(11.4)	.551(14.0)
PKX50B1/4	.590(15.0)	.472(12.0)	.374(9.49)	.059(1.50)	.450(11.4)	.551(14.0)
PKX60B1/8	.787(20.0)	.625(15.9)	.472(12.0)	.047(1.19)	.510(13.0)	.598(15.2)
PKX60B1/4	.787(20.0)	.625(15.9)	.472(12.0)	.047(1.19)	.510(13.0)	.598(15.2)
PKX80B1/4	.950(24.1)	.827(21.0)	.630(16.0)	.047(1.19)	.550(14.0)	.630(16.0)
PKX100B1/4	1.17(29.7)	.970(24.6)	.860(21.8)	.120(3.05)	.540(13.7)	.670(17.0)

PKX SERIES



PKX110B1/4



(2) 6-32 SET SCREWS

Ribbed Body, Matte Finish with White Square Indicator on Top						
Model	A	B	C	D	E	F
PKX110B1/4	1.37(34.8)	1.14(29.0)	.930(23.6)	.120(3.05)	.540(13.7)	.710(18.4)
PKX130B1/4	1.57(40.0)	1.32(33.5)	1.09(27.6)	.120(3.05)	.610(15.5)	.750(19.0)

For complete product information,
order Catalog 1308390

140 SERIES

STANDARD FEATURES

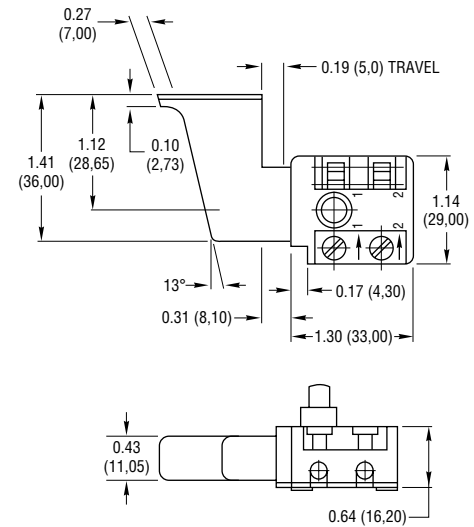
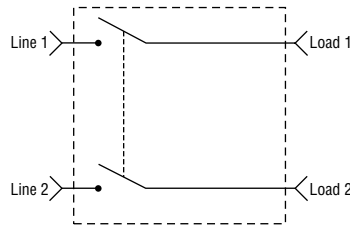
- Double pole, single throw
- Ratings:
10A 125VAC
8(8) 250VAC
- UL/CSA approved
- Most European approvals

OPTIONS

- Lock on
- Lock off
- Plug-in and/or screw terminals
- Various trigger styles and colors
- Various lock button styles and colors



WIRING DIAGRAM



8649 SERIES VARIABLE SPEED

STANDARD FEATURES

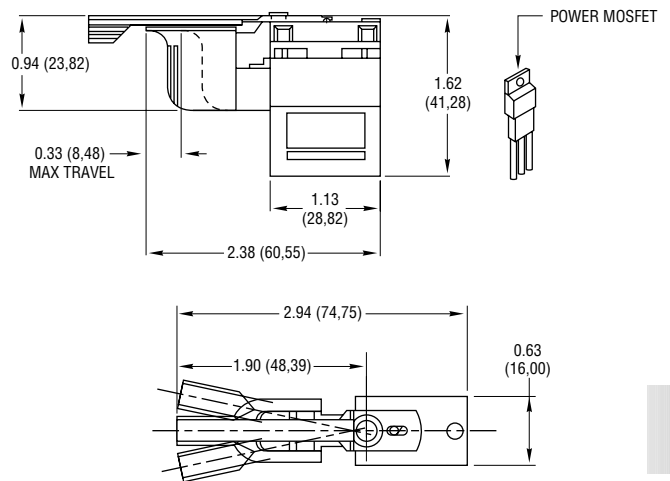
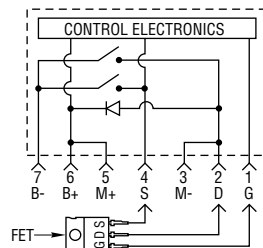
- Single pole
- Rating:
10A 12VDC
- UL approved
- Plug-in termination

OPTIONS

- Three position reversing switch with center off
- Various trigger styles and colors
- Dynamic brake circuit
- Battery terminals
- Special speed control circuits for: 7.2, 9.6, 12, 24 and 36VDC
- Wide range of power FETS
- Various reversing lever styles and colors
- Higher ratings



WIRING DIAGRAM



PT SERIES

STANDARD FEATURES

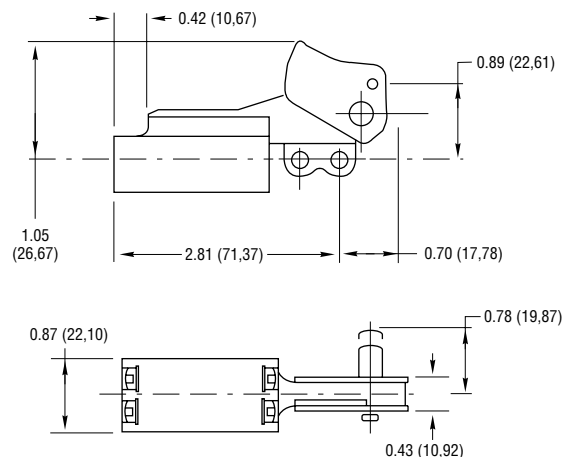
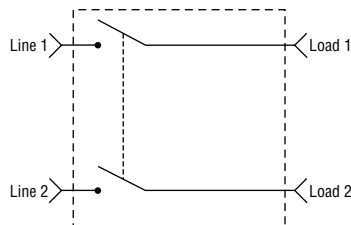
- Double pole, single throw
- UL/CSA approved:
22A 125VAC/DC
10A 250VAC/DC
- VDE 10 (10) 250V
- Screw termination

OPTIONS

- Alternate circuits i.e.: SPDT and alternate action
- Lock on
- Padlock hole
- Various trigger styles and colors



WIRING DIAGRAM



For complete product information, order Catalog 1308650

CUSTOM POWER TOOL SWITCHES

Power Tool Switches include a wide assortment of on/off utility trigger switches, dust resistant AC variable speed switches, in-line and "L" style cordless tool switches, custom battery tool switches, standard and custom industrial dynamic brake switches. These power tool switches are currently used in consumer electric hand power tools and industrial tools. Manufacturing capabilities include thick film on ceramic substrates; automated surface mount placement systems; resistive, reflow, belt reflow and infrared soldering; laser trim/test (active and passive); chip mounting, wire bonding and full encapsulation capability. In addition to our standard product offering, Tyco Electronics can adapt products and develop products which accommodate your specific needs. Working with your engineering staff at the concept stage, we can design solutions for specific customer needs.

Tyco Electronics can manufacture Power Tool Switches to your specific requirements. Contact us for more information at 800-522-6752.

CUSTOM VARIABLE SPEED AND ON/OFF TRIGGER SWITCHES



CUSTOM BATTERY TOOL SWITCHES



CUSTOM INDUSTRIAL TOOL SWITCHES



For complete product information, order Catalog 1308390

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Use to Select Proper Size Terminal

The chart shows sizes and dimensions of various studs and the corresponding terminal stud hole sizes used with AMP devices.

For example, with stud #5 (.125 Diameter), use AMP device listed for #5 stud (.129 Hole Diameter).

Terminal stud hole sizes may easily be checked by fitting sample terminal to black circle.

Stud Size		Stud Dia.	Minimum Terminal Hole Diameter	Stud Size		Stud Dia.	Minimum Terminal Hole Diameter	
U.S. Cust.	Metric			U.S. Cust.	Metric			
#0		.060	●	.064				
#1		.073	●	.077	5/8"	M16	.625	● .651
#2	M2	.086	●	.090				
#3		.099	●	.103				
#4		.112	●	.116	3/4"		.750	● .776
#5	M3	.125	●	.129				
#6	M3.5	.138	●	.142				
#8	M4	.164	●	.168	7/8"	M22	.875	● .901
#10		.190	●	.194				
#12		.216	●	.220				
#14		.242	●	.245	1"		1.000	● 1.026
1/4"	M6	.250	●	.260				
5/16"	M8	.312	●	.323				
3/8"		.375	●	.385	1 1/8"		1.125	● 1.151
7/16"		.437	●	.448				
1/2"	M12	.500	●	.510	1 1/4"		1.250	● 1.276

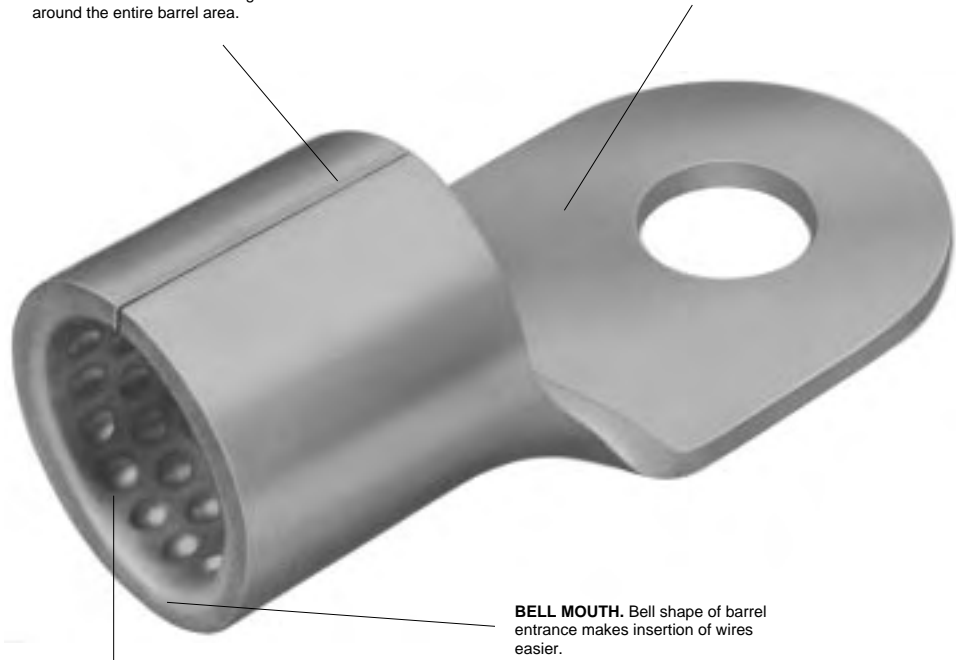
For complete product information, order Catalog 82042

The SOLISTRAND Terminal

SOLISTRAND terminals and splices are specially designed to terminate solid and stranded wire, irregular shaped conductors, and combinations of these — still retaining the superior performance characteristics of single-purpose terminals and splices. Because AMP matches the terminal to the tool each termination is uniformly perfect, making quality control easy and performance consistent. Corrosion resistance, vibration resistance and tensile strength of these terminals and splices are well within the limits of commercial and military specifications. The SOLISTRAND line includes parallel and butt splices, and flag, ring, spade, hooked, and flanged tongue terminals in sizes from 26 AWG [0.1 mm²] through 600 MCM [304 mm²].

BRAZED SEAM. The barrel is completely closed and seam is brazed for uniform metal strength around the entire barrel area.

BASIC TERMINAL MATERIAL. The basic terminal is constructed of fine grade high conductivity copper per ASTM B-152 and tin-plated per MIL-T-10727. Basic material for Spring Spade Tongue Terminals is phosphor bronze per ASTM B-103 and tin-plated per MIL-T-10727. The AMP special plating process creates durable corrosion resistance to salt spray and most chemical fumes.



BELL MOUTH. Bell shape of barrel entrance makes insertion of wires easier.

DIMPLES OR SERRATIONS. Inner surface either dimpled or serrated for optimum tensile strength and maximum electrical contact area after crimping.

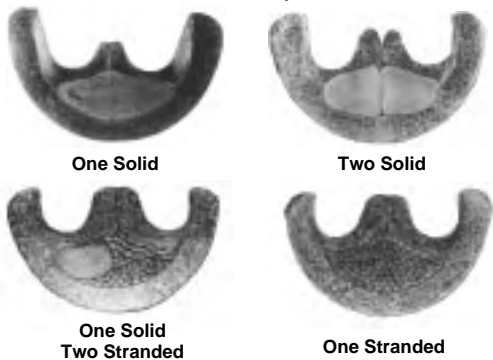
SOLISTRAND Terminals meet or exceed the requirements of MIL-T-7928, Type I, Class 1 and 2.

The Crimp

The "W" Crimp is one of several time-proven crimp types developed by AMP. It is not just a "kink" in a metal barrel; not something pinched over electrical wire ends. The "W" Crimp is actually two longitudinal crimps applied with precisely controlled pressure so that the conductor within the barrel flows together into the dimples or serrations of the terminal barrel creating one homogeneous mass of metal. The two indents also help to center conductors within the barrel for uniform crimping of the barrel around the wire. Furthermore, the "W" Crimp permits the use of a shorter terminal barrel, an excellent feature for confined area termination.

The "W" Crimp creates terminations of optimum electrical properties and is completely reliable, giving long service in punishing environments.

"W" Crimp



Temperature Rating: 170°C Max.

AMP SOLISTRAND Terminals and Splices (Use SOLISTRAND Tooling)

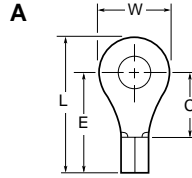
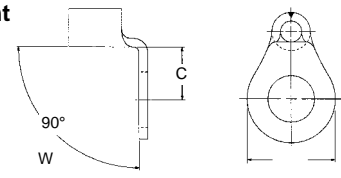
AMP Wire Size	UL Listed File No. E13288	SP® LR 7189 Certified
22-16 Solid or Stranded	22-16 Solid or Stranded	22-16 Solid or Stranded
16-14 Solid or Stranded	16-14 Solid or Stranded	16-14 Solid or Stranded
16-14 Heavy Duty Solid or Stranded	16-14 Heavy Duty Stranded	16-14 Heavy Duty Solid or Stranded
14-12 Solid or Stranded	14-12 Stranded	14-12 Solid or Stranded
12-10 Solid or Stranded	12-10 Stranded	12-10 Solid or Stranded
8 thru 600 MCM Solid or Stranded	8 thru 600 MCM Stranded	8 thru 600 MCM Solid or Stranded

Note: 22-16 terminals and splices are stamped 22-18 in accordance with MIL-T-7928. Commercial wire range is 22-16.

For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727

90° Bent


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C Min.	W			
26-22 202-810 [0.1-0.41]	2 M2	A	.419	.346	.211	.140	.020	.031	50334*
			10.64	8.79	5.36	3.56	0.51	0.79	
22-16 509-3,260 [0.26-1.65]	2 M2	A	.449	.337	.156	.218	.033	.061	34103
			11.40	8.56	3.96	5.54	0.84	1.55	
	4	A	.449	.337	.156	.218	.033	.061	2-34104-6
			11.40	8.56	3.96	5.54	0.84	1.55	
		A	.446	.353	.172	.182	.033	.061	36467*
			11.33	8.97	4.37	4.62	0.84	1.55	
	6 M3.5	A	.621	.493	.312	.250	.033	.061	323096
			15.77	12.52	7.92	6.35	0.84	1.55	2-323096-2
		A	.449	.337	.156	.218	.033	.061	34105*
			11.40	8.56	3.96	5.54	0.84	1.55	
	8 M4	A	.574	.436	.250	.281	.033	.061	34107*
			14.58	11.07	6.35	7.14	0.84	1.55	2-34107-2
		A	.621	.462	.281	.312	.033	.061	34110*
			15.77	11.73	7.14	7.92	0.84	1.55	
10	A	.621	.462	.281	.312	.033	.061	2-34111-3	
		15.77	11.73	7.14	7.92	0.84	1.55		
	A	.574	.436	.250	.281	.033	.061	34108*	
		14.58	11.07	6.35	7.14	0.84	1.55	2-34108-2	
90° Bent	A	.621	.462	.281	.312	.033	.061	34112*	
		15.77	11.73	7.14	7.92	0.84	1.55	2-34112-2	
16-14 2,050-5,180 [1.04-2.62]	1/4 M6	A	.574	.436	.250	.281	.033	.061	34109*
			14.58	11.07	6.35	7.14	0.84	1.55	2-34109-2
	5/16 M8	A	.187	.187	.187	.312	.031	.141	322768
			4.75	4.75	4.75	7.92	0.79	3.58	
	3/8	A	.856	.618	.437	.469	.033	.061	34113*
			21.74	15.70	11.10	11.91	0.84	1.55	2-34113-2
	1/2 M12	A	.856	.618	.437	.469	.033	.061	34114*
			21.74	15.70	11.10	11.91	0.84	1.55	2-34114-2
	4	A	.995	.727	.546	.531	.033	.061	34115*
			25.27	18.47	13.87	13.49	0.84	1.55	2-34115-2
6 M3.5	A	1.070	.711	.530	.713	.033	.061	329966*	
		27.18	18.06	13.46	18.11	0.84	1.55		
	A	.480	.352	.171	.250	.033	.085	34119*	
		12.19	8.94	4.34	6.35	0.84	2.16		
	A	.636	.462	.281	.343	.033	.085	34121*	
		16.15	11.73	7.14	8.71	0.84	2.16	2-34121-1	
	A	.480	.352	.171	.250	.033	.085	34120*	
		12.19	8.94	4.34	6.35	0.84	2.16	2-34120-1	
	A	.590	.431	.250	.312	.033	.085	321684*	
		14.99	10.95	6.35	7.92	0.84	2.16		
	8 M4	A	.636	.462	.281	.343	.033	.085	34122*
			16.15	11.73	7.14	8.71	0.84	2.16	2-34122-1
A	.636	.462	.281	.343	.033	.085	2-34123-1		
	16.15	11.73	7.14	8.71	0.84	2.16			
A	.669	.510	.250	.312	.033	.085	320093		
	16.99	12.95	6.35	7.92	0.84	2.16	2-320093-1		
1/4 M6	A	.855	.618	.437	.469	.033	.085	34124*	
		21.72	15.70	11.10	11.91	0.84	2.16		
5/16 M8	A	.855	.618	.437	.469	.033	.085	34125*	
		21.72	15.70	11.10	11.91	0.84	2.16		
3/8	A	.995	.727	.546	.531	.033	.085	34126*	
		25.27	18.47	13.87	13.49	0.84	2.16		
1/2 M12	A	1.184	.806	.625	.750	.033	.085	50981	
		30.07	20.47	15.88	19.05	0.84	2.16		

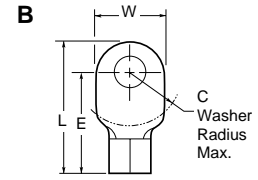
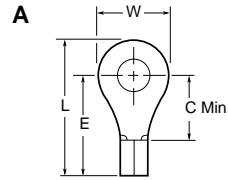
Note: Part numbers are shown as loose piece over tape mounted product.

* Part numbers are available in small quantity packages.

For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
14-12 3,260-8,230 [1.65-4.17]	6	B	.654 16.61	.526 13.36	.330 8.38	.250 6.35	.038 0.97	.098 2.49	35684
	10	B	.739 18.77	.526 13.36	.250 6.35	.421 10.69	.042 1.07	.098 2.49	34484
		B	.685 17.40	.526 13.36	.250 6.35	.312 7.92	.042 1.07	.098 2.49	321828 1-321828-0
	1/4 M6	B	.739 18.77	.526 13.36	.250 6.35	.421 10.69	.042 1.07	.098 2.49	34487
	3/8	B	1.120 28.45	.774 19.66	.437 11.10	.687 17.45	.042 1.07	.098 2.49	34486
12-10 5,180-13,100 [2.62-6.64]	4	A	.630 16.00	.487 12.37	.219 5.56	.281 7.14	.042 1.07	.129 3.28	322447
	6	A	.630 16.00	.487 12.37	.219 5.56	.281 7.14	.042 1.07	.129 3.28	35476* 2-35476-1
		M3.5	A	.765 19.43	.575 14.61	.302 7.67	.375 9.53	.042 1.07	.129 3.28
	8	A	.708 17.98	.549 13.94	.281 7.14	.312 7.92	.042 1.07	.129 3.28	322454*
		M4	A	.765 19.43	.575 14.61	.302 7.67	.375 9.53	.042 1.07	.129 3.28
	10	A	.723 18.36	.549 13.94	.281 7.14	.343 8.71	.042 1.07	.129 3.28	322455
		A	.765 19.43	.575 14.61	.302 7.67	.375 9.53	.042 1.07	.129 3.28	33457* 2-33457-2
		A	.808 20.52	.618 15.70	.343 8.71	.375 9.53	.042 1.07	.129 3.28	31805
	1/4 M6	A	.865 21.97	.612 15.54	.344 8.74	.500 12.70	.042 1.07	.129 3.28	35771* 2-35771-1
		A	.865 21.97	.612 15.54	.344 8.74	.500 12.70	.042 1.07	.129 3.28	35772* 2-35772-1
	5/16 M8	A	1.004 25.50	.736 18.69	.468 11.89	.531 13.49	.042 1.07	.129 3.28	33458* 2-33458-3
		A	1.004 25.50	.736 18.69	.468 11.89	.531 13.49	.042 1.07	.129 3.28	33459* 2-33459-6
	3/8	A	1.098 27.89	.799 20.29	.531 13.49	.593 15.06	.042 1.07	.129 3.28	33220* 1-33220-2 ¹
		A	1.271 32.28	.893 22.68	.625 15.88	.750 19.05	.042 1.07	.129 3.28	322242
	1/2 M12	A	1.271 32.28	.893 22.68	.625 15.88	.750 19.05	.042 1.07	.129 3.28	35135
A		1.896 48.16	1.268 32.21	1.000 25.40	1.250 31.75	.042 1.07	.129 3.28	320763	
5/8 M16	A	1.896 48.16	1.268 32.21	1.000 25.40	1.250 31.75	.042 1.07	.129 3.28	320764	
	A	1.896 48.16	1.268 32.21	1.000 25.40	1.250 31.75	.042 1.07	.129 3.28	320765	

Note: Part numbers are shown as loose piece over tape mounted product.

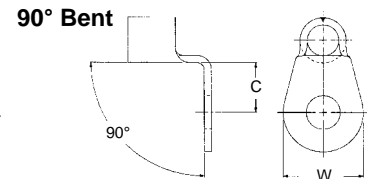
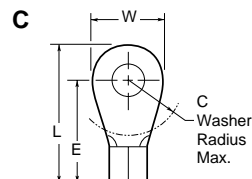
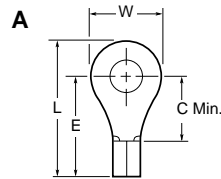
*Part numbers are available in small quantity packages.

¹ Requires a 68250-1 Heavy Duty TAPETRONIC and 68242-2 die set for application.

For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
8 13,100–20,800 [6.64–10.5]	M4	C	.949 24.10	.743 18.87	.359 9.12	.406 10.31	.051 1.30	.172 4.37	324061*
		C	.933 23.70	.696 17.68	.359 9.12	.469 11.91	.051 1.30	.172 4.37	32996*
	10	C	.933 23.70	.696 17.68	.359 9.12	.469 11.91	.051 1.30	.172 4.37	2-33460-3 ²
		C	.949 24.10	.743 18.87	.359 9.12	.406 10.31	.051 1.30	.172 4.37	31807 2-31807-2 ²
	1/4 M6	C	.933 23.70	.696 17.68	.359 9.12	.469 11.91	.051 1.30	.172 4.37	33461* 2-33461-2* ¹ 2-33461-3* ²
		A	1.168 29.67	.868 22.05	.531 13.49	.594 15.09	.051 1.30	.172 4.37	35247*
	5/16 M8	A	1.168 29.67	.868 22.05	.531 13.49	.594 15.09	.051 1.30	.172 4.37	33462* 2-33462-1 ²
		A	1.074 27.28	.790 20.07	.406 10.31	.562 14.27	.051 1.30	.172 4.37	31808*
	1/2 M12	A	1.965 49.91	1.337 33.96	1.000 25.40	1.250 31.75	.051 1.30	.172 4.37	35664*
	5/8 M16	A	1.965 49.91	1.337 33.96	1.000 25.40	1.250 31.75	.051 1.30	.172 4.37	35665
	3/4	A	1.965 49.91	1.337 33.96	1.000 25.40	1.250 31.75	.051 1.30	.172 4.37	35666
	6 20,800–33,100 [10.5–16.8]	10	C	1.181 30.00	.931 23.65	.531 13.49	.406 10.31	.060 1.52	.232 5.89
C			1.181 30.00	.984 24.99	.584 14.83	.406 10.31	.060 1.52	.232 5.89	53106-1
C			1.246 31.65	.931 23.65	.531 13.49	.625 15.88	.060 1.52	.232 5.89	33464*
1/4 M6		C	1.168 29.67	.931 23.65	.531 13.49	.468 11.89	.060 1.52	.232 5.89	2-321298-6
		C	1.246 31.65	.931 23.65	.531 13.49	.625 15.88	.060 1.52	.232 5.89	2-33465-1
		C	1.168 29.67	.931 23.65	.531 13.49	.468 11.89	.060 1.52	.232 5.89	321598* 2-321598-3
5/16 M8		C	1.168 29.67	.931 23.65	.531 13.49	.468 11.89	.057 1.45	.232 5.89	2-321598-4
		90° Bent	—	—	.390 9.91	.625 15.86	.057 1.45	.233 5.89	35678
3/8		C	1.246 31.65	.931 23.65	.531 13.49	.625 15.88	.060 1.52	.232 5.89	33466* 2-33466-3
1/2 M12		C	1.246 31.65	.931 23.65	.531 13.49	.625 15.88	.060 1.52	.232 5.89	33467* 2-33467-3
		A	1.840 46.74	1.400 35.56	1.000 25.40	.875 22.23	.060 1.52	.232 5.89	320344*
5/8		A	2.033 51.64	1.400 35.56	1.000 25.40	1.250 31.75	.060 1.52	.232 5.89	36808
3/4	A	2.033 51.64	1.400 35.56	1.000 25.40	1.250 31.75	.060 1.52	.232 5.89	36809	
3/4	A	2.033 51.64	1.400 35.56	1.000 25.40	1.250 31.75	.060 1.52	.232 5.89	36810	

Note: Part numbers are shown as loose piece over tape mounted product.

* Part numbers are available in small quantity packages.

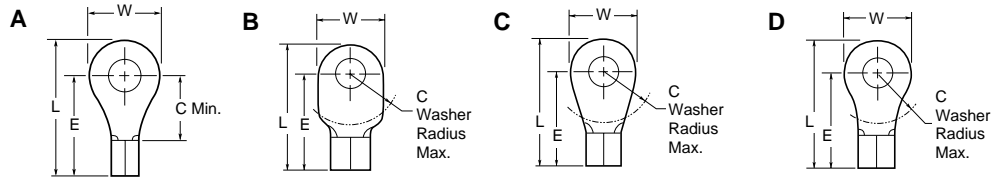
¹ Requires a 69875 standard TAPETRONIC machine for application.

² Requires a 68250-1 Heavy Duty TAPETRONIC machine for application.

For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


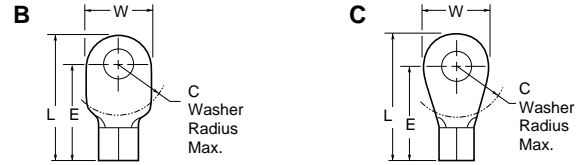
Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
4 33,100–52,600 [16.8–26.7]	10	A	1.314 33.38	.978 24.84	.516 13.11	.656 16.66	.073 1.85	.296 7.52	33468*
		C	1.199 30.45	.946 24.03	.437 11.10	.500 12.70	.073 1.85	.280 7.11	33114
	1/4 M6	A	1.314 33.38	.978 24.84	.516 13.11	.656 16.66	.073 1.85	.296 7.52	33469*
		C	1.199 30.45	.946 24.03	.437 11.10	.500 12.70	.073 1.85	.280 7.11	31811†
	5/16 M8	C	1.324 33.63	1.009 25.63	.500 12.70	.625 15.88	.073 1.85	.280 7.11	33115
	3/8	C	1.324 33.63	1.009 25.63	.500 12.70	.625 15.88	.073 1.85	.280 7.11	31812
	7/16	A	1.314 33.38	.978 24.84	.516 13.11	.656 16.66	.073 1.85	.296 7.52	320743
	1/2 M12	A	2.090 53.09	1.462 37.13	1.000 25.40	1.250 31.75	.073 1.85	.296 7.52	35668*
		B	1.902 48.31	1.462 37.13	1.000 25.40	.875 22.23	.073 1.85	.296 7.52	327175*
	5/8 M16	A	2.090 53.09	1.462 37.13	1.000 25.40	1.250 31.75	.073 1.85	.296 7.52	35669
	3/4	A	2.090 53.09	1.462 37.13	1.000 25.40	1.250 31.75	.073 1.85	.296 7.52	35670
	2 52,600–83,700 [26.7–42.4]	10	B	1.527 38.79	1.212 30.78	.531 13.49	.625 15.88	.073 1.85	.370 9.40
D			1.657 42.09	1.212 30.78	.531 13.49	.890 22.61	.073 1.85	.370 9.40	320138
1/4 M6		B	1.527 38.79	1.212 30.78	.531 13.49	.625 15.88	.073 1.85	.370 9.40	320383*
		D	1.657 42.09	1.212 30.78	.531 13.49	.890 22.61	.073 1.85	.370 9.40	320138
5/16 M8		B	1.527 38.79	1.212 30.78	.531 13.49	.625 15.88	.073 1.85	.370 9.40	322870*
3/8		B	1.527 38.79	1.212 30.78	.531 13.49	.625 15.88	.073 1.85	.370 9.40	321600*
		D	1.657 42.09	1.212 30.78	.531 13.49	.890 22.61	.073 1.85	.370 9.40	35184
7/16		D	1.657 42.09	1.212 30.78	.531 13.49	.890 22.61	.073 1.85	.370 9.40	320741
1/2 M12		D	1.657 42.09	1.212 30.78	.531 13.49	.890 22.61	.073 1.85	.370 9.40	35185*
		D	2.516 63.91	1.888 47.96	1.125 28.58	1.250 31.75	.073 1.85	.370 9.40	323291
5/8 M16		D	2.516 63.91	1.888 47.96	1.125 28.58	1.250 31.75	.073 1.85	.370 9.40	320754
1/0 83,700–119,500 [42.4–60.6]		1/4 M6	C	1.956 49.68	1.529 38.84	.625 15.88	.875 22.23	.073 1.85	.444 11.28
	C		1.925 48.90	1.532 38.91	.625 15.88	.807 20.50	.073 1.85	.444 11.28	321866
	5/16 M8	C	1.956 49.68	1.529 38.84	.625 15.88	.875 22.23	.073 1.85	.444 11.28	36916*
		C	1.925 48.90	1.532 38.91	.625 15.88	.807 20.50	.073 1.85	.444 11.28	321867*
	3/8	C	1.925 48.90	1.532 38.91	.625 15.88	.807 20.50	.073 1.85	.444 11.28	321868
	7/16	C	1.956 49.68	1.529 38.84	.625 15.88	.875 22.23	.073 1.85	.444 11.28	36918
	1/2 M12	C	2.678 68.02	2.063 52.40	1.125 28.58	1.265 32.13	.073 1.85	.444 11.28	322291

* Part numbers are available in small quantity packages.

For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
1/0 83,700–119,500 [42.4–60.6]	5/8 M16	C	2.678 68.02	2.063 52.40	1.125 28.58	1.265 32.13	.073 1.85	.444 11.28	320744
	3/4	C	2.678 68.02	2.063 52.40	1.125 28.58	1.265 32.13	.073 1.85	.444 11.28	320748
2/0 119,500–150,500 [60.6–76.3]	1/4 M6	C	1.930 49.02	1.550 39.37	.625 15.88	.926 23.52	.083 2.11	.504 12.80	321869
		C	2.000 50.80	1.545 39.24	.625 15.88	.946 24.03	.083 2.11	.504 12.80	36921
	5/16 M8	C	1.930 49.02	1.550 39.37	.625 15.88	.926 23.52	.083 2.11	.504 12.80	321870*
		C	2.000 50.80	1.545 39.24	.625 15.88	.946 24.03	.083 2.11	.504 12.80	36922
	3/8	C	1.930 49.02	1.550 39.37	.625 15.88	.926 23.52	.083 2.11	.504 12.80	321871*
		C	1.930 49.02	1.550 39.37	.625 15.88	.926 23.52	.083 2.11	.504 12.80	321872
	1/2 M12	C	1.930 49.02	1.550 39.37	.625 15.88	.926 23.52	.083 2.11	.504 12.80	321873*
		C	2.000 50.80	1.545 39.24	.625 15.88	.946 24.03	.083 2.11	.504 12.80	36925*
5/8 M16	C	2.671 67.84	2.056 52.22	1.125 28.58	1.270 32.26	.083 2.11	.504 12.80	322224	
	C	2.671 67.84	2.056 52.22	1.125 28.58	1.270 32.26	.083 2.11	.504 12.80	322225	
3/0 150,500–190,000 [76.3–96.3]	1/4	B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	323868
		B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	321874
	5/16 M8	B	2.143 54.43	1.643 41.73	.625 15.88	1.082 27.48	.094 2.39	.565 14.35	320266
		B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	321875*
	7/16	B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	321876
		B	2.143 54.43	1.643 41.73	.625 15.88	1.082 27.48	.094 2.39	.565 14.35	36929*
	1/2 M12	B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	321877*
		B	2.112 53.64	1.622 41.20	.625 15.88	1.020 25.91	.094 2.39	.565 14.35	321877*
4/0 190,000–231,000 [96.3–117]	1/4 M6	B	2.206 56.03	1.644 41.76	.625 15.88	1.150 29.21	.105 2.67	.635 16.13	2-36932-2
		B	2.537 64.44	1.985 50.42	1.078 27.38	1.150 29.21	.105 2.67	.635 16.13	321271
	5/16 M8	B	2.178 55.32	1.657 42.09	.625 15.88	1.087 27.61	.105 2.67	.635 16.13	321878*
		B	2.178 55.32	1.657 42.09	.625 15.88	1.087 27.61	.105 2.67	.635 16.13	321879
	7/16	B	2.178 55.32	1.657 42.09	.625 15.88	1.087 27.61	.105 2.67	.635 16.13	321879
		B	2.178 55.32	1.657 42.09	.625 15.88	1.087 27.61	.105 2.67	.635 16.13	321880*
	1/2 M12	B	2.178 55.32	1.657 42.09	.625 15.88	1.087 27.61	.105 2.67	.635 16.13	321880*
		B	2.206 56.03	1.644 41.76	.625 15.88	1.150 29.21	.105 2.67	.635 16.13	36934*
5/8 M16	B	2.206 56.03	1.644 41.76	.625 15.88	1.150 29.21	.105 2.67	.635 16.13	36935	
	C	2.732 69.39	2.117 53.77	1.078 27.38	1.275 32.39	.105 2.67	.635 16.13	322227	
250–300 MCM 231,000–300,000 [117–152]	3/8	B	2.602 66.09	1.987 50.47	.625 15.88	1.435 36.45	.130 3.30	.753 19.13	322252
		B	2.602 66.09	1.987 50.47	.625 15.88	1.435 36.45	.130 3.30	.753 19.13	322253
	1/2 M12	B	2.602 66.09	1.987 50.47	.625 15.88	1.435 36.45	.130 3.30	.753 19.13	322254

* Part numbers are available in small quantity packages.

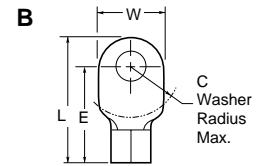
For complete product information, order Catalog 65505

Ring Tongue Terminals

Material and Finish:

Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727



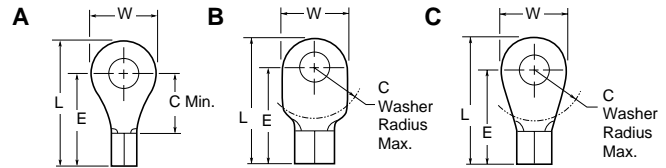
Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
300–350 MCM 300,000–380,000 [152–193]	3/8	B	2.671 67.84	2.056 52.22	.625 15.88	1.545 39.24	.140 3.56	.819 20.80	322257
		B	2.671 67.84	2.056 52.22	.625 15.88	1.545 39.24	.140 3.56	.819 20.80	322259
	1/2 M12	B	3.422 86.92	2.675 67.95	1.250 31.75	1.545 39.24	.140 3.56	.819 20.80	322764
400 MCM 380,000–478,000 [193–242]	3/8	B	2.790 70.87	2.175 55.25	.625 15.88	1.749 44.42	.158 4.01	.930 23.62	322262
	1/2 M12	B	2.790 70.87	2.175 55.25	.625 15.88	1.749 44.42	.158 4.01	.930 23.62	322264
500–600 MCM 478,000–600,000 [242–304]	3/8	B	3.187 80.95	2.447 62.15	.750 19.05	2.015 51.18	.182 4.62	1.075 27.31	322267
		B	3.187 80.95	2.447 62.15	.750 19.05	2.015 51.18	.182 4.62	1.075 27.31	322269
	1/2 M12	B	4.176 106.07	3.194 81.13	1.500 38.10	2.015 51.18	.182 4.62	1.075 27.31	322773

Heavy Duty Ring Tongue Terminals

Material and Finish:

Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727



Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	E Max.	C	W			
16–14 2,050–5,180 [1.04–2.62]	8 M4	A	.723 18.36	.549 13.94	.281 7.14	.343 8.71	.050 1.27	.105 2.67	35432
			.723 18.36	.549 13.94	.281 7.14	.343 8.71	.050 1.27	.105 2.67	34567* 2-34567-1
	1/4 M6	A	.865 21.97	.612 15.54	.344 8.74	.500 12.70	.050 1.27	.105 2.67	35775*
			.865 21.97	.612 15.54	.344 8.74	.500 12.70	.050 1.27	.105 2.67	35776
	3/8	A	1.271 32.28	.893 22.68	.625 15.88	.750 19.05	.050 1.27	.105 2.67	327732
			1.271 32.28	.893 22.68	.625 15.88	.750 19.05	.050 1.27	.105 2.67	321165*
			1/2 M12	1.271 32.28	.893 22.68	.625 15.88	.750 19.05	.050 1.27	.105 2.67
6 20,800–33,100 [10.5–16.8]	1/4 M6	B	1.184 30.07	.931 23.65	.370 9.40	.500 12.70	.095 2.41	.232 5.89	330969
4 33,100–52,600 [16.8–26.7]	5/16 M8	C	1.535 38.99	1.193 30.30	.456 11.58	.679 17.25	.095 2.41	.296 7.52	1-331420-0

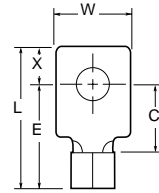
Note: Part numbers are shown as loose piece over tape mounted product.

* Part numbers are available in small quantity packages.

For complete product information, order Catalog 65505

Rectangular Tongue Terminals

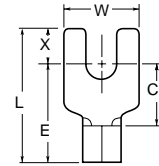
Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Dimensions					Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W	X			
16-14 2,050-5,180 [1.04-2.62]	6 M3.5	.529 13.44	.384 9.75	.203 5.16	.296 7.52	.140 3.56	.033 0.84	.085 2.16	2-34266-1
12-10 5,180-13,100 [2.62-6.64]	6 M3.5	.631 16.03	.486 12.34	.218 5.54	.290 7.37	.140 3.56	.042 1.07	.129 3.28	2-321499-1

Spade Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Dimensions					Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W	X			
22-16 509-3,260 [0.26-1.65]	2 M2	.504 12.80	.384 9.75	.203 5.16	.182 4.62	.115 2.92	.033 0.84	.061 1.55	53555-1*
	6 M3.5	.530 13.46	.384 9.75	.203 5.16	.297 7.54	.141 3.58	.033 0.84	.061 1.55	36195* 2-36195-3
		.623 15.82	.493 12.52	.312 7.92	.250 6.35	.125 3.18	.033 0.84	.061 1.55	323127*
	10	.685 17.40	.493 12.52	.312 7.92	.375 9.53	.187 4.75	.033 0.84	.061 1.55	34118* 2-34118-2
16-14 2,050-5,180 [1.04-2.62]	6 M3.5	.530 13.46	.384 9.75	.203 5.16	.297 7.54	.141 3.58	.033 0.84	.085 2.16	322996* 2-322996-1
		.623 15.82	.493 12.52	.312 7.92	.244 6.20	.125 3.18	.033 0.84	.085 2.16	330827
16-14 2,050-5,180 [1.04-2.62]	8 M4	.685 17.40	.493 12.52	.312 7.92	.385 9.78	.187 4.75	.033 0.84	.085 2.16	34128*
	10	.685 17.40	.493 12.52	.312 7.92	.385 9.78	.187 4.75	.033 0.84	.085 2.16	34129*
12-10 5,180-13,100 [2.62-6.64]	6 M3.5	.631 16.03	.486 12.34	.218 5.54	.282 7.16	.140 3.56	.042 1.07	.129 3.28	322451*
	8 M4	.991 25.17	.757 19.23	.468 11.89	.312 7.92	.250 6.35	.042 1.07	.129 3.28	32995*
	10	.772 19.61	.564 14.33	.296 7.52	.375 9.53	.203 5.16	.042 1.07	.129 3.28	35495* 2-35495-2

Note: Part numbers are shown as loose piece over tape mounted product.

* Part numbers are available in small quantity packages.

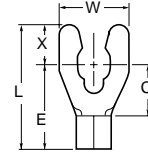
For complete product information, order Catalog 65505

Short Spring Spade Tongue Terminals

Material and Finish:

Terminal Body — Phosphor Bronze
per ASTM B-103

Plating — Tin per MIL-T-10727



Wire Size Circular Mils [mm ²]	Stud Size	Dimensions					Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W	X			
22–16 509–3,260 [0.26–1.65]	4	.576 14.63	.431 10.95	.250 6.35	.203 5.16	.140 3.56	.033 0.84	.061 1.55	53175-1*
	6 M3.5	.576 14.63	.431 10.95	.250 6.35	.250 6.35	.140 3.56	.033 0.84	.061 1.55	53120-1* 53120-2
		8 M4	.637 16.18	.462 11.73	.281 7.14	.244 6.20	.170 4.32	.033 0.84	.061 1.55
	10	.685 17.40	.462 11.73	.281 7.14	.294 7.47	.218 5.54	.033 0.84	.061 1.55	53832-2
16–14 2,050–5,180 [1.04–2.62]	6 M3.5	.576 14.63	.431 10.95	.250 6.35	.250 6.35	.140 3.56	.033 0.84	.085 2.16	53123-1* 53123-2
	8 M4	.637 16.18	.462 11.73	.281 7.14	.375 9.53	.170 4.32	.033 0.84	.085 2.16	53124-1* 53124-2
		10	.685 17.40	.462 11.73	.281 7.14	.406 10.31	.218 5.54	.033 0.84	.085 2.16
	10	.685 17.40	.462 11.73	.281 7.14	.294 7.47	.218 5.54	.033 0.84	.085 2.16	53834-2
12–10 5,180–13,100 [2.62–6.64]	6 M3.5	.636 16.15	.452 11.48	.174 4.42	.250 6.35	.179 4.55	.042 1.07	.129 3.28	53126-1* 53126-2
	8 M4	.729 18.52	.554 14.07	.276 7.01	.312 7.92	.170 4.32	.042 1.07	.129 3.28	53835-1 53835-2
		10	.777 19.74	.554 14.07	.276 7.01	.406 10.31	.218 5.54	.042 1.07	.129 3.28
	10	.777 19.74	.554 14.07	.276 7.01	.312 7.92	.218 5.54	.042 1.07	.129 3.28	53836-2

Note: Part numbers are shown as loose piece over tape mounted product.

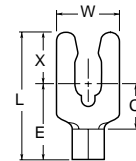
* Part numbers are available in small quantity packages.

Long Spring Spade Tongue Terminals

Material and Finish:

Terminal Body — Phosphor Bronze
per ASTM B-103

Plating — Tin per MIL-T-10727



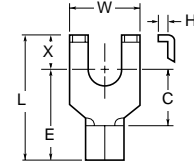
Wire Size Circular Mils [mm ²]	Stud Size	Dimensions					Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W	X			
16–14 2,050–5,180 [1.04–2.62]	8 M4	.756 19.20	.461 11.71	.270 6.86	.281 7.14	.290 7.37	.033 0.84	.085 2.16	52713-1*
	10	.782 19.86	.474 12.04	.283 7.19	.343 8.71	.303 7.70	.033 0.84	.085 2.16	52714-1*
12–10 5,180–13,100 [2.62–6.64]	10	.896 22.76	.583 14.81	.305 7.75	.375 9.53	.308 7.82	.042 1.07	.129 3.28	52717-2

* Part numbers are shown as loose piece over tape mounted product.

For complete product information, order Catalog 65505

Flanged Spade Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


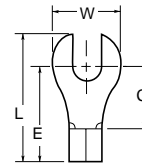
Wire Size Circular Mils [mm ²]	Stud Size	Dimensions						Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W	X	H Min.			
22-16 509-3,260 [0.26-1.65]	6	.514	.384	.203	.296	.125	.045	.033	.061	2-320749-2
	M3.5	13.06	9.75	5.16	7.52	3.18	1.14	0.84	1.55	
	8	.514	.384	.203	.296	.125	.045	.033	.061	52730* 52730-1
	M4	13.06	9.75	5.16	7.52	3.18	1.14	0.84	1.55	
16-14 2,050-5,180 [1.04-2.62]	6	.514	.384	.203	.294	.125	.047	.033	.085	2-320855-1
	M3.5	13.06	9.75	5.16	7.47	3.18	1.19	0.84	2.16	
	8	.514	.384	.203	.294	.125	.047	.033	.085	320856* 2-320856-1
	M4	13.06	9.75	5.16	7.47	3.18	1.19	0.84	2.16	
12-10 5,180-13,100 [2.62-6.64]	8	.694	.518	.250	.416	.171	.052	.042	.129	323143
	M4	17.63	13.16	6.35	10.57	4.34	1.32	1.07	3.28	
	10	.694	.518	.250	.416	.171	.052	.042	.129	2-323144-1
		17.63	13.16	6.35	10.57	4.34	1.32	1.07	3.28	

Note: Part numbers are shown as loose piece over tape mounted product.

*Part numbers are available in small quantity packages.

Slotted Ring Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


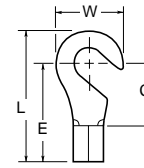
Wire Size Circular Mils [mm ²]	Stud Size	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W			
22-16 509-3,260 [0.26-1.65]	4	.425 10.80	.353 8.97	.172 4.37	.182 4.62	.033 0.84	.061 1.55	321288*

* Part Numbers are available in small quantity packages.

For complete product information, order Catalog 65505

Hook Tongue Terminals

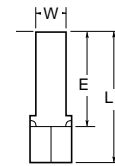
Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Dimensions				Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
		L Max.	E Max.	C Min.	W			
12-10 5,180-13,100 [2.62-6.64]	1/4 M6	1.004 25.50	.736 18.69	.468 11.89	.531 13.49	.042 1.07	.129 3.28	321632

Tab Tongue Terminals

Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Dimensions			Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
	L Max.	E Max.	W			
12-10 5,180-13,100 [2.62-6.64]	.863 21.92	.613 15.57	.125 3.18	.042 1.07	.129 3.28	322443
8 13,100-20,800 [6.64-10.5]	.937 23.80	.625 15.88	.221 5.61	.051 1.30	.177 4.50	322445

Flag Ring Tongue Terminals

Material and Finish:
Terminal Body—Copper per ASTM B-152

Plating—Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions			Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	C Min.	W			
16-14 2,050-5,180 [1.04-2.62]	8 M4	A	.579 14.71	.250 6.35	.312 7.92	.033 0.84	.085 2.16	325069
12-10 5,180-13,100 [2.62-6.64]	8 M4	A	.702 17.83	.281 7.14	.375 9.53	.042 1.07	.129 3.28	36270
	10	A	.702 17.83	.281 7.14	.375 9.53	.042 1.07	.129 3.28	36271*
	1/4 M6	A	.702 17.83	.281 7.14	.375 9.53	.042 1.07	.129 3.28	36272
6 20,800-33,100 [10.5-16.8]	10	A	.841 21.36	.250 6.35	.500 12.70	.048 1.22	.224 5.69	323196
	1/4 M6	A	.960 24.38	.371 9.42	.500 12.70	.048 1.22	.224 5.69	321576
	5/16 M8	B	1.200 30.48	.528 13.41	.625 15.88	.048 1.22	.224 5.69	321056
4 33,100-52,600 [16.8-26.7]	10	A	1.048 26.62	.368 9.35	.546 13.87	.051 1.30	.280 7.11	321059
	1/4 M6	A	1.048 26.62	.368 9.35	.546 13.87	.051 1.30	.280 7.11	321275
	5/16 M8	B	1.278 32.46	.530 13.46	.682 17.32	.051 1.30	.280 7.11	321060

* Part numbers are available in small quantity packages.

For complete product information, order Catalog 65505

Flag Ring Tongue Terminals

Material and Finish:
Terminal Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


Wire Size Circular Mils [mm ²]	Stud Size	Style	Dimensions			Material Thickness Max.	Wire Barrel I.D. Min.	Part Numbers
			L Max.	C Min.	W			
2 52,600–83,700 [26.7–42.4]	10	B	1.437 36.50	.534 13.56	.713 18.11	.060 1.52	.357 9.07	321063
	1/4 M6	B	1.437 36.50	.534 13.56	.713 18.11	.060 1.52	.357 9.07	321201
	5/16 M8	B	1.437 36.50	.534 13.56	.713 18.11	.060 1.52	.357 9.07	321064
	3/8	B	1.437 36.50	.534 13.56	.713 18.11	.060 1.52	.357 9.07	321253
1/0 83,700–119,500 [42.4–60.6]	5/16 M8	A	1.733 44.02	.666 16.92	.875 22.23	.073 1.85	.444 11.28	321580
	3/8	A	1.733 44.02	.666 16.92	.875 22.23	.073 1.85	.444 11.28	321066
2/0 119,500–150,500 [60.6–76.3]	5/16 M8	A	1.848 46.94	.671 17.04	.920 23.37	.083 2.11	.504 12.80	321582
	3/8	A	1.848 46.94	.671 17.04	.920 23.37	.083 2.11	.504 12.80	321584

Parallel Splices

Material and Finish:
Splice Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727


Wire Size Circular Mils ¹ [mm ²]	Dimensions			Material Thickness Max.	Part Numbers
	L Max.	I.D. Min.	O.D. Max.		
22–16 509–3,260 [0.26–1.65]	.301 7.65	.061 1.55	.141 3.58	.033 0.84	34130*
16–14 2,050–5,180 [1.04–2.62]	.301 7.65	.085 2.16	.165 4.19	.033 0.84	34137*
12–10 5,180–13,100 [2.62–6.64]	.343 8.71	.129 3.28	.226 5.74	.042 1.07	34138*
8 13,100–20,800 [6.64–10.5]	.375 9.53	.172 4.37	.296 7.52	.051 1.30	34318*
1/0 83,700–119,500 [42.4–60.6]	.734 18.64	.444 11.28	.613 15.57	.073 1.85	36946*
2/0 119,500–150,500 [60.6–76.3]	.734 18.64	.504 12.80	.703 17.86	.083 2.11	36948*
3/0 150,500–190,000 [76.3–96.3]	.749 19.02	.565 14.35	.775 19.69	.094 2.39	36909
250–300 MCM 231,000–300,000 [117–152]	1.062 26.97	.753 19.13	1.054 26.77	.130 3.30	322275
300–350 MCM 300,000–380,000 [152–193]	1.124 28.55	.819 20.80	1.137 28.88	.140 3.56	322276
400 MCM 380,000–478,000 [193–242]	1.249 31.72	.925 23.50	1.287 32.69	.158 4.01	322277
500–600 MCM 478,000–600,000 [242–304]	1.421 36.09	1.070 27.18	1.483 37.67	.182 4.62	322278

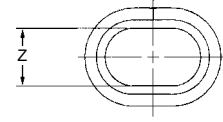
* Part numbers are available in small quantity packages.

¹ When terminating two or more wires in a parallel splice, the combined cross sectional area must be within the listed circular mil area range (CMA)

For complete product information, order Catalog 65505

Parallel Splice — Ovaled

Material and Finish:
Splice Body — Copper per
ASTM B-152

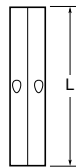
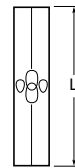
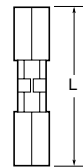
Plating — Tin per MIL-T-10727


Wire Size Circular Mils ¹ [mm ²]	Dimensions		Material Thickness Max.	Part Numbers
	Length	Z		
13,100-20,800 [6.44-10.5]	.385 9.78	.132 3.35	.048 1.22	323271

Butt Splices

Material and Finish:
Splice Body — Copper per
ASTM B-152

Plating — Tin per MIL-T-10727

Standard

Sight Hole

Strap


Wire Size Circular Mils ¹ [mm ²]	Style	Dimensions			Material Thickness Max.	Part Numbers
		L Max.	I.D. Min.	O.D. Max.		
26-22 202-810 [0.1-0.41]	Strap	.385 9.78	.031 0.79	.082 2.08	.020 0.51	321198*
24-20 320-1,290 [0.16-0.65]	Strap	.490 12.45	.043 1.09	.105 2.67	.025 0.64	324001*
22-16 509-3,260 [0.26-1.65]	Standard	.578 14.68	.061 1.55	.141 3.58	.033 0.84	31818* 2-31818-1
	Sight Hole	.578 14.68	.061 1.55	.141 3.58	.033 0.84	330367*
16-14 2,050-5,180 [1.04-2.62]	Strap	.591 15.01	.085 2.16	.165 4.19	.033 0.84	322459
	Standard	.567 14.40	.085 2.16	.165 4.19	.033 0.84	31819* 2-31819-1
	Strap	.591 15.01	.085 2.16	.165 4.19	.033 0.84	327025* (No Wire Stop)
14-12 3,260-8,230 [1.65-4.17]	Sight Hole	.690 17.53	.098 2.49	.178 4.52	.033 0.84	330368*
	Sight Hole	.567 14.40	.129 3.28	.226 5.74	.042 1.07	321280
	Standard	.565 14.35	.129 3.28	.226 5.74	.042 1.07	330369*
12-10 5,180-13,100 [2.62-6.64]	Standard	.765 19.43	.129 3.28	.226 5.74	.042 1.07	32151*
	Strap	.765 19.43	.129 3.28	.226 5.74	.042 1.07	324893
	Standard	.827 21.01	.172 4.37	.296 7.52	.051 1.30	34321*
8 13,100-20,800 [6.64-10.5]	Sight Hole	.827 21.01	.172 4.37	.296 7.52	.051 1.30	36906*
	Standard	1.015 25.78	.232 5.89	.369 9.37	.060 1.52	34322*
6 20,800-33,100 [10.5-16.8]	Sight Hole	1.015 25.78	.232 5.89	.369 9.37	.060 1.52	36886*
	Standard	1.140 28.96	.296 7.52	.463 11.76	.073 1.85	34323*
4 33,100-52,600 [16.8-26.7]	Standard	1.265 32.13	.370 9.40	.539 13.69	.073 1.85	35189*
	Sight Hole	1.265 32.13	.370 9.40	.539 13.69	.073 1.85	322246

* Part numbers are available in small quantity packages.

For complete product information, order Catalog 65505

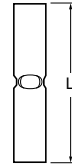
Butt Splices

Material and Finish:

Splice Body — Copper per ASTM B-152

Plating — Tin per MIL-T-10727

A



Wire Circular Mils ¹ [mm ²]	Style	Dimensions			Material Thickness Max.	Part Numbers
		L Max.	I.D. Min.	O.D. Max.		
1/0 83,700–119,500 [42.4–60.6]	A	1.412 35.86	.444 11.28	.613 15.57	.073 1.85	36957*
2/0 119,500–150,500 [60.6–76.3]	A	1.437 36.50	.504 12.80	.693 17.60	.083 2.11	36958*
3/0 150,500–190,000 [76.3–96.3]	A	1.480 37.60	.565 14.35	.775 19.69	.094 2.39	36959*
4/0 190,000–231,000 [96.3–117]	A	1.484 37.69	.635 16.13	.869 22.07	.105 2.67	36960*
250–300 MCM 231,000–300,000 [117–152]	A	2.093 53.16	.753 19.13	1.054 26.77	.130 3.30	322279
300–350 MCM 300,000–380,000 [152–193]	A	2.217 56.31	.819 20.80	1.137 28.88	.140 3.56	322280
500–600 MCM 478,000–600,000 [242–304]	A	2.811 71.40	1.070 27.18	1.483 37.67	.182 4.62	322282

* Part numbers are available in small quantity packages.

¹ When terminating two or more wires in either end of a butt splice, the combined cross sectional area must be within the listed circular mil area range (CMA).

For complete product information, order Catalog 65505

The DIAMOND GRIP Terminal

The DIAMOND GRIP product line of terminals and splices is designed for completely uniform reliability under the most critical conditions of vibration, thermal shock, corrosion, tension and current overload. The AMP mated tool/terminal concept represents a total approach to wire termination and takes into account all the factors of circuit termination.

The uniformity of appearance of AMP terminations is repeated by their uniformity in performance—made possible by designing the terminal and the tooling to match precisely. This promotes fast and easy crimping and assures precise crimping pressure for every wire size, regardless of the skill of the operator. The result is the best circuit termination at the lowest applied cost. And this is true for all terminations from first to last, week after week, month after month.

The Crimp

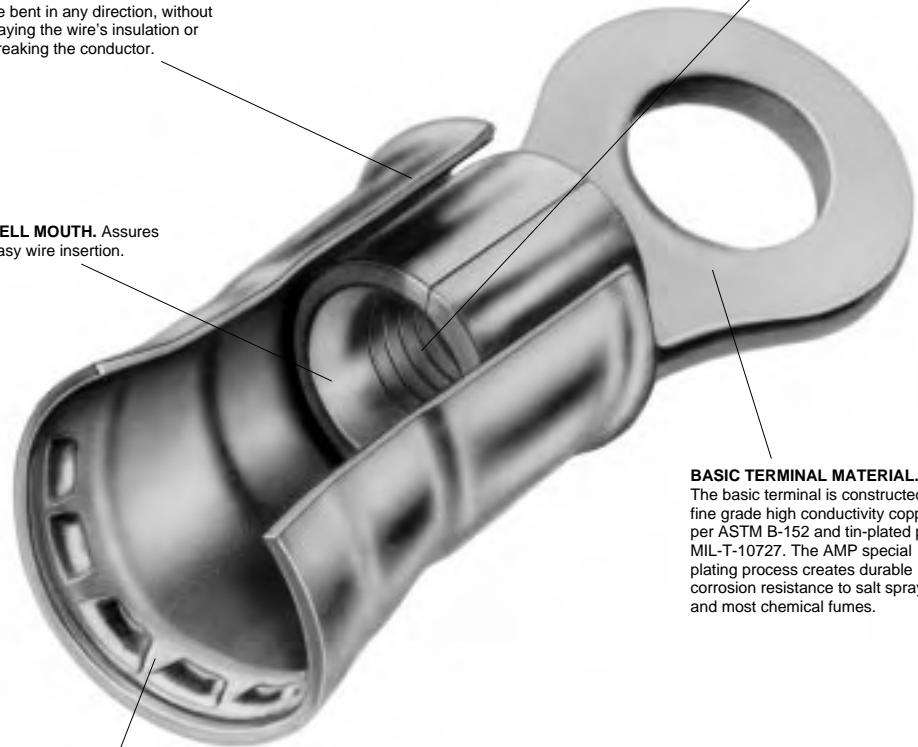
After the wire is inserted into the barrel, the matching dies in the AMP tool close over the barrel, exerting great pressure. This causes the wire strands to flow into the serrations of the terminal barrel as it is compressed around them, forming a homogenous mass of the strands and terminal barrel. This maximum contact assures optimum conductivity of the termination.

COPPER SLEEVE. The specially designed copper sleeve, fitted over the terminal barrel, provides circumferential insulation support to the wire and allows the wire to be bent in any direction, without fraying the wire's insulation or breaking the conductor.

SERRATIONS. Serrations inside the barrel provide maximum contact and tensile strength after crimping.

BELL MOUTH. Assures easy wire insertion.

"V" NOTCHES. These lock the wire insulation against vibration and pullout.



BASIC TERMINAL MATERIAL. The basic terminal is constructed of fine grade high conductivity copper per ASTM B-152 and tin-plated per MIL-T-10727. The AMP special plating process creates durable corrosion resistance to salt spray and most chemical fumes.

Temperature Rating: 170°C Max.

DIAMOND GRIP Terminals and Splices (Use DIAMOND GRIP Tooling)

AMP Wire Range	UL Listed	SP® LR 7189 Certified
22-16	22-16 Stranded	22-16 Stranded
16-14	16-14 Stranded	16-14 Stranded
16-14 HD	16-14 HD Stranded	—
12-10	12-10 Stranded	12-10 Stranded

For complete product information, order Catalog 65505

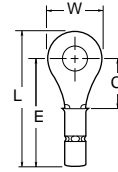
Ring Tongue Terminals

Material and Finish:

Terminal Body and Sleeve —

Copper per ASTM B-152

Plating — Tin per MIL-T-10727



Wire Size Circular Mils [mm ²]	Stud Size	Dimensions				Material Thickness Max.	Wire Insulation Dia. Max.	Part Numbers	
		L Max.	E Max.	C Min.	W			Loose Piece	Tape Mounted
26-22 202-810 [0.1-0.41]	2 M2	.464 11.79	.391 9.93	.121 3.07	.140 3.56	.020 0.51	.082 2.08	31518	2-31518-1
	4	.585 14.86	.481 12.22	.211 5.36	.203 5.16	.020 0.51	.082 2.08	31679	—
22-16 509-3,260 [0.26-1.65]	4	.603 15.32	.491 12.47	.156 3.96	.218 5.54	.033 0.84	.125 3.18	31094	—
	6 M3.5	.603 15.32	.491 12.47	.156 3.96	.218 5.54	.033 0.84	.125 3.18	31096	—
		.728 18.49	.585 14.86	.250 6.35	.281 7.14	.033 0.84	.125 3.18	31269	—
	8 M4	.775 19.69	.616 15.65	.281 7.14	.312 7.92	.033 0.84	.125 3.18	30996	—
		.775 19.69	.616 15.65	.281 7.14	.312 7.92	.033 0.84	.125 3.18	30997	—
	10	.728 18.49	.585 14.86	.250 6.35	.281 7.14	.033 0.84	.140 3.56	31398	—
16-14 2,050-5,180 [1.04-2.62]	8 M4	.790 20.07	.616 15.65	.281 7.14	.343 8.71	.033 0.84	.170 4.32	30927	—
	10	.790 20.07	.616 15.65	.281 7.14	.343 8.71	.033 0.84	.170 4.32	30928	—
		.790 20.07	.616 15.65	.281 7.14	.343 8.71	.033 0.84	.150 3.81	30993	—
12-10 5,180-13,100 [2.62-6.64]	8 M4	.955 24.26	.796 20.22	.281 7.14	.312 7.92	.042 1.07	.230 5.84	324523	—
	10	1.007 25.58	.817 20.75	.302 7.67	.375 9.53	.042 1.07	.230 5.84	31771	—

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 65505

Wire Size Range AWG 26 to 6

Product Type	AMP Wire Size	Hand Tools	Pneumatic Tooling		Dies for 6-26, Tool 189721-1 Requires Straight Action Adapter 217200-1 or 318161-1 Dies Also Fit 69710-1 Hand Tool	Tooling For Tape Mounted Products
			Crimping Heads for 6-26, Tool 189721-1			Dies for 69875 AMP-TAPETRONIC AMP-O-LECTRIC ⁶ Requires Applicator AMPOMATOR CLS IV Requires Applicators
			Single Wire Range	Multiple Wire Range		
All SOLISTRAND terminals and splices except for Flag Tongue terminals	26-22	69363 ²	—	—	—	768625-1
	24-20		—	—	—	—
	22-16	49935 ²	314516-1	—	47812, 314925-1 ⁵	68240-1
	16-14		314517-1	679301-1	47813, 314926-1 ⁵	68241-1
	12-10 & 16-14 HD	58546-1 ³	—	—	47814 ¹	68242-1
	14-12	49592 ²	314518-1	—	—	90566-1
	8	—	679302-1	—	—	68243-1
6	—	679303-1	—	—	—	
Flag Tongue terminals only	16-14	49975 ²	217204-1	—	—	Flag terminals not available in tape mounted form
	12-10	49965 ²	217203-1	—	—	
DIAMOND GRIP terminals and splices	26-22	48070	—	—	—	69902
	24-20	47784	—	—	—	—
	22-16	49512	—	—	—	69903
	16-14	49513	—	—	46251-2	69904
	12-10 & 16-14 HD	59054	—	—	—	69905

¹ For standard wire only.

² CERTI-CRIMP Hand Tool.

³ Contains die set 58545-1. PRO-CRIMPER II commercial tool not approved for UL applications.

⁴ Contains die set 58509-1. PRO-CRIMPER II commercial tool not approved for UL applications.

⁵ With locator, for terminals only.

For complete product information, order Catalog 65505

Application Tooling for SOLISTRAND Terminals and Splices

Wire Size Range AWG 8 to 600 MCM

Product Type	AMP Wire Size	Hand Tool	Pneumatic Tooling		Hydraulic Tools With Self Contained Dies		Hydraulic and Battery Powered Tools With Interchangeable Dies				Tooling For Tape Mounted Product			
			69015		Hand Tool	Latch Head	314999-1 Battery Tool ³ , 59973-1 Hand Tool, 69065 ² & 69067 ² Latch Heads		69097 ² "C" Head	58445-1 ² Latch Head	69082 ² "C" Head	69099 ² "C" Head	Dies for 69875 AMP-TAPETRONIC	Dies for 68250-1 HD AMP-TAPETRONIC
							Nest	Indent						
Standard Terminals and Splices	8	69355 ¹	49956			48126	48355	46146	46145			69216	68243-1	68312-1
	6	59083 No CERTI-CRIMP	48172	59975-1	69069 ²	48128		46134				69217	—	68313 -1
	4	59131	48173			48129		46135	46133			69218	—	—
	2		48174			48130		46136				45433	—	—
	1/0		48183			48132		46138	46137			45436	—	—
	2/0					48133	48131					45439	—	—
	3/0					48134						45442	—	—
	4/0					300430						45445	—	—
	250-300 MCM									48816	69911			
	300-350 MCM									48817	69912			
	400 MCM									48818	69913			
	500-600 MCM									48819	69914			
Heavy Duty Terminals	8 HD					48128-1								
	6 HD					48129-1	48127-1							
	4 HD			—		48130-1				—				
	2 HD					48132-1	48131-1							
	1/0 HD					48133-1								
Tooling for Flag Terminals only	8	69354-1	48412			Only the 69067 head can be used for Flag terminals								
	6		48413			48506	48505							
	4		N/A			48508								
	2		48415	—		48509	48507							
	1/0	— ¹	N/A			48510								
	2/0					48652								
	3/0		— ¹			48805	48511							
4/0					48806									
						48807								

¹ CERTI-CRIMP Hand Tool.

² These crimping heads are recommended for use only with AMP Hydraulic Hand Pump 314979-1, DYNA-CRIMP Hydraulic Power Units 69120-1 (115 VAC) and 69120-2 (230 VAC), and with DYNA-CRIMP II Battery Operated Hydraulic Power Unit 122271-1.

³ Battery operated hand tool includes crimping head P/N 318774-1 to crimp #8-4/0 SOLISTRAND Terminals and Splices, (2) 12 volt batteries, battery charger, and carrying case with tool strap.

For complete product information, order Catalog 65505

Product Facts

- Product available in temperature ranges of 500°F [260°C], 550°F [288°C], 650°F [343°C] and 1200°F [649°C]
- Product employs the famous “W” and “C” crimp
- Wide range of wire sizes
- Complete line of related application tooling
- Accommodates solid and/or stranded conductors



Photo #103097

Heat...extreme heat... searing temperatures up to 1200°F [649°C]. This is one of the most challenging environments that electrical/electronic circuitry has ever entered.

If heat is an unavoidable dimension in your circuit design and production, this product is an important ally. In this AMP line of STRATO-THERM terminals and splices, you'll find high temperature circuit hardware. You'll also find solutions to other more familiar circuit problems such as vibration, corrosion and flash-over, when they occur at high temperatures.

Different types of high temperature terminals and splices found in this catalog are as follows:

PIDG Terminals and Splices, and Pre-Insulated Spare Wire Caps — 550°F [288°C] Range

PIDG Insulation Restriction Terminals — 550°F [288°C] Range

Post-Insulated Terminals and Splices — 550°F [288°C] Range

Uninsulated Terminals and Splices — 650°F [343°C] Range

Uninsulated Terminals and Splices — 1200°F [649°C] Range

For complete product information, order Catalog 82011

Introduction

PIDG Terminals and Splices, and Pre-Insulated Spare Wire Caps 550°F [288°C] Range



Designed for reliable performance up to 550°F [288°C], this line of ring-tongue terminals, butt splices and spare wire caps features a pre-insulation sleeve of TEFLON TFE insulation material. A special funnel entry feature has been added to assure easy entry and proper seating of wire. The body is copper with a choice of gold over nickel plating or nickel plating. The terminal and splice barrel accommodates stranded wire conductors only. The spare wire caps are designed for unstripped wire.

PIDG Insulation Restriction Terminals



550°F [288°C] Range

These pre-insulated insulation restriction terminals prevent the insulation of thin-wall insulation wire from entering the terminal's wire crimp area during the crimping process.

Designed for reliable performance up to 550°F [288°C], these terminals feature a pre-insulation sleeve of TEFLON (TFE) insulation material.

Because of features such as a one-piece constructed inner sleeve and a wide funnel entry design which facilitates wire entry, standard STRATO-THERM PIDG tooling may be used to terminate this product.

Post-Insulated Terminals and Splices 550°F [288°C] Range



The temperature range of these terminals and splices is 550°F [288°C] for nickel plating and gold over nickel plated copper, and 500°F [260°C] for silver plating. These terminals and splices accommodate solid and/or stranded conductors.

Uninsulated Terminals and Splices



650°F [343°C] Range

These terminals and splices are available with and without wire insulation support. Both types are manufactured from electrolytic copper, plated with nickel. In the insulation support type, the support sleeve is fabricated from nickel-silver alloy. Both types accommodate solid or stranded conductors in various combinations. Wire size range is listed in the tabular data section.

Uninsulated Terminals and Splices 1200°F [649°C] Range



Nickel material is used for the body of both the terminal and splice. They are available with or without wire insulation support sleeve of nickel-silver alloy material. Accommodating either solid or stranded conductors in different combinations, these terminals and splices are made to cover a broad wire size range, listed in the tabular data section.

Terminals made of alumel and chromel material with nickel-silver alloy sleeves are available for thermocouple applications. When using either alumel or chromel conductors, a terminal of the same material should be selected.

For complete product information, order Catalog 82011

Introduction

Ordering Information

All terminals and splices are listed according to wire size and type of terminal or splice. If the part number of the terminal or splice is known, refer to the Numerical Index, at the back of this catalog, for page location of tabular data.

In the Tabular Data Section, part numbers are available in either loose piece or tape mounted form.

When ordering tape mounted part numbers, specify the terminal or splice part number, the total quantity of parts desired (if applicable). The chart to the right lists by wire size the type of packaging available and the quantity per package.

Wire Range AWG	Standard Quantities	
	Loose Piece	Tape Mounted
26-14	1,000	5,000
26-22	—	2,500
12-10	500	2,500
8, 6, 4	100	—
2, 1/2	50	—

Note: Package quantities may vary with specific part numbers.

The Crimp

All five types of STRATO-THERM terminals and splices provide optimum corrosion and vibration resistance plus outstanding tensile characteristics.

All types, except the STRATO-THERM PIDG terminals, splices and pre-insulated spare wire caps, employ the famous "W" crimp which creates the precise electromechanical properties necessary for solid and/or stranded conductor combinations. A proper crimp will provide a uniform and permanent attachment. When mechanical pressure is applied to the terminal barrel, the wire inside is forced into the serrations or dimples of the barrel. Shown are four typical photomicrographs of the "W" crimp, illustrating the results of crimping various conductor combinations. In each case, the action of the crimp has compressed the conductors and the barrel into a homogenous mass.

"W" Crimp



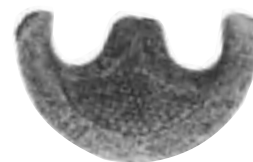
One Solid



One Solid
Two Stranded



Two Solid



STRATO-THERM PIDG terminals and splices employ the equally reliable confined "C" crimp plus multiple position insulation support crimp for today's smaller insulated wires. This "C" crimp is especially suited to crimping the terminal barrel and insulation sleeve to stranded wire conductors. The photomicrograph shows the results of "C" crimping. Virtually the same electromechanical properties are obtained as in the "W" crimp. Pre-insulated spare wire caps and post-insulated splices are crimped with an "O" crimp configuration.

Confined C



For complete product information, order Catalog 82011

Insulated Terminals and Splices

PIDG (Pre-Insulated DIAMOND GRIP) Ring Tongue Terminals

**Temperature Rating,
Material and Finish:**

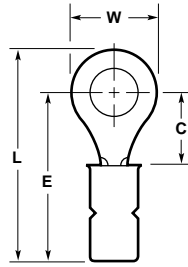
Insulation — TEFLON

Terminal Body — Copper per
ASTM B152

Plating — Nickel per QQ-N-290,
550°F [288°C]. Gold per MIL-G-
45204 over Nickel per QQ-N-290
500°F [260°C]

Metallic Sleeve — Copper per
ASTM B152

Plating — Nickel per QQ-N-290,
550°F [288°C]



Related Product Data:

Application Tooling — page 7030

Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Body Plating ¹	Part Numbers Loose Piece
			W	C Min.	E Max.	L Max.				
18-16 1,600-2,800 [0.81-1.42]	.033 0.84	4	.218 5.54	.156 3.96	.560 14.22	.672 17.07	Orange	.135 3.43	Nickel	50834
		8 M4	.312 7.92	.281 7.14	.685 17.40	.844 21.44	Orange	.135 3.43	Nickel	50836
		10	.312 7.92	.281 7.14	.685 17.40	.844 21.44	Orange	.135 3.43	Nickel	50836-1
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	8 M4	.375 9.53	.302 7.67	.893 22.68	1.083 27.51	Black	.214 5.44	Nickel	50845-1
		10	.375 9.53	.302 7.67	.893 22.68	1.083 27.51	Black	.214 5.44	Nickel	50845-2
		1/4 M6	.531 13.49	.437 11.10	1.012 25.70	1.280 32.51	Black	.214 5.44	Nickel	50846

¹ Nickel plated parts are to be used with nickel plated wire. Gold plated parts are to be used with silver plated wire.
Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Pre-Insulated Spare Wire Caps (For Unstripped Wire)

**Temperature Rating,
Material and Finish:**

Insulation — TEFLON

Ring — Copper per ASTM B152

Plating — Nickel per QQ-N-290,
550°F [288°C]



**Tool Part Number
69272-1**

Related Product Data:

Application Tooling — shown to the
right

Wire Insulation Diameter Range	Dimension L Max.	Ring Color	Tool Color Guide	Part Number
.075 – .087 1.91 – 2.21	.500 12.70	Black and Orange	Orange	328859

For complete product information, order Catalog 82011

Uninsulated Terminals and Splices

SOLISTRAND Heat Resistant Ring Tongue Terminals

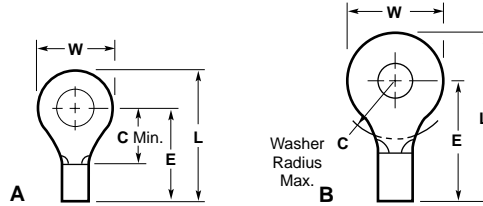
Temperature Rating, Material and Finish:

Terminal Body — Copper per
ASTM B152

Plating — Nickel per QQ-N-290,
650°F [343°C]

Related Product Data:

Application Tooling — page 7031



Non-Insulation Support

**Non-Insulation Support
(Wire Range 2 & 1/0)**

Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions				Part Numbers Loose Piece
				W	C	E Max.	L Max.	
22-16 509-3,260 [0.26-1.65]	.033 0.84	6 M3.5	A	.218 5.54	.156 3.96	.337 8.56	.449 11.40	322797
			A	.281 7.14	.250 6.35	.436 11.07	.574 14.58	323219
		8 M4	A	.281 7.14	.250 6.35	.436 11.07	.574 14.58	322798
			A	.281 7.14	.250 6.35	.436 11.07	.574 14.58	322799
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	10	A	.343 8.71	.281 7.14	.462 11.73	.636 16.15	322695*
		1/4 M6	A	.469 11.91	.437 11.10	.618 15.70	.855 21.72	322733
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	10	A	.375 9.53	.302 7.67	.575 14.61	.765 19.43	323062
		5/16 M8	A	.531 13.49	.468 11.89	.736 18.69	1.004 25.50	323064
8 13,100-20,800 [6.64-10.5]	.051 1.30	10	A	.406 10.31	.359 9.12	.743 18.87	.949 24.10	323165
		1/4 M6	A	.469 11.91	.359 9.12	.696 17.68	.933 23.70	323166
		5/16 M8	A	.562 14.27	.406 10.31	.790 20.07	1.074 27.28	323167
6 20,800-33,100 [10.5-16.8]	.060 1.52	10	A	.468 11.89	.531 13.49	.931 23.65	1.168 29.67	323169
		3/8	A	.625 15.88	.531 13.49	.931 23.65	1.246 31.65	323172
4 33,100-52,600 [16.8-26.7]	.073 1.85	1/4 M6	A	.500 12.70	.437 11.10	.946 24.03	1.199 30.45	323173
2 52,600-83,700 [26.7-42.4]	.073 1.85	3/8	B	.625 15.88	.540 13.72	1.212 30.78	1.527 38.79	323177

*Available in small packaging quantities.

For complete product information, order Catalog 82011

Uninsulated Terminals and Splices

SOLISTRAND Heat Resistant Splices

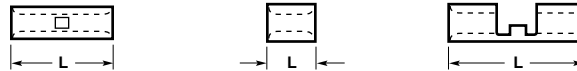
Temperature Rating, Material and Finish:

Splice Body — Copper per
ASTM B152

Plating — Nickel per QQ-N-290,
650°F [343°C]

Related Product Data:

Application Tooling — page 7031



Style-A
Non-Insulation
Support
Butt Splice

Style-B
Non-Insulation
Support
Parallel Splice

Style-C
Non-Insulation
Support
Butt Splice

Wire Size Circular Mills [mm ²]	Material Thickness Max.	Style	Dimensions			Part Numbers Loose Piece
			L Max.	ID Min.	OD Max.	
22-16 509-3,260 [0.26-1.65]	.033 0.84	A	.578 14.68	.061 1.55	.141 3.58	323796
		B	.301 7.65	.061 1.55	.141 3.58	323030
		C	.591 15.01	.061 1.55	.141 3.58	322822
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	A	.567 14.40	.085 2.16	.165 4.19	323795
		B	.301 7.65	.085 2.16	.165 4.19	323794
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	A	.565 14.35	.129 3.28	.226 5.74	323755
		B	.333 8.46	.129 3.28	.226 5.74	323754
8 13,100-20,800 [6.64-10.5]	.051 1.30	B	.375 9.53	.172 4.37	.296 7.52	2-34318-1

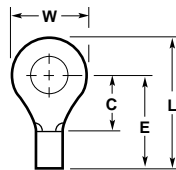
SOLISTRAND High Temperature Ring Tongue Terminals

Temperature Rating and Material:

Terminal Body — Nickel per
ASTM B162, 1200°F [649°C]

Related Product Data:

Application Tooling — page 7031



Non-Insulation Support

Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Color Code	Stud Size	Dimensions				Part Numbers Loose Piece
				W	C Min.	E Max.	L Max.	
22-16 509-3,260 [0.26-1.65]	.033 0.84	Orange	4	.218 5.54	.156 3.96	.337 8.56	.449 11.40	321884
			5 M3	.218 5.54	.156 3.96	.337 8.56	.449 11.40	321885
			6 M3.5	.281 7.14	.250 6.35	.431 10.95	.574 14.58	321889*
			8 M4	.281 7.14	.250 6.35	.431 10.95	.574 14.58	321890*
			10	.281 7.14	.250 6.35	.431 10.95	.574 14.58	321891*
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	Orange	6 M3.5	.250 6.35	.171 4.34	.352 8.94	.480 12.19	322329
			8 M4	.343 8.71	.281 7.14	.462 11.73	.636 16.15	322334*
			10	.343 8.71	.281 7.14	.462 11.73	.636 16.15	322335*
			1/4 M6	.468 11.89	.437 11.10	.618 15.70	.855 21.72	322339

*Available in small packaging quantities.

For complete product information, order Catalog 82011

Uninsulated Terminals and Splices

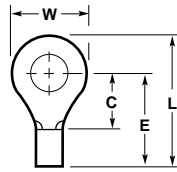
SOLISTRAND High Temperature Ring Tongue Terminals

Temperature Rating and Material:

Terminal Body — Nickel per
ASTM B162, 1200°F [649°C]

Related Product Data:

Application Tooling — page 7031



Non-Insulation Support

Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Color Code	Stud Size	Dimensions			Part Numbers Loose Piece	
				W	C Min.	E Max.		L Max.
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	Orange	8	.375	.281	.549	.739	323745*
			M4	9.53	7.14	13.94	18.77	
			10	.375	.281	.549	.739	323680*
			1/4	.531	.468	.736	1.004	323683*
			M6	13.49	11.89	18.69	25.50	
8 13,100-20,800 [6.64-10.5]	.051 1.30	Orange	10	.406	.359	.743	.949	328822
				10.31	9.12	18.87	24.10	

*Available in small packaging quantities.

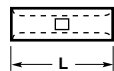
SOLISTRAND High Temperature Splices

Temperature Rating and Material:

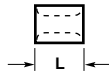
Splice Body — Nickel per
ASTM B162, 1200°F [649°C]

Related Product Data:

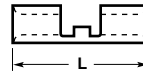
Application Tooling —
page 7031



Style-A
Non-Insulation
Support
Butt Splice



Style-B
Non-Insulation
Support
Parallel Splice



Style-C
Non-Insulation
Support
Butt Splice

Wire Size Circular Mils [mm ²]	Material Thickness Max.	Color Code	Style	Dimensions			Part Numbers Loose Piece
				L Max.	ID Min.	OD Max.	
22-16 509-3,260 [0.26-1.65]	.033 0.84	Orange	A	.578 14.68	.061 1.55	.141 3.58	322324*
			B	.301 7.65	.061 1.55	.141 3.58	322326
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	Orange	A	.567 14.40	.085 2.16	.165 4.19	322345
			B	.301 7.65	.085 2.16	.165 4.19	322347
			C	.529 13.44	.085 2.16	.165 4.19	323878
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	Orange	A	.567 14.40	.129 3.28	.226 5.74	323696*
			B	.333 8.46	.129 3.28	.226 5.74	323672
			C	.703 17.86	.129 3.28	.226 5.74	323698

*Available in small packaging quantities.

For complete product information, order Catalog 82011

Uninsulated Terminals and Splices

DIAMOND GRIP Heat Resistant Ring Tongue Terminals

Temperature Rating, Material and Finish:

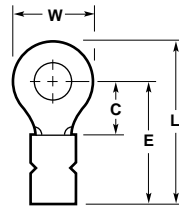
Terminal Body—Copper per
ASTM B152

Plating—Nickel per QQ-N-290,
650°F [343°C]

Metallic Sleeve—Nickel Silver per
ASTM B122

Related Product Data:

Application Tooling—page 7031

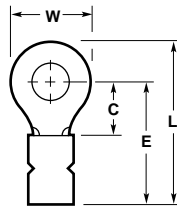


Insulation Support

Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.		Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.033 0.84	4	.218	.156	.512	.624	.140	322363	—
			5.54	3.96	13.00	15.85	3.56		
		M3.5	.218	.156	.530	.645	.110	323151	—
			5.54	3.96	13.46	16.38	2.79		
			.281	.250	.611	.749	.140	323199	—
			7.14	6.35	15.52	19.02	3.56		
		M4	.281	.250	.611	.749	.140	322365	—
			7.14	6.35	15.52	19.02	3.56		
			.281	.250	.629	.770	.110	323152	—
			7.14	6.35	15.98	19.56	2.79		
		10	.281	.250	.611	.749	.140	322366	—
			7.14	6.35	15.52	19.02	3.56		
.281	.250		.629	.770	.110	323153	—		
7.14	6.35		15.98	19.56	2.79				
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	10	.343	.281	.637	.811	.170	322375	—
			8.71	7.14	16.18	20.60	4.32		
		.343	.281	.659	.836	.130	323161	—	
		8.71	7.14	16.74	21.23	3.30			
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	M3.5	.375	.302	.841	1.034	.230	323066	—
			9.53	7.67	21.36	26.26	5.84		
		10	.375	.302	.841	1.034	.230	323068	323068-1
			9.53	7.67	21.36	26.26	5.84		
			.531	.468	1.002	1.273	.230	323069	—
			13.49	11.89	25.45	32.33	5.84		

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

DIAMOND GRIP High Temperature Ring Tongue Terminals



Insulation Support

Temperature Rating and Material:

Terminal Body—See table, 1200°F
[649°C], Nickel per ASTM B162,
Alumel—, Chromel—

Metallic Sleeve—Nickel Silver per
ASTM B122

Related Product Data:

Application Tooling—page 7031

Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Body Material	Sleeve Color Code	Wire Insulation Diameter Max.	Part Numbers Loose Piece		
			W	C Min.	E Max.	L Max.						
22-16 509-3,260 [0.26-1.65]	.033 0.84	6 M3.5	.281	.250	.611	.749	Nickel	Orange	.140	321892		
			7.14	6.35	15.52	19.02	3.56					
		8 M4	.281	.250	.611	.749	Nickel	Orange	.140	321893		
			7.14	6.35	15.52	19.02	3.56					
			.312	.281	.637	.796	Nickel	Orange	.140	321897		
			7.92	7.14	16.18	20.22	3.56					
		10	.312	.281	.637	.796	Chromel	Gray	.140	1-321897-0		
			7.92	7.14	16.18	20.22	3.56					
			.281	.250	.611	.749	Nickel	Orange	.140	321894		
			7.14	6.35	15.52	19.02	3.56					
		1/4 M6	.042 1.07	10	.312	.281	.637	.796	Nickel	Orange	.140	321898
					7.92	7.14	16.18	20.22	3.56			
.312	.281			.637	.796	Alumel	Green	.140	1-321898-0			
7.92	7.14			16.18	20.22	3.56						
1/4 M6	.042 1.07	10	.468	.437	.793	1.031	Nickel	Orange	.140	322320		
			11.89	11.10	20.14	26.19	3.56					

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82011

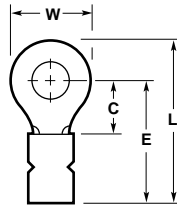
Uninsulated Terminals and Splices

DIAMOND GRIP High Temperature Ring Tongue Terminals

Temperature Rating and Material:

Terminal Body— See table, 1200°F [649°C], Nickel per ASTM B162, Alumel—, Chromel—

Metallic Sleeve— Nickel Silver per ASTM B122



Insulation Support

Related Product Data:

Application Tooling— page 7031

Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Body Material	Sleeve Color Code	Wire Insulation Diameter Max	Part Numbers Loose Piece
			W	C Min.	E Max.	L Max.				
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8 M4	.343 8.71	.281 7.14	.637 16.18	.811 20.60	Nickel	Orange	.170 4.32	322337
		10	.343 8.71	.281 7.14	.637 16.18	.811 20.60	Nickel	Orange	.170 4.32	322338
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	8 M4	.375 9.53	.281 7.14	.815 20.70	1.008 25.60	Nickel	Orange	.230 5.84	323749
			Chromel	Gray	.230 5.84	2-323749-1				
		10	.375 9.53	.281 7.14	.815 20.70	1.008 25.60	Nickel	Orange	.230 5.84	323750
			Alumel	Green	.230 5.84	2-323750-1				
1/4 M6	.531 13.49	.468 11.89	1.002 25.45	1.273 32.33	Nickel	Orange	.230 5.84	323751		

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82011

Application Tooling Information for STRATO-THERM Insulated Heat Resistant and High Temperature Terminals and Splices

Wire Size Range AWG 26-10

Product Type	AMP Wire Size	Hand Tools	Pneumatic Tooling		Tooling For Tape Mounted Products Dies for 69875 AMP-TAPETRONIC AMP-O-ELECTRIC ² Requires Applicator AMPOMATOR CLS IV ² Requires Applicators
			Dies for 626 Pneumatic Tools 189721-[] and 189722-[] require Straight Action Adapter ¹ 217200-1 or "C" Head Adapter 318161-1 Dies also fit 69710-1 Hand Tool		
Pre-Insulated Terminals	26-24	69692-1	69731		—
	22-20		69732		69936
	18-16	69693-1	69733		69937
	14		69734		—
	12-10	—	69735		—
Pre-Insulated Splices	22-20	—	69327		—
	18-16	—	69328		—
	14-12	—	69329		—

¹ Straight Action Adapter 217200-1 is used with Tools 189721-1 or 189722-1. "C" Head Adapter 318161-1 is used with Tools 189721-2 or 189722-2. Both adapters require the use of non-ratchet tool holder 189928-1 or ratchet tool holder 356304-1.

² Call Technical Support Center for Machine and Applicator part numbers.

Wire Size Range AWG 26-6

Product Type	AMP Wire Size	Hand Tools	Hydraulic and Battery Powered Tools With Interchangeable Dies		
			69097 ² "C" Head		69099 ² "C" Head
			Nest	Indent	
Post Insulated Terminals and Splices	26-24	45730	—	—	—
	22-20	46467, 46468 ¹	—	—	—
	18-16	46468	—	—	—
	8	—	46146	46145	69216
	6	—	46134	46133	69217

¹ Part Number 55235-1 only

² These crimping heads are recommended for use only with AMP Hydraulic Hand Pump 314979-1, DYNA-CRIMP Hydraulic Power Units 69120-1 (115 VAC) and 69120-2 (230 VAC), and with DYNA-CRIMP II Battery Operated Hydraulic Power Unit 122271-1.

For complete product information, order Catalog 82011

Application Tooling Information for STRATO-THERM Uninsulated Heat Resistant and High Temperature Terminals and Splices

Wire Size Range AWG 22-10

Product Type	AMP Wire Size	Hand Tools	Pneumatic Tooling	Tooling For Tape Mounted Products
			Crimping Heads for 626 Pneumatic Tool 189721-1 and 189722-1 ¹	Dies for 69875 AMP-TAPETRONIC AMP-O-LECTRIC ² Requires Applicator AMPOMATOR CLS IV ² Requires Applicators
Uninsulated Terminals and Splices with Insulation Support	22-16	46673 46673-1	356744-1	69930
	16-14	46988 59294	356744-2	69931
	12-10	59461	904870-1	69932
Uninsulated Terminals and Splices with Non-Insulation Support	22-16			69954
	16-14	46447	217206-1	69955
	12-10			69956

¹ Crimping Heads require the use of non-ratchet tool holder 189767-1 or ratchet tool holder 356302-1.

² Call Technical Support Center for Machine and Applicator part numbers.

Wire Size Range AWG 8-1/0

Product Type	AMP Wire Size	Hand Tools	Pneumatic Tooling	Hydraulic Tools With Self Contained Dies			Hydraulic and Battery Powered Tools with Interchangeable Dies				
			69015 Head	Hand Tool	Latch Head	59973-1 Hand Tool, 69065 ² & 69067 ² Latch Heads		69097 ² "C" Head		69099 ² "C" Head	
						Nest	Indent	Nest	Indent		
Uninsulated Terminals and Splices with Non-Insulation Support	8	69355 ¹	49956				48126	48355	—	—	69216
	6	59083 No CERTI-CRIMP	48172				48128		—	—	69217
	4	—	48173	59975-1	69069 ²		48129	48127	46135		69218
	2	—	48174				48130		46136	46133	45433
	1/0	—	48183				48132	48131	46138	46137	45436



¹ CERTI-CRIMP Hand Tool.

² These crimping heads are recommended for use only with AMP Hydraulic Hand Pump 314979-1, DYNA-CRIMP Hydraulic Power Units 69120-1 (115 VAC) and 69120-2 (230 VAC), and with DYNA-CRIMP II Battery Operated Hydraulic Power Unit 122271-1.



For complete product information, order Catalog 82011

Product Facts

- Designed for large cables and leads
- Ideally suited for power generation and distribution
- Accepts a wide range of stranded copper wires (6 AWG to 1000 MCM [13-507 mm²]
— for terminals and up to 1500 MCM [760 mm²] for splices)
- Available in a variety of terminal and splice styles
- High-quality, seamless tubular copper for maximum conductivity
- Listed by Underwriters Laboratories, Inc.
File No. E12388, Spec. 486 
- Certified by the Canadian Standards Association
File No. LR7189 



Technical Documents:

Instruction Sheets

408-1565
408-1602
408-1606
408-2464
408-2953

The AMPOWER product line is available in a variety of terminal and splice styles to suit your design requirements.

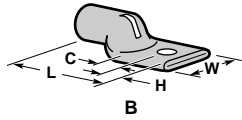
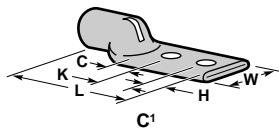
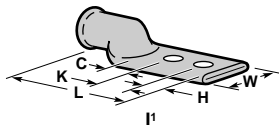
AMPOWER terminals and splices are ideally suited for power generation and

distribution. This makes electrical equipment subject to continuous operation, such as generators, motors and welders, a perfect application for AMPOWER products. In addition, other

applications include interconnections of power supplies to computers and peripheral equipment.

For complete product information, order Catalog 82025

Terminals

Base Material:
Annealed Copper — (ASTM B-188)²
Electrodeposited Tin Plate —
(MIL-T-10727)

B

C'

I'

Wire Size	Wire Range	Barrel I.D. Min.	Tongue Thickness Max.	Style	Stud Size	Dimensions					Part Numbers
						L Max.	H Max.	C Min.	K	W Max.	
6 AWG ² 13-15 mm ²	20,800-33,100 CM	.219 5.56	.08 2.03	B	10 —	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328141
				B	1/4 M6	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328142
				B	5/16 M8	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328143
4 AWG ² 21 mm ²	33,100-52,600 CM	.275 6.99	.08 2.03	B	1/4 M6	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328162
				B	5/16 M8	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328163
				B	3/8 —	1.41 35.81	.32 8.13	.42 10.67	—	.69 17.53	328164
2 AWG 34-35 mm ²	52,600-83,700 CM	.362 9.19	.09 2.29	B	1/4 M6	1.62 41.15	.34 8.64	.50 12.70	—	.71 18.03	325201
				B	5/16 M8	1.62 41.15	.34 8.64	.50 12.70	—	.71 18.03	325202
				B	3/8 —	1.62 41.15	.34 8.64	.50 12.70	—	.71 18.03	325203
1/0 AWG 50-60 mm ²	83,700-119,500 CM	.458 11.63	.10 2.54	C	3/8 —	2.63 66.80	.34 8.64	.50 12.70	1.00 25.40	.71 18.03	326799
				B	1/4 M6	1.97 50.04	.42 10.67	.62 15.75	—	.87 22.10	325301
				B	5/16 M8	1.97 50.04	.42 10.67	.62 15.75	—	.87 22.10	325302
				B	3/8 —	1.97 50.04	.42 10.67	.62 15.75	—	.87 22.10	325303
				B	1/2 M12	1.97 50.04	.42 10.67	.62 15.75	—	.87 22.10	325305
2/0 AWG 67-70 mm ²	119,500-150,500 CM	.513 13.03	.11 2.79	C	3/8 —	2.98 75.69	.42 10.67	.62 15.75	1.00 25.40	.87 22.10	326800
				B	1/4 M6	2.11 53.59	.47 11.94	.62 15.75	—	.97 24.64	325401
				B	5/16 M8	2.11 53.59	.47 11.94	.62 15.75	—	.97 24.64	325402
				B	3/8 —	2.11 53.59	.47 11.94	.62 15.75	—	.97 24.64	325403
				B	1/2 M12	2.11 53.59	.47 11.94	.62 15.75	—	.97 24.64	325405
3/0 AWG 80-95 mm ²	150,500-190,000 CM	.576 14.63	.12 3.05	C	3/8 —	3.12 79.25	.47 11.94	.62 15.75	1.00 25.40	.97 24.64	326801
				B	5/16 M8	2.26 57.40	.52 13.21	.62 15.75	—	1.08 27.43	325502
				B	3/8 —	2.26 57.40	.52 13.21	.62 15.75	—	1.08 27.43	325503
4/0 AWG 100-125 mm ²	190,000-231,000 CM	.648 16.46	.13 3.30	B	1/2 M12	2.26 57.40	.52 13.21	.62 15.75	—	1.08 27.43	325505
				C	3/8 —	3.27 83.05	.52 13.21	.62 15.75	1.00 25.40	1.08 27.43	326802
				B	5/16 M8	2.45 62.23	.59 14.99	.62 15.75	—	1.19 30.23	325602
4/0 AWG 100-125 mm ²	190,000-231,000 CM	.648 16.46	.13 3.30	B	3/8 —	2.45 62.23	.59 14.99	.62 15.75	—	1.19 30.23	325603
				B	1/2 M12	2.45 62.23	.59 14.99	.62 15.75	—	1.19 30.23	325605
				C	3/8 —	3.46 87.88	.59 14.99	.62 15.75	1.00 25.40	1.19 30.23	326803
				C	1/2 M12	4.21 106.93	.59 14.99	.62 15.75	1.75 44.45	1.19 30.23	327284
				I	1/2 M12	4.94 125.48	.59 14.99	.62 15.75	1.75 44.45	1.19 30.23	53683-2

¹ Per NEMA specification.

² Terminals for wire sizes 6 AWG and 4 AWG are manufactured from annealed copper ASTM B-152.

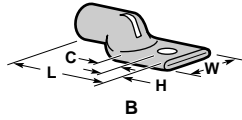
For complete product information, order Catalog 82025

Terminals

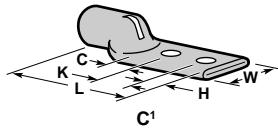
Base Material:

Annealed Copper — (ASTM B-188)

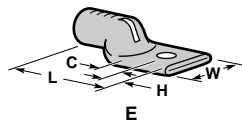
Electrodeposited Tin Plate —
(MIL-T-10727)



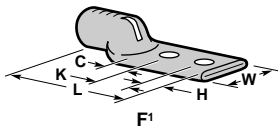
B



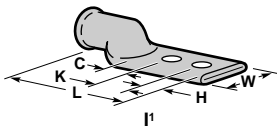
C¹



E



F¹



I¹

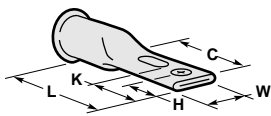
Wire Size	Wire Range	Barrel I.D. Min.	Tongue Thickness Max.	Style	Stud Size	Dimensions					Part Numbers
						L Max.	H Max.	C Min.	K	W Max.	
250 MCM 127 mm ²	231-275 MCM	.690 17.53	.15 3.81	B	3/8	2.58 65.53	.63 16.00	.62 15.75	—	1.28 32.51	325703
				B	1/2 M12	2.58 65.53	.63 16.00	.62 15.75	—	1.28 32.51	325705
				B	3/8	2.69 68.33	.63 16.00	.62 15.75	—	1.40 35.56	325803
				B	1/2 M12	2.69 68.33	.63 16.00	.62 15.75	—	1.40 35.56	325805
300 MCM 152 mm ²	275-325 MCM	.758 19.25	.16 4.06	B	5/8	2.82 71.63	.63 16.00	.75 19.05	—	1.40 35.56	325807
				C	3/8	3.70 93.98	.63 16.00	.62 15.75	1.00 25.40	1.40 35.56	326805
				C	3/8	3.70 93.98	.63 16.00	.62 15.75	1.00 25.40	1.40 35.56	326805-1*
				C	1/2 M12	4.43 112.52	.63 16.00	.62 15.75	1.75 44.45	1.40 35.56	327286
350 MCM 177mm ²	325-375 MCM	.819 20.80	.17 4.32	B	3/8	2.79 70.87	.63 16.00	.62 15.75	—	1.51 38.35	325903
				B	1/2 M12	2.79 70.87	.63 16.00	.62 15.75	—	1.51 38.35	325905
				C	3/8	3.79 96.27	.63 16.00	.62 15.75	1.00 25.40	1.51 38.35	326806
				C	1/2 M12	4.55 115.57	.63 16.00	.62 15.75	1.75 44.45	1.51 38.35	327287
400MCM 203mm ²	375-450 MCM	.876 22.25	.18 4.57	C	1/2	4.55 115.57	.63 16.00	.62 15.75	1.75 44.45	1.51 38.35	327287-3
				B	1/2 M12	2.89 73.41	.63 16.00	.62 15.75	—	1.61 40.89	326005
				C	3/8	3.90 99.06	.63 16.00	.62 15.75	1.00 25.40	1.61 40.89	326807
				B	3/8	3.29 83.57	.76 19.30	.75 19.05	—	1.80 45.72	326103
500MCM 253mm ²	450-550 MCM	.981 24.92	.20 5.08	B	1/2 M12	3.29 83.57	.76 19.30	.75 19.05	—	1.80 45.72	326105
				C	1/2 M12	4.80 121.92	.61 15.49	.62 15.75	1.75 44.45	1.80 45.72	327289
				C	3/8	4.05 102.87	.63 16.00	.62 15.75	1.00 25.40	1.80 45.72	326808
				I	1/2 M12	5.88 149.35	.63 16.00	.62 15.75	1.75 44.45	1.80 45.72	53642-2
600MCM 304mm ²	550-650 MCM	1.075 27.31	.22 5.59	F	3/8	4.22 107.19	.63 16.00	.62 15.75	1.00 25.40	1.95 49.53	326809-1 ²
800MCM 405mm ²	750-850 MCM	1.242 31.55	.25 6.35	E	1/2	3.72 94.49	.76 19.30	.75 19.05	—	2.26 57.40	326405 ²

* No sight hole.

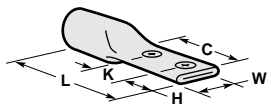
¹ Per NEMA specifications

² Two crimps necessary.

Special Terminals



Slotted Stud Hole



Centerline 2-Hole

Wire Size	Wire Range	Stud Size	Barrel I.D. Min.	Tongue Thickness Max.	Dimensions					Part Numbers
					L Max.	H Max.	C Min.	K	W Max.	
Slotted Stud Hole										
400 MCM	375-450 MCM	3/8	.876	.18	5.82	.44	3.29	1.30	1.61	276963-1
500 MCM	450-550 MCM	3/8	.981	.20	6.01	.44	3.25	1.30	1.80	276964-1
Centerline 2-Hole										
444.4 MCM	444.4 MCM	3/8	.991	.26	4.01	.45	2.00	1.00	1.26	326151-1

For complete product information, order Catalog 82025

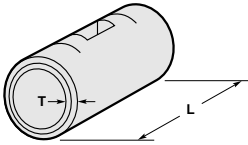
Butt Splices

Wire Size Range:

2 AWG to 1500 MCM
[34 to 760 mm²]

Base Material:

Annealed Copper — (ASTM B-188)
Electrodeposited Tin Plate —
(MIL-T-10727)

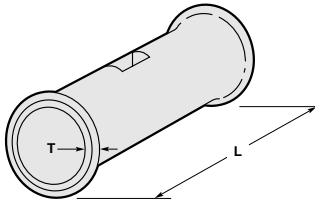


Wire Size Range:

1/0 AWG to 500 MCM
[50 to 253 mm²]

Base Material:

Annealed Copper — (ASTM B-188)
Electrodeposited Tin Plate —
(MIL-T-10727)

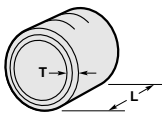


Wire Size Range:

2 AWG to 1000 MCM
[34 to 507 mm²]

Base Material:

Annealed Copper — (ASTM B-188)
Electrodeposited Tin Plate —
(MIL-T-10727)



Wire Size	Wire Range	Barrel I.D. Min.	Dimensions		Part Numbers
			T	L Max.	
1/0 AWG	83,700-119,500 CM	.468 11.89	.042 1.07	1.24 31.50	324458
3/0 AWG	150,500-190,000 CM	.586 14.88	.053 1.35	1.52 38.61	324460
4/0 AWG	190-231 MCM	.658 16.71	.059 1.50	1.65 41.91	324461
250 MCM	231-275 MCM	.700 17.78	.065 1.65	1.79 45.47	324462
300 MCM	275-325 MCM	.768 19.51	.071 1.80	1.93 49.02	324463
300 MCM	275-325 MCM	.768 19.51	.071 1.80	2.18 55.37	2-324463-5
350 MCM	325-375 MCM	.829 21.06	.077 1.96	2.06 52.32	324464
500 MCM	450-550 MCM	.991 25.17	.092 2.34	2.41 61.21	324466
600 MCM ¹	550-650 MCM	1.085 27.56	.101 2.57	2.61 66.29	324467
700 MCM ¹	650-750 MCM	1.172 29.77	.109 2.77	2.79 70.87	324468
800 MCM ¹	750-850 MCM	1.252 31.80	.118 3.00	2.96 75.18	324469
1000 MCM ¹	950-1125 MCM	1.400 35.56	.131 3.33	3.27 83.06	324471

¹ Two crimps necessary on each end.

Long Barrel Butt Splices

Wire Size	Wire Range	Barrel I.D. Min.	Dimensions		Part Number
			T	L Max.	
500 MCM	450-550 MCM	.991 25.17	.092 2.34	4.75 120.65	53089

Parallel Splices

Wire Size	Wire Range	Barrel I.D. Min.	Dimensions		Part Numbers
			T	L Max.	
1/0 AWG	83,700-119,500 CM	.468 11.89	.042 1.07	.58 14.73	324443
2/0 AWG	119,500-190,000 CM	.523 13.28	.047 1.19	.64 16.26	324444
3/0 AWG	150,500-190,000 CM	.586 14.88	.053 1.35	.71 18.03	324445
4/0 AWG	190-231 MCM	.658 16.71	.059 1.50	.77 19.56	324446
250 MCM	231-275 MCM	.700 17.78	.065 1.65	.83 21.08	324447
300 MCM	275-325 MCM	.768 19.51	.071 1.80	.89 22.61	324448
350 MCM	325-375 MCM	.829 21.05	.077 1.96	.96 24.38	324449
400 MCM	375-450 MCM	.886 22.50	.083 2.11	1.02 25.91	324450
500 MCM	450-550 MCM	.991 25.17	.092 2.34	1.11 28.19	324451
700 MCM ¹	650-750 MCM	1.172 29.77	.109 2.77	1.29 32.77	324453
800 MCM ¹	750-850 MCM	1.252 31.80	.118 3.00	1.36 34.54	324454
1000 MCM ¹	950-1125 MCM	1.400 35.56	.131 3.33	1.50 38.10	324456

¹ Two crimps necessary.

For complete product information, order Catalog 82025

Tooling

DYNA-CRIMP Tool Heads and Dies



Hydraulic Hand Tool Part No. 59973-1 (See chart for die numbers)



Part Numbers	Instruction Sheet	Wire Size	Dies
69099	408-2458	6 AWG	69133-1
		4 AWG	69134-2
		2 AWG	46765-3
		1/0 AWG	46766-2
		2/0 AWG	46767-2
		3/0 AWG	46749-2
		4/0 AWG	46750-2
		250 MCM	46751-2
		300 MCM	46752-2
		350 MCM	46753-2
		350 MCM	69653
		400 MCM	46754-2
		500 MCM	46755-2
69082	408-2456	600 MCM ¹	46756-2
		600 MCM HD ¹	59870-1
		700 MCM ¹	46757-2
		800 MCM ¹	46758-2
		900 MCM ¹	46759-2
		1000 MCM ¹	46760-2
		1250 MCM ¹	68114-1
68073-2	408-2449	1500 MCM ¹	68282-1
		58445-1	408-9598
69065 69067 59973-1 (Hand Tool)	408-2452 408-2454 408-6803	250 MCM	46751-2
		2 AWG	46321-3
		1/0 AWG	46322-2
		2/0 AWG	46323-2
		3/0 AWG	46324-2
4/0 AWG	46325-2		

¹ Terminals and splices, wire sizes 600 MCM through 1500 MCM, require two crimps for optimum mechanical and electrical performance.

For complete product information, order Catalog 82025

Product Facts

- Pre-insulated terminal designed for complete and uniform reliability in the most difficult circuit environments
- PIDG Terminals consist of tin plated copper or tin plated phosphor bronze body for spring spades with a copper sleeve and insulation sleeve fitted over terminal barrel
- Design of the tool dies and construction of the terminal insures uniform insulation thickness under crimping pressure, transmitting this pressure evenly to the center of the crimp area

The AMP Mated Tool/Terminal Concept

- AMP compression crimping produces crimps for a given size wire and terminal that are precisely alike in appearance and performance
- Terminal and crimping tool are designed as precisely matched devices
- Dies are precision-engineered from the finest hard-metal alloys
- Crimping pressure is controlled by a ratchet device on the hand tool or a correspond-ing pre-calibration in the crimping jaws of AMP automated crimping machines

The Crimp

- Crimping pressure can neither overstress nor understress the terminal barrel — machined dies fully bottom to the precise crimp height
- Resulting termination is free of contamination
- Resistant to shock and critical environments
- Tensile strength approaches that of the wire itself
- PIDG Terminals meet or exceed the requirements of MIL-T-7928, Type II, Class 1 and 2

Temperature Rating: 105°C Max.

AMP PIDG Terminals (Use PIDG Tooling)			AMP PIDG Nylon Butt Window Splice (Use PIDG Tooling)		
AMP Wire Range	UL Listed	SP [®] LR7189 Certified	AMP Wire Range	UL Listed	SP [®] LR7189 Certified
22-16	22-16 Solid or Stranded		22-16	22-16 Stranded or Solid	
16-14	16-14 Solid or Stranded	300 V Max., 105°C. Max. ¹	16-14	16-14 Stranded or Solid	300 V Max., 105°C. Max.
12-10	12-10 Solid or Stranded		12-10	12-10 Stranded or Solid	

Note: 22-16 terminals are stamped 22-18 in accordance with MIL-T-7928.
¹UL & CSA — Nylon

Note: 22-16 splices are stamped 22-18 in accordance with MIL-T-7928.

For complete product information, order Catalog 82042

Ring Tongue Terminals-Nylon

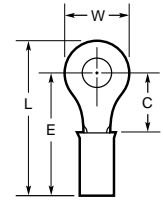
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted
26-24 238-475 [0.12-0.24]	.029 0.74	2 M2	.203 5.16	.211 5.36	.632 16.05	.739 18.77	Yellow	.105 2.67	54310-1†	—
		4	.203 5.16	.211 5.36	.632 16.05	.736 18.69	Yellow	.105 2.67	52189†	—
		8 M4	.281 7.14	.250 6.35	.671 17.04	.814 20.68	Yellow	.105 2.67	54311-1†	—
26-22 202-810 [0.10-0.41]	.020 0.51	0	.140 3.56	.121 3.07	.452 11.48	.525 13.34	Yellow	.082 2.08	321013	—
			.140 3.56	.121 3.07	.452 11.48	.525 13.34	Yellow	.082 2.08	—	2-323912-1
		2 M2	.140 3.56	.211 5.36	.542 13.77	.615 15.62	Yellow	.082 2.08	329951*	—
			.203 5.16	.211 5.36	.542 13.77	.646 16.41	Yellow	.082 2.08	323913	—
		8 M4	.250 6.35	.281 7.14	.612 15.54	.740 18.80	Yellow	.082 2.08	—	2-323916-1
24-20 320-1,290 [0.16-0.65]	.025 0.64	4	.281 7.14	.250 6.35	.631 16.03	.774 19.66	Natural	.100 2.54	323985	—
		6 M3.5	.281 7.14	.250 6.35	.631 16.03	.774 19.66	Natural	.100 2.54	323986	—
		8 M4	.312 7.92	.281 7.14	.662 16.81	.821 20.85	Natural	.100 2.54	323989	—
		10	.312 7.92	.281 7.14	.662 16.81	.821 20.85	Natural	.100 2.54	323990	—
		2 M2	.182 4.62	.172 4.37	.576 14.63	.669 16.99	Red	.125 3.18	324158	—
22-16 509-3,260 [0.26-1.65]	.033 0.84		.218 5.54	.156 3.96	.560 14.22	.672 17.07	Red	.125 3.18	328657*	—
			.182 4.62	.172 4.37	.576 14.63	.669 16.99	Red/Green	.125 3.18	327654*	—
			.182 4.62	.172 4.37	.576 14.63	.669 16.99	Red	.140 3.56	320882*	2-320882-1
		4	.218 5.54	.156 3.96	.560 14.22	.672 17.07	Red	.125 3.18	—	2-320553-2
			.218 5.54	.156 3.96	.560 14.22	.672 17.07	Red	.125 3.18	36254 ¹	—
			.250 6.35	.312 7.92	.716 18.19	.844 21.44	Red	.140 3.56	330648	2-330648-1
			.218 5.54	.156 3.96	.560 14.22	.672 17.07	Red	.125 3.18	—	2-36149-2
			.218 5.54	.156 3.96	.560 14.22	.672 17.07	Red	.140 3.56	36150*	2-36150-1
		6 M3.5	.250 6.35	.250 6.35	.654 16.61	.782 19.86	Red	.125 3.18	51863*	51863-1
			.312 7.92	.281 7.14	.685 17.40	.844 21.44	Red	.125 3.18	323008	—
	.312 7.92	.281 7.14	.685 17.40	.844 21.44	Red	.140 3.56	326878	—		
8 M4	.281 7.14	.250 6.35	.654 16.61	.797 20.24	Red	.125 3.18	320554*	2-320554-1		
	.281 7.14	.250 6.35	.654 16.61	.797 20.24	Red	.140 3.56	—	2-31887-1		
	.312 7.92	.281 7.14	.685 17.40	.844 21.44	Red	.125 3.18	—	2-36153-2		
	.344 8.74	.297 7.54	.701 17.81	.876 22.25	Red	.125 3.18	32836*	—		
	.344 8.74	.297 7.54	.701 17.81	.876 22.25	Red	.140 3.56	32837*	32837-1		

*Available in small packaging quantities.

¹Slightly larger than standard #4 stud hole. (.128 in./3.25 mm.)

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

†Must be crimped with 22-18 or 22-16 PIDG (red) Tooling

For complete product information, order Catalog 82042

Ring Tongue Terminals-Nylon

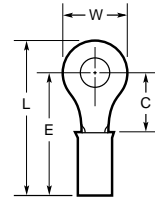
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions			Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers				
			W	C Min.	E Max.			L Max.	Loose Piece	Tape Mounted		
22-16 509-3,260 [0.26-1.65]	.033 0.84	5/16 M8	.469 11.91	.437 11.10	.841 21.36	1.078 27.38	Red	.125 3.18	320572*	2-320572-1		
			.469 11.91	.437 11.10	.841 21.36	1.078 27.38	Red	.140 3.56	31895*	2-31895-1		
			.531 13.49	.546 13.87	.950 24.13	1.218 30.94	Red	.125 3.18	324123	—		
		3/8	.531 13.49	.546 13.87	.950 24.13	1.218 30.94	Red	.125 3.18	320573*	2-320573-4		
			.531 13.49	.546 13.87	.950 24.13	1.218 30.94	Red	.140 3.56	31897*	2-31897-2		
			.713 18.11	.530 13.46	.934 23.72	1.293 32.84	Red	.125 3.18	328975*	—		
		16-14 2,050-5,180 [1.04-2.62]	.033 0.84	4	.250 6.35	.171 4.34	.575 14.61	.703 17.86	Blue	.150 3.81	324159*	2-324159-2
					.250 6.35	.171 4.34	.575 14.61	.703 17.86	Blue	.170 4.32	—	2-328996-1
					.250 6.35	.281 7.14	.685 17.40	.813 20.65	Blue	.150 3.81	323676	—
				6 M3.5	.250 6.35	.171 4.34	.575 14.61	.703 17.86	Blue	.150 3.81	—	2-320561-2
					.250 6.35	.281 7.14	.685 17.40	.813 20.65	Blue	.170 4.32	50881	50881-2
					.312 7.92	.250 6.35	.654 16.61	.813 20.65	Blue	.170 4.32	326882*	2-326882-1
8 M4	.343 8.71			.281 7.14	.685 17.40	.859 21.82	Blue	.150 3.81	36157*	—		
	.312 7.92			.250 6.35	.654 16.61	.813 20.65	Blue	.170 4.32	—	53941-2		
	.343 8.71			.281 7.14	.685 17.40	.859 21.82	Blue	.150 3.81	320560*	2-320560-1		
10	.312 7.92			.250 6.35	.654 16.61	.813 20.65	Blue	.170 4.32	53942-1	53942-2		
	.343 8.71			.281 7.14	.685 17.40	.859 21.82	Blue	.150 3.81	320574*	2-320574-2		
	.469 11.91			.437 11.10	.841 21.36	1.078 27.38	Blue	.170 4.32	324533	—		
5/16 M8	.469 11.91	.437 11.10	.841 21.36	1.078 27.38	Blue	.150 3.81	320575*	2-320575-1				
	.469 11.91	.437 11.10	.841 21.36	1.078 27.38	Blue	.170 4.32	328998*	2-328998-1				
	.531 13.49	.546 13.87	.950 24.13	1.218 30.94	Blue	.150 3.81	320564*	—				
3/8	.531 13.49	.546 13.87	.950 24.13	1.218 30.94	Blue	.170 4.32	—	2-328999-1				
	.713 18.11	.530 13.46	.934 23.72	1.293 32.84	Blue	.170 4.32	328849*	—				
	6 M3.5	.281 7.14	.219 5.56	.810 20.57	.953 24.21	Yellow/Blk.	.230 5.84	320631*	—			
.281 7.14		.219 5.56	.810 20.57	.953 24.21	Yellow/Blk.	.250 6.35	35634*	—				
8 M4		.343 8.71	.281 7.14	.872 22.15	1.046 26.57	Yellow/Blk.	.230 5.84	320627*	—			
	.343 8.71	.281 7.14	.872 22.15	1.046 26.57	Yellow/Blk.	.250 6.35	35106*	2-35106-1				
	.343 8.71	.281 7.14	.872 22.15	1.046 26.57	Yellow/Blk.	.230 5.84	320630*	2-320630-2				

*Available in small packaging quantities.

¹ Heavy duty for extra mechanical strength.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Ring Tongue Terminals-Nylon

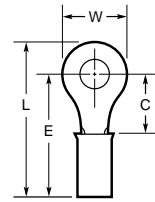
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545 except where noted.



Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers			
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted		
16-14HD ¹ 2,050-5,180 [1.04-2.62]	.050 1.27	1/4 M6	.500 12.70	.344 8.74	.935 23.75	1.188 30.18	Yellow/Blk.	.230 5.84	34974*	2-34974-1		
			.500 12.70	.344 8.74	.935 23.75	1.188 30.18	Yellow/Blk.	.250 6.35	323682	2-323682-1		
		5/16 M8	.531 13.49	.437 11.10	1.028 26.11	1.296 32.92	Yellow/Blk.	.250 6.35	34806*	—		
			.531 13.49	.437 11.10	1.028 26.11	1.296 32.92	Yellow/Blk.	.250 6.35	34810	—		
		3/8	.531 13.49	.437 11.10	1.028 26.11	1.296 32.92	Yellow/Blk.	.230 5.84	330896	—		
			.750 19.05	.625 15.88	1.216 30.89	1.594 40.49	Yellow/Blk.	.250 6.35	35316*	—		
		1/2 M12	1.250 31.75	1.000 25.40	1.591 40.41	2.219 56.36	Yellow/Blk.	.250 6.35	36203	—		
			1.250 31.75	1.000 25.40	1.591 40.41	2.219 56.36	Yellow/Blk.	.250 6.35	322724	—		
		12-10 5,180-13,100 [2.62-6.64]	.042 1.07	4	.281 7.14	.219 5.56	.810 20.57	.953 24.21	Yellow	.250 6.35	35148*	—
					.281 7.14	.219 5.56	.810 20.57	.953 24.21	Yellow	.230 5.84	320634*	2-320634-1
				6 M3.5	.281 7.14	.219 5.56	.810 20.57	.953 24.21	Yellow	.250 6.35	35149*	—
					.312 7.92	.302 7.67	.893 22.68	1.052 26.72	Yellow	.230 5.84	326886	—
8 M4	.375 9.53			.302 7.67	.893 22.68	1.083 27.51	Yellow	.250 6.35	—	2-35107-1		
	.312 7.92			.281 7.14	.872 22.15	1.031 26.19	Yellow	.230 5.84	35787*	1-35787-0		
10	.312 7.92			.302 7.67	.893 22.68	1.052 26.72	Yellow	.230 5.84	324915*	—		
	.312 7.92			.302 7.67	.893 22.68	1.052 26.72	Yellow	.230 5.84	324918*	1-324918-0		
1/4 M6	.343 8.71			.281 7.14	.872 22.15	1.046 26.57	Yellow	.230 5.84	—	1-32883-0		
	.375 9.53			.302 7.67	.893 22.68	1.083 27.51	Yellow	.230 5.84	36161*	—		
5/16 M8	.500 12.70			.344 8.74	1.179 29.95	1.432 36.37	Yellow	.220 5.59	329389	—		
	.500 12.70			.344 8.74	.935 23.75	1.188 30.18	Yellow	.230 5.84	35273*	—		
3/8	.531 13.49	.468 11.89	1.054 26.77	1.322 33.58	Yellow	.230 5.84	320569*	—				
	.531 13.49	.468 11.89	1.054 26.77	1.322 33.58	Yellow	.250 6.35	35111*	—				
1/2 M12	.593 15.06	.531 13.49	1.115 28.32	1.414 35.92	Yellow	.230 5.84	320577*	2-320577-3				
	.593 15.06	.531 13.49	1.115 28.32	1.414 35.92	Yellow	.250 6.35	35112*	—				
3/8	.750 19.05	.625 15.88	1.216 30.89	1.594 40.49	Yellow	.250 6.35	35151*	—				

*Available in small packaging quantities.

¹ Heavy duty for extra mechanical strength.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Ring Tongue Terminals — Vinyl

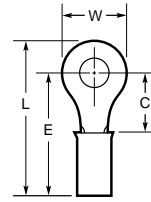
Material and Finish:

Insulation — Vinyl

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545
except where noted.



Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers						
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted					
16-14HD ¹ 2,050-5,180 [1.04-2.62]	.050 1.27	10	.343	.281	.961	1.135	Yellow/Blk.	.300 7.62	35363*	—					
			8.71	7.14	24.41	28.83									
			6	.375	.302	.982					1.172	Yellow	.300 7.62	35604	—
			M3.5	9.53	7.67	24.94					29.77				
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	8	.375	.302	.982	1.172	Yellow	.300 7.62	35605*	2-35605-2					
			M4	9.53	7.67	24.94					29.77				
		10	.375	.302	.982	1.172	Yellow	.300 7.62	35364*	—					
			9.53	7.67	24.94	29.77									
		1/4	.500	.344	1.024	1.277	Yellow	.300 7.62	323763	—					
			12.70	8.74	26.01	32.44									
		M6	.531	.468	1.148	1.416	Yellow	.300 7.62	35345*	2-35345-1					
			13.49	11.89	29.16	35.97									
5/16	.531	.468	1.148	1.416	Yellow	.300 7.62	35346*	2-35346-1							
	M8	13.49	11.89	29.16					35.97						
3/8	.593	.531	1.211	1.510	Yellow	.300 7.62	35478	1-35478-0							
	15.06	13.49	30.76	38.35											

*Available in small packaging quantities.

¹ Heavy duty for extra mechanical strength.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Ring Tongue Terminals — Insulation Restricting

Material and Finish:

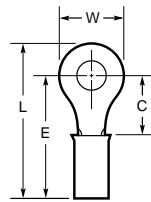
Insulation — Nylon

Terminal Body — Copper per
ASTM B-152

Plating — Tin per ASTM B-545

Metallic Sleeve — Copper per
ASTM B-152

Plating — Nickel per QQ-N-290 or
Tin per ASTM B-545



Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color Solid/Stripe	Wire Insulation Diameter Range	Part Numbers	
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted
24 475 [0.24]	.020 0.51	4	.203	.211	.587	.691	Yellow/Blue	.031-.055 0.79-1.40	2-323914-2	—
			5.16	5.36	14.91	17.55				
22 754 [0.38]	.033 0.84	4	.218	.156	.622	.734	Red/Green	.038-.110 0.97-2.79	52273*	—
			5.54	3.96	15.80	18.64				
		6	.218	.156	.622	.734	Red/Green	.038-.110 0.97-2.79	2-36149-3*	—
			M3.5	5.54	3.96	15.80				
		8	.312	.281	.747	.906	Red/Green	.038-.110 0.97-2.79	1-320551-2*	—
			M4	7.92	7.14	18.97				
10	.312	.281	.747	.906	Red/Green	.038-.110 0.97-2.79	2-36153-3*	—		
	7.92	7.14	18.97	23.01						

*Available in small packaging quantities.

¹ Heavy duty for extra mechanical strength.

² Terminal body plating — Gold per MIL-G-45204 Type II over Nickel per QQ-N-290.

³ #10 stud may be substituted.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

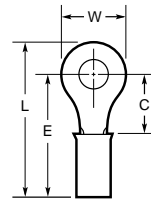
For complete product information, order Catalog 82042

Ring Tongue Terminals — Insulation Restricting

Material and Finish:

Insulation — Nylon
Terminal Body — Copper per ASTM B-152
Plating — Tin per ASTM B-545

Metallic Sleeve — Copper per ASTM B-152
Plating — Nickel per QQ-N-290 or Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color Solid/Stripe	Wire Insulation Diameter Range	Part Numbers	
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted
20 1,186 [0.60]	.033 0.84	4	.218 5.54	.156 3.96	.622 15.80	.734 18.64	Red/Red	.046-.110 1.17-2.79	52273-1*	—
		6	.218 5.54	.156 3.96	.622 15.80	.734 18.64	Red/Red	.046-.110 1.17-2.79	2-36149-4*	—
		M3.5	.250 6.35	.250 6.35	.716 18.19	.844 21.44	Red/Red	.046-.110 1.17-2.79	51863-3	—
		8	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Red/Red	.046-.110 1.17-2.79	1-320551-3*	—
		M4	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Red/Red	.046-.110 1.17-2.79	2-36153-4*	—
		10	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Red/Red	.046-.110 1.17-2.79	2-36153-4*	—
		1/4	.469 11.91	.437 11.10	.903 22.94	1.140 28.96	Red/Red	.046-.110 1.17-2.79	2-320571-4	—
18 1,900 [0.96]	.033 0.84	M6	.469 11.91	.437 11.10	.903 22.94	1.140 28.96	Red/Red	.046-.110 1.17-2.79	2-320572-3	—
		4	.218 5.54	.156 3.96	.622 15.80	.734 18.64	Red/White	.056-.110 1.42-2.79	52273-2*	—
		6	.218 5.54	.156 3.96	.622 15.80	.734 18.64	Red/White	.056-.110 1.42-2.79	2-36149-5*	—
		M3.5	.250 6.35	.250 6.35	.716 18.19	.844 21.44	Red/White	.056-.110 1.42-2.79	51863-4*	—
16 2,800 [1.42]	.033 0.84	10	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Red/White	.056-.110 1.42-2.79	2-36153-5*	—
		4	.250 6.35	.171 4.34	.637 16.18	.765 19.43	Blue/Blue	.063-.130 1.60-3.30	52274	—
		6	.250 6.35	.171 4.34	.637 16.18	.765 19.43	Blue/Blue	.063-.130 1.60-3.30	2-320561-3*	—
		M3.5	.250 6.35	.171 4.34	.637 16.18	.765 19.43	Blue/Blue	.063-.130 1.60-3.30	2-320561-3*	—
		8	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Blue	.063-.130 1.60-3.30	1-51864-0*	—
		M4	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Blue	.063-.130 1.60-3.30	1-51864-0*	—
14 4,234 [2.15]	.033 0.84	10	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Blue	.063-.130 1.60-3.30	51864-7*	—
		1/4	.469 11.91	.437 11.10	.903 22.94	1.140 28.96	Blue/Blue	.063-.130 1.60-3.30	2-320563-3	—
		M6	.469 11.91	.437 11.10	.903 22.94	1.140 28.96	Blue/Blue	.063-.130 1.60-3.30	2-320563-3	—
		3/8	.531 13.49	.546 13.87	1.012 25.70	1.280 32.51	Blue/Blue	.063-.130 1.60-3.30	2-320564-1	—
		6	.250 6.35	.171 4.34	.637 16.18	.765 19.43	Blue/Green	.078-.130 1.98-3.30	2-320561-4	—
12 6,654 [3.37]	.042 1.07	M3.5	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Green	.078-.130 1.98-3.30	51864-8*	—
		8	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Green	.078-.130 1.98-3.30	1-51864-1*	—
		M4	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Green	.078-.130 1.98-3.30	1-51864-1*	—
		10	.312 7.92	.281 7.14	.747 18.97	.906 23.01	Blue/Green	.078-.130 1.98-3.30	51864-9*	—
10 12,066 [6.11]	.042 1.07	6	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Yellow	.095-.200 2.41-5.08	2-36161-5	—
		M3.5	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Yellow	.095-.200 2.41-5.08	2-36161-5	—
		8	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Yellow	.095-.200 2.41-5.08	2-320568-2*	—
10 12,066 [6.11]	.042 1.07	M4	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Yellow	.095-.200 2.41-5.08	2-36161-3*	—
		10	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Yellow	.095-.200 2.41-5.08	2-36161-3*	—
		1/4	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Yellow	.095-.200 2.41-5.08	2-320569-5	—
		M6	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Yellow	.095-.200 2.41-5.08	2-320569-5	—
		6	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-36161-6	—
		M3.5	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-36161-6	—
10 12,066 [6.11]	.042 1.07	8	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-320568-3*	—
		M4	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-320568-3*	—
		10	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-36161-4	—
		M3.5	.375 9.53	.302 7.67	.958 24.33	1.148 29.16	Yellow/Brown	.119-.200 3.02-5.08	2-36161-4	—
10 12,066 [6.11]	.042 1.07	1/4	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Brown	.119-.200 3.02-5.08	2-320569-6	—
		M6	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Brown	.119-.200 3.02-5.08	2-320569-6	—
10 12,066 [6.11]	.042 1.07	5/16	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Brown	.119-.200 3.02-5.08	2-320576-3	—
		M8	.531 13.49	.468 11.89	1.124 28.55	1.392 35.36	Yellow/Brown	.119-.200 3.02-5.08	2-320576-3	—

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Rectangular Tongue Terminals

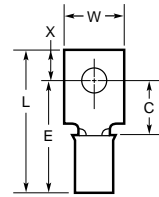
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152
except where noted.

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
22-16 500 [0.26-1.65]	.033 0.84	4	.237 6.02	.404 10.26	.810 20.57	1.015 25.78	.195 4.95	Red	.140 3.56	327962	—
		6 M3.5	.237 6.02	.404 10.26	.810 20.57	1.015 25.78	.195 4.95	Red	.140 3.56	2-327956-1	—
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	6 M3.5	.244 6.20	.312 7.92	.716 18.19	.856 21.74	.125 3.18	Blue	.170 4.32	33173*	—
		8 M4	.302 7.67	.465 11.81	.872 22.15	1.109 28.17	.227 5.77	Blue	.150 3.81	2-327946-4	—
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	5 M3	.277 7.04	.277 7.04	.889 22.58	1.042 26.47	.143 3.63	Yellow	.230 5.84	327954	—
		6 M3.5	.237 6.02	.404 10.26	.998 25.35	1.203 30.56	.195 4.95	Yellow	.230 5.84	2-327960-1	—

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Spade Tongue Terminals

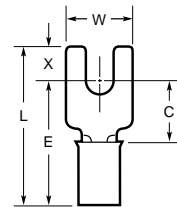
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
26-24 238-475 [0.12-0.24]	.029 0.74	6 M3.5	.250 6.35	.211 5.36	.632 16.05	.709 18.01	.072 1.83	Yellow	.095 2.41	—	53115-2
		4	.203 5.16	.211 5.36	.542 13.77	.627 15.93	.076 1.93	Yellow	.082 2.08	321035*	2-321035-1
26-22 202-810 [0.10-0.41]	.020 0.51	2 M2	.182 4.62	.203 5.16	.607 15.42	.727 18.47	.115 2.92	Red	.140 3.56	—	2-328394-1
		4	.218 5.54	.156 3.96	.560 14.22	.674 17.12	.109 2.77	Red	.125 3.18	1-327717-0	—
22-16 509-3,260 [0.26-1.65]	.033 0.84		6 M3.5	.218 5.54	.156 3.96	.560 14.22	.674 17.12	.109 2.77	Red	.140 3.56	327717*
		8 M4		.297 7.54	.203 5.16	.607 15.42	.753 19.13	.141 3.58	Red	.125 3.18	34080*
10	.297 7.54		.203 5.16	.607 15.42	.753 19.13	.141 3.58	Red	.140 3.56	—	2-326861-1	
	10	.375 9.53	.312 7.92	.716 18.19	.908 23.06	.187 4.75	Red	.125 3.18	32050*	—	
10		.375 9.53	.312 7.92	.716 18.19	.908 23.06	.187 4.75	Red	.125 3.18	32051*	2-32051-1	
	10	.375 9.53	.312 7.92	.716 18.19	.908 23.06	.187 4.75	Red	.140 3.56	32054*	2-32054-1	

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Spade Tongue Terminals

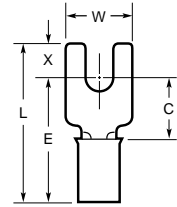
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	6 M3.5	.297 7.54	.203 5.16	.607 15.42	.753 19.13	.141 3.58	Blue	.170 4.32	—	2-35559-1
		10	.385 9.78	.312 7.92	.716 18.19	.908 23.06	.187 4.75	Blue	.170 4.32	—	2-32060-1
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	.312 7.92	.296 7.52	.887 22.53	1.095 27.81	.203 5.16	Yellow	.230 5.84	—	2-326859-1
		8 M4	.406 10.31	.296 7.52	.887 22.53	1.095 27.81	.203 5.16	Yellow	.230 5.84	—	2-32588-1
			.406 10.31	.296 7.52	.887 22.53	1.095 27.81	.203 5.16	Yellow	.250 6.35	35152*	—
		10	.406 10.31	.296 7.52	.887 22.53	1.095 27.81	.203 5.16	Yellow	.230 5.84	—	2-32589-1

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Flanged Spade Tongue Terminals

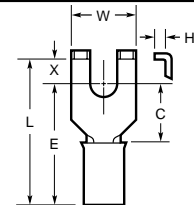
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions						Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X	H Min.			Loose Piece	Tape Mounted
26-22 202-810 [0.10-0.41]	.020 0.51	2 M2	.182 4.62	.203 5.16	.534 13.56	.649 16.48	.110 2.79	.026 0.66	Yellow	.082 2.08	324597*	—
		4	.193 4.90	.203 5.16	.534 13.56	.649 16.48	.110 2.79	.026 0.66	Yellow	.082 2.08	52369*	—
		6 M3.5	.250 6.35	.203 5.16	.534 13.56	.649 16.48	.110 2.79	.026 0.66	Yellow	.082 2.08	—	51874-1
22-16 509-3,260 [0.26-1.65]	.033 0.84	2 M2	.182 4.62	.203 5.16	.607 15.42	.727 18.47	.115 2.92	.041 1.04	Red	.125 3.18	2-324608-2	—
			.182 4.62	.203 5.16	.607 15.42	.727 18.47	.115 2.92	.041 1.04	Red	.140 3.56	324608*	—
		6 M3.5	.250 6.35	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.046 1.17	Red	.125 3.18	322777*	2-322777-1
			.296 7.52	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.046 1.17	Red	.125 3.18	—	2-32561-1
			.296 7.52	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.046 1.17	Red	.140 3.56	—	2-32562-1
		8 M4	.416 10.57	.250 6.35	.654 16.61	.830 21.08	.171 4.34	.062 1.57	Red	.125 3.18	32497	—
			.416 10.57	.250 6.35	.654 16.61	.830 21.08	.171 4.34	.062 1.57	Red	.140 3.56	32498*	2-32498-1
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	6 M3.5	.294 7.47	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.047 1.19	Blue	.150 3.81	2-320861-2	—
			.294 7.47	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.047 1.19	Blue	.170 4.32	—	2-320861-1
			.294 7.47	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.047 1.19	Blue	.170 4.32	—	2-320862-1
		8 M4	.416 10.57	.250 6.35	.654 16.61	.830 21.08	.171 4.34	.062 1.57	Blue	.150 3.81	33155*	—
			.416 10.57	.250 6.35	.654 16.61	.830 21.08	.171 4.34	.062 1.57	Blue	.170 4.32	33156	—
		10	.294 7.47	.203 5.16	.607 15.42	.737 18.72	.125 3.18	.052 1.19	Blue	.170 4.32	320863*	2-320863-2

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Flanged Spade Tongue Terminals

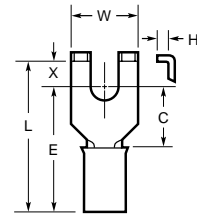
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions						Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X	H Min.			Loose Piece	Tape Mounted
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	.328 8.33	.250 6.35	.841 21.36	1.017 25.83	.171 4.34	.052 1.32	Yellow	.230 5.84	324587	—
		8 M4	.416 10.57	.250 6.35	.841 21.36	1.017 25.83	.171 4.34	.052 1.32	Yellow	.230 5.84	32510*	2-32510-1
		10	.416 10.57	.250 6.35	.841 21.36	1.017 25.83	.171 4.34	.052 1.32	Yellow	.250 6.35	324015*	2-324015-1

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Short Spring Spade Tongue Terminals

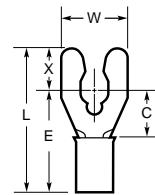
Material and Finish:

Insulation — Nylon

Terminal Body — Phosphor Bronze
per ASTM B-139

Metallic Sleeve — Copper per
ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mills [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
26-22 202-810 [0.10-0.41]	.020 0.51	4	.203 5.16	.219 5.56	.650 16.51	.695 17.65	.140 3.56	Yellow	.082 2.08	52922*	52922-1
		8 M4	.375 9.53	.281 7.14	.612 15.54	.787 19.99	.170 4.32	Yellow	.082 2.08	52925	52925-1
22-16 509-3,260 [0.26-1.65]	.033 0.84	4	.203 5.16	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Red	.125 3.18	52927*	52927-1
		5 M3	.250 6.35	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Red	.125 3.18	52928*	52928-1
		6 M3.5	.250 6.35	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Red	.125 3.18	52929*	—
		8 M4	.244 6.20	.281 7.14	.725 18.42	.895 22.73	.170 4.32	Red	.140 3.56	—	55768-1
			.375 9.53	.281 7.14	.685 17.40	.860 21.84	.170 4.32	Red	.125 3.18	52930*	52930-1
		10	.375 9.53	.281 7.14	.685 17.40	.860 21.84	.170 4.32	Red	.140 3.56	—	52930-3
.406 10.31	.281 7.14		.685 17.40	.908 23.06	.218 5.54	Red	.125 3.18	52931*	—		
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	5 M3	.250 6.35	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Blue	.170 4.32	52934*	52934-1
		6 M3.5	.250 6.35	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Blue	.170 4.32	52935*	52935-1
			.250 6.35	.250 6.35	.654 16.61	.799 20.29	.140 3.56	Blue	.182 4.62	52935-2*	52935-3
		8 M4	.375 9.53	.281 7.14	.685 17.40	.860 21.84	.170 4.32	Blue	.170 4.32	—	52936-1
			.375 9.53	.281 7.14	.685 17.40	.860 21.84	.170 4.32	Blue	.182 4.62	—	52936-3

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Short Spring Spade Tongue Terminals

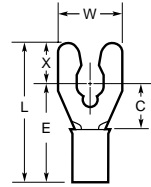
Material and Finish:

Insulation — Nylon

Terminal Body — Phosphor Bronze
per ASTM B-139

Metallic Sleeve — Copper per
ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	10	.406	.281	.685	.908	.218	Blue	.170 4.32	52937*	52937-1
			10.31	7.14	17.40	23.06	5.54				
		.406	.281	.685	.908	.218	Blue	.182 4.62	52937-2*	52937-3	
10.31	7.14	17.40	23.06	5.54							
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	1/4	.625	.343	.747	1.033	.281	Blue	.170 4.32	52939	—
		M6	15.88	8.71	18.97	26.24	7.14				
		8	.375	.276	.877	1.052	.170	Yellow	.250 6.35	52942*	—
		M4	9.53	7.01	22.28	26.72	4.32				
1/4	.625	.338	.939	1.225	.281	Yellow	.250 6.35	52945*	—		
M6	15.88	8.59	23.85	31.12	7.14						

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Long Spring Spade Tongue Terminals

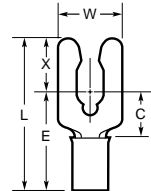
Material and Finish:

Insulation — Nylon

Terminal Body — Phosphor Bronze
per ASTM B-139

Metallic Sleeve — Copper per
ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.033 0.84	6	.250	.238	.652	.933	.276	Red	.125 3.18	52409*	52409-1
		M3.5	6.35	6.05	16.56	23.70	7.01				
		8	.281	.270	.684	.979	.290	Red	.125 3.18	—	52410-1
M4	7.14	6.86	17.37	24.87	7.37						
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	10	.343	.283	.697	1.005	.303	Red	.125 3.18	—	52411-1
		8	.250	.238	.652	.933	.276				
		M3.5	6.35	6.05	16.56	23.70	7.01				
		8	.281	.270	.684	.979	.290	Blue	.150 3.81	52420-1*	52420-3
		M4	7.14	6.86	17.37	24.87	7.37				
		10	.343	.283	.697	1.005	.303	Blue	.170 4.32	52422-1*	—
1/4	.437	.345	.759	1.102	.338	Blue	.150 3.81				
M6	11.10	8.76	19.28	27.99	8.59						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	8	.375	.273	.874	1.174	.295	Yellow	.250 6.35	52431-1	—
		M4	9.53	6.93	22.20	29.82	7.49				
		10	.375	.305	.906	1.219	.308	Yellow	.250 6.35	52432-1	—
1/4	.437	.345	.946	1.289	.338	Yellow	.250 6.35				
M6	11.10	8.76	24.03	32.74	8.59						

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Slotted Ring Tongue Terminals

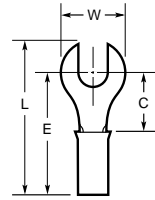
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions			Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers		
			W	C Min.	E Max.			L Max.	Loose Piece	Tape Mounted
26-22 202-810 [0.10-0.41]	.020 0.51	6 M3.5	.250 6.35	.281 7.14	.612 15.54	.719 18.26	Yellow	.082 2.08	323011	2-323011-2
22-16 509-3,260 [0.26-1.65]	.033 0.84	8 M4	.281 7.14	.250 6.35	.654 16.61	.770 19.56	Red	.140 3.56	36954*	—

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Hook Tongue Terminals

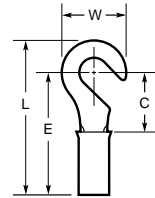
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions			Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers		
			W	C Min.	E Max.			L Max.	Loose Piece	Tape Mounted
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8 M4	.343 8.71	.281 7.14	.685 17.40	.859 21.82	Blue	.170 4.32	320306*	2-320306-1

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Offset Ring Tongue Terminals

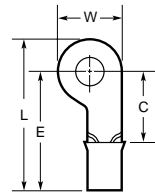
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions			Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.			L Max.	Loose Piece
22-16 509-3,260 [0.26-1.65]	.033 0.84	6 M3.5	.375 9.53	.312 7.92	.716 18.19	.906 23.01	Red	.125 3.18	323039

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Shur-Plug Terminal

Material and Finish:

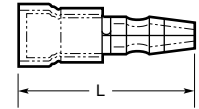
Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545

.156 Series



Wire Size Circular Mils [mm ²]	Dimension L Max.	Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
				Loose Piece	Tape Mounted
16-14 2,050-5,180 [1.04-2.62]	.790 20.07	Blue	.170 4.32	—	2-324225-1

*Available in small packaging quantities.

Tabs

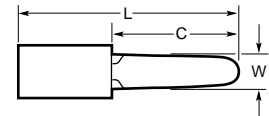
Material and Finish:

Insulation — Nylon

Terminal Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
		W	C Min.	L Max.	D			
22-16 509-3,260 [0.26-1.65]	.033 0.84	.140 3.56	.480 12.19	.904 22.96	—	Red	.140 3.56	34294*

*Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to end of tab.

Knife Disconnect Splices

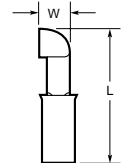
Material and Finish:

Insulation — Nylon

Splice Body and Metallic

Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils [mm ²]	Material Thickness	Dimensions		Splice Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
		W	L Max.			Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.031 0.79	.203 5.16	.878 22.30	Red	.125 3.18	320555*	—
		.203 5.16	.878 22.30	Red	.140 3.56	32446*	2-32446-1
16-14 2,050-5,180 [1.04-2.62]	.031 0.79	.203 5.16	.878 22.30	Blue	.150 3.81	320566*	—
		.203 5.16	.878 22.30	Blue	.170 4.32	32448*	—
12-10 5,180-13,100 [2.62-6.64]	.040 1.02	.281 7.14	1.234 31.34	Yellow	.230 5.84	320620*	—
		.281 7.14	1.260 32.00	Yellow	.250 6.35	35762*	—

*Available in small packaging quantities.

For complete product information, order Catalog 82042

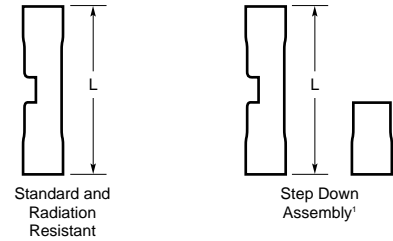
Butt Splices

Material and Finish:

Insulation Sleeve — Standard, Step Down Assembly and Nylon
Radiation Resistant — Polyvinylidene Fluoride (PVF₂)

Splice Body and Insulation Support Sleeve — Copper per ASTM B-152

Plating — Tin per ASTM B-545



Wire Size Circular Mils ¹ [mm ²]	Style	Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
					Loose Piece	Tape Mounted
26-24 ² 238-475 [0.12-0.24]	Standard	.890 22.61	Yellow	.082 2.08	323994	2-323994-1
26-22 202-810 [0.10-0.41]		.890 22.61	Yellow	.082 2.08	2-323994-2*	—
16-14 2,050-5,180 [1.04-2.62]		1.265 32.13	Blue	.150 3.81	—	2-320562-3
12-10 5,180-13,100 [2.62-6.64]		1.656 42.06	Yellow	.220 5.59	320570*	2-320570-3†
16-14 to 22-18 2,050-5,180 to 509-1,900 [1.04-2.62] [0.26-0.96]	Step Down Assembly	1.265 32.13	Blue	.150/.115 3.81/2.92	327583	2-327583-1
12-10 to 22-18 5,180-13,100 to 509-1,900 [2.62-6.64] [0.26-0.96]		1.656 42.06	Yellow	.220/.140 5.59/3.56	327639	—
12-10 to 16-14 5,180-13,100 to 2,050-5,180 [2.62-6.64] [1.04-2.62]		1.656 42.06	Yellow	.220/.170 5.59/4.32	327638	—
22-16 ³ 509-3,260 [0.26-1.65]	Radiation Resistant	1.265 32.13	Natural w/ Red Stripes	.125 3.18	53548-1*	—
16-14 2,050-5,180 [1.04-2.62]		1.265 32.13	Natural w/ Blue Stripes	.150 3.81	53549-1*	—
12-10 5,180-13,100 [2.62-6.64]		1.656 42.06	Natural w/ Yellow Stripes	.220 5.59	53550-1*	—

*Available in small packaging quantities.

¹ When using two or more wires in either end of a butt splice, the combined cross sectional area must be within the (CMA) circular mil area range listed.

² 26-24 range in accordance with MIL-T-7928.

³ 22-16 splices are 22-18 range in accordance with MIL-T-7928.

†Tapetronic only.

For complete product information, order Catalog 82042

Product Facts

- Select items have MIL-T-7928 approval under M7928/4 and /6
- Insulation is polyvinylidene fluoride (PVF₂) for high radiation resistance (to 200 megarads)
- Withstands 4 days of steam/chemical spray washdown which simulates LOCA (loss of coolant accident) conditions
- Temperature range of -65°C to +150°C
- Uses AMP standard PIDG and PLASTI-GRIP tooling
- Color coded for easy wire and tool match
- Covers wide range of wire sizes—AWG 26-2/0 [0.12-70 mm²]
- Tin-plated per MIL-T-10727
- Butt splice for wire sizes—AWG 26-10 [0.12-6 mm²]



The line of AMP Radiation Resistant/150°C Pre-Insulated Terminals and Splices includes terminals and splices of the well-known PIDG designs. Radiation Resistant Terminals are made of fine grade, high conductivity copper with bright tin-plating and feature polyvinylidene fluoride (PVF₂) insulation for high resistance to radiation and solvents. PIDG terminals meet the performance requirements of MIL-T-7928. They are also tested by AMP and an independent test facility and have fulfilled all requirements including radiation testing to 200 megarads, operating temperature range from -65°C to +150°C and resistance to steam and various chemical solvents to simulate LOCA (loss of coolant accident) conditions.

These terminals and splices feature the outstanding qualities of standard AMP

terminals such as tapered entry ramps to help eliminate bent wire strands and insulation support for stronger, more reliable connections. Serrated or dimpled wire barrels provide maximum contact and tensile strength after crimping, and color coded insulation with wire size stamped on the terminal tongue identifies the product and assists in proper terminal-wire match.

AMP Radiation Resistant/150°C Terminals are designed and engineered to successfully withstand extreme vibration, shock and structural stresses, and other conditions which can adversely affect the critical circuit requirements in complex equipment.

The matching AMP tooling precisely crimps all terminations. This uniformity increases reliability and also serves as a built-in quality control factor.

Technical Documents:

Instruction Sheets:

- | | |
|---------|--|
| IS 1559 | DAHT's for 26-10 AWG connectors |
| IS 1724 | Crimping dies for 8-2/0 AWG connectors |

For complete product information, order Catalog 82038

PIDG Terminal Style

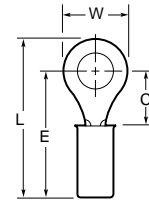
Ring Tongue Terminals

Material and Finish:

Terminal Body—Copper per QQ-C-576 with tin plating per MIL-T-10727 or gold plating per MIL-G-45204 over nickel per QQ-N-290

Insulation Support Sleeve—Copper per QQ-C-576 with tin plating per MIL-T-10727

Insulation Sleeve—PVF₂, natural color



Wire Range AWG	CMA	Tongue Thickness Max.	Wire Ins. Dia. Max.	Stripe Color Code	Stud Size	Dimensions				Part Numbers Tin Plate Loose					
						C Min.	W	E Max.	L Max.						
26-24	202-509	.029 0.74	.082 2.09	Yellow	6	.243	.250	.664	.792	53402-1					
					M3.5	6.17	6.35	16.87	20.12						
					8	.250	.281	.671	.814		53403-1				
					M4	6.35	7.13	17.05	20.68						
22-16	509-3,250	.033 0.84	.125 3.18	Red	4	.156	.218	.560	.672	53405-1					
						3.96	5.54	14.23	17.07						
					6	.156	.218	.560	.672		53406-1				
										M3.5	3.96	5.54	14.23	17.07	
										6	.250	.250	.654	.782	53407-1
										M3.5	6.35	6.35	16.62	19.87	
										8	.281	.312	.685	.844	
										M4	7.13	7.91	17.4	21.44	
										10	.281	.312	.685	.844	53409-1
						7.13	7.92	17.4	21.44						
16-14	2,050-5,180	.033 0.84	.150 3.81	Blue	6	.171	.250	.575	.703	53415-1					
						4.34	6.35	14.61	17.86						
					6	.281	.312	.685	.844		53416-1				
										M3.5	7.13	7.92	17.4	21.44	
										8	.281	.312	.685	.844	53417-1
										M4	7.13	7.92	17.4	21.44	
										10	.281	.312	.685	.844	
											7.13	7.92	17.4	21.44	
										1/4	.437	.469	.841	1.078	53419-1
					M6	11.09	11.91	21.37	27.39						
					6	.302	.375	.893	1.083	53423-1*					
					M3.5	7.67	9.53	22.69	27.51						
12-10	5,180-13,100	.042 1.07	.230 5.84	Yellow	8	.302	.375	.893	1.083	53424-1*					
						7.67	9.53	22.69	27.51						
					10	.302	.375	.893	1.083		53425-1*				
										M4	7.67	9.53	22.69	27.51	
										1/4	.468	.531	1.054	1.322	53426-1*
										M6	11.88	13.48	26.78	33.58	
										5/16	.468	.531	1.054	1.322	
										M8	11.88	13.48	26.78	33.58	

*Braze body

Application Tooling



Short Handle Tool



Long Handle Tool



T-HEAD Tool



Heavy Head Tool

Wire Size Range AWG	mm ²	Hand Tools		Pneumatic Tools		
		Style	Part Number	Part Number	Die Number	Head Number
26-24 & 22-16	0.1-0.2 & 0.26-1.65	Short Handle	47386-2	69365	47806-2	—
		Long Handle	47386	46110-2	47806-2*	—
		T-HEAD Tool	59250	69011	—	47498
		T-HEAD Tool	59300	69012	—	46283
		—	—	69005	—	47516
		—	—	69010	—	46282
22-16	0.26-1.65	Long Handle	69151-1**	—	—	—
16-14	1.04-2.62	Short Handle	47387-2	69365	47807-1	—
		Long Handle	69152-1**	46110-2	47807-1*	—
		Long Handle	47387	69011	—	47499
		T-HEAD Tool	59250	69012	—	46285
		—	—	69005	—	47517
		—	—	69010	—	46284
12-10	2.62-6.64	Heavy Head	59239-4	69365	47808-6	—
		Heavy Head	69150-1**	69012	—	47500-1
		—	—	69010	—	47518-1

*Maximum tongue width of terminals for use with these dies is .469 [11.91] when used in tool 46110-2. Flat tongues only.

**For wires with thin wall insulation.

For complete product information, order Catalog 82038

Product Facts

- Pre-insulated PLASTI-GRIP solderless terminals and splices
- Designed specifically to answer the need for inexpensive, insulated electrical terminations
- Can be used in almost every type of commercial application
- Accommodate wire sizes from 22 AWG through 2/0 AWG

The Crimp

- Carefully engineered application tooling has been developed to ensure uniformly high quality terminations
- Tool and terminal have been designed as a team to promote ease and speed of application and at the same time to provide precise crimping pressure for every wire size
- The wire and the terminal barrel form a homogeneous mass of metal, providing a connection of maximum conductivity, tensile strength, and high resistance to corrosion
- The quality performance, the facility of installation and the inherent simplicity make them ideal for many industrial applications

Color Coding. Terminal insulation is color-coded by wire size range to eliminate errors during installation.

Funnel Entry. Assures rapid wire insertion during high speed production. (Except 8 to 2/0 range.)

Serrations. Serrations inside barrel provide maximum contact and tensile strength after crimping. Dimples on 8 to 2/0 range.

Insulation. Vinyl insulation sleeve provides good dielectric strength and supports the wire insulation so that no bare wire is exposed.

Basic Terminal Material. The basic terminal is constructed of fine grade high conductivity copper per ASTM B-152 and tin-plated per ASTM B-545. Basic material for Spring Spade Tongue Terminals is phosphor bronze per ASTM B-139 or brass per ASTM B-36 and tin-plated per ASTM B-545. AMP's special plating process creates durable corrosion resistance to salt spray and most chemical fumes.

Temperature Rating: 90°C Max.

AMP PLASTI-GRIP Terminals and Splices (Use PLASTI-GRIP or PIDG Tooling)

AMP Wire Range	UL Listed Except as noted with individual part number listing.	SP LR 7189 Certified	UL 8 thru 4/0 600V
22-16	Terminals, Butt & Parallel Splices 22-16 Solid or Stranded ¹	600 V Max. (1000 V Fixture or Sign) 90°C Max.	Recognized under the component program of Underwriters Laboratories Incorporated File No. E13288
16-14	Terminals, Butt & Parallel Splices 16-14 Solid or Stranded ¹		
12-10	Terminals, Butt & Parallel Splices 12-10 Solid or Stranded ¹		

Note: 22-16 terminals and splices are stamped 22-18 in accordance with MIL-T-7928.
¹Stranded wire only using TETRA-CRIMP tooling.

For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

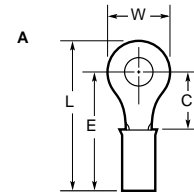
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
				W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.033 0.84	2 M2	A	.218	.156	.572	.684	Red	.140	34140*	2-34140-1
				5.54	3.96	14.53	17.37	3.56	—	—	
		4	A	.218	.156	.572	.684	Red	.125	32944*	—
				5.54	3.96	14.53	17.37	3.18	—	2-34141-1	
				.281	.250	.666	.809	Red	.140	34143	2-34143-1
				7.14	6.35	16.92	20.55	3.56	—	—	
		6 M3.5	A	.218	.156	.572	.684	Red	.125	32945*	2-32945-1
				5.54	3.96	14.53	17.37	3.18	—	1-34142-1	
				.218	.156	.572	.684	Red	.140	—	1-34142-1
				5.54	3.96	14.53	17.37	3.56	—	—	
				.281	.250	.666	.809	Red	.125	—	2-32947-1
				7.14	6.35	16.92	20.55	3.18	—	—	
				.281	.250	.666	.809	Red	.140	34144*	—
				7.14	6.35	16.92	20.55	3.56	—	—	
		8 M4	A	.281	.250	.666	.809	Red	.125	32948*	2-32948-1
				7.14	6.35	16.92	20.55	3.18	—	—	
				.281	.250	.666	.809	Red	.140	34145*	2-34145-1
				7.14	6.35	16.92	20.55	3.56	—	—	
		10	A	.312	.281	.697	.856	Red	.125	32951*	—
				7.92	7.14	17.70	21.74	3.18	—	—	
				.312	.281	.697	.856	Red	.140	34148*	—
				7.92	7.14	17.70	21.74	3.56	—	—	
		10	A	.281	.250	.666	.809	Red	.125	32948*	2-32948-1
				7.14	6.35	16.92	20.55	3.18	—	—	
.281	.250			.666	.809	Red	.140	34146*	2-34146-1		
7.14	6.35			16.92	20.55	3.56	—	—			
1/4 M6	A	.281	.250	.666	.809	Black	.140	—	2-34146-5		
		7.14	6.35	16.92	20.55	3.56	—	—			
5/16 M8	A	.312	.281	.697	.856	Red	.125	32952*	2-32952-1		
		7.92	7.14	17.70	21.74	3.18	—	—			
3/8	A	.469	.437	.853	1.090	Red	.125	—	2-32953-1		
		11.91	11.10	21.67	27.69	3.18	—	—			
4	A	.469	.437	.853	1.090	Red	.140	34150*	—		
		11.91	11.10	21.67	27.69	3.56	—	—			
16-14 2,050-5,180 [1.04-2.62]	6 M3.5	A	.469	.437	.853	1.090	Red	.140	34151*	2-34151-1	
			11.91	11.10	21.67	27.69	3.56	—	—		
6 M3.5	A	.531	.546	.962	1.230	Red	.140	34152*	2-34152-2		
		13.49	13.87	24.43	31.24	3.56	—	—			
		.250	.171	.587	.715	Blue	.170	34157*	—		
		6.35	4.34	14.91	18.16	4.32	—	—			
6 M3.5	A	.250	.171	.587	.715	Blue	.170	—	2-34158-1		
		6.35	4.34	14.91	18.16	4.32	—	—			
6 M3.5	A	.343	.281	.697	.871	Blue	.145	—	2-32958-1		
		8.71	7.14	17.70	22.12	3.68	—	—			
6 M3.5	A	.343	.281	.697	.871	Blue	.170	34159*	2-34159-1		
		8.71	7.14	17.70	22.12	4.32	—	—			

* Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole. (Styles A & E).

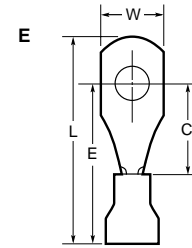
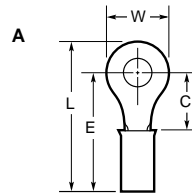
For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:
Application Tooling — page 7067


Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers			
				W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted		
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8 M4	A	.312	.250	.666	.825	Blue	.170 4.32	328527*	2-328527-1		
				7.92	6.35	16.92	20.96						
						.343	.281	.697	.871	Blue	.145 3.68	32959*	2-32959-1
						8.71	7.14	17.70	22.12				
						.343	.281	.697	.871	Blue	.170 4.32	34160*	2-34160-1
						8.71	7.14	17.70	22.12				
				10	A	.343	.281	.697	.871	Blue	.145 3.68	—	2-32960-1
						8.71	7.14	17.70	22.12				
				1/4 M6	A	.469	.437	.853	1.090	Blue	.145 3.68	32961*	—
						11.91	11.10	21.67	27.69				
						.469	.437	.853	1.090	Blue	.170 4.32	34162*	—
						11.91	11.10	21.67	27.69				
		5/16 M8	A	.469	.437	.853	1.090	Blue	.170 4.32	34163*	2-34163-1		
				11.91	11.10	21.67	27.69						
		3/8	A	.531	.546	.962	1.248	Blue	.170 4.32	34164*	2-34164-2		
				13.49	13.87	24.43	31.70						
				.531	.546	.962	1.248	Black	.170 4.32	—	2-34164-4		
				13.49	13.87	24.43	31.70						
16-14HD [†] 2,050-5,180 [1.04-2.62]	.050 1.27	10	A	.343	.281	.872	1.046	Yellow/Blk.	.200 5.08	—	2-34823-1 [†]		
				8.71	7.14	22.15	26.57						
						.343	.281	.872	1.046	Yellow/Blk.	.250 6.35	—	2-321518-1
						8.71	7.14	22.15	26.57				
				1/4 M6	A	.500	.344	.935	1.188	Yellow/Blk.	.230 5.84	35349	—
						12.70	8.74	23.75	30.18				
						.531	.437	1.028	1.296	Yellow/Blk.	.200 5.08	34824	—
						13.49	11.10	26.11	32.92				
				3/8	A	.750	.625	1.216	1.594	Yellow/Blk.	.200 5.08	34826	—
						19.05	15.88	30.89	40.49				
		12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	A	.281	.219	.810	.953	Yellow	.250 6.35	34852*	—
						7.14	5.56	20.57	24.21				
						.375	.302	.893	1.098	Yellow	.230 5.84	34168*	—
						9.53	7.67	22.68	27.89				
				10	A	.312	.302	.953	1.111	Yellow	.300 7.62	—	1-330518-2
						7.92	7.67	24.21	28.22				
						.375	.302	.893	1.083	Black	.250 6.35	—	2-328261-1
						9.53	7.67	22.68	27.51				
						.375	.302	.893	1.098	Yellow	.250 6.35	34854*	2-34854-1
						9.53	7.67	22.68	27.89				
				1/4 M6	E	.400	.468	1.118	1.373	Yellow	.300 7.62	—	55678-2
						10.16	11.89	28.40	34.87				
			A	.500	.344	.994	1.247	Black	.300 7.62	35492	—		
				12.70	8.74	25.25	31.67						
				.531	.468	1.059	1.327	Yellow	.250 6.35	34855*	2-34855-1		
				13.49	11.89	26.90	33.71						
		5/16 M8	A	.531	.468	1.059	1.327	Yellow	.230 5.84	34172*	2-34172-1		
				13.49	11.89	26.90	33.71						
				.531	.468	1.059	1.327	Yellow	.250 6.35	34856*	2-34856-1		
				13.49	11.89	26.90	33.71						
		3/8	A	.593	.531	1.122	1.421	Yellow	.230 5.84	—	2-34173-1		
				15.06	13.49	28.50	36.09						
		1/2 M12	A	.750	.625	1.216	1.594	Yellow	.250 6.35	34837*	2-34837-4		
				19.05	15.88	30.89	40.49						

[†] Not UL or CSA Approved or Listed.

* Available in small packaging quantities.

[†] Heavy Duty for extra mechanical strength.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole. (Styles A & E).

For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

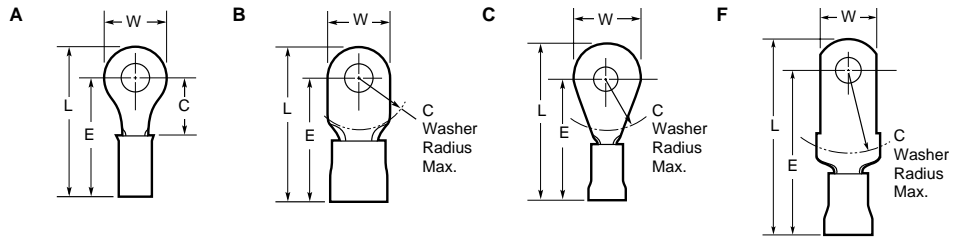
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7068



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers			
				W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted		
8 13,100-20,800 [6.64-10.5]	.043 1.09	8 M4	C	.478	.437	1.344	1.586	Red	.360 9.14	52041	52041-6		
				12.14	11.10	34.14	40.28						
		10	B	.431	.437	1.338	1.556	Red	.360 9.14	52263	52263-2		
				10.95	11.10	33.99	39.52						
			C	.431	.437	1.358	1.576	Red	.330 8.38	52263-1	52263-3		
				10.95	11.10	34.49	40.03						
		1/4 M6	C	.431	.437	1.303	1.561	Red	.360 9.14	—	55621-2		
				10.95	11.10	33.10	39.65						
		5/16 M8	.048 1.22	C	C	.478	.437	1.344	1.586	Red	.360 9.14	52041-1	52041-7
						12.14	11.10	34.14	40.28				
				3/8	C	.478	.437	1.358	1.600	Red	.330 8.38	52041-3*	52041-9
						12.14	11.10	34.49	40.64				
1/2 M12	A			.587	.500	1.400	1.696	Red	.360 9.14	52291*	52291-4		
				14.91	12.70	35.56	43.08						
3/8	C	.587	.500	1.400	1.696	Red	.360 9.14	52291-1*	52291-5				
		14.91	12.70	35.56	43.08								
6 20,800-33,100 [10.5-16.8]	.048 1.22	8 M4	C	.875	.625	1.420	1.860	Red	.330 8.38	52262-1	—		
				22.23	15.88	36.07	47.24						
		10	B	.500	.515	1.591	1.869	Blue	.360 9.14	52042-2	—		
				12.70	13.08	40.41	47.47						
			C	.468	.421	1.482	1.719	Blue	.436 11.07	52265*	52265-3		
				11.89	10.69	37.64	43.66						
		1/4 M6	C	.500	.515	1.591	1.844	Blue	.436 11.07	52042-4	—		
				12.70	13.08	40.41	46.84						
		5/16 M8	B	.398	.515	1.591	1.846	Blue	.450 11.43	—	55679-2		
				10.11	13.08	40.41	46.89						
		3/8	B	.500	.515	1.591	1.844	Blue	.436 11.07	52042-1	—		
				12.70	13.08	40.41	46.84						
1/2 M12	C	.500	.515	1.591	1.869	Blue	.360 9.14	52042-3*	—				
		12.70	13.08	40.41	47.47								
10	B	.625	.515	1.591	1.906	Blue	.450 11.43	52264*	52264-4				
		15.88	13.08	40.41	48.41								
	3/8	B	.625	.515	1.591	1.906	Blue	.450 11.43	52264-1*	52264-5			
			15.88	13.08	40.41	48.41							
	1/2 M12	C	.815	.515	1.441	1.851	Blue	.436 11.07	52350*	—			
			20.70	13.08	36.60	47.02							
4 33,100-52,600 [16.8-26.7]	.051 1.30	10	B	.546	.531	1.672	1.948	Yellow	.450 11.43	52043-2	—		
				13.87	13.49	42.47	49.48						
		1/4 M6	B	.391	.531	1.672	1.927	Yellow	.450 11.43	—	55680-2		
				9.93	13.49	42.47	48.95						
		5/16 M8	B	.546	.531	1.672	1.948	Yellow	.450 11.43	52043-3*	—		
				13.87	13.49	42.47	49.48						
		3/8	B	.546	.531	1.672	1.948	Yellow	.515 13.08	52043-1	—		
				13.87	13.49	42.47	49.48						
		1/2 M12	B	.679	.531	1.672	2.014	Yellow	.450 11.43	52266-3	—		
				17.25	13.49	42.47	51.16						
		3/8	B	.679	.531	1.672	2.014	Yellow	.450 11.43	52266-4*	—		
				17.25	13.49	42.47	51.16						
1/2 M12	B	.679	.531	1.672	2.014	Yellow	.515 13.08	52266-1	—				
		17.25	13.49	42.47	51.16								

* Available in small packaging quantities.

For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

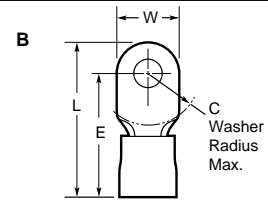
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7068



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions			Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece	
				W	C Min.	E Max.				L Max.
2 52,600-83,700 [26.7-42.4]	.060 1.52	1/4 M6	B	.675	.578	1.731	2.071	Red	.560 14.22	52267-1
				17.15	14.68	43.97	52.60	Red	.632 16.05	52267
		5/16 M8	B	.711	.578	1.731	2.089	Red	.632 16.05	52044-1
				18.06	14.68	43.97	53.06	Red	.632 16.05	52044-2
1/0 83,700-119,500 [42.4-60.6]	.073 1.85	5/16 M8	B	.807	.625	2.041	2.447	Blue	.684 17.37	52045-1
				20.50	15.88	51.84	62.15	Blue	.665 16.89	52045-5
		3/8	B	.807	.625	2.041	2.447	Blue	.665 16.89	52045-5
				20.50	15.88	51.84	62.15	Blue	.665 16.89	52045-5

Ring Tongue 90° Bend Terminals

Material and Finish:

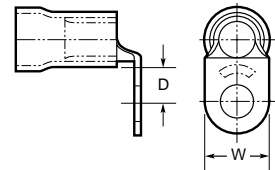
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7068



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions		Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
			W	D Min.			
8 13,100-20,800 [6.64-10.5]	.043 1.09	10	.431 10.95	.311 7.90	Red	.360 9.14	55654-1
6 20,800-33,100 [10.5-16.8]	.048 1.22	10	.500 12.70	.310 7.87	Blue	.436 11.07	54753-1
		1/4 M6	.500 12.70	.379 9.63	Blue	.436 11.07	54754-1

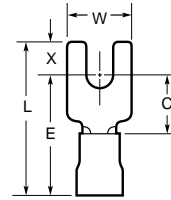
For complete product information, order Catalog 82042

Spade Tongue Terminals

Material and Finish:
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:
Application Tooling — page 7067


Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers			
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted		
22-16 509-3,260 [0.26-1.65]	.033 0.84	6 M3.5	.250	.312	.728	.858	.125	Red	.140 3.56	327043*	2-327043-1		
			6.35	7.92	18.49	21.79	3.18						
		8 M4	.297	.203	.619	.765	.141	Red	.125 3.18	327735*	2-327735-1		
			7.54	5.16	15.72	19.43	3.58						
		10	.033 0.84	6 M3.5	.297	.203	.619	.765	.141	Red	.140 3.56	—	2-320665-1
					7.54	5.16	15.72	19.43	3.58				
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8 M4	.375	.312	.728	.920	.187	Red	.120 3.18	32981	—		
			9.53	7.92	18.49	23.37	4.75						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	10	.375	.312	.728	.920	.187	Red	.140 3.56	34155*	2-34155-1		
			9.53	7.92	18.49	23.37	4.75						
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	6 M3.5	.297	.203	.619	.765	.141	Blue	.145 3.68	322994*	2-322994-1		
			7.54	5.16	15.72	19.43	3.58						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	10	.385	.312	.728	.920	.187	Blue	.170 4.32	—	2-34167-1		
			9.78	7.92	18.49	23.37	4.75						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	10	.406	.296	.887	1.095	.203	Yellow	.230 5.84	—	2-34176-1		
			10.31	7.52	22.53	27.81	5.16						

* Available in small packaging quantities.

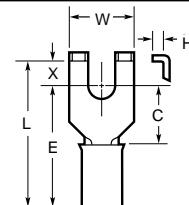
Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Flanged Spade Tongue Terminals

Material and Finish:
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:
Application Tooling — page 7067


Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions						Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers			
			W	C Min.	E Max.	L Max.	X	H Min.			Loose Piece	Tape Mounted		
22-16 509-3,260 [0.26-1.65]	.033 0.84	6 M3.5	.296	.203	.619	.749	.125	.045	Red	.140 3.56	322249*	1-322249-1		
			7.52	5.16	15.72	19.02	3.18	1.14						
		8 M4	.296	.203	.619	.749	.125	.045	Red	.140 3.56	1-322249-0	1-322249-9		
			7.52	5.16	15.72	19.02	3.18	1.14						
		10	.033 0.84	6 M3.5	.416	.250	.666	.842	.171	.062	Red	.140 3.56	324169*	—
					10.57	6.35	16.92	21.39	4.34	1.57				
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	10	.296	.203	.619	.749	.125	.045	Red	.140 3.56	328516*	2-328516-1		
			7.52	5.16	15.72	19.02	3.18	1.14						
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8 M4	.294	.203	.619	.749	.125	.047	Blue	.170 4.32	—	2-324165-1		
			7.47	5.16	15.72	19.02	3.18	1.19						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	.294	.203	.619	.749	.125	.047	Blue	.170 4.32	—	53874-2		
			7.47	5.16	15.72	19.02	3.18	1.19						
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	.296	.250	.841	1.017	.171	.052	Yellow	.230 5.84	324581*	1-324581-1		
			7.52	6.35	21.36	25.83	4.34	1.32						
		8 M4	.416	.250	.841	1.017	.171	.052	Yellow	.230 5.84	—	1-324172-0		
			10.57	6.35	21.36	25.83	4.34	1.32						
		10	.042 1.07	6 M3.5	.416	.250	.841	1.017	.171	.052	Yellow	.250 6.35	—	52856-1
					10.57	6.35	21.36	25.83	4.34	1.32				

* Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

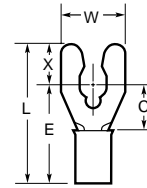
For complete product information, order Catalog 82042

Short Spring Spade Tongue Terminals

Material and Finish:
Insulation — Vinyl

Terminal Body — Phosphor Bronze per ASTM B-139 for wire sizes 24 to 14
 Brass per ASTM B-36 for wire sizes 12 to 10

Plating — Tin per ASTM B-545 except where noted

Related Product Data:
Application Tooling — page 7067


Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers					
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted				
24-20 320-1,290 [0.16-0.65]	.025 0.64	4	.203	.219	.624	.744	.115	White	.125	—	53829-2				
			5.16	5.56	15.85	18.90	2.92								
		22-16 509-3,260 [0.26-1.65]	.033 0.84	4	.203	.250	.666	.811	.140	Red	.140	52947*	52947-1		
					5.16	6.35	16.92	20.60	3.56						
				6 M3.5	.234	.250	.666	.811	.140	Red	.140	53240-1*	53240-2		
					5.94	6.35	16.92	20.60	3.56						
					.250	.250	.666	.811	.140	Red	.140	52949*	52949-1		
					6.35	6.35	16.92	20.60	3.56						
				8 M4	.250	.250	.715	.860	.140	Red	.200	—	52949-3		
					6.35	6.35	18.16	21.84	3.56						
				10	.033 0.84	8	.244	.281	.697	.872	.170	Red	.140	53241-1	53241-2
							6.20	7.14	17.70	22.15	4.32				
10	.375	.281	.697			.872	.170	Red	.140	52950*	52950-1				
	9.53	7.14	17.70			22.15	4.32								
	.294	.281	.697			.920	.218	Red	.140	53242-1*	53242-2				
	7.47	7.14	17.70			23.37	5.54								
10	.033 0.84	10	.294	.281	.746	.969	.218	Red	.200	—	53242-6				
			7.47	7.14	18.95	24.61	5.54								
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	6 M3.5	.250	.250	.666	.811	.140	Blue	.170	52955*	52955-1				
			6.35	6.35	16.92	20.60	3.56								
		8 M4	.250	.250	.715	.860	.140	Blue	.250	52955-2	52955-3				
			6.35	6.35	18.16	21.84	3.56								
			.244	.281	.697	.872	.170	Blue	.170	53244-1*	53244-2				
			6.20	7.14	17.70	22.15	4.32								
		10	.033 0.84	8	.375	.281	.697	.872	.170	Blue	.170	52956*	52956-1		
					9.53	7.14	17.70	22.15	4.32						
				10	.294	.281	.697	.920	.218	Blue	.170	53245-1	53245-2		
					7.47	7.14	17.70	23.37	5.54						
					.294	.281	.746	.969	.218	Blue	.250	—	53245-6		
					7.47	7.14	18.95	24.61	5.54						
10	.033 0.84	10	.406	.281	.697	.920	.218	Blue	.170	52957*	52957-1				
			10.31	7.14	17.70	23.37	5.54								
12-10 5,180-13,100 [2.62-6.64]	.042 1.07	6 M3.5	.250	.174	.775	.959	.179	Yellow	.200	52961*	52961-1				
			6.35	4.42	19.69	24.36	4.55								
		8 M4	.250	.174	.775	.959	.179	Yellow	.250	53246-1*	—				
			6.35	4.42	19.69	24.36	4.55								
			.312	.276	.877	1.052	.170	Yellow	.250	53247-1*	53247-2				
			7.92	7.01	22.28	26.72	4.32								
		10	.042 1.07	8	.375	.276	.877	1.052	.170	Yellow	.200	52962*	52962-1		
					9.53	7.01	22.28	26.72	4.32						
				10	.406	.276	.877	1.100	.218	Yellow	.200	52963	52963-1		
					10.31	7.01	22.28	27.94	5.54						
					.406	.276	.936	1.159	.218	Yellow	.300	—	52963-5		
					10.31	7.01	23.77	29.44	5.54						

* Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Long Spring Spade Tongue Terminals

Material and Finish:

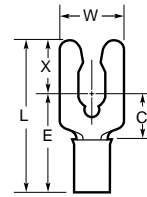
Insulation — Vinyl

Terminal Body — Phosphor Bronze per ASTM B-139 for wire sizes 22 to 14
Brass per ASTM B-36 for wire sizes 12 to 10

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.	X			Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.033 0.84	6	.250	.238	.664	.945	.276	Red	.140	52453*	52453-1
		M3.5	6.35	6.05	16.87	24.00	7.01		3.56		
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	8	.281	.270	.696	.991	.290	Red	.140	52454*	52454-1
		M4	7.14	6.86	17.68	25.17	7.37		3.56		
		6	.250	.238	.664	.945	.276	Blue	.170	52463*	52463-1
		M3.5	6.35	6.05	16.87	24.00	7.01		4.32		
		8	.281	.270	.696	.991	.290	Blue	.170	—	52464-1
		M4	7.14	6.86	17.68	25.17	7.37		4.32		
		10	.343	.283	.709	1.017	.303	Blue	.170	52465*	—
			8.71	7.19	18.01	25.83	7.70		4.32		

* Available in small packaging quantities.

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

Multiple Stud Terminals

Material and Finish:

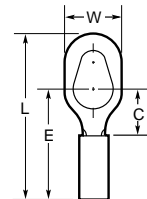
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
			W	C Min.	E Max.	L Max.			Loose Piece	Tape Mounted
22-16 509-3,260 [0.26-1.65]	.033 0.84	6-8-10	.325 8.26	.271 6.88	.691 17.55	.969 24.61	Red	.125 3.18	54774-1	54774-2

Note: "C" dimension applies from edge of metal wire barrel to center of stud hole.

For complete product information, order Catalog 82042

Butt Splices

Material and Finish:

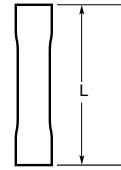
Insulation — Vinyl

Splice Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



Wire Size Circular Mils ¹ [mm ²]	Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
				Loose Piece	Tape Mounted
26-22 202-810 [0.10-0.41]	.620 15.75	Yellow	.080 2.03	321026*†	—
22-16 ² 509-3,260 [0.26-1.65]	1.065 27.05	Red	.120 3.05	—	2-34067-1
	1.065 27.05	Red	.170 4.32	34243*	—
	1.076 27.33	Natural w/ Red Letters	.120 3.05	324138*	—
	1.076 27.33	Natural w/ Red Stripes	.140 3.56	55792-1*	—
	1.065 27.05	Red	.083 x .171 2.11 x 4.34	342033*	—
16-14 2,050-5,180 [1.04-2.62]	1.065 27.05	Blue	.140 3.56	34068*	—
	1.065 27.05	Natural w/ Blue Letters	.140 3.56	328427*	—
	1.065 27.05	Blue	.170 4.32	—	2-34071-1
	1.065 27.05	Natural w/ Blue Stripes	.170 4.32	55785-1*	55785-2
	1.065 27.05	Blue	.215 5.46	35244*	—
	1.105 28.07	Blue	.170 4.32	—	2-34071-3 ²
	1.065 27.05	Blue	.135 x .245 3.43 x 6.22	342043*	—
12-10 5,180-13,100 [2.62-6.64]	1.160 29.46	Yellow	.200 5.08	34069	—
	1.160 29.46	Yellow	.230 5.84	—	2-34072-2
	1.160 29.46	Yellow	.250 6.35	34945*	—
	1.200 30.48	Yellow	.250 6.35	—	2-34945-2 ²

† Not UL or CSA Approved or Listed.

* Available in small packaging quantities.

¹ When using two or more wires in either end of a butt splice, the combined cross sectional area must be within the (CMA) circular mil range listed. (Not UL or CSA approved with use of multiple wires.)

² Funnel entry.

For complete product information, order Catalog 82042

Parallel Splices

Material and Finish:

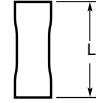
Insulation — Vinyl

Splice Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



Wire Size Circular Mils ¹ [mm ²]	Dimension L Max.	Splice Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
22-16 509-3,260 [0.26-1.65]	.760 19.30	Red	.120 3.05	34131*
16-14 2,050-5,180 [1.04-2.62]	.760 19.30	Blue	.170 4.32	34134*
12-10 5,180-13,100 [2.62-6.64]	.843 21.41	Yellow	.200 5.08	34135
	.870 22.10	Yellow	.230 5.84	34136*

* Available in small packaging quantities.

¹ When using two or more wires in a parallel splice, the combined cross sectional area must be within the (CMA) circular mil area listed.

Shur-Plug (.156 Series)

Material and Finish:
(.156 Series)

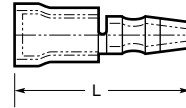
Insulation — Vinyl

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7067



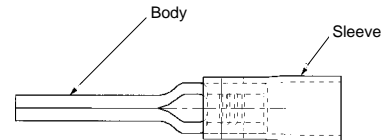
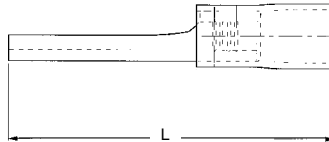
.156 Series

Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Series	Dimension L Max.	Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
16-14 2,050-5,180 [1.04-2.62]	.033 0.84	.156	.800 20.32	Blue	.170 4.32	324227*†

† Not UL or CSA Approved or Listed.

* Available in small packaging quantities.

Wire Pins



Wire Size Circular Mils [mm ²]	Tab	Dimensions		Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers
		L Max.				
22-16 509-3,260 [0.26-1.65]	.071 1.80	.906 23.00		Red	.138 3.50	165167
16-14 2,050-5,180 [1.04-2.62]	.070 1.78	.933 23.70		Blue	.195 4.95	165171-0
12-10 5,180-13,100 [2.62-6.64]	.102 25.4	1.147 29.13		Yellow	.250 6.35	165085

For complete product information, order Catalog 82042

Product Facts

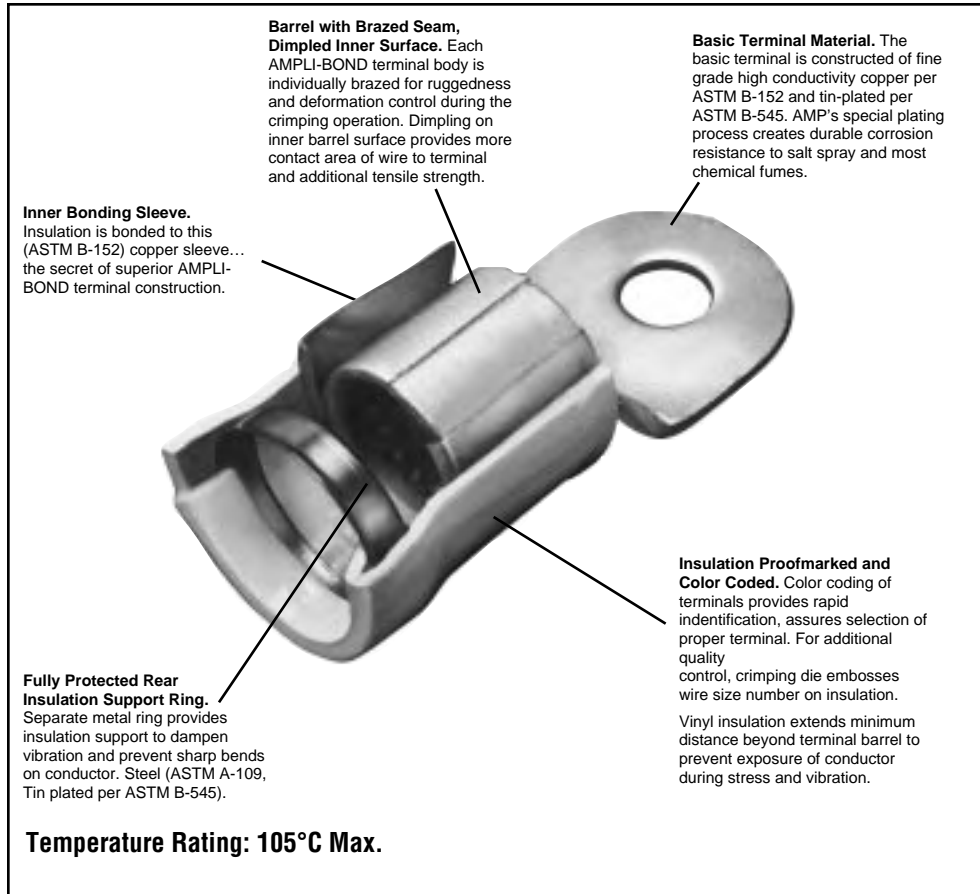
- Designed to accommodate wire gauges 8 AWG through 4/0 AWG
- The first large wire terminal to feature vinyl insulation bonded to the terminal sleeve
- Terminals for wire sizes 8 AWG through 4/0 AWG meet the requirements of MIL-T-7928, Type II, Class 2
- Precision-engineered terminal offering the heavy-duty wire user uniformly high quality connections with permanent insulation support and complete protection against flash over
- Applied in a single effortless operation with the AMP DYNA-CRIMP tool

Why Bonding?

- Terminal insulators must withstand intense crimping pressures necessary for today's high wire-to-terminal contact requirements
- Bonded insulation transmits this pressure evenly to the center of the crimp area
- A positive bond assures uniform insulation thickness, maintains proper dielectric and tensile values and controls the extrusion of plastic under the crimping dies in the finished connection

The Crimp

- Because both wire and terminal are confined over a greater area during the crimp, a homogeneous mass is achieved
- Crimp is applied gradually to encourage full movement of the wire with minimum extrusion
- Compare this AMP method of applying pre-insulated solderless terminals to large gauge wires with the cumbersome mechanical fitting, brazing and manual insulating techniques still used in many plants



For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

Insulation — Vinyl

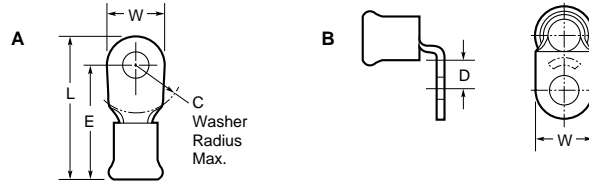
Terminal Body — Copper per ASTM B-152

Insulation Support Ring — Steel per ASTM A-109

Plating — Tin per ASTM B-545 except where noted.

Related Product Data:

Application Tooling — page 7068



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers	
				W	C	E Max.	L Max.	D Min.			Loose Piece	Tape Mounted
8 13,100-20,800 [6.64-10.5]	.043 1.09	8 M4	A	.375 9.53	.544 13.82	1.359 34.52	1.549 39.34	—	Red	.298 7.57	330600	—
			A	.478 12.14	.437 11.10	1.344 34.14	1.586 40.28	—	Red	.298 7.57	322047	—
		10	A	.375 9.53	.437 11.10	1.344 34.14	1.579 40.11	—	Red	.298 7.57	323974	—
				.431 10.95	.437 11.10	1.344 34.14	1.562 39.67	—	Red	.298 7.57	322128	2-322128-2
			A	.431 10.95	.437 11.10	1.344 34.14	1.562 39.67	—	Red	.377 9.58	322154	—
				.478 12.14	.437 11.10	1.344 34.14	1.586 40.28	—	Red	.298 7.57	322048	—
			B	.431 10.95	—	—	—	.318 8.08	Red	.298 7.57	322880	—
			1/4 M6	A	.478 12.14	.437 11.10	1.344 34.14	1.586 40.28	—	Red	.298 7.57	322049
		B		.587 14.91	—	—	—	.381 9.68	Red	.298 7.57	323869	—
		5/16 M8	A	.587 14.91	.500 12.70	1.406 35.71	1.702 43.23	—	Red	.298 7.57	322003	—
		3/8	A	.587 14.91	.500 12.70	1.406 35.71	1.702 43.23	—	Red	.298 7.57	322004	—
		6 20,800-33,100 [10.5-16.8]	.048 1.22	10	A	.468 11.89	.421 10.69	1.490 37.85	1.727 43.87	—	Blue	.377 9.58
A	.500 12.70				.515 13.08	1.599 40.61	1.852 47.04	—	Blue	.377 9.58	322050	—
1/4 M6	A			.500 12.70	.515 13.08	1.599 40.61	1.852 47.04	—	Blue	.377 9.58	322051	—
	B			.500 12.70	—	—	—	.379 9.63	Blue	.377 9.58	322888	—
5/16 M8	A			.625 15.88	.515 13.08	1.599 40.61	1.914 48.62	—	Blue	.377 9.58	322006*	—
3/8	A			.625 15.88	.515 13.08	1.599 40.61	1.914 48.62	—	Blue	.377 9.58	322007	—

* Available in small packaging quantities.

For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

Insulation — Vinyl

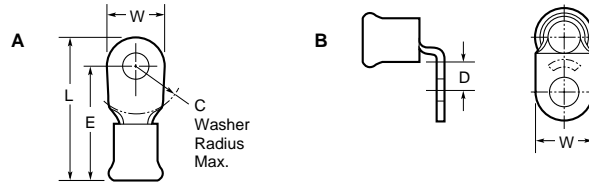
Terminal Body — Copper per ASTM B-152

Insulation Support Ring — Steel per ASTM A-109

Plating — Tin per ASTM B-545 except where noted.

Related Product Data:

Application Tooling — page 7068



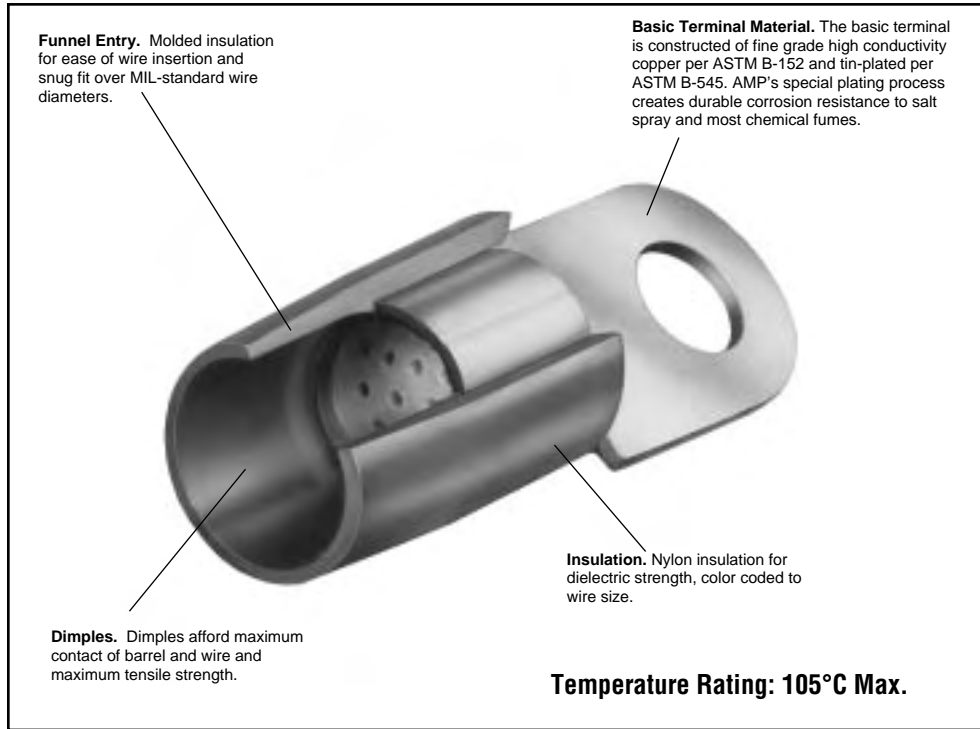
Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Style	Dimensions					Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
				W	C	E Max.	L Max.	D Min.			
4 33,100-52,600 [16.8-26.7]	.051 1.30	10	A	.546 13.87	.531 13.49	1.632 41.45	1.908 48.46	—	Yellow	.436 11.07	322052
			A	.546 13.87	.531 13.49	1.632 41.45	1.908 48.46	—	Yellow	.436 11.07	322053
		1/4 M6	A	.679 17.25	.531 13.49	1.632 41.45	1.974 50.14	—	Yellow	.436 11.07	321671
			B	.546 13.87	—	—	—	.377 9.58	Yellow	.436 11.07	322894
		5/16 M8	A	.679 17.25	.531 13.49	1.632 41.45	1.974 50.14	—	Yellow	.436 11.07	322010
		3/8	A	.679 17.25	.531 13.49	1.632 41.45	1.974 50.14	—	Yellow	.436 11.07	322011
2 52,600-83,700 [26.7-42.4]	.060 1.52	1/4 M6	A	.675 17.15	.578 14.68	1.710 43.43	2.050 52.07	—	Red	.505 12.83	322125
			A	.675 17.15	.578 14.68	1.772 45.01	2.112 53.64	—	Red	.632 16.05	322157
		5/16 M8	A	.711 18.06	.578 14.68	1.710 43.43	2.068 52.53	—	Red	.505 12.83	322074
		3/8	B	.711 18.06	—	—	—	.465 11.81	Red	.505 12.83	322902
1/0 83,700-119,500 [42.4-60.6]	.073 1.85	3/8	A	.807 20.50	.625 15.88	2.063 52.40	2.469 62.71	—	Blue	.632 16.05	322087
		1/2 M12	A	.875 22.23	.625 15.88	2.063 52.40	2.501 63.53	—	Blue	.632 16.05	321677
2/0 119,500-150,500 [60.6-76.3]	.083 2.11	3/8	A	.926 23.52	.625 15.88	2.084 52.93	2.540 64.52	—	Yellow	.684 17.37	322090

* Available in small packaging quantities.

For complete product information, order Catalog 82042

Product Facts

- Designed to provide insulated terminals and splices for large wire sizes, many of which are used in airborne and ground support applications
- Tested under the procedures stipulated by MIL Spec. MIL-T-7928, they meet and exceed all requirements
- Designed and engineered to successfully withstand extreme vibration, shock and structural stresses, elevated temperatures and other conditions which can adversely affect the critical circuit requirements in complex air and space flight equipment
- The use of matching AMP tooling assures precision crimping which makes all terminations precisely identical
- This uniformity assures maximum reliability and, coupled with tool die marks on the barrel indicating the wire size and color coding of the insulation sleeve, also serves as a built-in quality control factor
- Pre-insulated with color coded nylon which also acts as insulation support
- Wire size range of terminals is 8 AWG through 4/0 AWG



For complete product information, order Catalog 82042

Ring Tongue Terminals

Material and Finish:

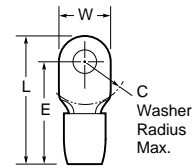
Insulation — Nylon

Terminal Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545

Related Product Data:

Application Tooling — page 7068



Wire Size Circular Mils [mm ²]	Tongue Material Thickness Max.	Stud Size	Dimensions				Terminal Insulation Color	Wire Insulation Diameter Max.	Part Numbers Loose Piece
			W	C	E Max.	L Max.			
8 13,100-20,800 [6.64-10.5]	.043 1.09	8 M4	.478 12.14	.437 11.10	1.183 30.05	1.425 36.20	Red	.256 6.50	53041
		10	.431 10.95	.437 11.10	1.183 30.05	1.402 35.61	Red	.256 6.50	324043
		1/4 M6	.478 12.14	.437 11.10	1.183 30.05	1.425 36.20	Red	.256 6.50	324082
		5/16 M8	.587 14.91	.500 12.70	1.246 31.65	1.542 39.17	Red	.256 6.50	324044
		3/8	.587 14.91	.500 12.70	1.246 31.65	1.542 39.17	Red	.256 6.50	324045
6 20,800-33,100 [10.5-16.8]	.048 1.22	10	.398 10.11	.515 13.08	1.447 36.75	1.700 43.18	Blue	.314 7.98	53119-1 ¹
			.468 11.89	.421 10.69	1.338 33.99	1.575 40.01	Blue	.314 7.98	324046
		1/4 M6	.500 12.70	.515 13.08	1.447 36.75	1.700 43.18	Blue	.314 7.98	324047
		5/16 M8	.625 15.88	.515 13.08	1.447 36.75	1.762 44.75	Blue	.314 7.98	324048
		3/8	.625 15.88	.515 13.08	1.447 36.75	1.762 44.75	Blue	.314 7.98	324049
4 33,100-52,600 [16.8-26.7]	.051 1.30	8 M4	.437 11.10	.265 6.73	1.155 29.34	1.376 34.95	Yellow	.382 9.70	331456
		10	.437 11.10	.265 6.73	1.155 29.34	1.376 34.95	Yellow	.382 9.70	1-331456-0
			.546 13.87	.531 13.49	1.536 39.01	1.812 46.02	Yellow	.382 9.70	324111
		1/4 M6	.546 13.87	.531 13.49	1.536 39.01	1.812 46.02	Yellow	.382 9.70	324050
		5/16 M8	.679 17.25	.531 13.49	1.536 39.01	1.878 47.70	Yellow	.382 9.70	324051
2 52,600-83,700 [26.7-42.4]	.060 1.52	3/8	.679 17.25	.531 13.49	1.536 39.01	1.878 47.70	Yellow	.382 9.70	324052*
		1/4 M6	.679 17.25	.578 14.68	1.705 43.31	2.045 51.94	Red	.468 11.89	324053
		5/16 M8	.711 18.06	.578 14.68	1.705 43.31	2.063 52.40	Red	.468 11.89	324112
1/0 83,700-119,500 [42.4-60.6]	.073 1.85	3/8	.711 18.06	.578 14.68	1.705 43.31	2.063 52.40	Red	.468 11.89	324054
		5/16 M8	.807 20.50	.625 15.88	2.033 51.64	2.426 61.62	Blue	.580 14.73	324113
2/0 119,500-150,500 [60.6-76.3]	.083 2.11	3/8	.807 20.50	.625 15.88	2.033 51.64	2.426 61.62	Blue	.580 14.73	324057
		3/8	.926 23.52	.625 15.88	2.026 51.46	2.416 61.37	Yellow	.610 15.49	324084

* Available in small packaging quantities.

¹ Rectangular tongue terminal.

For complete product information, order Catalog 82042

Tooling

Insulated Terminals and Splices — 30 to 10 AWG Wire Range

Description	AMP Wire Range	Tools for Loose Piece Termination					Tools for Tape Mounted Terminations				
		Hand Tools		Pneumatic Tools			Tape Dies for 69875 TAPETRONIC No Applicator Required	Tape Dies for 354500-1 AMP-O-ELECTRIC Model "G" Applicator 567200-3	Tape Dies for 818380-1 AUTO-PRO Applicator 818057-2	Tape Dies for AMPOMATOR CLS III G, CLS IV Applicator 687658-1	Tape Dies for 565435-5 AMP-O-ELECTRIC Model "K" Applicator 567200-2
		Single Wire Range	Multi-Wire Range	Heads for 6-26 Single Wire Range	Heads for 6-26 Multi-Wire Range	Dies for 69365, 69365-2, 69710-1 ³ , 217200-1 ⁴					
PIDG Terminals & Splices and PLASTI-GRIP Terminals	30-26	69163—uses 26-22 Terms.	—	—	—	—	—	—	—	—	—
	26-22	46121 [†]	59275 [†]	314537-1	—	69344	69877	69877	69877	69877	69877
	22-16	47386 [†]	59250 [†] 59824-1 ¹ 58433-3 ²	314270-3	679305-1	47806-2	69872* 59826-1 ¹	69872* 59826-1 ¹	69872* 59826-1 ¹	69872* 59826-1 ¹	69872* 59826-1 ¹
	16-14	68343-1 (.250 exp.) 47387	59250 [†] 59824-1 ¹ 58433-3 ²	314269-1	679305-1	47807-1	69873* 59827-1 ¹	69873* 59827-1 ¹	69873* 59827-1 ¹	69873* 59827-1 ¹	69873* 59827-1 ¹
	12-10 16-14 HD	59239-4 [†] 59287-2 (.300 exp.)	59824-1 ¹ 58433-3 ²	679300-1	679305-1	47808-6 Std. 47808-5 (.300 exp.)	69874* 69897 (.300 exp.) 59828-1 ¹	69874* 69897 (.300 exp.) 59828-1 ¹	69874* 69897 (.300 exp.) 59828-1 ¹	69874* 69897 (.300 exp.) 59828-1 ¹	69874* 69897 (.300 exp.) 59828-1 ¹
PLASTI-GRIP Splices	26-22	46121 (butt spl. only)	—	—	—	—	—	—	—	—	—
	22-16	45160 (butt spl. only) 45449 (parallel spl. only)	58433-3 ² (butt spl. only)	314868-1 (butt spl. only)	—	—	69872 (butt spl. only)	69872 (butt spl. only)	69872 (butt spl. only)	69872 (butt spl. only)	69872 (butt spl. only)
	16-14	45575-1 (butt spl. only) 45450 (parallel spl. only)	58433-3 ² (butt spl. only)	314869-1 (butt spl. only)	—	—	69873 (butt spl. only)	69873 (butt spl. only)	69873 (butt spl. only)	69873 (butt spl. only)	69873 (butt spl. only)
	12-10 16-14 HD	59489 (butt spl. only) 59287-1 (.300 exp. butt spl. only) 59270 (parallel spl. only)	58433-3 ² (butt spl. only)	—	—	—	69874 (butt spl. only)	69874 (butt spl. only)	69874 (butt spl. only)	69874 (butt spl. only)	69874 (butt spl. only)

[†]Tooling with adjustable insulation crimp.

*Same die set/configuration as in hand tools.

¹TETRA-CRIMP die configuration.

²PRO-CRIMPER II commercial tool not approved for UL applications.

³69710-1 hand tool.

⁴6-26 Pneumatic Tool Adapter

For complete product information, order Catalog 82042

Tooling

Insulated Terminals and Splices — 8 to 4/0 AWG Wire Range

Description	Wire Size	Tools for Loose Piece Terminations				Tools for Tape Mounted Terminations	
		Hand Tools	Dies for Crimp Head 69051 ¹ & Hydraulic Hand Tool 59974-1	Dies for Crimp Head 69066 ¹ & 58422-1 ¹	Head for Pneumatic Hand Tool 69015	Dies for AMP Tapetronic Machine 68250-1	Dies for AMP Tapetronic Machine with Insulation Adjustment 68250-2
PLASTI-GRIP Terminals and Splices	8	69959	48752-1 47820 ²	—	—	68247-1 ²	1214512-1 ⁴ 1214512-2 ⁵
	6	—	48753-1 47821 ²	—	68325-1	68248-1 ²	1213500-1 ⁴ 1213500-2 ⁵
	4	—	48754-1 47822 ²	—	—	68249-1 ²	1213098-1 ⁴ 1213098-2 ⁵
	2	—	48755-1 47823 ²	—	—	—	—
	1/0	—	—	48756-1	—	—	—
	2/0	—	—	48757-1	—	—	—
	8	69959	48752-1	47236-1 ³	—	—	—
AMPLI-BOND Terminals	6	—	48753-1	47237-1 ³	68325-1	—	—
	4	—	48754-1	47238-1 ³	—	—	—
	2	—	48755-1	47239-1 ³	—	—	—
	1/0	—	—	48756-1 47378-1 ³	—	—	—
	2/0	—	—	48757-1	—	—	—
	3/0	—	—	48758-1	—	—	—
	4/0	—	—	48759-1	—	—	—
TERMINYL Terminals and Splices	8	—	47820	—	68285-1	—	—
	6	—	47821	—	—	—	—
	4	—	47822	—	—	—	—
	2	—	47823	—	—	—	—
	1/0	—	—	47824	—	—	—
	2/0	—	—	47825	—	—	—
	3/0	—	—	47915	—	—	—
	4/0	—	—	47918	—	—	—
4 HD	—	—	69463	—	—	—	

¹ Heads for Power Units 69120-1, 69120-2, or 314979-1.

² No insulation crimp.

³ Large expansion dies.

⁴ Without insulation crimp.

⁵ With insulation crimp.

For complete product information, order Catalog 82042

Product Facts

- Nylon window splice for military, commercial, aircraft, and missile applications that seals out vapors and fluids and imparts exceptional wire insulation support
- Metal rings at both ends of splice and permanently crimped to wire insulation for a moisture tight seal, even at altitude
- Designed to fit more than 100 insulation diameters in MIL-Spec wires from #24 to #10 AWG, and is available in three types
 - First type is made with a nylon ring adapter within the wire entrance
 - Second type, without nylon ring adapters
 - Third type with a nylon ring adapter in one end only
- Special notch feature on the outside of the splice allows locator in the crimping tool to precisely position splice before crimping and to prevent twisting or horizontal movement during crimping
- Window area of each splice permits visual inspection of the linear plane of the crimp in relation to the inner metal sleeve
- Wire-stops in splice barrel indicate exact insertion depth of stripped wire-ends

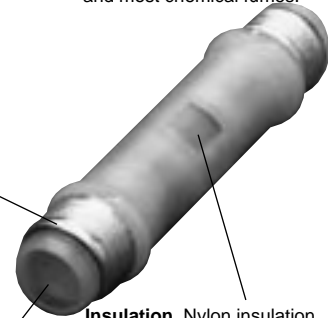
Color Coding. The splice body is color coded by wire size: Tin plated for 24-20, Red for 22-18, Blue for 16-14, Yellow for 12-10. The metal rings are color coded green or orange to identify the presence of adapters.

Basic Splice Material. The basic splice body is constructed of fine grade high conductivity copper per ASTM B-152 and is either color coded or tin-plated per ASTM B-545. AMP's special plating process creates durable corrosion resistance to salt spray and most chemical fumes.

Rings. Metal rings at both ends permanently seal the splice to the wire insulation for a moisture tight seal.

Adapters. Nylon ring adapter allows for smaller wire insulation diameters.

Insulation. Nylon insulation assures high dielectric strength. Special notch feature allows crimping tool locator to position the splice to prevent twisting during crimping.



Splice

Material and Finish:

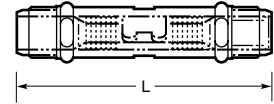
Insulation — Nylon

Splice Body — Copper per ASTM B-152

Plating — Tin per ASTM B-545 or Zinc Plate/Dye Chromate

Related Product Data:

Application Tooling — Below



Splices with nylon wire insulation diameter adapters

Wire Size Circular Mils [mm ²]	L Max.	Body Color	Ring Color	Wire Insulation Dia. Max.	Part Numbers	Hand Tool Part No.
24-20 320-1,290 [0.16-0.65]	.970 24.64	Tin Plated	Green	.065 1.65	324987	46073
16-14 2,050-5,180 [1.04-2.62]	1.156 29.36	Blue	Green	.120 3.05	324989	59282

Tooling



Tool Part Number 46073





Tool Part Number 59282

Hand tooling features the AMP CERTI-CRIMP ratchet which assures that operator fully closes tool so that crimping dies in tool head fully "bottom". Locator feature in head assures that splice is properly oriented in tool. CERTI-SEAL Tools do not require wire insulation adjustment prior to crimping.

For complete product information, order Catalog 82042

Product Facts

- For single and multiple wire applications
- Nylon or vinyl or PVF² insulated
- Temperature ratings of 90°C, 105°C, 150°C
- 300V, 600V or 1000V rated
- Crescent crimp configuration
- Covers wire ranges from 24 to 6 AWG [0.2 to 16 mm²] 509 to 42,700 CMA
- Copper or steel splice material
- Plated or unplated
- Solid or stranded copper wire
-  and  approved



AMP Pre-insulated Closed End Splices have been designed specifically to answer the need for inexpensive, insulated electrical terminations. They can be used in almost every type of commercial application where multiple wires need to be brought together for a reliable termination. (e.g. large and small appliances and the lighting industry).

The Closed End Splice products described in this catalog accommodate wire sizes from 24 through 6 AWG [0.2 to 16 mm²] 509 to 42,700 CMA. The appeal of Closed End Splice products lies in their broad range of wire sizes, built in pre-insulation, ease and speed of application, uniform reliability, and low installed cost.

As is true of all AMP terminal and splice lines, carefully engineered application tooling has been developed for the

Closed End Splice line to provide uniformly high quality terminations. Tool and terminal have been designed as a team to promote ease and speed of application and at the same time to provide precise crimping pressure for every wire size combination. This connection provides maximum conductivity, tensile strength, and high resistance to corrosion.

The quality of performance, the facility of installation and the inherent simplicity of Closed End Splices make them ideal for many industrial applications.

Need more information?

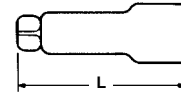
Call the Technical Support Center: 1-800-522-6752

The Technical Support Center is staffed with specialists well versed in all AMP products. The Center can provide you with:

- Engineering Support
- Catalogs
- Technical Documents
- Product Samples
- AMP Authorized Distributor Locations

For complete product information, order Catalog 65472

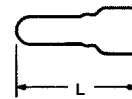
Vinyl BOMB-TAIL Splices — VS, ECV



Wire Size [mm ²] Circular Mills	Wire Combination Charts	Insulation Color	L Dim. Max.	Opening Dia. Min.	Material	Plating	Splice Marking* (Voltage & Temp. Rating Code)	Part Numbers	
								Loose Piece	Tape Mounted
22-16 [0.3-1.4] 3,248-4,872	408- 1396	Blue	.750 19.05	.173 4.39	Copper	Tin	VS	34306	—
		Blue	.800 20.32	.215 5.46	Copper	Tin	VS	34864	—
22-16 [0.3-1.4] 3,248-4,872	408- 2228	Trans.	1.093 27.76	.255 6.48	Steel	Tin	ECV	50920	—
	408- 1395	Trans.	1.000 25.40	.265 6.73	Steel	Tin	ECV	328890	—
		Trans.	.825 20.96	.265 6.73	Steel	Tin	ECV	330021	1-330021-0
22-14 [0.3-2.0] 509-5,180	408- 1394	Red	.729 18.52	.156 3.96	Copper	Tin	VS	34304	—
		Purple	.740 18.80	.187 4.75	Copper	Tin	VS	—	2-36964-2
		Purple	.775 19.69	.235 5.97	Copper	None	VS	2-328375-3	—
22-12 [0.3-3.0] 3,248-11,400	408- 1479	Trans.	1.500 34.10	.360 9.14	Copper	None	ECV	53234-1†	—
		Trans.	1.125 28.58	.360 9.14	Copper	None	ECV	—	2-329251-1†
22-10 [0.3-6.0] 3,248-13,100	408- 1029	Purple	1.010 25.65	.312 7.92	Copper	Tin	VS	36965	1-36965-1
	408- 1002	Purple	1.125 28.88	.360 9.14	Copper	Tin	ECV	321519	—
22-10 [0.3-6.0] 5,180-13,100	408- 1397	Yellow	.975 24.76	.235 5.97	Copper	Tin	VS	34308	—
18-8 [0.8-8.0] 10,320-20,820	408- 1008	Black	1.263 31.08	.500 12.70	Copper	Tin	ECV	55808-1	—
		Green	1.575 40.01	.500 12.70	Copper	Tin	ECV	320788	—
18-6 [0.8-16] 19,500-42,700	408- 2605	Blue	1.600 40.64	.500 12.70	Copper	None	ECV	53891-1	—

† Stranded Wire Only

Nylon Molded Splices — ECN, EC



Wire Size [mm ²] Circular Mills	Wire Combination Charts	Insulation Color	L Dim. Max.	Opening Dia. Min.	Material	Plating	Splice Marking* (Voltage & Temp. Rating Code)	Part Numbers	
								Loose Piece	Tape Mounted
22-14 [0.3-2.0] 509-5,180	408- 1271	Trans.	.680 17.27	.250 6.35	Copper	Tin	ECN	—	1-35115-0
	408- 8806	Black	.680 17.27	.250 6.35	Copper	Tin	ECN††	55927-1	—
22-10 [0.3-6.0] 3,248-13,100	408- 1021	Trans.	.775 19.69	.375 9.53	Copper	Tin	ECN	35653	2-35653-1
	408- 8807	Black	.970 24.64	.370 9.40	Copper	Tin	EC††	55929-1	—
	408- 1003	Trans.	.970 24.64	.370 9.40	Copper	Tin	EC	53915-1	53915-2
Trans.		.720 18.29	.375 9.53	Copper	Tin	EC	328730	—	

For complete product information, order Catalog 65472

***Splice Marking**
 VS — 300V, 90°C
 ECV — 600V max. Building Wiring
 1,000V max. Fixtures and Signs, 105°C
 ECN — 300V 105°C
 EC — 600V max. Building Wiring
 1,000V max. Fixtures and Signs, 105°C
 †† — Max. Recommended Operating Temperature, 150°C

Vinyl and Nylon Tooling

Manually Operated Tools

Our top-of-the-line crimping tools feature the original CERTI-CRIMP ratcheted crimp control. All tools are designed to exacting specifications and manufactured using the highest quality materials to provide long service life for low production runs, repairs and prototype work — any application requiring consistent, highly reliable terminations. Models are available providing double action, in which crimping dies travel in an arc-like path, or straight action, which prevents possible rotation of the terminal due to die arcing. A heavy-head style terminates large heavy-gauge wire.



Heavy Head Hand Tool (HHHT)



Long Handle Tool (DAHT)



AMP-TAPETRONIC Machine
Part Number 69875
(Requires Dies)

Vinyl

Wire Size [mm] Circular Mils	Wire Combination Chart	Tools for Loose Piece Splices						For Tape Mounted Splices Die Assembly for 69875 ²	Part Numbers	
		Hand Tool	Crimping Head for 69005 or (69010)	Die for ⁴ Model 2614**	Die for Model 1210**	Die Assembly ³ for 69365, 69365-2, 69710, 46110-2 & 69319-1	Crimping Jaws for 68068 & 68068-3 ²		Loose Piece	Tape Mounted
22-16 [03-1.4] 3,248-4,872	408- 1396	45329 CC	45330	—	—	68022 CC	—	34306	—	
		Insul. Crimp CC	45328 CC	—	—	68022 CC	—	34349	—	
		45329 CC	45328 CC	—	—	68022 CC	—	34864	—	
22-16 [03-1.4] 3,248-4,872	408- 2228	—	—	—	—	69820 Insulation Crimp C	—	50920	—	
		—	—	—	—	—	—	50920-1 ¹	—	
		69145 C	69238-1 Requires Die 69239 C	—	—	69303-2 C	—	69973 C	328890	2-328890-1
22-14 [0.3-2.0] 509-5,180	408- 1394	45216 CO	45217 CO	354422-1CO	—	45218 CO	—	34304	—	
		48087 CC*	302219 [†] C	314833-1CO	—	—	—	36964	2-36964-2	
		48208 C	—	—	—	69951 CO	—	2-36964-5 ¹	—	
22-12 [0.3-3.0] 3,248-11,400	408- 1479	46866 C	69430 C	—	314592-1C	47811 C	—	2-328375-3	—	
		—	(46516) C	—	—	—	—	55843-1	—	
		—	—	—	—	—	—	69952 C	53234-1	—
22-10 [0.3-6.0] 3,248-13,100	408- 1029	45219-2 CO	37836 [†] C	—	314621-1CO	45221 CO	—	329251	2-329251-1	
		48208 C	302219 [†] C	—	—	—	—	2-329251-2 ¹	—	
		—	(45220) CO	—	—	—	69950 CO	36965	1-36965-1	
22-10 [0.3-6.0] 5,180-13,100	408- 1397	45324 CC	45323 CC	—	—	45221 CO	—	321519	2-321519-2	
		—	(45325) CC	—	—	—	—	34308	—	
		—	—	—	—	—	—	34865	—	
18-8 [0.8-8.0] 10,320-20,820	408- 1008	69335 C	(69244) C	—	—	—	68245-1CO	55808-1	—	
		—	—	—	—	—	—	320788	—	
18-6 [0.8-16] 19,500-42,700	408- 2605	—	—	—	—	—	68268-1CO	53891-1	—	

*For p/n 34304 and 36964 only (insulation crimp)

**Where listed Model 2614 or 1210 are the recommended tool

¹ Bulk packaged

² With foot pedal control

³ These dies may be used with Model 2614 Pneumatic Tool and Straight Action Adapter part number 354173-1

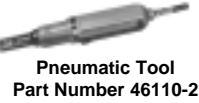
⁴ Model 2614 may be ordered with either a foot pedal or hand actuator

For complete product information, order Catalog 65472

Nylon and Vinyl Tooling

Pneumatic Tools

Designed for medium production, these semi-automatic power tools offer the convenience of hand tools plus the effortless precision and speed of machines. They are built for long, rugged service and are equipped with removable crimping dies for terminating a variety of AMP products.



Nylon

Wire Size [mm ²] Circular Mils	Wire Combination Chart	Tools for Loose Piece Splices					For Tape Mounted Splices Die Assembly 69875 ²	Part Numbers	
		Hand Tool	Crimping Head for 69005 or (69010)	Die for ⁴ Model 2614**	Die for Model 1210**	Die Assembly ³ for 69365, 69365-2, 69710, 46110-2 & 69319-1		Loose Piece	Tape Mounted
22-14 [0.3-2.0] 509-5.180	408- 1271	45216 CO 48208 C	45217† CO 302219† C	354422-1CO 314833-1CO	—	45218 CO	69951 CO	35115	1-35115-0
	408- 8806							1-35115-2 ¹	—
22-10 [0.3-6.0] 3,248-13,100	408- 1021	45219-2 CO 48208 C	37836† CO 302219† C (45220) CO	—	314621-1CO	45221 CO	69950 CO	35653	2-35653-1
	408- 8807							2-35653-2 ¹	—
	408- 1003	46866 C	69430 C	354422-2 ⁵ C	314592-1C	47811 C	69952 C	55929-1	—
								53915-1	53915-2
								53915-4	—
								328730	2-328730-1
								328730-1	—

** Where listed Model 2614 or 1210 are the recommended tool.

¹ Bulk packaged.

² With foot pedal control.

³ These dies may be used with Model 2614 Pneumatic Tool and Straight Action Adaptor Part Number 354173-1.

⁴ Model 2614 may be ordered with either a foot pedal or hand actuator.

⁵ Limited wire size. See Instruction Sheet 408-9906.

Type of Crimp

C — C Crimp
CC — Confined Crescent
CO — Crescent Oval

† Stranded Wire Only

For complete product information, order Catalog 65472

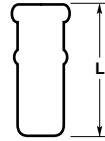
Spare Wire Caps and Tooling

Material:

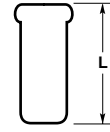
Copper Tin plated

Insulation — Nylon

For
Unstripped
Wire



For
Stripped
Wire



Wire Size [mm ²] Circular Mills	Style	Dimension L Max.	Cap Insulation Color	Wire Insulation Diameter Range	Wire Insulation Diameter Max.	Part Numbers		Tooling	
						Loose Piece	Hand Tool	T-Head	Die For 69875
—	Unstripped Wire	.515 13.08	Yellow	.150-.220 3.81-5.59	—	324487	46063	—	—
22-18 [0.3-0.8.5] 509-3,248	Stripped Wire	.430 10.92	Red	—	.124 3.15	328307*	47386 ¹	59250	—
16-14 [1.4-2.0] 2,050-5,180	Stripped Wire	.430 10.92	Blue	—	.149 3.78	328308*	47387 ¹	59250	68169-1
12-10 [3.0-6.0] 5,180-13,100	Stripped Wire	.478 12.14	Yellow	—	.210 5.33	328309*	59239-4 ²	—	—
—	Unstripped Wire	.515 13.08	Trans.	.048-.075 1.22-1.91	—	324693 ³	46063	—	—
		.515 13.08	Blue	.120-.145 3.05-3.68	—	324695 ³	46063	—	—

¹ Long Handle Tool

² Heavy Head Tool

³ Moisture resistant

*See Table I

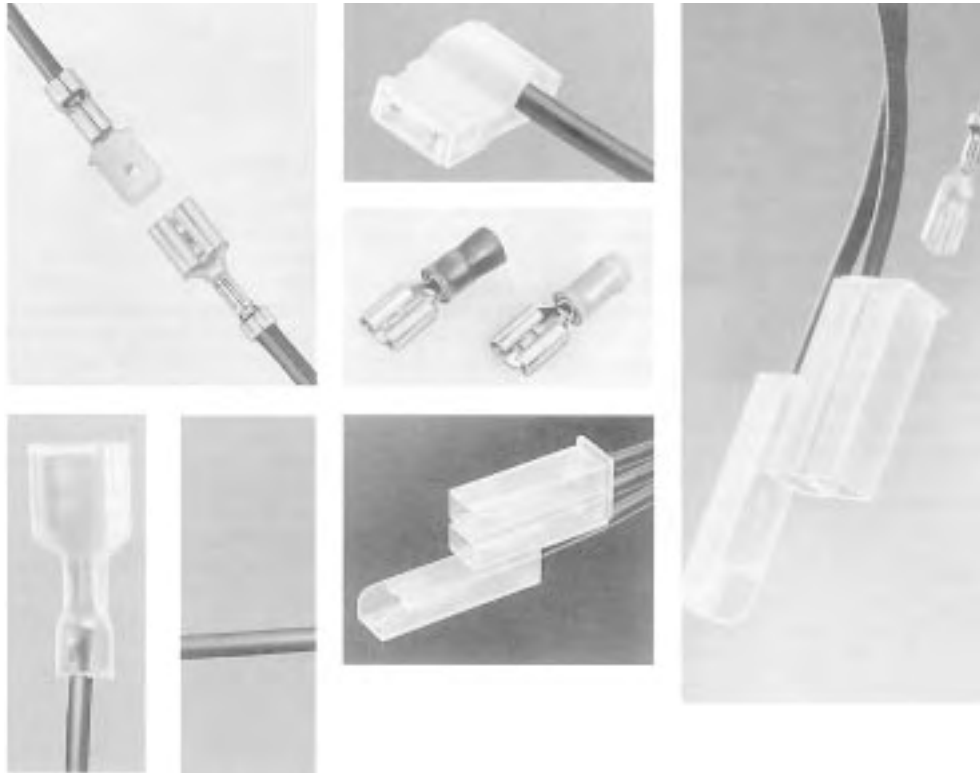
Table I: Military Cross Reference (meets MIL-T-7928)

Part Number	Military		Part Number
	Dash	Class	
MS 25274	-2	1 & 2	328307
	-3	1 & 2	328308
		2	
	-4	1 & 2	328309

For additional tooling information, consult Technical Support Center at 1-800-722-1111

For complete product information, order Catalog 65472

Introduction



The AMP FASTON Terminals product line, including Ultra-Fast and Ultra-Fast Plus fully insulated terminals, as well as Positive Lock receptacles consists of receptacles, tabs and splices specifically designed for quick connections. FASTON products are grouped according to tab width dimensions in series "312", "250", "205", "187", "125" and "110". This product line offers speed of application, uniform reliability and low per line cost. These advantages have made FASTON products the number one choice of leaders in the appliance and automotive industries. Other industries for FASTON products are

computer and peripheral equipment, industrial controllers, test equipment and telecommunications equipment manufacturers.

Speed of application is achieved through the use of application tools for which a complete line has been developed specifically for these terminals. See application tooling section in back of catalog for general information. Specific rates and capabilities can be obtained by contacting the Technical Support Center at 1-800-522-6752.

Over thirty years of history has proven the reliability of this product line. Built-in features also add to the reliability of FASTON products which include:

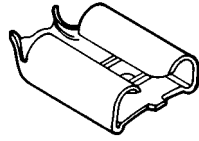
crimping dimensions for each terminal which are precisely controlled providing all connections with excellent performance; low per line cost derived from low initial product cost, high application speeds, and plug-in assemblies of the finished termination as well. The combination of these features brings the user the lowest overall costs for quick connect/disconnect terminations.



For complete product information, order Catalog 82004

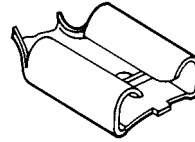
FASTON Receptacle Lines

The AMP family of quick connects provides the right product for every application. All styles provide the necessary features for quality and reliable interconnections. All lines meet the applicable requirements of UL 310.



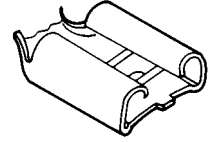
Premier

The receptacle configuration of the Premier, with its resilient rolls and double slot bottom allows maximum compliancy while retaining the high normal forces necessary to provide good wiping action and highly reliable interface. The secret to the resiliency of the Premier receptacle is in the thermal stress relieving each terminal receives. This extra processing step relieves the residual stresses the stamping process imparts and allows the receptacle to resist the effects of over-stressing, while retaining the normal forces which provide good cleaning action and low, stable resistance under a variety of operating conditions.



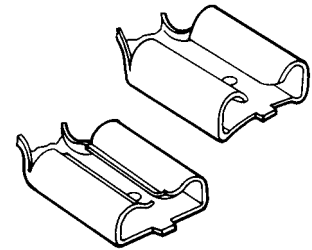
Budget

The Budget line of receptacles has receptacle construction similar to the Premier and is easily distinguished by the single slot. The single most important difference between the Budget and Premier line is that the Budget does not receive the special processing of the Premier. In addition, in the .250 series, the Budget receptacles are constructed of lighter .016 brass.



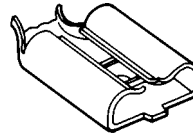
Hermetic

The Hermetic receptacle is a Premier receptacle which has been designed to mate with the posted header tabs in hermetic motor applications. This receptacle provides all the features and benefits of the Premier line.



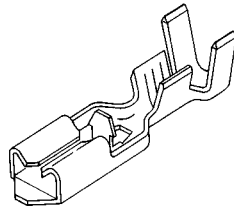
Moldable

The moldable receptacle is available in many of the same configurations shown and is produced without slots or openings in the floor of the receptacle to facilitate over-molding.



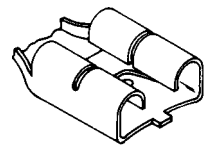
Economy

The Economy receptacle is separated from its counterparts by the large lead-in provided by its flared, relatively low, roll construction. This roll construction and lead-in, with tab contact coming on the mill finish of the brass instead of a profiled edge, makes for lower average insertion forces at relatively high normal forces.



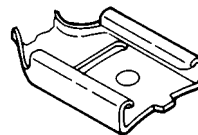
Positive Lock

Positive Lock receptacles are designed with reduced mating forces, and a large locking dimple on a flexible latch. This locking feature acknowledges proper mating with an audible "snap" of the dimple into the mating hole. This enhances safety and reliability of the mated pair for isolated and hard to reach areas. Until the release latch is depressed manually the receptacle cannot be removed.



Low Insertion Force

The Low Insertion Force receptacle offers lower insertion forces than the other receptacle styles thru the unique design features of a two-stage receptacle and a cantilever mounted locking dimple.



Commercial

The commercial receptacles, with their abbreviated roll construction, conserve stock, have generally higher insertion forces and somewhat lower tolerance for abuse.

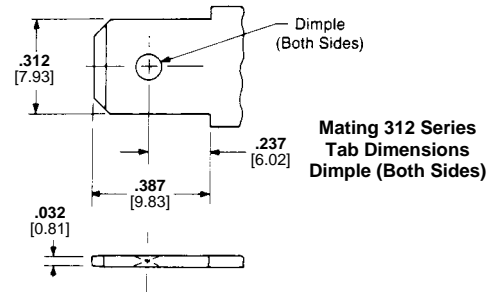
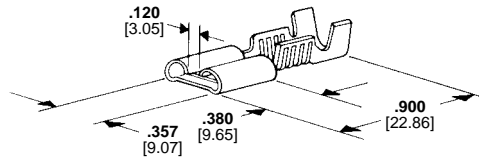
For complete product information, order Catalog 82004

312 Series Receptacles – Straight Insulation Support

Low Insertion Force Line

(.312 x .032 [7.92 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



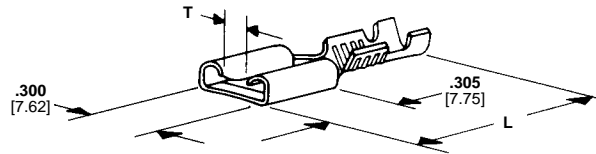
Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Number	Quick-Change Applicator No.*
16-12	.160 or (2) .110 Max. 4.06 or 2.79	Tin Plated Brass	63677-1 ¹	687944-2

¹ Stress relieved.

250 Series Receptacles, Straight Insulation Support

Premier Line

(.250 x .032 [6.35 x 0.81] tab fit)



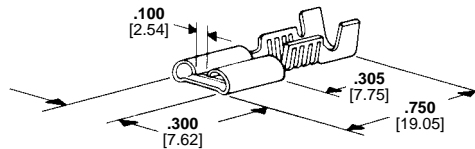
Wire Range AWG	Insulation Diameter	Stock Thickness	Dimensions		Material and Finish	Terminal Part Numbers	UL	UL	SP	Quick-Change Applicator No.*
			L	T						
22-18	.060-.100 1.52-2.54	.016 .401	.755 19.18	.090 2.29	Tin Plated Brass	42640-2	X	—	X	687931-2
16-12 or (2) 18	.210-.265 5.33-6.73	.018 .456	.830 21.08	.072 1.83	Nickel Plated Steel	42579-1	—	X	X	466284-7
14-10 or (2) 14	.225-.227 or (2) .140 Max. 5.72-5.77 or (2) 3.56 Max.	.018 .456	.755 19.18	.090 2.29	Brass	60635-3 ¹	X	—	X	466018-3
12-10	.150-.200 3.81-5.08	.018 .456	.755 19.18	.090 2.29	Tin Phos. Brz.	62428-3	X	—	X	466532-1

¹ 9,600 CMA max.

Budget Line

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	UL	SP	Quick-Change Applicator No.*
22-18	.090-.130 2.29-3.30	Brass	42510-1	X	—	X	687875-2
		Tin Plated Brass	42510-2	X	—	X	687875-2
20-14	.085-.135 2.16-3.43	Tin Plated Brass	63648-2 ²	—	—	—	680109-2
		Brass	42400-1	X	—	X	466649-2
18-14	.120-.170 3.05-4.32	Tin Plated Brass	42400-2	X	—	X	466649-2
		Silver Plated Brass ³	61107-1	X	—	X	687823-2
14-10	.150-.200 3.81-5.08	Silver Plated Brass	61095-1 ^{1,3}	X	—	X	687857-1

* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

¹ .018 stock, .100 = .065

² .012 stock (multiple circuit housings).

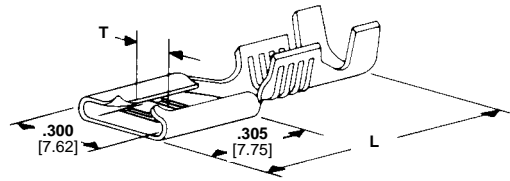
³ 9600 CMA max.

250 Series Receptacles – Straight Insulation Support

Economy Line

(.250 x .032 [6.35 x 0.81] tab fit)

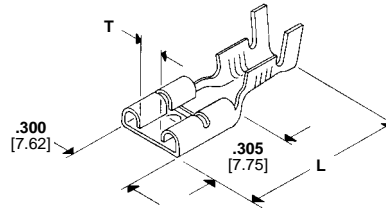
Stock Thickness: .016 [0.41]



Wire Range AWG	Insulation Diameter	Dimensions		Material and Finish	Terminal Part Numbers	UL	RJ	SB	Quick-Change Applicator No.*
		L	T						
18-14	.120-.170 3.05-4.32	.755 19.18	.115 2.92	Brass	42660-1	X	—	X	466649-2
	.150-.210 3.81-5.33	.780 19.81	.115 2.92	Brass	42692-2	X	—	X	687941-2

Low Insertion Force Line — Premier

(.250 x .032 [6.35 x 0.81] tab fit)



Wire Range AWG	Insulation Diameter	Stock Thickness	Dimensions		Material and Finish	Terminal Part Numbers	UL	RJ	SB	Quick-Change Applicator No.*
			L	T						
22-18	.090-.130 2.29-3.30	.016 0.41	.755 19.18	.096 2.44	Brass	63609-1	X	—	X	687875-2
					Tin Plated Brass	63609-2	X	—	X	687875-2
18-14	.120-.170 3.05-4.32	.018 0.46	.755 19.18	.096 2.44	Brass	63537-1	X	—	X	567687-2
					Nickel Plated Steel	63674-1	—	—	—	466649-2
14-10	.225-.275 or (2) .190 max. 5.72-6.99 or (2) 4.83	.018 0.46	.775 19.18	.065 1.65	Tin Plated Brass	63539-1 ¹	X	—	X	466018-3

Low Insertion Force Line — Budget

(.250 x .032 [6.35 x 0.81] tab fit)

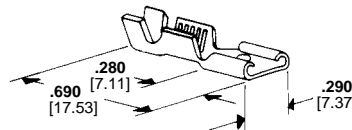
Wire Range AWG	Insulation Diameter	Stock Thickness	Dimensions		Material and Finish	Terminal Part Numbers	UL	RJ	SB	Quick-Change Applicator No.*
			L	T						
18-14	.120-.170 3.05-4.32	.016 0.41	.775 19.18	.096 2.44	Brass	63306-1	X	—	X	466649-2
					Tin Plated Brass	63306-2	X	—	X	466649-2
14-10	.150-.200 3.81-5.08	.018 0.46	.775 19.18	.065 1.65	Brass	63365-1 ¹	X	—	X	687857-3
					Tin Plated Brass	63365-2 ¹	X	—	X	687857-3

¹9600 CMA max.

AMPLIVAR FASTON Receptacles (for use with magnet wire)

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Number	Quick-Change Applicator No.*
20-16 or (2) 23 or (2) 20	.100-.140 or (2) .060 Max. 2.54-3.56 or (2) 1.52	Brass	60384-1	466010-1

* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

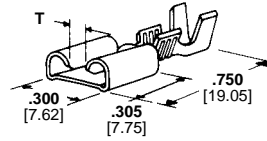
For complete product information, order Catalog 82004

250 Series Receptacles – Straight Insulation Support

Moldable Line

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]

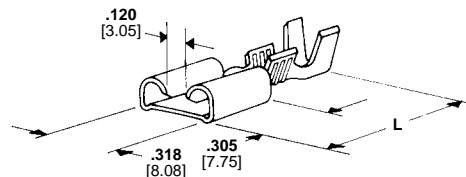


Wire Range AWG	Insulation Diameter	Dimension T	Material and Finish	Terminal Part Numbers	UL	RU	SF	Quick-Change Applicator No.*
22-18	.090-.130 2.29-3.32	.100 2.54	Brass	63127-1	—	—	—	687875-2
18-14	.120-.170 3.05-4.32	.100 2.54	Brass	60650-1	X	—	X	466649-2
			Tin Plated Brass	60650-2	X	—	X	466649-2

Premier Line FASTON Receptacles for Hermetic Header Tabs

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .018 [0.46]



Wire Range AWG	Insulation Diameter	Dimension L	Material and Finish	Terminal Part Numbers	UL	RU	SF	Quick-Change Applicator No.*
18-14	.120-.170 3.05-4.32	.750 19.05	Tin Plated Brass ¹	41832	X	—	X	687823-2
			Tin Plated Phos. Brz. ²	41774	X	—	X	687823-2
14-10	.150-.200 3.81-5.08	.770 19.56	Tin Plated Phos. Brz. ²	42437-5 ³	X	—	X	687857-3

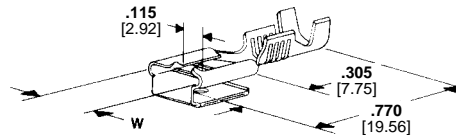
¹ Recommended for external use only.

² For internal or external use.

³ 9600 CMA max.

Economy Line (Receptacle and Tab Combination)

(.250 x .032 [6.35 x 0.81] tab fit)



Wire Range AWG	Insulation Diameter	Stock Thickness	Dimensions W	Material and Finish	Terminal Part Numbers	UL	RU	SF	Quick-Change Applicator No.*
22-18	.060-.100 1.52-2.54	.015 0.38	.300 7.62	Tin Plated Brass	61988-2	X	—	X	466500-2
				Brass	62109-1	X	—	X	466502-2
18-14	.120-.170 3.05-4.32	.032-.016 ¹ 0.81-0.41	.300 7.62	Tin Plated Brass	62109-2	X	—	X	466502-2
				Brass	62223-1 ¹	X	—	X	466502-1

¹ Stress relieved.

* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

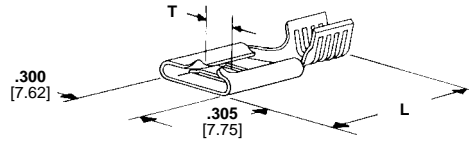
For complete product information, order Catalog 82004

250 Series Receptacles – Straight Non-Insulation Support

Economy Line

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]

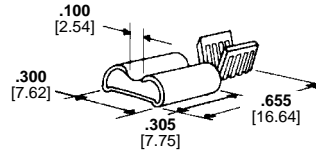


Wire Range AWG	Dimensions		Material and Finish	Terminal Part Numbers	UL	R	SF	Quick-Change Applicator No.*
	L	T						
18-14	.595 15.11	.115 2.92	Tin Plated Brass	42845-2	X	—	X	687942-2
	.753 19.13	.115 2.92	Tin Plated Brass	60713-1	X	—	X	687942-2

Moldable Line

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Wire Range AWG	Material and Finish	Terminal Part Number	UL	R	SF	Quick-Change Applicator No.*
18-14	Tin Plated Brass	60938-2	X	—	X	687943-2

* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

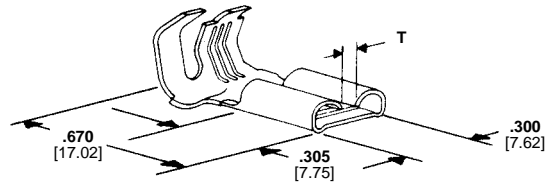
For complete product information, order Catalog 82004

250 Series Receptacle – Flag Tab-Lock Insulation Support

Premier Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Insulation Diameter: .110-.210
[2.79-5.33]



Wire Range AWG	Stock Thickness	Dimension T	Material and Finish	Terminal Part Numbers ¹	UL	RA	SF
18-12	.018	.060 1.52	Brass	41531	X	—	X
	0.46	.065 1.65	Nickel Plated Steel	41531-1	—	X	X
	.016 0.41	.065 1.65	Nickel Plated Steel	42404-1	—	X	X

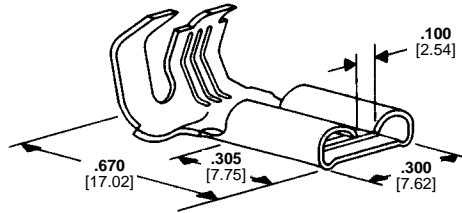
¹ Contact Technical Support Center for Application Tooling.

Budget Line Flag

(.250 x .032 [6.35 x 0.81] tabfit)

Insulation Diameter: .110-.210
[2.79-5.33]

Stock Thickness: .016 [0.41]



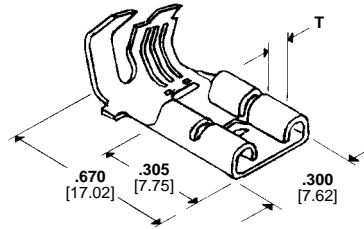
Wire Range AWG	Material and Finish	Terminal Part Numbers ¹	UL	RA	SF
18-12	Brass	42511-1	X	—	X
	Tin Plated Brass	42511-2	X	—	X

¹ Contact Technical Support Center for Tooling Application

250 Series Receptacle – Flag Tab-Lock Insulation Support

Low Insertion Force Premier Line Flag

(.250 x .032 tab [6.35 x 0.81] fit)



Wire Range AWG	Insulation Diameter	Stock Thickness	Dimension T	Material and Finish	Terminal Part Numbers ¹	UL	SP
18-12	.110-.210 2.79-5.33	.016 0.41	.105 2.67	Brass	63445-1	X	X
				Tin Plated Brass	63445-2	X	X
				Tin Plated Brass	63445-4 ²	X	X
			.090 2.29	Nickel Plated Steel	63604-1	—	—
		.018 0.46	.065 1.65	Tin Plated Brass	63555-2	X	X

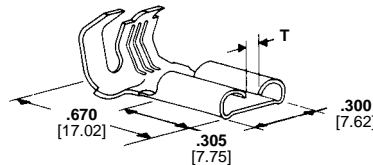
¹ Contact Technical Support Center for Application Tooling.

² Mates to tab with hole, not dimple.

Moldable Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Insulation Diameter: .110–.210
[2.79-5.33]



Wire Range AWG	Stock Thickness	Dimension T	Material and Finish	Terminal Part Number ¹	UL	RA	SP
18-12	.016 0.41	.100 2.54	Brass	60641-1	X	—	X

¹ Contact Technical Support Center for Application Tooling.

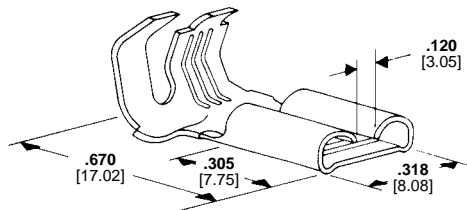
² Stress relieved.

Flag FASTON Receptacles for Hermetic Header Tabs

(.250 x .032 [6.35 x 0.81] tab fit)

Insulation Diameter: .110–.210
[2.79-5.33]

Stock Thickness: .018 [0.46]



Wire Range		Material and Finish	Terminal Part Numbers ³	UL	RA	SP
AWG	CMA					
18-12	—	Tin Plated Phos. Brz.	41800 ²	X	—	X
		Tin Plated Brass	41802 ¹	X	—	X
		Silver Plated Phos. Brz.	42041 ²	X	—	X
12-10	6,000–10,600	Silver Plated Brass	60851-2 ¹	X	—	X
		Tin Plated Phos. Brz.	42563-8 ²	X	—	X

¹ Recommended for external use only.

² For internal or external use.

³ Contact Technical Support Center for Application Tooling.

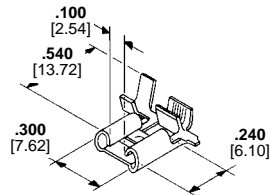
For complete product information, order Catalog 82004

250 Series – Flag “F-Crimp” Insulation Support

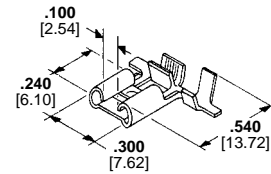
Premier Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Right Handed Flag



Left Handed Flag

Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*
22-18	.060-.100 1.52-2.54	Brass	62813-1 ¹	X	—	X	466725-2
		Brass	62814-1 ²	X	—	X	466725-2
		Tin Plated Brass	62814-2 ²	X	—	X	466725-2
		Tin Plated Brass	62811-2 ¹	X	—	X	466725-2
18-14	.110-.160 2.79-4.06	Brass	63011-1 ¹	X	—	X	567006-2
		Tin Plated Brass	63011-2 ¹	X	—	X	567006-2
		Tin Plated Brass	63012-2 ²	X	—	X	567006-2

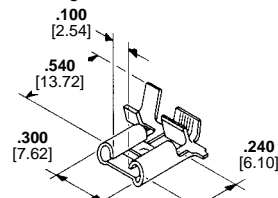
¹ Left handed flag.

² Right handed flag.

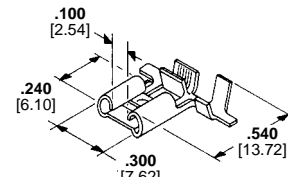
Budget Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Right Handed Flag



Left Handed Flag

Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*
22-18	.060-.100 1.52-2.54	Brass	62718-1 ²	X	—	X	466725-2
18-14	.110-.160 2.79-4.06	Tin Plated Brass	63009-2 ¹	X	—	X	567006-2
		Brass	63010-1 ²	X	—	X	567006-2

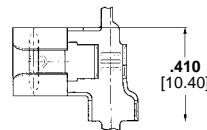
¹ Left handed flag.

² Right handed flag.

Economy Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]

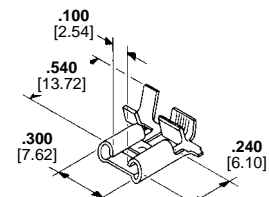


Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Number	UL	RA	SF	Quick-Change Applicator No.*
18-14	.110-.160 2.79-4.06	Brass	63096-1	X	—	X	567006-2

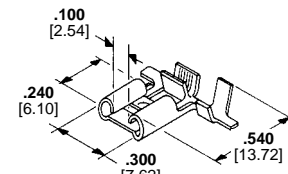
Low Insertion Force Line

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



Right Handed Flag



Left Handed Flag

Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*
18-14 2(18)	.110-.200 2.79-5.08	Brass	63538-1 ¹	X	—	X	466678-1
		Tin Plated Brass	63901-1 ²	X	—	X	567006-1

¹ Left handed flag. ² Right handed flag.

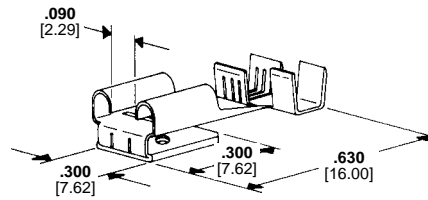
* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

250 Series – Flag “F-Crimp” Insulation Support

Piggyback Flag

(.250 x .032 [6.35 x 0.81] tab fit)

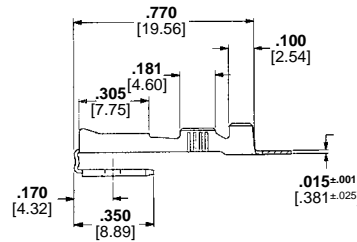


Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SF	Standard Applicator No.*
18-14	.120-.170 3.05-4.32	Brass	151321-1	X	—	X	575143
		Tin Plated Brass	151321-2	X	—	X	575143

Reversible Flag FASTON Receptacles Straight End Feed

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



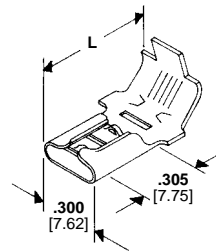
Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Number	UL	RA	SF	Quick-Change Applicator No.*
18-14	.090-.130 2.29-3.30	Brass	62048-1	X	—	X	466154-6
		Tin Plated Brass	62048-2				

250 Series Flag Tab-Lok Non-Insulation Support

Economy Line Flag

(.250 x .032 [6.35 x 0.81] tab fit)

Stock Thickness: .016 [0.41]



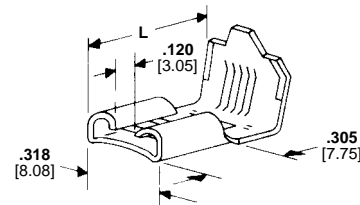
Wire Range AWG	Dimension L	Material and Finish	Terminal Part Number ²	UL	RA	SF
12-10 or (2) 14	.670 17.02	Tin Plated Brass	62011-2 ¹	X	—	X

¹ Right or left handed. Carrier out front for thru splicing.

² Contact Technical Support Center for Tooling Application.

Flag FASTON Receptacles for Hermetic Header Tabs

Stock Thickness: .018 [0.46]



Wire Range AWG	Dimension L	Material and Finish	Terminal Part Numbers ⁴	UL	RA	SF
18-12	.600 15.24	Tin Plated Phos. Brz.	62056-6 ²	X	—	X
		Tin Plated Phos. Brz.	62056-7 ³	X	—	X
12-10	.670 17.02	Tin Plated Phos. Brz.	62057-8 ³	X	—	X
		Tin Plated Brass	62022-2 ¹	X	—	X

¹ Right or left handed. Carrier is in front to facilitate thru splicing.

² Right hand. Reverse reel.

³ Left hand for external or internal use. Reverse reel.

⁴ Contact Technical Support Center for Tooling Application.

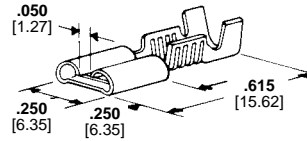
* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

205 Series Receptacles Straight Insulation Support and Straight Non-Insulation Support

Economy Line Insulation Support

Stock Thickness: .012 [0.30]

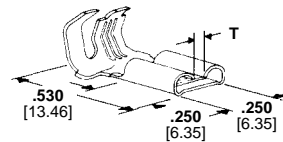


Wire Range AWG	Conf.	Fits Tab	Insulation Diameter	Dimension T	Material and Finish	Terminal Part Numbers	UL	RA	SP	Quick-Change Applicator No.*
22-18	1	.020	.085-.125	.050	Brass	42710-1	X	—	X	687927-3
		0.51	2.16-3.18	1.27	Tin Plated Brass	42710-2	X	—	X	687927-3

205 Series Flag Tab-Lock Insulation Support

Premier Line Flag

Insulation Diameter: .110-.170 [2.79-4.32]

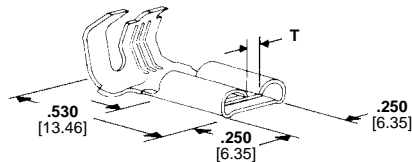


Wire Range AWG	Conf.	Fits Tab	Stock Thickness	Dimension T	Material and Finish	Terminal Part Number ¹	UL	RA	SP
20-16	1	.020 0.51	.012 0.30	.055 1.40	Tin Plated Brass	42199-2	X	—	X

¹ Consult Technical Support Center for Application Tooling.

Economy Line Flag

Insulation Diameter: .100-.170 [2.54-4.32]



Wire Range AWG	Conf.	Fits Tab	Stock Thickness	Dimension T	Material and Finish	Terminal Part Numbers ¹	UL	RA	SP
20-14	1	.032	.016	.025	Brass	60195-1 ²	X	—	X
		0.81	0.41	0.64	Tin Plated Brass	60195-2 ²	X	—	X

¹ Consult Technical Support Center for Application Tooling.

² Moldable.

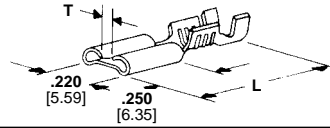
* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

187 Series Receptacles – Straight Insulation Support

Premier Line

Stock Thickness: .012 [0.30]



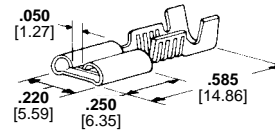
Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions		Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*
			L	T						
24-20	.020 0.51	.040-.070 1.02-1.78	.590	.060	Brass	60573-2	X ¹	—	X ¹	687852-2
			14.99	1.52	Tin Plated Phos. Brz.	62187-2	X	—	X	687852-2
	0.51	.060-.110 1.52-2.79	.585	.060	Brass	62138-2	X ¹	—	X ¹	687938-2
			14.86	1.52	Tin Plated Brass	62181-1	X ¹	—	X ¹	687852-2
	0.81	.040-.070 1.02-1.78	.590	.060	Tin Plated Brass	1217129-1	X ¹	—	X ¹	687938-2
			14.99	1.52	Nickel Plated Steel	60621-1	—	X	X	687928-2
20-16	.020 0.51	.090-.130 2.29-3.30	.590	.060	Tin Plated Brass	62137-2	X	—	X	687928-2
			14.86	1.52	Tin Plated Brass	61945-1	X	—	X	687870-2
18-16 or (2) 18	.032 0.81	(2) .105 max. 2.67	.590	.040	Tin Plated Brass	61945-1	X	—	X	687870-2
			14.99	1.02						

Budget Line

Insulation Diameter: .090-.130
[2.29-3.30]

Stock Thickness: .012 [0.30]

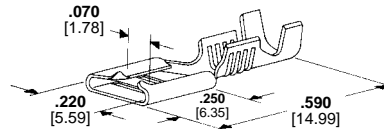
¹ UL listed and CSA certified for 22-20 AWG



Wire Range AWG	Fits Tab	Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*
	Nickel Plated Steel	63959-1	—	X	X	687928-2	
	.032 0.81	Brass	61919-1	X	—	X	687928-2

Economy Line

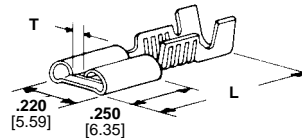
Stock Thickness: .012 [0.30]



Wire Range AWG	Fits Tab	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SF	Quick-Change Applicator No.*	
									20-16
	Brass	60196-1	X	—	X	687928-2			
	.032 0.81	.090-.130 2.29-3.30	Tin Plated Brass	60196-2	X	—	X	687928-2	
			.039 0.99	.090-.130 2.29-3.30	Tin Plated Brass	63751-1	—	—	687928-2

Low Insertion Force Line — Premier

Stock Thickness: .012 [0.30]



Wire Range AWG	Insulation Diameter	Fits Tab	Dimensions		Material and Finish	Terminal Part Numbers	UL	SF	Quick-Change Applicator No.*
			L	T					
20-16	.090-.130 2.29-3.30	.032 0.81	.585	.072	Tin Plated Brass	63608-2	X	X	687928-2
			14.86	1.83		63477-1	X	X	687928-2

* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

187 Series Receptacles – Straight Insulation Support

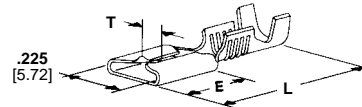
Low Insertion Force Line — Budget

Stock Thickness: .012 [0.30]

Wire Range AWG	Insulation Diameter	Fits Tab	Dimensions		Material and Finish	Terminal Part Numbers	UL	CSA	Quick-Change Applicator No.*
			L	T					
20-16	.090-.130 2.29-3.30	.020 0.51	.585	.052	Tin Plated Brass	63475-2	X	X	687928-2
			14.86	1.32					
			.585	.072	Tin Plated Brass	63477-2	X	X	687928-2
			14.86	1.83					

Commercial Line

Stock Thickness: .014 [0.36]

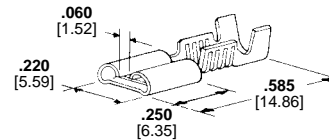


Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions			Material and Finish	Terminal Part Numbers	UL	UL	CSA	Quick-Change Applicator No.*
			L	E	T						
18-14	.020 0.51	.150-.190 3.81-4.83	.640	.250	.030	Brass	62016-1	X	—	X	466300-2
			16.26	6.35	0.76						
			.640	.250	.030	Pre-Tin Brass	63697-1	X	—	X	466300-2
			16.26	6.35	0.76						
18-14 or 2 (16)	.020 0.51	.180-.230 (2) .110 max	.640	.250	.030	Tin Plated Brass	60742-2	X	—	X	466409-2
			.640	.250	.030	Brass	63596-1	X	—	X	466409-2

Moldable Line

Insulation Diameter: .090-.130
[2.29-3.30]

Stock Thickness: .012 [0.30]

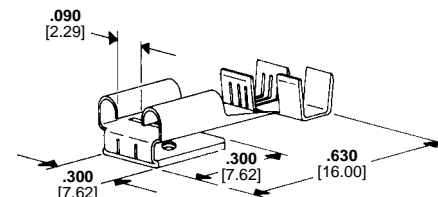
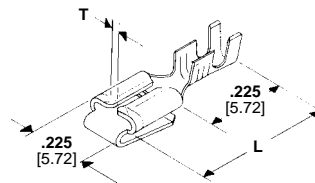


Wire Range AWG	Fits Tab	Material and Finish	Terminal Part Numbers	UL	UL	CSA	Quick-Change Applicator No.*
20-16	.020 0.51	Brass	60214-1	X	—	X	687928-2
		Tin Plated Brass	60214-2	X	—	X	687928-2

Commercial Line (Receptacle and Tab Combination)

Tab Stock Thickness: .020 [0.51]

Receptacle Stock Thickness: .014
[0.36]



Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions		Material and Finish	Terminal Part Numbers	UL	UL	CSA	Quick-Change Applicator No.*
			L	T						
20-16	.020 0.51	.090-.130 2.29-3.30	.615	.030	Brass	62026-2	X	—	X	466503-4
			15.62	0.76						
			.615	.030	Tin Plated Brass	63646-2	X	—	X	466503-4
			15.62	0.76						
			.615	.030	Brass	63646-1	X	—	X	466503-4

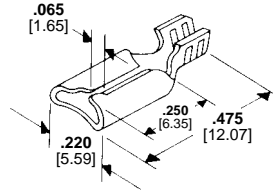
* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

187 Series Receptacles – Straight Non-Insulation Support

Moldable Line

Stock Thickness: .012 [0.30]

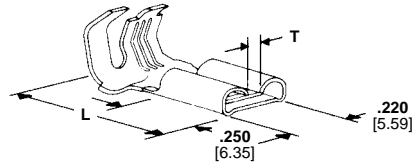


Wire Range AWG	Fits Tab	Material and Finish	Terminal Part Number	UL	RU	SP	Quick-Change Applicator No.*
20-16	.032 0.81	Tin Plated Brass	61969-1	X	—	X	687933-2

187 Series Flag Tab-Lock Insulation Support

Premier Line Flag

Stock Thickness: .012 [0.30]

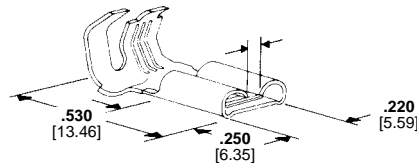


Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions L Max. T	Material and Finish	Terminal Part Number ¹	UL	RU	SP
20-16	.032 0.81	.110-.170 2.79-4.32	.530 13.46 .038 0.97	Nickel Plated Steel	63696-1	—	X	—

¹ Consult Technical Support Center for Tooling Application.

Budget Line Flag

Stock Thickness: .012 [0.30]



Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions L Max. T	Material and Finish	Terminal Part Number ¹	UL	RU	SP
20-16	.020 0.51	.110-.170 2.79-4.32	.530 13.46 .050 1.27	Brass	42618-1	X	—	X

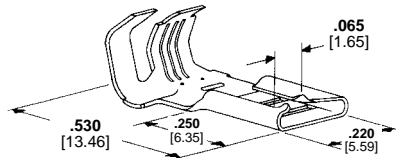
¹ Consult Technical Support Center for Tooling Application.

Economy Line Flag

Insulation Diameter:

.110-.170 [2.79-4.32]

Stock Thickness: .012 [0.30]



Wire Range AWG	Fits Tab	Material and Finish	Terminal Part Numbers ¹	UL	RU	SP
20-16	.020 0.51	Tin Plated Brass	42800-2	X	—	X
	.032 0.81	Brass	60529-1	X	—	X
		Tin Plated Brass	60529-2	X	—	X

¹ Consult Technical Support Center for Tooling Application.

* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

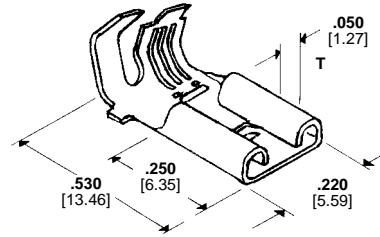
For complete product information, order Catalog 82004

187 Series – Flag Tab-Lock Insulation Support

Low Insertion Force Flag

Insulation Diameter: .110–.170
[2.79–4.32]

Stock Thickness: .012 [0.30]



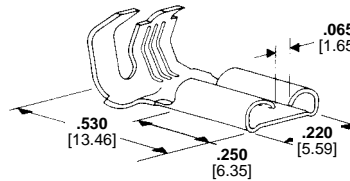
Wire Range AWG	Fits Tab	Dimension T	Material and Finish	Terminal Part Numbers ¹	UL	SP
20-16	.020	.052	Brass	63476-1	X	X
	0.51	1.32	Tin Plated Brass	63476-2	X	X
	.032	.072	Brass	63748-1	X	X
	0.81	1.83				

¹ Consult Technical Support Center for Tooling Application.

Moldable Line Flag

Insulation Diameter: .110–.170
[2.79–4.32]

Stock Thickness: .012 [0.30]



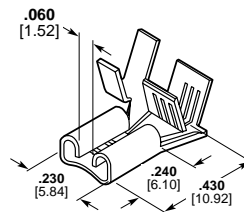
Wire Range AWG	Fits Tab	Material and Finish	Terminal Part Numbers ¹	UL	RA	SP
20-16	.020	Brass	61029-1	X	—	X
	0.51	Tin Plated Brass	61029-2	X	—	X

¹ Consult Technical Support Center for Tooling Application.

187 Series Flag “F-Crimp” Receptacles

187 Series Center Strip Flag Insulation Support

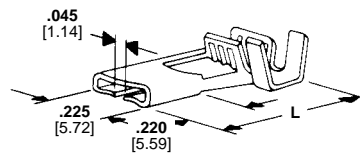
Stock Thickness: .016 [0.41]



Wire Range AWG	Fits Tab	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SP	Quick-Change Applicator No.*
20-16	.020 0.51	.110–.170 2.79–4.32	Tin Plated Brass	63417-2	X	—	X	567288-2
18-14	.020 0.51	.060–.150 1.52–3.81	Brass	63512-1	X	—	X	819528-1

187 Series Commercial Line Flag Insulation Support

Stock Thickness: .012 [0.30]



Wire Range AWG	Fits Tab	Insulation Diameter	Dimension L	Material and Finish	Terminal Part Numbers	UL	RA	SP	Quick-Change Applicator No.*
22-18	.020 0.51	.060–.070 1.52–1.78	.535 13.59	Tin Plated Brass	62085-2	X	—	X	687801-3
20-16	.020 0.51	.090–.130 2.29–3.30	.545 13.84	Tin Plated Brass	60755-2	X	—	X	686262-5

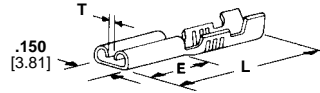
* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

110 Series Receptacles – Straight Insulation Support

Faston Receptacles

Stock Thickness: .010 [0.25]



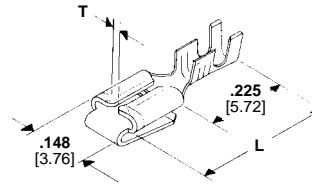
Wire Range AWG	Fits Tab Type	Fits Tab	Insulation Diameter	Dimensions			Material and Finish	Terminal Part Numbers	UL	UL	SB	Quick-Change Applicator No.*
				L	E	T						
24-22	1	.016	.040-.060	.635	.250	.025	Pre-Tin Brass	42415-1	—	—	—	687896-2
		0.41	1.02-1.52	16.13	6.35	0.64						
22-18	1	.016	.060-.100	.635	.250	.025	Pre-Tin Brass	60118-1	—	—	—	687892-3
		0.41	1.52-2.54	16.13	6.35	0.64						
	1	.025	.120-.140	.635	.250	.020	Pre-Tin Brass	61158-1	—	—	—	687967-3
		0.64	3.05-3.56	16.13	6.35	0.51						
	3	.032	.060-.100	.635	.250	.025	Pre-Tin Brass	60197-1	X	—	X	687892-3
		0.81	1.52-2.54	16.13	6.35	0.64						
20-16	1	.020	.060-.100	.635	.250	.025	Nickel Plated Steel	1217102-1	X	—	X	466141-2
		0.51	1.52-2.54	16.13	6.35	0.64						
	2	.032	.120-.140	.635	.250	.020	Pre-Tin Brass	62050-1	X	—	X	466060-3
		0.81	3.05-3.56	16.13	6.35	0.51						

¹ UL listed 22 AWG wire only.

Commercial Line (Receptacle and Tab Combination)

Tab Thickness: .020 [0.51]

Receptacle Stock Thickness: .010
[0.25]

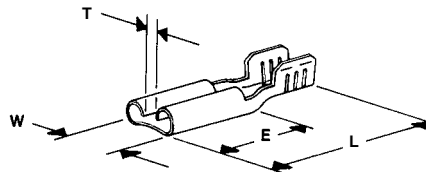


Wire Range AWG	Fits Tab	Insulation Diameter	Dimensions		Material and Finish	Terminal Part Numbers	UL	UL	SB	Quick-Change Applicator No.*
			L	T						
22-18	.018	.080-.120	.630	.025	Brass	63242-1	X	—	X	466501-2
	.025	.080-.120	.600	.025	Brass	1217083-1	X	—	X	466501-2
	.032	.080-.120	.600	.025	Brass	1217145-1	X	—	X	466501-2

110 Series Receptacles – Straight Non-Insulation Support

Faston Receptacles

Stock Thickness: .010 [0.25]



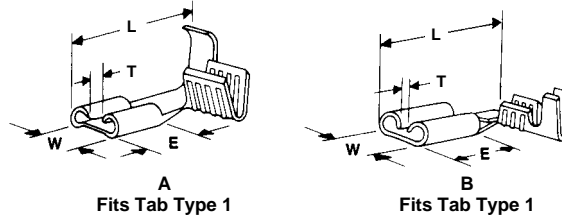
Wire Range AWG	Fits Tab Type	Fits Tab	Dimensions				Material and Finish	Terminal Part Numbers	UL	UL	SB	Quick-Change Applicator No.*
			W	L	E	T						
26-22	1	.016	.138	.327	.140	.028	Brass	1217198-1	—	—	—	466090-2
		0.41	3.51	8.31	3.56	0.71						
20-18 or (2) 20	1	.020	.138	.327	.140	.028	Tin Plated Brass	63837-1	X	—	X	466090-2
		0.51	3.51	8.31	3.56	0.71						
	1	.020	.148	.475	.250	.028	Pre-Tin Brass	42399-1	X	—	X	687954-2
		0.51	3.76	12.07	6.35	0.71						
20-18	1, 2, 3	.032	.148	.475	.250	.028	Pre-Tin Brass	60601-1	X	—	X	687954-2
		0.81	3.76	12.07	6.35	0.71						
20-18	1, 2, 3	.020	.148	.380	.200	.028	Tin Plated Brass	62850-2 ¹	X	—	X	687954-2

¹ No dimple.

* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

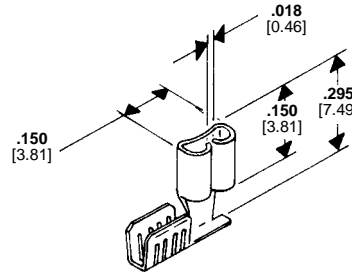
For complete product information, order Catalog 82004

110 Series – “F-Crimp” Insulation Support



Wire Range AWG	Style	Fits Tab	Insulation Diameter	Stock Thickness	Dimensions			Material and Finish	Terminal Part Numbers	UL	CSA	Quick-Change Applicator No.*	
					W	L Max.	E						T
22-18	A	.016	.065-100	.010	.148	.460	.200	.030	Pre-Tin Brass	61459-1	—	—	466299-4
		0.41	1.65-2.54	0.25	3.76	11.68	5.08	0.76					
		.025	.065-100	.010	.148	.460	.200	.032	Pre-Tin Brass	61530-1	—	—	466299-4
		0.64	1.65-2.54	0.25	3.76	11.68	5.08	0.81					
	B	.032	.065-100	.010	.148	.460	.200	.030	Pre-Tin Brass	61971-1	X	X	466299-4
		0.81	1.65-2.54	0.25	3.76	11.68	5.08	0.76					
		.020	.060-100	.012	.148	.430	.200	.030	Brass	61070-2	X	X	687113-3
		0.51	1.65-2.54	0.25	3.76	11.68	5.08	0.76					
B	.025	.060-100	.010	.148	.430	.200	.035	Pre-Tin Brass	1217138-1	X	X	466415-2	
	0.64	1.65-2.54	0.25	3.76	11.68	5.08	0.89						
B	.032	.060-100	.010	.148	.430	.200	.035	Pre-Tin Brass	62336-1	X	X	466415-2	
	0.81	1.65-2.54	0.25	3.76	11.68	5.08	0.89						

110 Series – “Flag-Crimp” Non-Insulation Support



Wire Range AWG	Fits Tab Type	Fits Tab	Stock Thickness	Material and Finish	Terminal Part Numbers	UL	CSA	Quick-Change Applicator No.*	
22-16	1	.020 0.51	.010 0.25	Pre-Tin Brass	62321-1	X ¹	—	X	466377-2
	—	.020 0.51	.010 0.25	Pre-Tin Brass	63233-1	X	—	X	466377-2

¹ UL listed and CSA certified for 22-18 AWG wire range.

* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

FASTON Tabs

Tyco Electronics offers a complete product line of printed circuit, crimp tabs and printed circuit board receptacles.

Printed circuit board tabs are available in .110, .187, and .250 widths with various heights. Printed circuit tab configurations are: vertical, right angle, and angled. The legs are designed for soldering in thru-hole applications. The legs can also be clinched automatically in our insertion equipment for additional mechanical retention. Other tab mounting to a printed circuit board can be by rivets or screws.

AMP printed circuit board tabs are designed to accept FASTON and Ultra-Fast crimp receptacle products. These items are listed in this catalog on page 24.

Printed circuit board vertical receptacles are available in .250/.205 widths and will accept tab thicknesses of .025 and .032. The printed circuit board receptacles can easily be inserted semi or fully automatically. The legs of the receptacles can be clinched after insertion into the printed circuit board for additional mechanical strength. Printed circuit board receptacles can accept tab thicknesses of

.025-.032, and are available in standard or low insertion force. These receptacles are designed to accept FASTON or Ultra-Fast crimp tabs as well as automotive fuses.

AMP Modular insertion equipment to install the printed circuit board tabs and receptacles can be found in Tyco Electronics Catalog 296059. Semi and fully automatic insertion equipment utilize the same insertion heads with a change over time of about 15 minutes.

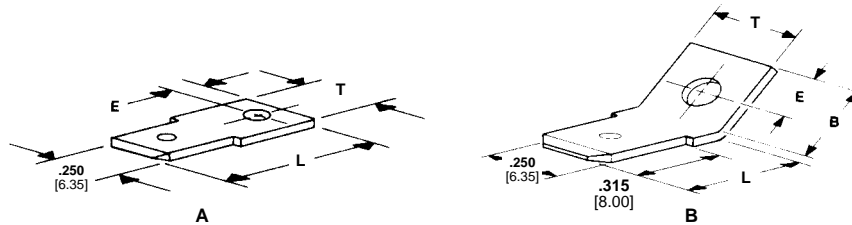
AMP tab and receptacle product is also compatible with most industry insertion equipment.

For complete product information, order Catalog 82004

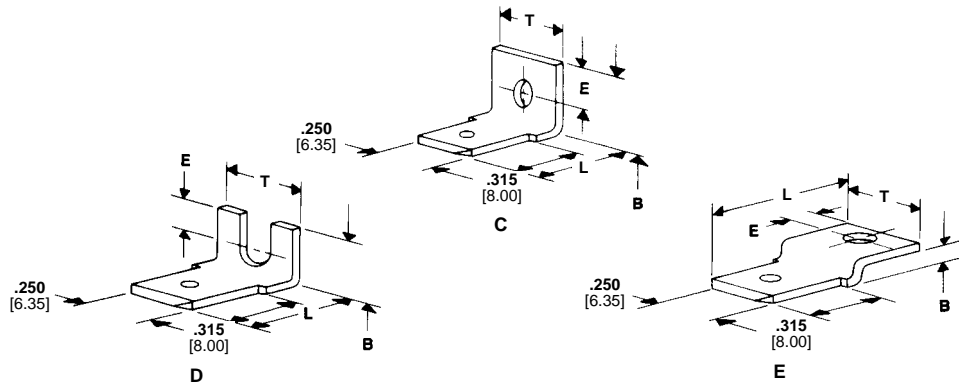
250 Series FASTON Tabs – Stud Mount

Stock Thickness: .032 [0.81]

Dimple (Both Sides)



Style	Stud Diameter	Dimensions				Material and Finish	Terminal Part Numbers	UL	UL	SB
		B	L	E	T					
A	.177	—	.715	.170	.295	Brass	63038-2	—	X	—
	4.50	—	18.16	4.32	7.49	Tin Plated Brass	63038-1	—	X	X
	—	—	.635 16.13	—	.295 7.49	Nickel Plated Steel	42559-1	—	X	X
B	.130	.300	.400	.170	.295	Tin Plated Brass	42822-2	—	X	X
	3.30	7.62	10.16	4.32	7.49					
	.145	.300	.400	.170	.295	Tin Plated Brass	42822-4	—	X	X
	3.68	7.62	10.16	4.32	7.49					
	.171	.375	.331	.170	.295	Brass	60465-1	—	X	X
	4.34	9.53	8.41	4.32	7.49	Tin Plated Brass	60465-3	—	X	X
	.197	.330	.375	.170	.295	Tin Plated Brass	61499-1	—	X	X
	5.00	8.38	9.53	4.32	7.49					
	.203	—	.375	.132	.295	Tin Plated Brass	1217252-1	—	X	X
5.16	—	9.52	3.35	7.49						



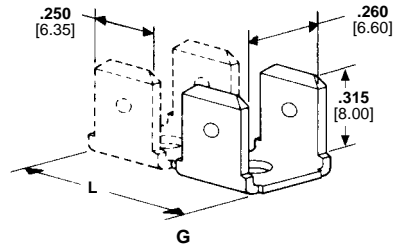
Style	Stud Diameter	Dimensions				Material and Finish	Terminal Part Numbers	UL	UL	SB
		B	L	E	T					
C	.097	.250	.440	.093	.295	Brass	41339	—	X	X
	2.46	6.35	11.18	2.36	7.49					
	.130	.330	.440	.170	.295	Tin Plated Brass	42095-1	—	X	X
3.30	8.38	11.18	4.32	7.49						
D	.171	.330	.440	.170	.295	Brass	42214-1	—	X	X
	4.34	8.38	11.18	4.32	7.49					
E	.130	.068	.615	.093	.295	Tin Plated Brass	42506-2	—	X	X
	3.30	1.73	15.62	2.36	7.49					

For complete product information, order Catalog 82004

250 Series FASTON Tabs – Stud Mount

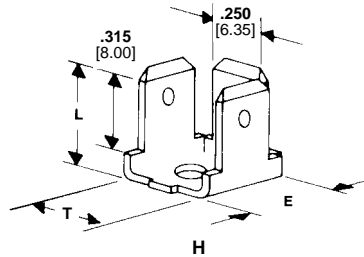
Stock Thickness: .032 [0.81]

Dimple (Both Sides)



Style	Pairs	Stud Diameter	Dimension L	Material and Finish	Terminal Part Numbers	UL	RA	SP
G	1	.097 2.46	.315 8.00	Tin Plated Brass	60080-2	—	X	X
	1	.130 3.30	.315 8.00	Brass	41290	—	X	X
				Tin Plated Brass	41480	—	X	X
	2	.130 3.30	.690 17.53	Tin Plated Brass	41481	—	X	X
				Brass	41291	—	X	X
	3	.130 3.30	1.065 27.05	Brass	41292	—	X	X
	4	.130 3.30	1.440 36.58	Brass	41370	—	X	X
	—	.130 3.30	—	Tin Plated Brass	42115-4 ¹	—	X	X
	1	.171 4.34	.315 8.00	Brass	41619	—	X	X
				Tin Plated Brass	42802-1	—	X	X

¹ In continuous strip-form.

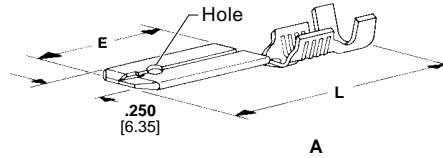


Style	Stud Diameter	Dimensions			Material and Finish	Terminal Part Number	UL	RA	SP
		L	E	T					
H	.130 3.30	.425 10.80	.406 10.31	.470 11.94	Brass	62261-1	—	X	X

For complete product information, order Catalog 82004

250 Series FASTON Tabs – Wire Crimp

Tab Thickness: .032 [0.81]



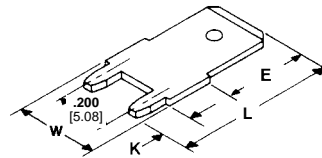
Wire Range AWG	Style	Insulation Diameter	Stock Thickness	Dimensions		Material and Finish	Terminal Part Numbers	UL	RA	SP	Quick-Change Applicator No.*
				L	E						
22-18	A	.080-.120 2.03-3.05	.016 0.41	.815	.370	Tin Plated Brass	42475-4	—	X	X	466432-2
				20.70	9.40						
18-14	A	.110-.150 2.79-3.81	.016 0.41	.810	.370	Brass	42474-3	—	X	X	466431-2
				20.57	9.40	Tin Plated Brass	42474-4	—	X	X	466431-2
14-12	A	.110-.170 2.79-4.32	.016 0.41	.810	.370	Silver Plated Brass	61362-2	—	X	X	466467-4

250 Series FASTON Tabs – Printed Circuit Board

Stock Thickness: .032 [0.81]

Board Hole Size: .055 ± .002
[1.40 ± 0.05] on Centers

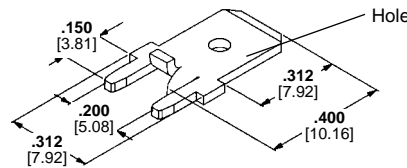
¹Loose Piece Board Hole Size:
.060 ± .053 [1.52 ± 1.35] on Centers



Material and Finish	Dimensions				Terminal Part Numbers	UL	RA	SP
	W	L	K	E				
Tin Plated Brass	.295	.622	.125	.312	62409-11	—	X	X
	7.49	15.80	3.18	7.92				
	.280	.622	.125	.452	63755-1 ²	—	—	—
	7.11	15.80	3.18	11.48				
	.312	.650	.150	.410	1217126-1	—	—	X
7.92	16.50	3.81	10.41					
	.312	.582	.180	.312	1217136-1	—	—	X
	7.92	14.78	4.57	7.92				
	.312	.780	.150	.540	1217167-1	—	—	X
	7.92	19.81	3.81	13.72				

¹ Loose piece only.

² Insertion equipment available.



Material and Finish	Terminal Part Number	UL	RA	SP
Tin Plated Brass	63849-1 ¹	—	X	X

¹ Loose piece only

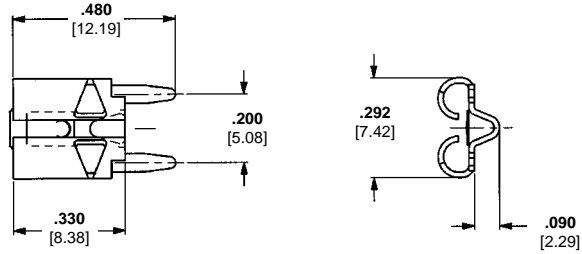
* Quick-Change Applicator for
AMP-O-ELECTRIC Machine
565435-5. For AMPOMATOR
Machine and other machines not
listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

250 Series FASTON Printed Circuit Board Receptacle

.250/.205 Printed Circuit Board Receptacle

Stock Thickness: .020 [0.51]

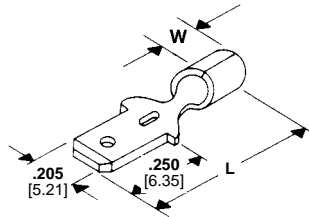


Material and Finish	Fits Tab	Strip Part Numbers	UL	RA	SD
Tin	.032 (LIF) 0.81	63968-1	—	X	X
		63969-1	—	X	X
	.020 0.51	63994-1	—	X	X
		Tin Plated Brass	.025 0.64	1217137-1	—
		1217180-1	—	X	X

205 Series FASTON Tabs – Printed Circuit Board Only*

Stock Thickness: .020 [0.51]

*Tab Configuration 1



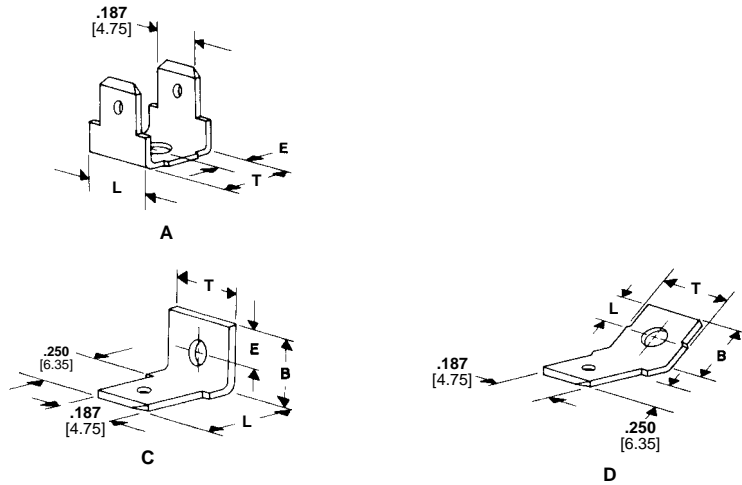
Board Hole Size	Dimensions		Material and Finish	Terminal Part Number	UL	RA	SD
	L	W					
.100-.095 Dia.	.545	.160	Tin Plated Brass	60284-2 ¹	—	X	X
2.54-2.41	13.84	4.06					

¹ Loose piece only.

For complete product information, order Catalog 82004

187 Series FASTON Tabs

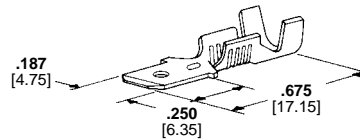
Stud Mount Type Tabs Hole In Tab



Style	Stud Diameter	Stock Thickness	Dimensions				Material and Finish	Terminal Part Numbers	UL	RA	SP
			L	E	T	B					
A	.130 3.30	.020 0.51	.295 7.49	.217 5.51	.435 11.05	—	Tin Plated Brass	61951-1	—	X	X
C	.145 3.68	.020 0.51	.320 8.13	.125 3.18	.295 7.49	.300 7.62	Tin Plated Brass	61407-3	—	X	X
D	.130 3.30	.020 0.51	—	.125 3.18	.295 7.49	.300 7.62	Tin Plated Brass	61761-2 ¹	—	X	X
	.145 3.68	.020 0.51	—	.125 3.18	.295 7.49	.300 7.62	Brass	62576-1 ¹	—	X	X

¹ Bent 45°

Wire Crimp Type Tabs



Wire Range AWG	Tab Thickness	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	RA	SP	Quick-Change Applicator No.*
22-18	.020 0.51	.080-120 2.03-3.05	Brass	42490-4	X	—	X	466441-5
18-14	.020 0.51	.120-150 3.05-3.81	Tin Plated Brass	60850-2	X	—	X	466444-2

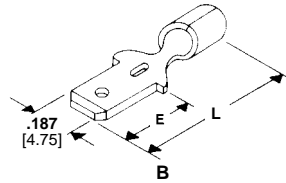
* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

187 Series FASTON PCB Tabs

Printed Circuit Board Tabs

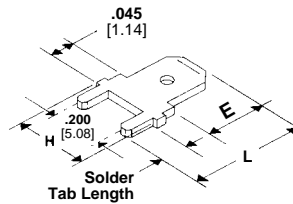
Stock Thickness: .020 [0.51]



Type	Board Thickness	Dimensions			Material and Finish	Terminal Part Number	UL	UL	SR	
		T	L	E						H
B	.062 1.57	—	.545 13.84	.250 6.35	—	Pre-Plated Brass	61907-1 ¹	—	X	X

¹ Loose piece only.

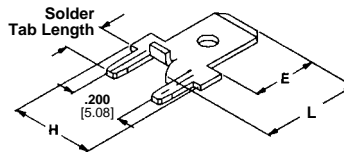
Printed Circuit Board Tab



Tab Thickness	Solder Tab Length	Dimensions			Material and Finish	Terminal Part Numbers	UL	UL	SR
		L	E	H					
.032 0.81	.125 3.18	.487 12.37	.250 6.35	.280 7.11	Tin Plated Brass	63525-1 ¹	—	X	X
.020 0.51	.125 3.18	.487 12.37	.250 6.35	.280 7.11	Tin Plated Brass	63603-1 ²	—	X	X

¹ Dimple
² .055 Hole

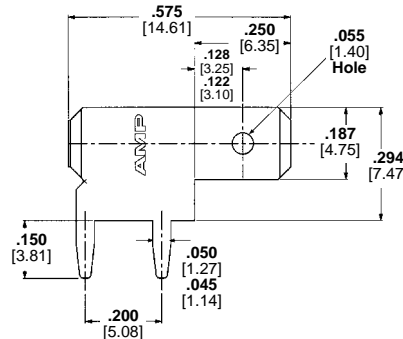
Printed Circuit Board Tab



Tab Thickness	Solder Tab Length	Dimensions			Material and Finish	Terminal Part Number	UL	UL	SR
		L	E	H					
.020 0.51	.150 3.81	.490 12.45	.250 6.35	.312 7.92	Tin Plated Brass	63982-1 ²	—	X	X

² .055 Hole

Right Angle Printed Circuit Board Tab



Stock Thickness	Board Hole Size	Material and Finish	Terminal Part Number	UL	UL	SR
.020 0.51	.054 1.37	Tin Plated Brass	1217156-1 ²	—	—	—
	.050 1.27					

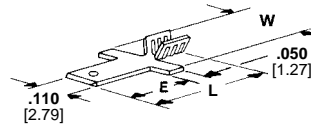
² .055 Hole

For complete product information, order Catalog 82004

110 Series FASTON Tabs

.110 Series Wire Crimp Type Tabs

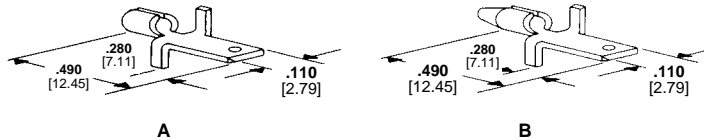
Stock Thickness: .020 [0.51]



Wire Range AWG	Dimensions			Material and Finish	Terminal Part Number	UL	UL	SP	Quick-Change Applicator No.*
	L	E	W						
22-18	.565 14.35	.280 7.11	.155 3.94	Pre-Tin Brass	62384-1	X	—	X	466508-2

.110 Series Printed Circuit Board Only

Stock Thickness: .020 [0.51]



Style	Mating Hole Diameter	Dimension L	Material and Finish	Terminal Part Numbers	UL	UL	SP
A	.060-.055 1.52-1.40	.490 12.45	Tin Brass	61134-3 ¹	—	X	X
B	.067-.063 1.70-1.60	.490 12.45	Tin Brass	62437-1 ¹	—	X	X

¹ Loose piece only.

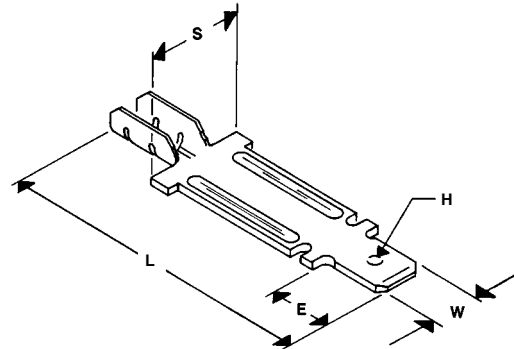
* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

250 Series FASTON Tabs

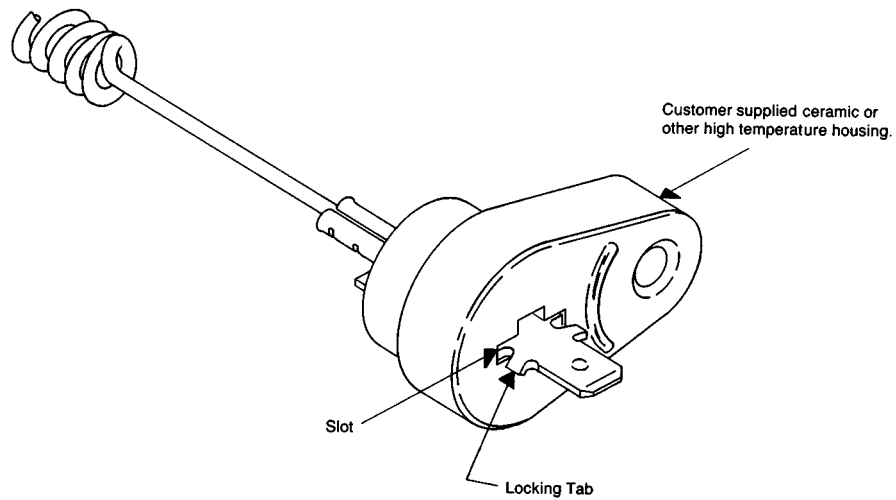
The AMP high-temperature tab is designed to crimp to heating element wire. The tab end protrudes through a ceramic/high-temperature housing for mating with a standard 250 or FASTON receptacle.

Stock Thickness: .032



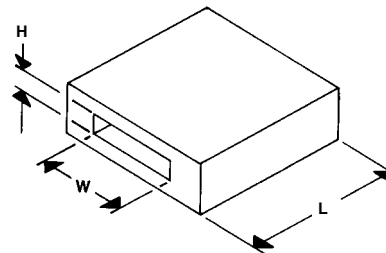
Series	Solid Wire Range AWG	Tab Thickness	Dimensions					Material and Finish	Terminal Part Number ¹
			L	W	E	S	H		
250	20-15	.032 0.81	1.500 38.10	.250 6.35	.312 7.92	.500 12.70	Dimple	Nickel Plated Steel	63301-1

¹Contact Customer Assistance Hotline for Tooling Application.



Recommended Housing Dimensions

Slot = H x W	L
.070 x .390	.640
1.78 x 9.91	16.26



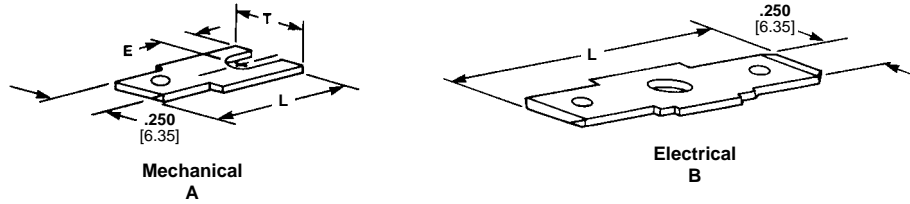
For complete product information, order Catalog 82004

250 Series Test Tabs

250 Series Test Tabs Mate with all "250" Series FASTON Receptacles

Test Tabs

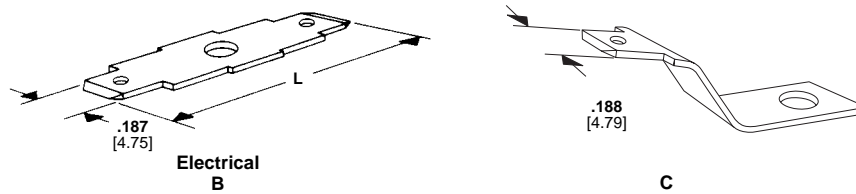
The mechanical tab is mounted onto AMP gauge 100505 for testing of receptacle insertion/extraction requirements. Double-ended test tabs are also available for electrical and temperature rise testing. Tyco Electronics has readily available a variety of NEMA DC2 constructed tabs for mechanical testing of FASTON, Ultra-Fast and Positive Lock receptacles. These tabs are designed for electrical test setups as outlined in UL 310. (See instruction sheet 408-7432 for recommended procedure mechanical test)



Style	Stud Diameter	Dimensions			Material and Finish	Terminal Part Numbers
		L	E	T		
B	.145	1.010	—	—	Tin Plated Steel	62627-1
	3.68	25.65	—	—	Brass	62627-2

187 Series Test Tabs

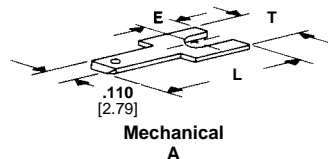
187 Series Test Tabs Mates with all "187" Series Receptacles



Style	Pairs	Stud Diameter	Stock Thickness	Dimension	Material and Finish	Terminal Part Numbers
				L		
B	1	.145 3.68	.020 0.51	1.276 32.41	Brass	60920-1
C	—	.145 3.68	.032 0.81	—	Brass	62162-1

110 Series Test Tabs

110 Series Test Tabs Mates with all "110" Series Receptacles



Style	Stud Diameter	Stock Thickness	Dimensions			Material and Finish	Terminal Part Numbers
			L	E	T		
A	.125	.020	.570	.090	.295	Brass	62061-1
	3.18	0.51	14.48	2.29	7.49		
	.125	.032	.570	.090	.295	Brass	62061-2
	3.18	0.81	14.48	2.29	7.49		

For complete product information, order Catalog 82004

FASTON Terminals – Loose Piece

FASTON Terminals Strip/Loose Piece Cross Reference

Faston terminals have been designed for speed of application using selected terminating machines; however, hand tools are available for those terminals listed.

Receptacles 250 Series

Wire Range AWG	Strip Part Numbers	Loose Piece Part Numbers	Description	Hand Tool Part Numbers
22-18	—	60878-2	Premier Receptacle	90166-1
	—	62274-1	Receptacle/Tab Combination	90166-1
18-14	—	60705-1	Premier Receptacle	—
	—	60279-1	Piggyback Receptacle	—
18-12	—	41898	Tab-Lok Flag	—
	—	60102-1	Tab-Lok Flag	—
16-12	—	42021	Premier Receptacle	47094
14-10	—	61227-1	Premier Receptacle	90120
	62049-2	—	Piggyback	—
12-10	—	60851-3	Hermetic Flag	—

Receptacles 187 Series

Wire Range AWG	Strip Part Number	Loose Piece Part Number	Description	Hand Tool Part Number
20-16	—	42638-2	Premier (No Insulation)	—

Receptacles 110 Series

Wire Range AWG	Strip Part Number	Loose Piece Part Number	Description	Hand Tool Part Number
22-18	—	62112-2	Receptacle/Tab Combination	—

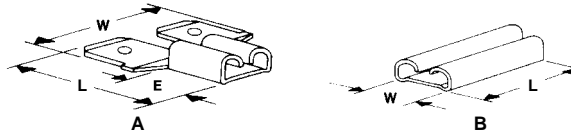
250 Series Tabs

Wire Range AWG	Strip Part Number	Loose Piece Part Number	Description	Hand Tool Part Number
18-14	—	41778	Crimp Type	—

FASTON Tab Adapters

250 Series FASTON Tab Adapters

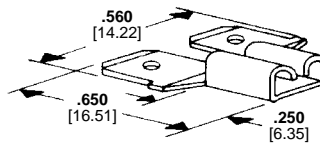
Fits Tab: .032 [0.81]



Style	Dual Thickness	Dimensions			Material and Finish	Terminal Part Numbers	UL	UL	SF
		W	L	E					
A	.018-.032	.650	.770	.305	Brass	61765-1	—	X	—
	0.46-0.81	16.51	19.56	7.75	Tin Plated Brass	61765-2 ¹	—	X	—
B	—	.300	.700	—	Tin Plated Brass	61810-2	—	X	—
		7.62	17.78						

¹ No Tab stop on Receptacle

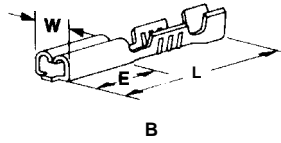
187 Series FASTON Tab Adapters



Stock Thickness	Receptacle Fits Tab	Material and Finish	Terminal Part Numbers	UL	UL	SF
.013 x .020	.020	Tin Plated Brass	61045-2	—	X	X
0.33 x 0.51	0.51	Tin Plated Brass	63699-1	—	X	—
.013 x .032	.032	Tin Plated Brass	63699-1	—	X	—
0.33 x 0.81	0.81	Tin Plated Brass	63699-1	—	X	—

For complete product information, order Catalog 82004

FASTON Tab Receptacles



Type	Wire Range		Insul. Dia. Range	Stock Thk.	Material and Finish	Fits Tab	Dimensions			Part Numbers	Hand Tool No.	Applicator No.
	AWG	mm ²					E	L	W			
B	24-20	0.2-0.6	.040-.080 1.02-2.03	.010 0.25	Tin Plated Brass	.031 x .062 0.79 x 1.57	.187 4.75	.462 11.73	.090 2.29	60900-4 ¹	—	466449-2
	22-18	0.3-0.9	.050-.085 1.27-2.16	.010 0.25	Pre-Tin Brass	.010 x .093 0.25 x 2.36	.190 4.83	.480 12.19	.120 3.05	63391-1 ^{2,3}	90204-5	—

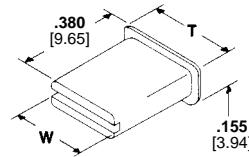
¹ Reverse reel of 60900-1.

² Loose piece form, of Part No. 63391-2.

³ Compliant base.

FASTON Tab Caps and Splices

Tab Caps 187 and 250 Series



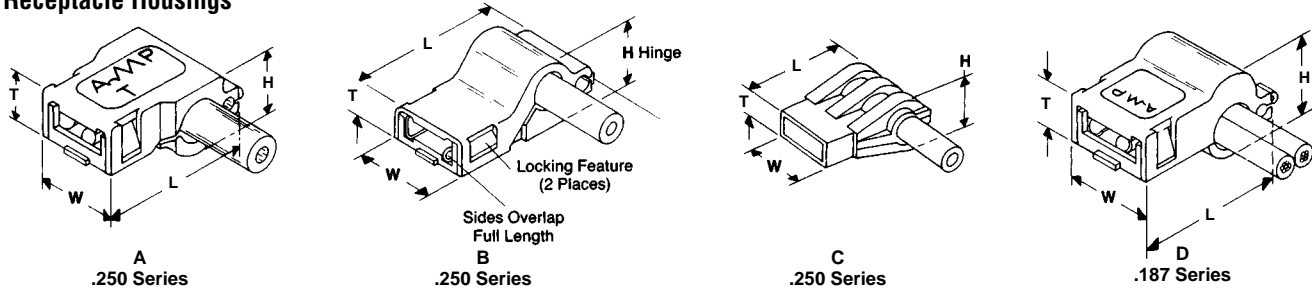
Tab Size	Material	UL 94 ¹	Color	Dimensions		Insulator Part Numbers
				T	W	
"187" Series .020 [0.51] Thick	Nylon	V2	Natural	.320 8.13	.260 6.60	360041-1
"250" Series .032 [0.81] Thick	Nylon	V2	Natural	.380 9.65	.320 8.13	360042-1

¹ Flammability rating.

For complete product information, order Catalog 82004

FASTON Receptacle Housings

AMPIP Post-Insulation Pods Flag Style Receptacle Housings



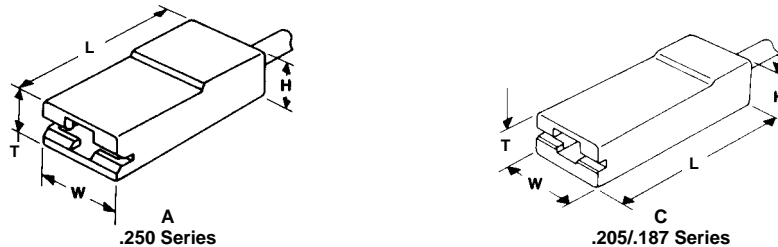
Style	Type	Material	UL 94 ¹	Color	Insulation Dia. Max.	Dimensions				Part Number	Accepts Terminal ²	UL	CS
						L	T	W	H				
A	Loose Piece	Nylon	V2	Natural	.210 5.33	.787 19.99	.266 6.76	.448 11.38	.360 9.14	1-480307-1	"250" Series Flag FASTON Tab-Lok Receptacles 41531, 41532, 42511,	X	X
B	Continuous Strip Loose Piece	Nylon	V2	Natural	.140 or (2) .110 3.56 or (2) 2.79	.732 18.59	.180 4.57	.460 11.68	.315 8.00	1-480306-1	"250" Series Flag FASTON F-Crimp Receptacle 60290, 60736, 62418	X	X
C	Loose Piece	Vinyl	HB	Blue	.150 3.81	.710 18.03	.210 5.33	.380 9.65	.400 10.16	480019-6	"250" Series Flag FASTON	—	—
D	Loose Piece	Nylon	V2	Natural	.175 4.45	.699 17.75	.230 5.84	.430 10.92	.320 8.13	1-480487-2	"187" Series Flag FASTON ³	X	—

¹ Flammability rating of plastic material.

² For dimensions and plating, refer to Terminal Specifications on pages 7077-7089.

³ Does not accept commercial series.

Straight Style Receptacle Housing



Style	Type	Material	UL 94 ¹	Color	Insulation Dia. Max.	Dimensions				Part Number	Accepts Terminal ²	UL	CS
						L	T	W	H				
A	Loose Piece	Nylon	V2	Black	.200 5.08	.920 23.37	.260 6.60	.390 9.91	.298 7.57	1-480416-1	"250" Series FASTON Receptacles 41143, 41194, 41202, 41274, 41771, 41772, 42285, 42400, 42510, 42640, 42643, 60650, 60938, 61107, 61368, 61375, 63306, 63365	X	X
C	Loose Piece	Nylon	V2	Natural	.180 4.57	.775 19.69	.225 5.72	.338 8.59	.245 6.22	1-480418-0	"205" Series FASTON Receptacles 42197, 42198, 42710, 42712 ³ , 42713, 60904, 60523	X	X

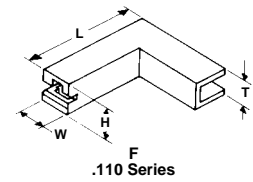
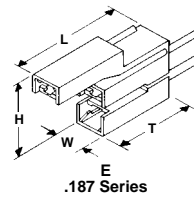
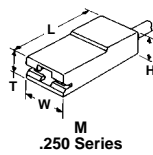
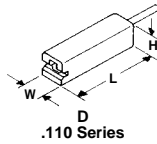
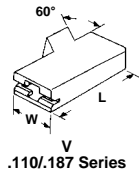
¹ Flammability rating of plastic material.

² For dimensions and plating, refer to Terminal Specifications on pages 7077-7089.

³ Except 42712-3.

For complete product information, order Catalog 82004

FASTON Receptacle Housings

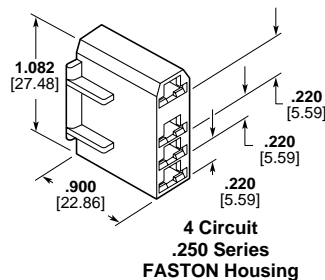


Style	Type	Material	UL 94 ¹	Color	Insulation Dia. Max.	Dimensions				Part Numbers	Accepts Terminal ²	UL	CS
						L	T	W	H				
V	Loose Piece	Nylon Stanyl	V2	Natural	—	.825 20.95	—	.290 7.37	—	520978-1	“.110” Series FASTON 42067, 42608, 42236, 42398, 42399, 42415, 42604, 60118, 60197, 60577, 60601, 60729, 61158, 61400, 61457, 61818, 62050, 62094, 62191, 62345 “.187 Series FASTON 42452, 42453, 42373, 42374, 42616, 60487, 60573, 62137, 62187, 63475, 63477, 40617, 60573, 62137, 62138	X	X
D	Loose Piece	Nylon	V2	Black	.150 3.81	.790 20.07	—	.235 5.97	.240 6.10	1-480417-1	“.110” Series FASTON Receptacles 42067, 42608, 42236, 42398, 42399, 42415, 42604, 60118, 60197, 60577, 60601, 60729, 61158, 61400, 61457, 61818, 62050, 62094, 62191, 62345	X	X
E	Loose Piece	Nylon	V2	Natural	.170 4.32	1.655 42.04	.845 21.46	.317 8.05	.875 22.23	520212-1	“.187” Series FASTON Receptacles 42452, 42453, 42373, 42374, 42617, 60487, 60573, 62137, 62187	X	X
F	Loose Piece	Nylon	V2	Natural	—	.550 13.97	.205 5.21	.225 5.72	.200 5.08	360040-1	“.110” Series FASTON 61070, 61481, 62336	X	X
M	Loose Piece	Nylon	V2	Natural	—	1.030 26.162	.265 6.731	.375 9.526	—	521053-1	“.250” Series FASTON 41143, 41194, 41202, 41274, 41771, 41772, 42285, 42400, 42510, 42640, 42643, 60650, 60938, 61107, 61368, 61375, 63306, 63365, 63365-1	X	X

¹ Flammability rating of plastic materials.

² For dimensions and plating, refer to terminal specifications on pages 7077-7091.

Defrost Timer Housing

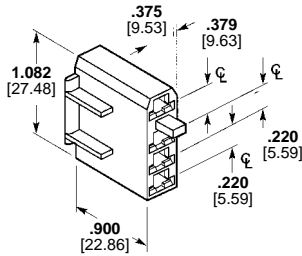


Material	UL 94 ¹	Color	Part Numbers	Accepts Terminals	UL	CS
Nylon	V2	Black	520987-1	.250 Low Insertion Terminals	X	X
		Natural	520987-2	.250 Low Insertion Terminals	X	X

¹ Flammability rating of plastic material.

For complete product information, order Catalog 82004

FASTON Receptacle Housings



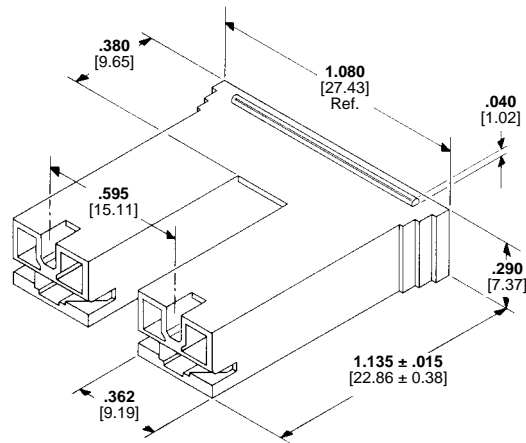
Material	UL 94 ¹	Color	Part Numbers	Accepts Terminals		
Nylon	V2	Natural	521065-1	.250 LIF	X	X
			521066-1	.250 LIF	X	X

¹ Flammability rating of plastic material.

250 Series Housing

Water Valve Coil Connector

This connector is designed to mate with the Appliance Industry's Standard Water Valve Coil. The connector is suitable for such applications as washing machine mixing valves, dishwasher fill valves, and refrigerators with automatic ice makers. The housing has a unique internal cavity design to accommodate either two Positive Lock or two Budget and LIF FASTON receptacles.



Product Facts

- Prevents terminal back-out of housing through plastic retention feature
- Higher disengagement forces possible with Positive Lock or Low Insertion Force (LIF) FASTON receptacles (Hole required in mating tab)
- Recognized under the Component Program of Underwriters Laboratories, Inc., File Nos. E28476 and E13288.

Material	UL 94 ³	Color	Part Numbers	Accepts Terminals ¹		
Nylon	V2	Natural	520935-1	"250" Series FASTON with .095 min "T" Receptacles 42400, 42510, 63097 ² , 63119 ² , 63239 ² , 63306	X	X
		Red	520935-2			
		Black	520935-3 ⁴			

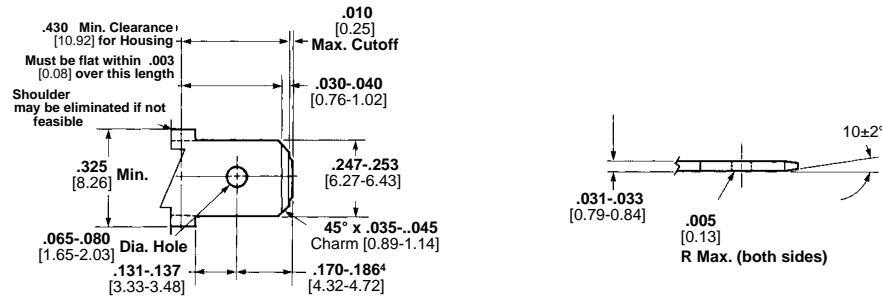
¹ For dimensions and plating, refer to Terminal Specifications on pages 7077 thru 7091.

² For Positive Lock Mark II Receptacles.

³ Flammability rating of plastic material.

⁴ Weather resistant material.

Recommended Mating Tab Dimensions



⁴ Use when shoulder is eliminated.

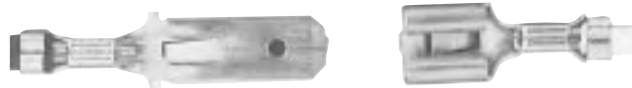
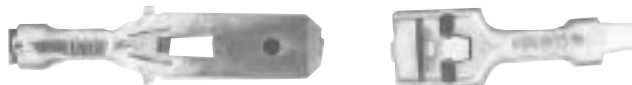
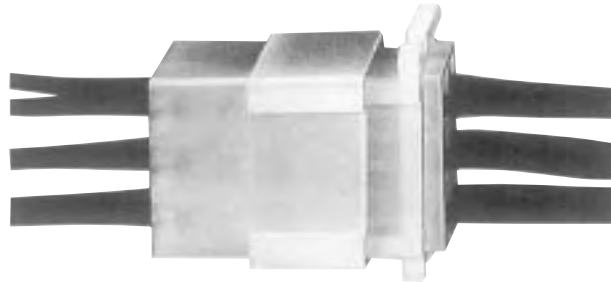
For complete product information, order Catalog 82004

FASTIN-FASTON Line

FASTIN-FASTON Connectors

These are the multiple-connector version of the basic FASTON Line. Primarily used as harness connectors, they make possible simultaneous and quick attachment of up to eight separate circuits with a maximum of 19 leads. Some housings can be panel mounted or left free-hanging and is ideally suited for such applications as electric ranges, washers, dryers and other appliances and automotive wiring. Receptacles and tabs, with the exception of small locking lances to help retention in housing, are similar to those in the FASTON Line. FASTIN-FASTON connectors are CSA approved and recognized under the component program of Underwriters Laboratories Inc.

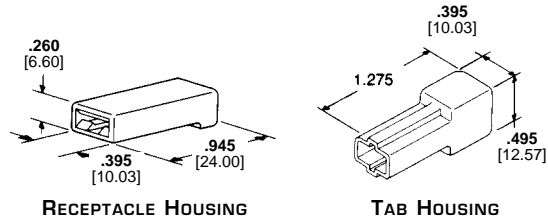
Notes: Temperature range of housing is rated at up to 125°C to permit use of assembly in areas of relatively high temperatures. Circuits are identified by numbered points on both male and female housings.



For complete product information, order Catalog 82004

250 Series FASTIN-FASTON Connectors

Single Circuit Connectors (Housings)



Material	UL 94 ¹	Color	Part Numbers		UL	CS
			Receptacle	Tab		
Nylon	V2	Black	480054-4	—	X	X
		Red	480054-5	480053-5	X	X

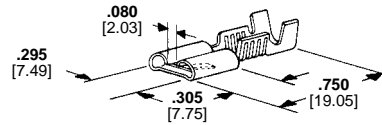
¹ Flammability rating.

Receptacles (For use with single circuit connectors)

Fits Tab: .032 [0.81]

Stock Thickness: .016 [0.41]

Mating Dimple



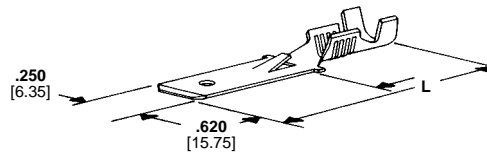
Wire Range AWG	Insulation Diameter	Material and Finish	Terminal Part Numbers	UL	CS	Quick-Change Applicator No.*
18-14	.120-.160 3.05-4.06	Tin Plated Brass	42281-2	X	X	687940-2
		Brass	60634-1 ¹	X	X	687940-2
16-12	.160-.220 or (2) .130 Max. 4.06-5.59 or (2) 3.30 Max.	Tin Plated Brass	60249-2 ²	X	X	466057-2

¹ No front slot.

² Also capable of accepting (2) 16 AWG wire.

Tabs (For use with single or multiple circuit connectors)

Stock Thickness: .015 [0.38]



Wire Range AWG	Tab Thickness	Insulation Diameter	Dimension L	Material and Finish	Terminal Part Number	UL	CS	Quick-Change Applicator No.*
18-14	.016 0.41	.120-.145 3.05-3.68	1.100 27.94	Tin Plated Brass	42580-2 ¹	X	X	687839-2

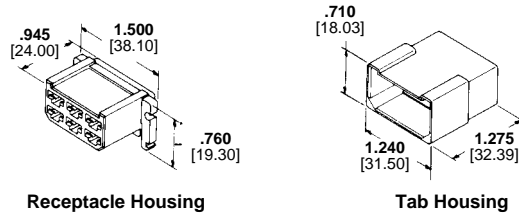
¹ Used for back-to-back with a combined thickness of .032.

* Quick-Change Applicator for AMP-O-ELECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

For complete product information, order Catalog 82004

250 Series FASTIN-FASTON Connectors

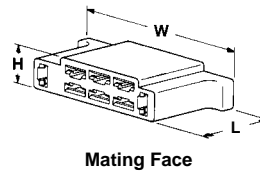
Six Circuit Connectors (Housings)



Material	UL 94 ¹	Color	Part Numbers		UL	SP
			Receptacle	Tab		
Nylon	V2	Natural	480003-5	480004-5	X	X

¹ Flammability rating.

8 Circuit Connectors (Housings)

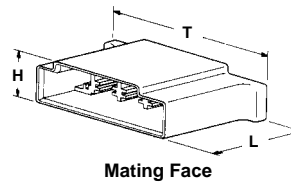


Eight Circuit Connectors (Receptacle Housing)

Material	UL 94 ¹	Color	Dimensions			Housing Number	UL	SP
			W	H	L			
Nylon	V2	Natural	2.125 53.98	.525 13.34	.945 24.00	480173-1	X	X

¹ Flammability rating of plastic material.

² All circuits accept receptacles without locking dimple.



Eight Circuit Connectors (Tab Housings)



Material	UL 94 ¹	Color	Dimensions			Housing Number	UL	SP
			W	H	L			
Nylon	V2	Natural	2.240 56.90	.658 16.71	1.275 32.39	480174-1	X	X

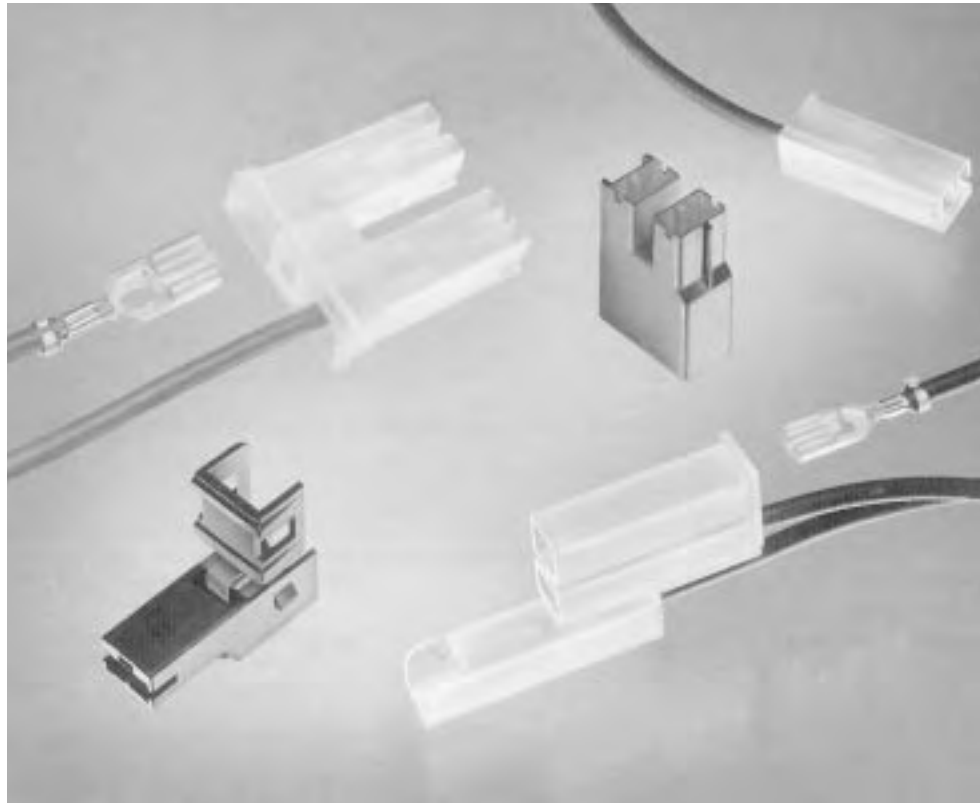
¹ Flammability rating.

For complete product information, order Catalog 82004

Positive Lock Receptacles

Product Facts

- Reduced insertion force
- Locks onto tabs containing holes
- Housing insulates and serves as a removal tool
- “Snap” action tells assembler receptacle is mated properly
- Mark I 250 Series accepts 20-10 AWG wire
- Mark II 187 Series accepts 24-16 AWG wire, while 250 Series accepts 22-10 AWG wire
- Mark III 250 Series accepts 18-12 AWG wire
- Terminated by automatic or semi-automatic equipment
- Single and multiple circuit housings available
- Recognized under the Component Program of Underwriters Laboratories Inc., File Nos. E66717 and E28476 
- Certified by Canadian Standards Association File No. LR7189A 



Positive Lock receptacles are specifically designed to provide ease of assembly and secure retention to mating tabs. These unique features are attainable by the reduced insertion force of the product and the locking dimple. The receptacle locks onto mating tabs containing holes and is removable only by deflecting an integrally designed depressor prior to withdrawal. The depressor can be deflected manually by thumb pressure, or automatically by a cam inside a specially designed nylon housing. If the housing is employed, removal of the terminal from the tab is performed by simply applying withdrawal force to the housing. In addition to providing a means of disconnecting the terminal, the housing performs its traditional insulating function.

Aside from reduced insertion forces, Positive Lock receptacles give the assembler a definite mechanical “snap” when the terminal is correctly seated over the mating tab. This facilitates correct assembly in hard-to-reach areas such as under dashboards, recessed switch tabs, etc.

Safety is enhanced by the locking capability of the product. Unless the depressor is deliberately deflected, either manually or by withdrawal force applied directly to the optional housing, a terminal will not easily come off of the tab. Thus, the danger from exposed live parts or disruption of critical circuitry due to improperly seated or accidentally removed terminals is greatly reduced.

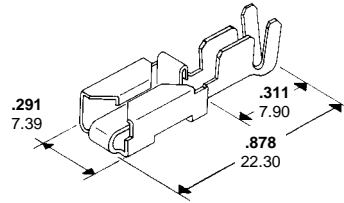
For complete product information, order Catalog 82004

Positive Lock Receptacles

Mark I 250 Series Receptacles

Stock Thickness: .016

■ Recognized under the
Component Program of
Underwriters
Laboratories Inc.,
UL File No. E28476



Wire Range AWG	Insulation Diameter	Material and Finish	Part Numbers			
			Receptacle	Quick Change Applicator No. ■	Hand Tool	
20-16	.090-.130 2.29-3.30	Brass/Pre-Tin	1-160759-1	X	567181-2	654174-1
	.135-.195 3.43-4.95	Brass/Tin	63812-1 ¹	X	680140-2	—
18-14	.095-.155 2.41-3.94	Brass/Tin	154718-3	X	466542-3	525651
	.140-.170 3.56-4.32	Brass/Tin	154717-3	X	466883-2	525651
12-10	.135-.200 3.43-5.08	Brass/Tin	790319-2	—	567417-2	—
12-10	.135-.200 3.43-5.08	Brass/Pre-Tin	790319-3	—	567417-2	—

¹"A" Style Housing only

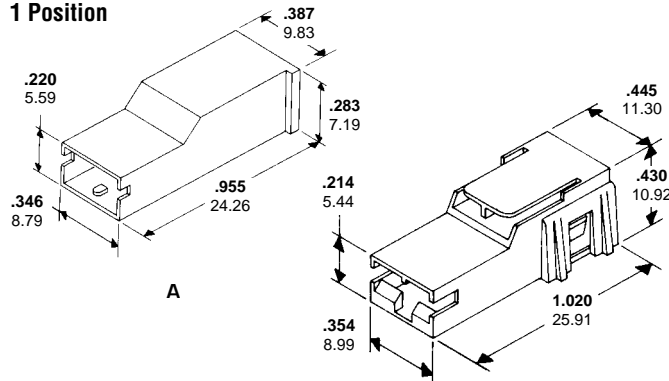
² Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, contact Tyco Electronics.

Receptacle Housings

Material:

94 V-2, 6/6 nylon

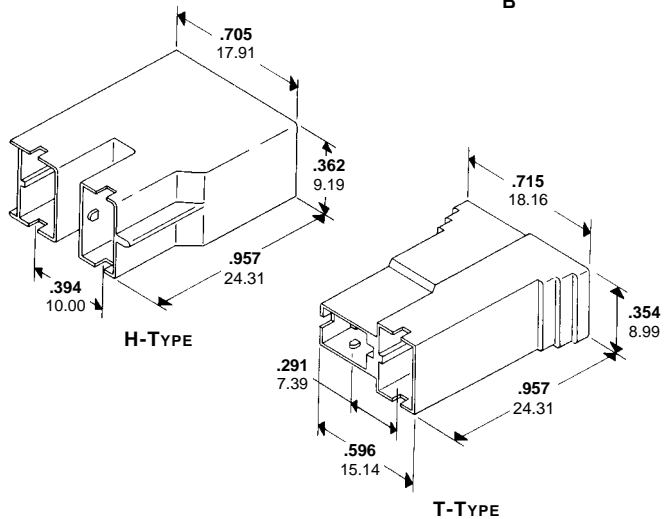
1 Position



Part No.	Style	Color
154719-0	A	Black
154719-1	A	Natural
520961-1 ¹	B	Black

¹Press-to-release with secondary lock

2 Position





Part No.	Style	Color
926521-2	H	Black

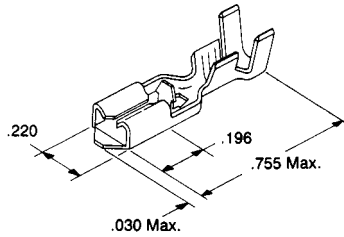
Part No.	Style	Color
926522-1	T	Black
926522-2	T	Natural

For complete product information, order Catalog 82004

Positive Lock Receptacles

Mark II 187 Series Receptacles

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E66717 and E28476 
- CSA Certified Report LR 7189A 



Wire Range AWG	Insulation Diameter	Tab Size	Material and Finish	Part Numbers	
				Receptacles	Quick Change Applicator No.*
24-20	.060-.110 1.52-2.79	.020 0.51	Brass/Pre-Tin	63407-2 ¹	567110
	.090-.130 2.29-3.30	.032 0.81	Brass/Tin	63313-1 ¹	567109
20-16	.090-.130 2.29-3.30	.020 0.51	Brass/Pre-Tin	63232-1 ¹	567109
				63520-1	567109-2

¹ Low profile—not for use in housing.

Receptacle Housings

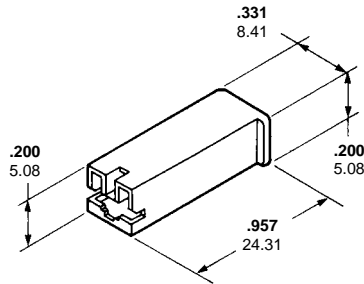
Material:

94 V-2, 6/6 nylon

Color:

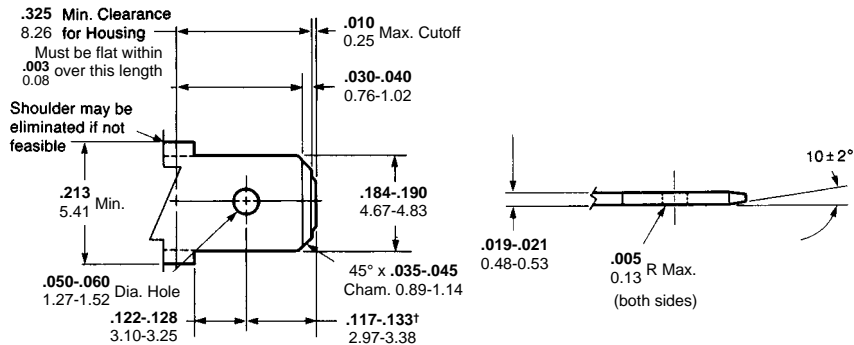
Natural

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- CSA Certified Report LR 7189A 



Part No. 521125-1 (.187 x .032)

Recommended Mating Tab Dimensions



* Quick-Change Applicator for AMP-O-LECTRIC Machine 565435-5. For AMPOMATOR Machine and other machines not listed, consult Tyco Electronics.

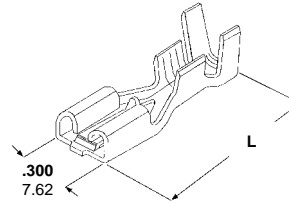
For complete product information, order Catalog 82004

Positive Lock Receptacles

Mark III 250 Series Receptacles

Stock Thickness: .016 Accepts .032 Tab

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- CSA Certified Report LR 7189A 



Wire Range AWG	Insulation Diameter	L	Material and Finish	Part Numbers	
				Receptacles	Quick Change Applicator No.
16-12 or 2 #18's	.120-.170 3.05-4.32	.771 19.58	Brass	1217092-1	680161-2
			Tin Plated Brass	1217092-2	
18-14	.090-.155 2.29-3.94	.771 19.58	Brass	63854-1	680161-2
			Tin Plated Brass	63854-2	
22-18	.060-.110 1.52-2.79	.770 19.56	Brass	63933-1	680161-2
			Tin Plated Brass	63933-2	

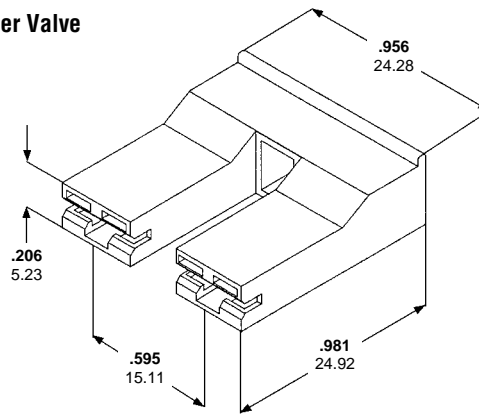
¹ Quick-Change Applicator Part No. with -1 is for a "T" terminating unit used in automatic machines; -2 is for a "K" AMP-O-LECTRIC bench machine.
³ Low profile—not for use in housing.

Receptacle Housings

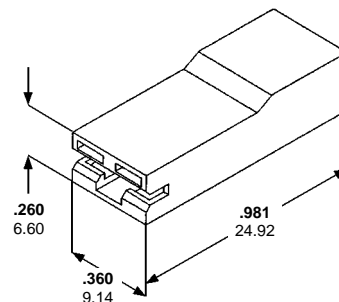
Material: 94 V-2, 6/6 nylon
Color: Natural

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- CSA Certified Report LR 7189A 

Water Valve



Part No. 521119-1



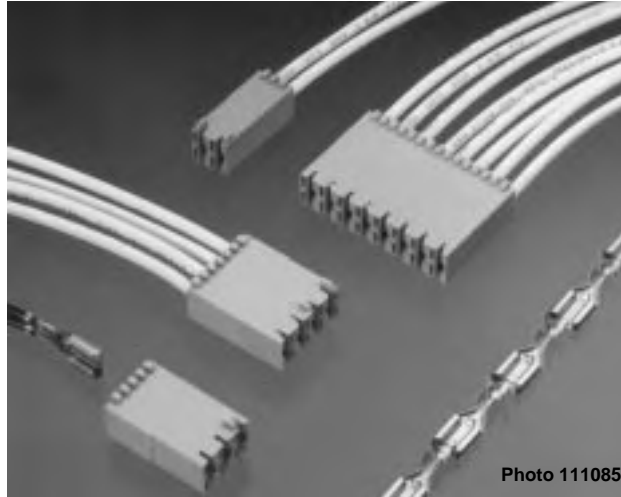
Part No. 521120-1

For complete product information, order Catalog 82004

AMP Positive Lock RAST 5 Connector System

Product Facts

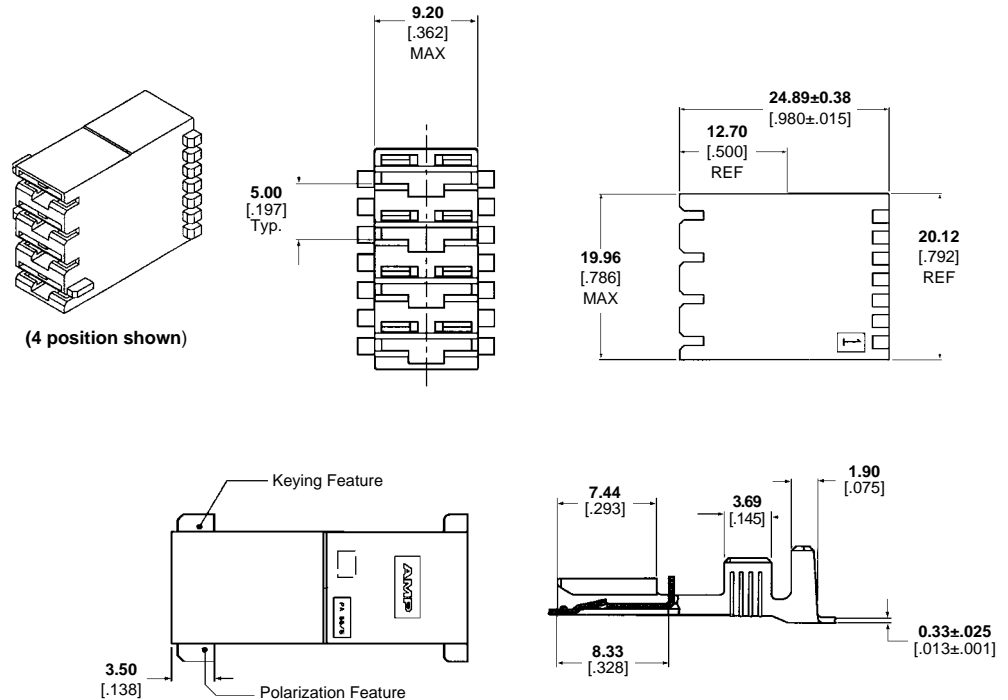
- Meets UL-310 specification for quick connect terminals
- 2 through 8 position housings
- Keying and polarization features
- Utilizes AMP Positive Lock Mark III Receptacles
- Terminals available for 18-14 AWG single wire or 18-16 AWG double wire applications
- Plain brass and tin plated terminals available



Material:

Housing: Type 6/66 Nylon, UL 94V-0 rated

Receptacles: Tin plated or plated brass, .013 material thickness



Housing Description	Housing Part Number
2 position	521204-1
3 position	521205-1
4 position	521206-1
5 position	521207-1
6 position	521208-1
7 position	521209-1
8 position	521210-1

Terminal Description	Terminal Part Number
18-14 AWG, brass	1217094-1
18-14 AWG, tin-plated brass	1217094-2
16-12 AWG or two 18 AWG wires, brass	1217095-1
16-12 AWG or two 18 AWG wires, tin plated brass	1217095-2

For complete product information, order Catalog 82004

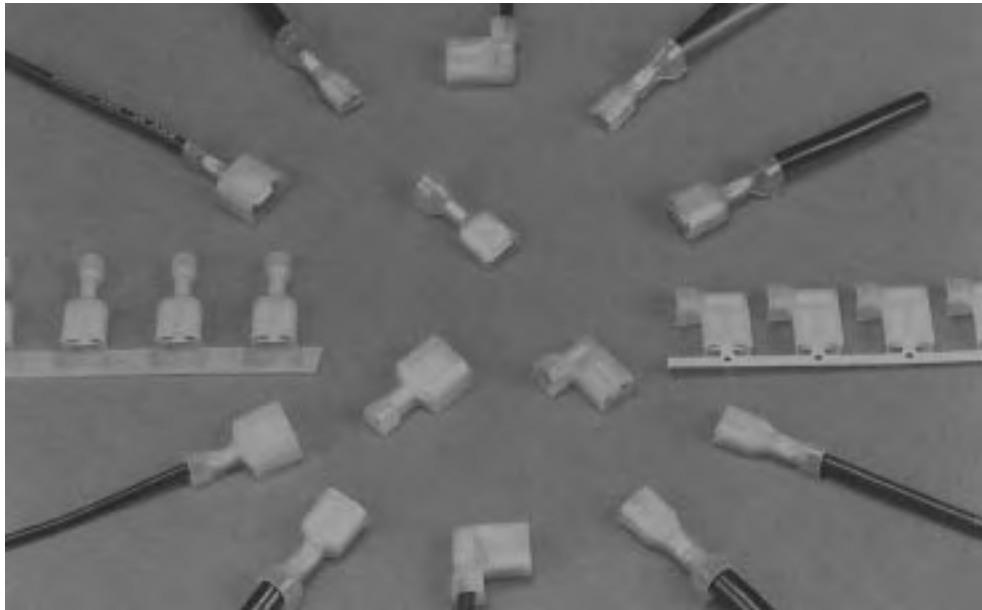
Ultra-Fast Fully Insulated FASTON Receptacles and Tabs

Performance Capabilities

- Meets UL-310 specification for quick connect terminals
- Meets CSA C22.2 No. 153 Specification for quick connect terminals
- Meets NEMA DC-2 Standard for quick connect terminals (Flag meets mechanical standard only)
- 600 volt application capability [1000 volts for signs and fixtures]

Product Facts

- One-piece Fully Insulated Premier quality FASTON Receptacle prevents shock and short hazards
- Designed to ensure correct lead-in of tab
- Designed to ensure full mating with a variety of tab styles including those with shoulders
- Funnel wire entry
- Wire stop
- Visual inspection of crimp and wire brush
- Assemblies are color coded by wire size
- Assemblies contain wire size and tab size designation
- Tab thickness marked on terminal and visible through housing
- Standard and large insulation diameter product
- Application tooling available to meet production requirements
- Tin-plated copper alloy terminals
- UL rated at +105°C
- Terminates 26-10 AWG solid, fused and stranded wire (Flags terminate stranded wire only)



The Ultra-Fast Fully Insulated FASTON Receptacle and Tab offers the advantage of a completely protected terminal and a wire crimp with comparable electromechanical performance to open barrel "F" crimp FASTON Terminals. The "User-Friendly" design combines easy mating with rounded corners. The .187 and .250 series receptacles incorporate a two-stage roll configuration and a cantilever mounted dimple which provides easy insertion and multiple independent points of contact for reduced tab interface resistance.

Ultra-Fast Fully Insulated FASTON Receptacles, Flag Receptacles and Tabs preclude the need for costly electrical safety interlocks or special protective shields to prevent shock hazards. In addition, electrical short circuits from exposed leads are eliminated, even in equipment requiring close contact spacing.

The Ultra-Fast Receptacle, Flag Receptacle and Tab are preinsulated assemblies featuring a housing molded from type 6/6 nylon material

with a +125°C UL temperature rating.

The Ultra-Fast Receptacle housing completely encloses a tin-plated copper alloy Premier FASTON receptacle which has been stress-relieved for increased durability and resistance to abuse. The FASTON receptacle is recessed sufficiently within the housing to allow its use in 600-volt applications. The front end of the terminal is designed for positive mating with a variety of tabs, including those with shoulders. The housing has a slotted membrane which is displaced by two tab shoulders allowing proper engagement of tab and receptacle while maintaining the fully insulated characteristic.

Positive entry and lead-in of the tab is assured by the inner housing wall and the lead-in on the terminal rolls. This permits positive engagement, even in blind mating locations.

The Ultra-Fast Tab housing completely encloses a tin-plated copper alloy FASTON tab. The FASTON

tab is recessed sufficiently within the housing to allow its use in 600-volt applications. The housing is designed to completely encapsulate the tab and receptacle when the two are mated.

Quality control is easily maintained. The nylon housing is translucent, allowing visual inspection of the termination. In addition, a crimp code on the hand tool is indented into the housing during the crimping operation which identifies that the proper crimp dies were used.

Depending on production requirements, Tyco Electronics provides a complete selection of terminating equipment including the AMP-O-ELECTRIC terminating machine and fully automatic AMPOMATOR, CLS II and CLS III lead-making machines.

■ **UL Listed under File No. E66717**



■ **CSA Certified under File No. LR 7189**



■ **VDE tested according to DIN VDE Reg. No.0627/9.91, VDE Reg. No.**



For complete product information, order Catalog 82004

Ultra-Fast Fully Insulated FASTON Receptacles and Tabs

Ultra-Fast Fully Insulated FASTON Receptacles

Material:

Housing—Nylon Type 6/6

Terminal—Tin-plated, copper alloy

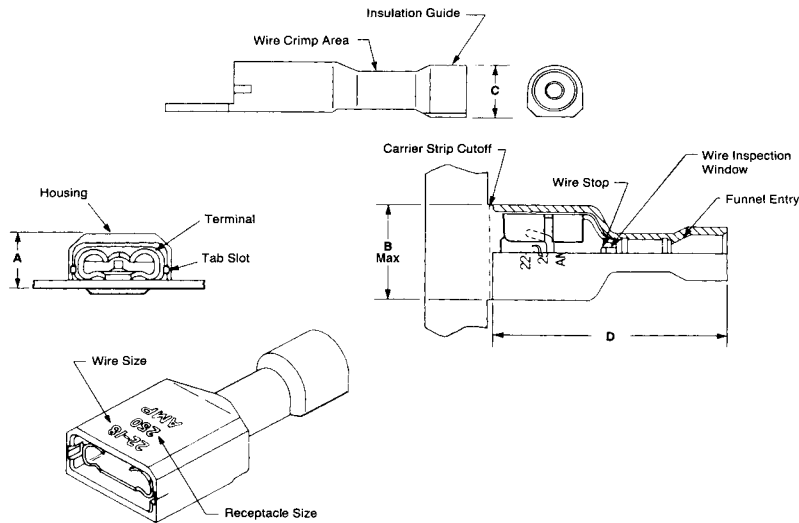
Color Code (Translucent)

Violet—26-22 AWG

Red—22-18 AWG

Blue—16-14 AWG

Yellow—12-10 AWG



Description	Wire Range AWG	Ins. Dia. Max.	Dimensions				Mating Tab	Terminal Base Material	Part Numbers		
			A	B	C	D			Strip	Loose Piece	
.110/.125 Series	26-22	.100 2.54	.145	.275	.138	.735	.020 x .110/.125 0.51 x 2.79/3.18	Brass	7-520365-2 ¹	7-520366-2 ¹	
			3.68	6.99	3.51	18.67	.016 x .110/.125 0.41 x 2.79/3.18	Brass	2-520080-2 ¹	2-520081-2 ¹	
	22-18	.120 3.05	.160	.275	.167	.735	.020 x .110/.125 0.51 x 2.79/3.18	Brass	2-520083-2	2-520084-2	
			4.06	6.99	4.24	18.67	.032 x .110/.125 0.81 x 2.79/3.18	Brass	2-520272-2	2-520273-2	
	16-14	.260 6.60	.175	.275	.325	.865	.020 x .110/.125 0.51 x 2.79/3.18	Brass	2-520306-2	—	
			4.45	6.99	8.26	21.97	.032 x .110/.125 0.81 x 2.79/3.18	Brass	2-520310-2	—	
	.187 Series	22-18	.230 5.84	.165	.336	.295	.935	.020 x .187 0.51 x 4.75	Brass	2-520306-2	—
				4.19	8.53	7.49	23.75	.032 x .187 0.81 x 4.75	Brass	2-520310-2	—
16-14		.260 6.60	.175	.275	.325	.865	.020 x .187 0.51 x 4.75	Brass	2-520261-2	—	
			4.45	6.99	8.26	21.97	.032 x .187 0.81 x 4.75	Brass	2-520274-2	2-520275-2	
22-18		.230 5.84	.165	.336	.295	.935	.020 x .187 0.51 x 4.75	Brass	2-520261-2	—	
			4.19	8.53	7.49	23.75	.032 x .187 0.81 x 4.75	Brass	2-520274-2	2-520275-2	
.205 Series	22-18	.135 3.43	.195	.409	.200	.855	.020 x .187 0.51 x 4.75	Brass	3-350815-2	3-350816-2	
			4.95	10.39	5.08	21.72	.032 x .187 0.81 x 4.75	Brass	3-520124-2	3-520125-2	
.250 Series	22-18	.135 3.43	.195	.409	.200	.855	.020 x .187 0.51 x 4.75	Brass	3-520150-2	3-520151-2	
			4.95	10.39	5.08	21.72	.032 x .187 0.81 x 4.75	Brass	3-520276-2	—	
	16-14	.260 6.60	.185	.336	.325	.935	.020 x .187 0.51 x 4.75	Brass	2-520183-2	2-520184-2	
			4.70	8.53	8.26	23.75	.032 x .187 0.81 x 4.75	Brass	2-520183-4	2-520184-4	
	12-10	.320 8.13	.250	.409	.388	.935	.032 x .250 0.81 x 6.35	Phos. Brz.	2-520263-2	2-520264-2	
			6.35	10.39	9.86	23.75	.032 x .250 0.81 x 6.35	Phos. Brz.	2-520263-4	—	
12-10	.320 8.13	.250	.409	.388	.935	.032 x .250 0.81 x 6.35	Brass	3-350819-2	3-350820-2		
		6.35	10.39	9.86	23.75	.032 x .250 0.81 x 6.35	Phos. Brz.	3-520116-2	3-520117-2		

For complete product information, order Catalog 82004

¹ UL Recognized, CSA Certified.

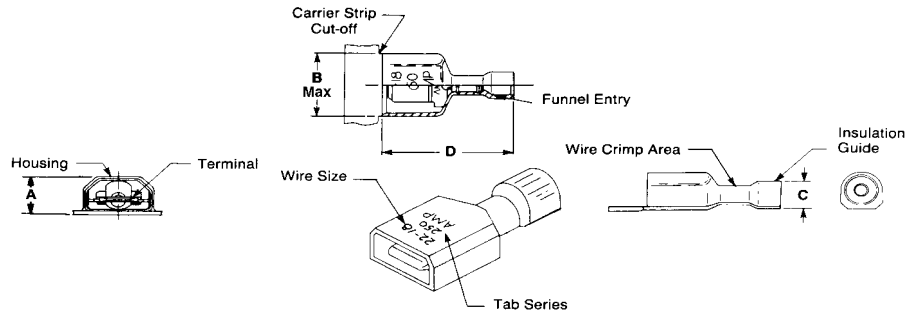
² UL Recognized 8 AMPS Max. CSA Certified.

Ultra-Fast Fully Insulated FASTON Receptacles and Tabs

Ultra-Fast Fully Insulated FASTON Tabs

Material:

- Housing**—Nylon Type 6/6
- Terminal**—Tin-plated, copper alloy
- Color Code (Translucent)**
- Red**—22-18 AWG
- Blue**—16-14 AWG

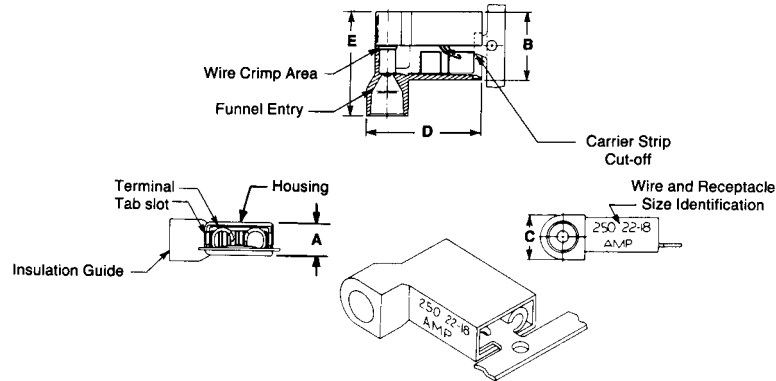


Description	Wire Range AWG	Ins. Dia Max.	Dimensions					Tab Size	Terminal Base Material	Part Numbers	
			A	B	C	D	Strip			Loose Piece	
.250 Series	22-18	.135	.290	.522	.205	.855	.032 x .250	Brass	2-520102-1	2-520103-2	
		3.43	7.37	13.26	5.21	21.72	0.81 x 6.35				
		.230	.290	.522	.295	.935	.032 x .250				
	16-14	5.84	7.37	13.26	7.49	23.75	0.81 x 6.35				
		.160	.290	.522	.230	.855	.032 x .250	Brass	3-520106-2	3-520107-2	
		4.06	7.37	13.26	5.84	21.72	0.81 x 6.35				
.260	.290	.522	.325	.935	.032 x .250						
12-10	6.60	7.37	13.26	8.26	23.75	0.81 x 6.35					
	.320	.352	.522	.388	.935	.032 x .250	Brass	4-521097-2	4-521098-2		
8.13	8.94	13.26	9.86	23.75	0.81 x 6.35						
.187 Series	22-18	.135	.250	.448	.205	.793	.020 x .187	Brass	2-521102-2	2-521103-2	
			3.43	6.35	11.38	5.21	20.14				0.51 x 4.75
		.032 x .187	0.81 x 4.75	Brass	2-521104-2	2-521105-2					

Ultra-Fast Fully Insulated FASTON Flag Receptacles

Material:

- Housing**—Nylon Type 6/6
- Terminal**—Tin-plated, copper alloy
- Color Code (Translucent)**
- Red**—22-18 AWG
- Blue**—16-14 AWG



Description	Wire Range ¹ AWG	Ins. Dia. Max.	Dimensions					Mating Tab	Terminal Base Material	Part Numbers				
			A	B	C	D	E			Strip	Loose Piece			
.187 Series	22-18	.165	.187	.320	.235	.636	.515	.020 x .187	Brass	2-520334-2	2-520335-2			
			4.19	4.75	8.13	5.97	16.15	13.08				0.51 x 4.75		
			.032 x .187	Brass	2-520336-2	2-520337-2								
	16-14	.185	.187				.320	.255	.632	.515	.020 x .187	Brass	3-520338-2	3-520339-2
			4.70				4.75	8.13	6.48	16.05	13.08			
			.032 x .187	Brass	3-520340-2	—								
.260	.187	.320	.325				.668	.565	.020 x .187	Brass	3-520997-2	—		
	6.60	4.75	8.13				8.26	16.97	14.35				0.51 x 4.75	
	.032 x .187	Brass	3-521247-2	—										
.205 Series	22-18				.165	.187	.385	.235	.636	.580	.032 x .205	Brass	2-521164-2	—
						4.19	4.75	9.78	5.97	16.15	14.73			
		.032 x .250	Brass	2-520128-2		2-520129-2								
.250 Series	22-18	.230			.187		.385	.295	.665	.630	.032 x .250	Brass	2-520856-2	—
					5.84		4.75	9.78	7.49	16.89	16.00			
			.032 x .250	Brass	3-520132-2	3-520133-2								
16-14	.185	.187	.385				.255	.632	.580	.032 x .250	Brass	3-520132-2	3-520133-2	
		4.70	4.75				9.78	6.48	16.05	14.73				0.81 x 6.35
		.032 x .250	Brass	3-521013-2	—									
.260	.187	.385				.325	.668	.630	.032 x .250	Brass	3-521013-2	—		
	6.60	4.75				9.78	8.26	16.97	16.00				0.81 x 6.35	

For complete product information, order Catalog 82004




¹ Stranded wire only.

Ultra-Fast Plus—Fully Insulated FASTON Receptacles and Tabs

Product Facts

- One-piece Fully Insulated Premier quality FASTON Receptacle with insulation crimp prevents shock and short hazards
- Designed to ensure correct lead-in of tab
- Designed to ensure full mating with a variety of tab styles including those with shoulders
- Funnel wire entry
- Wire stop
- Visual inspection of crimp and wire brush
- Assemblies are color-coded by wire size
- Assemblies contain wire size and tab size designation
- Tab thickness marked on terminal and visible through housing
- Application tooling available to meet production requirements
- Tin-plated copper alloy terminals
- UL rated at +105°C
- Terminates 22-14 AWG solid, fused and stranded wire
- Complies with the IEC 380, 601, 950, and UL 1950 requirements for a secondary means of insulation fixing

Performance Capabilities

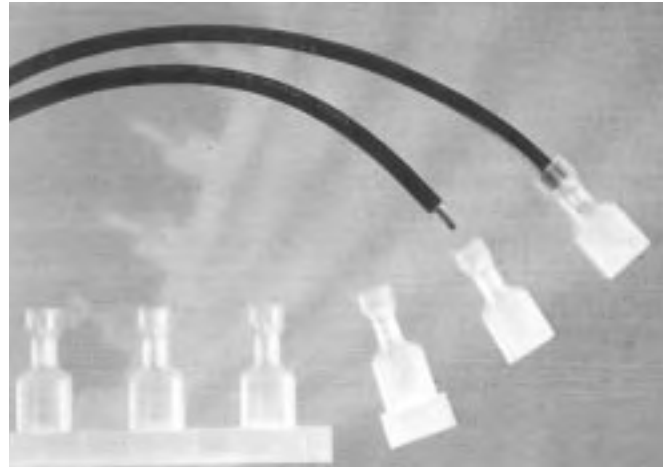
- Meets UL-310 specification for quick connect terminals; UL listed under File No. E-66717 
- Meets CSA C22.2, No. 153 Specification for quick connect terminals; CSA Certified under File No. LR 7189 
- VDE tested according to DIN VDE 0627/9.91, VDE Reg. No. 

- Meets NEMA DC-2 standard for quick connect terminals
- 600-volt application capability (1,000 volts for signs and fixtures)
- Tested by TUV File No. E9071003 as suitable for end product certification to the following standards:
 EN 60 950/09.87
 DIN IEC 380/VDE 0806/08.81
 DIN IEC 601-1 Part 1/VDE 0750 T1/05.82
 DIN VDE 0700 T1/02.81

Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs offer all the advantages of the standard Ultra-Fast product plus an insulation crimp.

Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs preclude the need for costly electrical safety interlocks or special protective shields to prevent shock hazards. In addition, electrical short circuits from exposed leads are eliminated, even in equipment requiring close contact spacing.

Ultra-Fast Plus Receptacles and Tabs are preinsulated assemblies featuring a co-molded housing produced from two different nylon materials. The receptacle/tab and wire barrel portions of the housing are molded from type 6/6 nylon material with a +125°C UL temperature rating. The insulation barrel is molded from a premium grade nylon selected to retain the insulation crimp shape. This premium nylon exhibits minimal springback, thus providing actual insulation crimp tensile strength as well as strain relief for applications where extreme wire dressing and/or vibration are present.



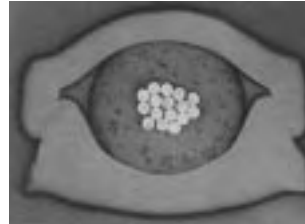
The Ultra-Fast Plus Receptacle housing completely encloses a tin-plated copper alloy Premier FASTON receptacle which has been stress relieved for increased durability and resistance to operator abuse. The FASTON receptacle is recessed sufficiently within the housing to allow its use in

This permits positive engagement, even in blind mating locations.

The Ultra-Fast Plus Tab housing completely encloses a tin-plated copper alloy FASTON tab. The FASTON tab is recessed sufficiently within the housing to allow its use in 600-volt applications. The housing is designed to completely encapsulate the tab and receptacle when the two are mated.

Quality control is easily maintained. The nylon housing is translucent, allowing visual inspection of the termination.

Depending on production requirements, Tyco Electronics provides a complete selection of terminating equipment including the AMP-O-ELECTRIC terminating machine and the fully automatic AMPOMATOR, CLSII and CLSIII lead-making machines.



600-volt applications. The front end of the terminal is designed for positive mating with a variety of tabs, including those with shoulders. The housing has a slotted membrane which is displaced by two tab shoulders allowing proper engagement of tab and receptacle while maintaining the fully insulated characteristics.

Positive entry and lead-in of the tab is assured by the inner housing wall and the lead-in on the terminal rolls.

For complete product information, order Catalog 82004

Ultra-Fast Plus—Fully Insulated FASTON Receptacles and Tabs

Ultra-Fast Plus—Fully Insulated FASTON Receptacles

Material:

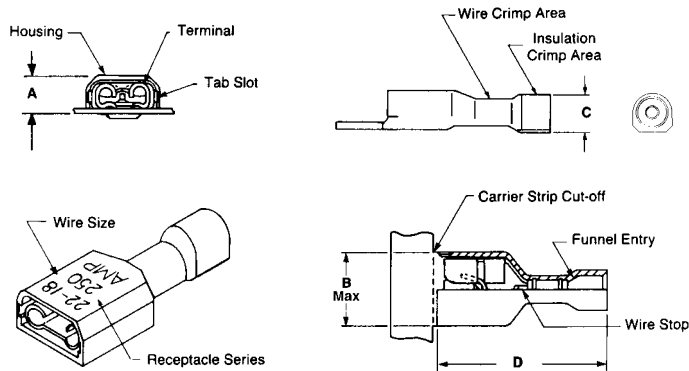
Housing—Nylon

Terminal—Tin plated, copper alloy

Color Code (Translucent)

Red—22-18 AWG

Blue—16-14 AWG



Description	Wire Range AWG	Ins. Dia. Range	Dimensions				Mating Tab	Terminal Base Material	Part Numbers	
			A	B	C	D			Strip	Loose Piece
.110/.125 Series	22-18	.060-.120 1.52-3.05	.160	.275	.167	.735	.032 x .110/.125 0.81 x 2.79/3.18	Brass	2-520979-2	—
			4.06	6.99	4.24	18.67	.020 x .110/.125 0.51 x 2.79/3.18			
.187 Series	22-18	.060-.135 1.52-3.43	.165	.336	.200	.855	.020 x .187 0.51 x 4.75	Brass	2-520401-2	2-520409-2
			4.24	8.53	5.08	21.72	.032 x .187 0.81 x 4.75			
	16-14	.090-.160 2.29-4.06	.185	.336	.225	.855	.020 x .187 0.51 x 4.75	Brass	3-520402-2	3-520410-2
			4.70	8.53	5.72	21.72	.032 x .187 0.81 x 4.75			
.250 Series	22-18	.060-.135 1.52-3.43	.195	.409	.200	.855	.032 x .250 0.81 x 6.35	Brass	2-520405-2	2-520407-2
			4.95	10.39	5.08	21.72	.032 x .250 0.81 x 6.35			
	16-14	.090-.160 2.29-4.06	.195	.409	.225	.855	.032 x .250 0.81 x 6.35	Brass	3-520406-2	3-520408-2

Ultra-Fast Plus—Fully Insulated FASTON Tabs

Material:

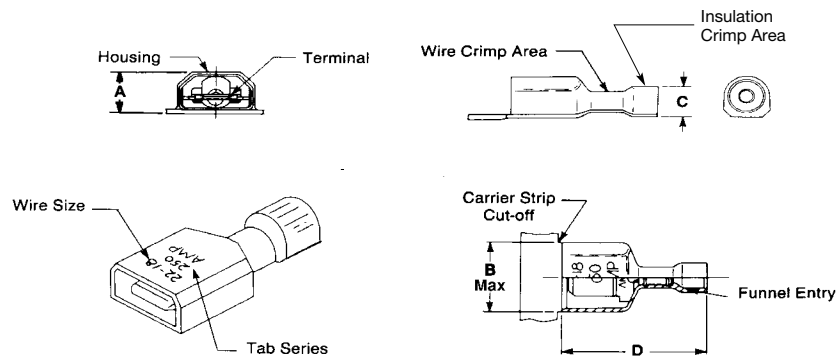
Housing—Nylon Type 6/6

Terminal—Tin plated, copper alloy

Color Code (Translucent)

Red—22-18 AWG

Blue—16-14 AWG






Description	Wire Range AWG	Ins. Dia. Range	Dimensions				Mating Tab	Terminal Base Material	Part Numbers	
			A	B	C	D			Strip	Loose Piece
.250 Series	22-18	.060-.135 1.52-3.43	.290	.522	.205	.855	.032 x .250 0.81 x 6.35	Brass	2-521055-2	—
			7.37	13.26	5.21	21.72	.032 x .250 0.81 x 6.35			
	16-14	.090-.160 2.29-4.06	.290	.522	.230	.855	.032 x .250 0.81 x 6.35	Brass	3-521057-2	—

For complete product information, order Catalog 82004

Ultra-Pod Fully Insulated FASTON Receptacles and Tabs

Product Facts

- Reduced insertion force
- Designed to ensure correct lead-in of tab
- Mates with typical NEMA DC-2 187 and 250 Series tab styles including those with shoulders
- UL rated at +105°C
- 187 Series accepts 20-16 AWG [0.5–1.4mm²] wire and 250 Series accepts 22-12 AWG [0.3–3 mm²] wire
- Visual inspection of crimp and wire brush
- Terminated by automatic or semi-automatic equipment to meet production requirements
- Complies with the IEC 380, 601 and 950 and UL 1950 requirements for a secondary means of insulation fixing
- Listed by Underwriters Laboratories Inc., File No. E66717 
- CSA Certified, File No. LR 7189 
- VDE tested according to DIN VDE 0627/9.91, VDE Reg. No. 

Technical Documents:

Product Specification

108-1285

Application Specification

114-2124

Hand Tools—Insertion

187 Series—314920-1

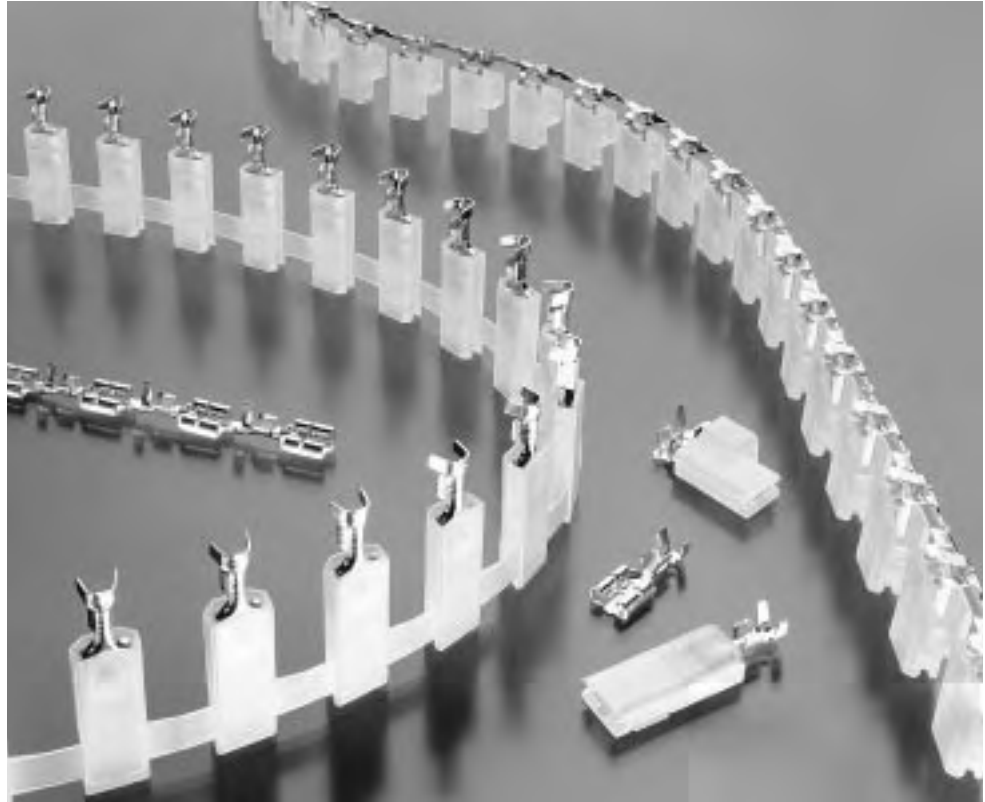
250 Series—314916-1

250 Series Flag—314919-1

Hand Tools—Extraction

187 Series—314918-1

250 Series—314917-1



Ultra-Pod Fully Insulated Receptacles offer the newest in one-step automatic application of insulated quick connects. The unique integral plastic carrier designed specifically for this product allows insulated F-Crimp terminations to be produced quickly and easily. Applied cost savings are attainable with either bench or high-speed automatic termination equipment and the elimination of any secondary insulation operations. Both the crimping of the terminal and the terminal insulating occur in a single stroke of the press and applicator—the crimping on the down-stroke and the insulating on the up-stroke.

The receptacles contained within the Ultra-Pod

FASTON Receptacle assemblies are proven, tested and customer qualified and can be immediately used in existing applications where insulation has been accomplished by other means. The low insertion force design provides easier tab insertion, reduces operator fatigue and improves the productivity and reliability of the end assembly operation.

The translucent insulating housing is produced by a unique molding process which provides an integral carrier and eliminates the crimp location problems related to secondary carriers. This housing, produced from 125°C rated 6/6 nylon, covers the FASTON receptacle sufficiently to provide for

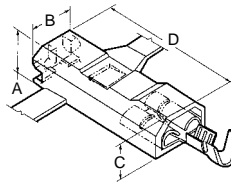
use in 600-volt applications. Most importantly, this insulating system eliminates the workplace hazards and labor costs of chemically expanded or heat shrink tubing.

Depending on production requirements, Tyco Electronics provides a complete selection of terminating equipment including the AMP-O-ELECTRIC terminating machine and fully automatic AMPOMATOR, CLSII, and CLSIII lead-making machines.

For complete product information, order Catalog 82004

Ultra-Pod Fully Insulated FASTON Receptacles and Tabs

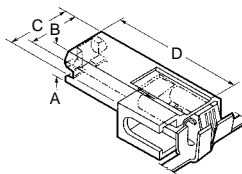
Insulation Support



Description	Wire Range	Ins. Dia. Range	Dimensions				Mating Tab	UL94 ¹	Color	Material and Finish	Part Numbers
			A	B	C	D					
.110 Series	22-18	.080-.120 2.03-3.05	.151	.224	.205	.805	.020 x .187 0.51 x 4.75	V2	Natural	Brass	521288-1
			3.82	5.69	5.21	20.45				Tin Plated Brass	521288-2
.187 Series	20-16	.090-.130 2.29-3.30	.170	.295	.200	.775	.020 0.51	V2	Natural	Brass	520973-1
										Tin Plated Brass	520973-2
										Brass	521225-1
										Tin Plated Brass	521225-2
										Brass	520982-1
										Tin Plated Brass	520982-2
18-16	.105-.210 2.67-5.33	.170	2.95	.200	.775	.020 0.51	V2	Natural	Brass	521293-1	
									Tin Plated Brass	521293-2	
.250 Series	22-18	.090-.130 2.29-3.30	.195	.370	.225	.945	.032 0.81	V2	Natural	Brass	520988-1
										Tin Plated Brass	520988-2
										Brass	521368-1
										Tin Plated Brass	521368-2
										Brass	520963-1
										Tin Plated Brass	520963-2
18-14	.120-.170 3.05-4.32	.195	.370	.225	.950	.032 0.81	V0	Natural	Brass	521367-1	
									Tin Plated Brass	521367-2	
									Tin Plated Brass	521011-2	
									Nickel Plated Steel	521011-1	
14-10	.130-.180 3.30-4.57	.195	.370	.225	.950	.032 0.81	V2	Natural	Brass	520974-1	
									Tin Plated Brass	520974-2	
							V0	Natural	Brass	521366-1	
									Tin Plated Brass	521366-2	

¹ Flammability rating of plastic material.

Flag Insulation Support



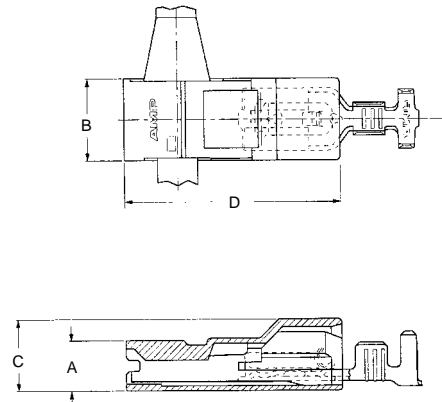
Description	Wire Range AWG	Ins. Dia. Range	Dimensions				Mating Tab	UL 94 ¹	Color	Material and Finish	Part Numbers
			A	B	C	D					
.250 Series	22-18	.110-.160 2.79-4.06	.200	.370	.585	.680	.032 0.81	V2	Natural	Tin Plated Brass	521050-2
										Brass	520971-1
	18-14	.110-.160 2.79-4.06	.200	.370	.585	.680	.032 0.81	V2	Natural	Tin Plated Brass	520971-2
										Black	520971-4
	18-14 (2)-20	(2) .105 Max. 2.66	.200	.370	.585	.680	.032 0.81	V0	Natural	Brass	521282-1
										Tin Plated Brass	521282-2
							V2	Natural	Brass	521112-1	

¹ Flammability rating of plastic material.

For complete product information, order Catalog 82004

Ultra-Pod Fully Insulated FASTON Receptacles and Tabs

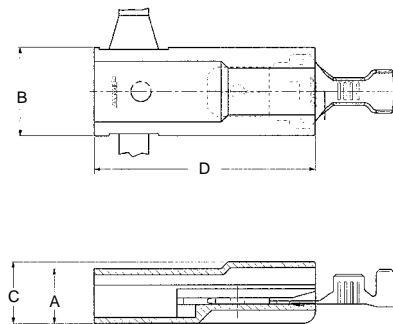
Positive Lock Insulation Support



Description	Wire Range	Ins. Dia. Range	Dimensions				Mating Tab	UL94 ¹	Color	Material and Finish	Part Numbers		
			A	B	C	D							
.187 Series	18-14	.110-.180 2.79-4.57	.186	.307	.265	.812	.020	V2	Natural	Brass	521271-1		
			4.72	7.80	6.73	20.62				0.51	Tin Plated Brass	521271-2	
.250 Series	18-14	.110-.180 2.79-4.57	.205	.370	.245	.950	.032	V2	Natural	Brass	521213-1		
			.521	9.40	6.22	24.13				0.81	Tin Plated Brass	521213-2	
												Brass	521317-1
												Tin Plated Brass	521317-2

¹ Flammability rating of plastic material.

Tabs Insulation Support



Description	Wire Range	Ins. Dia. Range	Dimensions				Tab	UL94 ¹	Color	Material and Finish	Part Numbers
			A	B	C	D					
.250 Series	18-14	.130-.180 3.30-4.57	.275	.450	.310	1.120	.032	V2	Natural	Brass	521217-1
									Tin Plated Brass	521217-2	

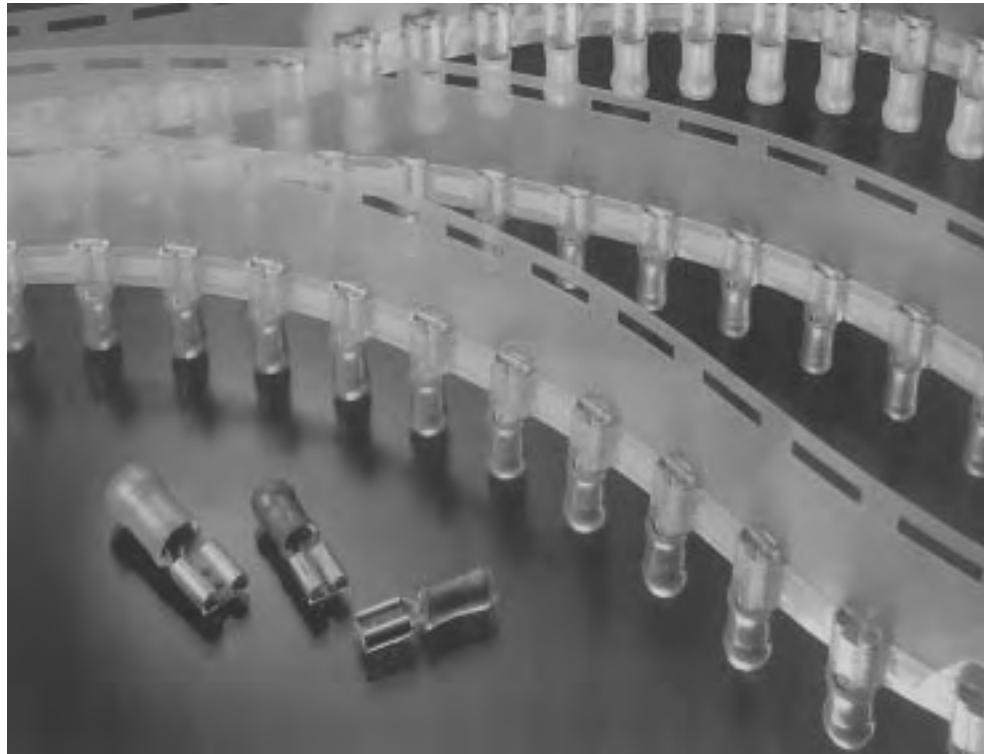
¹ Flammability rating of plastic material.

For complete product information, order Catalog 82004

PIDG FASTON Receptacles

Product Facts

- Basic terminal is tin-plated brass
- Color-coded by wire range to help eliminate errors during installation
- Serrations, inside barrel, provide maximum contact and tensile strength after crimping
- Special designed copper sleeve fits over terminal barrel, providing circumferential insulation support to the wire
- Temperature rating of 105°C





Here is a pre-insulated terminal designed for complete and uniform reliability in the most difficult circuit environment. Each PIDG Terminal consists of a tin-plated brass body with a specially designed copper sleeve and insulation sleeve fitted over the terminal barrel. The design of the tool dies and the construction of the terminal insures uniform insulation thickness under crimping pressure, transmitting this pressure evenly to the center of the crimp area.

AMP compression crimping produces crimps for a given size wire and terminal that are precisely alike in appearance and performance. This is a calculated result made possible by designing the terminal and the crimping tool as precisely matched devices. The dies are precision-engineered from the finest hard-metal alloys. Crimping pressure is controlled by a ratchet device on the hand tool or a corresponding pre-calibration in the crimping jaws of AMP automated crimping machines.

Crimping pressure can neither over-stress nor understress the terminal-barrel—machined dies fully bottom to the precise crimp height required.

The resulting termination is free of contamination, is extremely resistant to shock and critical environments, and its tensile strength approaches that of the wire itself.

Temperature Rating: 105°C

Wire Range	 E66717 Recognized	 LR7189 Certified
22-16	22-16 Stranded	300 V Max., 105°C Max. ¹
16-14	16-14 Stranded	
12-10	12-10 Stranded	

¹ UL and CSA—Nylon.

For complete product information, order Catalog 82004

PIDG FASTON Receptacles

Receptacle Style

- A—No dimple with wire stop
B—Dimple with wire stop

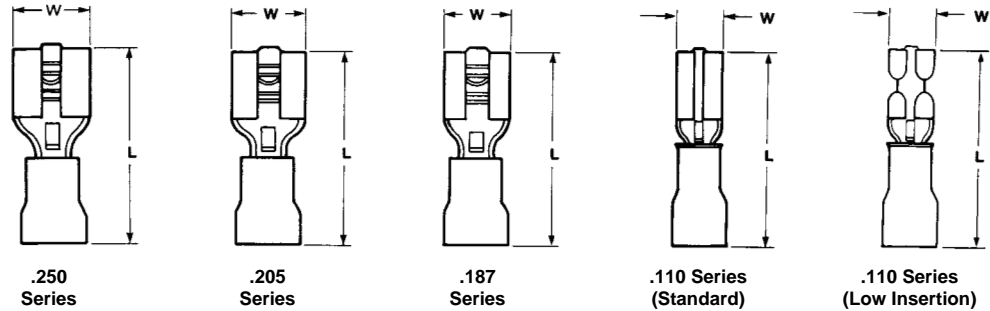
Material:

Receptacle—Brass per MIL-C-50 or Phos. Bronze per QQ-B-750

Metallic Sleeve—Copper per QQ-C-576

Plating—Tin plate per MIL-T-10727

Insulation—Nylon



Series	Style	Wire Size Range		Dimensions		Terminal Insulation Color	Wire Insulation Diameter Max.	Recept. Matl.	Stock Thk.	Fits Tab Thk.	Part Numbers		
		AWG	CMA	W Nom.	L Max.						Loose Piece	Tape Mounted	Strip Form
.250	B	14-12	3,831-6,654	.300 7.62	1.012 25.70	Green	.250 6.35	Brass	.018 0.46	.032 0.81	—	—	60544-33*
											Phos. Brz.	.018 0.46	.032 0.81
.205	B	22-18	509-1,900	.250 6.35	.800 20.32	Red	.135 3.43	Brass	.016 0.41	.020 0.51	640909-1	640909-2	—
												.032 0.81	640911-1
.187	B	16-14	2,050-5,180	.250 6.35	.800 20.32	Blue	.170 4.32	Brass	.016 0.41	.020 0.51	640913-1	640913-2	—
												.032 0.81	640915-1
.110	B	26-24	238-475	.230 5.84	.700 17.78	Yellow	.085 2.16	Brass	.016 0.41	.020 0.51	641321-13*	—	—
												.032 0.81	—
.110	B	22-18	509-1,900	.230 5.84	.800 20.32	Red	.135 3.43	Brass	.016 0.41	.020 0.51	—	—	640916-1
												.032 0.81	—
.110	B	22-18	509-1,900	.148 3.76	.734 18.64	Trans.	.100 2.54	Brass	.012 0.30	.016 0.41	61048-11,3*	—	—
												.032 0.81	—
.110	A	22-18	509-1,900	.148 3.76	.734 18.64	Trans.	.100 2.54	Brass	.012 0.30	.020 0.51	—	61060-21,3*	—
												.032 0.81	60894-11,3*
.110	A	22-18	509-1,900	.160 4.06	.800 20.32	Red	.140 3.56	Brass	.016 0.41	.020 0.51	640923-12	640923-22	640922-12
												.032 0.81	640929-12
.110	A	16-14	2,050-5,180	.160 4.06	.800 20.32	Blue	.170 4.32	Brass	.016 0.41	.020 0.81	640931-12	640931-22	—
												.032 0.81	640931-12

¹ Standard receptacle.

² Low insertion receptacle.

³ Contact Technical Support Center for Tooling Application.

Note: All the above part numbers are UL Recognized and CSA Certified except those part numbers followed by an asterisk(*).

PIDG FASTON Tooling

Wire Size	Hand Tool	Tools for Tape Mounted Terminations			Tools for Strip Form Terminations
		Tape Dies for 69875 TAPETRONIC No Applicator Required	Tape Dies for AMP-O-LECTRIC Model "G" Applicator 567200-3	Tape Dies for AMPOMATOR CLS III G, CLS IV Applicator 687658-1	AMPOMATOR CLS III G, CLS IV Applicators
26-24	48518-2	69877-2	69877-2	69877-2	—
22-18	59824-1	59826-1	59826-1*	59826-1	466788-3 ²
22-18 (Natural)	90185-1	90248-2	90248-2	90248-2	466554-3
16-14	59824-1	59827-1	59827-1*	59827-1	466789-3 ²
14-12	90246-1	90240-2	90240-2	90240-2	—
12-10	59824-1	59828-1	59828-1*	59828-1	466790-4 ²

*Only UL and CSA approved.

¹AMP-O-LECTRIC Model "K" 565435-5 uses applicator 567200-2.

²Die included with applicator.

For complete product information, order Catalog 82004

Technical Documents

Various technical documents are available for your use:

Production Specifications describe technical performance, characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-2000	.250 Hermetic
108-2002	.187 Modular FASTIN-FASTON
108-2017	Ultra-Fast FASTON Tabs
108-2043	Ultra-Fast FASTON Receptacles
108-2044	Ultra-Fast Plus FASTON Receptacles
108-1033	PIDG FASTON Receptacles
108-1062	PIDG FASTON Receptacles TETRA-CRIMP Hand Tool
108-1285	Ultra-Pod FASTON Receptacles
108-3017	Positive Lock Mark I
108-5126	.187 Positive Lock Mark II
108-5127	.250 Positive Lock Mark II

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging Design Engineer and the Machine Setup Person.

114-2023	FASTIN-FASTON Receptacle and Tab Contacts, 187 Series
114-2025	FASTIN-FASTON Receptacles and Tab Contacts, 250 Series
114-2028	Flag Receptacle Contacts, .110 Series
114-2032	Reversible Flag, 250 Series
114-2036	FASTON Receptacle Contacts, All Series (110, 187, 205, 250 and 312)
114-2065	FASTIN-FASTON Receptacle Contacts, All Series (110, 187, 205 and 312)
114-2070	AMPLIVAR FASTON Tab Contact
114-2074	Positive Lock Receptacles, Mark II and Mark III
114-2078	FASTON Tab-Lok Contacts, 187, 205 and 250 Series
114-2079	F-Crimp Flag Receptacle
114-2082	Piggyback Flag Tab, All Series
114-2097	High-temperature FASTON Tab
114-2123	Ultra-Fast, Ultra-Fast Flag and Ultra-Fast Plus FASTON Terminals
114-2124	Ultra-Pod FASTON Fully Insulated Receptacles
114-2126	Center Strip Flag FASTON
114-2144	AMPLIVAR Receptacles, All Series
114-2146	AMPLIVAR F-F Tabs
114-2152	AMPLIVAR Tabs and Receptacles
114-35000	Wire Preparation and Crimp Inspection Guide

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

For complete product information, order Catalog 82004

Introduction

**Operating Temperatures of
Materials and Finishes**

Brass, phosphor bronze and steel are the normal materials for AMP Terminals. Various finishes are available.

Brass**Plain**

Allowable Connection Temperature: 90°C

Plain brass is used frequently, where applications have optional environmental conditions.

Tin Plated

Allowable Connection Temperature: 100°C

Tin plating of receptacle and tab creates satisfactory operation at higher temperatures, and in addition protects the connection against corrosion.

Silver Plated

Allowable Connection Temperature: 130°C

Silver plating connections allow the highest operating temperature for brass and a higher current carrying capacity than plain and tin plated brass.

Phosphor Bronze**Plain**

Allowable Connection Temperature: 90°C

Phosphor bronze is used in applications where brass would normally be corroded, for example the various freezing mixtures and ammonias.

Tin Plated

Allowable Connection Temperature: 110°C

Tin plated phosphor bronze for higher temperatures; additional corrosion protection over plain phosphor bronze.

Silver Plated

Allowable Connection Temperature: 130°C

Silver plated connections allow the highest operating temperature for phosphor bronze and higher current carrying capacity than plain and tin plated phosphor bronze.

Steel**Nickel Plated**

Allowable Connection Temperature: 250°C

This combination allows a reliable connection at high temperatures, for example in stoves, cooking appliances, etc. To assure optimum performance, these nickel-plated receptacles are used with compatible lead wires and tabs that can be welded to heating units.

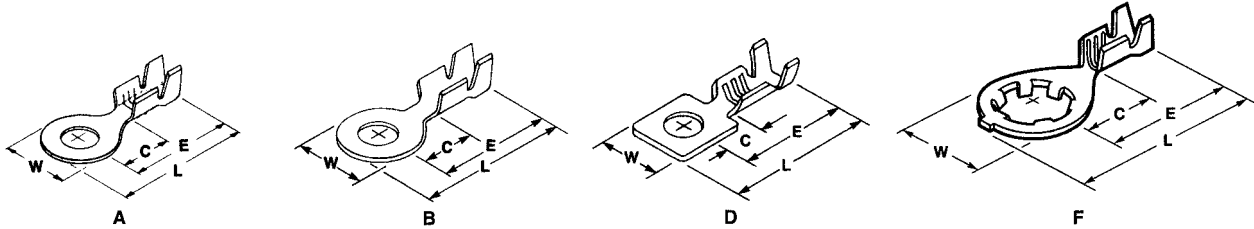
Many Part Numbers are recognized under the Component Program of Underwriters Laboratories, Inc., File No. E13288 and Certified by Canadian Standards Association File No. LR 7189.



Contact Product Engineering for details.

For complete product information, order Catalog 82227

Ring Tongue Terminals, Insulation Support

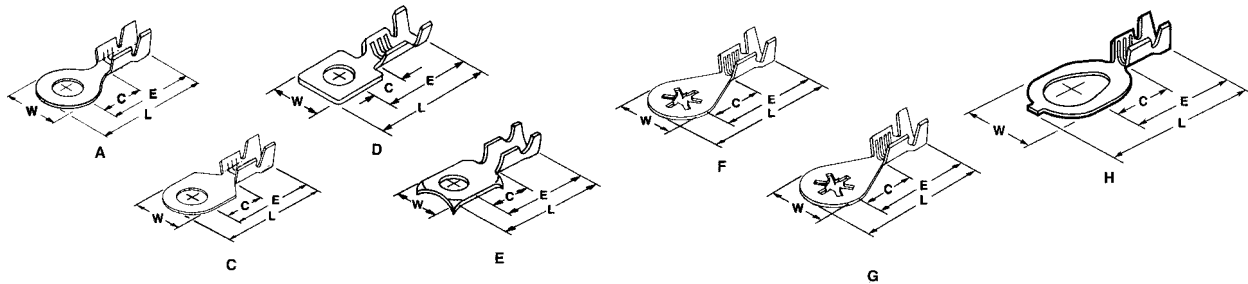


Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
D	26-24	0.12-0.6	.035-.065 0.89-1.65	.094 2.39	.012 0.31	Brass	.156 3.96	.375 9.53	.295 7.49	.109 2.77	61653-1	466185-2	466185-1
A	24-20	0.2-0.6	.080-.100 2.03-2.54	8	.020 0.51	Tin-Plated Brass	.290 7.37	.630 16.00	.485 12.32	.250 6.35	41581	687881-3	687881-1
			.048-.078 1.22-1.98	8	.020 0.51	Tin-Plated Brass	.312 7.93	.770 19.56	.615 15.62	.405 10.29	42508-2	687961-2	687961-1
A	22-18	0.3-0.9	.070-.100 1.78-2.54	1/4"	.030 0.76	Tin-Plated Brass	.468 11.89	.982 24.92	.748 19.00	.437 11.10	41711	687843-2	687843-1
			.080-.110 2.03-2.79	8	.020 0.51	Brass	.296 7.52	.662 16.81	.514 13.06	.234 5.94	42036-1	687873-2	687873-1
			.080-.110 2.03-2.79	10	.020 0.51	Brass	.296 7.52	.662 16.81	.514 13.06	.234 5.04	42036-2	687873-2	687873-1
			.080-.110 2.03-2.79	8	.020 0.51	Tin-Plated Brass	.296 7.52	.662 16.81	.514 13.06	.234 5.04	42037-1	687832-2	687873-1
			.080-.110 2.03-2.79	10	.020 0.51	Tin-Plated Brass	.296 7.52	.662 16.81	.514 13.06	.234 5.04	42037-2	687832-2	687873-1
			.120-.170 3.05-4.32	8	.020 0.51	Nickel-Plated Steel	.296 7.52	.637 16.18	.494 12.55	.234 5.94	485003-1	466446-2	466446-1
F	22-16	0.3-1.4	.100-.140 2.54-3.56	.181 4.60	.025 0.64	Tin-Plated Steel	.370 9.40	.772 19.61	.587 14.91	.282 7.16	61556-1	466123-2	466123-1
A	20-16	0.5-1.4	.100-.140 2.54-3.56	8	.025 0.64	Tin-Plated Brass	.342 8.69	.784 19.91	.612 15.54	.312 7.93	41456	687855-2	687855-1
B	20-16	0.5-1.4	.090-.120 2.29-3.05	6	.025 0.64	Brass	.230 5.59	.460 11.68	.352 8.94	.165 4.19	61764-1	466370-2	—
			.100-.135 2.54-3.43	6	.025 0.64	Tin-Plated Brass	.246 6.25	.467 11.86	.352 8.94	.165 4.19	41472	687819-2	687819-1
D	20-16	0.5-1.4	.075-.110 1.91-2.79	3	.025 0.64	Brass	.204 5.18	.460 11.68	.352 8.94	.165 4.19	42065	687821-3	687821-1
B	20-16	0.5-1.4	.075-.110 1.91-2.79	3	.025 0.64	Brass	.246 6.25	.460 11.68	.352 8.94	.165 4.19	42721-1	687821-3	687821-1
A	20-16	0.5-1.4	.100-.140 2.54-3.56	10	.030 0.76	Br. Tin-Plated Brass	.342 8.69	.784 19.91	.612 15.54	.312 7.92	640008-1	466052-2	466052-1
A	20-16	0.5-1.4	.080-.120 2.03-3.05	1/4"	.020 0.51	Brass	.468 11.89	.982 24.94	.748 19.00	.437 11.10	60700-3	466094-2	466094-1
A	18-14	0.8-2.0	.100-.140 2.54-3.56	6	.030 0.76	Tin-Plated Brass	.342 8.69	.784 19.91	.613 15.57	.305 7.75	40723	687858-3	687858-1
			.100-.140 2.54-3.56	10	.030 0.76	Brass	.342 8.69	.784 19.91	.613 15.57	.305 7.75	40661	687858-3	687858-1
			.100-.140 2.54-3.56	10	.030 0.76	Tin-Plated Brass	.342 8.69	.784 19.91	.613 15.57	.305 7.75	40725	687858-3	687858-1
			.120-.170 3.05-4.32	6	.020 0.51	Brass	.296 7.52	.640 16.26	.494 12.55	.234 5.94	41558	687811-3	687811-1

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

For complete product information, order Catalog 82227

Ring Tongue Terminals, Insulation Support



Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
A	18-14	0.8-2.0	.120-.170 3.05-4.32	8	0.51	Brass	.296	.640	.494	.234	41559*	687811-3	687811-1
							7.52	16.26	12.55	5.94			
						Tin-Plated Brass	.296	.640	.494	.234	41332*	687811-3	687811-1
							7.52	16.26	12.55	5.94			
						Brass	.296	.640	.494	.234	41560*	687811-3	687811-1
							7.52	16.26	12.55	5.94			
	Tin-Plated Brass	.296	.640	.494	.234	41333*	687811-3	687811-1					
		7.52	16.26	12.55	5.94								
	18-14	0.8-2.0	.100-.140 2.54-3.56	8	0.46	Brass	.295	.734	.586	.282	60771-1	466095-2	466095-1
							7.49	18.64	14.88	7.16			
						Tin-Plated Brass	.295	.734	.586	.282	60771-2	466095-2	466095-1
							7.49	18.64	14.88	7.16			
Tin-Plated Brass						.342	.783	.612	.305	60625-1	466065-2	466065-1	
						8.69	19.89	15.55	7.75				
Tin-Plated Brass	.490	1.050	.810	.460	61867-2	687784-2	687784-1						
	12.45	26.68	20.57	11.68									
F	18-14	0.8-2.0	.105-.145 2.67-3.68	8	0.61	Stainless Steel	.370	.772	.587	.282	640051-1*	466192-5	466192-4
							9.40	19.61	14.91	7.16			
						Tin-Plated Steel	.370	.772	.587	.282	61794-1	466192-5	466192-4
							9.40	19.61	14.91	7.16			
						Brass	.370	.772	.587	.282	61794-4	466192-5	466192-4
							9.40	19.61	14.91	7.16			
						Tin-Plated Steel	.370	.772	.587	.282	350436-2	466192-5	466192-4
							9.40	19.61	14.91	7.16			
						Tin-Plated Brass	.445	.772	.587	.282	61795-3	466192-5	466192-4
							11.30	19.61	14.91	7.16			
Stainless Steel	.687	1.245	.908	.495	63602-1*	687787-2	687787-1						
	17.45	31.62	23.06	12.57									
C	18-14	0.8-2.0	.085-.140 2.16-3.56	1/4"	0.64	Tin-Plated Brass	.470	.930	.705	.340	485029-1	687436-8	687436-4
A	18-14	0.8-2.0	.120-.170 3.05-4.32	8	0.51	Tin-Plated Brass	.296	.640	—	.234	1217160-1	687811-3	687811-1
H	18-14	0.8-2.0	.120-.170 2.03-4.32	6-10	0.41	Pre-Tin-Plated Brass	.300	.755	.595	.280	350981-2	466649-2	466649-1
A	18-14	0.8-2.0	.140-.190 3.56-4.83	8	0.76	Tin-Plated Brass	.342	.784	.608	.305	640102-1	466140-2	466140-1
A	16-14	1.4-2.0	.120-.180 3.05-4.57	6.53	0.76	Tin-Plated Brass	.470	1.046	.811	.384	42751-2	687969-2	687969-1
							11.94	26.57	20.60	9.75			
						Phos. Bronze	.470	1.046	.811	.384	42751-3	687969-2	687969-1
							11.94	26.57	20.60	9.75			
						Tin-Plated Brass	.470	1.046	.811	.384	42938-2	687969-2	687969-1
11.94	26.57	20.60	9.75										
Tin-Plated Brass	.470	1.046	.811	.384	42752-2	687969-2	687969-1						
	11.94	26.57	20.60	9.75									
D	14-12	2.0-3.0	.170-.210 4.32-5.33	10	1.02	Tin-Plated Brass	.425	.972	.750	.344	42639-1	671366-1 ¹	—
G	12-10	3-6	.125-.220 3.18-5.59	10	0.64	Tin-Plated Steel	.470	.995	.770	.340	62613-2	466647-2	466647-1
A	12-10	3-6	.150-.210 3.81-5.33	10	0.76	Tin-Plated Brass	.470	1.072	.839	.406	41124	687832-5	687832-4
							11.94	27.23	21.31	10.31			
Tin-Plated Brass	.470	1.072	.839	.406	41126	687832-5	687832-4						
	11.94	27.23	21.31	10.31									

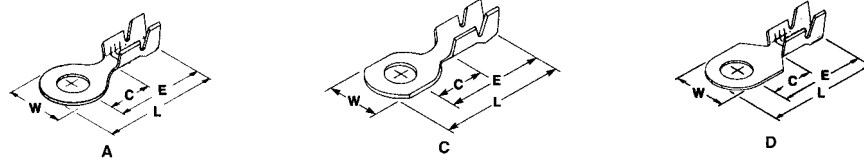
Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

*Not recommended for two wire applications. **Stainless steel wire connector cannot be certified under the current CSA Standard.

¹ Requires use of AMP-O-LECTRIC Terminating Machine 1-471273-2.

For complete product information, order Catalog 82227

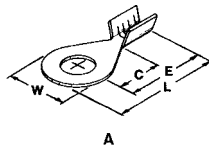
Ring Tongue Terminals, Insulation Support



Type	Wire Range		Insul. Size	Stud Size/Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
C	12-10	3-6	.150-.210 3.81-5.33	10	.030 0.76	Brass	.470 11.94	1.072 27.23	.839 21.31	.406 10.31	42722-1	687832-5	687832-4
			.170-.210 4.32-5.33	8	.040 1.02	Tin-Plated Brass	.343 8.71	.921 23.39	.750 19.05	.344 8.74	42863-2	687727-2	687727-1
			.150-.210 3.81-5.33	1/4"	.030 0.76	Tin-Plated Brass	.470 11.94	1.072 27.23	.839 21.31	.406 10.31	62691-2	687832-5	687832-4
D	10-6	5-15	.220-.315 5.59-8.00	1/4"	.040 1.02	Tin-Plated Brass	.550 13.97	1.105 28.07	.830 21.08	.350 8.89	42899-2	671510-7 ¹	—
D	10-6	5-15	.220-.315 5.59-8.00	5/16"	.040 1.02	Tin-Plated Brass	.550 13.97	1.105 28.07	.830 21.08	.350 8.89	42913-2	671510-7 ¹	—
A	10-6	5-15	.145-.290 3.68-7.37	1/4"	.040 1.02	Tin-Plated Brass	.490 12.45	1.110 28.19	.870 22.10	.460 11.68	61868-1	566263-1 ¹	—

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.
¹ Requires use of AMP-O-LECTRIC Terminating Machine 1-471273-2.

Ring Tongue Terminals, Non-Insulation Support

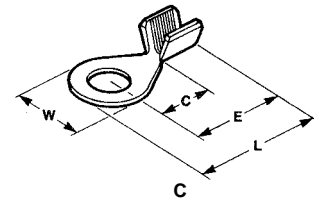
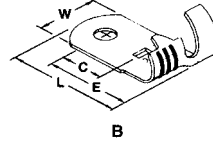
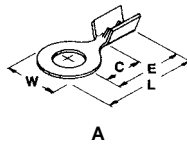


Type	Wire Range		Stud Size/Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²				W	L	E	C		Model K	Model T
A	20-16	0.5-1.4	2	.020 0.51	Brass	.175 4.45	.360 9.14	.270 6.86	.125 3.18	40668	687861-2	687861-1
			4	.020 0.51	Brass	.175 4.45	.360 9.14	.270 6.86	.125 3.18	40777	687861-2	687861-1
			4	.020 0.51	Tin-Plated Brass	.260 6.60	.400 10.16	.270 6.86	.145 3.63	40810	687864-3	687864-1
A	18-14	0.8-2.0	.096 2.44	.020 0.51	Brass	.175 4.45	.338 8.58	.250 6.35	.125 3.18	41006	687817-2	687817-1
			6	.020 0.51	Brass	.300 7.62	.535 13.59	.380 9.65	.230 5.84	34848	687813-3	687813-1
			8	.020 0.51	Brass	.300 7.62	.535 13.59	.380 9.65	.230 5.84	34812	687813-3	687813-1
			10	.020 0.51	Tin-Plated Brass	.343 8.71	.611 15.02	—	.275 6.99	40977	687806-3	687806-1
			8	.020 0.51	Pre-Ni Plated Steel	.300 7.62	.535 13.59	.385 9.78	.230 5.84	41346	687813-3	687813-1
			10	.020 0.51	Brass	.300 7.62	.535 13.59	.380 9.65	.230 5.84	34839	687813-3	687813-1
			10	.020 0.51	Tin-Plated Brass	.300 7.62	.535 13.59	.380 9.65	.230 5.84	40595	687813-3	687813-1
			6	.025 0.64	Brass	.300 7.62	.570 14.48	.420 10.67	.230 5.84	42110-1	687815-5	687815-4
A	12-10	3-6	10	.025 0.64	Brass	.300 7.62	.570 14.48	.420 10.67	.230 5.84	42110-3	687815-5	687815-4
			10	.040 1.02	Brass	.343 8.71	.677 17.20	.501 12.73	.281 7.14	41911	687803-5	687803-4

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

For complete product information, order Catalog 82227

Ring Tongue Terminals, Insulation Support



Insulation Piercing

Insulation Piercing

Flag

AMPLIVAR

Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Number	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
A	22-20	0.3-0.6	.050-.065 1.27-1.65	2	.013 0.33	Nickel-Plated Brass	.165 4.19	.417 10.59	.300 7.62	.125 3.18	60422-3	466071-2	466071-1

Flag

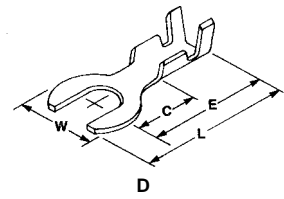
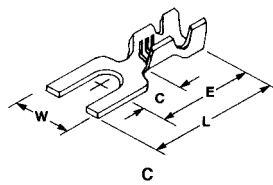
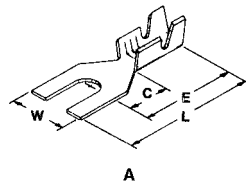
Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers		
	AWG	mm ²					W	L	E	C		Model K	Model T	
B	18-12	0.8-3	.110-.210 2.79-5.33		.172 4.37	.018 0.46	Tin-Plated Brass	.376	.720	.532	.263	42190-1	566510-1 ¹	687393-1
								.203 5.16	.018 0.46	Tin-Plated Brass	.376			

AMPLIVAR

Type	Wire Range		Insul. Size	Hole Dia.	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Number	Quick Change Applicator Numbers	
	AWG	mm ²						W	L	E	C		Model K	Model T
C	18-14	1.024-1.628	.100-.140 2.54-3.56	.171 4.34	8	.020 0.51	Tin-Plated Brass	.342 8.69	.833 21.16	.662 16.81	.312 7.92	60320-2	466691-2	—

¹ Requires use of AMP-O-LECTRIC Terminating Machine 1-471273-2.

Spade Tongue Terminals, Insulation Support



Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
A	26-20	0.12-0.6	.048-.078 1.22-1.98	6	.020 0.51	Tin-Plated Brass	.250 6.35	.563 14.30	.422 10.72	.215 5.46	60124-2	687962-2	687962-1
A	20-16	0.5-1.4	.090-.130 2.29-3.30	8	.020 0.51	Tin-Plated Brass	.275 6.98	.657 16.69	.465 11.81	.175 4.44	41343	687841-2	687841-1
C	20-16	0.5-1.4	.100-.140 2.54-3.56	6	.020 0.51	Brass	.280	.755	.525	.225	60389-1	466211-4	466211-3
							7.11	19.18	13.33	5.71		466211-2†	466211-1†
A	18-14	0.8-2	.100-.140 2.54-3.56	8	.018 0.46	Tin-Plated Brass	.296	.750	.540	.235	60774-2	466095-2	466095-1
							7.52	19.05	13.72	5.97		466085-2†	466085-1†
A	18-14	0.8-2	.100-.140 2.54-3.56	10	.018 0.46	Brass	.296	.750	.540	.235	60775-1	466095-2	466095-1
							7.52	19.05	13.72	5.97		466085-2†	466085-1†
D	10-6	5-15	.145-.290 3.68-7.37	10	.040 1.02	Tin-Plated Brass	.375 9.52	1.015 25.78	.810 20.57	.400 10.16	61855-1	566263-1 ¹	—

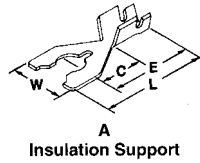
†Terminals flangable by designated applicator.

¹ Requires use of AMP-O-LECTRIC Terminating Machine 1-471273-2.

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

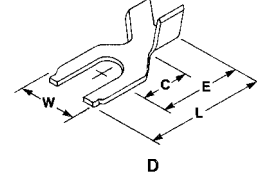
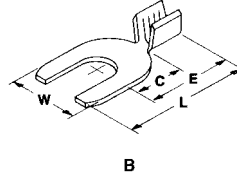
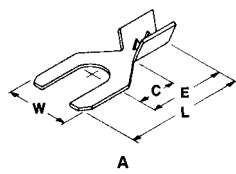
For complete product information, order Catalog 82227

Ring Tongue Terminals, Insulation Support



Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
A	18-14	0.8-2	.100-.140 2.54-3.56	8	.030 0.76	Tin-Plated Brass	.343	.752	.612	.312	42168-2	687859-2	687859-1
							8.71	19.10	15.54	7.92			
				10	.030 0.76	Tin-Plated Brass	.343	.752	.612	.312	42169-2	687859-2	687859-1
							8.71	19.10	15.54	7.92			

Spade Tongue Terminals



Non-Insulation Support

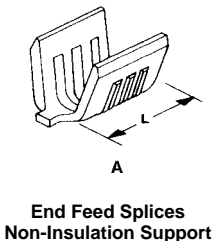
Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
D	18-14	0.8-2	—	8	.025 0.64	Brass	.275	.482	.295	.175	40705	687810-6	687810-5
							6.99	12.24	7.49	4.45		687810-8†	687810-7†
				8	.025 0.64	Tin-Plated Brass	.275	.482	.295	.175	41473	687810-6	687810-5
							6.99	12.24	7.49	4.45		687810-8†	687810-7†
B	12-10	3-6	—	8	.030 0.76	Tin-Plated Brass	.312	.688	.450	.235	42113-2	687833-2	687833-1
							7.92	17.48	11.43	5.97		687833-3†	—

Spade Insulation Piercing

Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions				Part Number	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E	C		Model K	Model T
A	28-22	0.08-0.4	.035-.040 0.89-1.02	5	.016 0.41	Tin-Plated Brass	.250	.578	.422	.215	61498-2	466003-2	—
							6.35	14.68	10.72	5.46			

† Terminals flangable by designated applicator.

Splices



Side Feed

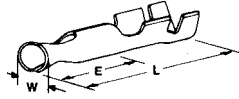
Type	Wire Range		Stock Thk.	Material	Dim. L	Part Numbers	Applicator Numbers					
	CMA	mm ²										
A	10000-16000	5.07-8.11	.031 0.79	Brass	.265 6.73	61299-3	566347-1					
								.031 0.79	Tin-Plated Brass	.265 6.73	61299-2	566347-1

End Feed

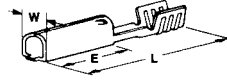
Type	Wire Range		Stock Thk.	Material	Dim. L	Part Numbers	Applicator Numbers
	CMA	mm ²					
A	2000-5300	1.01-2.69	.020 0.51	Tin-Plated Brass	.156 3.94	40868	670786-3
A	3232-8282	1.64-4.2	.020 0.51	Tin-Plated Brass	.152 3.84	40552	672180-4

For complete product information, order Catalog 82227

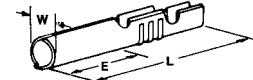
Receptacles



A



C



F

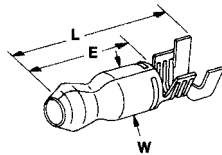
Type	Wire Range		Insul. Size	Stud Size/ Dia.	Stock Thk.	Material and Finish	Dimensions			Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²					W	L	E		Model K	Model T
A	24-20	0.2-0.6	.048-.071 1.22-1.80	.040 1.02	.012 0.31	Tin-Plated Phos. Br.	.095 2.41	.450 11.43	.220 5.59	42428-5 ¹	466388-2	466388-1
F	24-20	0.2-0.6	.090-.130 2.27-3.30	.093 2.36	.010 0.25	Brass	.115 2.92	.560 14.23	.250 6.35	60469-1	466089-2	466089-1
A	24-20	0.2-0.6	.048-.071 1.22-1.80	.055 1.40	.013 0.33	Tin-Plated Phos. Br.	.095 2.41	.450 11.43	.220 5.59	60885-2 ²	466388-2	466388-1
C	18-14	0.9-2.0	—	.109 2.77	.014 0.36	Tin-Plated Brass	.133 3.38	.645 16.38	.300 7.62	61012-3 ³	466061-3	466061-1

¹ Reverse reel of 42428-2.

² Reverse reel of 42429-2.

³ Can be molded.

SHUR-PLUG Terminals



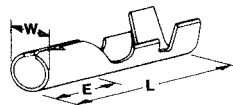
A

.180 [4.57] Diameter

Type	Wire Range		Insul. Size	Stock Thk.	Material and Finish	Dimensions			Part Number	Quick Change Applicator Numbers	
	AWG	mm ²				E	L	W		Model K	Model T
A	18-14	0.9-2	.090-.125 2.29-3.18	.018 0.46	Tin-Plated Brass	.447 11.35	.740 18.80	.180 4.57	62739-1 ¹	466081-2	466081-1

¹ Can be molded.

SHUR-PLUG Receptacles



B

.156 [3.96] Diameter

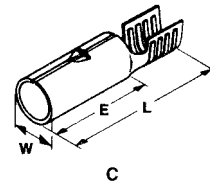
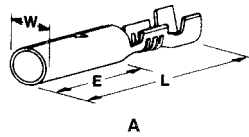
Type	Wire Range		Insul. Size	Stock Thk.	Material and Finish	Dimensions			Part Number	Quick Change Applicator Numbers	
	AWG	mm ²				E	L	W		Model K	Model T
B	18-14	0.9-2	.130-.175 3.30-4.45	.016 0.41	Brass	.345 8.76	.690 17.53	.190 4.83	42142-2	687914-3	687914-1

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

For complete product information, order Catalog 82227

SHUR-PLUG Receptacles

.180 [4.57] Diameter

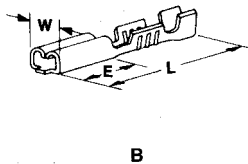


Type	Wire Range		Insul. Size	Stock Thk.	Material and Finish	Dimensions			Part Numbers	Quick Change Applicator Numbers	
	AWG	mm ²				E	L	W		Model K	Model T
A	18-14	0.9-2	.090-.125	.016	Tin-Plated Brass	.420	.785	.208	60798-4	466093-2	466093-1
			2.29-3.18	0.41		10.67	19.94	5.28			
			.090-.125	.016	Brass	.420	.785	.208	60799-2 ¹	466093-2	466093-1
			2.29-3.18	0.41		10.67	19.94	5.28			
			.090-.125	.016	Tin Ni-Plated Brass	.420	.785	.208	60799-4 ¹	466093-2	466093-1
			2.29-3.18	0.41		10.67	19.94	5.28			
.090-.125	.016	Tin-Plated Brass	.420	.895	.208	60799-5	466093-2	466093-1			
2.29-3.18	0.41		10.67	22.73	5.28						
C	14-10	2-6	.120-.175	.016	Tin-Plated Brass	.420	.785	.208	61412-2	466175-3	466175-1
			3.05-4.45	0.41		10.67	19.94	5.28			
			—	.016	Tin-Plated Brass	.420	.720	.208	42868-2	466643-2	466643-1
			—	0.41		10.67	18.29	5.28			
			—	.016	Brass	.420	.720	.208	42891-1 ¹	466643-2	466643-1
			—	0.41		10.67	18.29	5.28			
—	.016	Tin-Plated Brass	.420	.720	.208	42891-2 ¹	466643-2	466643-1			
—	0.41		10.67	18.29	5.28						

¹ No indent.

Note: The part numbers listed are for use with existing machine models. For Model "G" applicators part numbers, call the Technical Support Center at 1-800-522-6752.

Tab Receptacles



Type	Wire Range		Insul. Size	Stock Thk.	Material and Finish	Fits Tab	Dimensions			Part Number
	AWG	mm ²					E	L	W	
B	24-20	0.2-0.6	.040-.080 1.02-2.03	.010 0.25	Tin-Plated Brass	.031 x .062 0.79 x 1.57	.187 4.75	.462 11.73	.090 2.29	61454-1 ¹

¹ Loose Piece form, of Part No. 60900-1.

For complete product information, order Catalog 82227

Technical Documents

Various technical documents are available for your use:

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

- 108-16000 Crimping AMPLIVAR ring terminals
- 108-16001 Crimping extruding ring terminals
- 108-1376 Grounding clip
- 108-2027 .156 [3.96] diameter SHUR-PLUG and receptacles

Application Specifications describe requirements for using the product in its intended applications and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

- 114-2084 Ring and spade terminals
- 114-2089 Flanged spade terminals
- 114-2109 Insulation piercing ring and spade terminals
- 114-2080 Pin receptacle contacts
- 114-2083 Pin receptacle contact
- 114-2042 .156 [3.96] diameter SHUR-PLUG and receptacle
- 114-2017 .180 [4.57] diameter SHUR-PLUG and receptacle
- 114-2088 Pigtail and thru splices
- 114-2093 Carbon brush contacts
- 114-2129 Grounding clip

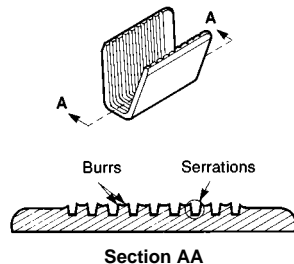
For complete product information, order Catalog 82227

Product Facts

- Compression crimp eliminates cold solder points, weld burns and wire embrittlement usually connected with thermal-type terminations
- Excellent tensile strength—vibration resistant
- Provides a superior electrical connection that is free of contaminants such as stripper residue and solder flux
- Precision formed, strip-fed terminals and splices terminated in AMP Automatic Machines assure highest possible production rates at the lowest applied cost
- Low wire consumption and the elimination of rejects caused by solder flux or heat damage results
- Precisely controlled crimp termination helps eliminate human error for maximum reliability



The basic design of the AMPLIVAR wire barrel encompasses two main areas: the burrs at the top of the serrations and the serrations themselves. During the crimping operation, the burrs pierce the insulation of the magnet wire and extrude the bare conductors into the serrations—creating ultimate metal-to-metal contact.



AMPLIVAR Splices are specifically designed to terminate magnet wire to itself or in combination with standard solid or stranded lead wire. The AMPLIVAR product line will accommodate a wire range from 400 to 13,000 CMA.

In a one-step crimping operation, the magnet wire is automatically ring-stripped of its insulation as it is forced into the wire barrel serrations. The result produces a high tensile strength, air-sealed

connection that is as resistant to corrosion as the insulated conductor.

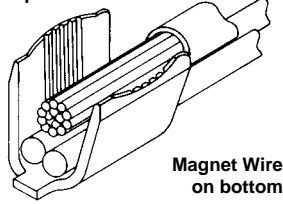
As many as three magnet wires can be terminated simultaneously in one barrel. In addition, copper or aluminum magnet wire, or a combination of both, can be terminated. When required, copper or aluminum magnet wire can be combined with prestripped standard solid or stranded lead wires.

Depending on your specific application, AMPLIVAR Splices are available in 5, 7 and 9 serration versions as well as miniature and subminiature designs for terminations in the 400 to 1600 CMA range.

For complete product information, order Catalog 82221

General Application Guidelines

Stranded Wire
on top



To assist you in obtaining the optimum AMPLIVAR termination, the following guidelines are recommended:

1. All magnet wires must be placed in the bottom of the wire barrel before crimping. If lead wire is to be crimped in the same termination, it should be placed on top of the magnet wires.
2. Wire barrels are designed to accept a maximum of three insulated magnet wires plus stranded lead wires.
3. The ratio of magnet wire diameters crimped in any wire barrel should not exceed 2:1. This ratio is approximately a range from the largest to the smallest magnet wire of six sizes.
4. The sum of the circular mil area (CMA) of the

magnet wires and any lead wires should not exceed the capacity of the splice.

5. The sum of the diameters of the individual magnet wires plus twice the terminal stock thickness must be equal to or less than the crimp width.
6. Magnet wire of 26 AWG [0.404 mm] or smaller should be used with 7-serration splices having "shallow serrations," and magnet wire of 28 AWG [0.32 mm] or smaller should be used with 9-serration splices having "shallow serrations" (part numbers identified with asterisk [*] are in the tabular data on the following technical pages).
7. Magnet wire of 20 AWG [0.813 mm] or larger having an insulation

thickness heavier than "single film coated," should not be used with splices having "shallow serrations" (those part numbers marked with an asterisk [*] in the tabular data on the following technical pages).

8. When aluminum magnet wire is used, splices and terminals must be tin plated.
9. Consult AMP for splice selection and recommendations for all non-standard applications.

For detailed specifications on crimping AMPLIVAR splices, request the appropriate AMP Specification Publication.

Test Results

AMPLIVAR products have been subjected to the following tests without significant millivolt increase:

Temperature Cycling—
25 cycles with each cycle consisting of 30 minutes at 125°C followed by 30 minutes at -65°C

Heat Age—
96 hours at 150°C

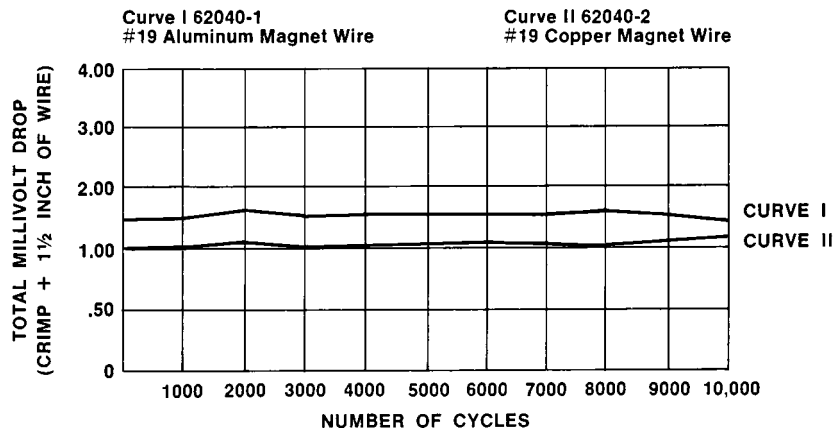
Thermal Shock—
25 cycles with each cycle consisting of 30 minutes at 150°C followed by 30 minutes at -65°C

Salt Spray—
96 hours at 35°C with a 5% salt solution spray

Humidity—
96 hours at 90-95% relative humidity and 40°C

Current Cycling—
10,000 cycles with each consisting of 3 minutes on and 3 minutes off at a current (25 amperes) which establishes a wire temperature of 150°C (see graphical results below)

TYPICAL CURRENT CYCLING TEST RESULTS



Suggested Splice Selection Procedure

Use the following guide to help you to determine the proper splice for your application:

1. Use 9-serration splices, tin plated when terminating aluminum magnet wire or combinations with aluminum magnet wire.
2. Use 9-serration splices for hermetic and severe environment applications.
3. Use splices identified with an asterisk [*] when terminating 7-serration 26 AWG [0.404 mm] or smaller wires and 9-serration 28 AWG [0.32 mm] or smaller wires.
4. Calculate the total CMA of the magnet wires plus any lead wires to be terminated. Always use the coated magnet wire for CMA (see pages 13–16).
5. Calculate the total magnet wire diameters (see pages 13 and 14).
6. Select a splice for trial calculations. It should have the proper CMA range. Plating finish should be considered at this time.
7. Calculate the sum of the magnet wire diameters plus two splice stock thicknesses. If this total is less than the crimp width of the splice selected, it may be used. If the total is greater than the crimp width, a splice with a greater crimp width must be selected. Consult AMP for special wide tooling recommendations.

Example:

Selection of a Pigtail Splice to terminate the following wires:
 One 28 AWG [0.32 mm] copper magnet wire.
 One 22 AWG [0.643 mm] aluminum magnet wire.
 One 18 AWG [0.8–0.9 mm²] 19-strand copper lead wire.

Calculate the total CMA (Procedure 4):
 28 AWG [0.32 mm] coated magnet wire 185 CMA
 22 AWG [0.643 mm] coated magnet wire 708 CMA
 18 AWG [0.8–0.9 mm²] stranded lead wire 1608 CMA
 Total 2501 CMA

Calculate the sum of the magnet wire diameters (Procedure 5):
 28 AWG [0.32 mm] coated magnet wire0136 [0.35]
 22 AWG [0.643 mm] coated magnet wire0266 [0.68]
 Total0402 [1.03]

Select a terminal for trial calculations. Splice No. 62305-2, page 4 (Procedure 6):
 CMA range 600–3000
 Stock thickness016 [0.41]
 Crimp width110 [2.79]
 9-serration, tin plated for aluminum magnet wire (Procedure 1).
 Splice identified with asterisk [*] for 28 AWG [0.32 mm] (Procedure 3).

Calculate the sum of the magnet wire diameters plus two splice stock thicknesses (Procedure 7):
 $.0402 + (.016 \times 2) = .0722$
 $[1.02 + (0.41 \times 2) = 1.84]$
 .0722 [1.84] is less than the splice crimp width of .110 [2.79]; therefore, Part No. 62305-2 may be used.

For complete product information, order Catalog 82221

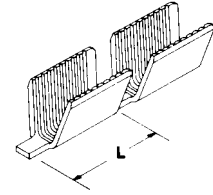
AMPLIVAR Splices

9 Serrations— Pigtail Type

Product Facts

(Plus All 7 Serration Facts)

- Splice length is increased on larger CMA splices for improved performance
- Splice CMA ranges are overlapped so that two splices are available for any given CMA
- Serration depths are varied within the splice to give optimum electrical/mechanical performance on all wire sizes
- Serration sidewall angles are varied to allow better wire stripping and serration fill
- Flat bottom of splice helps keep magnet wires on bottom as required during crimping
- Magnet wires 28 AWG [0.32 mm] and larger may be terminated without requiring shallow serrations



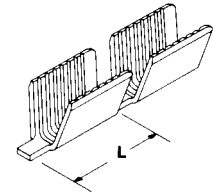
Wire Range CMA	Stock Thickness	Crimp Width	Dim. L	Material	Part Number
400–1500	.016 0.41	.080 2.03	.225 5.72	Tin Plated Brass	62303-2*
600–3000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	62304-2
600–3000	.016 0.41	.110 2.79	.225 5.72	Tin Plated Brass	62305-2*
1500–5000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	62306-2
1500–5000	.016 0.41	.110 2.79	.225 5.72	Tin Plated Brass	62307-2*
3000–7000	.020 0.51	.140 3.56	.265 6.73	Tin Plated Brass	62308-2
5000–10,000	.025 0.64	.180 4.57	.265 6.73	Tin Plated Brass	62309-2
7000–13,000	.025 0.64	.180 4.57	.265 6.73	Tin Plated Brass	62310-2
10,000–22,000	.030 0.76	.220 5.59	.340 8.64	Tin Plated Brass	62311-2

*These splices are recommended for applications using wire size 28 AWG [0.32 mm] or smaller.

7 Serrations— Pigtail Tail

Product Facts

- 6° taper on both crimper and anvil improves flex life of termination
- Longer “flat” on tooling improves electrical performance (.125 vs. .080 [3.18 vs. 2.03])
- Radius on wire entry end of splice prevents nicking wires and improves mechanical performance
- Additional serrations enhance stability of crimp
- Serrations are offset to sheared end to place additional serrations in “electrical” portion of crimped splice



Wire Range CMA	Stock Thickness	Crimp Width	Dim. L	Material	Part Number
600–3000	.020 0.51	.110 2.79	.225 5.72	Brass	62000-1
600–3000	.020 0.51	.110 2.79	.225 5.72	Brass	62157-1*
600–3000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	62000-2
600–3000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	62157-2*
1500–5000	.020 0.51	.110 2.79	.225 5.72	Brass	62040-2
1500–5000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	62040-1
3000–7000	.020 0.51	.140 3.56	.225 5.72	Brass	62001-1
3000–7000	.020 0.51	.140 3.56	.225 5.72	Tin Plated Brass	62001-2
7000–12,000	.025 0.64	.250 6.35	.225 5.72	Tin Plated Brass	62295-1
7000–12,000	.025 0.64	.250 6.35	.225 5.72	Brass	62295-2
7000–13,000	.025 0.64	.180 4.57	.225 5.72	Tin Plated Brass	62002-2

For complete product information, order Catalog 82221

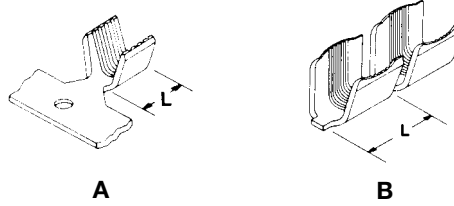
*These splices are recommended for applications using wire size 26 AWG [0.404 mm] or smaller.

AMPLIVAR Splices

5 Serrations— Thru Type

Product Facts

- Wide range of thru splices
- Serrations centered in splice to achieve optimum electrical and mechanical performance in a thru splice
- CMA range accepts a wide variety of wire sizes and combinations



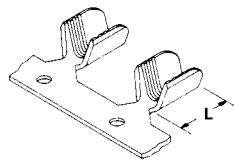
Type	Wire Range CMA	Stock Thickness	Crimp Width	Dim. L	Material	Part Number
A	2000–5400	.020 0.51	.110 5.08	.235 5.97	Brass	63564-1
A	10,000–16,000	.032 0.80	.180 4.57	.267 6.78	Tin Plated Brass	63561-1
A	10,400–22,900	.030 7.62	.300 7.62	.310 7.87	Tin Plated Brass	63562-1
B	600–3000	.020 0.51	.110 2.79	.225 5.72	Brass	42076-0
B	600–3000	.020 0.51	.110 2.79	.225 5.72	Brass	42192-1*
B	600–3000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	42192-2*
B	1500–5000	.020 0.51	.110 2.79	.225 5.72	Brass	41765
B	1500–5000	.020 0.51	.110 2.79	.225 5.72	Brass	42119-1*
B	1500–5000	.020 0.51	.110 2.79	.225 5.72	Tin Plated Brass	41899
B	3000–7000	.020 0.51	.140 3.56	.225 5.72	Brass	41766
B	3000–7000	.020 0.51	.140 3.56	.225 5.72	Tin Plated Brass	41900
B	7000–13,000	.025 0.64	.180 4.57	.225 5.72	Brass	41770
B	7000–13,000	.025 0.64	.180 4.57	.225 5.72	Tin Plated Brass	41904

*These splices are recommended for applications using wire size 26 AWG [0.404 mm] or smaller.

Miniature Splice— Pigtail Type

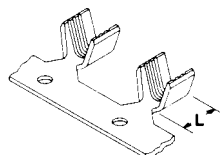
Product Facts

- The compactness of these splices makes them ideal for use in small subfractional motors, transformers, relays, solenoids, indicator lamps and small appliance terminations
- These splices provide the same reliability as the larger AMPLIVAR splices



Wire Range CMA	Stock Thickness	Crimp Width	Dim. L	Material	Part Number
200–850	.012 0.30	.055 1.40	.195 4.95	Tin Plated Brass	63431-1
480–1700	.014 0.36	.080 2.03	.195 4.95	Tin Plated Brass	62341-1


Subminiature Splice Thru or Pigtail Type



Wire Range CMA	Stock Thickness	Crimp Width	Dim. L	Material	Part Number
100–300	.010 0.25	.042 1.08	.080 2.03	Tin Plated Brass	63621-1
400–1600	.016 0.41	.070 1.78	.100 2.54	Tin Plated Brass	62194-2

For complete product information, order Catalog 82221

Product Facts

- Terminates copper magnet wire
- Terminates all magnet wire film insulations
- Eliminates need for prestripping conductors
- Excess magnet wire is automatically trimmed during the termination procedure
- Simultaneously terminates two wires of the same size in one terminal (for splicing or bi-filing)
- Many lead wire attachment techniques available
- Eliminates post insulating
- Low insertion force
- Available in strip form or loose piece for semi-automatic, automatic or hand tool application
- Capable of producing up to 2000 terminations per hour with semi-automatic bench machine (based on four terminations per coil)
- High-speed automatic coil-winding machine terminations provide uniform reliability at lowest possible applied cost
- May be mass terminated
- Clean metal-to-metal interface produces stable, gas-tight electrical terminations free of oxides and other contaminants
- Eliminates lead wire handling throughout entire production process
- Varnish resist tab terminals are available for special applications
- Those products indicated are recognized under the Component Recognition Program of Underwriters Laboratories Inc., File No. E13288 

Advantages

- Low cost
- Safety
- Versatility
- Reliability



Standard MAG-MATE Terminals bring insulation displacement technology to magnet wire terminations. The technique eliminates the need for prestripping the conductors. Insulated wire is positioned so precisely by the controlled terminating slots of the "U"-shaped design that the stamped and formed terminals can be pushed over the wire.

When application tooling pushes the terminal, the wire moves through the terminal's wide lead-in area, reducing it in width and reshaping it into an oval. As the wire passes into the narrow precise slots, small stripping devices penetrate the film insulation. Complete insulation displacement occurs and four areas of contact are made as the conductor is forced deep

into the slots by the terminal insertion process.

During the process, the wiping action between the wire and terminal removes all oxides or other contaminants present on both the conductor and the terminal slot walls, producing a clean, metal-to-metal interface and a stable, gas-tight electrical termination. The large areas of contact between the wire and the slot walls ensure reliable conduction of high currents.

Residual spring energy in the terminal causes the side walls of each slot to function as opposing cantilever beams. This constant pressure results in an intimate metal-to-metal contact, providing a reliable, long-term connection.

For complete product information, order Catalog 82221

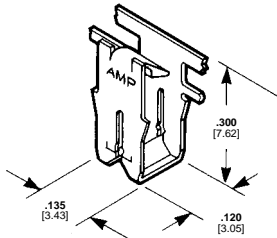
Poke-In Terminals

Terminals

Material and Finish:

Tin plated brass

Typical Cavity Size 2:



Copper Magnet Wire Range		Lead Wire Range ⁴		Stock Thickness	Part Numbers ^{1,*}
AWG	mm	AWG	mm ²		
33-31 ²	0.18-0.23	20-18	0.5-0.9	.010 0.25	62431-1
31-28	0.23-0.32	20-18	0.5-0.9	.012 0.30	1217234-1
30-27 ²	0.25-0.36	20-18	0.5-0.9	.012 0.30	63636-1 ^{5, 6} 62429-1
27-26 ²	0.36-0.40	27-26	0.36-0.40	.016 0.41	1217192-1 ⁸
27-23 ²	0.36-0.57	20-18	0.5-0.9	.016 0.41	62935-1
25.5-24 ²	0.43-0.51	25.5-24	0.43-0.51	.016 0.41	1217191-1 ⁸
25-22 ⁷	0.45-0.64	20-18	0.5-0.9	.016 0.41	63658-1
23.5-22 ³	0.54-0.64	23.5-22	0.54-0.6	.016 0.41	1217190-1 ⁸
22-20 ³	0.64-0.81	20-18	0.5-0.9	.016 0.41	62420-1
19-17 ³	0.91-1.15	20-18	0.5-0.9	.016 0.41	62833-1

¹ Strip product part numbers shown. See page 7145 for loose piece part number cross reference and tooling.

² Two magnet wires may be terminated in the same terminal slot if diameters are equal.

³ Single magnet wire only.

⁴ Solid or overcoated stranded lead wire only. Product will also accept Poke-In Tab Terminal shown below

⁵ Special Nicker location.

⁶ Special cavity detail required.

⁷ Two magnet wires may be terminated in the same terminal slot if diameters are equal, except 22 AWG [0.64 mm].

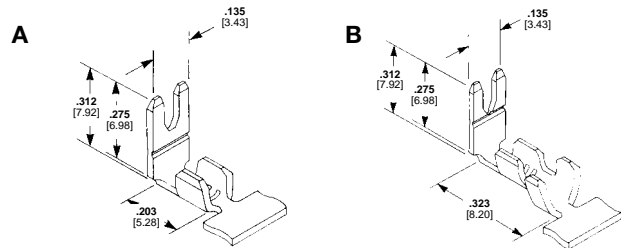
⁸ Tin over nickel plating, special leaf.

* Recognized under the Component Program of Underwriters Laboratories, Inc.

Tab Terminals

Materials:

Tin plated brass



Type	Lead Wire Size		Ins. O.D.	Stock Thickness	Part Numbers ¹
	AWG	mm			
A	22-18	0.3-0.9	—	.018 0.46	62895-1*
B	22-18	0.3-0.9	.060-.100 1.52-2.54	.020 0.51	62896-1*

¹ Strip product part numbers.

* Recognized under the Component Program of Underwriters Laboratories, Inc.

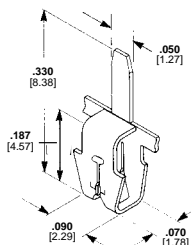
Note: All tab terminals accept stranded, fused stranded or solid lead wire

Terminal

Material and Finish:

Tin plated brass, except where noted.

Typical Cavity Size 1:



Posted Terminals

Copper Magnet Wire Range		Stock Thickness	Part Numbers
AWG	mm		
33-31 ²	0.18-0.23	.010 0.25	62934-11
29-27 ²	0.29-0.36	.012 0.30	1217196-1 ³

¹ Loose piece product part number. Tin over copper plating.

² Two magnet wires may be terminated in the same terminal slot if diameters are equal.

³ Tin over nickel plating.

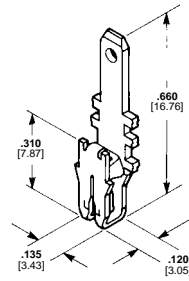
For complete product information, order Catalog 82221

110 Series Poke-In Combination FASTON Tab Terminals

Material:

Tin plated brass

Typical Cavity Size 2:



Copper Magnet Wire Range		Lead Wire Range ³		Tab Size	Stock Thickness		Part Number ^{1,4,*}
AWG	mm	AWG	mm		Tab Section	Mag. Wire Section	
28–24 ²	0.32–0.51	20–18	0.5–0.8	.020 × .110 0.51 × 2.79	.020 0.51	.012 0.30	63062-1

¹ Strip product part numbers.

² Two magnet wires may be terminated in the same terminal slot if diameters are equal, except 22 AWG [0.643 mm] which accepts single magnet wire only.

³ Solid or overcoated stranded lead wire only.

⁴ Varnish resist coating.

* Recognized under the Component Program of Underwriters Laboratories, Inc.

Notes: ¹ After insertion into plastic cavity, tab portion must be bent over 45°–90° or potted in to prevent pullout when mating receptacle is disconnected.

² .110 [2.79] Tab Terminals mate with compatible FASTON receptacles. Request AMP Catalog 82004.

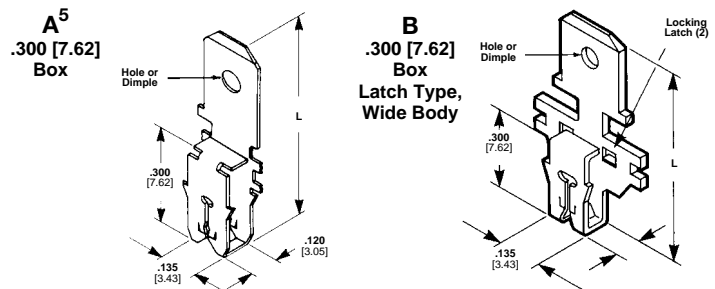
187 Series FASTON Tab Terminals

Material:

Tin plated brass

Typical Cavity Sizes:

Type A—Cavity Size 2



Type	Copper Magnet Wire Range		L Dimension	Tab Feature	Tab Size	Stock Thickness		Part Numbers ¹
	AWG	mm				Tab Section	Mag. Wire Section	
A	27–23 ²	0.36–0.57	.625 15.88	Dimple	.020 × .187 0.51 × 4.75	.020 0.51	.016 0.41	62514-1*
	22–20 ³	0.64–0.81	.625 15.88	Hole	.020 × .187 0.51 × 4.75	.020 0.51	.016 0.41	63663-1 ⁴
B	27–23 ³	0.36–0.57	.625 15.88	Dimple	.020 × .187 0.51 × 4.75	.020 0.51	.016 0.41	63256-1

¹ Strip product part numbers shown.

² Two magnet wires may be terminated in the same terminal slot if diameters are equal.

³ Single magnet wire only.

⁴ Varnish resist coating.

⁵ After insertion into plastic cavity, tab portion must be bent over 45°–90° or potted in to prevent pullout when mating receptacle is disconnected.

* Recognized under the Component Program of Underwriters Laboratories, Inc.

For complete product information, order Catalog 82221

250 Series FASTON Tab Terminals

Material:

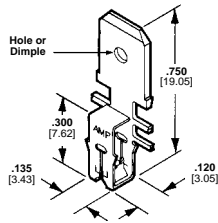
Tin plated brass

Type A—Use Cavity Size 2

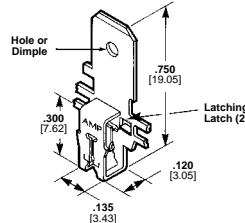
Type B—Use Cavity Size 3

Type C—Use Cavity Size 5

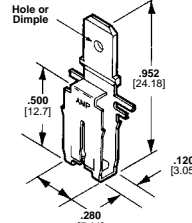
Note: .250 [6.35] tab terminals mate with compatible FASTON receptacles. Request AMP Catalog 82004.



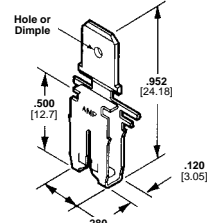
A⁵
.300 [7.62] Box



B⁶
.300 [7.62] Box
Latch Type, Wide Body



D⁷
.500 [12.7] Box



E⁵
.500 [12.7] Box

Type	Copper Magnet Wire Range		Tab Feature	Tab Size	Stock Thickness		Part Numbers ¹
	AWG	mm			Tab Section	Mag. Wire Section	
A	27-23 ²	0.36-0.57	Dimple	.032 × .250 0.81 × 6.35	.032 0.81	.016 0.41	62652-1*
B	27-23 ²	0.36-0.57	Hole	.032 × .250 0.81 × 6.35	.032 0.81	.016 0.41	63571-1
D	16-15 ²	1.29-1.45	Hole	.032 × .250 0.81 × 6.35	.032 0.81	.020 0.51	63459-3 ⁴
	14-13 ³	1.61-1.83	Hole	.032 × .250 0.81 × 6.35	.032 0.81	.020 0.51	63816-2 ⁴ 63816-1
E	19-17 ²	0.91-1.15	Dimple	.032 × .250 0.81 × 6.35	.032 0.81	.020 0.51	62923-1 ⁴

¹ Strip product part numbers shown. See page 7143 for loose piece part number cross reference and tooling.

² Two magnet wires may be terminated in the same terminal slot if diameters are equal.

³ Single magnet wire only.

⁴ Varnish resist coating.

⁵ After insertion into plastic holder, tab portion must be bent over 45°-90° or potted in to prevent pullout when mating receptacle is disconnected.

⁶ Special transition.

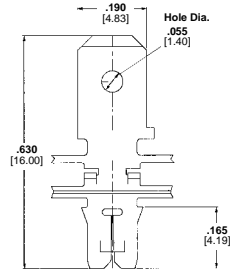
⁷ After insertion into plastic cavity, tab portion **can not** be bent over. The body is potted in only.

* Recognized under the Component Program of Underwriters Laboratories, Inc.

Slim Line 187 Series FASTON Terminals

Material:

Tin over premilled brass

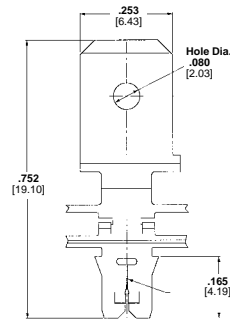


Copper Magnet Wire Range		Tab Size	Stock Thickness		Part Numbers
AWG	mm		Tab Section	Mag Wire Section	
33-31	0.18-0.23	.020 x .187 0.51 x 4.75	.020 0.51	.013 0.33	63710-1
30-28	0.25-0.32	.020 x .187 0.51 x 4.75	.020 0.51	.013 0.33	63711-1
23-20	0.57-0.81	.020 x .187 0.51 x 4.75	.020 0.51	.013 0.33	63713-2

Slim Line 250 Series FASTON Terminals

Material:

Tin over premilled brass



Copper Magnet Wire Range		Tab Size	Stock Thickness		Part Number
AWG	mm		Tab Section	Mag Wire Section	
33-31	0.18-0.23	.032 x .250 0.81 x 6.35	.032 0.81	.013 0.33	63744-2

For complete product information, order Catalog 82221

AMPLIVAR Product Terminator (APT)

Machine Ordering Information

A "Base Part Number" is selected from the Basic Machine Part Numbers table. Then, a dash number or numbers are selected from one of the other two tables depending on the type of product to be applied.

For example, the correct ordering number appears as 2-679452-4.

Basic Machine Part Numbers

Machine Features			Model	Base Part Number*	
Precision Adjust	Crimp Quality Monitor	Programmable Crimp-Height Sequencing		Pigtail-Type Splice	Direct Connect Contact
Manual	Not Included	Not Included	APT II	□-679450-□	□-679454-□
Manual	Included	Not Included	APT II/CQM	□-679451-□	□-679455-□
Automatic	Included	Not Included	APT IIIA	□-679452-□	□-679456-□
Automatic	Included	Included	APT IIIA	□-679453-□	□-679457-□

*See tables below for suffix and prefix dash numbers which indicate product to be applied, voltage requirement and wire stuffer option.

Note: Kits are available to upgrade the basic machines listed above.

Pigtail-Type Splice (AMPLIVAR) Suffix and Prefix Dash Numbers

Crimp Width	120 VAC Machine	120 VAC Machine with Wire Stuffer	120 VAC Machine	240 VAC Machine with Wire Stuffer	Pigtail-Type Splice Base Number**
.250 6.35	()-1	1-()-4	2-()-7	4-()-0	62295
.220 5.59	()-2	1-()-5	2-()-8	4-()-1	62310
.180 4.57	()-3	1-()-6	2-()-9	4-()-2	62002
.180 4.57	()-4	1-()-7	3-()-0	4-()-3	62310
.180 4.57	()-5	1-()-8	3-()-1	4-()-4	62309
.180 4.57	()-6	1-()-9	3-()-2	4-()-5	62001
.140 3.56	()-7	2-()-0	3-()-3	4-()-6	62201
.140 3.56	()-8	2-()-1	3-()-4	4-()-7	42779 62001
.140 3.56	()-9	2-()-2	3-()-5	4-()-8	62308
.140 3.56	1-()-0	2-()-3	3-()-6	4-()-9	62306
.110 2.79	1-()-1	2-()-4	3-()-7	5-()-0	42775 42776 62040 62306 62307
.110 2.79	1-()-2	2-()-5	3-()-8	5-()-1	42777 42778 62000 62157 62200 62304 62305
.080 2.03	1-()-3	2-()-6	3-()-9	5-()-2	62303

Loose Piece Parts Cross Reference

Part Numbers		
Strip	Loose Piece	Hand Tool
62420-1	62524-1	274250-2
62429-1	62526-1	274250-2
62431-1	62527-1	274250-2
62513-1	62663-1	274260-2
62652-1	62657-1	274282-1
62653-1	62658-1	274282-1
62935-1	63044-1	274250-2
63064-1	63263-1	274282-1
63155-1	63336-1	274282-1
63464-3	63598-1	274278-1

Direct Connect Contact (AMPLIVAR) Suffix and Prefix Dash Numbers

120 VAC Machine	240 VAC Machine	Direct Connect Contact Base Number**
()-1	()-6	63455
()-2	()-7	63454
()-3	()-8	63453
()-4	()-9	63549
()-5	1-()-0	63548

**See Catalog 82221 for product specifications.

For complete product information, order Catalog 82221

Tooling



Standard Style Applicator for Large CMA Splice, Part Number 566372-1

This applicator was designed specifically to apply AMP 5 000-16 000 CMA Splice, Part Number 63625-1. It features a highly-visible, close-up crimp area—less than 1 [25] from the front of the guard. You can easily splice multiple wires by simply rotating them down through the front of the guard into the crimp area.

It is an air-feed applicator, and can be used with Model "K" Part Number 1-471273-2 or 1-471273-3.

Technical Information

Circular Mil Area (CMA) and Diameter for Magnet Wires (AWG Wire Size Range 52–25½)

AWG Bare Wire	Bare Wire Dia.		CMA Bare	Single Film Coated Dia.		CMA Single Film Coated	Heavy Film Coated Dia.		CMA Heavy Film Coated
	in.	mm		in.	mm		in.	mm	
52	.0008	.020	0.6	.0010	.025	1.0	.0011	.028	1.2
51	.0009	.023	0.8	.0011	.028	1.2	.0012	.031	1.5
50	.0010	.025	1.0	.0012	.031	1.5	.0013	.033	1.7
49	.0011	.028	1.2	.0013	.033	1.7	.0014	.035	2.0
48	.0012	.031	1.5	.0014	.035	2.0	.0015	.038	2.2
47	.0014	.035	2.0	.0016	.040	2.5	.0018	.045	3.1
46	.0016	.040	2.5	.0017	.043	2.9	.0019	.048	3.6
45	.0018	.045	3.1	.0019	.048	3.6	.0021	.053	4.4
44	.0020	.050	4.0	.0022	.056	4.8	.0025	.063	6.2
43	.0022	.056	4.8	.0025	.063	6.2	.0027	.069	7.3
42	.0025	0.06	6.3	.0028	0.07	8	.0030	0.08	9
41	.0028	0.07	7.8	.0031	0.08	10	.0034	0.09	12
40	.0031	0.08	9.6	.0035	0.09	12	.0038	0.10	14
39	.0035	0.09	12	.0039	0.10	15	.0043	0.11	18
38	.0040	0.10	16	.0045	0.11	20	.0049	0.12	24
37	.0045	0.11	20	.0050	0.13	25	.0055	0.14	30
36	.0050	0.13	25	.0056	0.14	31	.0060	0.15	36
35	.0056	0.14	31	.0062	0.16	38	.0067	0.17	45
35	.0056	0.14	31	.0062	0.16	38	.0067	0.17	45
34	.0063	0.16	40	.0069	0.18	48	.0075	0.19	56
33	.0071	0.18	50	.0077	0.20	59	.0085	0.22	72
32	.0080	0.20	64	.0084	0.21	71	.0095	0.24	90
31	.0089	0.23	79	.0092	0.23	85	.0105	0.27	110
30½	.0095	0.24	90	.0099	0.25	98	.0111	0.28	123
30	.0100	0.25	100	.0106	0.27	112	.0116	0.29	135
29½	.0107	0.27	115	.0114	0.29	130	.0123	0.31	151
29	.0113	0.29	128	.0120	0.30	144	.0130	0.33	169
28½	.0120	0.30	144	.0126	0.32	159	.0137	0.35	187
28	.0126	0.32	159	.0136	0.35	185	.0144	0.37	207
27½	.0134	0.34	180	.0144	0.37	207	.0153	0.39	234
27	.0142	0.36	202	.0152	0.39	231	.0161	0.41	259
26½	.0151	0.38	225	.0160	0.41	256	.0170	0.43	289
26	.0159	0.40	258	.0170	0.43	289	.0179	0.45	320
25½	.0169	0.43	289	.0180	0.46	324	.0190	0.48	361

For complete product information, order Catalog 82221

Technical Information

**Circular Mil Area
(CMA) and Diameter
for Magnet Wires
(AWG Wire Size
Range 25–8)**

AWG Bare Wire	Bare Wire Dia.		CMA Bare	Single Film Coated Dia.		CMA Single Film Coated	Heavy Film Coated Dia.		CMA Heavy Film Coated
	in.	mm		in.	mm		in.	mm	
25	.0179	0.45	320	.0190	0.48	361	.0200	0.51	400
24 ^{1/2}	.0190	0.48	361	.0200	0.51	400	.0212	0.54	449
24	.0201	0.51	404	.0213	0.54	455	.0223	0.57	497
23 ^{1/2}	.0214	0.54	458	.0226	0.57	511	.0236	0.60	557
23	.0226	0.57	511	.0238	0.60	566	.0249	0.63	620
22 ^{1/2}	.0240	0.61	576	.0252	0.64	635	.0263	0.67	692
22	.0253	0.64	640	.0266	0.68	708	.0277	0.70	767
21 ^{1/2}	.0269	0.68	724	.0282	0.72	795	.0293	0.74	858
21	.0285	0.72	812	.0298	0.76	888	.0310	0.79	961
20 ^{1/2}	.0303	0.77	918	.0315	0.80	992	.0328	0.83	1,076
20	.0320	0.81	1,024	.0334	0.85	1,116	.0346	0.88	1,197
19 ^{1/2}	.0340	0.86	1,156	.0353	0.90	1,246	.0365	0.93	1,340
19	.0359	0.91	1,289	.0373	0.95	1,391	.0386	0.98	1,490
18 ^{1/2}	.0381	0.97	1,452	.0395	1.00	1,560	.0409	1.04	1,673
18	.0403	1.02	1,624	.0418	1.06	1,747	.0431	1.09	1,858
17 ^{1/2}	.0428	1.09	1,832	.0443	1.13	1,962	.0456	1.16	2,079
17	.0453	1.15	2,052	.0468	1.19	2,190	.0482	1.22	2,323
16 ^{1/2}	.0481	1.22	2,314	.0496	1.26	2,460	.0510	1.30	2,601
16	.0508	1.29	2,581	.0524	1.33	2,746	.0583	1.37	2,894
15 ^{1/2}	.0540	1.37	2,916	.0560	1.42	3,136	.0570	1.45	3,249
15	.0571	1.45	3,260	.0587	1.49	3,446	.0602	1.53	3,624
14 ^{1/2}	.0606	1.54	3,672	.0622	1.58	3,869	.0639	1.62	4,082
14	.0641	1.63	4,109	.0658	1.67	4,330	.0675	1.71	4,556
13 ^{1/2}	.0681	1.73	4,638	.0698	1.77	4,872	.0711	1.81	5,055
13	.0720	1.83	5,184	.0738	1.87	5,446	.0749	1.90	5,670
12 ^{1/2}	.0764	1.94	5,837	.0783	1.99	6,131	.0793	2.01	6,188
12	.0808	2.05	6,529	.0827	2.10	6,839	.0838	2.13	7,090
11 ^{1/2}	.0858	2.18	7,362	.0877	2.23	7,691	.0888	2.26	7,885
11	.0907	2.30	8,226	.0927	2.35	8,593	.0938	2.38	8,892
10 ^{1/2}	.0963	2.35	9,274	.0983	2.50	9,663	.0994	2.52	9,880
10	.1019	2.59	10,384	.1040	2.64	10,820	.1050	2.67	11,151
9	.1144	2.91	13,087	.1166	2.96	13,600	.1177	2.99	13,971
8	.1285	3.26	16,512	.1307	3.32	17,080	.1318	3.35	17,530

For complete product information, order Catalog 82221

Technical Information

**Circular Mil Area
(CMA) and Diameter
for Lead Wires
(AWG Wire Size
Range 30–8)**

Wire Size	Strands		Wire Area in Circ. Mils
	Numbers	Dia. (Mils)	
30	7	4.0	112
30	1	10.0	100
28	7	5.0	175
28	19	3.1	181
28	1	12.6	159
27	7	5.6	219
27	1	14.2	202
26	6	6.3	238
26	10	5.0	250
26	16	4.0	256
26	8	5.6	251
26	1	15.9	253
26	26	3.1	250
26	7	6.3	278
26	3	10.0	300
26 AN	12	5.0	300
25	10	5.6	314
25	8	6.3	318
25	1	17.9	320
24	10	6.3	397
24	8	7.1	403
24	16	5.0	400
24	4	10.0	400
24	1	20.1	404
24	26	4.0	416
24	13	5.6	408
24	7	8.0	448
24	56	2.8	439
24 AN	19	5.0	475
23	10	7.1	504
23	8	8.0	512
23	1	22.6	511
—	21	5.0	525
22	6	10.0	600
22	8	8.9	634
22	16	6.3	635
22	10	8.0	640
22	1	25.3	640
22	7	10.0	700
22 AN	19	6.3	754
20	10	10.0	1,000
20	1	10.0	1,024
20	26	6.3	1,032
20	7	12.6	1,111
20 AN	19	7.9	1,186
18	19	9.2	1,608
—	16	10.0	1,600
18	1	40.3	1,624
18	7	15.2	1,617
18	65	5.0	1,625
18	7	15.3	1,639

Wire Size	Strands		Wire Area in Circ. Mils
	Numbers	Dia. (Mils)	
—	41	6.3	1,627
—	7	16.0	1,792
18 AN	19	10.0	1,900
18 AN	19	11.3	2,426
16	7	19.2	2,580
16	1	50.8	2,581
16	65	6.3	2,580
16	19	11.7	2,601
16	105	5.0	2,625
—	26	10.0	2,600
16	7	20.0	2,800
14 AN	19	14.2	3,831
14	37	10.5	4,079
14	7	24.2	4,099
14	19	14.7	4,106
14	1	64.4	4,109
—	41	10.0	4,100
14	105	6.3	4,167
14	168	5.0	4,200
14	84	7.1	4,234
—	7	25.3	4,481
12	19	17.9	6,088
12 AN	19	17.9	6,088
12	259	5.0	6,475
12	19	18.5	6,503
12	7	30.5	6,512
12	37	13.3	6,545
12	1	80.8	6,529
12	165	6.3	6,549
12	84	8.9	6,654
10	7	36.0	9,072
—	37	16.0	9,472
10	414	5.0	10,350
10	37	16.7	10,319
10	1	101.9	10,384
10	7	38.5	10,376
10	19	23.4	10,404
—	41	15.9	10,365
10	105	10.0	10,500
9	7	43.0	12,943
9	1	114.4	13,087
9	525	5.0	13,125
8	7	45.0	14,175
8	133	11.1	16,386
8	37	21.1	16,472
8	1	128.5	16,512
8	7	48.6	16,533
8	19	29.5	16,534
8	49	18.4	16,589
8 AN	133	11.3	16,982

For complete product information, order Catalog 82221

Technical Documents

A variety of technical documents are available for your use:

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-2012—Standard MAG-MATE Splices and Terminals
108-2016—Mini MAG-MATE Terminals

Application Specifications describe requirements for using the product in its intended application and or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-2002—AMPLIVAR 7-Serration Pigtail Splices
114-2003—AMPLIVAR 9-Serration Pigtail Splices
114-2005—AMPLIVAR Subminiature Thru Splices
114-2006—AMPLIVAR Subminiature Pigtail Splices
114-2009—AMPLIVAR 5-Serration Thru Splices
114-2016—AMPLIVAR Miniature Pigtail Splices
114-2050—Poke-In Tab MAG-MATE Terminals
114-2069—Standard MAG-MATE .187 [4.75] Box Height Terminals
114-2046—Standard MAG-MATE .300 [7.62] Box Height Terminals
114-2066—Standard MAG-MATE .500 [12.7] Box Height Terminals
114-2067—Standard MAG-MATE .300 [7.62] Box Height Latch-In Terminals Narrow Body
114-2094—Standard MAG-MATE .300 [7.62] Box Height Latch-In Terminals Wide Body
114-2047—Mini MAG-MATE Terminals

For complete product information, order Catalog 82221

Product Facts

- Accommodates aluminum foil or strip thickness from .001 to .095 [0.03 to 2.41] and soft copper to .010 [.025]
- Exceeds current-carrying requirements
- For use in air or oil filled transformers, capacitors, reactors, solenoids, relays, regulators, etc.
- No surface preparation necessary
- No noise injection in low-level audio circuits
- Available in copper, brass and steel base metal—tin plated, nickel plated or plain
- Will terminate or tap aluminum foil-wound coils
- Will splice two or more pieces of foil or strip
- Apply to bare, insulated, anodized or coated aluminum and bare or insulated copper
- Can be applied in heating elements, alarm systems and electrostatic shields
- Low applied cost
- Tin plated items acceptable for use in 150°C; nickel plated items to 343°C

Technical Documents:

Instruction Sheets

408-2517, 408-2689, 408-2758—Terminals

408-1710, 408-2357, 408-2363, 408-2014, 408-2284, 408-1412, 408-1546, 408-2395—Tooling

Engineering Test Reports

110-13500, 110-13501



TERMI-FOIL terminals and splices make it possible for the transformer manufacturer to use aluminum foil or strip instead of copper wire windings. These terminations feature a calculated number of precision spaced lances which penetrate surface oxides and insulation, then imbed themselves in the foil or strip when the two faces are clamped together. This results in an airtight and moisture-proof connection, with no need for surface preparation or time-consuming termination equipment.

Terminations are reliable, light, economical and quickly accomplished. They dissipate heat efficiently and are mechanically strong. Tests in air and under oil show entirely satisfactory performance, in both elevated and subzero temperatures,

during current cycling and overload conditions.

TERMI-FOIL terminals are available in two types: wire to foil styles (for AWG wire Sizes 22 to 8 [0.3 to 8 mm²] and larger tap types (in lengths up to 15 in. [381 mm]) with provisions for lead terminations. Selection of the proper TERMI-FOIL terminal or splice depends on several factors:

(1) The terminal must have the same current-carrying capacity as the aluminum foil or strip (i.e., the CMA of the TERMI-FOIL terminal or splice must be equivalent to the CMA of the aluminum foil or strip). Use the nomograph on page 8 or the following formula when selecting TERMI-FOIL terminals and splices. $T \times W \times 1.273 \times .62 = \text{equivalent CMA of the TERMI-FOIL terminal or splice. } T =$

thickness of aluminum strip or foil in mils. $W =$ width of aluminum strip or foil in mils.

(2) The lanced area of the TERMI-FOIL terminal must cover a minimum of 60% of the width of the aluminum strip or foil to insure proper current distribution in the strip or foil.

(3) For TERMI-FOIL terminals with wire barrels, the current-carrying capacity of the wire used in conjunction with the terminal can be considered as the current-carrying capability of the connection.

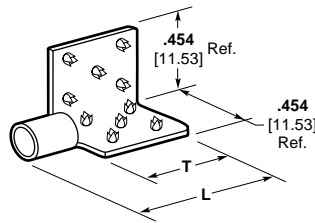
For complete product information, order Catalog 82039

Barrel Terminals

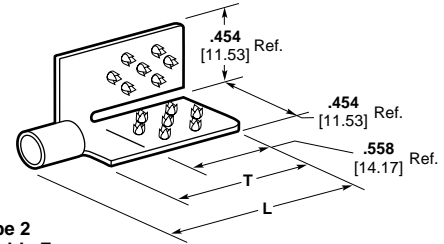
**.030 [0.76] Max.
Aluminum Foil Thickness**

Related Product Data:
Application Tooling — page 7153

Technical Documents:
page 7150



**Type 1
Double Face**



**Type 2
Double Face
(Slotted)**

Material and Finish	Type	Wire Barrel Range		Dimensions		Terminal Part Numbers	Foil Crimp Tooling	
		AWG	mm ²	T	L Max.		Hand Tool	Dies for Pneu. Tool 189721-1 ¹ with Head 189722-1
Nickel Plated Copper	1	16-14	1.25-2.0	.408 10.36	.671 17.04	329860	68026	217923-1 ² & 69177-1
	1	12-10	3.0-6.0	.408 10.36	.781 19.84	329254		
	2	16-14	1.25-2.0	.708 17.98	.989 27.13	52195		
Tin-Plated Copper	1	16-14	1.25-2.0	.408 10.36	.671 17.04	329860-1	68026*	217923-1 ² & 69177-1
	1	12-10	3.0-6.0	.408 10.36	.781 19.84	2-329254-4		
	1	12-10	3.0-6.0	.932 23.67	1.296 32.97	330003		

**Oblong wire barrel.

¹ Pneu. tool 189721-1 is hand actuated, 189722-1 is foot actuated.

² Requires tool holder 189767-1 (non-logic) or 356302-1 (logic)

Wire Barrel Crimp Tooling

Wire Range		Hand Tool	Dies for Pneu. Tool	
AWG	mm ²		189721-1	189722-1 ¹
16-14 & 12-10	1.25-2.0 & 3.0-6.0	49935	679301-1 ²	
8	7.0-8.0	69355	679302-1 ²	

Note: This is only a partial listing of tools that are available for crimping wire barrels. For additional tooling information call the Technical Support Center 1-800-522-6752.

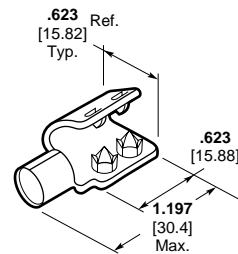
Tap Splice and Barrel Terminal

**Power Factor Capacitor
.095 [2.41]
Aluminum Foil Thickness**

Related Product Data:
Application Tooling — page 7153

Technical Documents :
page 7150

**Type 11
Terminal**



Material and Finish	Type	Wire Barrel Range		Part Number	Foil Crimp Tooling	Wire Barrel Crimp Tooling	Wire Barrel Crimp Tooling
		AWG	mm ²		Jaws for Tool 68068, 68068-3	Jaws for Tool 68068, 68068-3	Head for Pneu. Tool 69010
Brass, tin-plated	11	8	7.0-8.0	53660-4	68257-1	68135	38394

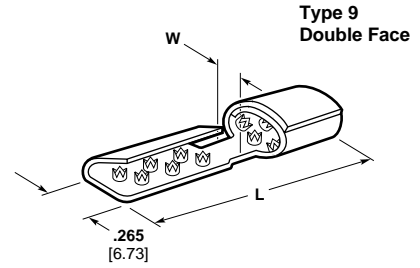
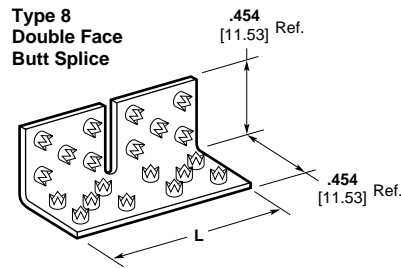
For complete product information, order Catalog 82039

Splices

**.030 [0.76] Max.
Aluminum Foil Thickness**

Related Product Data:
Application Tooling — page 7153

Technical Documents :
page 7150



Wire Range	Material and Finish	Type	Dimensions		Part Numbers	Foil Crimp Tooling	
			W	L		Hand Tool	Dies for Pneu. Tool 69010 with 69263-1
Carrying Capacity Equal to 10 AWG [5-6 mm ²]	Tin Plated Copper	8	—	.932 23.67	329657	68026*	69177-1
		9	.170 4.32	1.012 25.7	1-332006-0		

*For heavy duty, use tool **68064**.

Shield Connector for Telephone and Power Cable

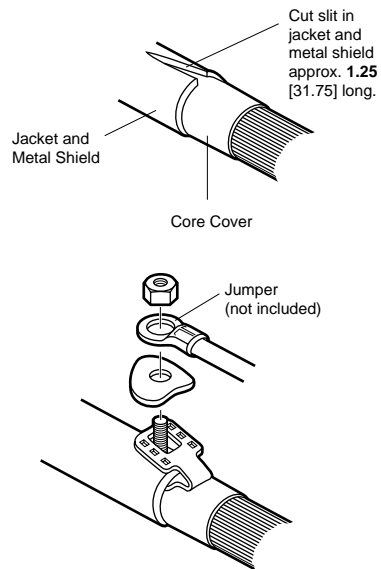
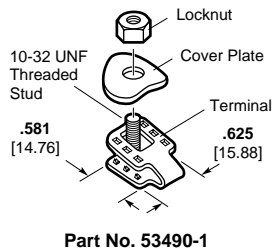
Material and Finish:

Brass, tin-plated

Related Product Data:

Application Tooling — page 7153

Technical Documents :
page 7150



For complete product information, order Catalog 82039

Application Tooling

Hand Tools



Tool 68026

626 Pneumatic Tool



AMP-O-LECTRIC

Machine No.
1-471273-3



DYNA-CRIMP Electric Hydraulic Power Unit



Part Numbers:
Power Unit Only (includes pressure release on unit)
115 Volts 60 Hz — 69120-1
230 Volts 60 Hz — 69120-2

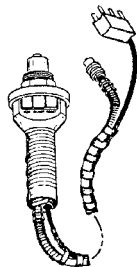
Accessory Power Controls and Hoses

Controls and hose accessories must be ordered separately.

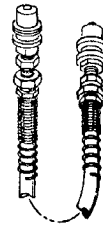
If electric hydraulic tool is to be used in portable applications, a handle control and hose assembly should be used.

For stationary applications, a foot switch assembly and hose assembly and hose assembly will be necessary.

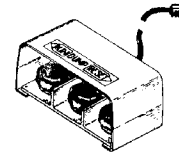
Multidirectional valves are used when more than one crimping head is permanently attached to the tool.



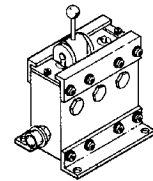
Handle Control



Hose Assembly



Foot Control



Multidirectional Valve

For use with Power Unit No.	Accessory Description	Accessory Part Numbers	Remarks
69120-1 69120-2	7 ft. [2.13 m] Handle Control Assembly — Hose and Cord	59907-7	
	15 ft. [4.57 m] Handle Control Assembly — Hose and Cord	1-59907-5	
	15 ft. [4.57 m] Handle Control Assembly — Cord (Less Hose)	1-59908-5	
	21 ft. [6.4 m] Handle Control Assembly — Hose and Cord	2-59907-1	
	21 ft. [6.4 m] Handle Control Assembly — Cord (Less Hose)	2-59908-1	
	28 ft. [8.53 m] Handle Control Assembly — Hose and Cord	2-59907-8	
69120-1 69120-2	15 ft. [4.57 m] Foot Switch Assembly	68284-1	Needs Hose Assembly
	3 ft. [0.91 m] Hose Assembly	59909-3	68284-1 Foot Switch Assembly needed with these Hose Assemblies
	7 ft. [2.13 m] Hose Assembly	59909-7	
	15 ft. [4.57 m] Hose Assembly	1-59909-5	
21 ft. [6.4 m] Hose Assembly	2-59909-1		
69120-1 69120-2	3-Way Multi-Directional Valve	59220	For use with
	3-Way Multi-Directional Valve (Elec. Control)	59220-2	Foot Switch only

For complete product information, order Catalog 82039

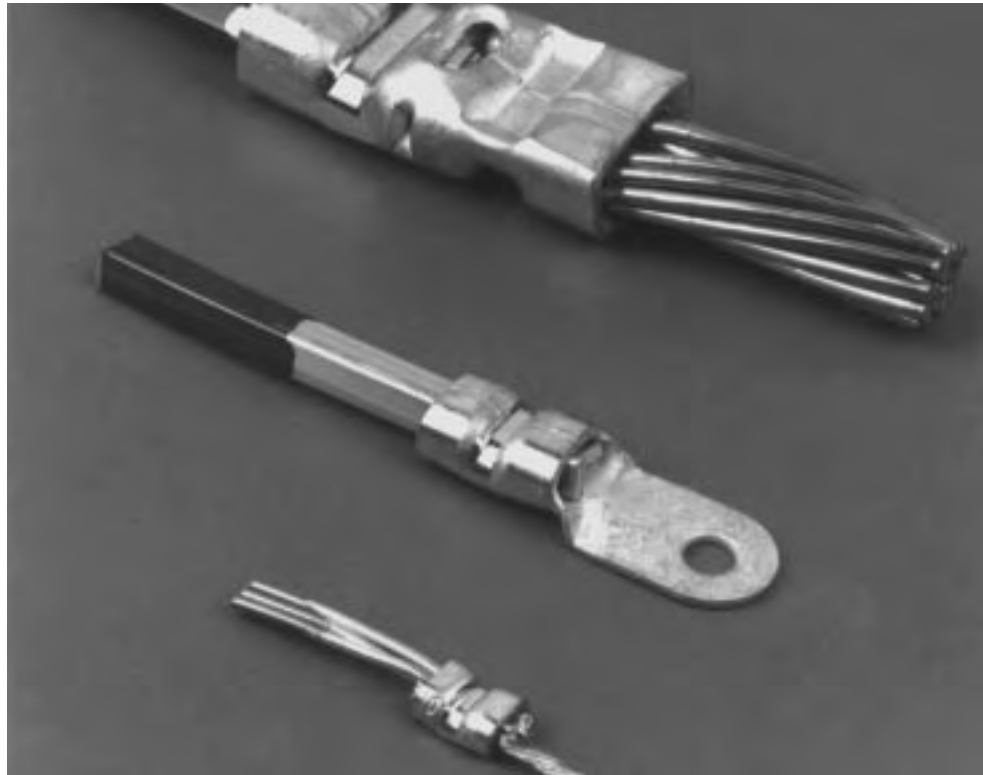
Product Facts

Bar Crimp Technique

- Terminals and Splices for aluminum-to-aluminum and aluminum-to-copper stripped wire applications
- Terminates stripped, stranded and solid (round or rectangular) aluminum and copper conductors — individually or in combination
- Eliminates messy inhibitors
- Available for a broad range of wire sizes — from 16 AWG to 500 MCM [1.25 to 253 mm²]
- Low cost, reliable terminations provide stable electrical and mechanical performance
- UL 486B Listed where indicated



¹ Bar crimp only



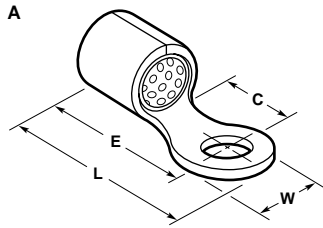
Insulation Piercing Technique

- Terminals and splices for aluminum-to-aluminum, copper-to-copper and aluminum-to-copper wire applications
- Terminates film insulated solid aluminum, film insulated solid copper, or uninsulated stranded copper conductors — individually or in combination
- Stripping of film insulated solid conductors not required
- Eliminates messy inhibitors
- Available for a broad range of wire sizes — from 16 to 4/0 AWG [1.25 to 105 mm²]
- Copper body construction
- Low cost, reliable terminations provide stable electrical and mechanical performance



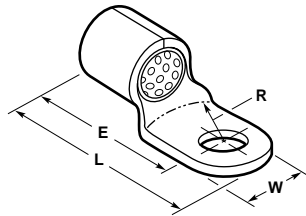
For complete product information, order Catalog 82020

Ring Tongue Terminals



Style	Wire Size [mm ²] Circular Mils Aluminum	Tongue Thickness Max.	Stud Size	Dimensions				Hand Tool*	Part Numbers		Terminal
				W	L Max.	E Max.	C Min.		Heads for Pneumatic Tools*	Terminal	
A	12-10 [5.0] 5180-13100	.042 1.07	1/4 M6	.375 9.53	.835 21.21	.645 16.38	.302 7.67	68042 68141-1	68030 68080	68105 68100, 68101	51979-3

*First (top) part numbers denote bar crimp tooling. Second (bottom) part numbers denote insulation piercing crimp tooling.



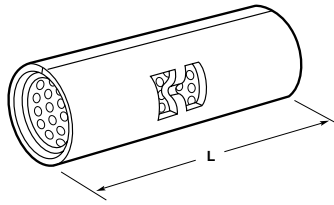
Wire Size [mm ²] Circular Mils Aluminum	Tongue Thickness Max.	Stud Size	Dimensions				Part Numbers		Terminal		
			W	L Max.	E Max.	R Max.	Heads for Pneumatic Tools*	Heads & Die Inserts for Power Unit 69120*			
8 [8.0] 13100-20800	.048 1.22	10	.500	1.384	1.131	.560	68032	68105	69099	68043	50720
		—	12.7	35.15	28.73	14.22	68081	68101, 68192-1	69099	68084	
1/4 M6	.500	1.384	1.131	.560	68032	68105	69099	68043	50720-1		
		12.7	35.15	28.73	14.22	68081	68101, 68192-1	69099		68084	
6 [14] 20800-33100	.051 1.3	10	.500	1.415	1.162	.580	69999	68106	69099	68044	50719
		—	12.7	35.94	29.51	14.73	68082	68102	69099	68085	
1/4 M6	.500	1.415	1.162	.580	69999	68106	69099	68044	50719-1		
		12.7	35.94	29.51	14.73	68082	68102	69099		68085	
2 [35] 52600-83700	.060 1.52	1/4 M6	.675	1.859	1.541	.625	—	—	69099	68046	51982
		17.15	47.22	39.14	15.88	—	—	69099	68130		
1/0 [50] 83700-119500	.073 1.85	1/4 M6	.675	1.859	1.541	.625	—	—	69099	68047	51986
		17.15	47.22	39.14	15.88	—	—	69099	68131		
5/16 M8	.675	1.859	1.541	.625	—	—	69099	68047	51986-1		
		17.15	47.22	39.14	15.88	—	—	69099		68131	

*First (top) part numbers denote bar crimp tooling. Second (bottom) part numbers denote insulation piercing crimp tooling.

For complete product information, order Catalog 82020

Splices

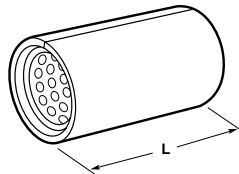
Butt Splice



Wire Size [mm ²] Circular Mils		Dim. L Max.	Part Numbers				Splice
Aluminum	Copper		Heads for Pneumatic Tools*		Tooling for Power Unit 69120*		
			69015	68068	Head	Die Insert*	
8 [8.0] 13100-20800	12-10 [5.0] 5180-13100	1.195 30.35	68032 68081	68105 68101,68192-1	69099	68043 68084	51826
6 [14] 20800-33100	8 [8.0] 13100-20800	1.340 34.04	69999 68082	68106 68102	69099	68044 68085	51941
4 [21] 33100-52600	6 [14] 20800-33100	1.630 41.4	68038	—	69099	68045 68086	51942
2 [35] 52600-83700	4 [21] 33100-52600	1.995 50.67	—	—	69099	68046 68130	52007
2/0 [70] 119500-150500	1/0 [50] 83700-119500	1.985 50.42	—	—	69099	68048 68132	52013

*First (top) part numbers denote crimp bar tooling. Second (bottom) part numbers denote insulation piercing crimp tooling.

Parallel Splice



Wire Size [mm ²] Circular Mils		Dim. L Max.	Hand Tool*	Part Numbers			Splice		
Aluminum	Copper			Heads for Pneumatic Tools*		Tooling for Power Unit 69120*			
				69015	69010	68068	Head	Die Insert	
16-14 [1.25] 2050-5180	18-16 [0.8] 1290-3260	.283 7.19	68041 68140-1	—	68031 68093-1	68104 68100	—	—	52791
12-10 [5.0] 5180-13100	14-12 [3.0] 3260-8230	.375 9.53	68042 68141-1	—	68030 68080	68104,68105 68100,68101	—	—	52792
8 [8.0] 13100-20800	12-10 [5.0] 5180-13100	.437 11.1	—	68032 68081	—	68105 68101,68192-1	69099	68043 68084	52745
6 [14] 20800-33100	8 [8.0] 13100-20800	.450 11.43	—	69999 68082	—	68106 68102	69099	68044 68085	52746
4 [21] 33100-52600	6 [14] 20800-33100	.562 14.27	—	68038	—	—	69099	68045 68086	52747
2 [35] 52600-83700	4 [21] 33100-52600	.781 19.84	—	—	—	—	69099	68046 68130	52748
1/0 [50] 83700-119500	2 [35] 52600-83700	.734 18.64	—	—	—	—	69099	68047 68131	52749
2/0 [70] 119500-150500	1/0 [50] 83700-119500	.734 18.64	—	—	—	—	69099	68048 68132	52750
3/0 [85] 150500-190000	2/0 [70] 119500-150500	.749 19.02	—	—	—	—	69099	68049 68133	52751

*First (top) part numbers denote bar crimp tooling. Second (bottom) part numbers denote insulation piercing crimp tooling.

For complete product information, order Catalog 82020

Tooling

Tooling

Manually Operated Tools

These tools are designed for hand operation and low volume production work or where power is not available. They feature the CERTI-CRIMP ratchet device for controlled compression crimping to provide uniform terminations consistently.



Heavy Head Hand Tool



Pneumatic Tool
Part Number 69010



Pneumatic Tool
Part Number 69015



Pneumatic Tool
Part Number 68068 – As shown
Part Number 68068-3 – Foot pedal;
can be bench
mounted

Pneumatic Tools

Designed for medium production, these semi-automatic power tools offer the convenience of hand tools plus the effortless precision and speed of machines. They are built for long, rugged service and are equipped with removable crimping dies for terminating a variety of AMP products.

DYNA-CRIMP Tools

Power Unit Only (Includes Pressure Release)
115 Volts — 69120-1
230 Volts — 69120-2

The DYNA-CRIMP Power Unit can be equipped with various heads and dies for terminating COPALUM products in wire ranges from AWG 8 to 500 MCM [8 to 253 mm²]. A complete line of accessories is also available, permitting use in portable and stationary applications, as well as for multi-head crimping.



Electro-Hydraulic Power Unit



Power Unit
Crimping Head
Part Number 69099





Power Unit
Crimping Head
Part Number 69082

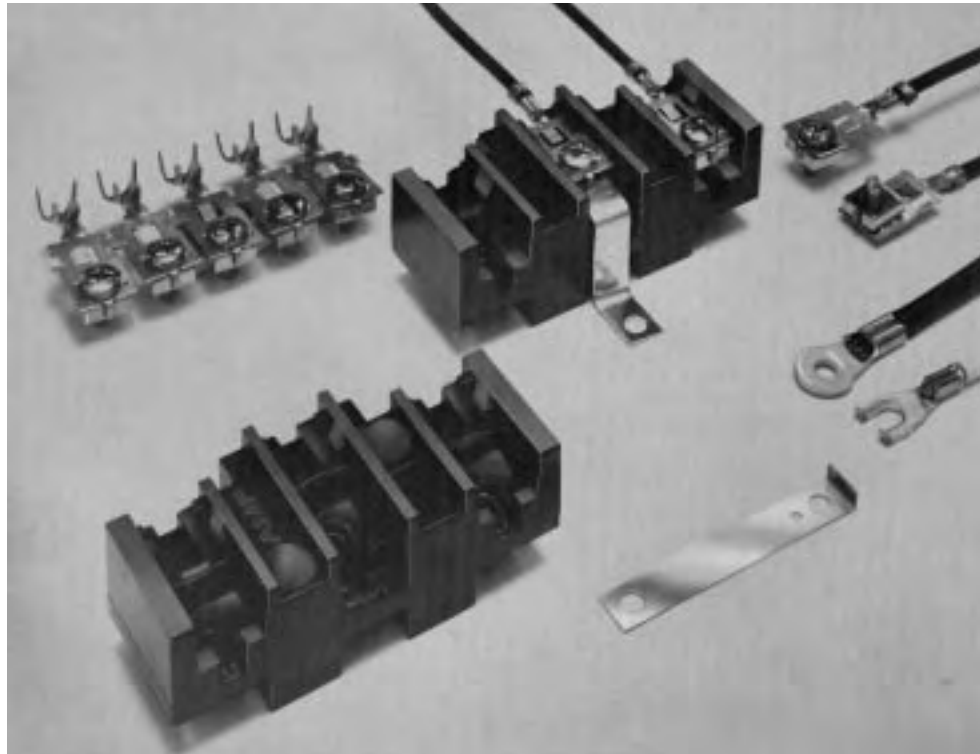
Accessories for DYNA-CRIMP Tools

Accessory Part Number	Description	Power Unit Part Number
59907-7	7 ft. [2.13 m] Handle Control Assembly — Hose and Cord	Pressure Release on Power Unit Only
1-59907-5	15 ft. [4.57 m] Handle Control Assembly — Hose and Cord	
2-59907-1	21 ft. [6.4 m] Handle Control Assembly — Hose and Cord	
2-59908-1	21 ft. [6.4 m] Handle Control Assembly — Cord (Less Hose)	
2-59907-8	28 ft. [8.53 m] Handle Control Assembly — Hose and Cord	
68284-1	15 ft. [4.57 m] Foot Switch Assembly (needs hose assembly)	69120-1 69120-2
59909-3	3 ft. [0.91 m] Hose Assembly	
59909-7	7 ft. [2.13 m] Hose Assembly	Foot Switch Assembly needed with these hose assemblies.
1-59909-5	15 ft. [4.57 m] Hose Assembly	
2-59909-1	21 ft. [6.4 m] Hose Assembly	
59220	3-way Multi-Directional Valve	For use with Foot Switch only
59220-2	3-way Multi-Directional Valve (Elec. Control)	
59221	6-way Multi-Directional Valve	

For complete product information, order Catalog 82020

Product Facts

- Simplifies and facilitates power integration for washers, dryers, air conditioners and other household appliances
- Power Rings snap into 3-position phenolic Power Block, further facilitating installation
- Power Block is easily mounted in appliance using sheet metal screws
- Power Block and Power Rings allow easy attachment of power cords or direct wiring with 10 through 6 AWG [5 through 15 mm²] cable in accordance with National Electrical Code requirements
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E60677 (Power Block) File No. E13288 (Power Ring) 
- Certified by Canadian Standards Association File No. LR84713 (Power Block) File No. LR7189 (Power Ring) 



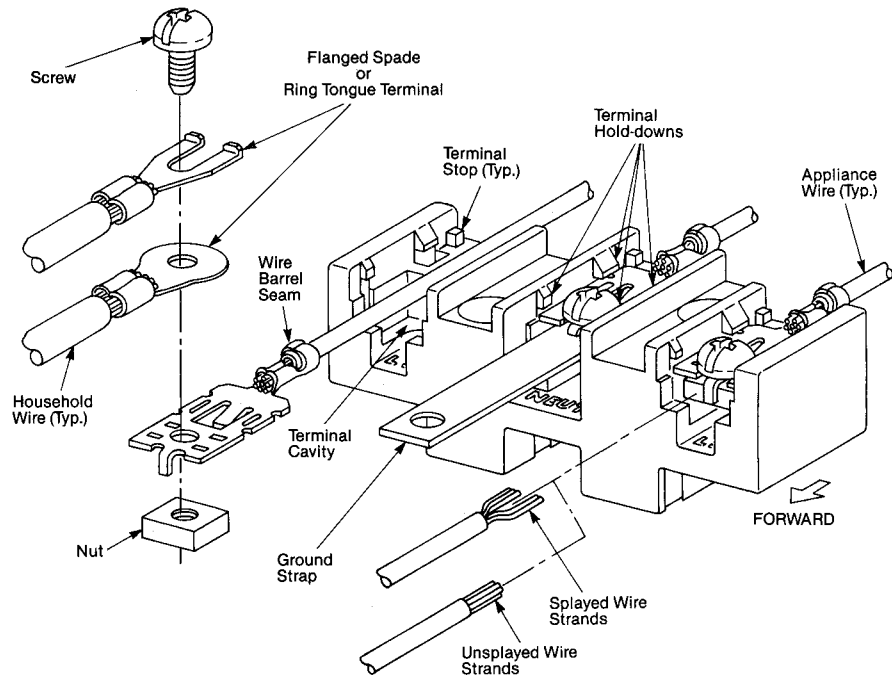
AMP Power Blocks and Power Rings are the main elements in the AMP "power block connector system" that simplifies integrating power connections in washers, dryers, air conditioners and other household appliances. These Power Blocks and Power Rings permit you to easily attach standard power cords or stranded copper wire within a range of 10 through 6 AWG [5 through 15mm²] to appliances in accordance with National Electrical Code requirements. The connecting wire can remain unterminated or it can be terminated to any precision, formed or custom-made terminal with a maximum thickness of .125 [3.18]. or you can use AMP optional Ring Tongue or Flanged Spade Terminals to connect the wire to the Power Rings.

Installing the "power block connector system" in the appliance is a "snap". The 3-position phenolic Power Block is mounted in the appliance using sheet metal screws. The brass or pre-tin Power Rings snap into the Power Block. Optional AMP tooling further facilitates connecting power cords or wires.

Outstanding features of the "connector system" include Power Rings with pre-assembled nuts and screws; 16 to 10 AWG [1.25 to 6 mm²] capability (including two 14's or two 12's) in the same contact for harnessing simplicity; and a contact retention tyne that locks into the Power Block without need for additional hardware.

For complete product information, order Catalog 89-896

Power Block and Power Rings Connector System

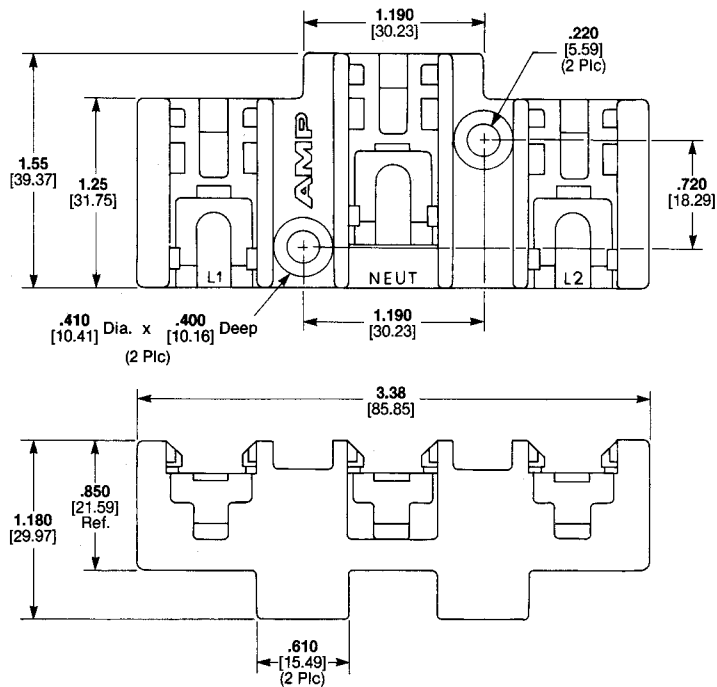


Power Block

Part Number 520942-2

Material:

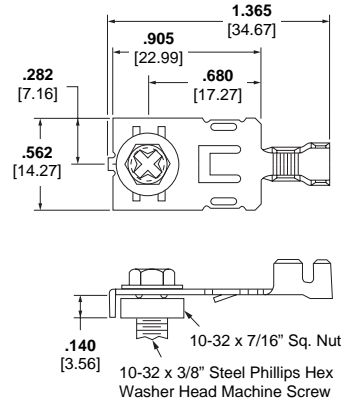
Black phenolic 94V-1 Rated



Note: Appliance and household wire supplied by user.

For complete product information, order Catalog 89-896

Power Rings

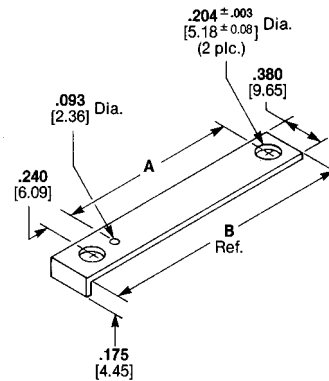


Wire Size		Insulation Diameter Range	Finish	Power Ring Part Number	Applicator Number
AWG	mm ²				
16-12	1.25-3.00	.110-.160 2.79-4.06	Pre-Tin Plated	520994-1	567253-2

Grounding Strap

Material:

Plain Copper



Dimensions		Part Numbers
A	B	
1.650 41.91	2.340 59.44	63450-1*
1.40 35.56	2.09 53.10	1217143-1

*Pre-tin

For complete product information, order Catalog 89-896

Product Facts

- Accepted as the industry standard by leading kitchen-range manufacturers
- Designed for easy connection of surface burners in ranges of virtually any manufacturer
- Permits a manufacturer to use high-speed equipment to terminate leads
- Permits easy interchange of cooking or burner elements
- Available with a housing of heat-resistant phenolic for temperatures up to 300°C...or with a porcelain housing for temperatures above 300°C
- Lab tests indicate connectors still good after 3500 mating/unmating cycles
- Housings snap into any of the four AMP Clips
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E70200
- Certified by the Canadian Standards Association File No. LR7189



Accepted as the industry standard by virtually all kitchen-range manufacturers, AMP Surface Burner Connector system comprises a phenolic or porcelain housing, a plug-in receptacle and a clip. This system is easily assembled. The phenolic or porcelain housing snaps into the clip and the receptacle plugs into the housing. Receptacle design permits a manufacturer to use "high-speed" equipment to terminate leads. The clips are available in four different configurations to satisfy various range and burner designs.

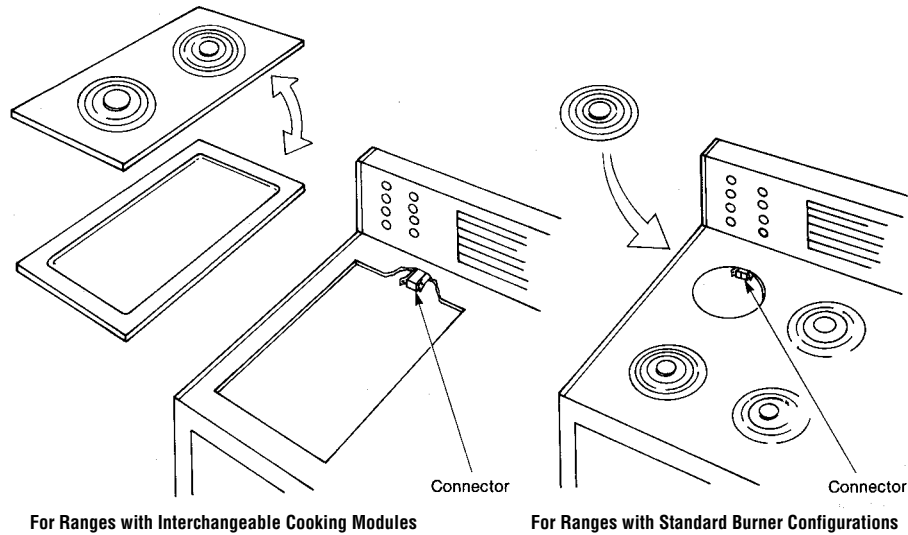
The heat-resistant phenolic housings are used for temperatures up to 300°C...the porcelain housings for temperatures over 300°C. The phenolic

housings are used primarily on ranges with "standard" burners and the porcelain housings on ranges with interchangeable cooking modules such as grills and broilers. The porcelain housings are available in two configurations, one of which snaps into an AMP Clip, and the second into a "purchased" or "user" Clip.

AMP Surface Burner connector systems facilitate changing cooking elements. Tests demonstrate these systems still operating after 3500 cycles of mating and unmating. All connectors carry UL recognition and CSA certification.

If you need special Surface Burner Connectors for special uses or applications, please contact Tyco Electronics.

Heavy-Duty Burner Connector Housings, Clips and Receptacles



Housings

Housing Part Number 770524-1

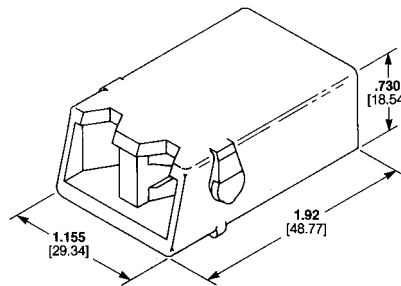
Material:

Phenolic, black, heat resistant grade

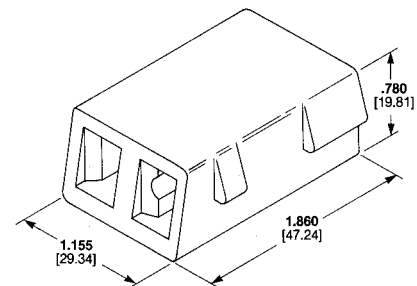
Housings Part Number 770324-1

Material:

Porcelain, natural



Part Number 770524-1



Part Number 770324-1

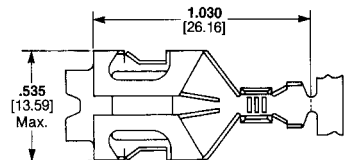
Note: 770324-1 Housing is used with an AMP Clip

Receptacle

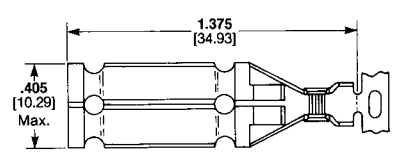
Material:

Part Number 640748-1—Copper, Nickel-Tin, Alloy 725

Part Number 770321-1—Copper Alloy 195



Part Number 640748-1¹



Part Number 770321-1²

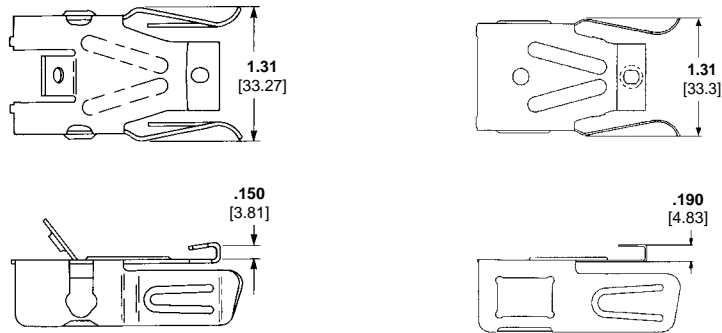
¹ Receptacle Part Number 640748 used with standard surface burner units only.
² Receptacle Part Number 770321 used with interchangeable modules only.

Connector Clips

Material:

Stainless Steel

Part Number 640750-1



Fluorescent Tube Socket, Housings

Housing Part Number 1-480344-0

Material:

Phenolic, black

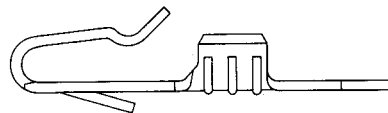
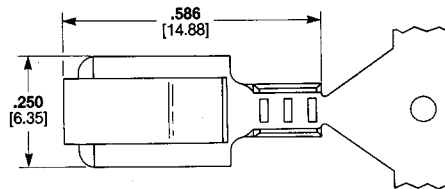
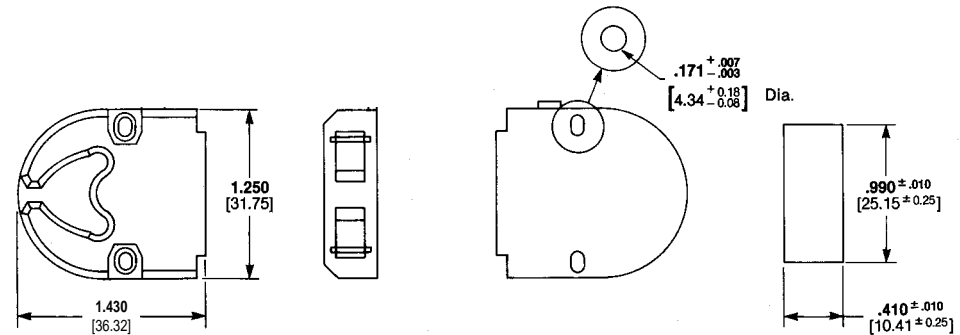
Lamp Socket Terminals

Material and Finish:

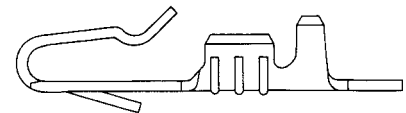
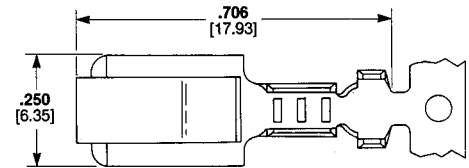
Brass; see table below right for finish.

Wire Size:

20-16 AWG [0.5-1.4 mm²]



Type A
Part Number 640483



Type B
Part Number 60805

Type	Insulation Diameter Maximum	Finish	Quick-Change Part Numbers	Quick-Change Applicator for AMP-O-ELECTRIC	Integral Die Applicator for AMPOMATOR	Hand Tool
A	—	—	640483-1	466695-2	466695-1	—
B	.130 3.3	—	60805-2	466390-2	466390-1	47044-2
		Tin	60805-3	*	*	

*Contact the Technical Support Center for applicator information.

Application Tooling

See chart at right for hand tool and applicator numbers.

Introduction



As a result of the increasing globalization of the Appliance marketplace, products designed to comply with the European Rast 5 and 2.5 standard have become increasingly more important to U.S. manufacturers. AMP is able to support designs to this standard by offering a complete range of products and corresponding application tooling for harness manufacture. RAST 5 and 2.5 are acronyms for:

R aster	Centerline
A nschluss	Connection
S teck	Plug
T echnik	Technology
5/2.5	Pitch in mm

The RAST standard describes standard mating interface features for various appliance components such as motors, water pumps, etc. Covered in the mating interface features are:

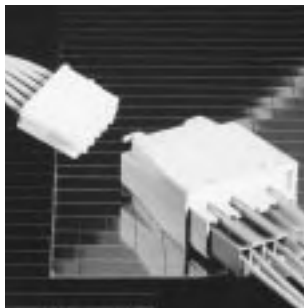
- Position of locking latch
- Position of keying ribs
- Position of polarization ribs
- Number of positions
- Electrical function of each tab

AMP has several product families from crimp-snap to insulation displacement connector systems (IDC) which are designed in accordance with the RAST standard and can assist manufacturers who are just

beginning to use RAST compatible components as well as those ready to implement fully automated production of a wiring harness. Appliances and harnesses built using the RAST designed components and harnesses have the potential to offer the following advantages:

- Lower labor cost
 - Lower rate of plugging errors
 - Less potential for damage to individual contacts during assembly
 - Lower stress for the final assembly worker due to lower mating forces

AMP Standard Timer in In-Line Mating Technology



AMP Standard Timer connectors according to RAST 5.0 mm standard have been developed to connect RAST 5 components (like motors, leach pumps, water level regulators, relays and push-button switches) in the Household Appliances Industry.

They meet industry requirements, for example multiple position connectors, secure connection even at inclining mating as well as a sturdy contact design.

AMP Standard Power Timer contacts, for use with Standard Timer housings, are suitable for high density and high current capacity up to 16 A.

Housing is designed for end-to-end stacking without contact loss. They are available in different keying and locking versions from 2- positions to 12-positions.

Standard Timer contacts can be used with stranded wires from

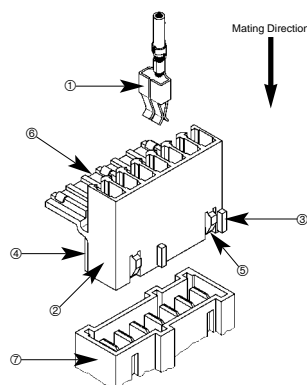
0.5 mm² to 2.5 mm² and can be double terminated. Of course, the corresponding tooling is available, too.

AMP Standard Timer connectors are tested by VDE and fulfill all requirements acc. to VDE 0700 (air gap, creepage distance, glow wire test, ball pressure test, creepage current strength). UL recognized component.

Interior Locking

Connection to the Components according to RAST 5 Standard

- ① Connected Timer Contact
- ② Standard Timer Housing with Interior Locking
- ③ Keying
- ④ Polarization
- ⑤ Locking Latch
- ⑥ Cover (Secondary Locking)
- ⑦ RAST 5 Tab Array

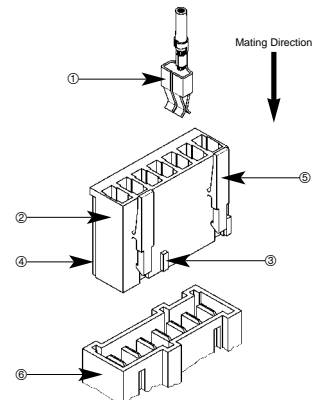


For complete product information, order Catalog 296599

Exterior Locking

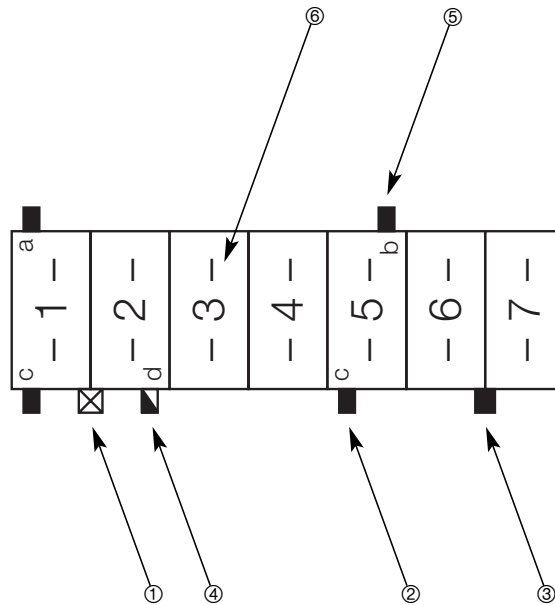
Connection to the Components according to RAST 5 Standard

- ① Connected Timer Contact
- ② Standard Timer Housing with Exterior Locking
- ③ Keying
- ④ Polarization
- ⑤ Locking Latch
- ⑥ RAST 5 Tab Array



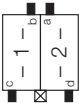
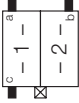
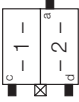
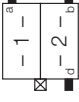
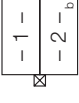
Keying Plan from Mating Direction

- ① Locking Latch
- ② Keying Rib
- ③ Keying Rib between Cavity
- ④ Slanted Keying Rib
- ⑤ Polarization Rib
- ⑥ Cavity Number



Standard Timer Housings

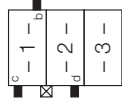
2 Position RAST 5 Variations

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	Natural	928344-2	6-928247-2	—
	Black	—	928247-2	—
	Gray	3-964951-2	—	—
	Green	6-928344-2	5-928247-2	—
	Yellow	928343-2	—	—

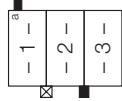
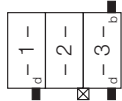
For complete product information, order Catalog 296599

Standard Timer Housings

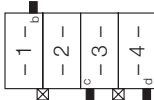
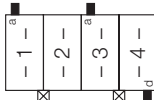
3 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	03-A	Natural	928344-3	—

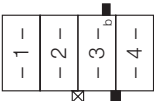
3 Position Special Variations

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	928343-3	—
	—	Yellow	—	928247-3

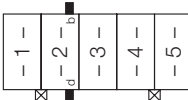
4 Position RAST 5 Variations

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	04-A	Natural	928344-4	—
	04-F	White	—	2-928247-4

4 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	928343-4	—

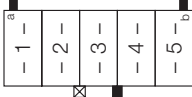
5 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	05-B	Black	—	2-928247-5

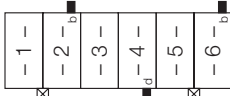
For complete product information, order Catalog 296599

Standard Timer Housings

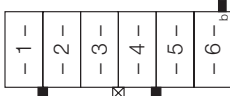
5 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	928343-5	—

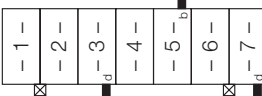
6 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	06-D	Blue	2-928247-6	—

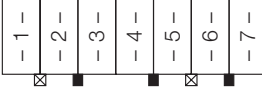

6 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	928343-6	—

7 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	07-C	Gray	928247-7	—

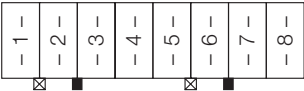
7 Position Special Variations

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	928343-7	—
	—	Natural	928344-7	—

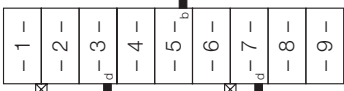
For complete product information, order Catalog 296599

Standard Timer Housings

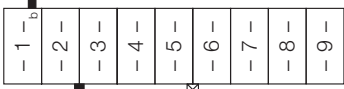
8 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Black	2-928343-8	—

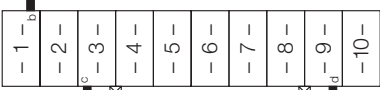
9 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	09-D	Blue	—	2-928247-9

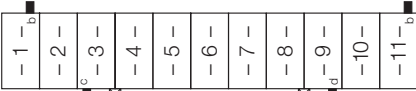
9 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Natural	927740-9	—

10 Position Special Variation

Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	—	Brown	—	1-928247-0

11 Position RAST 5 Variation

RAST 5 Version	Keying Version	Color	Part Numbers	
			Interior Locking	Exterior Locking
	11-B	Black	—	1-928247-1

For complete product information, order Catalog 296599

Standard Timer Housings

11 Position Special Variation

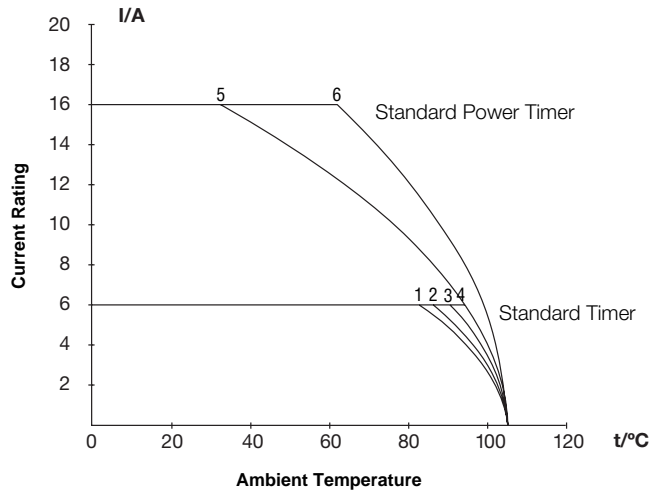
Version	Color	Part Numbers	
		Interior Locking	Exterior Locking
	Natural	1-927740-1	—

12 Position Special Variation

Version	Color	Part Numbers	
		Interior Locking	Exterior Locking
	Natural	1-927740-2	—

Standard Timer Connector

Derating Curve



Material:

Brass, tin plated

Mating Part:

6.3 tab

Material:

Brass, tin plated

Wire:

FLK 0.5/0.75 and 1.5 mm²

Current Carrying Capacity to 6 A:

1 = Wire 0.50 mm², 11pos. housing

2 = Wire 0.75 mm², 11pos. housing

3 = Wire 0.50 mm², 02pos. housing

4 = Wire 0.75 mm², 02pos. housing

Current Carrying Capacity to 16 A:

5 = Wire 1.50 mm², 11pos. housing

6 = Wire 1.50 mm², 02pos. housing

Standard Timer Contacts

Standard Timer Contacts with One Locking Lance

	Wire Size mm ²	Insulation Dia. Range	Material	Finish	Part Numbers
	0.5-1.0	.055-.091 1.4-2.3	Brass	Tin Plated	928820-1
	1.0-2.5	.118-.169 3.0-4.3			926973-1

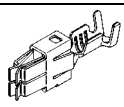
Standard Timer Contacts with Two Locking Lances

	Wire Size mm ²	Insulation Dia. Range	Material	Finish	Part Numbers
	0.5-1.0	.055-.091 1.4-2.3	Brass	Tin Plated	964201-1
	1.0-2.5	.118-.169 3.0-4.3			964202-1

For complete product information, order Catalog 296599

Standard Timer Contacts

Standard Power Timer Contacts

	Wire Size mm ²	Insulation Dia. Range	Material	Finish	Part Numbers
	1.0-2.5	.087-.118 2.2-3.0	Copper Iron	Tin Plated	964203-1
				Silver Plated	964203-5
	1.5-3.0	.078 x .118 max. 2 x 3.0		Tin Plated	964204-1
				Silver Plated	964204-5

AMP Multifitting Connectors in In-Line Mating Technology



The modular connector system incorporates modern in-line mating technology on a .197 [5.0 mm] centerline, 2- to 12 positions, with no loss of spacing and a variety of keying possibilities.

The AMP Multifitting connector system program was developed by AMP for economic and efficient cable harness production

using newly developed AMP application tooling. This connector program uses insulation displacement contacts: AMP Multifitting connectors.

This system is suitable for termination of 0.5 mm² to 0.75 mm² leads. The housing cover has two special functions providing reliable strain relief by independent locking in the housing, as well as allowing a 90° or 180° wire exit.

AMP Multifitting connectors are fed into the machine from reels, saving time and money.

The new modular component connecting devices, .248 [6.3 mm] or .189 [4.8 mm] tabs, are terminated quickly and easily.

The AMP Multifitting connector is tested by VDE.

UL recognized component.

AMP Multifitting Edge One-Piece Connector System



This AMP Multifitting Edge One-Piece Connector System in .197 [5.0 mm] centerline has specially been developed for the household appliance industry.

Suitable are 12- as well as 7-stranded wires with a wire size range of 0.5 mm² to 0.75 mm².

The single wires are fixed through a separate cover. Only a few basic part

numbers are needed to enable customers to produce all the required keying in accordance to RAST 5 standard during the termination process on the AMP application tooling.

Misalignment is avoided through a separately mounted frame on the printed circuit board, which has also a latching function.

As termination equipment a complete range from hand

tool up to a modular high-speed harness-maker for manufacturing double ended cable assemblies, using insulation displacement technique, can be offered.

For complete product information, order Catalog 296599

AMP MONO-SHAPE Connectors in In-Line Mating Technology



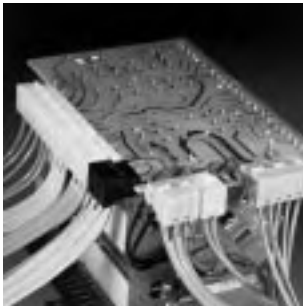
AMP MONO-SHAPE connectors represent a valid solution to the ever-increasing requirements for production and application flexibility. They are high productivity, great flexibility, quality, minimum applied cost.

AMP MONO-SHAPE product-line includes a full range of .197 [5.0 mm] pitch modular connector contents with similar outer shape, several variations in the mating area such as PC Board and .248 x .031 [6.3 x 0.8 mm] tabs (RAST 5), plus a version for harness shunts.

AMP MONO-SHAPE connection system adopts the IDC termination technology, which improves application results and quality level.

The AMP MONO-SHAPE product range, combined with the performances and properties offered by the termination system, allows the manufacture of extremely complicated harness structures while still maintaining high production levels.

AMP MT-Edge Card Edge Connectors



AMP developed the MT-Edge Card Edge, .197 [5.0 mm] centerline, connector range for the household appliance industry. AMP offers a choice of Edge Connector types, contact centerlines and number of housing positions.

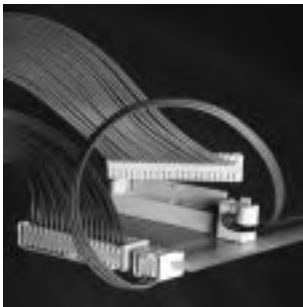
Pre-loaded insulation displacement contacts are terminated using fully or semi-automatic machines.

This connector system meets the requirements of DIN 41611, Part 6 and VDE 0627, 6 A current rating.

Features

- Optimum contact design with special forked spring construction
- Application tooling is available for various production volumes

AMP DUOPLUG 2.5 Connector System for Wire-to-Board Applications



The AMP DUOPLUG 2.5 Connector System offers a complete printed circuit board system which is suitable for edge as well as female to header applications using the same female part.

The top of the female contact is provided with an IDC slot, a technique which permits high speed wire termination. Application tooling specially developed for this system can

produce cable assemblies with connectors at one or both ends.

The connector keying is produced with a cutting unit on the application tooling machine.

Applications

- Household Appliances
- Consumer Electronics
- Telecommunication Industry
- Automotive Industry
- Vending Machines
- Measuring Devices and others

For complete product information, order Catalog 296599

Engineering Notes

A large grid area for engineering notes, consisting of a uniform grid of small squares, intended for technical drawings or calculations.

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Product Facts

■ **Certified by the VDE Testing and Certification Institute**
 VDE File No. 6917
 (Two-Piece Version)
 VDE File No. 6920
 (One-Piece Version)



■ **Recognized under the Component Program of Underwriters Laboratories Inc.,**
 File No. E60677



■ **Certified by Canadian Standards Association,**
 File No. LR 703157

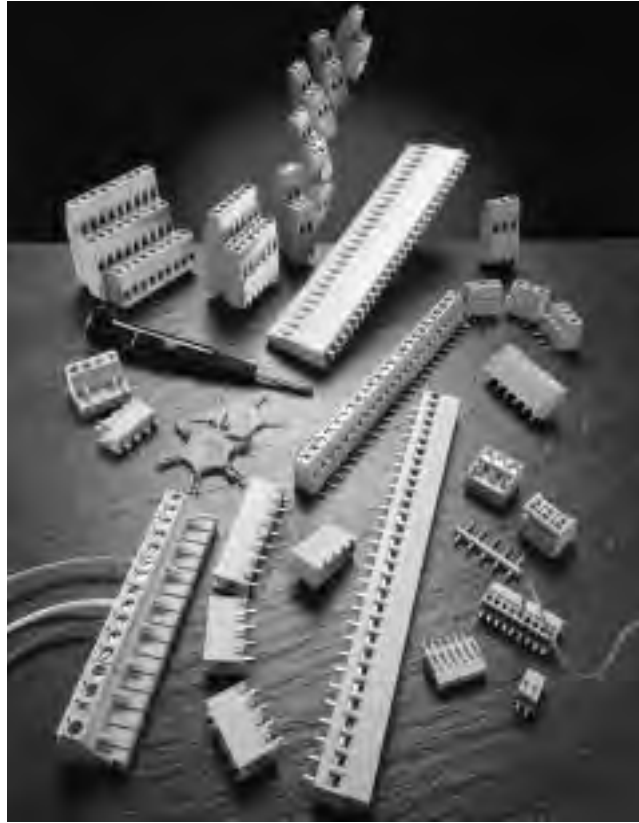


■ **Produced under Quality Management System certified to ISO 9001**

Technical Documents

Product Specification:
 108-20166 Terminal Block Connectors,
 Stacking PC Board Mount

Application Specification:
 114-20079 Terminal Block
 Stacking Connectors



Terminal Block connectors feature the special rising cage clamp design. The modular design of Terminal Block connectors consists of one-piece board mount terminal blocks and plug connectors with mating straight and right-angle shrouded headers. A special version – which can be mated either 90° or 180° – completes the product line. Terminal Block connectors offer several advantages:

- IR Reflow compatible
- Terminal Block connectors have a rising cage clamp which promotes numerous reliable connections and disconnections at field installations
- All blocks are supplied with open screws which shortens the time for connection
- The double captive screw system guards against lost screws

- All metal parts are non-magnetic
- The housing material used is halogen free Polyamide 6.6 according to UL 94V-0 (self-extinguishing)
- The housing funnel entry design enables an easier product application
- The open bottom design facilitates the PCB washing and reduces trapping of soldering fumes and dirt, with better insulation
- Available on the board mount connectors is test probe access to determine if an electrical connection has been made
- Contacts are post tinned with nickel underplate which allows the product to be used in specially corrosive environments

Board mount connectors, as well as pc board plugs and headers, are stackable end-to-end without loss of centerline spacing.

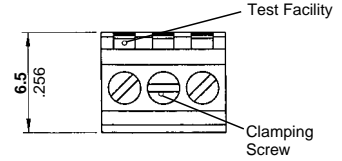
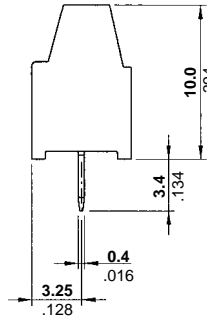
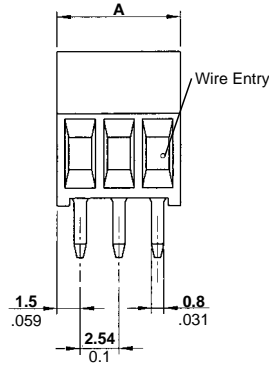
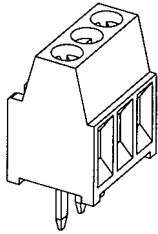
Ease of assembly is facilitated by built-in interlocks on the housings. Pre-assembled products can be delivered upon request. Adhesive labels are available to number the cavities. Customer specific labeling is also available upon request.

Terminal Block connectors are interchangeable with most existing products and pc board footprint is fully compatible with existing Industry Standards.

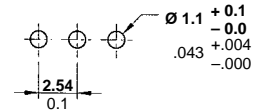
For complete product information, order Catalog 1308389

Board Mount, Side Wire Entry

Board Mount
1.0 mm² Solid Wire,
2.54 mm Centerline,
Side Wire Entry
Color – Gray
UL Rating – 150 V, 10 A
16-30 AWG



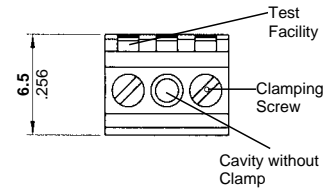
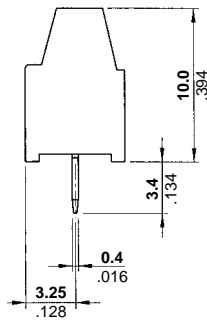
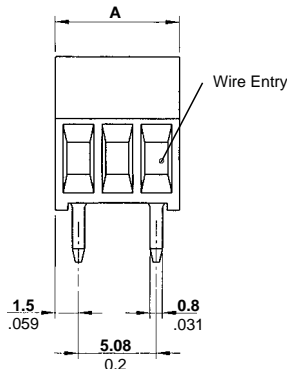
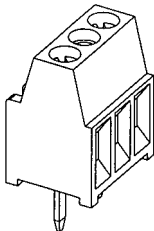
Recommended PC Board Layout



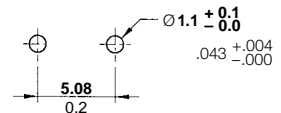
Suggested Screw Torque—
1.73 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	5.54 [0.218]	282834-2
3	8.08 [0.318]	282834-3
4	10.62 [0.418]	282834-4
5	13.16 [0.518]	282834-5
6	15.70 [0.618]	282834-6
7	18.24 [0.718]	282834-7
8	20.78 [0.818]	282834-8
9	23.32 [0.918]	282834-9
10	25.86 [1.018]	1-282834-0
11	28.40 [1.118]	1-282834-1
12	30.94 [1.218]	1-282834-2

Board Mount
1.0 mm² Solid Wire,
5.08 mm Centerline,
Side Wire Entry
Color – Gray
UL Rating – 300 V, 10 A
16-30 AWG



Recommended PC Board Layout



Suggested Screw Torque—
1.73 in.-lbs.

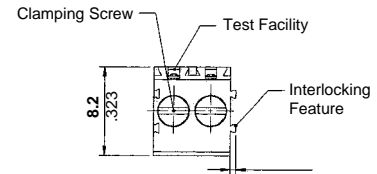
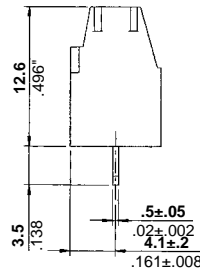
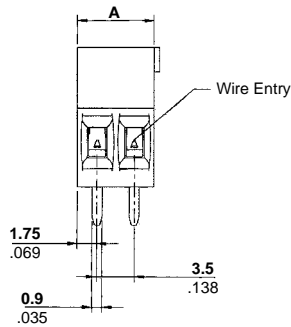
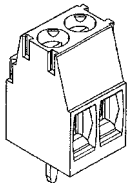
No. of Positions	Dim. A	Part Numbers
2	8.08 [0.318]	282835-2
3	13.16 [0.518]	282835-3
4	18.24 [0.718]	282835-4
5	23.32 [0.918]	282835-5
6	28.40 [1.118]	282835-6

For complete product information, order Catalog 1308389

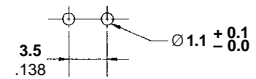
Board Mount, Side Wire Entry

Board Mount
1.5 mm² Solid Wire w/Interlock,
3.5 mm Centerline,
Side Wire Entry
Color – Green

UL Rating – 150 V, 12 A
14-30 AWG



Recommended PC Board Layout



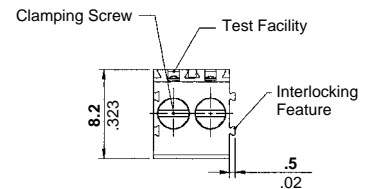
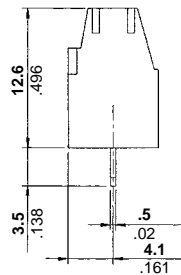
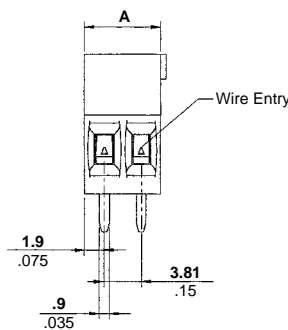
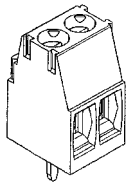
Suggested Screw Torque—
2.2 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	284391-2
3	10.5 [0.413]	284391-3
4	14.0 [0.551]	284391-4
5	17.5 [0.689]	284391-5
6	21.0 [0.827]	284391-6
7	24.5 [0.965]	284391-7
8	28.0 [1.102]	284391-8
9	31.5 [1.240]	284391-9
10	35.0 [1.378]	1-284391-0
11	38.5 [1.516]	1-284391-1
12	42.0 [1.654]	1-284391-2
13	45.5 [1.791]	1-284391-3

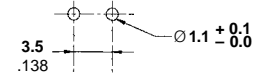
No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-284391-4
15	52.5 [2.067]	1-284391-5
16	56.0 [2.205]	1-284391-6
17	59.5 [2.343]	1-284391-7
18	63.0 [2.480]	1-284391-8
19	66.5 [2.618]	1-284391-9
20	70.0 [2.756]	2-284391-0
21	73.5 [2.894]	2-284391-1
22	77.0 [3.031]	2-284391-2
23	80.5 [3.169]	2-284391-3
24	84.0 [3.307]	2-284391-4
25	87.5 [3.445]	2-284391-5

Board Mount
1.5 mm² Solid Wire w/Interlock,
3.81 mm Centerline,
Side Wire Entry
Color – Green

UL Rating – 150 V, 12 A
14-30 AWG



Recommended PC Board Layout



Suggested Screw Torque—
2.2 in.-lbs.

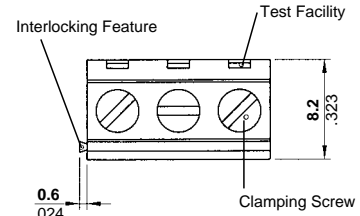
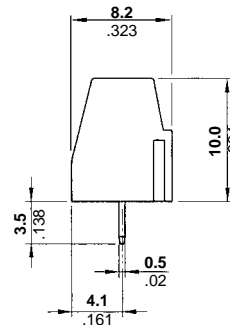
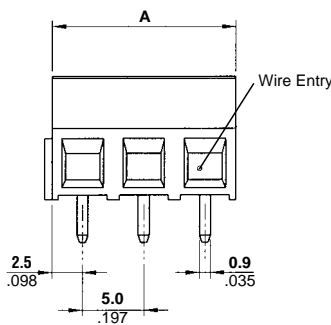
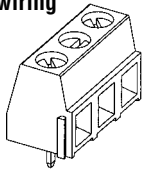
No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284392-2
3	11.43 [0.450]	284392-3
4	15.24 [0.600]	284392-4
5	19.05 [0.750]	284392-5
6	22.86 [0.900]	284392-6
7	26.67 [1.050]	284392-7
8	30.48 [1.200]	284392-8
9	34.29 [1.350]	284392-9
10	38.10 [1.500]	1-284392-0
11	41.91 [1.650]	1-284392-1
12	45.72 [1.800]	1-284392-2
13	49.53 [1.950]	1-284392-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284392-4
15	57.15 [2.250]	1-284392-5
16	60.96 [2.400]	1-284392-6
17	64.77 [2.550]	1-284392-7
18	68.58 [2.700]	1-284392-8
19	72.39 [2.850]	1-284392-9
20	76.20 [3.000]	2-284392-0
21	80.01 [3.150]	2-284392-1
22	83.82 [3.300]	2-284392-2
23	87.63 [3.450]	2-284392-3
24	91.44 [3.600]	2-284392-4
25	95.25 [3.750]	2-284392-5

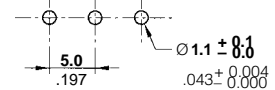
Board Mount, Side Wire Entry

Board Mount (Low Profile)
1.5 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
Side Wire Entry
Color – Gray

UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring
applications



Recommended PC Board Layout



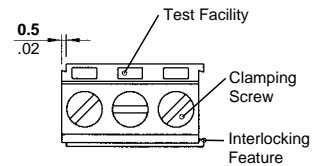
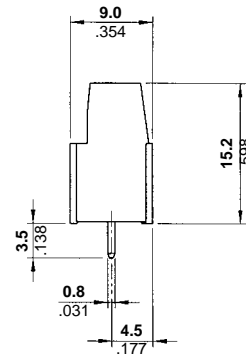
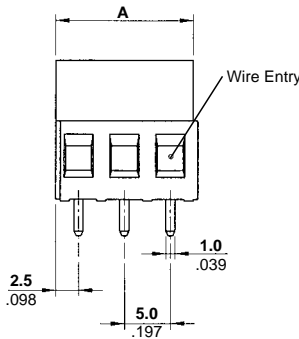
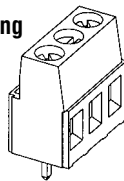
Suggested Screw Torque—
4.4 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	10.0 [0.394]	282836-2
3	15.0 [0.591]	282836-3
4	20.0 [0.787]	282836-4
5	25.0 [0.984]	282836-5
6	30.0 [1.181]	282836-6
7	35.0 [1.378]	282836-7
8	40.0 [1.575]	282836-8
9	45.0 [1.772]	282836-9
10	50.0 [1.968]	1-282836-0
11	55.0 [2.165]	1-282836-1
12	60.0 [2.362]	1-282836-2
13	65.0 [2.559]	1-282836-4

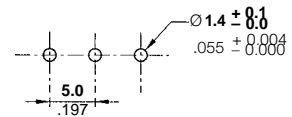
No. of Positions	Dim. A	Part Numbers
14	70.0 [2.756]	1-282836-5
15	75.0 [2.953]	1-282836-6
16	80.0 [3.150]	1-282836-7
17	85.0 [3.346]	1-282836-8
18	90.0 [3.543]	1-282836-9
19	95.0 [3.740]	2-282836-0
20	100.0 [3.937]	2-282836-1
21	105.0 [4.134]	2-282836-2
22	110.0 [4.331]	2-282836-3
23	115.0 [4.528]	2-282836-4
24	120.0 [4.724]	2-282836-5
25	125.0 [4.921]	2-282836-6

Board Mount
2.5 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
Side Wire Entry

UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring
applications



Recommended PC Board Layout



Suggested Screw Torque—
4.4 in.-lbs.

No. of Positions	Dim. A	Part Numbers			
		Green	Gray	Blue	Black
2	10.0 [0.394]	796683-2	282840-2	796681-2	796682-2
3	15.0 [0.591]	796683-3	282840-3	796681-3	796682-3
4	20.0 [0.787]	796683-4	282840-4	796681-4	796682-4
5	25.0 [0.984]	796683-5	282840-5	796681-5	796682-5
6	30.0 [1.181]	796683-6	282840-6	796681-6	796682-6
7	35.0 [1.378]	796683-7	282840-7	796681-7	796682-7
8	40.0 [1.575]	796683-8	282840-8	796681-8	796682-8
9	45.0 [1.772]	796683-9	282840-9	796681-9	796682-9
10	50.0 [1.968]	1-796683-0	1-282840-0	1-796681-0	1-796682-0
11	55.0 [2.165]	1-796683-1	1-282840-1	1-796681-1	1-796682-1
12	60.0 [2.362]	1-796683-2	1-282840-2	1-796681-2	1-796682-2
13	65.0 [2.559]	1-796683-3	1-282840-3	1-796681-3	1-796682-3

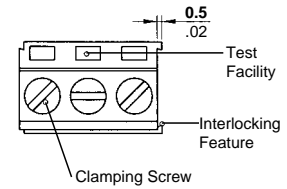
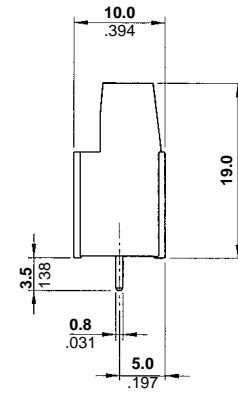
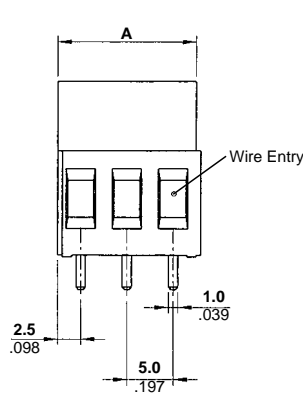
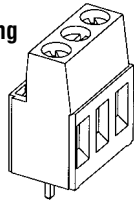
No. of Positions	Dim. A	Part Numbers			
		Green	Gray	Blue	Black
14	70.0 [2.756]	1-796683-4	1-282840-4	1-796681-4	1-796682-4
15	75.0 [2.953]	1-796683-5	1-282840-5	1-796681-5	1-796682-5
16	80.0 [3.150]	1-796683-6	1-282840-6	1-796681-6	1-796682-6
17	85.0 [3.346]	1-796683-7	1-282840-7	1-796681-7	1-796682-7
18	90.0 [3.543]	1-796683-8	1-282840-8	1-796681-8	1-796682-8
19	95.0 [3.740]	1-796683-9	1-282840-9	1-796681-9	1-796682-9
20	100.0 [3.937]	2-796683-0	2-282840-0	2-796681-0	2-796682-0
21	105.0 [4.134]	2-796683-1	2-282840-1	2-796681-1	2-796682-1
22	110.0 [4.331]	2-796683-2	2-282840-2	2-796681-2	2-796682-2
23	115.0 [4.528]	2-796683-3	2-282840-3	2-796681-3	2-796682-3
24	120.0 [4.724]	2-796683-4	2-282840-4	2-796681-4	2-796682-4
25	125.0 [4.921]	2-796683-5	2-282840-5	2-796681-5	2-796682-5

Note: BUCHANAN Terminal Block Series B02C4VXXT has been superceded/replaced with 796681-x.
RDI Terminal Block Series 5KEV-xx has been superceded/replaced with 796683-x (green) or 796682-x (black).

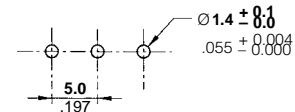
Board Mount, Side Wire Entry

Board Mount
4.0 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
Side Wire Entry

UL Rating – 300 V, 24 A
12-30 AWG
20 A for field wiring
applications



Recommended PC Board Layout



Suggested Screw Torque—
4.3 in.-lbs.

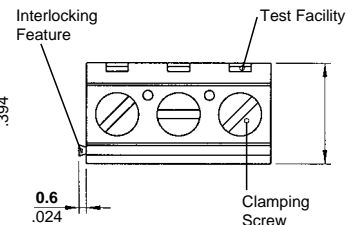
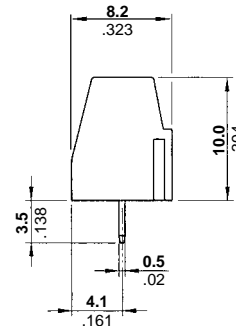
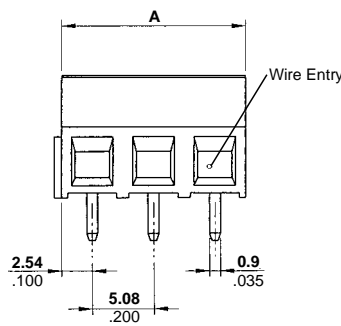
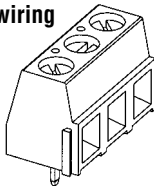
No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
2	10.0 [0.394]	282856-2	796686-2
3	15.0 [0.591]	282856-3	796686-3
4	20.0 [0.787]	282856-4	796686-4
5	25.0 [0.984]	282856-5	796686-5
6	30.0 [1.181]	282856-6	796686-6
7	35.0 [1.378]	282856-7	796686-7
8	40.0 [1.575]	282856-8	796686-8
9	45.0 [1.772]	282856-9	796686-9
10	50.0 [1.968]	1-282856-0	1-796686-0
11	55.0 [2.165]	1-282856-1	1-796686-1
12	60.0 [2.362]	1-282856-2	1-796686-2
13	65.0 [2.559]	1-282856-3	1-796686-3

No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
14	70.0 [2.756]	1-282856-5	1-796686-4
15	75.0 [2.953]	1-282856-6	1-796686-5
16	80.0 [3.150]	1-282856-7	1-796686-6
17	85.0 [3.346]	1-282856-8	1-796686-7
18	90.0 [3.543]	1-282856-9	1-796686-8
19	95.0 [3.740]	2-282856-0	1-796686-9
20	100.0 [3.937]	2-282856-1	2-796686-0
21	105.0 [4.134]	2-282856-2	2-796686-1
22	110.0 [4.331]	2-282856-3	2-796686-2
23	115.0 [4.528]	2-282856-4	2-796686-3
24	120.0 [4.724]	2-282856-5	2-796686-4
25	125.0 [4.921]	2-282856-6	2-796686-5

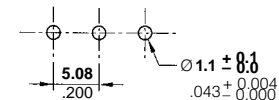
Note: BUCHANAN Terminal Block Series B03C4VXXT has been superceded/replaced with 796686-x.

Board Mount (Low Profile)
1.5 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
Side Wire Entry
Color – Gray

UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring
applications



Recommended PC Board Layout



Suggested Screw Torque—
4.4 in.-lbs.

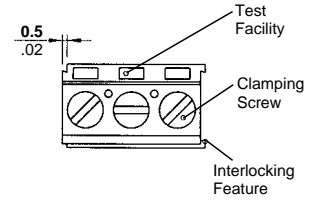
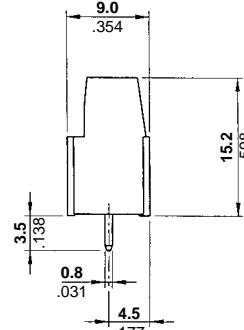
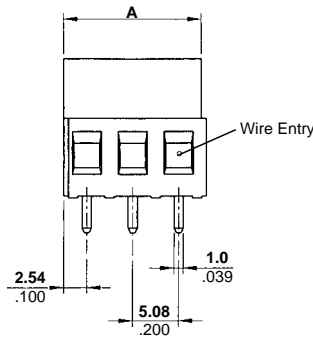
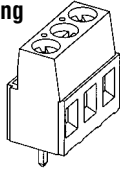
No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282837-2
3	15.24 [0.600]	282837-3
4	20.32 [0.800]	282837-4
5	25.40 [1.000]	282837-5
6	30.48 [1.200]	282837-6
7	35.56 [1.400]	282837-7
8	40.64 [1.600]	282837-8
9	45.72 [1.800]	282837-9
10	50.80 [2.000]	1-282837-0
11	55.88 [2.200]	1-282837-1
12	60.96 [2.400]	1-282837-2
13	66.04 [2.600]	1-282837-6

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282837-7
15	76.20 [3.000]	1-282837-8
16	81.28 [3.200]	1-282837-9
17	86.36 [3.400]	2-282837-0
18	91.44 [3.600]	2-282837-1
19	96.52 [3.800]	2-282837-2
20	101.60 [4.000]	2-282837-3
21	106.68 [4.200]	2-282837-4
22	111.76 [4.400]	2-282837-5
23	116.84 [4.600]	2-282837-6
24	121.92 [4.800]	2-282837-7
25	127.00 [5.000]	2-282837-8

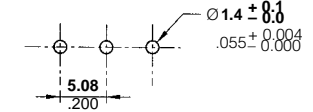
Board Mount, Side Wire Entry

Board Mount
2.5 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
Side Wire Entry
Color – Gray

UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications



Recommended PC Board Layout



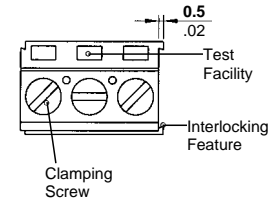
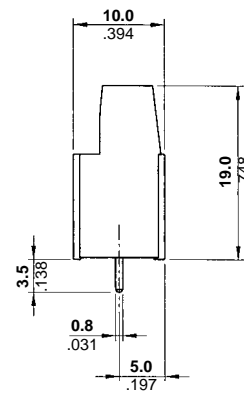
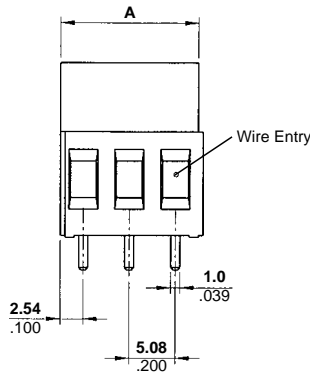
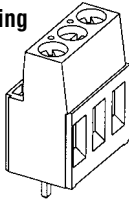
Suggested Screw Torque—
4.4 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282841-2
3	15.24 [0.600]	282841-3
4	20.32 [0.800]	282841-4
5	25.40 [1.000]	282841-5
6	30.48 [1.200]	282841-6
7	35.56 [1.400]	282841-7
8	40.64 [1.600]	282841-8
9	45.72 [1.800]	282841-9
10	50.80 [2.000]	1-282841-0
11	55.88 [2.200]	1-282841-1
12	60.96 [2.400]	1-282841-2
13	66.04 [2.600]	1-282841-6

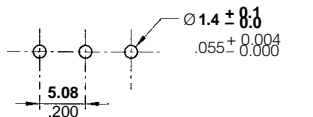
No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282841-7
15	76.20 [3.000]	1-282841-8
16	81.28 [3.200]	1-282841-9
17	86.36 [3.400]	2-282841-0
18	91.44 [3.600]	2-282841-1
19	96.52 [3.800]	2-282841-2
20	101.60 [4.000]	2-282841-3
21	106.68 [4.200]	2-282841-4
22	111.76 [4.400]	2-282841-5
23	116.84 [4.600]	2-282841-6
24	121.92 [4.800]	2-282841-7
25	127.00 [5.000]	2-282841-8

Board Mount
4.0 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
Side Wire Entry
Color – Gray

UL Rating – 300 V, 24 A
12-30 AWG
20 A for field wiring applications



Recommended PC Board Layout



Suggested Screw Torque—
4.34 in.-lbs.

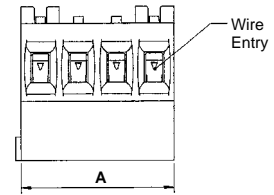
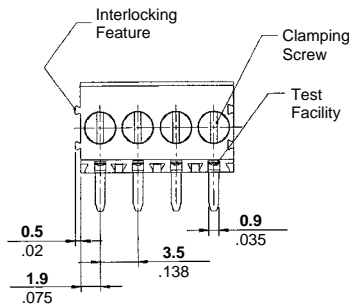
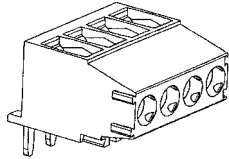
No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282857-2
3	15.24 [0.600]	282857-3
4	20.32 [0.800]	282857-4
5	25.40 [1.000]	282857-5
6	30.48 [1.200]	282857-6
7	35.56 [1.400]	282857-7
8	40.64 [1.600]	282857-8
9	45.72 [1.800]	282857-9
10	50.80 [2.000]	1-282857-0
11	55.88 [2.200]	1-282857-1
12	60.96 [2.400]	1-282857-2
13	66.04 [2.600]	1-282857-3

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282857-4
15	76.20 [3.000]	1-282857-5
16	81.28 [3.200]	1-282857-6
17	86.36 [3.400]	1-282857-7
18	91.44 [3.600]	1-282857-8
19	96.52 [3.800]	1-282857-9
20	101.60 [4.000]	2-282857-0
21	106.68 [4.200]	2-282857-1
22	111.76 [4.400]	2-282857-2
23	116.84 [4.600]	2-282857-3
24	121.92 [4.800]	2-282857-4
25	127.00 [5.000]	2-282857-5

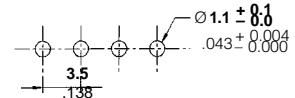
Board Mount, Top Wire Entry

Board Mount
1.5 mm² Solid Wire
3.5 mm Centerline,
Top Wire Entry w/Interlock,
Color – Green

UL Rating – 150 V, 12 A
14-30 AWG



Recommended PC Board Layout



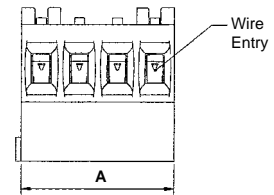
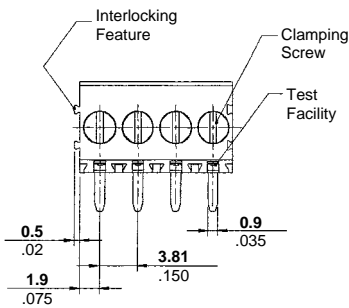
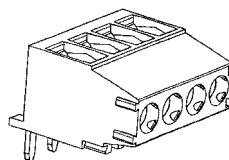
Suggested Screw Torque—
2.2 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	284414-2
3	10.5 [0.413]	284414-3
4	14.0 [0.551]	284414-4
5	17.5 [0.689]	284414-5
6	21.0 [0.827]	284414-6
7	24.5 [0.965]	284414-7
8	28.0 [1.102]	284414-8
9	31.5 [1.240]	284414-9
10	35.0 [1.378]	1-284414-0
11	38.5 [1.516]	1-284414-1
12	42.0 [1.654]	1-284414-2
13	45.5 [1.791]	1-284414-3

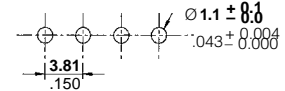
No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-284414-4
15	52.5 [2.067]	1-284414-5
16	56.0 [2.205]	1-284414-6
17	59.5 [2.343]	1-284414-7
18	63.0 [2.480]	1-284414-8
19	66.5 [2.618]	1-284414-9
20	70.0 [2.756]	2-284414-0
21	73.5 [2.894]	2-284414-1
22	77.0 [3.031]	2-284414-2
23	80.5 [3.169]	2-284414-3
24	84.0 [3.307]	2-284414-4
25	87.5 [3.445]	2-284414-5

Board Mount
1.5 mm² Solid Wire
3.81 mm Centerline,
Top Wire Entry w/Interlock,
Color – Green

UL Rating – 150 V, 12 A
14-30 AWG



Recommended PC Board Layout



Suggested Screw Torque—
2.2 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284415-2
3	11.43 [0.450]	284415-3
4	15.24 [0.600]	284415-4
5	19.05 [0.750]	284415-5
6	22.86 [0.900]	284415-6
7	26.67 [1.050]	284415-7
8	30.48 [1.200]	284415-8
9	34.29 [1.350]	284415-9
10	38.10 [1.500]	1-284415-0
11	41.91 [1.650]	1-284415-1
12	45.72 [1.800]	1-284415-2
13	49.53 [1.950]	1-284415-3

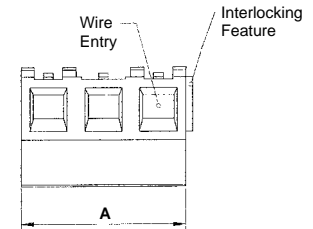
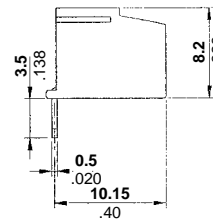
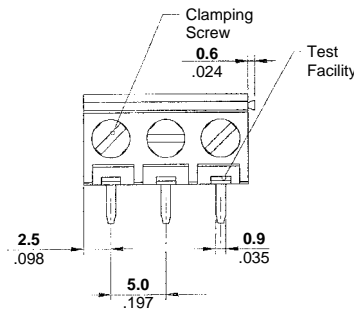
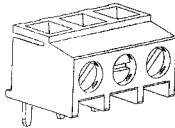
No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284415-4
15	57.15 [2.250]	1-284415-5
16	60.96 [2.400]	1-284415-6
17	64.77 [2.550]	1-284415-7
18	68.58 [2.700]	1-284415-8
19	72.39 [2.850]	1-284415-9
20	76.20 [3.000]	2-284415-0
21	80.01 [3.150]	2-284415-1
22	83.82 [3.300]	2-284415-2
23	87.63 [3.450]	2-284415-3
24	91.44 [3.600]	2-284415-4
25	95.25 [3.750]	2-284415-5

For complete product information, order Catalog 1308389

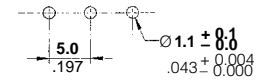
Board Mount, Top Wire Entry

**Board Mount,
1.5 mm² Solid Wire,
5.0 mm Centerline,
Top Wire Entry, Low Profile
Color – Gray**

**UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring applications**



Recommended PC Board Layout



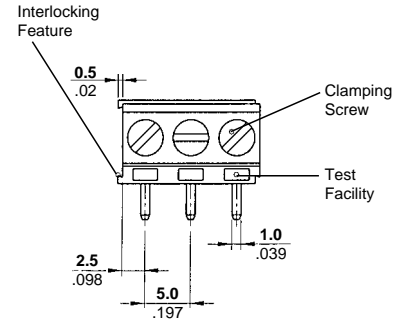
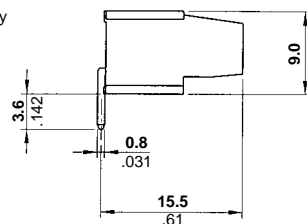
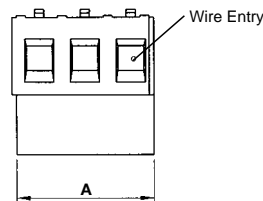
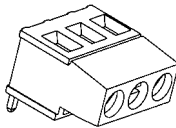
**Suggested Screw Torque—
4.4 in.-lbs.**

No. of Positions	Dim. A	Part Numbers
2	10.0 [0.394]	284093-2
3	15.0 [0.591]	284093-3
4	20.0 [0.787]	284093-4
5	25.0 [0.984]	284093-5
6	30.0 [1.181]	284093-6
7	35.0 [1.378]	284093-7
8	40.0 [1.575]	284093-8
9	45.0 [1.772]	284093-9
10	50.0 [1.968]	1-284093-0
11	55.0 [2.165]	1-284093-1
12	60.0 [2.362]	1-284093-2
13	65.0 [2.559]	1-284093-3

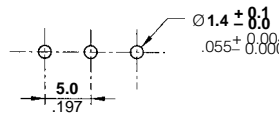
No. of Positions	Dim. A	Part Numbers
14	70.0 [2.756]	1-284093-4
15	75.0 [2.953]	1-284093-5
16	80.0 [3.150]	1-284093-6
17	85.0 [3.346]	1-284093-7
18	90.0 [3.543]	1-284093-8
19	95.0 [3.740]	1-284093-9
20	100.0 [3.937]	2-284093-0
21	105.0 [4.134]	2-284093-1
22	110.0 [4.331]	2-284093-2
23	115.0 [4.528]	2-284093-3
24	120.0 [4.724]	2-284093-4
25	125.0 [4.921]	2-284093-5

**Board Mount
2.5 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
Top Wire Entry**

**UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications**



Recommended PC Board Layout



**Suggested Screw Torque—
4.4 in.-lbs.**

No. of Positions	Dim. A	Part Numbers		
		Grey	Blue	Black
2	10.0 [0.394]	282850-2	796684-2	796685-2
3	15.0 [0.591]	282850-3	796684-3	796685-3
4	20.0 [0.787]	282850-4	796684-4	796685-4
5	25.0 [0.984]	282850-5	796684-5	796685-5
6	30.0 [1.181]	282850-6	796684-6	796685-6
7	35.0 [1.378]	282850-7	796684-7	796685-7
8	40.0 [1.575]	282850-8	796684-8	796685-8
9	45.0 [1.772]	282850-9	796684-9	796685-9
10	50.0 [1.968]	1-282850-0	1-796684-0	1-796685-0
11	55.0 [2.165]	1-282850-1	1-796684-1	1-796685-1
12	60.0 [2.362]	1-282850-2	1-796684-2	1-796685-2
13	65.0 [2.559]	1-282850-3	1-796684-3	1-796685-3

No. of Positions	Dim. A	Part Numbers		
		Grey	Blue	Black
14	70.0 [2.756]	1-282850-4	1-796684-4	1-796685-4
15	75.0 [2.953]	1-282850-5	1-796684-5	1-796685-5
16	80.0 [3.150]	1-282850-6	1-796684-6	1-796685-6
17	85.0 [3.346]	1-282850-7	1-796684-7	1-796685-7
18	90.0 [3.543]	1-282850-8	1-796684-8	1-796685-8
19	95.0 [3.740]	1-282850-9	1-796684-9	1-796685-9
20	100.0 [3.937]	2-282850-0	2-796684-0	2-796685-0
21	105.0 [4.134]	2-282850-1	2-796684-1	2-796685-1
22	110.0 [4.331]	2-282850-2	2-796684-2	2-796685-2
23	115.0 [4.528]	2-282850-3	2-796684-3	2-796685-3
24	120.0 [4.724]	2-282850-4	2-796684-4	2-796685-4
25	125.0 [4.921]	2-282850-5	2-796684-5	2-796685-5

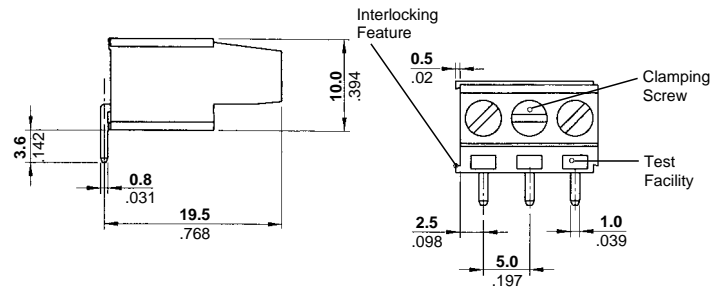
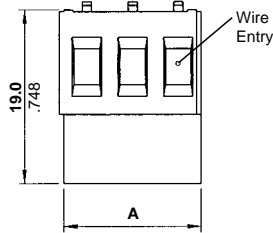
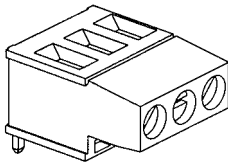
Note: BUCHANAN Terminal Block Series B02C4HXXT has been superseded/replaced with 796684-xx (blue) and 796685-xx (black).

For complete product information, order Catalog 1308389

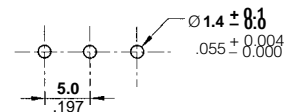
Board Mount, Top Wire Entry

Board Mount
4.0 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
Top Wire Entry

UL Rating – 300 V, 24 A
12-30 AWG
20 A for field wiring applications



Recommended PC Board Layout



Suggested Screw Torque—
4.34 in.-lbs.

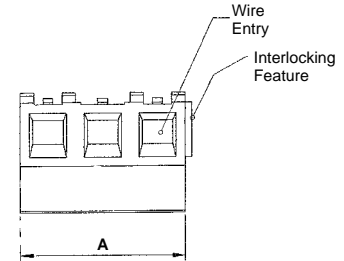
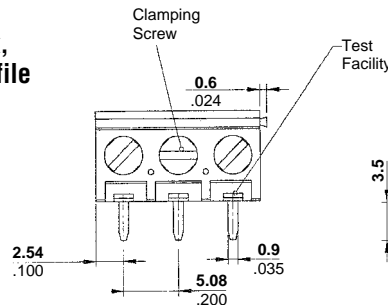
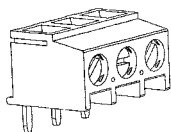
No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
2	10.0 [0.394]	282862-2	796687-2
3	15.0 [0.591]	282862-3	796687-3
4	20.0 [0.787]	282862-4	796687-4
5	25.0 [0.984]	282862-5	796687-5
6	30.0 [1.181]	282862-6	796687-6
7	35.0 [1.378]	282862-7	796687-7
8	40.0 [1.575]	282862-8	796687-8
9	45.0 [1.772]	282862-9	796687-9
10	50.0 [1.968]	1-282862-0	1-796687-0
11	55.0 [2.165]	1-282862-1	1-796687-1
12	60.0 [2.362]	1-282862-2	1-796687-2
13	65.0 [2.559]	1-282862-3	1-796687-3

No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
14	70.0 [2.756]	1-282862-4	1-796687-4
15	75.0 [2.953]	1-282862-5	1-796687-5
16	80.0 [3.150]	1-282862-6	1-796687-6
17	85.0 [3.346]	1-282862-7	1-796687-7
18	90.0 [3.543]	1-282862-8	1-796687-8
19	95.0 [3.740]	1-282862-9	1-796687-9
20	100.0 [3.937]	2-282862-0	2-796687-0
21	105.0 [4.134]	2-282862-1	2-796687-1
22	110.0 [4.331]	2-282862-2	2-796687-2
23	115.0 [4.528]	2-282862-3	2-796687-3
24	120.0 [4.724]	2-282862-4	2-796687-4
25	125.0 [4.921]	2-282862-5	2-796687-5

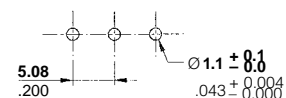
Note: BUCHANAN Terminal Block Series B02C4HXXT has been superseded/replaced with 796687-xx.

Board Mount
1.5 mm² Solid Wire w/Interlock,
5.08 mm Centerline, Low Profile
Color – Gray
Top Wire Entry

UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring applications



Recommended PC Board Layout



Suggested Screw Torque—
4.4 in.-lbs.

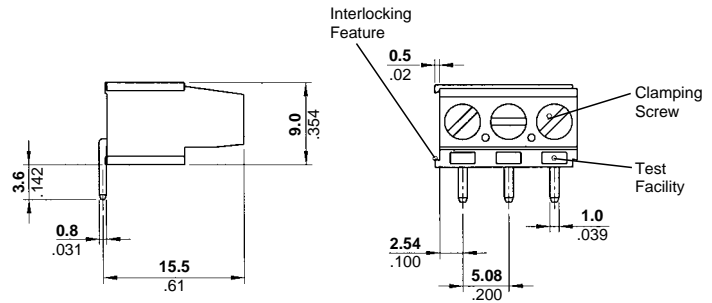
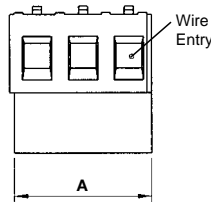
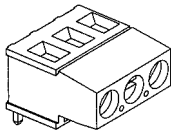
No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	284094-2
3	15.24 [0.600]	284094-3
4	20.32 [0.800]	284094-4
5	25.40 [1.000]	284094-5
6	30.48 [1.200]	284094-6
7	35.56 [1.400]	284094-7
8	40.64 [1.600]	284094-8
9	45.72 [1.800]	284094-9
10	50.80 [2.000]	1-284094-0
11	55.88 [2.200]	1-284094-1
12	60.96 [2.400]	1-284094-2
13	66.04 [2.600]	1-284094-3

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-284094-4
15	76.20 [3.000]	1-284094-5
16	81.28 [3.200]	1-284094-6
17	86.36 [3.400]	1-284094-7
18	91.44 [3.600]	1-284094-8
19	96.52 [3.800]	1-284094-9
20	101.60 [4.000]	2-284094-0
21	106.68 [4.200]	2-284094-1
22	111.76 [4.400]	2-284094-2
23	116.84 [4.600]	2-284094-3
24	121.92 [4.800]	2-284094-4
25	127.00 [5.000]	2-284094-5

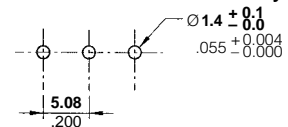
Board Mount, Top Wire Entry

Board Mount
2.5 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
Top Wire Entry
Color – Gray

UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications



Recommended PC Board Layout



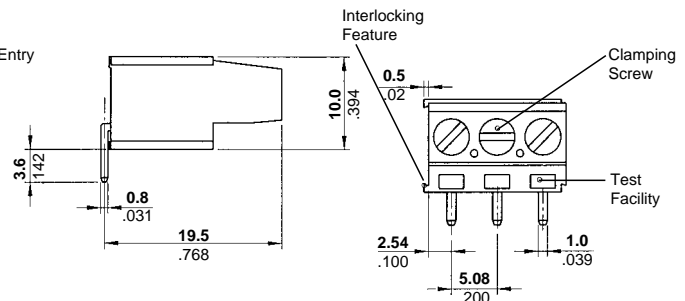
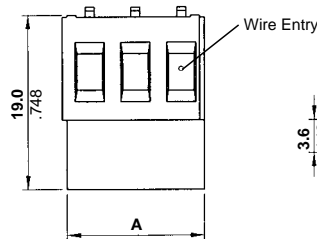
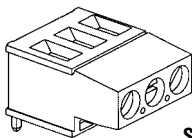
Suggested Screw Torque—
4.4 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282851-2
3	15.24 [0.600]	282851-3
4	20.32 [0.800]	282851-4
5	25.40 [1.000]	282851-5
6	30.48 [1.200]	282851-6
7	35.56 [1.400]	282851-7
8	40.64 [1.600]	282851-8
9	45.72 [1.800]	282851-9
10	50.80 [2.000]	1-282851-0
11	55.88 [2.200]	1-282851-1
12	60.96 [2.400]	1-282851-2
13	66.04 [2.600]	1-282851-3

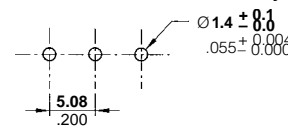
No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282851-4
15	76.20 [3.000]	1-282851-5
16	81.28 [3.200]	1-282851-6
17	86.36 [3.400]	1-282851-7
18	91.44 [3.600]	1-282851-8
19	96.52 [3.800]	1-282851-9
20	101.60 [4.000]	2-282851-0
21	106.68 [4.200]	2-282851-1
22	111.76 [4.400]	2-282851-2
23	116.84 [4.600]	2-282851-3
24	121.92 [4.800]	2-282851-4
25	127.00 [5.000]	2-282851-5

Board Mount
4.0 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
Top Wire Entry
Color – Gray

UL Rating – 300 V, 24 A
12-30 AWG
20 A for field wiring applications



Recommended PC Board Layout



Suggested Screw Torque—
4.34 in.-lbs.

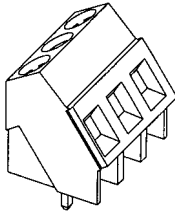
No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282863-2
3	15.24 [0.600]	282863-3
4	20.32 [0.800]	282863-4
5	25.40 [1.000]	282863-5
6	30.48 [1.200]	282863-6
7	35.56 [1.400]	282863-7
8	40.64 [1.600]	282863-8
9	45.72 [1.800]	282863-9
10	50.80 [2.000]	1-282863-0
11	55.88 [2.200]	1-282863-1
12	60.96 [2.400]	1-282863-2
13	66.04 [2.600]	1-282863-3

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282863-4
15	76.20 [3.000]	1-282863-5
16	81.28 [3.200]	1-282863-6
17	86.36 [3.400]	1-282863-7
18	91.44 [3.600]	1-282863-8
19	96.52 [3.800]	1-282863-9
20	101.60 [4.000]	2-282863-0
21	106.68 [4.200]	2-282863-1
22	111.76 [4.400]	2-282863-2
23	116.84 [4.600]	2-282863-3
24	121.92 [4.800]	2-282863-4
25	127.00 [5.000]	2-282863-5



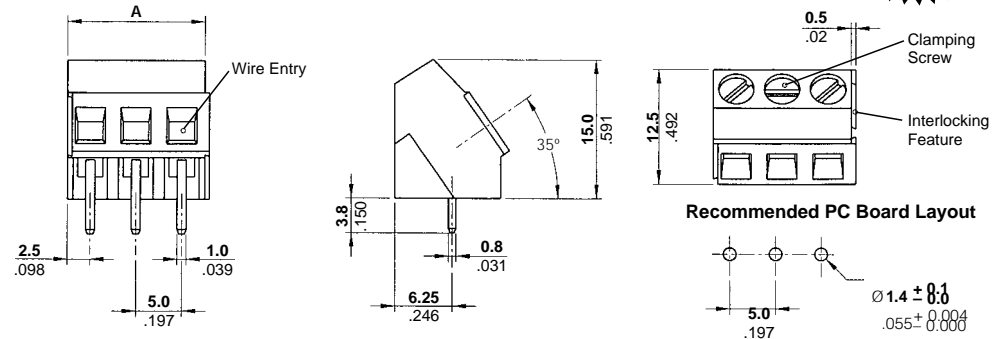
Board Mount, 35° Angled Wire Entry

Board Mount
2.5 mm² Solid Wire w/Interlock,
5.0 mm Centerline,
35° Angled Wire Entry
UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications



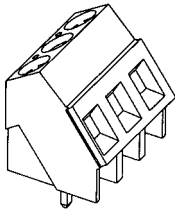
Suggested Screw Torque—
4.4 in.-lbs.

- Notes:**
1. BUCHANAN Terminal Block Series B04C4VXXT has been superceded/replaced with part number 796688-xx (blue color) and 796689-xx (black color).
 2. RDI Terminal Block Series 5LEA-XX has been superceded/replaced with part number 796690-xx (green color).
 3. RDI Terminal Block Series 5LEA-XX-1 has been superceded/replaced with part number 796689-xx (black color).

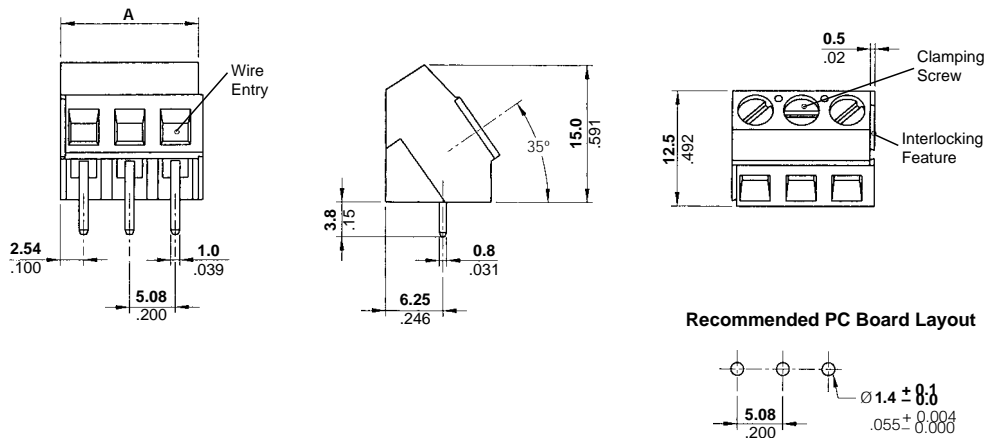


No. of Positions	Dim. A	Part Numbers			
		Gray	Blue	Black	Green
2	10.0 [0.394]	282846-2	796688-2	796689-2	796690-2
3	15.0 [0.591]	282846-3	796688-3	796689-3	796690-3
4	20.0 [0.787]	282846-4	796688-4	796689-4	796690-4
5	25.0 [0.984]	282846-5	796688-5	796689-5	796690-5
6	30.0 [1.181]	282846-6	796688-6	796689-6	796690-6
7	35.0 [1.378]	282846-7	796688-7	796689-7	796690-7
8	40.0 [1.575]	282846-8	796688-8	796689-8	796690-8
9	45.0 [1.772]	282846-9	796688-9	796689-9	796690-9
10	50.0 [1.968]	1-282846-0	1-796688-0	1-796689-0	1-796690-0
11	55.0 [2.165]	1-282846-1	1-796688-1	1-796689-1	1-796690-1
12	60.0 [2.362]	1-282846-2	1-796688-2	1-796689-2	1-796690-2

Board Mount
2.5 mm² Solid Wire w/Interlock,
5.08 mm Centerline,
35° Angled Wire Entry
Color – Gray
UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications



Suggested Screw Torque—
4.4 in.-lbs.



No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282847-2
3	15.24 [0.600]	282847-3
4	20.32 [0.800]	282847-4
5	25.40 [1.000]	282847-5
6	30.48 [1.200]	282847-6
7	35.56 [1.400]	282847-7
8	40.64 [1.600]	282847-8
9	45.72 [1.800]	282847-9
10	50.80 [2.000]	1-282847-0
11	55.88 [2.200]	1-282847-1
12	60.96 [2.400]	1-282847-2

Note: RDI Terminal Block Series 2EEA-xx has been superceded/replaced with 282847-xx series.

For complete product information, order Catalog 1308389

High Current PCB Mount Terminal Blocks

Product Facts

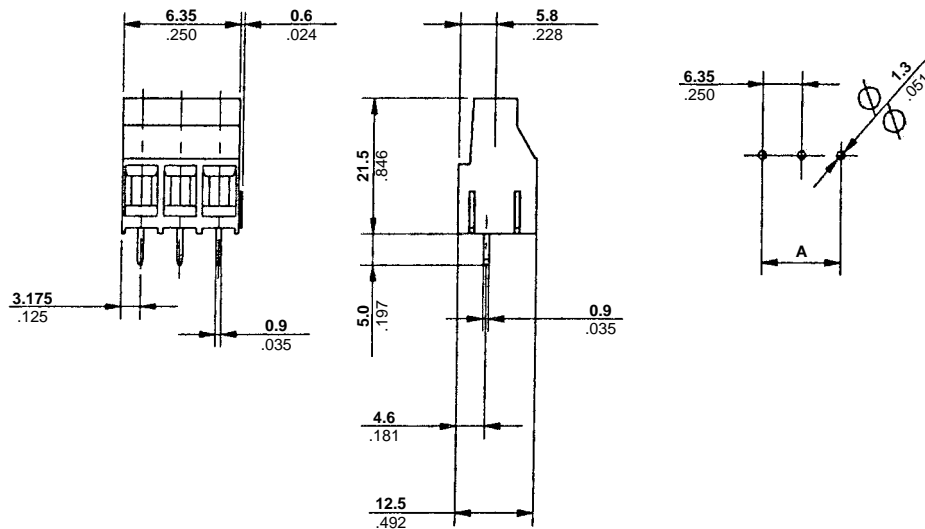
- Available in (2) centerline spacings: 6.35 mm and 9.62 mm pitch
- (2) position sizes available: 2 and 3 position
- Wire range: 10-24 AWG
- Available in (3) wire entry configurations: side wire, top wire and 35° angle

- Cage clamp style termination
- Product is modular; designed with a dovetail feature to allow building larger position sizes to increase the number of available wire positions
- Green color; other colors available upon request



Board Mount
6.35 mm Centerline,
Side Wire Entry w/Interlock
Color – Green

UL Rating – 300 V, 32 A
10-24 AWG

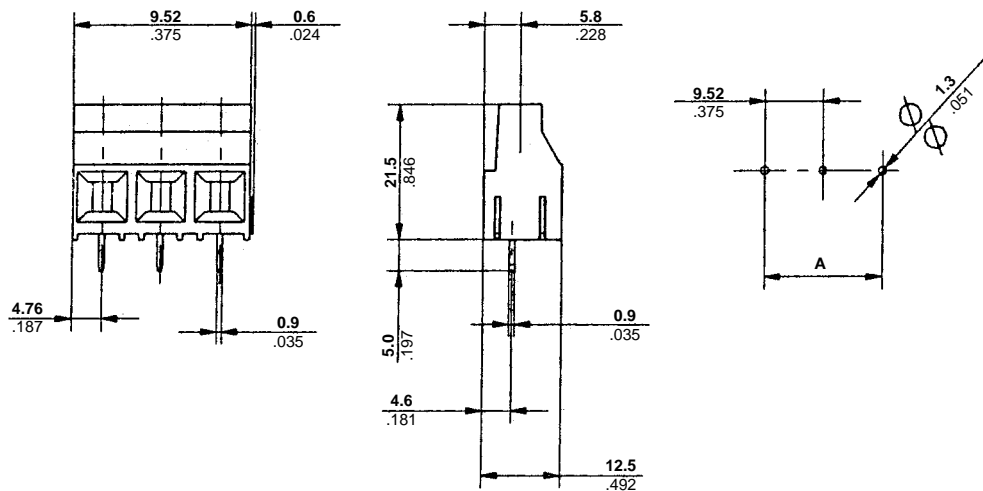


Suggested Screw Torque—
7.1 in.-lbs.

No. of Positions	Dim. A	Part Numbers
2	6.35 [0.250]	796740-2
3	12.70 [0.500]	796740-3

Board Mount
9.52 mm Centerline,
Color – Green
Side Wire Entry w/Interlock

UL Rating – 600 V, 32 A
10-24 AWG



Suggested Screw Torque—
7.1 in.-lbs.

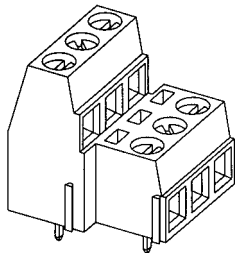
No. of Positions	Dim. A	Part Numbers
2	9.52 [0.375]	796739-2
3	19.04 [0.704]	796739-3

For complete product information, order Catalog 1308389

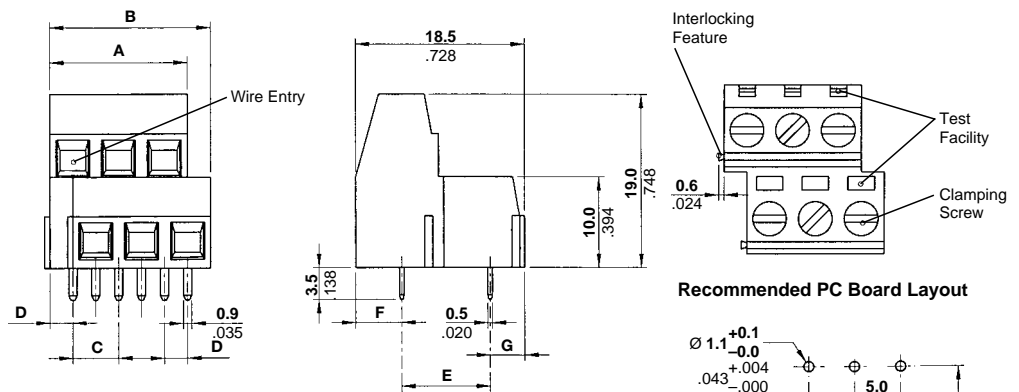
Board Mount, 1st and 2nd Level Stacking Connectors

Board Mount
1.5 mm² Solid Wire w/Interlock
5.0 mm Centerline,
1st and 2nd Level, Stacking
Color – Gray

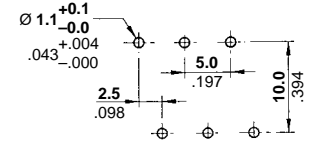
UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring applications



Suggested Screw Torque—
3.47 in.-lb.



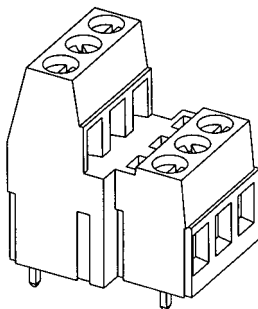
Recommended PC Board Layout



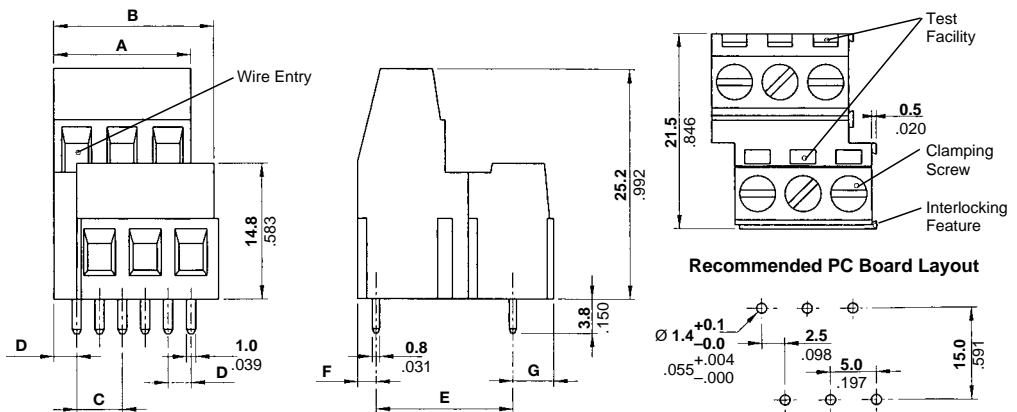
No. of Positions	Dimensions							Part Numbers
	A	B	C	D	E	F	G	
2	10.0 .394	12.5 .492	5.0 .197	2.5 .098	10.0 .394	4.4 .173	4.1 .161	282868-2
3	15.0 .591	17.5 .689	5.0 .197	2.5 .098	10.0 .394	4.4 .173	4.1 .161	282868-3

Board Mount
2.5 mm² Solid Wire w/Interlock
5.0 mm Centerline,
1st and 2nd Level, Stacking

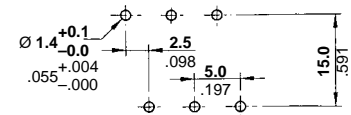
UL Rating – 300 V, 17.5 A
12-30 AWG
15 A for field wiring applications



Suggested Screw Torque—
4.4 in.-lb.



Recommended PC Board Layout



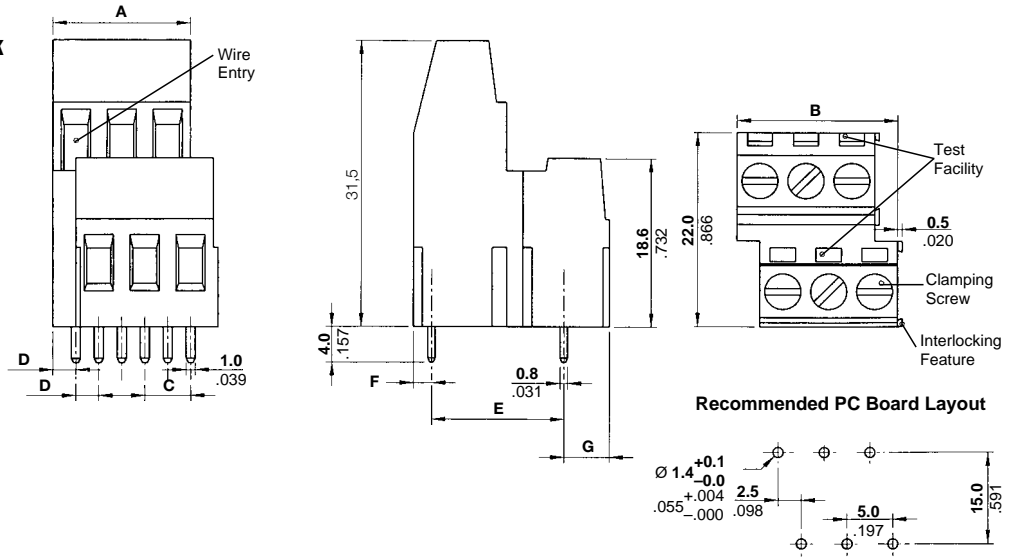
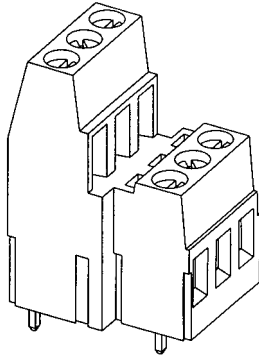
No. of Positions	Dimensions							Part Numbers	
	A	B	C	D	E	F	G	Gray	Blue
2	10.0 .394	12.5 .492	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	282888-2	796691-2
3	15.0 .591	17.5 .689	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	282888-3	796691-3
4	20.0 .787	22.5 .886	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-4
5	25.0 .984	27.5 1.083	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-5
6	30.0 1.181	32.5 1.28	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-6
7	35.0 1.378	37.5 1.476	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-7
8	40.0 1.575	42.5 1.673	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-8
9	45.0 1.772	47.5 1.87	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	796691-9
10	50.0 1.968	52.5 2.067	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	1-796691-0
11	55.0 2.165	57.5 2.264	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	1-796691-1
12	60.0 2.362	62.5 2.461	5.0 .197	2.5 .098	15.0 .591	2.0 .079	4.5 .177	—	1-796691-2

Note: BUCHANAN Terminal Block Series BO7C4VXXT has been superceded/replaced with 796691-xx (blue).
RDI Terminal Block Series 5LEEV-xx has been superceded/replaced with 796691-xx.

Board Mount, 1st and 2nd Level Stacking Connectors

Board Mount
4.0 mm² Solid Wire w/Interlock
5.0 mm Centerline,
1st and 2nd Level, Stacking
Color – Gray

UL Rating – 300 V, 24 A
12-30 AWG
20 A for field wiring applications

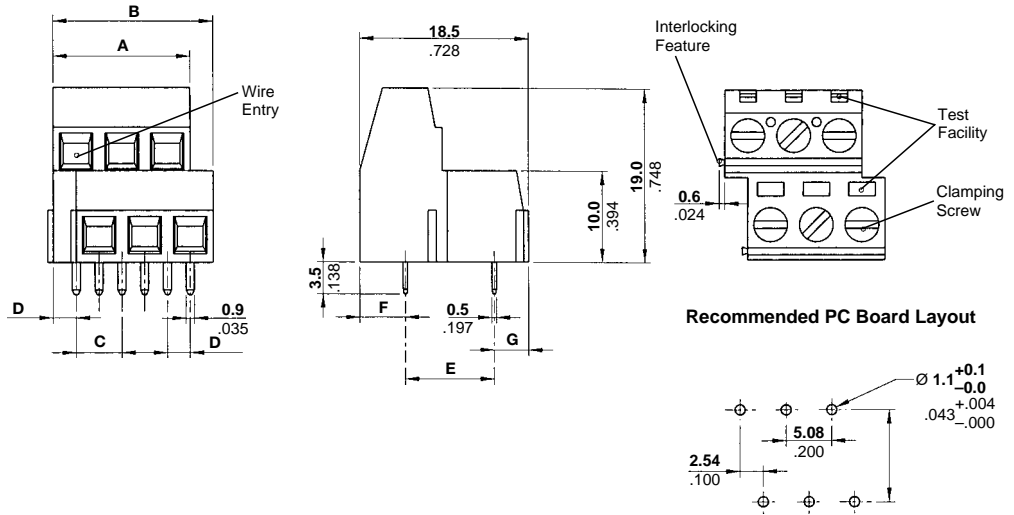
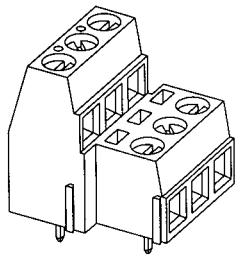


Suggested Screw Torque—
4.4 in.-lb.

No. of Positions	Dimensions							Part Numbers
	A	B	C	D	E	F	G	
2	10.0 .394	12.5 .492	5.0 .197	2.5 .098	15.0 .591	2.0 .079	5.0 .197	282908-2
3	15.0 .591	17.5 .689	5.0 .197	2.5 .098	15.0 .591	2.0 .079	5.0 .197	282908-3

Board Mount
1.5 mm² Solid Wire w/Interlock
5.08 mm Centerline,
1st and 2nd Level, Stacking
Color – Gray

UL Rating – 300 V, 13.5 A
16-30 AWG
10 A for field wiring applications



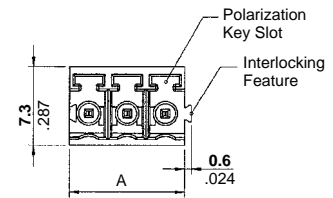
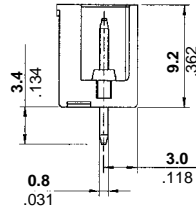
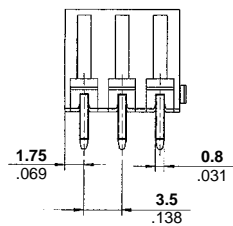
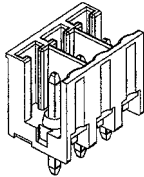
Suggested Screw Torque—
3.47 in.-lb.

No. of Positions	Dimensions							Part Numbers
	A	B	C	D	E	F	G	
2	10.16 .400	12.70 .500	5.08 .200	2.54 .100	10.16 .400	4.24 .167	4.1 .161	282869-2
3	15.24 .600	17.78 .700	5.08 .200	2.54 .100	10.16 .400	4.24 .167	4.1 .161	282869-3

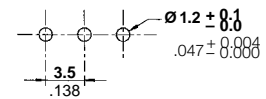
For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

Open End Header
3.5 mm Centerline,
Color – Green
UL Rating – 150 V, 10 A



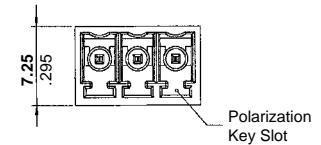
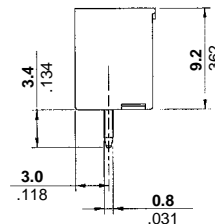
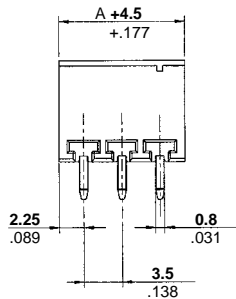
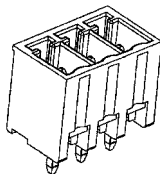
Recommended PC Board Layout



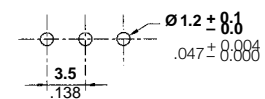
No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	284515-2
3	10.5 [0.413]	284515-3
4	14.0 [0.551]	284515-4
5	17.5 [0.689]	284515-5
6	21.0 [0.827]	284515-6
7	24.5 [0.965]	284515-7
8	28.0 [1.102]	284515-8
9	31.5 [1.240]	284515-9
10	35.0 [1.378]	1-284515-0
11	38.5 [1.516]	1-284515-1
12	42.0 [1.654]	1-284515-2
13	45.5 [1.791]	1-284515-3

No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-284515-4
15	52.5 [2.067]	1-284515-5
16	56.0 [2.205]	1-284515-6
17	59.5 [2.343]	1-284515-7
18	63.0 [2.480]	1-284515-8
19	66.5 [2.618]	1-284515-9
20	70.0 [2.756]	2-284515-0
21	73.5 [2.894]	2-284515-1
22	77.0 [3.031]	2-284515-2
23	80.5 [3.169]	2-284515-3
24	84.0 [3.307]	2-284515-4
25	87.5 [3.445]	2-284515-5

Straight, Closed End Header
3.5 mm Centerline,
Color – Green or Blue
UL Rating – 150 V, 10 A



Recommended PC Board Layout



Number of Positions	Dim. A	Part Numbers	
		Green	Blue
2	3.5 [0.138]	284514-2	796694-2
3	7.0 [0.276]	284514-3	796694-3
4	10.5 [0.413]	284514-4	796694-4
5	14.0 [0.551]	284514-5	796694-5
6	17.5 [0.689]	284514-6	796694-6
7	21.0 [0.827]	284514-7	796694-7
8	24.5 [0.965]	284514-8	796694-8
9	28.0 [1.102]	284514-9	796694-9
10	31.5 [1.240]	1-284514-0	1-796694-0
11	35.0 [1.378]	1-284514-1	1-796694-1
12	38.5 [1.516]	1-284514-2	1-796694-2
13	42.0 [1.654]	1-284514-3	1-796694-3

Number of Positions	Dim. A	Part Numbers	
		Green	Blue
14	45.5 [1.791]	1-284514-4	1-796694-4
15	49.0 [1.929]	1-284514-5	1-796694-5
16	52.5 [2.067]	1-284514-6	1-796694-6
17	56.0 [2.205]	1-284514-7	1-796694-7
18	59.5 [2.343]	1-284514-8	1-796694-8
19	63.0 [2.480]	1-284514-9	1-796694-9
20	66.5 [2.618]	2-284514-0	2-796694-0
21	70.0 [2.756]	2-284514-1	2-796694-1
22	73.5 [2.894]	2-284514-2	2-796694-2
23	77.0 [3.031]	2-284514-3	2-796694-3
24	80.5 [3.169]	2-284514-4	2-796694-4
25	84.0 [3.307]	2-284514-5	2-796694-5

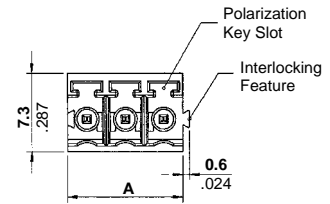
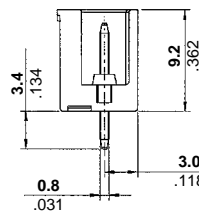
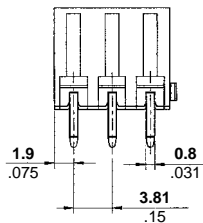
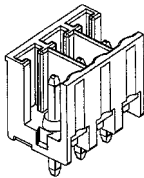
Note: BUCHANAN Terminal Block Series B73N3VxxT has been superceded/replaced with 796694-xx.

For complete product information, order Catalog 1308389

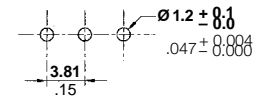
Two-Piece Terminal Block Connectors

**Board Mount
Straight Open End Header,
3.81 mm Centerline,
Color – Green**

UL Rating – 150 V, 10 A



Recommended PC Board Layout

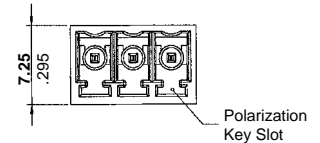
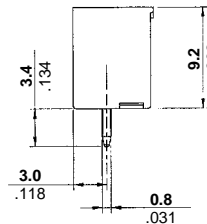
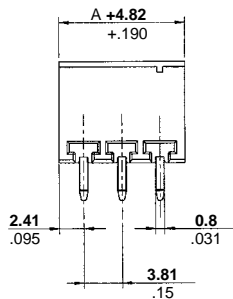


No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284518-2
3	11.43 [0.450]	284518-3
4	15.24 [0.600]	284518-4
5	19.05 [0.750]	284518-5
6	22.86 [0.900]	284518-6
7	26.67 [1.050]	284518-7
8	30.48 [1.200]	284518-8
9	34.29 [1.350]	284518-9
10	38.10 [1.500]	1-284518-0
11	41.91 [1.650]	1-284518-1
12	45.72 [1.800]	1-284518-2
13	49.53 [1.950]	1-284518-3

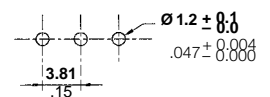
No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284518-4
15	57.15 [2.250]	1-284518-5
16	60.96 [2.400]	1-284518-6
17	64.77 [2.550]	1-284518-7
18	68.58 [2.700]	1-284518-8
19	72.39 [2.850]	1-284518-9
20	76.20 [3.000]	2-284518-0
21	80.01 [3.150]	2-284518-1
22	83.82 [3.300]	2-284518-2
23	87.63 [3.450]	2-284518-3
24	91.44 [3.600]	2-284518-4
25	95.25 [3.750]	2-284518-5

**Straight Closed End Header,
3.81 mm Centerline
Color – Green**

UL Rating – 150 V, 10 A



Recommended PC Board Layout



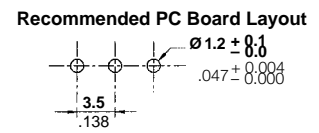
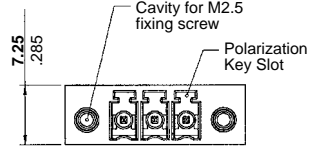
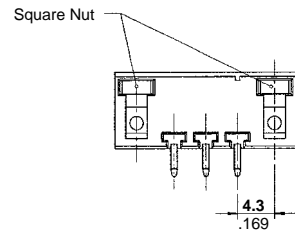
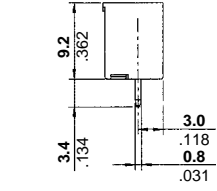
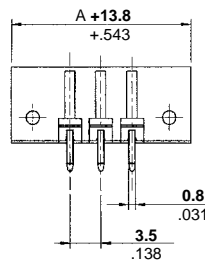
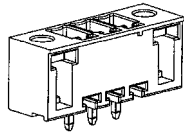
No. of Positions	Dim. A	Part Numbers
2	3.81 [0.150]	284517-2
3	7.62 [0.300]	284517-3
4	11.43 [0.450]	284517-4
5	15.24 [0.600]	284517-5
6	19.05 [0.750]	284517-6
7	22.86 [0.900]	284517-7
8	26.67 [1.050]	284517-8
9	30.48 [1.200]	284517-9
10	34.29 [1.350]	1-284517-0
11	38.10 [1.500]	1-284517-1
12	41.91 [1.650]	1-284517-2
13	45.72 [1.800]	1-284517-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284517-4
15	57.15 [2.250]	1-284517-5
16	60.96 [2.400]	1-284517-6
17	64.77 [2.550]	1-284517-7
18	68.58 [2.700]	1-284517-8
19	72.39 [2.850]	1-284517-9
20	76.20 [3.000]	2-284517-0
21	80.01 [3.150]	2-284517-1
22	83.82 [3.300]	2-284517-2
23	87.63 [3.450]	2-284517-3
24	91.44 [3.600]	2-284517-4
25	95.25 [3.750]	2-284517-5

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

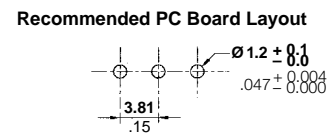
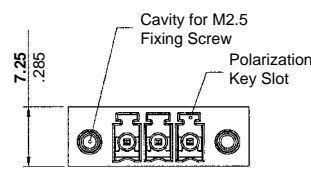
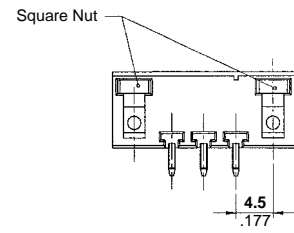
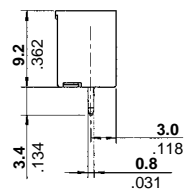
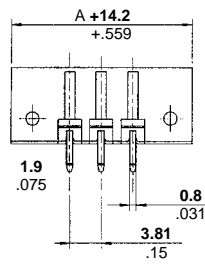
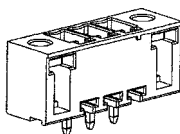
**Straight Header
w/Threaded Flange,
3.5 mm Centerline,
Color – Green**
UL Rating – 150 V, 10 A



No. of Positions	Dim. A	Part Numbers
2	3.5 [0.138]	284516-2
3	7.0 [0.276]	284516-3
4	10.5 [0.413]	284516-4
5	14.0 [0.551]	284516-5
6	17.5 [0.689]	284516-6
7	21.0 [0.827]	284516-7
8	24.5 [0.965]	284516-8
9	28.0 [1.102]	284516-9
10	31.5 [1.240]	1-284516-0
11	35.0 [1.378]	1-284516-1
12	38.5 [1.516]	1-284516-2

No. of Positions	Dim. A	Part Numbers
13	42.0 [1.654]	1-284516-3
14	45.5 [1.791]	1-284516-4
15	49.0 [1.929]	1-284516-5
16	52.5 [2.067]	1-284516-6
17	56.0 [2.205]	1-284516-7
18	59.5 [2.343]	1-284516-8
19	63.0 [2.480]	1-284516-9
20	66.5 [2.618]	2-284516-0
21	70.0 [2.756]	2-284516-1
22	73.5 [2.894]	2-284516-2
23	77.0 [3.031]	2-284516-3

**Straight Header
w/Threaded Flange,
3.81 mm Centerline,
Color – Green**
UL Rating – 150 V, 10 A



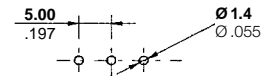
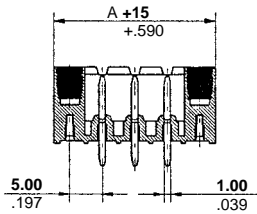
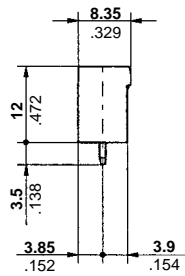
No. of Positions	Dim. A	Part Numbers
2	3.81 [0.150]	284519-2
3	7.62 [0.300]	284519-3
4	11.43 [0.450]	284519-4
5	15.24 [0.600]	284519-5
6	19.05 [0.750]	284519-6
7	22.86 [0.900]	284519-7
8	26.67 [1.050]	284519-8
9	30.48 [1.200]	284519-9
10	34.29 [1.350]	1-284519-0
11	38.10 [1.500]	1-284519-1
12	41.91 [1.650]	1-284519-2

No. of Positions	Dim. A	Part Numbers
13	45.72 [1.800]	1-284519-3
14	49.53 [1.950]	1-284519-4
15	53.34 [2.100]	1-284519-5
16	57.15 [2.250]	1-284519-6
17	60.96 [2.400]	1-284519-7
18	64.77 [2.550]	1-284519-8
19	68.58 [2.700]	1-284519-9
20	72.39 [2.850]	2-284519-0
21	76.20 [3.000]	2-284519-1
22	80.01 [3.150]	2-284519-2
23	83.82 [3.300]	2-284519-3

For complete product information, order Catalog 1308389

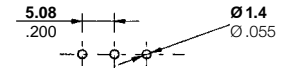
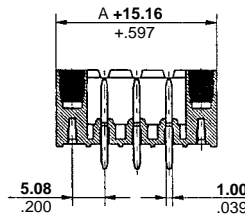
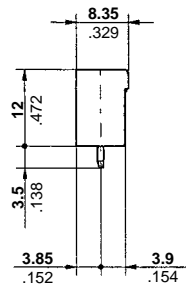
Two-Piece Terminal Block Connectors

**Straight Header w/Locking
Screw Flange,
5.0 mm Centerline,
Color – Green
UL Rating – 300 V, 12 A**



No. of Positions	Dim. A	Part Numbers
2	5.0 [0.197]	796865-2
3	10.0 [0.394]	796865-3
4	15.0 [0.591]	796865-4
5	20.0 [0.787]	796865-5
6	25.0 [0.984]	796865-6
7	30.0 [1.181]	796865-7
8	35.0 [1.378]	796865-8

**Straight Header w/Locking
Screw Flange,
5.08 mm Centerline,
Color – Green
UL Rating – 300 V, 12 A**



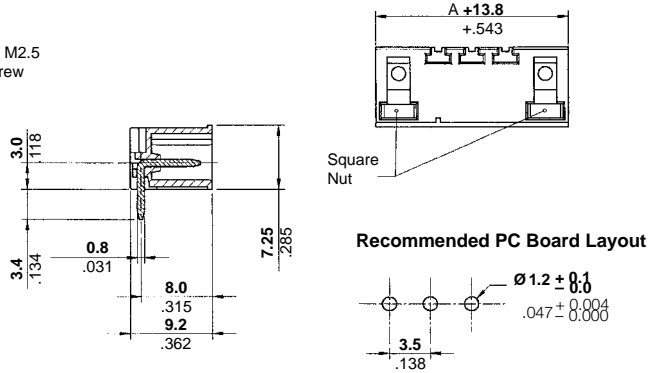
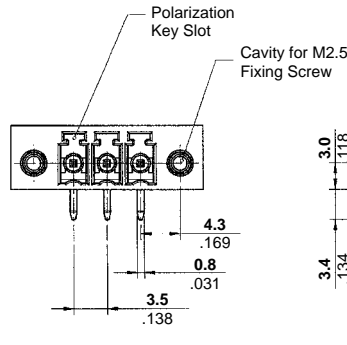
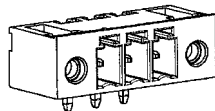
No. of Positions	Dim. A	Part Numbers
2	5.08 [0.200]	796867-2
3	10.16 [0.400]	796867-3
4	15.24 [0.600]	796867-4
5	20.32 [0.800]	796867-5
6	25.40 [1.000]	796867-6
7	30.48 [1.200]	796867-7
8	35.56 [1.400]	796867-8
9	40.64 [1.600]	796867-9
10	45.72 [1.800]	1-796867-0
11	50.80 [2.000]	1-796867-1
12	55.88 [2.200]	1-796867-2

No. of Positions	Dim. A	Part Numbers
13	60.96 [2.400]	1-796867-3
14	66.04 [2.600]	1-796867-4
15	71.12 [2.800]	1-796867-5
16	76.20 [3.000]	1-796867-6
17	81.28 [3.200]	1-796867-7
18	86.36 [3.400]	1-796867-8
19	91.44 [3.600]	1-796867-9
20	96.52 [3.800]	2-796867-0
21	101.60 [4.000]	2-796867-1
22	106.68 [4.200]	2-796867-2
23	111.76 [4.400]	2-796867-3

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

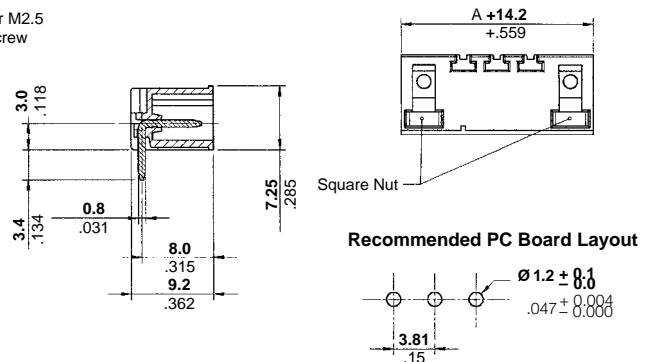
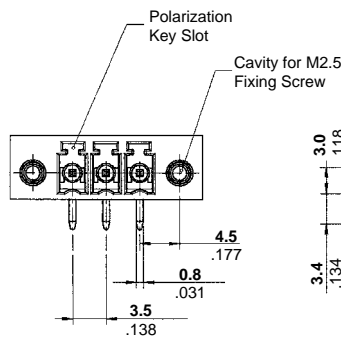
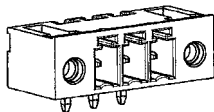
**Right-Angle
Open End Header
w/Interlock,
3.5 mm Centerline
Color – Green**
UL Rating – 150 V, 10 A



No. of Positions	Dim. A	Part Numbers
2	3.5 [0.138]	284539-2
3	7.0 [0.276]	284539-3
4	10.5 [0.413]	284539-4
5	14.0 [0.551]	284539-5
6	17.5 [0.689]	284539-6
7	21.0 [0.827]	284539-7
8	24.5 [0.965]	284539-8
9	28.0 [1.102]	284539-9
10	31.5 [1.240]	1-284539-0
11	35.0 [1.378]	1-284539-1
12	38.5 [1.516]	1-284539-2

No. of Positions	Dim. A	Part Numbers
13	42.0 [1.654]	1-284539-3
14	45.5 [1.791]	1-284539-4
15	49.0 [1.929]	1-284539-5
16	52.5 [2.067]	1-284539-6
17	56.0 [2.205]	1-284539-7
18	59.5 [2.343]	1-284539-8
19	63.0 [2.480]	1-284539-9
20	66.5 [2.618]	2-284539-0
21	70.0 [2.756]	2-284539-1
22	73.5 [2.894]	2-284539-2
23	77.0 [3.031]	2-284539-3

**Right-Angle
Closed End Header
w/Threaded Flange,
3.81 mm Centerline
Color – Green**
UL Rating – 150 V, 10 A



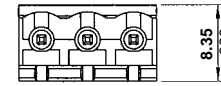
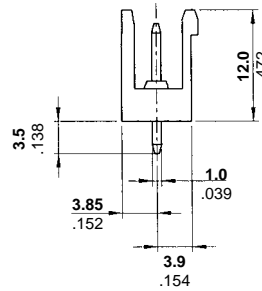
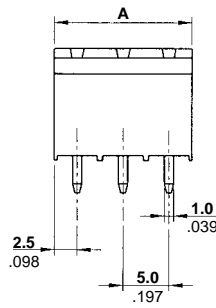
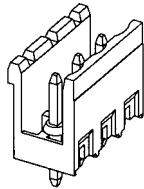
No. of Positions	Dim. A	Part Numbers
2	3.81 [0.150]	284541-2
3	7.62 [0.300]	284541-3
4	11.43 [0.450]	284541-4
5	15.24 [0.600]	284541-5
6	19.05 [0.750]	284541-6
7	22.86 [0.900]	284541-7
8	26.67 [1.050]	284541-8
9	30.48 [1.200]	284541-9
10	34.29 [1.350]	1-284541-0
11	38.10 [1.500]	1-284541-1
12	41.91 [1.650]	1-284541-2

No. of Positions	Dim. A	Part Numbers
13	45.72 [1.800]	1-284541-3
14	49.53 [1.950]	1-284541-4
15	53.34 [2.100]	1-284541-5
16	57.15 [2.250]	1-284541-6
17	60.96 [2.400]	1-284541-7
18	64.77 [2.550]	1-284541-8
19	68.58 [2.700]	1-284541-9
20	72.39 [2.850]	2-284541-0
21	76.20 [3.000]	2-284541-1
22	80.01 [3.150]	2-284541-2
23	83.82 [3.300]	2-284541-3

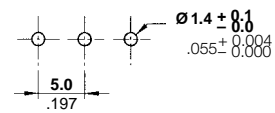
For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Straight, Open End
Stacking Headers,
5.0 mm Centerline
Color – See chart.
UL Rating – 300 V, 12 A**



Recommended PC Board Layout

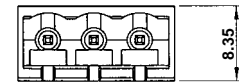
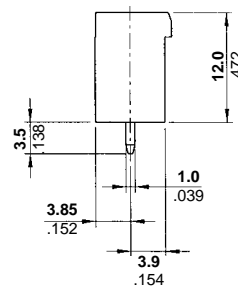
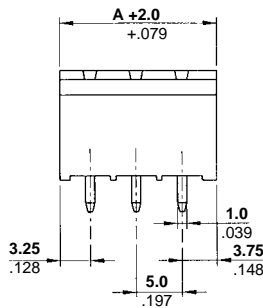
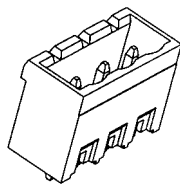


No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
2	10.0 [0.394]	282822-2	796697-2
3	15.0 [0.591]	282822-3	796697-3
4	20.0 [0.787]	282822-4	796697-4
5	25.0 [0.984]	282822-5	796697-5
6	30.0 [1.181]	282822-6	796697-6
7	35.0 [1.378]	282822-7	796697-7
8	40.0 [1.575]	282822-8	796697-8
9	45.0 [1.772]	282822-9	796697-9
10	50.0 [1.968]	1-282822-0	1-796697-0
11	55.0 [2.165]	1-282822-1	1-796697-1
12	60.0 [2.362]	1-282822-2	1-796697-2
13	65.0 [2.559]	1-282822-3	1-796697-3

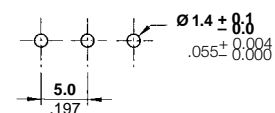
No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
14	70.0 [2.756]	1-282822-4	1-796697-4
15	75.0 [2.953]	1-282822-5	1-796697-5
16	80.0 [3.150]	1-282822-6	1-796697-6
17	85.0 [3.346]	1-282822-7	1-796697-7
18	90.0 [3.543]	1-282822-8	1-796697-8
19	95.0 [3.740]	1-282822-9	1-796697-9
20	100.0 [3.937]	2-282822-0	2-796697-0
21	105.0 [4.134]	2-282822-1	2-796697-1
22	110.0 [4.331]	2-282822-2	2-796697-2
23	115.0 [4.528]	2-282822-3	2-796697-3
24	120.0 [4.724]	2-282822-4	2-796697-4
25	125.0 [4.921]	2-282822-5	2-796697-5

Note: BUCHANAN Terminal Block Series B72N4VxxT has been replaced by x-796697-x (blue).

**Straight,
Closed End Headers,
5.0 mm Centerline
Color – See chart.
UL Rating – 300 V, 12 A**



Recommended PC Board Layout



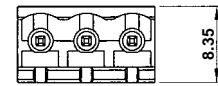
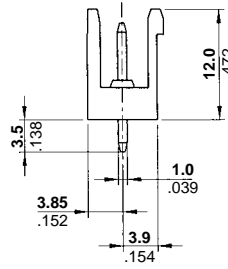
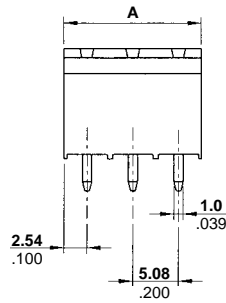
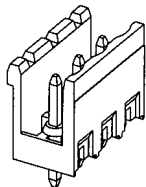
No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
2	10.0 [0.394]	282820-2	796642-2	796699-2	796643-2
3	15.0 [0.591]	282820-3	796642-3	796699-3	796643-3
4	20.0 [0.787]	282820-4	796642-4	796699-4	796643-4
5	25.0 [0.984]	282820-5	796642-5	796699-5	796643-5
6	30.0 [1.181]	282820-6	796642-6	796699-6	796643-6
7	35.0 [1.378]	282820-7	796642-7	796699-7	796643-7
8	40.0 [1.575]	282820-8	796642-8	796699-8	796643-8
9	45.0 [1.772]	282820-9	796642-9	796699-9	796643-9
10	50.0 [1.968]	1-282820-0	1-796642-0	1-796699-0	1-796643-0
11	55.0 [2.165]	1-282820-1	1-796642-1	1-796699-1	1-796643-1
12	60.0 [2.362]	1-282820-2	1-796642-2	1-796699-2	1-796643-2
13	65.0 [2.559]	1-282820-3	1-796642-3	1-796699-3	1-796643-3

No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
14	70.0 [2.756]	1-282820-4	1-796642-4	1-796699-4	1-796643-4
15	75.0 [2.953]	1-282820-5	1-796642-5	1-796699-5	1-796643-5
16	80.0 [3.150]	1-282820-6	1-796642-6	1-796699-6	1-796643-6
17	85.0 [3.346]	1-282820-7	1-796642-7	1-796699-7	1-796643-7
18	90.0 [3.543]	1-282820-8	1-796642-8	1-796699-8	1-796643-8
19	95.0 [3.740]	1-282820-9	1-796642-9	1-796699-9	1-796643-9
20	100.0 [3.937]	2-282820-0	2-796642-0	2-796699-0	2-796643-0
21	105.0 [4.134]	2-282820-1	2-796642-1	2-796699-1	2-796643-1
22	110.0 [4.331]	2-282820-2	2-796642-2	2-796699-2	2-796643-2
23	115.0 [4.528]	2-282820-3	2-796642-3	2-796699-3	2-796643-3
24	120.0 [4.724]	2-282820-4	2-796642-4	2-796699-4	2-796643-4
25	125.0 [4.921]	2-282820-5	2-796642-5	2-796699-5	2-796643-5

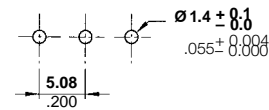
Note: BUCHANAN Terminal Block Series B73N4VxxT has been replaced with 796699-xx (blue) and 796643-xx (black).
RDI Terminal Block Series 2EHDV-xx has been replaced with 796642-xx (green) and 796643-xx (black).

Two-Piece Terminal Block Connectors

**Straight,
Open End
Stacking Headers,
5.08 mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**



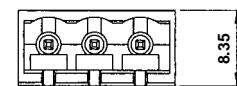
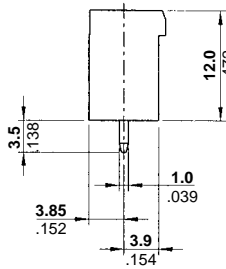
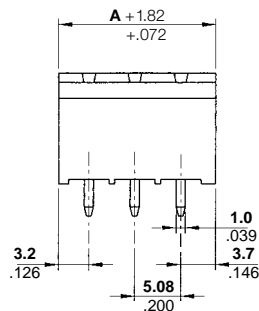
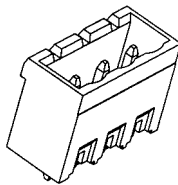
Recommended PC Board Layout



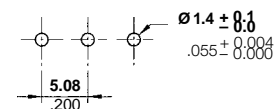
No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282825-2
3	15.24 [0.600]	282825-3
4	20.32 [0.800]	282825-4
5	25.40 [1.000]	282825-5
6	30.48 [1.200]	282825-6
7	35.56 [1.400]	282825-7
8	40.64 [1.600]	282825-8
9	45.72 [1.800]	282825-9
10	50.80 [2.000]	1-282825-0
11	55.88 [2.200]	1-282825-1
12	60.96 [2.400]	1-282825-2
13	66.04 [2.600]	1-282825-3

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282825-4
15	76.20 [3.000]	1-282825-5
16	81.28 [3.200]	1-282825-6
17	86.36 [3.400]	1-282825-7
18	91.44 [3.600]	1-282825-8
19	96.52 [3.800]	1-282825-9
20	101.60 [4.000]	2-282825-0
21	106.68 [4.200]	2-282825-1
22	111.76 [4.400]	2-282825-2
23	116.84 [4.600]	2-282825-3
24	121.92 [4.800]	2-282825-4
25	127.00 [5.000]	2-282825-5

**Straight,
Closed End Headers,
5.08 mm Centerline
Color – See chart.
UL Rating – 300 V, 12 A**



Recommended PC Board Layout



No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
2	10.16 [0.400]	282823-2 *	796636-2	796637-2
3	15.24 [0.600]	282823-3 *	796636-3	796637-3
4	20.32 [0.800]	282823-4 *	796636-4	796637-4
5	25.40 [1.000]	282823-5 *	796636-5	796637-5
6	30.48 [1.200]	282823-6 *	796636-6	796637-6
7	35.56 [1.400]	282823-7 *	796636-7	796637-7
8	40.64 [1.600]	282823-8 *	796636-8	796637-8
9	45.72 [1.800]	282823-9 *	796636-9	796637-9
10	50.80 [2.000]	1-282823-0 *	1-796636-0	1-796637-0
11	55.88 [2.200]	1-282823-1 *	1-796636-1	1-796637-1
12	60.96 [2.400]	1-282823-2 *	1-796636-2	1-796637-2
13	66.04 [2.600]	1-282823-3 *	1-796636-3	1-796637-3

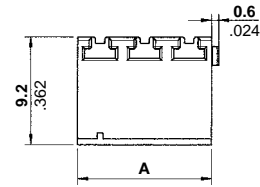
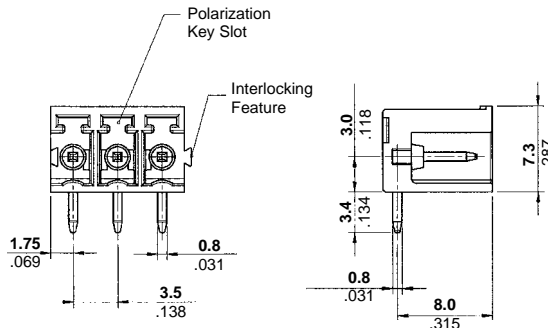
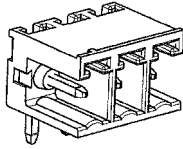
No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
14	71.12 [2.800]	1-282823-4	1-796636-4	1-796637-4
15	76.20 [3.000]	1-282823-5	1-796636-5	1-796637-5
16	81.28 [3.200]	1-282823-6	1-796636-6	1-796637-6
17	86.36 [3.400]	1-282823-7	1-796636-7	1-796637-7
18	91.44 [3.600]	1-282823-8	1-796636-8	1-796637-8
19	96.52 [3.800]	1-282823-9	1-796636-9	1-796637-9
20	101.60 [4.000]	2-282823-0	2-796636-0	2-796637-0
21	106.68 [4.200]	2-282823-1	2-796636-1	2-796637-1
22	111.76 [4.400]	2-282823-2	2-796636-2	2-796637-2
23	116.84 [4.600]	2-282823-3	2-796636-3	2-796637-3
24	121.92 [4.800]	2-282823-4	2-796636-4	2-796637-4
25	127.00 [5.000]	2-282823-5	2-796636-5	2-796637-5

Note: BUCHANAN Terminal Block Series B2EHDVXX has been superceded/replaced with 796636-xx (green) and 796637-xx (black).

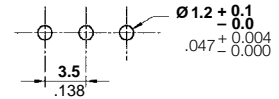
For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Right-Angle
Open End Header w/Interlock,
3.5 mm Centerline
Color – Green**
UL Rating – 150 V, 10 A



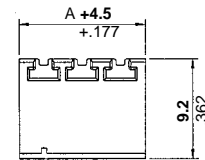
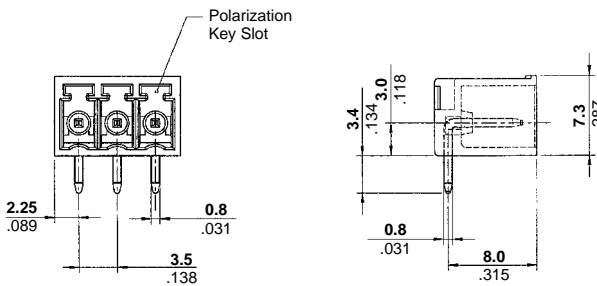
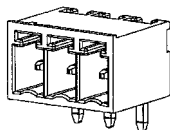
Recommended PC Board Layout



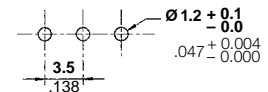
No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	284540-2
3	10.5 [0.413]	284540-3
4	14.0 [0.551]	284540-4
5	17.5 [0.689]	284540-5
6	21.0 [0.827]	284540-6
7	24.5 [0.965]	284540-7
8	28.0 [1.102]	284540-8
9	31.5 [1.240]	284510-9
10	35.0 [1.378]	1-284540-0
11	38.5 [1.516]	1-284540-1
12	42.0 [1.654]	1-284540-2
13	45.5 [1.791]	1-284540-3

No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-284540-4
15	52.5 [2.067]	1-284540-5
16	56.0 [2.205]	1-284540-6
17	59.5 [2.343]	1-284540-7
18	63.0 [2.480]	1-284540-8
19	66.5 [2.618]	1-284540-9
20	70.0 [2.756]	2-284540-0
21	73.5 [2.894]	2-284540-1
22	77.0 [3.031]	2-284540-2
23	80.5 [3.169]	2-284540-3
24	84.0 [3.307]	2-284540-4
25	87.5 [3.445]	2-284540-5

**Right-Angle
Closed End Headers,
3.5 mm Centerline
With Threaded Flange
Color – See chart.**
UL Rating – 150 V, 10 A



Recommended PC Board Layout



Number of Positions	Dim. A	Part Numbers	
		Green	Blue
2	3.5 [0.138]	284512-2	796695-2
3	7.0 [0.276]	284512-3	796695-3
4	10.5 [0.413]	284512-4	796695-4
5	14.0 [0.551]	284512-5	796695-5
6	17.5 [0.689]	284512-6	796695-6
7	21.0 [0.827]	284512-7	796695-7
8	24.5 [0.965]	284512-8	796695-8
9	28.0 [1.102]	284512-9	796695-9
10	31.5 [1.240]	1-284512-0	1-796695-0
11	35.0 [1.378]	1-284512-1	1-796695-1
12	38.5 [1.516]	1-284512-2	1-796695-2
13	42.0 [1.654]	1-284512-3	1-796695-3

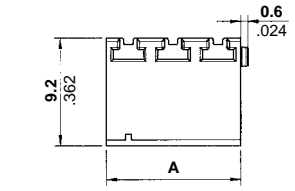
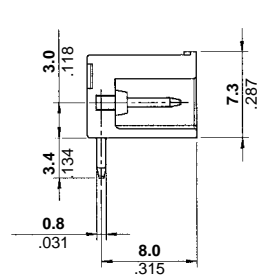
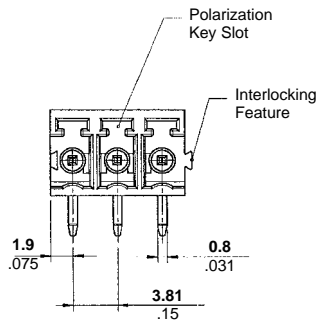
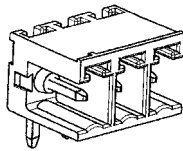
Number of Positions	Dim. A	Part Numbers	
		Green	Blue
14	45.5 [1.791]	1-284512-4	1-796695-4
15	49.0 [1.929]	1-284512-5	1-796695-5
16	52.5 [2.067]	1-284512-6	1-796695-6
17	56.0 [2.205]	1-284512-7	1-796695-7
18	59.5 [2.343]	1-284512-8	1-796695-8
19	63.0 [2.480]	1-284512-9	1-796695-9
20	66.5 [2.618]	2-284512-0	2-796695-0
21	70.0 [2.756]	2-284512-1	2-796695-1
22	73.5 [2.894]	2-284512-2	2-796695-2
23	77.0 [3.031]	2-284512-3	2-796695-3
24	80.5 [3.169]	2-284512-4	2-796695-4
25	84.0 [3.307]	2-284512-5	2-796695-5

Note: BUCHANAN Terminal Block Series B73N3HXXT has been replaced with Part Number 796695-xx (blue).

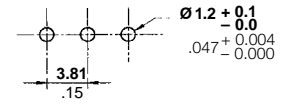
For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Right-Angle
Open End Header w/Interlock,
3.81 mm Centerline,
Color – Green**
UL Rating – 150 V, 10 A



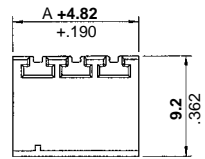
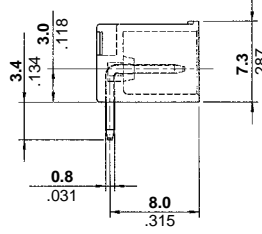
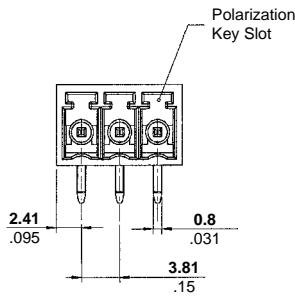
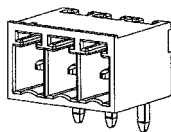
Recommended PC Board Layout



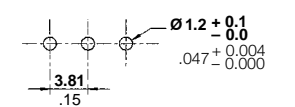
No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284542-2
3	11.43 [0.450]	284542-3
4	15.24 [0.600]	284542-4
5	19.05 [0.750]	284542-5
6	22.86 [0.900]	284542-6
7	26.67 [1.050]	284542-7
8	30.48 [1.200]	284542-8
9	34.29 [1.350]	284542-9
10	38.10 [1.500]	1-284542-0
11	41.91 [1.650]	1-284542-1
12	45.72 [1.800]	1-284542-2
13	49.53 [1.950]	1-284542-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284542-4
15	57.15 [2.250]	1-284542-5
16	60.96 [2.400]	1-284542-6
17	64.77 [2.550]	1-284542-7
18	68.58 [2.700]	1-284542-8
19	72.39 [2.850]	1-284542-9
20	76.20 [3.000]	2-284542-0
21	80.01 [3.150]	2-284542-1
22	83.82 [3.300]	2-284542-2
23	87.63 [3.450]	2-284542-3
24	91.44 [3.600]	2-284542-4
25	95.25 [3.750]	2-284542-5

**Right-Angle
Closed End Header,
3.81 mm Centerline
Color – Green**
UL Rating – 150 V, 10 A



Recommended PC Board Layout



No. of Positions	Dim. A	Part Numbers
2	3.81 [0.150]	284513-2
3	7.62 [0.300]	284513-3
4	11.43 [0.450]	284513-4
5	15.24 [0.600]	284513-5
6	19.05 [0.750]	284513-6
7	22.86 [0.900]	284513-7
8	26.67 [1.050]	284513-8
9	30.48 [1.200]	284513-9
10	34.29 [1.350]	1-284513-0
11	38.10 [1.500]	1-284513-1
12	41.91 [1.650]	1-284513-2
13	45.72 [1.800]	1-284513-3

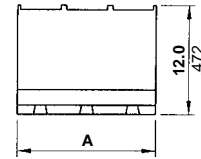
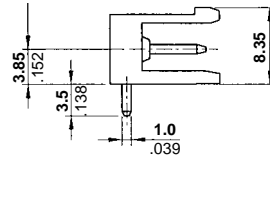
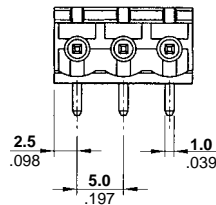
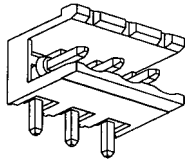
No. of Positions	Dim. A	Part Numbers
14	49.53 [1.950]	1-284513-4
15	53.34 [2.100]	1-284513-5
16	57.15 [2.250]	1-284513-6
17	60.96 [2.400]	1-284513-7
18	64.77 [2.550]	1-284513-8
19	68.58 [2.700]	1-284513-9
20	72.39 [2.850]	2-284513-0
21	76.20 [3.000]	2-284513-1
22	80.01 [3.150]	2-284513-2
23	83.82 [3.300]	2-284513-3
24	87.63 [3.450]	2-284513-4
25	91.44 [3.600]	2-284513-5

For complete product information, order Catalog 1308389

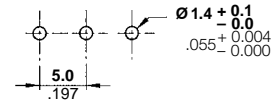
Two-Piece Terminal Block Connectors

**Right-Angle
Open End Stacking Headers,
5.0 mm Centerline
Color – See chart.**

UL Rating – 300 V, 12 A



Recommended PC Board Layout



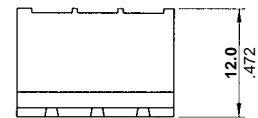
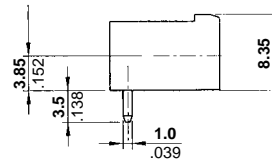
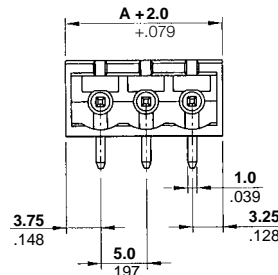
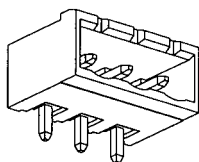
No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
2	10.0 [0.394]	282812-2	796698-2
3	15.0 [0.591]	282812-3	796698-3
4	20.0 [0.787]	282812-4	796698-4
5	25.0 [0.984]	282812-5	796698-5
6	30.0 [1.181]	282812-6	796698-6
7	35.0 [1.378]	282812-7	796698-7
8	40.0 [1.575]	282812-8	796698-8
9	45.0 [1.772]	282812-9	796698-9
10	50.0 [1.968]	1-282812-0	1-796698-0
11	55.0 [2.165]	1-282812-1	1-796698-1
12	60.0 [2.362]	1-282812-2	1-796698-2
13	65.0 [2.559]	1-282812-3	1-796698-3

No. of Positions	Dim. A	Part Numbers	
		Gray	Blue
14	70.0 [2.756]	1-282812-4	1-796698-4
15	75.0 [2.953]	1-282812-5	1-796698-5
16	80.0 [3.150]	1-282812-6	1-796698-6
17	85.0 [3.346]	1-282812-7	1-796698-7
18	90.0 [3.543]	1-282812-8	1-796698-8
19	95.0 [3.740]	1-282812-9	1-796698-9
20	100.0 [3.937]	2-282812-0	2-796698-0
21	105.0 [4.134]	2-282812-1	2-796698-1
22	110.0 [4.331]	2-282812-2	2-796698-2
23	115.0 [4.528]	2-282812-3	2-796698-3
24	120.0 [4.724]	2-282812-4	2-796698-4
25	125.0 [4.921]	2-282812-5	2-796698-5

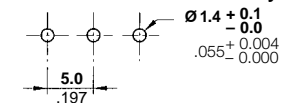
Note: BUCHANAN Terminal Block Series B72N4HxxT has been replaced with 796698-xx (blue).

**Right-Angle
Closed End Headers,
5.0 mm Centerline
Color – See chart.**

UL Rating – 300 V, 12 A



Recommended PC Board Layout



No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
2	10.0 [0.394]	282810-2	796644-2	796700-2	796645-2
3	15.0 [0.591]	282810-3	796644-3	796700-3	796645-3
4	20.0 [0.787]	282810-4	796644-4	796700-4	796645-4
5	25.0 [0.984]	282810-5	796644-5	796700-5	796645-5
6	30.0 [1.181]	282810-6	796644-6	796700-6	796645-6
7	35.0 [1.378]	282810-7	796644-7	796700-7	796645-7
8	40.0 [1.575]	282810-8	796644-8	796700-8	796645-8
9	45.0 [1.772]	282810-9	796644-9	796700-9	796645-9
10	50.0 [1.968]	1-282810-0	1-796644-0	1-796700-0	1-796645-0
11	55.0 [2.165]	1-282810-1	1-796644-1	1-796700-1	1-796645-1
12	60.0 [2.362]	1-282810-2	1-796644-2	1-796700-2	1-796645-2
13	65.0 [2.559]	1-282810-3	1-796644-3	1-796700-3	1-796645-3

No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
14	70.0 [2.756]	1-282810-4	1-796644-4	1-796700-4	1-796645-4
15	75.0 [2.953]	1-282810-5	1-796644-5	1-796700-5	1-796645-5
16	80.0 [3.150]	1-282810-6	1-796644-6	1-796700-6	1-796645-6
17	85.0 [3.346]	1-282810-7	1-796644-7	1-796700-7	1-796645-7
18	90.0 [3.543]	1-282810-8	1-796644-8	1-796700-8	1-796645-8
19	95.0 [3.740]	1-282810-9	1-796644-9	1-796700-9	1-796645-9
20	100.0 [3.937]	2-282810-0	2-796644-0	2-796700-0	2-796645-0
21	105.0 [4.134]	2-282810-1	2-796644-1	2-796700-1	2-796645-1
22	110.0 [4.331]	2-282810-2	2-796644-2	2-796700-2	2-796645-2
23	115.0 [4.528]	2-282810-3	2-796644-3	2-796700-3	2-796645-3
24	120.0 [4.724]	2-282810-4	2-796644-4	2-796700-4	2-796645-4
25	125.0 [4.921]	2-282810-5	2-796644-5	2-796700-5	2-796645-5

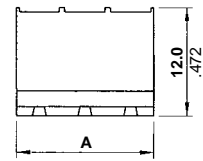
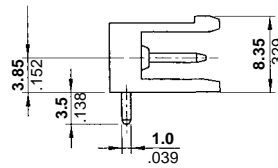
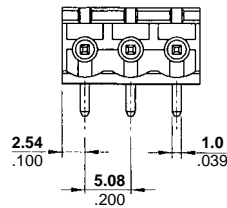
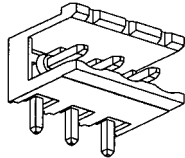
Note: RDI Terminal Block Series 2EHDR-xx has been replaced with 796644-xx (green) and 796645-xx (black).
BUCHANAN Terminal Block Series B73N4HxxT has been replaced with 796700-xx (blue) and 796645-xx (black).

For complete product information, order Catalog 1308389

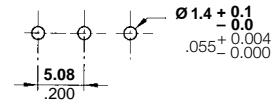
Two-Piece Terminal Block Connectors

**Right-Angle
Open End Stacking Headers,
5.08 mm Centerline
Color – Gray**

UL Rating – 300 V, 12 A



Recommended PC Board Layout

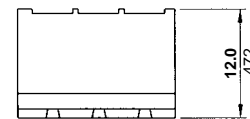
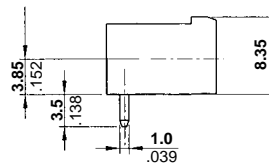
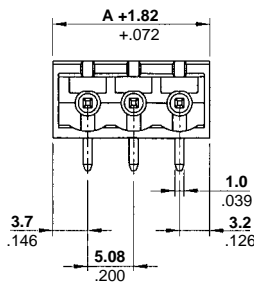
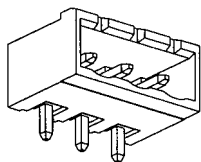


No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	282815-2
3	15.24 [0.600]	282815-3
4	20.32 [0.800]	282815-4
5	25.40 [1.000]	282815-5
6	30.48 [1.200]	282815-6
7	35.56 [1.400]	282815-7
8	40.64 [1.600]	282815-8
9	45.72 [1.800]	282815-9
10	50.80 [2.000]	1-282815-0
11	55.88 [2.200]	1-282815-1
12	60.96 [2.400]	1-282815-2
13	66.04 [2.600]	1-282815-3

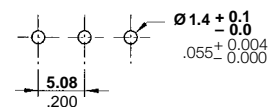
No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-282815-4
15	76.20 [3.000]	1-282815-5
16	81.28 [3.200]	1-282815-6
17	86.36 [3.400]	1-282815-7
18	91.44 [3.600]	1-282815-8
19	96.52 [3.800]	1-282815-9
20	101.60 [4.000]	2-282815-0
21	106.68 [4.200]	2-282815-1
22	111.76 [4.400]	2-282815-2
23	116.84 [4.600]	2-282815-3
24	121.92 [4.800]	2-282815-4
25	127.00 [5.000]	2-282815-5

**Right-Angle,
Closed End Headers,
5.08 mm Centerline
Color – See chart.**

UL Rating – 300 V, 12 A



Recommended PC Board Layout



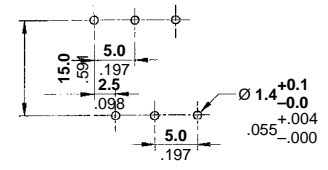
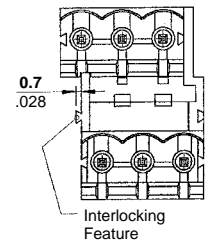
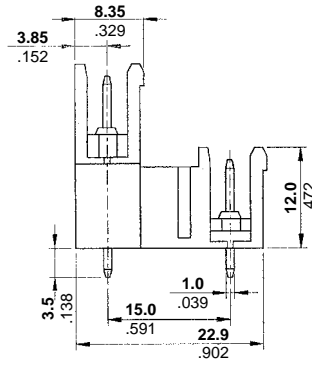
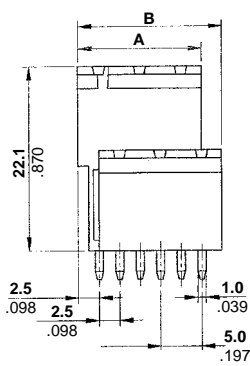
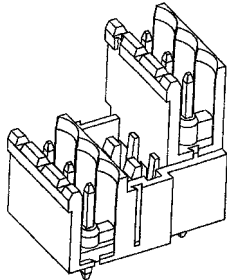
No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
2	10.16 [0.400]	282813-2	796638-2	796639-2
3	15.24 [0.600]	282813-3	796638-3	796639-3
4	20.32 [0.800]	282813-4	796638-4	796639-4
5	25.40 [1.000]	282813-5	796638-5	796639-5
6	30.48 [1.200]	282813-6	796638-6	796639-6
7	35.56 [1.400]	282813-7	796638-7	796639-7
8	40.64 [1.600]	282813-8	796638-8	796639-8
9	45.72 [1.800]	282813-9	796638-9	796639-9
10	50.80 [2.000]	1-282813-0	1-796638-0	1-796639-0
11	55.88 [2.200]	1-282813-1	1-796638-1	1-796639-1
12	60.96 [2.400]	1-282813-2	1-796638-2	1-796639-2
13	66.04 [2.600]	1-282813-3	1-796638-3	1-796639-3

No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
14	71.12 [2.800]	1-282813-4	1-796638-4	1-796639-4
15	76.20 [3.000]	1-282813-5	1-796638-5	1-796639-5
16	81.28 [3.200]	1-282813-6	1-796638-6	1-796639-6
17	86.36 [3.400]	1-282813-7	1-796638-7	1-796639-7
18	91.44 [3.600]	1-282813-8	1-796638-8	1-796639-8
19	96.52 [3.800]	1-282813-9	1-796638-9	1-796639-9
20	101.60 [4.000]	2-282813-0	2-796638-0	2-796639-0
21	106.68 [4.200]	2-282813-1	2-796638-1	2-796639-1
22	111.76 [4.400]	2-282813-2	2-796638-2	2-796639-2
23	116.84 [4.600]	2-282813-3	2-796638-3	2-796639-3
24	121.92 [4.800]	2-282813-4	2-796638-4	2-796639-4
25	127.00 [5.000]	2-282813-5	2-796638-5	2-796639-5

Note: RDI Terminal Block Series 2EHDR-XX has been superceded/replaced with 796638-xx (green) and 796639-xx (black).
For complete product information, order Catalog 1308389

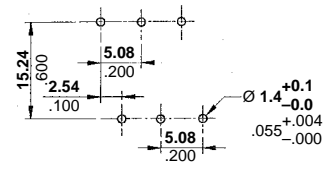
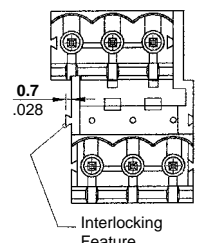
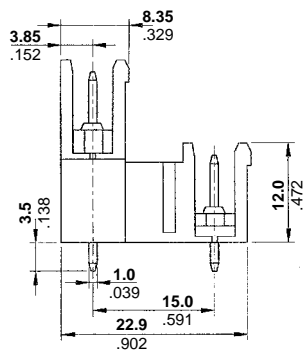
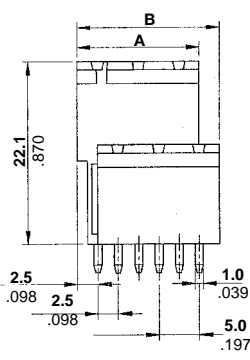
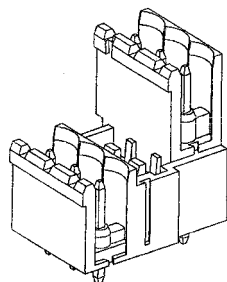
Two-Piece Terminal Block Connectors

**Vertical Open End
Double Row Header
w/Interlock,
5.0mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**



Number of Positions	Dim.		Part Numbers
	A	B	
2	10.0 [0.394]	12.5 [0.492]	284056-2
3	15.0 [0.591]	17.5 [0.689]	284056-3

**Vertical Open End
Double Row Header
w/Interlock,
5.08mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**

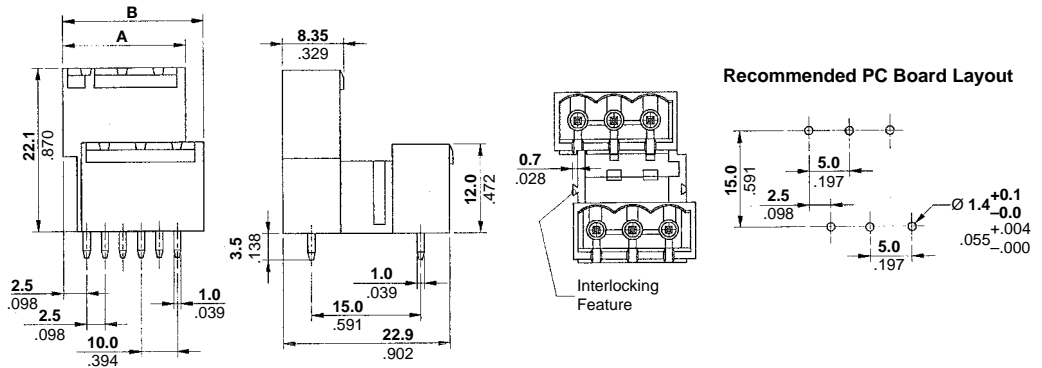
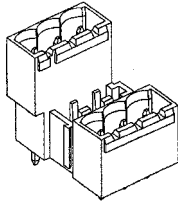


Number of Positions	Dim.		Part Numbers
	A	B	
2	10.16 [0.400]	12.70 [0.500]	284057-2
3	15.24 [0.600]	17.78 [0.700]	284057-3

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

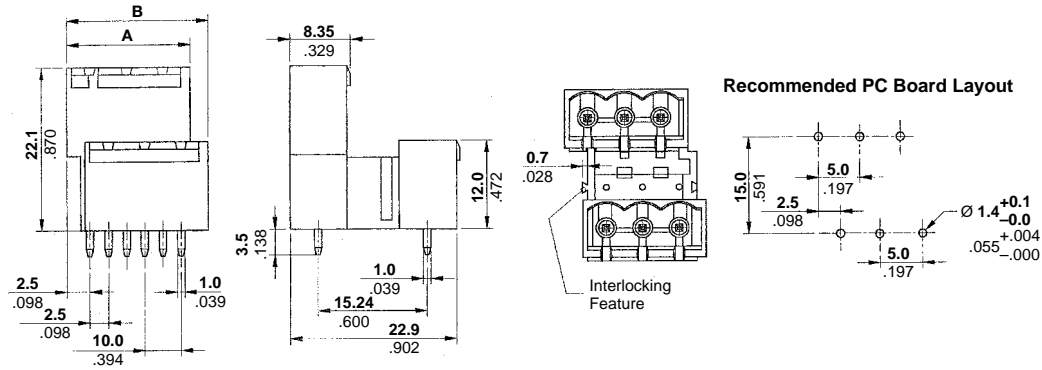
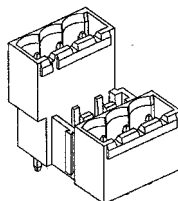
**Vertical Closed End
Double Row Header
5.0mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**



Number of Positions	Dim.		Part Numbers
	A	B	
2	12.0 [0.472]	14.5 [0.571]	284064-2
3	17.0 [0.669]	19.5 [0.768]	284064-3
4	22.0 [0.866]	24.5 [0.965]	284064-4
5	27.0 [1.063]	29.5 [1.161]	284064-5
6	32.0 [1.260]	34.5 [1.358]	284064-6
7	37.0 [1.457]	39.5 [1.555]	284064-7
8	42.0 [1.654]	44.5 [1.752]	284064-8
9	47.0 [1.850]	49.5 [1.949]	284064-9
10	52.0 [2.047]	54.5 [2.146]	1-284064-0
11	57.0 [2.244]	59.5 [2.343]	1-284064-1
12	62.0 [2.441]	64.5 [2.539]	1-284064-2
13	67.0 [2.638]	69.5 [2.736]	1-284064-3

Number of Positions	Dim.		Part Numbers
	A	B	
14	72.0 [2.835]	74.5 [2.933]	1-284064-4
15	77.0 [3.031]	79.5 [3.130]	1-284064-5
16	82.0 [3.228]	84.5 [3.327]	1-284064-6
17	87.0 [3.425]	89.5 [3.524]	1-284064-7
18	92.0 [3.622]	94.5 [3.720]	1-284064-8
19	97.0 [3.819]	99.5 [3.917]	1-284064-9
20	102.0 [4.016]	104.5 [4.114]	2-284064-0
21	107.0 [4.213]	109.5 [4.311]	2-284064-1
22	112.0 [4.409]	114.5 [4.508]	2-284064-2
23	117.0 [4.606]	119.5 [4.705]	2-284064-3
24	122.0 [4.803]	124.5 [4.902]	2-284064-4
25	127.0 [5.000]	129.5 [5.098]	2-284064-5

**Vertical Closed End
Double Row Header
5.08mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**



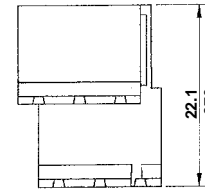
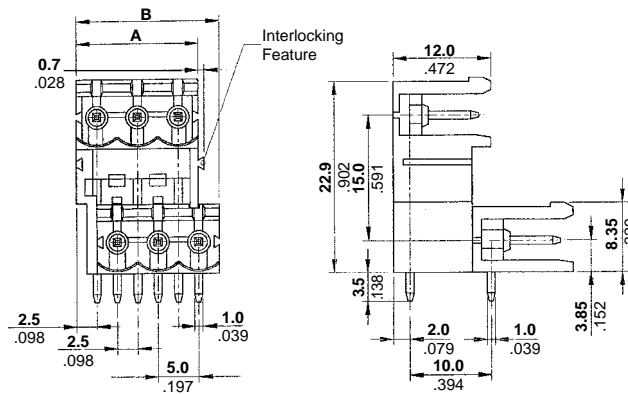
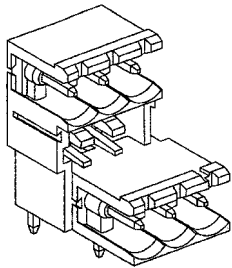
Number of Positions	Dim.		Part Numbers
	A	B	
2	12.20 [0.480]	14.74 [0.580]	284065-2
3	17.28 [0.680]	19.82 [0.780]	284065-3
4	22.36 [0.880]	24.90 [0.980]	284065-4
5	27.44 [1.080]	29.98 [1.180]	284065-5
6	32.52 [1.280]	35.06 [1.380]	284065-6
7	37.60 [1.480]	40.14 [1.580]	284065-7
8	42.68 [1.680]	45.22 [1.780]	284065-8
9	47.76 [1.880]	50.30 [1.980]	284065-9
10	52.84 [2.080]	55.38 [2.180]	1-284065-0
11	57.92 [2.280]	60.46 [2.680]	1-284065-1
12	63.00 [2.480]	65.54 [2.580]	1-284065-2
13	68.08 [2.680]	70.62 [2.780]	1-284065-3

Number of Positions	Dim.		Part Numbers
	A	B	
14	72.0 [2.835]	74.5 [2.933]	1-284065-4
15	77.0 [3.031]	79.5 [3.130]	1-284065-5
16	82.0 [3.228]	84.5 [3.327]	1-284065-6
17	87.0 [3.425]	89.5 [3.524]	1-284065-7
18	92.0 [3.622]	94.5 [3.720]	1-284065-8
19	97.0 [3.819]	99.5 [3.917]	1-284065-9
20	102.0 [4.016]	104.5 [4.114]	2-284065-0
21	107.0 [4.213]	109.5 [4.311]	2-284065-1
22	112.0 [4.409]	114.5 [4.508]	2-284065-2
23	117.0 [4.606]	119.5 [4.705]	2-284065-3
24	122.0 [4.803]	124.5 [4.902]	2-284065-4
25	127.0 [5.000]	129.5 [5.098]	2-284065-5

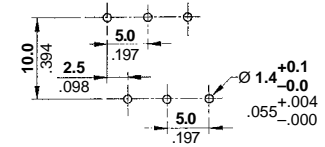
For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Right-Angle Open End
Double Row Header
w/Interlock
5.0mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**

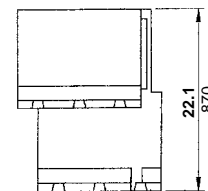
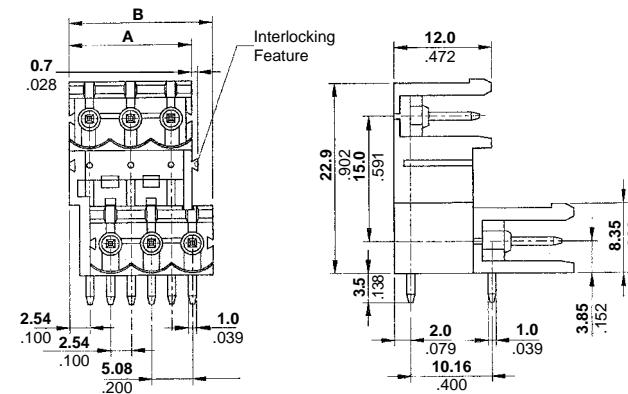
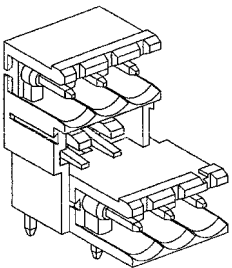


Recommended PC Board Layout

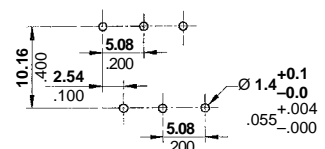


Number of Positions	Dim.		Part Numbers
	A	B	
2	10.0 [0.394]	12.5 [0.492]	284052-2
3	15.0 [0.591]	17.5 [0.689]	284052-3

**Right-Angle Open End
Double Row Header
w/Interlock
5.08mm Centerline
Color – Gray
UL Rating – 300 V, 12 A**



Recommended PC Board Layout



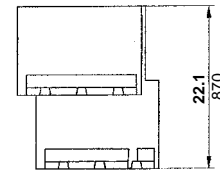
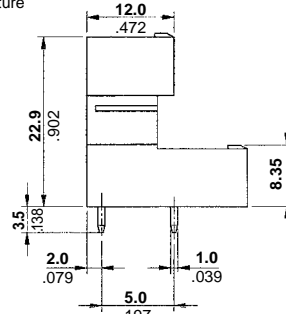
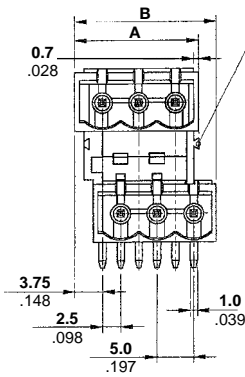
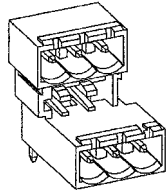
Number of Positions	Dim.		Part Numbers
	A	B	
2	10.16 [0.400]	12.70 [0.500]	284053-2
3	15.24 [0.600]	17.78 [0.700]	284053-3

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Right-Angle Closed End
Double Row Header
w/Interlock
5.0mm Centerline
Color – Gray**

UL Rating – 300 V, 12 A

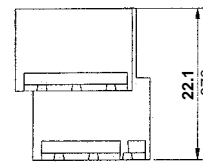
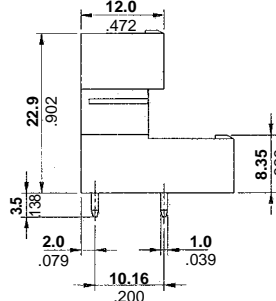
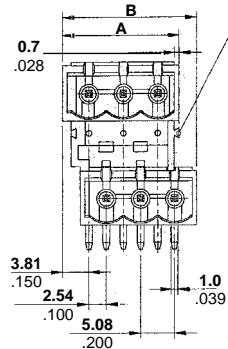
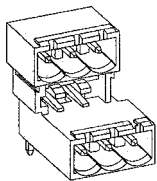


Number of Positions	Dim.		Part Numbers
	A	B	
2	12.0 [0.472]	14.5 [0.571]	284060-2
3	17.0 [0.669]	19.5 [0.768]	284060-3
4	22.0 [0.866]	24.5 [0.965]	284060-4
5	27.0 [1.063]	29.5 [1.161]	284060-5
6	32.0 [1.260]	34.5 [1.358]	284060-6
7	37.0 [1.457]	39.5 [1.555]	284060-7
8	42.0 [1.654]	44.5 [1.752]	284060-8
9	47.0 [1.850]	49.5 [1.949]	284060-9
10	52.0 [2.047]	54.5 [2.146]	1-284060-0
11	57.0 [2.244]	59.5 [2.343]	1-284060-1
12	62.0 [2.441]	64.5 [2.539]	1-284060-2
13	67.0 [2.638]	69.5 [2.736]	1-284060-3

Number of Positions	Dim.		Part Numbers
	A	B	
14	72.0 [2.835]	74.5 [2.933]	1-284060-4
15	77.0 [3.031]	79.5 [3.130]	1-284060-5
16	82.0 [3.228]	84.5 [3.327]	1-284060-6
17	87.0 [3.425]	89.5 [3.524]	1-284060-7
18	92.0 [3.622]	94.5 [3.720]	1-284060-8
19	97.0 [3.819]	99.5 [3.917]	1-284060-9
20	102.0 [4.016]	104.5 [4.114]	2-284060-0
21	107.0 [4.213]	109.5 [4.311]	2-284060-1
22	112.0 [4.409]	114.5 [4.508]	2-284060-2
23	117.0 [4.606]	119.5 [4.705]	2-284060-3
24	122.0 [4.803]	124.5 [4.902]	2-284060-4
25	127.0 [5.000]	129.5 [5.098]	2-284060-5

**Right-Angle Closed End
Double Row Header
w/Interlock
5.08mm Centerline
Color – Gray**

UL Rating – 300 V, 12 A



Number of Positions	Dim.		Part Numbers
	A	B	
2	12.20 [0.480]	14.74 [0.580]	284061-2
3	17.28 [0.680]	19.82 [0.780]	284061-3
4	22.36 [0.880]	24.90 [0.980]	284061-4
5	27.44 [1.080]	29.98 [1.180]	284061-5
6	32.52 [1.280]	35.06 [1.380]	284061-6
7	37.60 [1.480]	40.14 [1.580]	284061-7
8	42.68 [1.680]	45.22 [1.780]	284061-8
9	47.76 [1.880]	50.30 [1.980]	284061-9
10	52.84 [2.080]	55.38 [2.180]	1-284061-0
11	57.92 [2.280]	60.46 [2.680]	1-284061-1
12	63.00 [2.480]	65.54 [2.580]	1-284061-2
13	68.08 [2.680]	70.62 [2.780]	1-284061-3

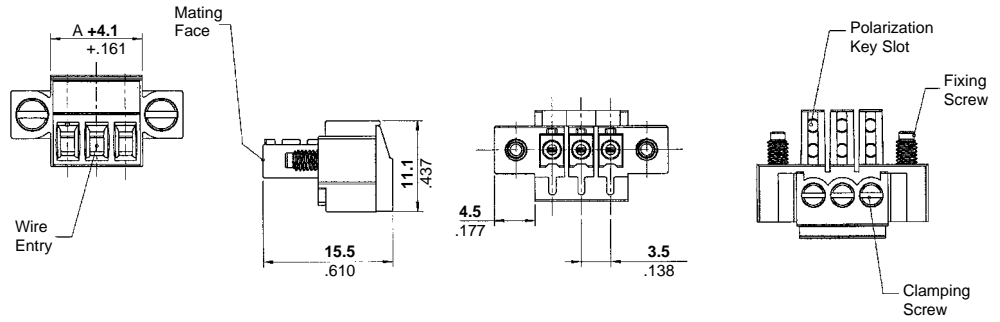
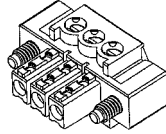
Number of Positions	Dim.		Part Numbers
	A	B	
14	73.16 [2.880]	75.70 [2.980]	1-284061-4
15	78.24 [3.080]	80.78 [3.180]	1-284061-5
16	83.32 [3.280]	85.86 [3.380]	1-284061-6
17	88.40 [3.480]	90.94 [3.580]	1-284061-7
18	93.48 [3.680]	96.02 [3.780]	1-284061-8
19	98.56 [3.880]	101.10 [3.980]	1-284061-9
20	103.64 [4.080]	106.18 [4.180]	2-284061-0
21	108.72 [4.480]	111.26 [4.380]	2-284061-1
22	113.80 [4.880]	116.34 [4.580]	2-284061-2
23	118.88 [4.680]	121.42 [4.780]	2-284061-3
24	123.96 [4.880]	126.50 [4.980]	2-284061-4
25	129.04 [5.080]	131.58 [5.180]	2-284061-5

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

Plug, Right-Angle w/Screw Flange
1.5 mm² Solid Wire,
3.5mm Centerline,
Color – Green

UL Rating – 150 V, 10 A
14-30 AWG



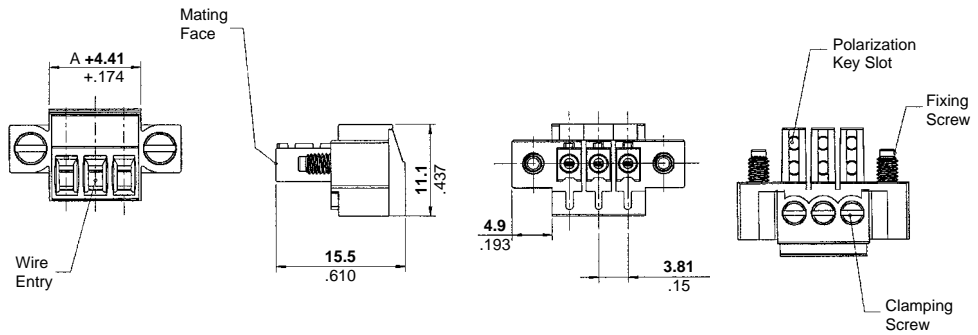
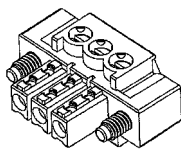
Suggested Screw Torque—
2.2 in.-lb.

No. of Positions	Dim. A	Part Numbers
2	3.5 [0.138]	284510-2
3	7.0 [0.276]	284510-3
4	10.5 [0.413]	284510-4
5	14.0 [0.551]	284510-5
6	17.5 [0.689]	284510-6
7	21.0 [0.827]	284510-7
8	24.5 [0.965]	284510-8
9	28.0 [1.102]	284510-9
10	31.5 [1.240]	1-284510-0
11	35.0 [1.378]	1-284510-1
12	38.5 [1.516]	1-284510-2

No. of Positions	Dim. A	Part Numbers
13	42.0 [1.654]	1-284510-3
14	45.5 [1.791]	1-284510-4
15	49.0 [1.929]	1-284510-5
16	52.5 [2.067]	1-284510-6
17	56.0 [2.205]	1-284510-7
18	59.5 [2.343]	1-284510-8
19	63.0 [2.480]	1-284510-9
20	66.5 [2.618]	2-284510-0
21	70.0 [2.756]	2-284510-1
22	73.5 [2.894]	2-284510-2
23	77.0 [3.031]	2-284510-3

Plug, Right-Angle w/Screw Flange
1.5 mm² Solid Wire,
3.8 mm Centerline,
Color – Green

UL Rating – 150 V, 10 A
14-30 AWG



Suggested Screw Torque—
2.2 in.-lb.

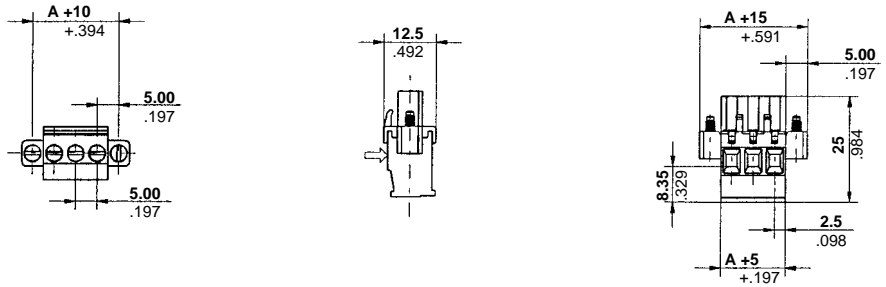
No. of Positions	Dim. A	Part Numbers
2	3.81 [0.150]	284511-2
3	7.62 [0.300]	284511-3
4	11.43 [0.450]	284511-4
5	15.24 [0.600]	284511-5
6	19.05 [0.750]	284511-6
7	22.86 [0.900]	284511-7
8	26.67 [1.050]	284511-8
9	30.48 [1.200]	284511-9
10	34.29 [1.350]	1-284511-0
11	38.10 [1.500]	1-284511-1
12	41.91 [1.650]	1-284511-2

No. of Positions	Dim. A	Part Numbers
13	45.72 [1.800]	1-284511-3
14	49.53 [1.950]	1-284511-4
15	53.34 [2.100]	1-284511-5
16	57.15 [2.250]	1-284511-6
17	60.96 [2.400]	1-284511-7
18	64.77 [2.550]	1-284511-8
19	68.58 [2.700]	1-284511-9
20	72.39 [2.850]	2-284511-0
21	76.20 [3.000]	2-284511-1
22	80.01 [3.150]	2-284511-2
23	83.82 [3.300]	2-284511-3

For complete product information, order Catalog 1308389

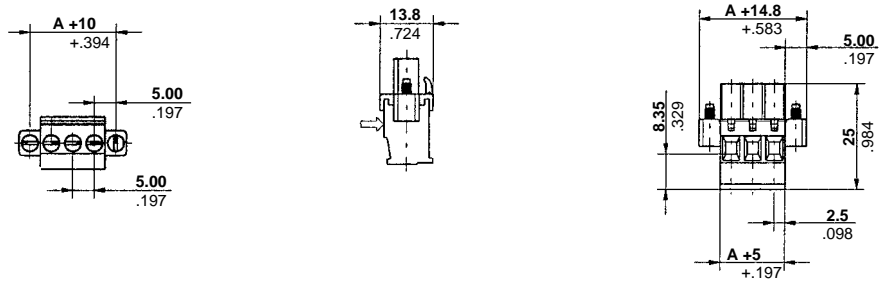
Two-Piece Terminal Block Connectors

**Plug, (Right-Hand Version)
Straight w/Locking Screw
Flange,
5.0 mm Centerline,
Color – Green**
**UL Rating – 300 V, 12 A
12-30 AWG**



No. of Positions	Dim. A	Part Numbers
2	5.0 [0.197]	796862-2
3	10.0 [0.394]	796862-3
4	15.0 [0.591]	796862-4
5	20.0 [0.787]	796862-5
6	25.0 [0.984]	796862-6
7	30.0 [1.181]	796862-7
8	35.0 [1.378]	796862-8

**Plug, (Left-Hand Version)
Straight w/Locking Screw
Flange,
5.0 mm Centerline,
Color – Green**
**UL Rating – 300 V, 12 A
12-30 AWG**



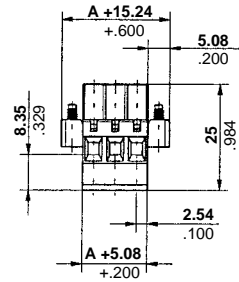
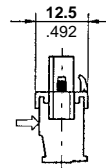
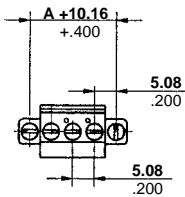
No. of Positions	Dim. A	Part Numbers
2	5.0 [0.197]	796860-2
3	10.0 [0.394]	796860-3
4	15.0 [0.591]	796860-4
5	20.0 [0.787]	796860-5
6	25.0 [0.984]	796860-6
7	30.0 [1.181]	796860-7
8	35.0 [1.378]	796860-8

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Plug, (Left-Hand Version)
Straight w/Locking Screw
Flange,
5.08 mm Centerline,
Color – Green**

**UL Rating – 300 V, 12 A
12-30 AWG**

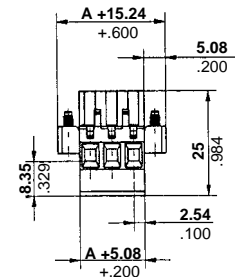
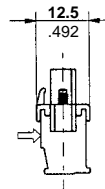
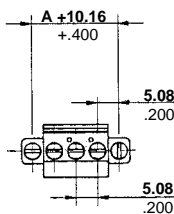


No. of Positions	Dim. A	Part Numbers
2	5.08 [0.200]	796861-2
3	10.16 [0.400]	796861-3
4	15.24 [0.600]	796861-4
5	20.32 [0.800]	796861-5
6	25.40 [1.000]	796861-6
7	30.48 [1.200]	796861-7
8	35.56 [1.400]	796861-8
9	40.64 [1.600]	796861-9
10	45.72 [1.800]	1-796861-0
11	50.80 [2.000]	1-796861-1
12	55.88 [2.200]	1-796861-2

No. of Positions	Dim. A	Part Numbers
13	60.96 [2.400]	1-796861-3
14	66.04 [2.600]	1-796861-4
15	71.12 [2.800]	1-796861-5
16	76.20 [3.000]	1-796861-6
17	81.28 [3.200]	1-796861-7
18	86.36 [3.400]	1-796861-8
19	91.44 [3.600]	1-796861-9
20	96.52 [3.800]	2-796861-0
21	101.60 [4.000]	2-796861-1
22	106.68 [4.200]	2-796861-2
23	111.76 [4.400]	2-796861-3

**Plug, (Right-Hand Version)
Straight w/Locking Screw
Flange,
5.08 mm Centerline,
Color – Green**

**UL Rating – 300 V, 12 A
12-30 AWG**



No. of Positions	Dim. A	Part Numbers
2	5.08 [0.200]	796863-2
3	10.16 [0.400]	796863-3
4	15.24 [0.600]	796863-4
5	20.32 [0.800]	796863-5
6	25.40 [1.000]	796863-6
7	30.48 [1.200]	796863-7
8	35.56 [1.400]	796863-8
9	40.64 [1.600]	796863-9
10	45.72 [1.800]	1-796863-0
11	50.80 [2.000]	1-796863-1
12	55.88 [2.200]	1-796863-2

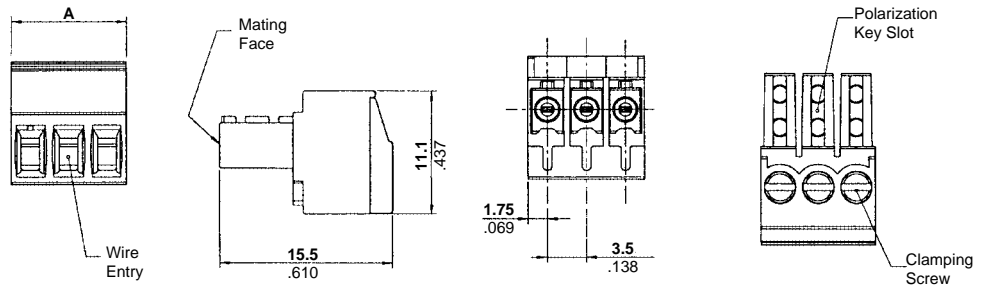
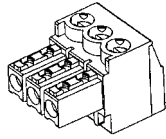
No. of Positions	Dim. A	Part Numbers
13	60.96 [2.400]	1-796863-3
14	66.04 [2.600]	1-796863-4
15	71.12 [2.800]	1-796863-5
16	76.20 [3.000]	1-796863-6
17	81.28 [3.200]	1-796863-7
18	86.36 [3.400]	1-796863-8
19	91.44 [3.600]	1-796863-9
20	96.52 [3.800]	2-796863-0
21	101.60 [4.000]	2-796863-1
22	106.68 [4.200]	2-796863-2
23	111.76 [4.400]	2-796863-3

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

Plug, Right-Angle
1.5 mm² Solid Wire,
3.5 mm Centerline,
Colors – Green and Blue

UL Rating – 150 V, 10 A
14-30 AWG



Suggested Screw Torque— 2.2 in.-lb.

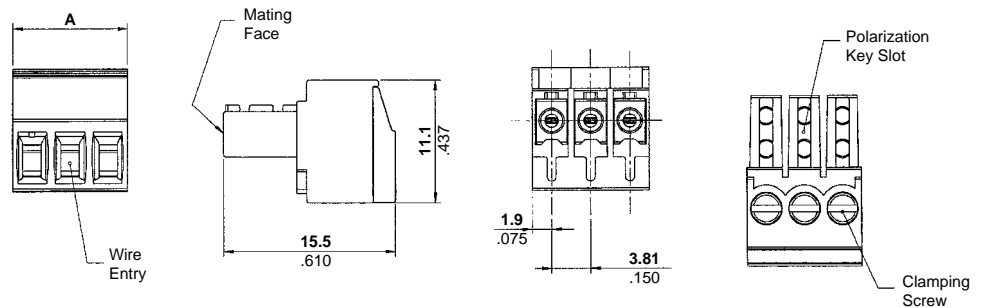
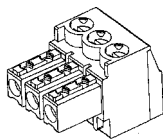
No. of Positions	Dim. A	Part Numbers	
		Green	Blue
2	7.0 [0.276]	284506-2	796693-2
3	10.5 [0.413]	284506-3	796693-3
4	14.0 [0.551]	284506-4	796693-4
5	17.5 [0.689]	284506-5	796693-5
6	21.0 [0.827]	284506-6	796693-6
7	24.5 [0.965]	284506-7	796693-7
8	28.0 [1.102]	284506-8	796693-8
9	31.5 [1.240]	284506-9	796693-9
10	35.0 [1.378]	1-284506-0	1-796693-0
11	38.5 [1.516]	1-284506-1	1-796693-1
12	42.0 [1.654]	1-284506-2	1-796693-2
13	45.5 [1.791]	1-284506-3	1-796693-3

No. of Positions	Dim. A	Part Numbers	
		Green	Blue
14	49.0 [1.929]	1-284506-4	1-796693-4
15	52.5 [2.067]	1-284506-5	1-796693-5
16	56.0 [2.205]	1-284506-6	1-796693-6
17	59.5 [2.343]	1-284506-7	1-796693-7
18	63.0 [2.450]	1-284506-8	1-796693-8
19	66.5 [2.618]	1-284506-9	1-796693-9
20	70.0 [2.756]	2-284506-0	2-796693-0
21	73.5 [2.894]	2-284506-1	2-796693-1
22	77.0 [3.031]	2-284506-2	2-796693-2
23	80.5 [3.169]	2-284506-3	2-796693-3
24	84.0 [3.307]	2-284506-4	2-796693-4
25	87.5 [3.445]	2-284506-5	2-796693-5

Note: BUCHANAN Terminal Block Series B52C3UXXT has been superceded/replaced with 796693-xx (blue).

Plug, Right-Angle
1.5 mm² Solid Wire,
3.81 mm Centerline
Color – Green

UL Rating – 150 V, 10 A
14-30 AWG



Suggested Screw Torque— 2.2 in.-lb.

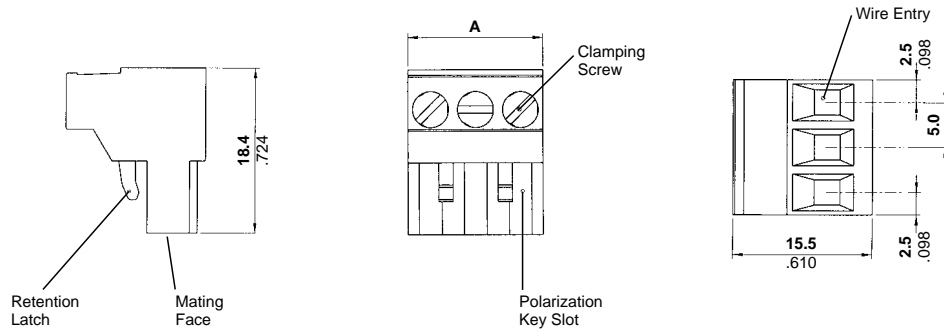
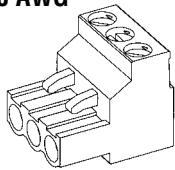
No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284507-2
3	11.43 [0.450]	284507-3
4	15.24 [0.600]	284507-4
5	19.05 [0.750]	284507-5
6	22.86 [0.900]	284507-6
7	26.67 [1.050]	284507-7
8	30.48 [1.200]	284507-8
9	34.29 [1.350]	284507-9
10	38.10 [1.500]	1-284507-0
11	41.91 [1.650]	1-284507-1
12	45.72 [1.800]	1-284507-2
13	49.53 [1.950]	1-284507-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284507-4
15	57.15 [2.250]	1-284507-5
16	60.96 [2.400]	1-284507-6
17	64.77 [2.550]	1-284507-7
18	68.58 [2.700]	1-284507-8
19	72.39 [2.850]	1-284507-9
20	76.20 [3.000]	2-284507-0
21	80.01 [3.150]	2-284507-1
22	83.82 [3.300]	2-284507-2
23	87.63 [3.450]	2-284507-3
24	91.44 [3.600]	2-284507-4
25	95.25 [3.750]	2-284507-5

For complete product information, order Catalog 1308389

Two-Piece Terminal Block Connectors

**Plug,
Right-Angle,
2.5 mm² Solid Wire,
5.0 mm Centerline,
UL Rating – 300 V, 12 A
12-30 AWG**



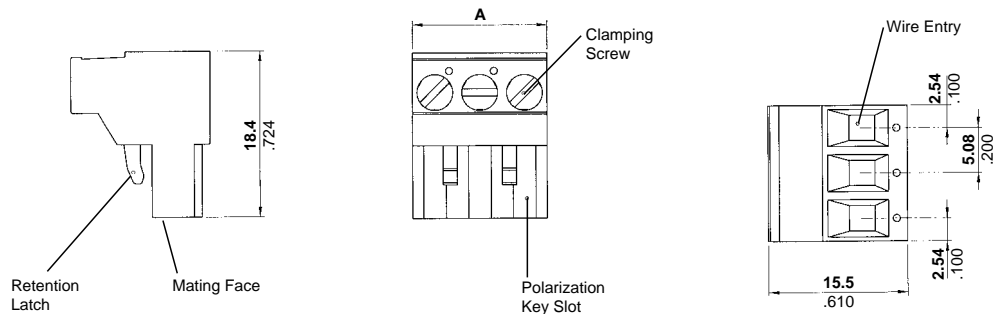
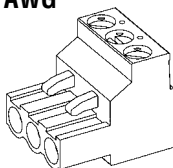
Suggested Screw Torque—
7 in.-lb.

No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
2	10.0 [0.394]	282804-2	796640-2	796696-2	796641-2
3	15.0 [0.591]	282804-3	796640-3	796696-3	796641-3
4	20.0 [0.787]	282804-4	796640-4	796696-4	796641-4
5	25.0 [0.984]	282804-5	796640-5	796696-5	796641-5
6	30.0 [1.181]	282804-6	796640-6	796696-6	796641-6
7	35.0 [1.378]	282804-7	796640-7	796696-7	796641-7
8	40.0 [1.575]	282804-8	796640-8	796696-8	796641-8
9	45.0 [1.772]	282804-9	796640-9	796696-9	796641-9
10	50.0 [1.968]	1-282804-0	1-796640-0	1-796696-0	1-796641-0
11	55.0 [2.165]	1-282804-1	1-796640-1	1-796696-1	1-796641-1
12	60.0 [2.362]	1-282804-2	1-796640-2	1-796696-2	1-796641-2
13	65.0 [2.559]	1-282804-3	1-796640-3	1-796696-3	1-796641-3

No. of Positions	Dim. A	Part Numbers			
		Gray	Green	Blue	Black
14	70.0 [2.756]	1-282804-4	1-796640-4	1-796696-4	1-796641-4
15	75.0 [2.953]	1-282804-5	1-796640-5	1-796696-5	1-796641-5
16	80.0 [3.150]	1-282804-6	1-796640-6	1-796696-6	1-796641-6
17	85.0 [3.346]	1-282804-7	1-796640-7	1-796696-7	1-796641-7
18	90.0 [3.543]	1-282804-8	1-796640-8	1-796696-8	1-796641-8
19	95.0 [3.740]	1-282804-9	1-796640-9	1-796696-9	1-796641-9
20	100.0 [3.937]	2-282804-0	2-796640-0	2-796696-0	2-796641-0
21	105.0 [4.134]	2-282804-1	2-796640-1	2-796696-1	2-796641-1
22	110.0 [4.331]	2-282804-2	2-796640-2	2-796696-2	2-796641-2
23	115.0 [4.528]	2-282804-3	2-796640-3	2-796696-3	2-796641-3
24	120.0 [4.724]	2-282804-4	2-796640-4	2-796696-4	2-796641-4
25	125.0 [4.921]	2-282804-5	2-796640-5	2-796696-5	2-796641-5

Note: BUCHANAN Terminal Block Series B52C4UxxT has been replaced with 796696-xx (blue) and 796641-xx (black).
RDI Terminal Block Series 5ESDV-XX has been replaced with 796640-xx (green) or 796641-xx (black).

**Plug,
Right-Angle
2.5 mm² Solid Wire,
5.08 mm Centerline,
UL Rating – 300 V, 12 A
12-30 AWG**



Suggested Screw Torque—
7 in.-lb.

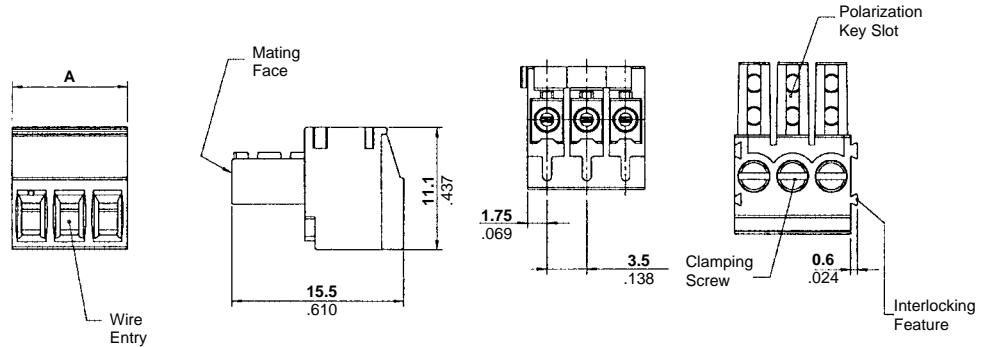
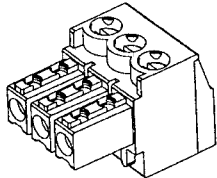
No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
2	10.16 [0.400]	282806-2	796634-2	796635-2
3	15.24 [0.600]	282806-3	796634-3	796635-3
4	20.32 [0.800]	282806-4	796634-4	796635-4
5	25.40 [1.000]	282806-5	796634-5	796635-5
6	30.48 [1.200]	282806-6	796634-6	796635-6
7	35.56 [1.400]	282806-7	796634-7	796635-7
8	40.64 [1.600]	282806-8	796634-8	796635-8
9	45.72 [1.800]	282806-9	796634-9	796635-9
10	50.80 [2.000]	1-282806-0	1-796634-0	1-796635-0
11	55.88 [2.200]	1-282806-1	1-796634-1	1-796635-1
12	60.96 [2.400]	1-282806-2	1-796634-2	1-796635-2
13	66.04 [2.600]	1-282806-3	1-796634-3	1-796635-3

No. of Positions	Dim. A	Part Numbers		
		Gray	Green	Black
14	71.12 [2.800]	1-282806-4	1-796634-4	1-796635-4
15	76.20 [3.000]	1-282806-5	1-796634-5	1-796635-5
16	81.28 [3.200]	1-282806-6	1-796634-6	1-796635-6
17	86.36 [3.400]	1-282806-7	1-796634-7	1-796635-7
18	91.44 [3.600]	1-282806-8	1-796634-8	1-796635-8
19	96.52 [3.800]	1-282806-9	1-796634-9	1-796635-9
20	101.60 [4.000]	2-282806-0	2-796634-0	2-796635-0
21	106.68 [4.200]	2-282806-1	2-796634-1	2-796635-1
22	111.76 [4.400]	2-282806-2	2-796634-2	2-796635-2
23	116.84 [4.600]	2-282806-3	2-796634-3	2-796635-3
24	121.92 [4.800]	2-282806-4	2-796634-4	2-796635-4
25	127.00 [5.000]	2-282806-5	2-796634-5	2-796635-5

Note: RDI Terminal Block Series 2ESDV-xx has been replaced with 796634-xx (green) and 796635-xx (black).

Two-Piece Terminal Block Connectors

Plug, Right-Angle w/Interlock
1.5 mm² Solid Wire
3.5 mm Centerline
Color – Green
UL Rating – 150 V, 10 A
14-30 AWG

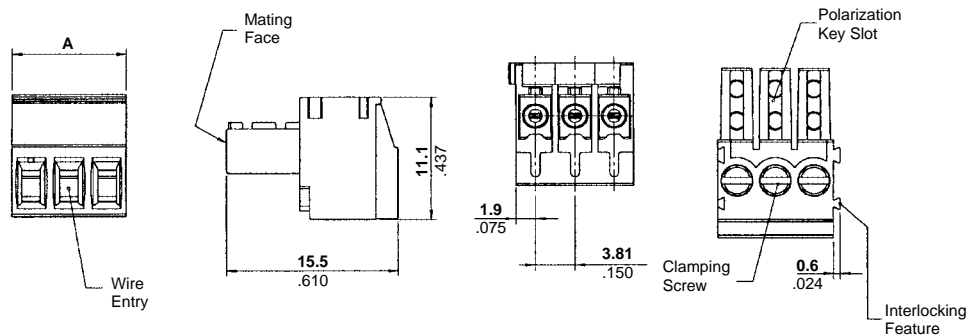
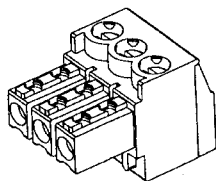


Suggested Screw Torque—
2.2 in.-lb.

No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	284508-2
3	10.5 [0.413]	284508-3
4	14.0 [0.551]	284508-4
5	17.5 [0.689]	284508-5
6	21.0 [0.827]	284508-6
7	24.5 [0.965]	284508-7
8	28.0 [1.102]	284508-8
9	31.5 [1.240]	284508-9
10	35.0 [1.378]	1-284508-0
11	38.5 [1.516]	1-284508-1
12	42.0 [1.654]	1-284508-2
13	45.5 [1.791]	1-284508-3

No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-284508-4
15	52.5 [2.067]	1-284508-5
16	56.0 [2.205]	1-284508-6
17	59.5 [2.343]	1-284508-7
18	63.0 [2.480]	1-284508-8
19	66.5 [2.618]	1-284508-9
20	70.0 [2.756]	2-284508-0
21	73.5 [2.894]	2-284508-1
22	77.0 [3.031]	2-284508-2
23	80.5 [3.169]	2-284508-3
24	84.0 [3.307]	2-284508-4
25	87.5 [3.445]	2-284508-5

Plug, Right-Angle w/Interlock
1.5 mm² Solid Wire
3.81 mm Centerline
Color – Green
UL Rating – 150 V, 10 A
14-30 AWG



Suggested Screw Torque—
2.2 in.-lb.

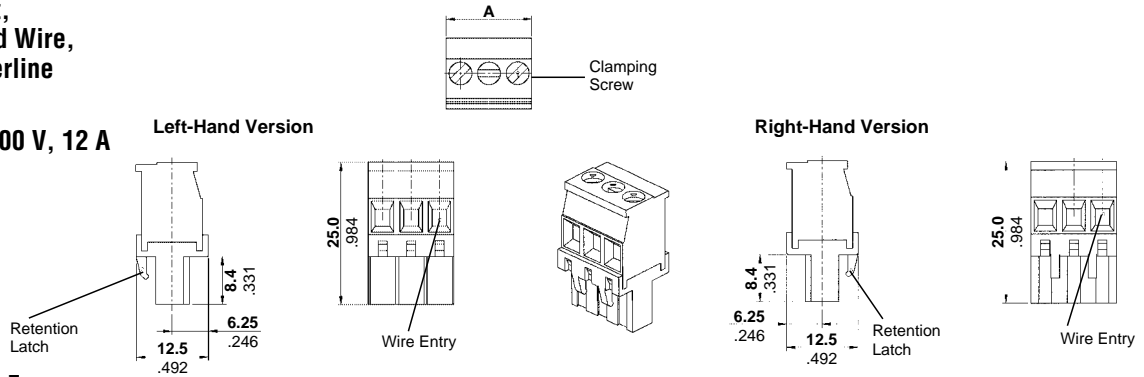
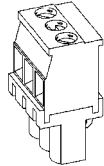
No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	284509-2
3	11.43 [0.450]	284509-3
4	15.24 [0.600]	284509-4
5	19.05 [0.750]	284509-5
6	22.86 [0.900]	284509-6
7	26.67 [1.050]	284509-7
8	30.48 [1.200]	284509-8
9	34.29 [1.350]	284509-9
10	38.10 [1.500]	1-284509-0
11	41.91 [1.650]	1-284509-1
12	45.72 [1.800]	1-284509-2
13	49.53 [1.950]	1-284509-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-284509-4
15	57.15 [2.250]	1-284509-5
16	60.96 [2.400]	1-284509-6
17	64.77 [2.550]	1-284509-7
18	68.58 [2.700]	1-284509-8
19	72.39 [2.850]	1-284509-9
20	86.20 [3.000]	2-284509-0
21	80.01 [3.150]	2-284509-1
22	83.82 [3.300]	2-284509-2
23	87.63 [3.450]	2-284509-3
24	91.44 [3.600]	2-284509-4
25	95.25 [3.750]	2-284509-5

Straight Plugs

**Plug, Straight,
2.5 mm² Solid Wire,
5.0 mm Centerline
Color – Gray**

**UL Rating – 300 V, 12 A
12-30 AWG**



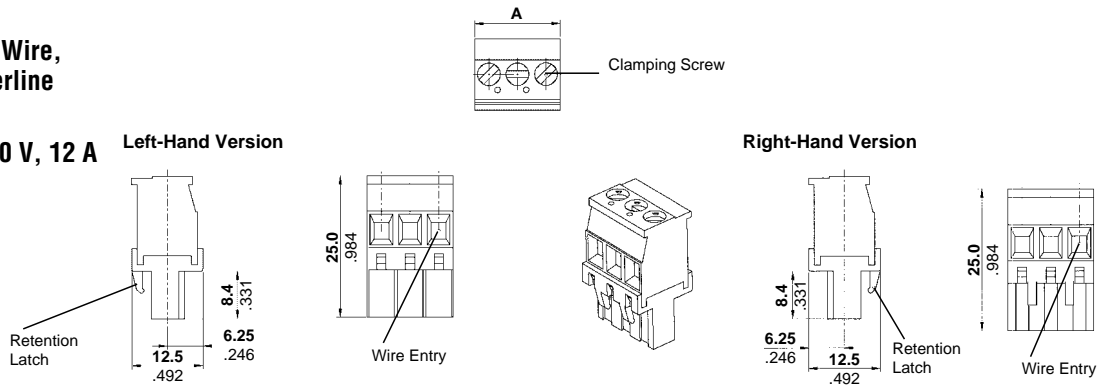
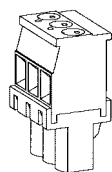
Suggested Screw Torque—
7.1 in.-lbs.

Number of Positions	Dim. A	Wire Entry Part Numbers	
		Left	Right
2	10.0 [0.394]	284040-2	284046-2
3	15.0 [0.591]	284040-3	284046-3
4	20.0 [0.787]	284040-4	284046-4
5	25.0 [0.984]	284040-5	284046-5
6	30.0 [1.181]	284040-6	284046-6
7	35.0 [1.378]	284040-7	284046-7
8	40.0 [1.575]	284040-8	284046-8
9	45.0 [1.772]	284040-9	284046-9
10	50.0 [1.968]	1-284040-0	1-284046-0
11	55.0 [2.165]	1-284040-1	1-284046-1
12	60.0 [2.362]	1-284040-2	1-284046-2
13	65.0 [2.559]	1-284040-3	1-284046-3

Number of Positions	Dim. A	Wire Entry Part Numbers	
		Left	Right
14	70.0 [2.756]	1-284040-4	1-284046-4
15	75.0 [2.953]	1-284040-5	1-284046-5
16	80.0 [3.150]	1-284040-6	1-284046-6
17	85.0 [3.346]	1-284040-7	1-284046-7
18	90.0 [3.543]	1-284040-8	1-284046-8
19	95.0 [3.740]	1-284040-9	1-284046-9
20	100.0 [3.937]	2-284040-0	2-284046-0
21	105.0 [4.134]	2-284040-1	2-284046-1
22	110.0 [4.331]	2-284040-2	2-284046-2
23	115.0 [4.528]	2-284040-3	2-284046-3
24	120.0 [4.724]	2-284040-4	2-284046-4
25	125.0 [4.921]	2-284040-5	2-284046-5

**Plug, Straight,
2.5 mm² Solid Wire,
5.08 mm Centerline
Color – Gray**

**UL Rating – 300 V, 12 A
12-30 AWG**



Suggested Screw Torque—
7.1 in.-lbs.

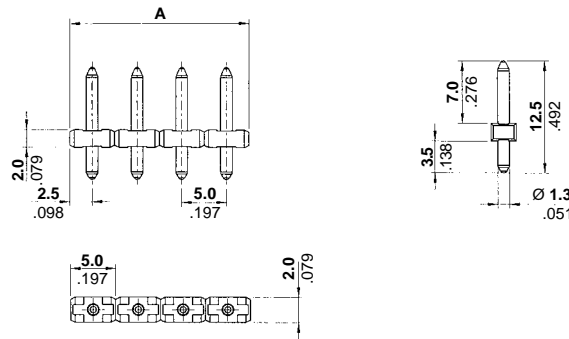
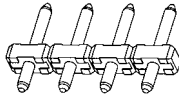
Number of Positions	Dim. A	Wire Entry Part Numbers	
		Left	Right
2	10.16 [0.400]	284041-2	284047-2
3	15.24 [0.600]	284041-3	284047-3
4	20.32 [0.800]	284041-4	284047-4
5	25.40 [1.000]	284041-5	284047-5
6	30.48 [1.200]	284041-6	284047-6
7	35.56 [1.400]	284041-7	284047-7
8	40.64 [1.600]	284041-8	284047-8
9	45.72 [1.800]	284041-9	284047-9
10	50.80 [2.000]	1-284041-0	1-284047-0
11	55.88 [2.200]	1-284041-1	1-284047-1
12	60.96 [2.400]	1-284041-2	1-284047-2
13	66.04 [2.600]	1-284041-3	1-284047-3

Number of Positions	Dim. A	Wire Entry Part Numbers	
		Left	Right
14	71.12 [2.800]	1-284041-4	1-284047-4
15	76.20 [3.000]	1-284041-5	1-284047-5
16	81.28 [3.200]	1-284041-6	1-284047-6
17	86.36 [3.400]	1-284041-7	1-284047-7
18	91.44 [3.600]	1-284041-8	1-284047-8
19	96.52 [3.800]	1-284041-9	1-284047-9
20	101.60 [4.000]	2-284041-0	2-284047-0
21	106.68 [4.200]	2-284041-1	2-284047-1
22	111.76 [4.400]	2-284041-2	2-284047-2
23	116.84 [4.600]	2-284041-3	2-284047-3
24	121.92 [4.800]	2-284041-4	2-284047-4
25	127.00 [5.000]	2-284041-5	2-284047-5

Unshrouded Straight Headers

**Unshrouded Straight Headers,
5.0 mm Centerline
Color – Gray**

**UL Rating – 300 V, 12 A
12-30 AWG**

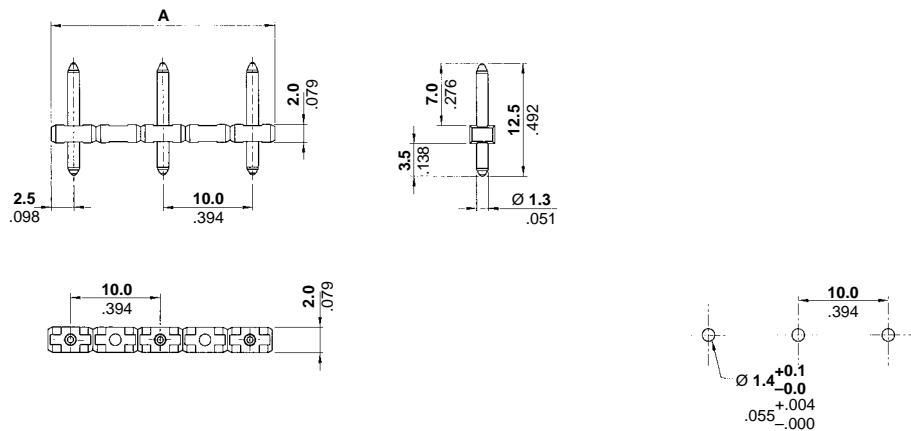
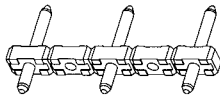


No. of Positions	Dim. A	Part Number
2	10.0 [0.394]	282832-2
3	15.0 [0.591]	282832-3
4	20.0 [0.787]	282832-4
5	25.0 [0.984]	282832-5
6	30.0 [1.181]	282832-6
7	35.0 [1.378]	282832-7
8	40.0 [1.575]	282832-8
9	45.0 [1.772]	282832-9
10	50.0 [1.968]	1-282832-0
11	55.0 [2.165]	1-282832-1
12	60.0 [2.362]	1-282832-2
13	65.0 [2.559]	1-282832-4

No. of Positions	Dim. A	Part Number
14	70.0 [2.756]	1-282832-5
15	75.0 [2.953]	1-282832-6
16	80.0 [3.150]	1-282832-7
17	85.0 [3.346]	1-282832-8
18	90.0 [3.543]	1-282832-9
19	95.0 [3.740]	2-282832-0
20	100.0 [3.937]	2-282832-1
21	105.0 [4.134]	2-282832-2
22	110.0 [4.331]	2-282832-3
23	115.0 [4.528]	2-282832-4
24	120.0 [4.724]	2-282832-5
25	125.0 [4.921]	2-282832-6

**Unshrouded Straight Headers,
10.0 mm Centerline
Color – Gray**

**UL Rating – 300 V, 12 A
12-30 AWG**



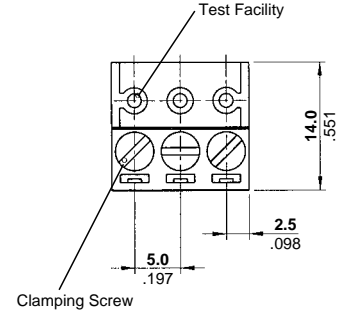
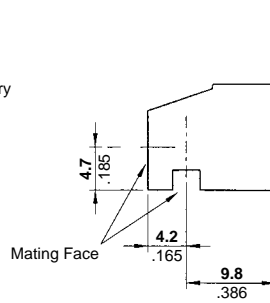
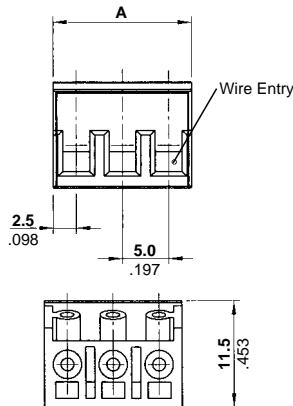
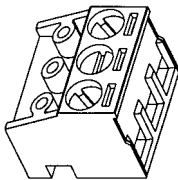
No. of Positions	Dim. A	Part Number
2	15.0 [0.591]	282833-2
3	25.0 [0.984]	282833-3
4	35.0 [1.378]	282833-4
5	45.0 [1.772]	282833-5
6	55.0 [2.165]	282833-6

For complete product information, order Catalog 1308389

Special Plug Headers

Special 90°/180° Plug Connectors, 1.5 mm² Solid Wire, 5.0 mm Centerline Color – Gray

UL Rating – 300 V, 12 A 14-30 AWG



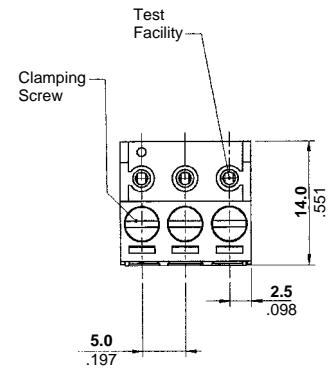
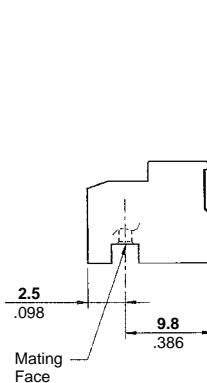
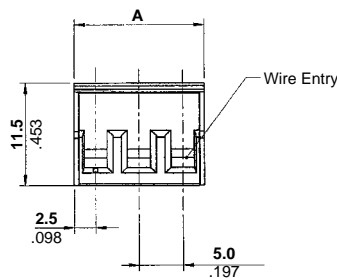
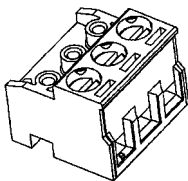
No. of Positions	Dim. A	Part Number
2	10.0 [0.394]	282830-2
3	15.0 [0.591]	282830-3
4	20.0 [0.787]	282830-4
5	25.0 [0.984]	282830-5
6	30.0 [1.181]	282830-6
7	35.0 [1.378]	282830-7
8	40.0 [1.575]	282830-8
9	45.0 [1.772]	282830-9
10	50.0 [1.968]	1-282830-0
11	55.0 [2.165]	1-282830-1
12	60.0 [2.362]	1-282830-2
13	65.0 [2.559]	1-282830-4

No. of Positions	Dim. A	Part Number
14	70.0 [0.591]	1-282830-5
15	75.0 [0.787]	1-282830-6
16	80.0 [0.984]	1-282830-7
17	85.0 [1.181]	1-282830-8
18	90.0 [1.378]	1-282830-9
19	95.0 [1.575]	2-282830-0
20	100.0 [1.772]	2-282830-1
21	105.0 [1.968]	2-282830-2
22	110.0 [2.165]	2-282830-3
23	115.0 [2.362]	2-282830-4
24	120.0 [2.362]	2-282830-5
25	125.0 [2.362]	2-282830-6

Note: Mates only with 282832-xx headers.

Special 90°/270° Plug Connectors 1.5 mm² Solid Wire 5.0 mm Centerline Color – Gray

UL Rating – 300 V, 12 A 12-30 AWG



No. of Positions	Dim. A	Part Number
2	10.0 [0.394]	284393-2
3	15.0 [0.591]	284393-3
4	20.0 [0.787]	284393-4
5	25.0 [0.984]	284393-5
6	30.0 [1.181]	284393-6
7	35.0 [1.378]	284393-7
8	40.0 [1.575]	284393-8
9	45.0 [1.772]	2849393-9
10	50.0 [1.968]	1-284393-0
11	55.0 [2.165]	1-284393-1
12	60.0 [2.362]	1-284393-2
13	65.0 [2.559]	1-284393-3

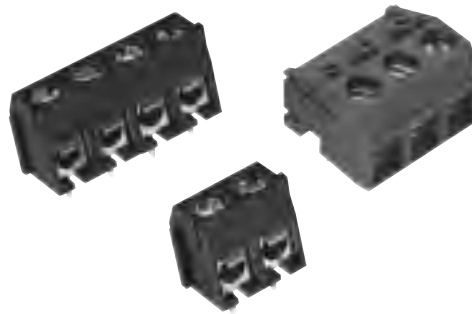
No. of Positions	Dim. A	Part Number
14	70.0 [0.591]	1-284393-4
15	75.0 [0.787]	1-284393-5
16	80.0 [0.984]	1-284393-6
17	85.0 [1.181]	1-284393-7
18	90.0 [1.378]	1-284393-8
19	95.0 [1.575]	1-284393-9
20	100.0 [1.772]	2-284393-0
21	105.0 [1.968]	2-284393-1
22	110.0 [2.165]	2-284393-2
23	115.0 [2.362]	2-284393-3
24	120.0 [2.362]	2-284393-4
25	125.0 [2.362]	2-284393-5

Note: Mates only with 282832-xx headers.

Wire Protector Versions

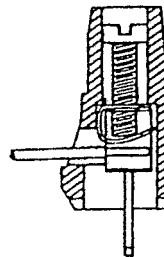
Product Facts

- **Modular configuration designed with a dovetail and special detent to provide a more reliable attachment after combining smaller sizes to increase the number of available wire positions**
- **Accepts various wire ranges from 14-22 AWG**
- **Exceptional UL Flammability Classification. All are rated to a flammability classification of UL 94V-0. To achieve the UL94V-0 classification, all materials are tested and proven to be self-extinguishing**
- **UL Recognition File Number E152558**
- **CSA Certification LR 701875**
- **Pitches Available**
 - **5.0mm and 5.08mm Low Profile**
 - **Side and top wire entry**
 - **3.5mm**
 - **3.81mm**
 - **5.00mm**
 - **5.08mm**
 - **5.0mm and 5.08mm 45° wire entry**
- **Various position sizes available**
- **Ink marking available**
- **Other colors available upon request other than those listed in catalog**

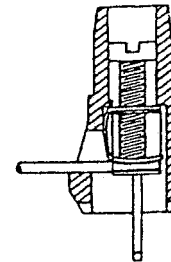


Has full wire guard protection so that the screw does not press directly on the wire. Offers "Lower Profile" terminal block than the cage clamp style. Designed for infrequent terminations.

The screw is able to accommodate both Slot head and Phillips style screwdrivers.



Open



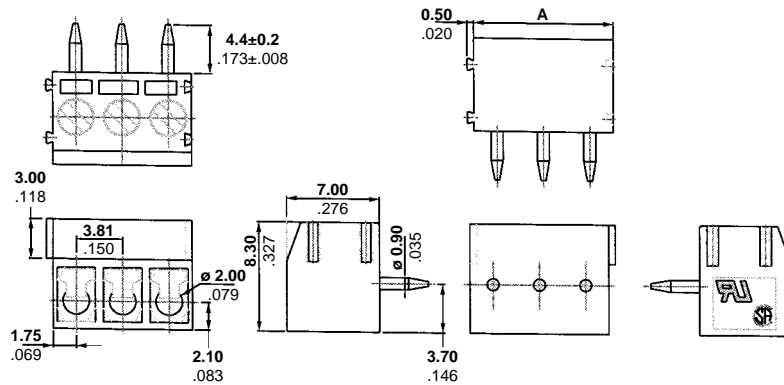
Closed

For complete product information, order Catalog 1308389

PCB Mount, Straight, Top Wire Entry Connectors

**Terminal Block PCB Mount
Top Wire Entry
w/Interlock,
3.81mm Pitch (LT)
Color – Blue**

**UL Rating – 250 V, 7 A
18-26 AWG**

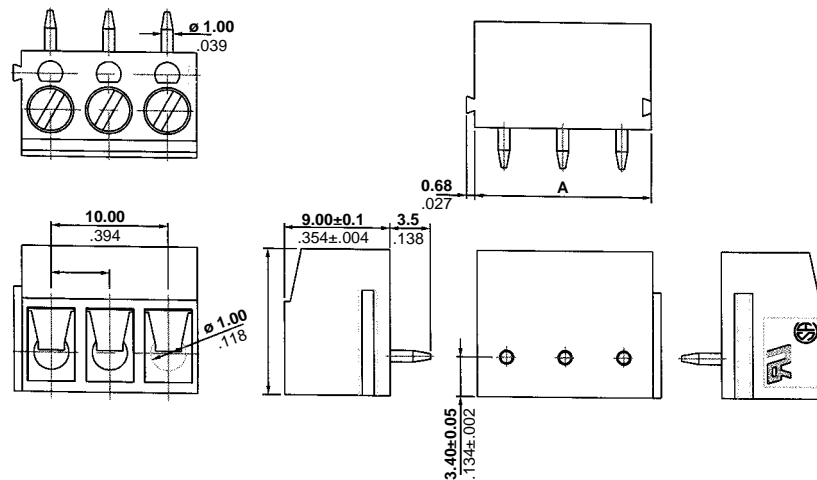


No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	796418-2
3	11.43 [0.450]	796418-3
4	15.24 [0.600]	796418-4
5	19.05 [0.750]	796418-5
6	22.86 [0.900]	796418-6
7	26.67 [1.050]	796418-7
8	30.48 [1.200]	796418-8
9	34.29 [1.350]	796418-9
10	38.10 [1.500]	1-796418-0
11	41.91 [1.650]	1-796418-1
12	45.72 [1.800]	1-796418-2
13	49.53 [1.950]	1-796418-3

No. of Positions	Dim. A	Part Numbers
14	53.34 [2.100]	1-796418-4
15	57.15 [2.250]	1-796418-5
16	60.96 [2.400]	1-796418-6
17	64.77 [2.550]	1-796418-7
18	68.58 [2.700]	1-796418-8
19	72.39 [2.850]	1-796418-9
20	76.20 [3.000]	2-796418-0
21	80.01 [3.150]	2-796418-1
22	83.82 [3.300]	2-796418-2
23	87.63 [3.450]	2-796418-3
24	91.44 [3.600]	2-796418-4

**Terminal Block PCB Mount
Top Wire Entry
w/Interlock
5.0mm Pitch (LT)
Color – Blue**

**UL Rating – 300 V, 10 A
14-22 AWG**



No. of Positions	Dim. A	Part Numbers
2	10.0 [0.394]	796419-2
3	15.0 [0.591]	796419-3
4	20.0 [0.787]	796419-4
5	25.0 [0.984]	796419-5
6	30.0 [1.181]	796419-6
7	35.0 [1.378]	796419-7
8	40.0 [1.575]	796419-8
9	45.0 [1.772]	796419-9
10	50.0 [1.968]	1-796419-0
11	55.0 [2.165]	1-796419-1
12	60.0 [2.362]	1-796419-2
13	65.0 [2.559]	1-796419-3

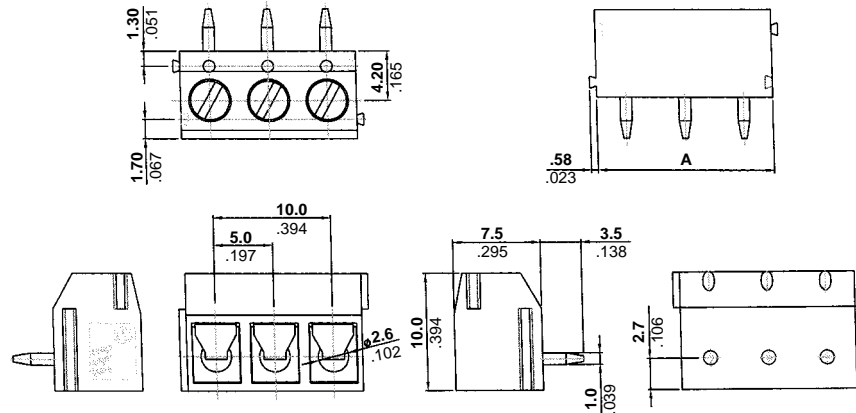
No. of Positions	Dim. A	Part Numbers
14	70.0 [2.756]	1-796419-4
15	75.0 [2.953]	1-796419-5
16	80.0 [3.150]	1-796419-6
17	85.0 [3.346]	1-796419-7
18	90.0 [3.543]	1-796419-8
19	95.0 [3.740]	1-796419-9
20	100.0 [3.937]	2-796419-0
21	105.0 [4.134]	2-796419-1
22	110.0 [4.331]	2-796419-2
23	115.0 [4.528]	2-796419-3
24	120.0 [4.724]	2-796419-4

For complete product information, order Catalog 1308389

PCB Mount, Straight, Top Wire Entry Connectors

**Terminal Block PCB Mount
Top Wire Entry,
Low Profile w/Interlock,
5.0 mm Pitch (LT)**

**UL Rating – 300 V, 10 A
14-22 AWG**

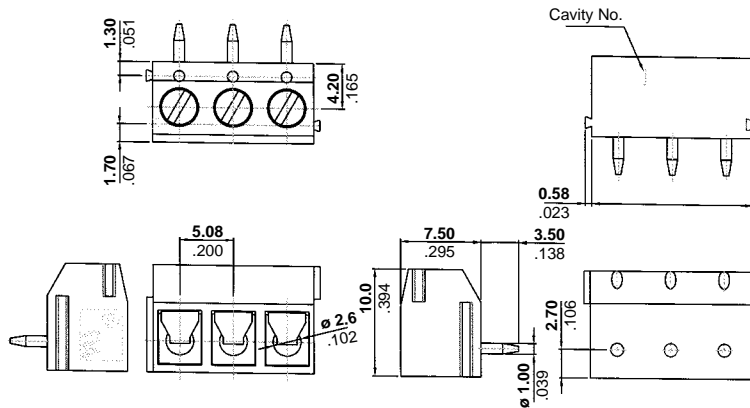


No. of Positions	Dim. A	Part No.	
		Blue	Green
2	10.0 [0.394]	796420-2	796735-2
3	15.0 [0.591]	796420-3	796735-3
4	20.0 [0.787]	796420-4	796735-4
5	25.0 [0.984]	796420-5	796735-5
6	30.0 [1.181]	796420-6	796735-6
7	35.0 [1.378]	796420-7	796735-7
8	40.0 [1.575]	796420-8	796735-8
9	45.0 [1.772]	796420-9	796735-9
10	50.0 [1.968]	1-796420-0	1-796735-0
11	55.0 [2.165]	1-796420-1	1-796735-1
12	60.0 [2.362]	1-796420-2	1-796735-2
13	65.0 [2.559]	1-796420-3	1-796735-3

No. of Positions	Dim. A	Part No.	
		Blue	Green
14	70.0 [0.591]	1-796420-4	1-796735-4
15	75.0 [0.787]	1-796420-5	1-796735-5
16	80.0 [0.984]	1-796420-6	1-796735-6
17	85.0 [1.181]	1-796420-7	1-796735-7
18	90.0 [1.378]	1-796420-8	1-796735-8
19	95.0 [1.575]	1-796420-9	1-796735-9
20	100.0 [1.772]	2-796420-0	2-796735-0
21	105.0 [1.968]	2-796420-1	2-796735-1
22	110.0 [2.165]	2-796420-2	2-796735-2
23	115.0 [2.362]	2-796420-3	2-796735-3
24	120.0 [2.362]	2-796420-4	2-796735-4

**Terminal Block PCB Mount
Top Wire Entry, Low Profile
w/Interlock
5.08 mm Pitch (LT)
Color – Blue**

**UL Rating – 300 V, 10 A
14-22 AWG**



No. of Positions	Dim. A	Part Numbers	
		2	10.16 [0.400]
3	15.24 [0.600]	796421-3	
4	20.32 [0.800]	796421-4	
5	25.40 [1.000]	796421-5	
6	30.48 [1.200]	796421-6	
7	35.56 [1.400]	796421-7	
8	40.64 [1.600]	796421-8	
9	45.72 [1.800]	796421-9	
10	50.80 [2.000]	1-796421-0	
11	55.88 [2.200]	1-796421-1	
12	60.96 [2.400]	1-796421-2	
13	66.04 [2.600]	1-796421-6	

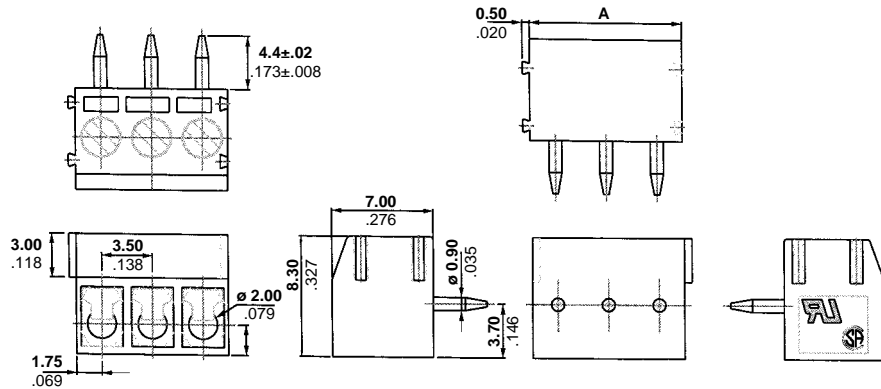
No. of Positions	Dim. A	Part Numbers	
		14	71.12 [2.800]
15	76.20 [3.000]	1-796421-8	
16	81.28 [3.200]	1-796421-9	
17	86.36 [3.400]	2-796421-0	
18	91.44 [3.600]	2-796421-1	
19	96.52 [3.800]	2-796421-2	
20	101.60 [4.000]	2-796421-3	
21	106.68 [4.200]	2-796421-4	
22	111.76 [4.400]	2-796421-5	
23	116.84 [4.600]	2-796421-6	
24	121.92 [4.800]	2-796421-7	

For complete product information, order Catalog 1308389

PCB Mount, Straight, Side Wire Entry Connectors

**Terminal Block PCB Mount
Top Wire Entry
w/Interlock
3.5mm Pitch (LT)
Color – Blue**

**UL Rating – 250 V, 7 A
18-26 AWG**

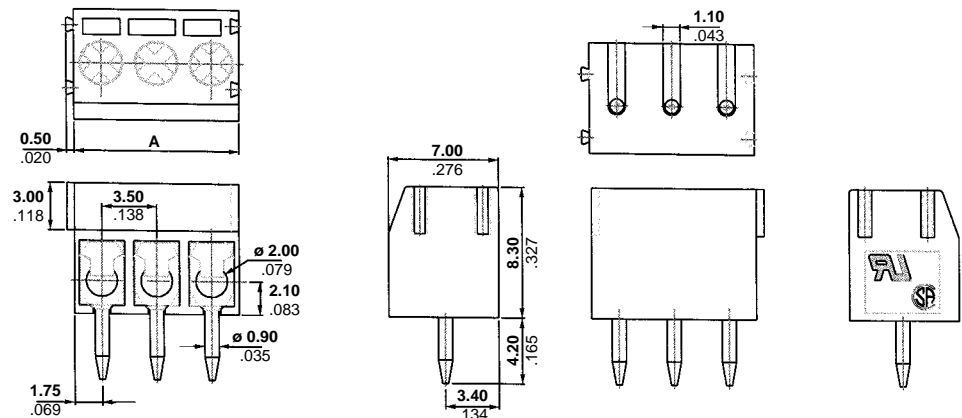


No. of Positions	Dim. A	Part Numbers
2	7.0 [0.276]	796417-2
3	10.5 [0.413]	796417-3
4	14.0 [0.551]	796417-4
5	17.5 [0.689]	796417-5
6	21.0 [0.827]	796417-6
7	24.5 [0.965]	796417-7
8	28.0 [1.102]	796417-8
9	31.5 [1.240]	796417-9
10	35.0 [1.378]	1-796417-0
11	38.5 [1.516]	1-796417-1
12	42.0 [1.654]	1-796417-2
13	45.5 [1.791]	1-796417-3

No. of Positions	Dim. A	Part Numbers
14	49.0 [1.929]	1-796417-4
15	52.5 [2.067]	1-796417-5
16	56.0 [2.205]	1-796417-6
17	59.5 [2.343]	1-796417-7
18	63.0 [2.480]	1-796417-8
19	66.5 [2.618]	1-796417-9
20	70.0 [2.756]	2-796417-0
21	73.5 [2.894]	2-796417-1
22	77.0 [3.031]	2-796417-2
23	80.5 [3.169]	2-796417-3
24	84.0 [3.307]	2-796417-4

**Terminal Block PCB Mount
Side Wire Entry
w/Interlock
3.5mm Pitch (LT)
Color – Blue**

**UL Rating – 250 V, 7 A
18-26 AWG**



No. of Positions	Dim. A	Part Numbers
2	7.00 [0.276]	796414-2
3	10.50 [0.413]	796414-3
4	14.00 [0.551]	796414-4
5	17.50 [0.689]	796414-5
6	21.00 [0.827]	796414-6
7	24.50 [0.965]	796414-7
8	28.00 [1.102]	796414-8
9	31.50 [1.240]	796414-9
10	35.00 [1.378]	1-796414-0
11	38.50 [1.516]	1-796414-1
12	42.00 [1.654]	1-796414-2
13	45.50 [1.791]	1-796414-3

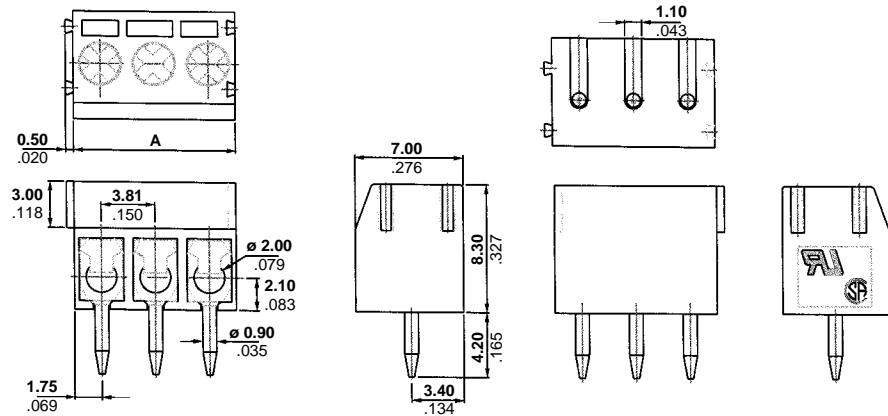
No. of Positions	Dim. A	Part Numbers
14	49.00 [1.929]	1-796414-4
15	52.50 [2.067]	1-796414-5
16	54.00 [2.126]	1-796414-6
17	57.50 [2.264]	1-796414-7
18	61.00 [2.402]	1-796414-8
19	64.50 [2.539]	1-796414-9
20	68.00 [2.677]	2-796414-0
21	71.50 [2.815]	2-796414-1
22	75.00 [2.953]	2-796414-2
23	78.50 [3.091]	2-796414-3
24	82.00 [3.228]	2-796414-4

For complete product information, order Catalog 1308389

PCB Mount, Straight, Side Wire Entry Connectors

**Terminal Block PCB Mount
Side Wire Entry
w/Interlock
3.81mm Pitch (LT)
Color – Blue**

**UL Rating – 300 V, 10 A
14-22 AWG**

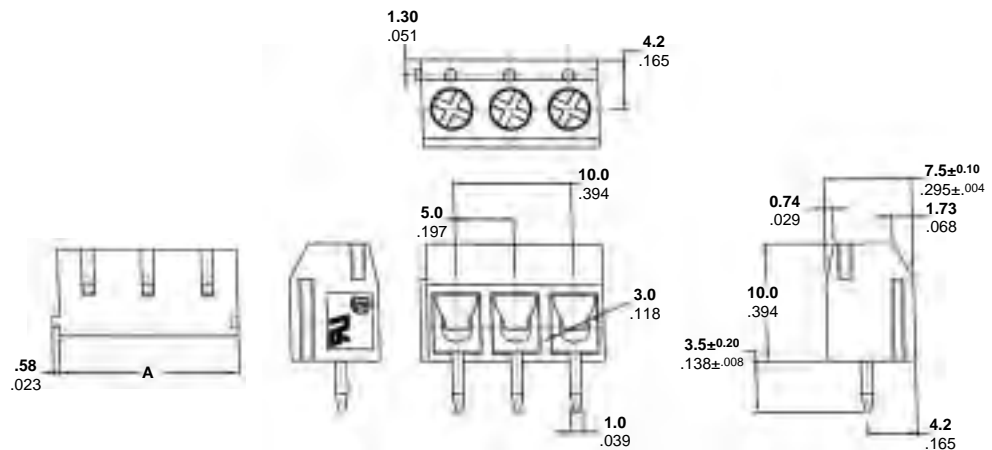


No. of Positions	Dim. A	Part Numbers
2	7.62 [0.300]	796415-2
3	11.43 [0.450]	796415-3
4	14.00 [0.551]	796415-4
5	17.50 [0.689]	796415-5
6	21.00 [0.827]	796415-6
7	24.50 [0.965]	796415-7
8	28.00 [1.102]	796415-8
9	31.50 [1.240]	796415-9
10	35.00 [1.378]	1-796415-0
11	38.50 [1.516]	1-796415-1
12	42.00 [1.654]	1-796415-2
13	45.50 [1.791]	1-796415-3

No. of Positions	Dim. A	Part Numbers
14	49.00 [1.929]	1-796415-4
15	52.50 [2.067]	1-796415-5
16	54.00 [2.126]	1-796415-6
17	57.50 [2.264]	1-796415-7
18	61.00 [2.402]	1-796415-8
19	64.50 [2.539]	1-796415-9
20	68.00 [2.677]	2-796415-0
21	71.50 [2.815]	2-796415-1
22	75.00 [2.953]	2-796415-2
23	78.50 [3.091]	2-796415-3
24	82.00 [3.228]	2-796414-4

**Terminal Block PCB Mount
Side Wire Entry, Low
Profile w/Interlock,
5.0 mm Pitch (LT)**

**UL Rating – 300 V, 10 A
14-22 AWG**



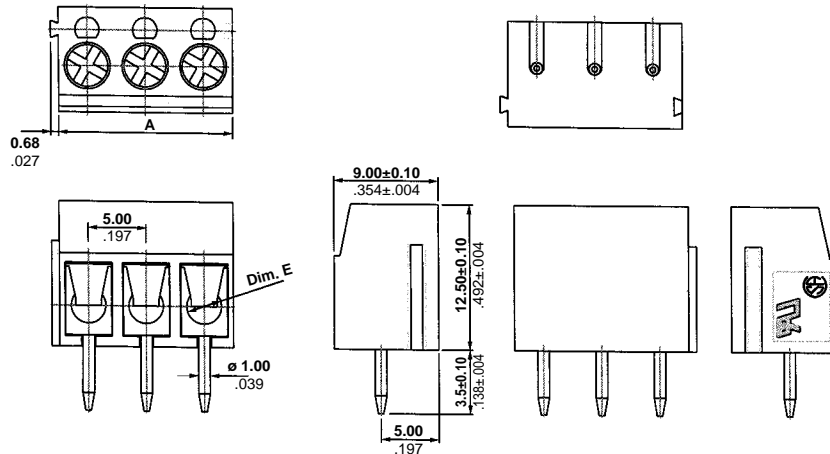
No. of Positions	Dim. A	Part No.	
		Blue	Green
2	10.0 [0.394]	796712-2	796734-2
3	15.0 [0.591]	796712-3	796734-3
4	20.0 [0.787]	796712-4	796734-4
5	25.0 [0.984]	796712-5	796734-5
6	30.0 [1.181]	796712-6	796734-6
7	35.0 [1.378]	796712-7	796734-7
8	40.0 [1.575]	796712-8	796734-8
9	45.0 [1.772]	796712-9	796734-9
10	50.0 [1.968]	1-796712-0	1-796734-0
11	55.0 [2.165]	1-796712-1	1-796734-1
12	60.0 [2.362]	1-796712-2	1-796734-2
13	65.0 [2.559]	1-796712-3	1-796734-3

No. of Positions	Dim. A	Part No.	
		Blue	Green
14	70.0 [0.591]	1-796712-4	1-796734-4
15	75.0 [0.787]	1-796712-5	1-796734-5
16	80.0 [0.984]	1-796712-6	1-796734-6
17	85.0 [1.181]	1-796712-7	1-796734-7
18	90.0 [1.378]	1-796712-8	1-796734-8
19	95.0 [1.575]	1-796712-9	1-796734-9
20	100.0 [1.772]	2-796712-0	2-796734-0
21	105.0 [1.968]	2-796712-1	2-796734-1
22	110.0 [2.165]	2-796712-2	2-796734-2
23	115.0 [2.362]	2-796712-3	2-796734-3
24	120.0 [2.362]	2-796712-4	2-796734-4

PCB Mount, Straight, Side Wire Entry Connectors

**Terminal Block PCB Mount
Straight, Side Wire Entry
w/Interlock
5.00mm Pitch (LT)
Color – Blue**

**UL Rating – 300 V, 10 A
14-22 AWG**

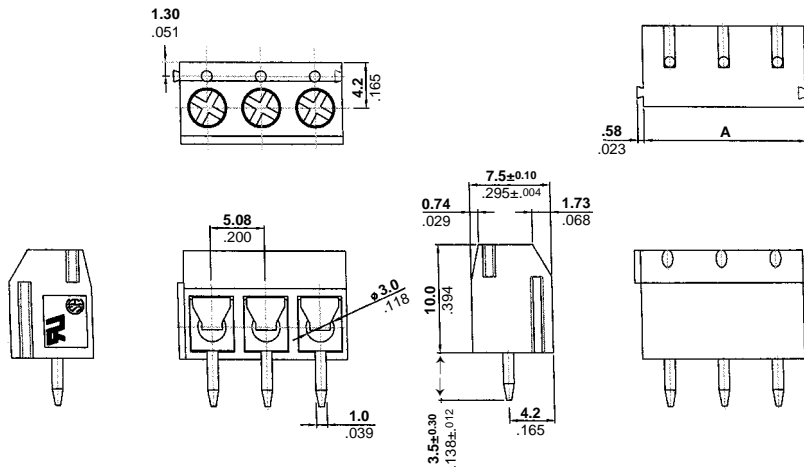


No. of Positions	Dim. A	Part Numbers
2	10.00 [0.394]	796416-2
3	15.00 [0.591]	796416-3
4	20.00 [0.787]	796416-4
5	25.00 [0.984]	796416-5
6	30.00 [1.181]	796416-6
7	35.00 [1.378]	796416-7
8	40.00 [1.575]	796416-8
9	45.00 [1.772]	796416-9
10	50.00 [1.969]	1-796416-0
11	55.00 [2.165]	1-796416-1
12	60.00 [2.362]	1-796416-2
13	65.00 [2.559]	1-796416-3

No. of Positions	Dim. A	Part Numbers
14	70.00 [2.756]	1-796416-4
15	75.00 [2.953]	1-796416-5
16	80.00 [3.150]	1-796416-6
17	85.00 [3.346]	1-796416-7
18	90.00 [3.543]	1-796416-8
19	95.00 [3.740]	1-796416-9
20	100.00 [3.937]	2-796416-0
21	105.00 [4.134]	2-796416-1
22	110.00 [4.331]	2-796416-2
23	115.00 [4.525]	2-796416-3
24	120.00 [4.724]	2-796416-4

**Terminal Block PCB Mount
Side Wire Entry,
Low Profile w/Interlock,
5.08 mm Pitch (LT)
Color – Blue**

**UL Rating – 300 V, 10 A
14-22 AWG**



No. of Positions	Dim. A	Part No.
2	10.16 [0.400]	796410-2
3	15.24 [0.600]	796410-3
4	20.32 [0.800]	796410-4
5	25.40 [1.000]	796410-5
6	30.48 [1.200]	796410-6
7	35.56 [1.400]	796410-7
8	40.64 [1.600]	796410-8
9	45.72 [1.800]	796410-9
10	50.80 [2.000]	1-796410-0
11	55.88 [2.200]	1-796410-1
12	60.96 [2.400]	1-796410-2
13	66.04 [2.600]	1-796410-3

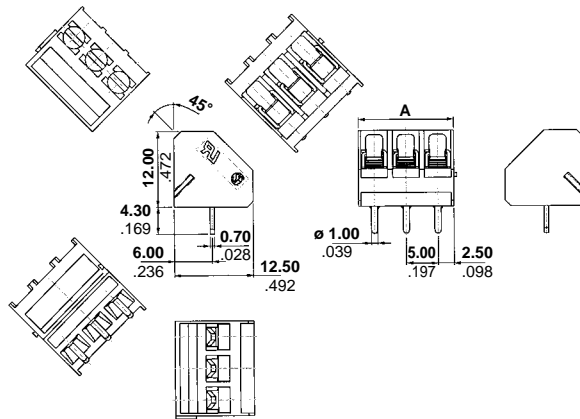
No. of Positions	Dim. A	Part No.
14	71.12 [2.800]	1-796410-4
15	76.20 [3.000]	1-796410-5
16	81.28 [3.200]	1-796410-6
17	86.36 [3.400]	1-796410-7
18	91.44 [3.600]	1-796410-8
19	96.52 [3.800]	1-796410-9
20	101.60 [4.000]	2-796410-0
21	106.68 [4.200]	2-796410-1
22	111.76 [4.400]	2-796410-2
23	116.84 [4.600]	2-796410-3
24	121.92 [4.800]	2-796410-4



45° Wire Inlet Connectors

Terminal Block
45° Wire Inlet w/Interlock
5.00 mm Pitch (LT)
Color – Blue

UL Rating – 300 V, 10 A
14-22 AWG

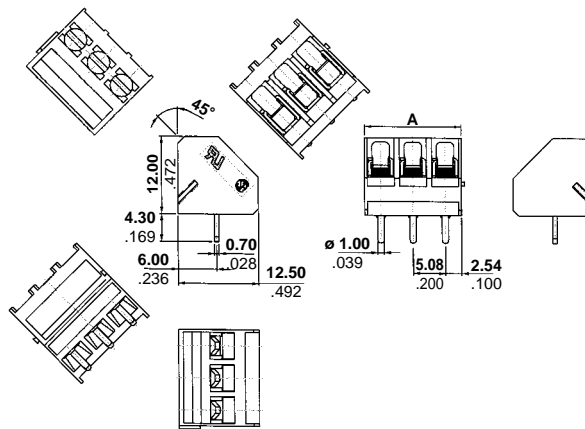


No. of Positions	Dim. A	Part Numbers
2	10.00 [0.394]	796422-2
3	15.00 [0.591]	796422-3
4	20.00 [0.787]	796422-4
5	25.00 [0.984]	796422-5
6	30.00 [1.181]	796422-6
7	35.00 [1.378]	796422-7
8	40.00 [1.575]	796422-8
9	45.00 [1.772]	796422-9
10	50.00 [1.969]	1-796422-0
11	55.00 [2.165]	1-796422-1
12	60.00 [2.362]	1-796422-2
13	65.00 [2.559]	1-796422-3

No. of Positions	Dim. A	Part Numbers
14	70.00 [2.756]	1-796422-4
15	75.00 [2.953]	1-796422-5
16	80.00 [3.150]	1-796422-6
17	85.00 [3.346]	1-796422-7
18	90.00 [3.543]	1-796422-8
19	95.00 [3.740]	1-796422-9
20	100.00 [3.937]	2-796422-0
21	105.00 [4.134]	2-796422-1
22	110.00 [4.331]	2-796422-2
23	115.00 [4.528]	2-796422-3
24	120.00 [4.724]	2-796422-4

Terminal Block
45° Wire Inlet w/Interlock
5.08 mm Pitch (LT)
Color – Blue

UL Rating – 300 V, 10 A
14-22 AWG



No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	796423-2
3	15.24 [0.600]	796423-3
4	20.32 [0.800]	796423-4
5	25.40 [1.000]	796423-5
6	30.48 [1.200]	796423-6
7	35.56 [1.400]	796423-7
8	40.64 [1.600]	796423-8
9	45.72 [1.800]	796423-9
10	50.80 [2.000]	1-796423-0
11	55.88 [2.200]	1-796423-1
12	60.96 [2.400]	1-796423-2
13	66.04 [2.600]	1-796423-3

No. of Positions	Dim. A	Part Numbers
14	71.12 [2.800]	1-796423-4
15	76.20 [3.000]	1-796423-5
16	81.28 [3.200]	1-796423-6
17	86.36 [3.400]	1-796423-7
18	91.44 [3.600]	1-796423-8
19	96.52 [3.800]	1-796423-9
20	101.60 [4.000]	2-796423-0
21	106.68 [4.200]	2-796423-1
22	111.76 [4.400]	2-796423-2
23	116.84 [4.600]	2-796423-3
24	121.92 [4.800]	2-796423-4

Wire Trap

2.5MM SURFACE MOUNT TECHNOLOGY WITH WIRE TRAP SERIES SMC

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyphenylene Sulfide (PPS)
FLAMMABILITY: UL94V-0
COLOR: Black

Terminal:

CONTACT: Phosphor bronze, tin plated over nickel

Mechanical:

PITCH (TERMINAL SPACING): 2.5mm
WIRE STRIP LENGTH: 0.22" min, 0.28" max
MAX. WIRE INSULATION DIAMETER: 1.7mm
PACKAGING: Tape and reel and loose piece

ELECTRICAL PROPERTIES:

MAXIMUM CURRENT: 3A
OPERATING VOLTAGE: 250V
WIRE RANGE: 24 AWG, stranded tin
DIELECTRIC WITHSTAND: 1500 VAC

ENVIRONMENTAL PROPERTIES:

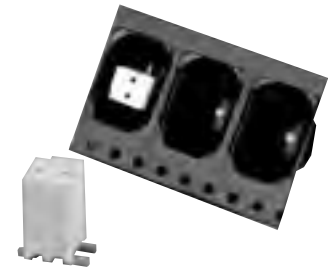
MAX. OPERATING TEMPERATURE: 105° C

Surface Mount with Wire Trap

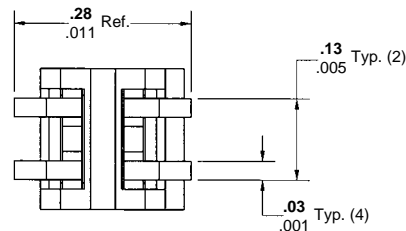
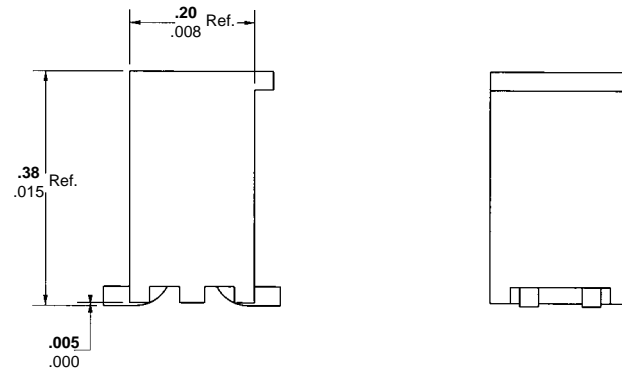
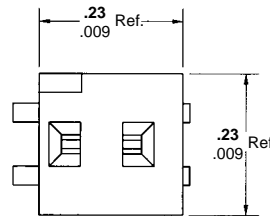
Product Facts

- Available in 2.5mm pitch
- Accepts 24 AWG stranded tin
- 2 position Connector
- Current capability: 3A
- 250V
- Packaging: Tape and Reel and Loose Piece (25 pcs/bag)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



2.5mm Pitch





Ordering Information

# OF TERMINALS	CATALOG NUMBER	DESCRIPTION
2	SMC2402	Tape & Reel, 500 pieces
2	SM2V02	25 pieces

For complete product information, order Catalog 1308389

Screwless Terminal Blocks

Product Facts

- Available in 5.0mm and 5.08mm pitch sizes
- Accepts wire range 14-22 AWG
- Current capability: 10 A and 20 A (5.08mm lever version)
- Vertical and right-angle wire insertion provides options to meet different application needs
- No special tool required, levers could be easily actuated with a finger or a screwdriver
- Screwless saves time when installing wires
- UL Recognition 
- CSA Certification 



**5.0 mm and 5.08 mm Pitch
(Page 8049)**



**5.08 mm Pitch
(Page 8048)**

5.08MM STANDARD CONNECTORS WITH SCREWLESS CLAMP SERIES 2SV

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Thermoplastic polyester
FLAMMABILITY: UL94V-0
COLOR: Black

Terminal:

CLAMPING TERMINAL AND SOLDER PIN: Bright acid-tin over copper alloy

Mechanical:

PITCH (TERMINAL SPACING): 5.08mm
RECOMMENDED PCB HOLE DIA.: 1.4mm

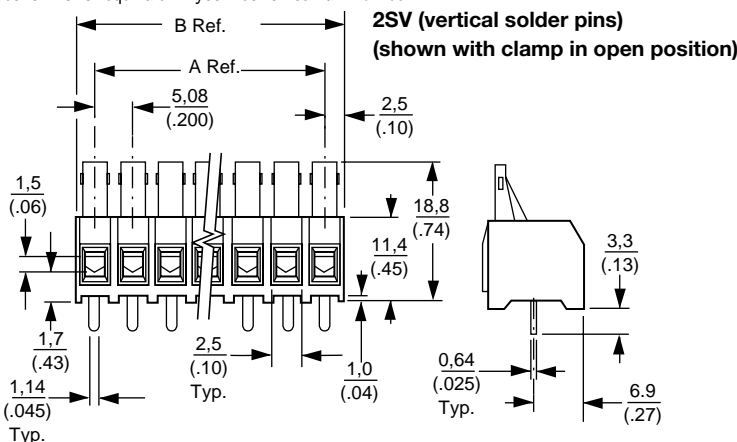
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20 A
OPERATING VOLTAGE: 150/300V (limited ratings)
WIRE RANGE: 18-22 AWG

ENVIRONMENTAL PROPERTIES

MAX. OPERATING TEMPERATURE: 130°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

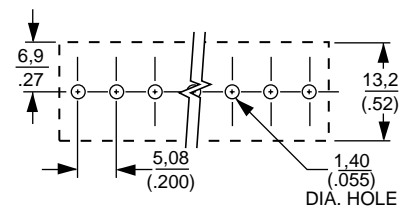


Screwless Terminal Blocks are suitable for both solid and stranded wires and offers a fast way to complete wire connections. The lever is fully integrated into the body of the terminal block, which means no special tools are required.

The spring is made from stainless steel strip so that there is a strong connection.

Ordering Information

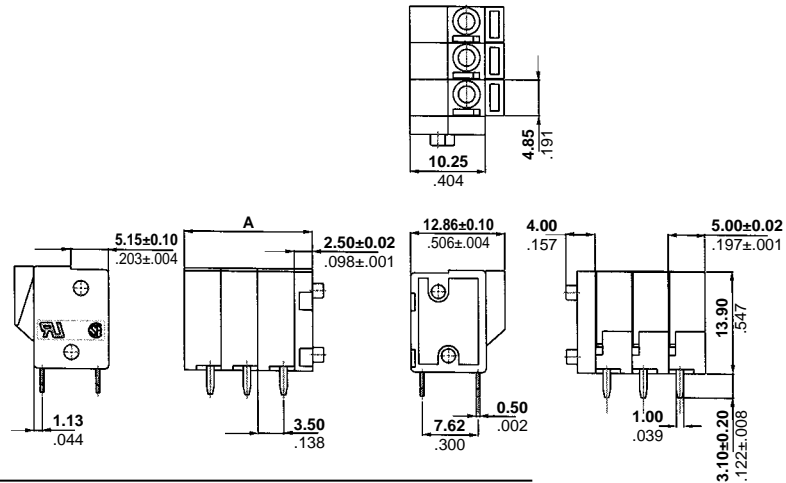
# OF TERMINALS	"A" LENGTH (INCHES)MM	"B" LENGTH (INCHES)MM	CATALOG NUMBER
2	(0.2) 5,1	(0.4) 10,2	2SV-02
3	(0.4) 10,2	(0.6) 15,2	2SV-03
4	(0.6) 15,2	(0.8) 20,3	2SV-04
5	(0.8) 20,3	(1.0) 25,4	2SV-05
6	(1.0) 25,4	(1.2) 30,5	2SV-06
7	(1.2) 30,5	(1.4) 35,6	2SV-07
8	(1.4) 35,6	(1.6) 40,6	2SV-08
9	(1.6) 40,6	(1.8) 45,7	2SV-09
10	(1.8) 45,7	(2.0) 50,8	2SV-10
11	(2.0) 50,8	(2.2) 55,9	2SV-11
12	(2.2) 55,9	(2.4) 61,0	2SV-12
13	(2.4) 61,0	(2.6) 66,0	2SV-13
14	(2.6) 66,0	(2.8) 71,1	2SV-14
15	(2.8) 71,1	(3.0) 76,2	2SV-15
16	(3.0) 76,2	(3.2) 81,3	2SV-16



Screwless, Top Wire Entry Connectors

**Board Mount Screwless
5.0 mm Pitch
Top Wire Entry
Terminal Block
Color – Green**

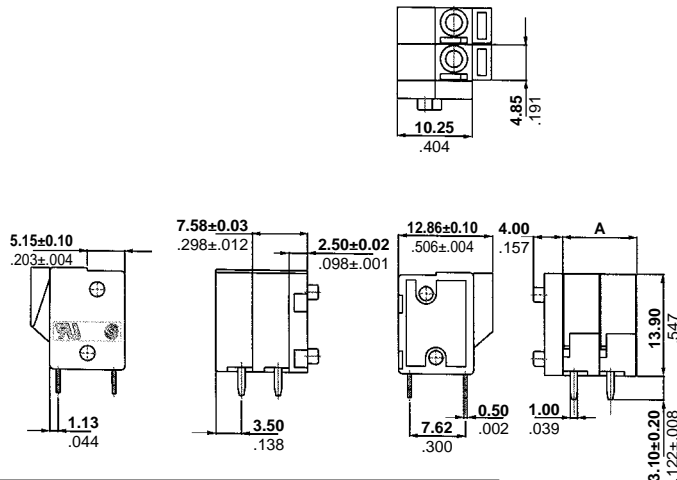
**UL Rating – 300 V, 10 A
14-22 AWG**



No. of Positions	Dim. A	Part Numbers
2	12.50 [0.492]	796460-2
3	17.50 [0.689]	796460-3
4	22.50 [0.886]	796460-4
5	27.50 [1.083]	796460-5
6	32.50 [1.280]	796460-6
7	37.50 [1.476]	796460-7
8	42.50 [1.673]	796460-8
9	47.50 [1.870]	796460-9
10	52.20 [2.055]	1-796460-0
11	57.50 [2.264]	1-796460-1
12	62.50 [2.461]	1-796460-2

**Board Mount Screwless
5.08 mm Pitch
Top Wire Entry
Terminal Block
Color – Green**

**UL Rating – 300 V, 10 A
14-22 AWG**



No. of Positions	Dim. A	Part Numbers
2	10.16 [0.400]	796461-2
3	15.24 [0.600]	796461-3
4	20.32 [0.800]	796461-4
5	25.40 [1.000]	796461-5
6	30.48 [1.200]	796461-6
7	35.56 [1.400]	796461-7
8	40.64 [1.600]	796461-8
9	45.72 [1.800]	796461-9
10	50.80 [2.000]	1-796461-0
11	55.88 [2.200]	1-796461-1
12	60.96 [2.400]	1-796461-2

For complete product information, order Catalog 1308389

Barrier Strip Selector Chart

TRI-BARRIER



	0.250"	0.325"	0.325"	0.375"	0.375"	0.375"	0.375"	0.4375"
Series	#3	#4	RSB3	#6	RSB6	BC6	MB6	#8
Pitch (in)	0.250"	0.325"	0.325"	0.375"	0.375"	0.375"	0.375"	0.4375"
Circuits	2-32	2-30	2-36	2-30	2-36	2-16	4-40	2-26
Max Current	10A	20A	15A	25A	20A	20A	25A	30A
Max Voltage	150V/300V	150V/300V	300V	300V	300V	300V	300V	300V
Wire Range (AWG)	18-22	14-22	14-26	12-22	12-26	12-22	12-22	10-18
Description	Molded to length	Molded to length	Cut to length	Molded to length	Cut to length	Panel Mount molded to length	Double Level snapped to length	Molded to length
Page	8052-8055	8056-8058	Order Catalog 1308389	Order Catalog 1308389	Order Catalog 1308389	8059, 8060	8061, 8062	8063-8065

For complete product information, order Catalog 1308389

Barrier Strip Selector Chart (Continued)

DUAL-BARRIER

SOCKETS



	0.325"		0.375"		0.4375"		0.325"		0.375"	
Series	SSB3	4DB	SSB6	JC6	NC6	SSB7	USB	RSB6B		
Pitch (in)	0.325"	0.325"	0.375"	0.375"	0.375"	0.4375"	0.325"	0.375"		
Circuits	2-36	2-30	2-32	2-16	2-30	2-27	2-12	2-10		
Max Current	15A	20A	20A	20A	20A	20A	10A	10A		
Max Voltage	300V	150V/300V	300V	300V	300V	600V	300V	300V		
Wire Range (AWG)	14-26	14-22	12-26	12-22	12-22	12-26	n/a	n/a		
Description	Cut to length	Molded to length	Cut to length	Molded to length	Low Profile version, Molded to length	Cut to length	For Series RSB3 & SSB3	For Series RSB6		
Page	Order Catalog 1308389	8066, 8067	Order Catalog 1308389	Order Catalog 1308389	8068, 8069	8070-8074	8075	8076		

For complete product information, order Catalog 1308389

0.250" Pitch, Series #3

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polypropylene
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #3-48 steel, zinc plating with clear chromate coating. Wire clamping screws standard.

MECHANICAL

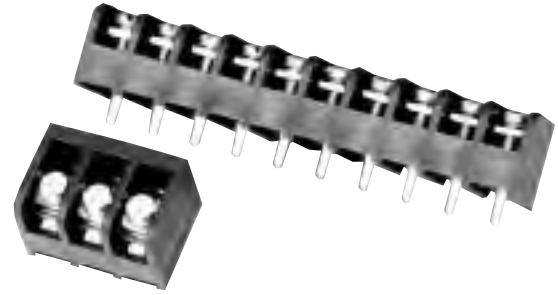
PITCH (TERMINAL SPACING): 0.250"
RECOMMENDED PCB HOLE DIA.: 1.8mm (.073")
RECOMMENDED TIGHTENING TORQUE: 5.5 in.-lbs.

ELECTRICAL PROPERTIES

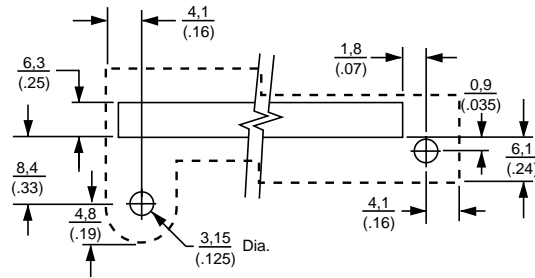
MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 150V (limited rating)
WIRE RANGE: 18-22 AWG

ENVIRONMENTAL PROPERTIES

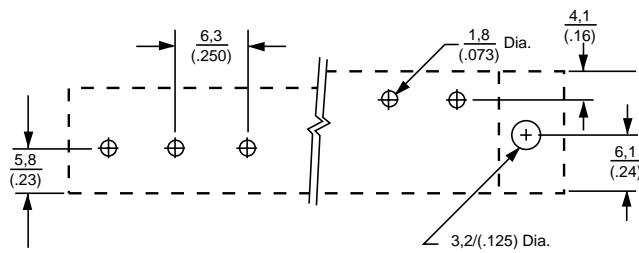
OPERATING TEMPERATURE RANGE: 105°C max.



3PCV-03 & 3PCV-10



RIGHT ANGLE MOUNTING PANEL LAYOUT VERTICAL



RIGHT ANGLE PRINTED CIRCUIT LAYOUT CENTER

For complete product information, order Catalog 1308389



0.250" Pitch, Series #3

ORDERING INFORMATION

3 PCV - 04 - 004

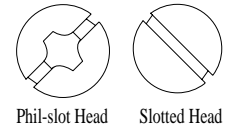
A **B** **C** **D**

A Screw Size Spacing
3 = #3-48 on .250" Centers

C No. of Circuits (Not Positions)
02 through 32

B Terminal Style
PCV = Printed Circuit Pin, Vertical
PCR = Printed Circuit, Right Angle
STV = Solder Turret, Vertical
STR = Solder Turret, Right Angle
WWV = Solderless Wire Wrap, Vertical

D Modifier
Use table below.
Note: If modifier is -000
it may be omitted. (3PCV-06)



Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

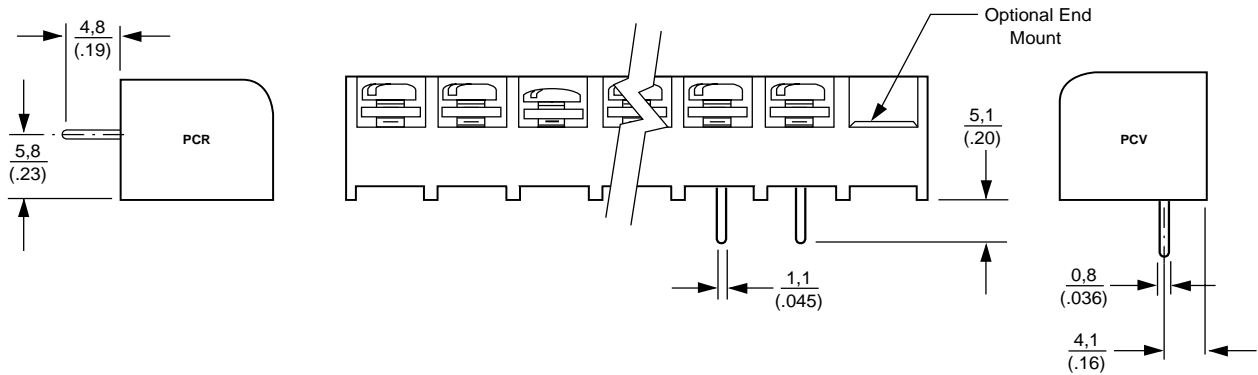
Terminal Style	Modifier Slotted Head	Modifier Phil-slot Head	Screw Style	Mounting Construction
PCV	000	006	Wire Clamp	No Mounting
	004	008	Wire Clamp	
PCR	000	006	Wire Clamp	No Mounting
	004	008	Wire Clamp	
STV WWV	000	006	Wire Clamp	
	004	008	Wire Clamp	No Mounting
STR	000	006	Wire Clamp	
	004	008	Wire Clamp	

For complete product information, order Catalog 1308389

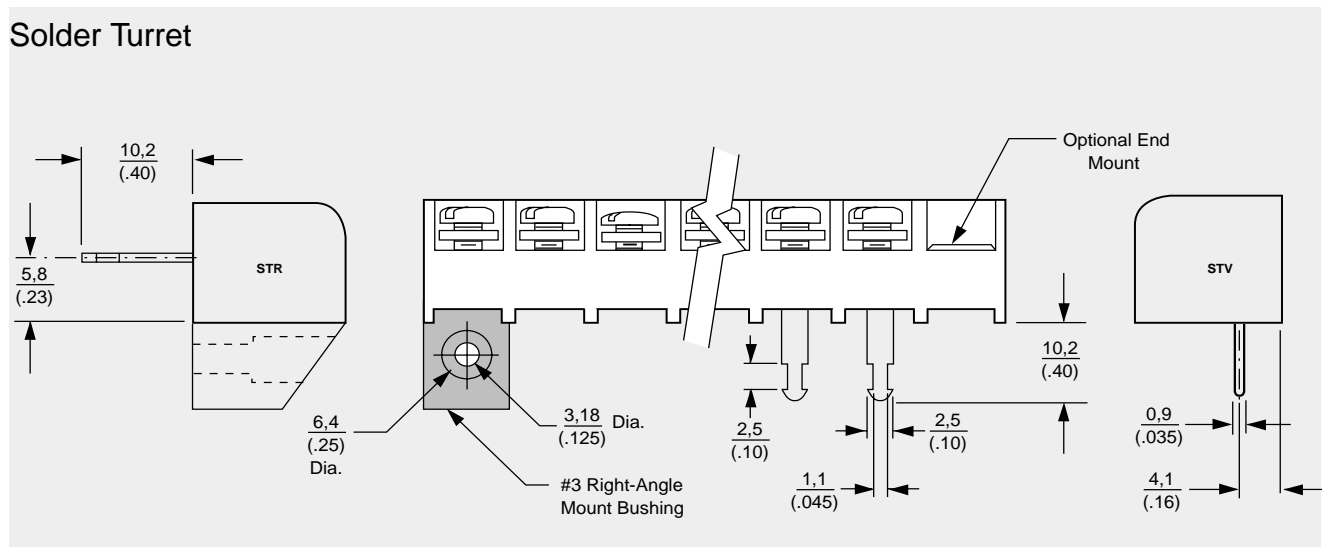


0.250" Pitch, Series #3

Printed Circuit Pin

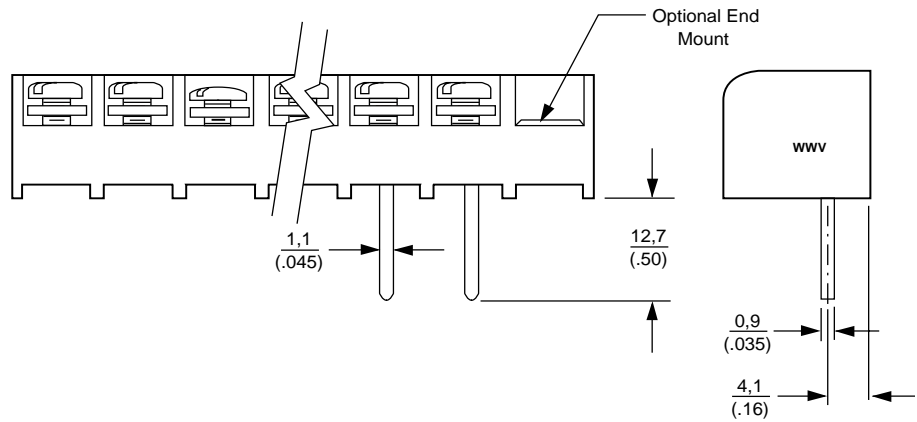


Solder Turret



Wire Wrap

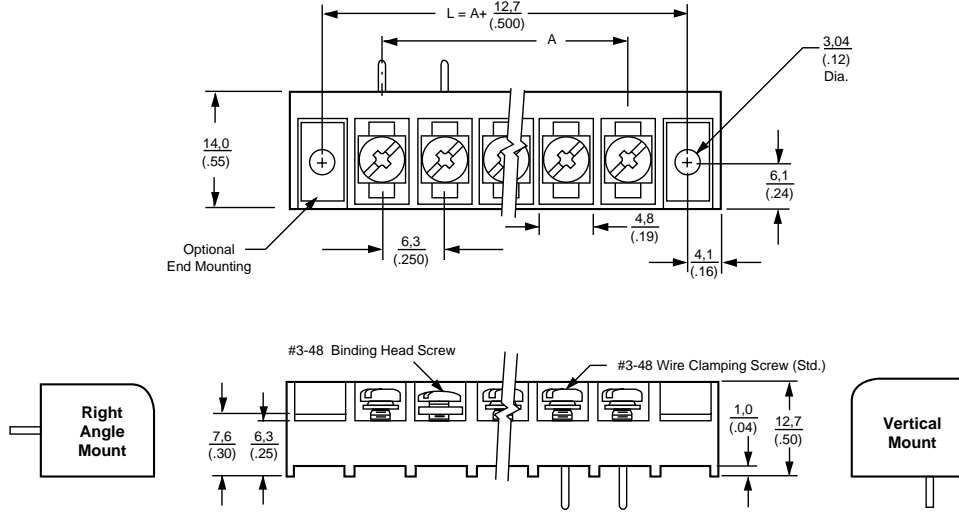
#3WWR not available



For complete product information, order Catalog 1308389



0.250" Pitch, Series #3



TERMINALS	A	TERMINALS	A
2	(0.25) 6,3	18	(4.25) 107,9
3	(0.50) 12,7	19	(4.50) 114,3
4	(0.75) 19,0	20	(4.75) 120,6
5	(1.00) 25,4	21	(5.00) 127,0
6	(1.25) 31,7	22	(5.25) 133,3
7	(1.50) 38,1	23	(5.50) 139,7
8	(1.75) 44,4	24	(5.75) 146,0
9	(2.00) 50,8	25	(6.00) 152,4
10	(2.25) 57,1	26	(6.25) 158,8
11	(2.50) 63,5	27	(6.50) 165,1
12	(2.75) 69,8	28	(6.75) 171,5
13	(3.00) 76,2	29	(7.00) 177,8
14	(3.25) 82,5	30	(7.25) 184,2
15	(3.50) 88,9	31	(7.50) 190,5
16	(3.75) 95,2	32	(7.75) 196,9
17	(4.00) 101,6		

For complete product information, order Catalog 1308389



0.325" Pitch, Series #4

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polyamide
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #4-40 steel, zinc plating with clear chromate coating. Wire clamping screw standard. Binding head screw with undercut optional.

MECHANICAL

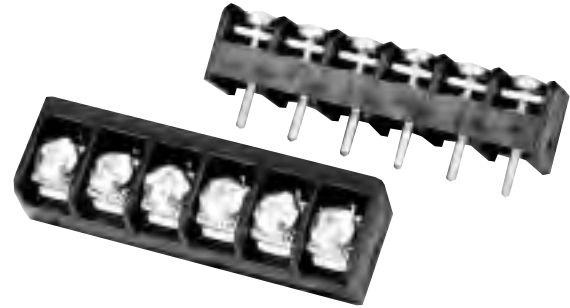
PITCH (TERMINAL SPACING): 0.325"
RECOMMENDED PCB HOLE DIA.: 1.8mm (.073")
RECOMMENDED TIGHTENING TORQUE: 7 in.-lbs. max.

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20A
OPERATING VOLTAGE: 150V/300V (limited rating)
WIRE RANGE: 14-22 AWG

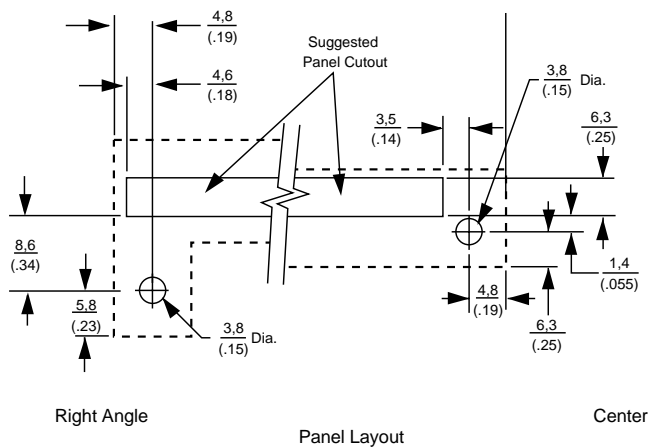
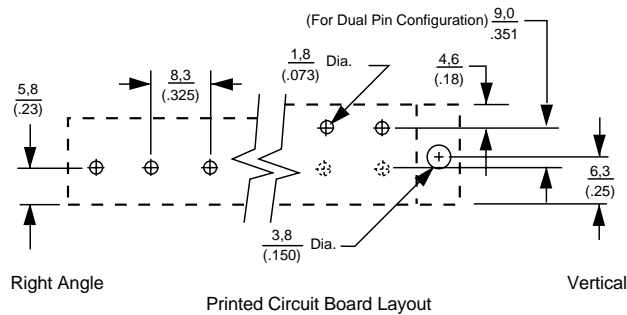
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.



4PCV-06

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



For complete product information, order Catalog 1308389



0.325" Pitch, Series #4

ORDERING INFORMATION

4 PCV-04-004

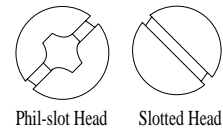
A **B** **C** **D**

A Screw Size Spacing
4 = #4-40 on .325" Centers

C No. of Circuits (Not Positions)
02 through 32

B Terminal Style
DBL = Double Printed Circuit Pin
PCR = Printed Circuit, Right Angle
PCV = Printed Circuit Pin, Vertical
WWV = Solderless Wire Wrap, Vertical

D Modifiers
Use table below.
Note: If modifier is -000
it may be omitted. (4PCV-06)



Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

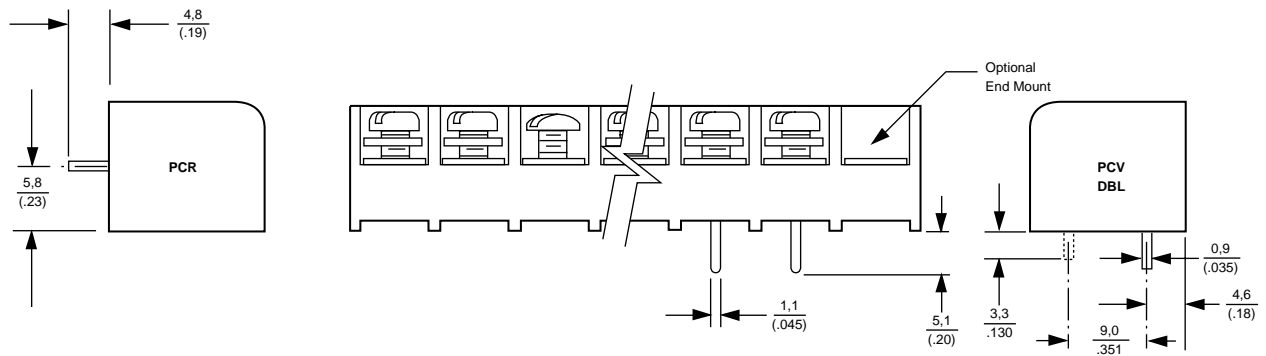
Terminal Style	Modifier Slotted Head	Modifier Phil-slot Head	Screw Style	Mounting Construction		
DBL	000	006	Wire Clamp	No Mounting		
	001	007	Binding Head			
PCV	000	006	Wire Clamp	No Mounting		
	001	007	Binding Head			
	004	008	Wire Clamp			
	005	009	Binding Head			
	PCR	000	006		Wire Clamp	No Mounting
		001	007		Binding Head	
WWV	000	006	Wire Clamp			
	001	007	Binding Head			
	004	008	Wire Clamp	No Mounting		
	005	009	Binding Head			

For complete product information, order Catalog 1308389



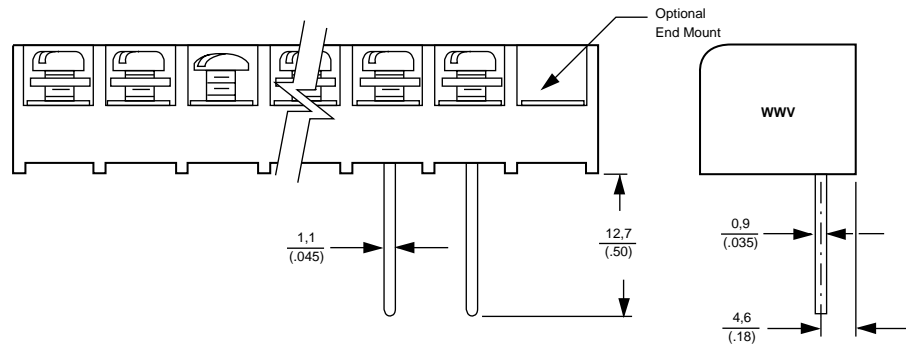
0.325" Pitch, Series #4

Printed Circuit Pin



Wire Wrap

#4 WWR Not available



For complete product information, order Catalog 1308389



0.375" Pitch, Series BC6

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polypropylene
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #6-32 steel, zinc plating with clear chromate coating. Wire clamping screw standard.

MECHANICAL

PITCH (TERMINAL SPACING): .375"
RECOMMENDED PCB HOLE DIA.: 1.8mm (.073")

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20A
OPERATING VOLTAGE: 300V
WIRE RANGE: 12-22 AWG

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



BC6 SERIES

ORDERING INFORMATION

BC6 - P 1 08 - 08
A B C D

A Terminal Style

- P=Printed Circuit (available with 1,2,5 block style only)
- T=Solder Turret
- Q=Quick Connect
- W=Solderless Wrap

B Block Style

- 1=Flat, all positions filled (standard)
- 2=Flat, end mounting ears with holes (required for cover option)
- 3=Insulating turret, end mounting ears with holes (required for cover option)
- 4=Insulating turret, all positions filled
- 5=Flat, end positions open with mounting bushings
- 6=Insulating turret, end positions open with mounting bushings

C Screw Hardware

- 04=Steel wire clamp slotted head screw
- 07=Steel combo binding head screw
- 08=Steel wire clamp combo head screw

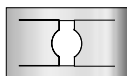
D No. of Circuits (Not Positions)

02 to 16 circuits

* Up to 18 circuits available without mounting ears option

Retaining Clips

Spring metal retaining clips fit around insulating barrel to provide permanent mounting of blocks to panels without the need for mounting holes. Use two per block. Catalog # **JC/BC-Retaining**.



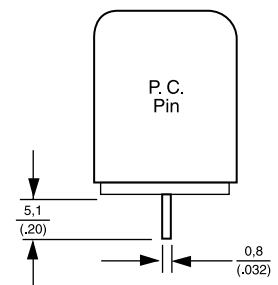
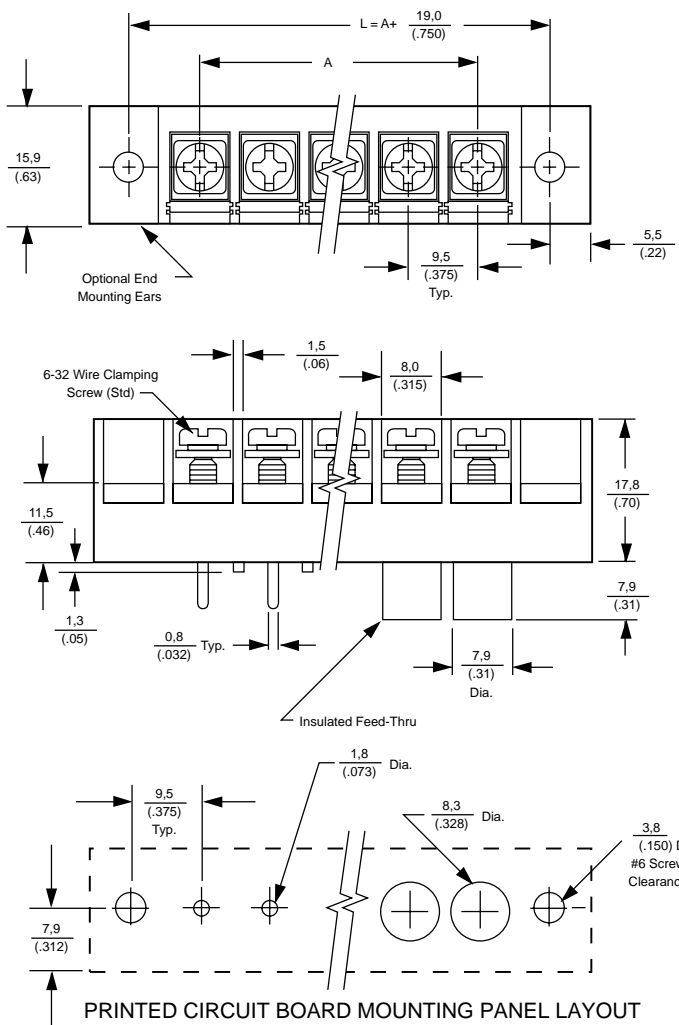
Bottom view

For complete product information, order Catalog 1308389

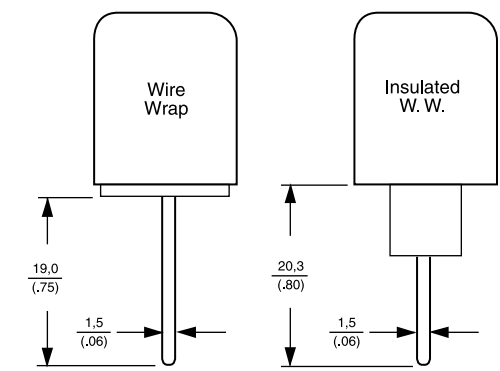


0.375" Pitch, Series BC6

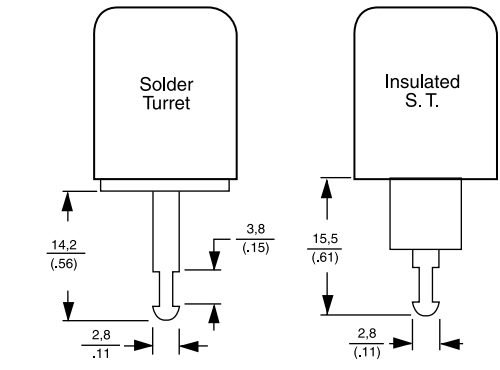
TERMINALS	A	TERMINALS	A
2	(.375) 9,5	10	(3.375) 85,7
3	(.750) 19,1	11	(3.750) 95,2
4	(1.125) 28,6	12	(4.125) 104,8
5	(1.500) 38,1	13	(4.500) 114,3
6	(1.875) 47,6	14	(4.875) 123,8
7	(2.250) 57,1	15	(5.250) 133,3
8	(2.625) 66,7	16	(5.625) 142,9
9	(3.000) 76,2		



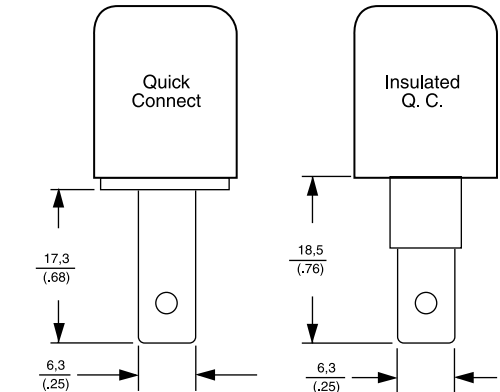
Available Block Styles: 1/2



Available Block Styles: 2/3/4



Available Block Styles: 2/3/4



Available Block Styles: 2/3/4



For complete product information, order Catalog 1308389

0.375" Pitch, Series MB6, Double Level

PHYSICAL PROPERTIES

HOUSING MATERIAL: Thermoplastic polyamide
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #6-32 steel, zinc plating with clear chromate coating. Wire clamping screw standard.

MECHANICAL

PITCH (TERMINAL SPACING): .375"
RECOMMENDED PCB HOLE DIA.: 1.8mm (.073")

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 25A
OPERATING VOLTAGE: 300V
WIRE RANGE: 12-22 AWG

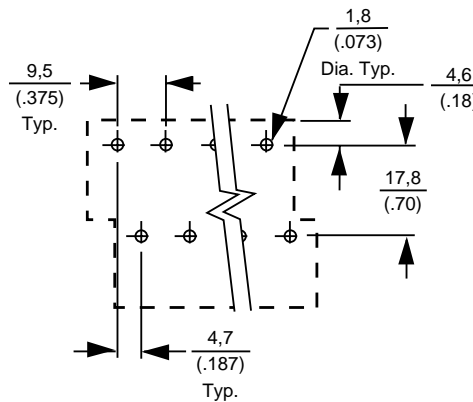
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



MB6-P108-##



Printed Circuit Board Layout

ORDERING INFORMATION

MB6 - P1 08 - 04

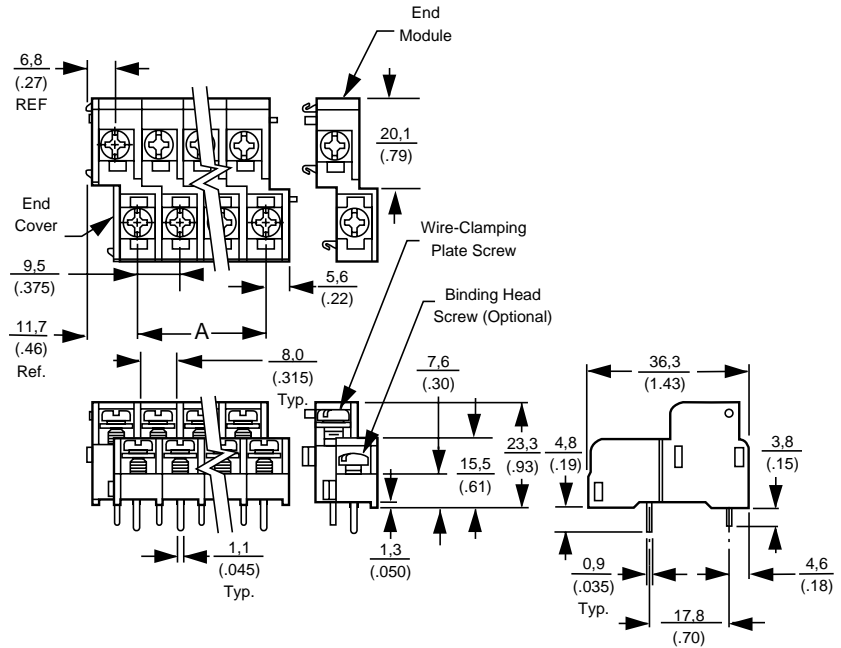
- A Series**
MB6=Double Level, 0.375" Centers
- B Terminal Style**
P1=Printed Circuit Pin, Vertical
- C 07=Steel binding combo head screws**
08=Steel wire clamp combo head screws
- D 04 through 40 available in multiples of 2**

For complete product information, order Catalog 1308389



8
Terminal Blocks

0.375" Pitch, Series MB6, Double Level



TERMINALS	A	TERMINALS	A
4	(.375) 9,5	24	(4.125) 104,8
6	(.750) 19,1	26	(4.500) 114,3
8	(1.125) 28,6	28	(4.875) 123,8
10	(1.500) 38,1	30	(5.250) 133,3
12	(1.875) 47,6	32	(5.625) 142,9
14	(2.250) 57,1	34	(6.000) 152,4
16	(2.625) 66,7	36	(6.375) 161,9
18	(3.000) 76,2	38	(6.750) 171,4
20	(3.375) 85,7	*40	(7.125) 181,0
22	(3.750) 95,2		

* Longer lengths available.
Please consult Technical Support Center.

For complete product information, order Catalog 1308389



0.4375" Pitch, Series #8

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polypropylene
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #8-32 steel, zinc plating with clear chromate coating. Wire clamping screws standard. Binding head screw with undercut optional.

MECHANICAL

PITCH (TERMINAL SPACING): .375"
RECOMMENDED PCB HOLE DIA.: 1.8mm (.073")

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 30A
OPERATING VOLTAGE: 300V
WIRE RANGE: 10-18 AWG (UL)
10-22 AWG (CSA)

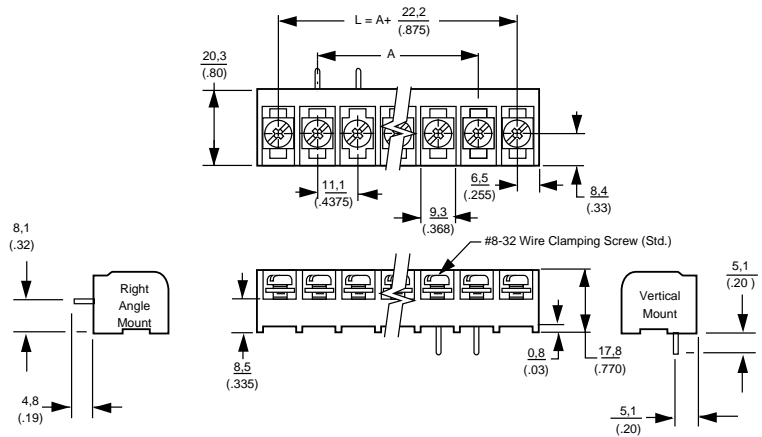
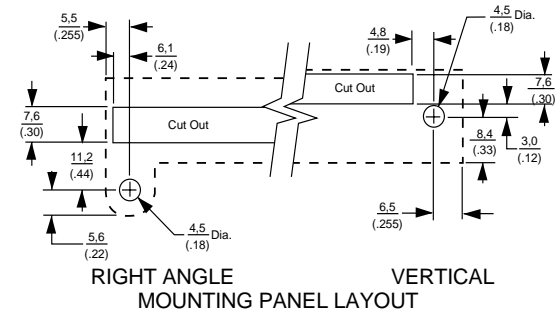
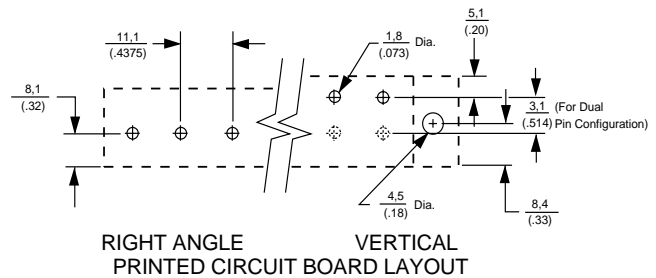
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



#8 SERIES TRI-BARRIERS



TERMINALS	A
2	(0.4375) 11,1
3	(0.87) 22,2
4	(1.31) 33,3
5	(1.75) 44,5
6	(2.19) 55,6
7	(2.62) 66,7
8	(3.06) 77,8
9	(3.50) 88,9
10	(3.93) 100,0
11	(4.37) 111,1
12	(4.81) 122,2
13	(5.25) 133,3
14	(5.69) 144,5

TERMINALS	A
15	(6.12) 155,6
16	(6.56) 166,7
17	(7.00) 177,8
18	(7.44) 188,9
19	(7.87) 200,0
20	(8.31) 211,1
21	(8.75) 222,2
22	(9.19) 233,4
23	(9.62) 244,5
24	(10.06) 255,6
25	(10.50) 266,7
26	(10.94) 277,8

For complete product information, order Catalog 1308389



0.4375" Pitch, Series #8

ORDERING INFORMATION

8 PCV-04-004

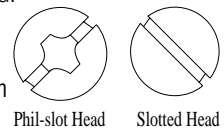
A **B** **C** **D**

A Screw Size Spacing
8 = #8-32 on .4375" Centers

C No. of Circuits (Not positions)
02 through 26

B Terminal Style
DBL = Double Printed Circuit Pin
PCR = Printed Circuit, Right Angle
PCV = Printed Circuit Pin, Vertical
QCR = Quick Connect Tab, Right Angle
QCV = Quick Connect Tab, Vertical
STR = Solder Turret, Right Angle
STV = Solder Turret, Vertical
TBV = Non Feed Thru
WWR = Solderless Wire Wrap, Right Angle
WWV = Solderless Wire Wrap, Vertical

D Modifiers
 Use table below.
 -001=-000 except binding head screw
 -002=-000 except brass screw
 -003=-000 except brass binding head screw
Note: If modifier is -000 it may be omitted.
 (8PCV-06)



Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

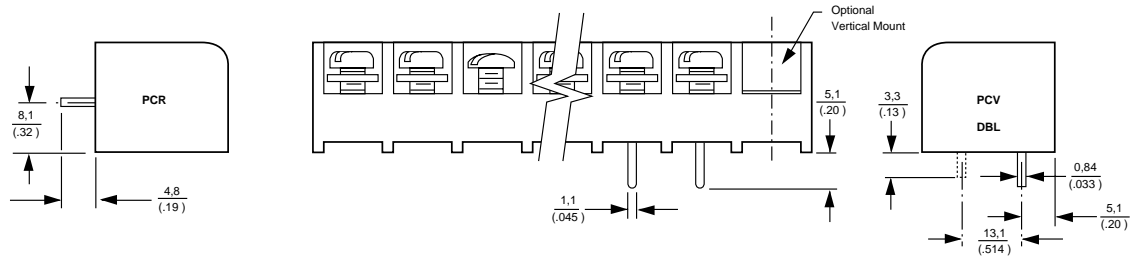
Terminal Style	Modifier Slotted Head	Modifier Phil-slot Head	Screw Style	Mounting Construction
DBL	000	006	Wire Clamp	No Mounting
	001	007	Binding Head	
PCV	000	006	Wire Clamp	No Mounting
	001	007	Binding Head	
	004	008	Wire Clamp	
	005	009	Binding Head	
PCR	000	006	Wire Clamp	No Mounting
	001	007	Binding Head	
	004	008	Wire Clamp	
	005	009	Binding Head	
QCV STV WWV	000	006	Wire Clamp	
	004	008	Wire Clamp	
QCR STR WWR	000	006	Wire Clamp	
	004	008	Wire Clamp	
TBV	000	006	Wire Clamp	

For complete product information, order Catalog 1308389

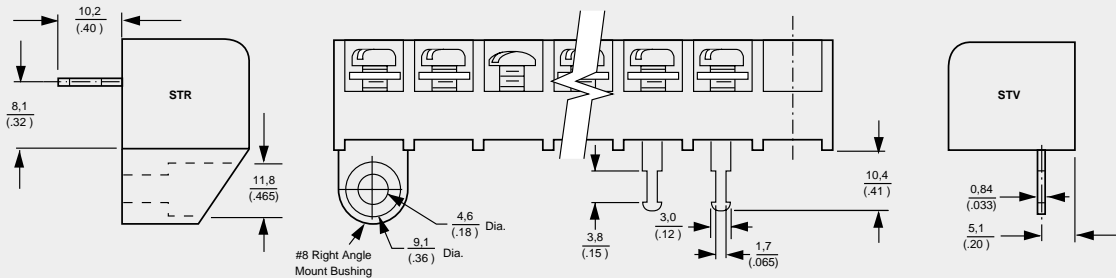


0.4375" Pitch, Series #8

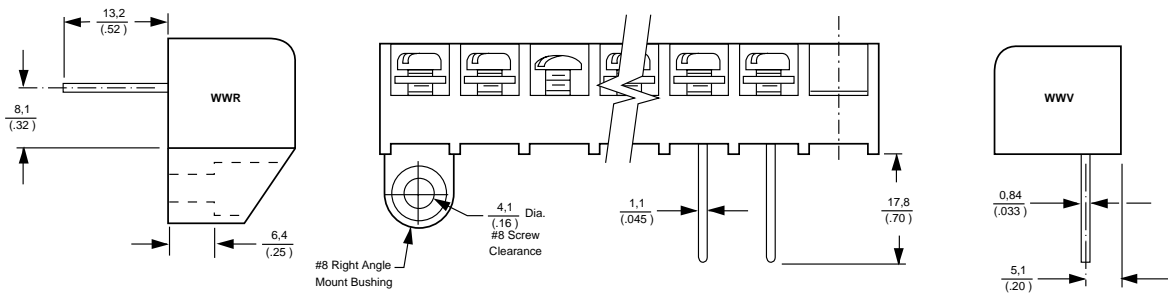
**Printed
Circuit Pin**



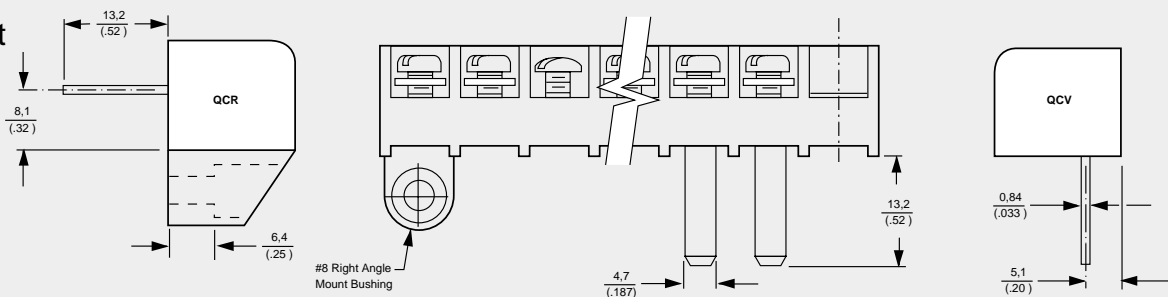
**Solder
Turret**



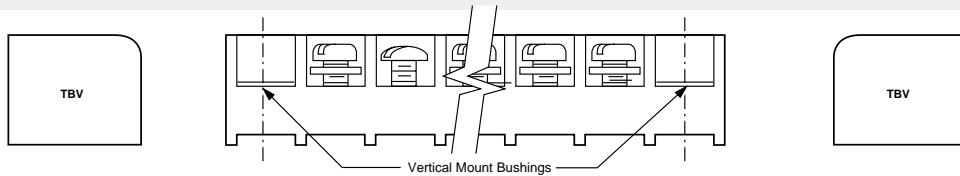
**Wire
Wrap**



**Quick
Connect**



**Non-Feed
Thru**



For complete product information, order Catalog 1308389

0.325" Pitch, Series 4DB

PHYSICAL PROPERTIES

HOUSING MATERIAL: Thermoplastic Polyamide
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid-tin over copper alloy
SCREWS: #6-32 steel, zinc plating with clear chromate coating, undercut binding head screw standard.

MECHANICAL

PITCH (TERMINAL SPACING): 0.325"
RECOMMENDED PCB HOLE DIA.: 1.7mm (0.07")

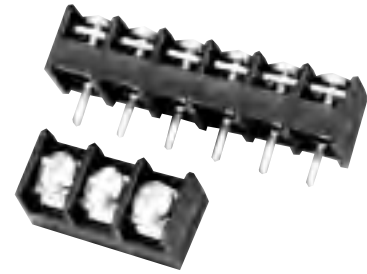
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20A
OPERATING VOLTAGE: 150V (UL), 300V (CSA)
WIRE RANGE: 14-22 AWG

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



4DB-P108-##

ORDERING INFORMATION

4DB - P 1 08 - 06
A B C D E

- A Series**
4DB = Dual-Barrier, 0.325" Centers
- B Terminal Style**
P = Printed Circuit Pin
W = Wire Wrap
R = Right Angle
S = Non-Feed Thru
- C Block Style**
1 = Flat, all positions filled
2 = Flat, end mounting holes
- D Screw Type**
04 = Steel wire clamp slotted head screws
07 = Steel binding combo head screws
08 = Steel wire clamp combo head screws
- E No. of Circuits (Not Positions)**
02 through 30

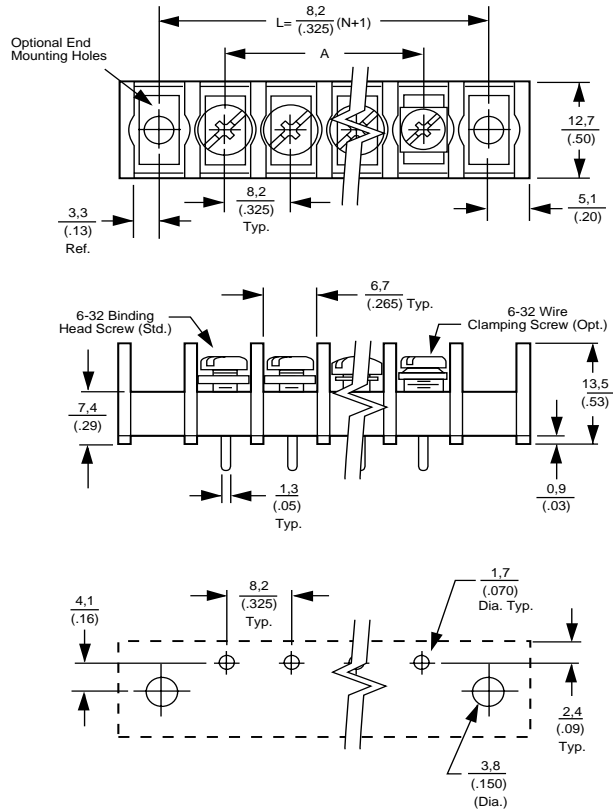
For complete product information, order Catalog 1308389



0.325" Pitch, Series 4DB

Dimensions

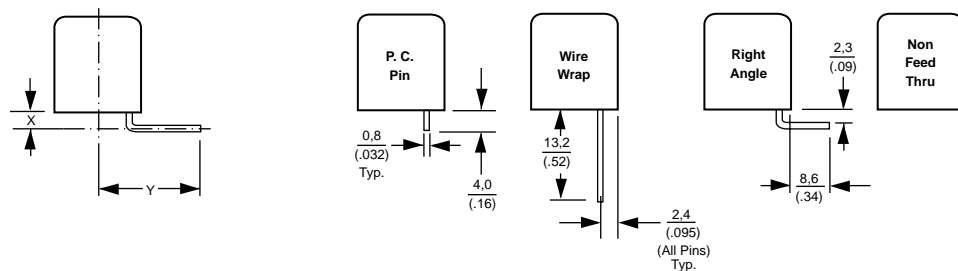
TERMINALS	A	TERMINALS	A
2	(0.325) 8,2	17	(5.200) 132,1
3	(0.650) 16,5	18	(5.525) 140,3
4	(0.975) 24,8	19	(5.850) 148,6
5	(1.300) 33,0	20	(6.175) 156,8
6	(1.625) 41,3	21	(6.500) 165,1
7	(1.950) 49,5	22	(6.825) 173,3
8	(2.275) 57,8	23	(7.150) 181,6
9	(2.600) 66,0	24	(7.475) 190,0
10	(2.925) 74,3	25	(7.800) 198,1
11	(3.250) 82,5	26	(8.125) 206,4
12	(3.575) 90,8	27	(8.450) 214,6
13	(3.900) 99,1	28	(8.775) 222,8
14	(4.225) 107,3	29	(9.100) 231,1
15	(4.550) 115,6	30	(9.425) 239,4
16	(4.875) 123,8		



PRINTED CIRCUIT BOARD LAYOUT

Bend Options:

A variety of bend options are available. Please consult Technical Support Center for details.



For complete product information, order Catalog 1308389



0.375" Pitch, NC6 Series, Low Profile

PHYSICAL PROPERTIES

HOUSING MATERIAL: Thermoplastic polyamide
FLAMMABILITY: UL94V-0
COLOR: Black

TERMINAL

TERMINALS: Bright acid tin over copper alloy
SCREWS: #6-32 steel, zinc plating with clear chromate coating. Wire clamping screw standard.

MECHANICAL

PITCH (TERMINAL SPACING): .375"
SCREW SIZE: #6-32 steel
RECOMMENDED PCB HOLE DIA.: .073" dia.

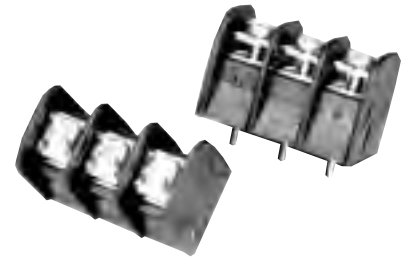
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20A
OPERATING VOLTAGE: 300V
WIRE RANGE: 12-22 AWG

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: 105°C max.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

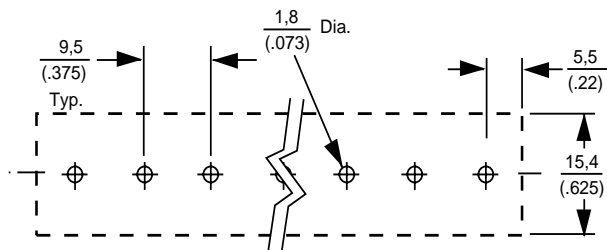


NC6-P108-03

ORDERING INFORMATION

NC6 - P 1 08 - 04
A B C D E

- A Series**
NC6 = Dual-Barrier, 0.375" Centers, Low Profile
- B Terminal Style**
P = Printed Circuit Pin
- C Block Style**
1 = Flat, all positions filled
2 = End mounting holes provided
- D Screw Hardware**
02 = Brass clamp-plate slotted head screws
04 = Steel clamp-plate slotted head screws
05 = Steel slotted binding head screws
07 = Steel binding combo head screws
08 = Steel clamp-plate combo head screws
- E No. of Circuits** (Not positions)
02 through 30

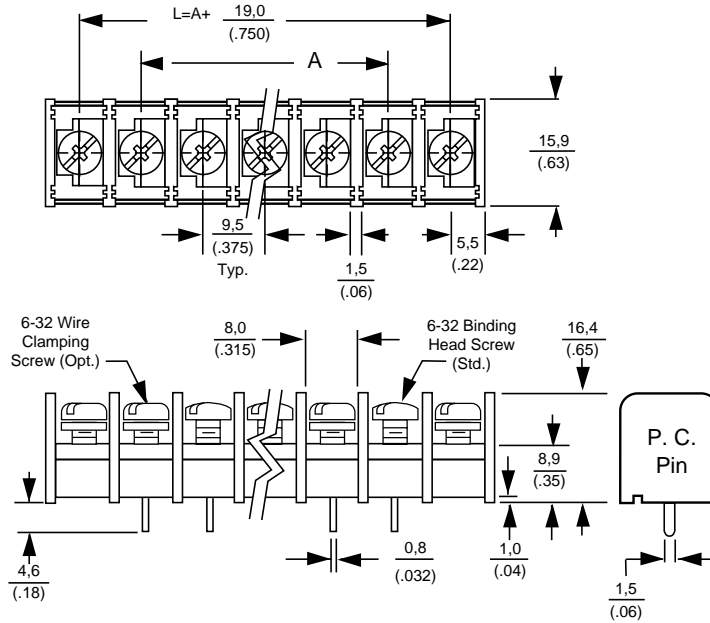


RECOMMENDED HOLE LAYOUT

For complete product information, order Catalog 1308389



0.375" Pitch, NC6 Series, Low Profile



For complete product information, order Catalog 1308389

0.4375" Pitch, Series SSB7

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polypropylene
FLAMMABILITY: UL94V-2
COLOR: Black

TERMINAL

TERMINALS: Brass, bright acid tin over copper plating
SCREW: Steel with zinc + chromate plating
CLAMP: Steel with zinc + chromate plating

MECHANICAL

PITCH (TERMINAL SPACING): .437 in.
SCREW SIZE: 6-32
RECOMMENDED PCB HOLE DIA.: .077"
WIRE STRIP LENGTH: .38"
RECOMMENDED TIGHTENING TORQUE: 8 in.-lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1006-4,
Sears Craftsman 41581, Any #2 Phillips-Head
WIRE LUG WIDTH (MAX.): 8,1mm (.320 in.)

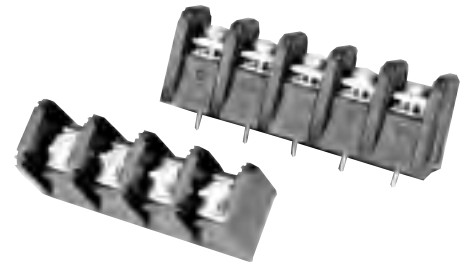
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 20A
OPERATING VOLTAGE: 600V
WIRE RANGE: (Clamp Screw): #12 max. AWG
(Binding Head Screw): #14 max. AWG
DIELECTRIC WITHSTAND: 5000V

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: -60°C to +105°C
(-76°F to +221°F)

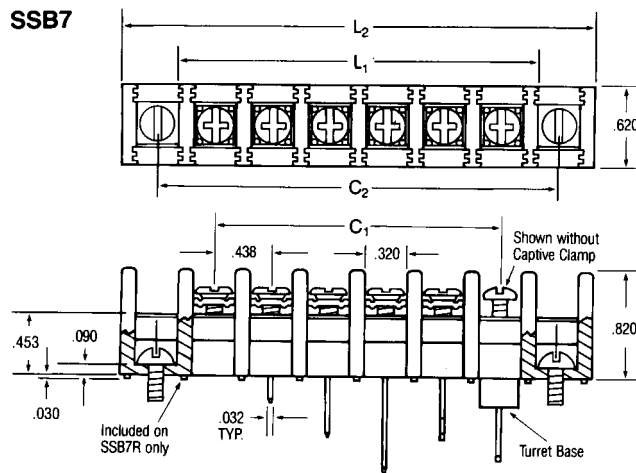
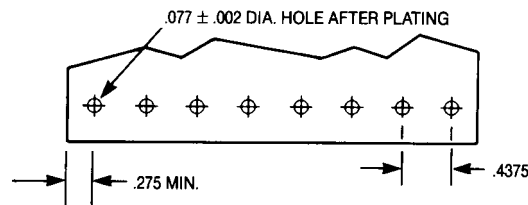
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



SSB7FP##0202

Dimensions

CIRCUITS (NOT POSITIONS)	C1 IN.	L1* IN.	C2 IN.	L2* IN.
01			.88	1.44
02	.44	1.00	1.31	1.88
03	.88	1.44	1.75	2.31
04	1.31	1.88	2.19	2.75
05	1.75	2.31	2.63	3.19
06	2.19	2.75	3.06	3.63
07	2.63	3.19	3.50	4.06
08	3.06	3.63	3.94	4.50
09	3.50	4.06	4.38	4.94
10	3.94	4.50	4.81	5.38
11	4.38	4.94	5.25	5.81
12	4.81	5.38	5.69	6.25
13	5.25	5.81	6.13	6.69
14	5.69	6.25	6.56	7.13
15	6.13	6.69	7.00	7.56
16	6.56	7.13	7.44	8.00
17	7.00	7.56	7.88	8.44
18	7.44	8.00	8.31	8.88
19	7.88	8.44	8.75	9.31
20	8.31	8.88	9.19	9.75
21	8.75	9.31	9.63	10.19
22	9.19	9.75	10.06	10.63
23	9.63	10.19	10.50	11.06
24	10.06	10.63	10.94	11.50
25	10.50	11.06	11.38	11.94
26	10.94	11.50		
27	11.38	11.94		



COMPUTING BARRIER BLOCK LENGTHS

DIRECT MOUNTING: Use C1 and L1 for P & H mounting options

END POSITION MOUNTING: Use L2 and C2 for M, E, F & G mounting options



For complete product information, order Catalog 1308389

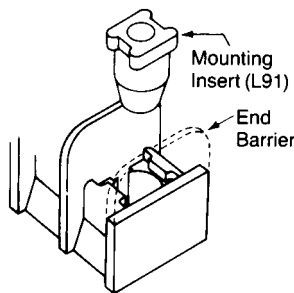
0.4375" Pitch, Series SSB7

ORDERING INFORMATION

SSB 7 F P 06 02 02 11
A B C D E F G H

- A Single Screw Tri-Barrier Strip SSB**
- B Contact Spacing (Center-to-Center)**
7 = .4375 (7/16)
- C Base Options**
C=Closed Base
F=Flat Base
R=Raised Base, Narrow Profile (with 02 & 04 terminal style only)
T=Turret Base (Available only with 01, 04, 05, 07, 09, 12, 13, 15 style bottom terminals)
U=Turret Base, Narrow Profile (Available only with 01, 04, 05, 07, 09, 12, 13, 15 style bottom terminals on SSB6)

- D Mounting Options**
(See illustration below)
E=Open end positions, with mounting inserts, with end barriers
F=Open end positions, without mounting inserts, without end barriers
G=Open end positions, with mounting inserts, without end barriers
H=All positions filled with contacts, without end barriers
M=Open end positions, without mounting inserts, with end barriers
P=All positions filled with contacts, with end barriers



- E No. of Circuits** (Not Positions)
Must conform to mounting options
02 to 32 circuits (P & H mounting)
02 to 27 circuits (M, E, F & G mounting)
- F Terminal Style**
01=Solder Tail
02=Printed Circuit Pin
03=Non-Feed Through (with C base only)
04=Extended Printed Circuit Pin
05=Quick Connects
06=90° bend, .46" x .11" (with F base only)
07=Wire Wrap
08=90° bend, .75" x .11" (with F base only)
09=Extra-Long Terminal
12=90° bend, .21" x .65"
13=90° bend, .36" x .50"
14=90° bend, .41" x .16" (with F base only)
15=90° bend, .51" x .35"
16=90° bend, .32" x .25" (with F base only)

- G Top Hardware Options**
00=No top hardware (Separately packaged binding head screws supplied at no cost)
01=Bright zinc and chromate plated steel binding head screw
02=Bright zinc and chromate plated steel screw and captive clamp - Do not order with other top hardware
03=Stainless steel binding head screw
04=Nickel plated brass binding head screw
09=Nickel plated brass screw and captive clamp - Do not order with other top hardware

80=Single-sided solder tab
81=Double-sided solder tab

Quick-Connect Blades
(supplied with 01 screw)

.250 wide	.187 wide
x.032	x.020
thick	thick
20	40=
21	41=
22	42=
23	43=
24	44=
25	45=
26	46=
27	47=
28	48=
29	49=
30	50=
31	51=
32	52=
33	53=
34	54=
35	55=
36	56=

H Circuit Identification Options

11 = 12345...
12 = ...54321
13 =
14 =
15 =
16 =

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

For complete product information, order Catalog 1308389

0.4375" Pitch, Series SSB7, Options

CONTACT SPACING OPTIONS:

.4375 in (7/16") Spacing

Extra thick barriers provide higher voltage rating. Up to 27 ckts. (25 circuits for end mounted blocks)

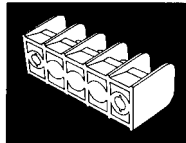
BASE OPTIONS:

Closed Base

CATALOG LETTER CODE:

C. For terminal junction-blocks requiring top connections only.

Useful in applications requiring single point circuit terminations or circuit completion via top mounted, single- and two-sided quick-connects. Replace double-row barrier strips.

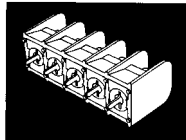


Flat Base

CATALOG LETTER CODE:

F. Lends itself most readily to applications where direct top-to-bottom feed-through

is required with no special requirement for circuit isolation on the bottom side. The most common example of this is printed circuit board mounting.



Raised Base

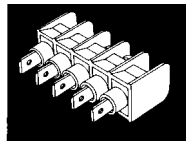
Catalog code SSB7R. Standoffs between each circuit raise block .030" above mounting surface to allow flux and solvents to drain during soldering operations. Available only with 02 and 04 bottom terminals.

Turret Base

CATALOG LETTER CODE: T. Combines top-to-

bottom feed-through with bottom-side circuit isolation for panels up to .126" thick. Turret bases are available with the following terminals:

solder tail, quick connect, machine wrap, extended circuit board terminal, and right-angle.

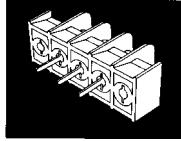


MOUNTING OPTIONS:

End Position Mounting

CATALOG LETTER CODES: E, F, G OR M.

Supplied without contacts in end sections to allow installer to mount blocks with screws in end section holes. Base of block will support mounting screws (Codes F & M). Also available with mounting inserts installed in end mounting holes to raise mounting screw heads to the level of other top hardware (Codes E & G).



Without End Barriers

CATALOG LETTER CODES: F, G & H. Facilitates mounting-screw access when end sections are used for mounting.

Direct Mounting

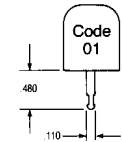
CATALOG LETTER CODES: P & H. SSBs may be solder-mounted using the bottom terminals themselves, as in the case of printed circuit board applications.

Direct mounting is also possible with turret base models using press-on retaining clips (Catalog No. L97) on turrets.

TERMINAL STYLE:

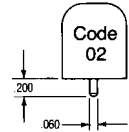
Solder Tail

CATALOG NUMBER CODE: 01. For applications requiring a wrapped solder connection.



Printed Circuit Pin

CATALOG NUMBER CODE: 02. Designed specifically for mounting on .063" thick circuit board. Special, readily solderable plating permits good fillet development in automated soldering processes.



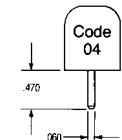
Non-Feed-Through

CATALOG NUMBER CODE: 03. With closed base option only.



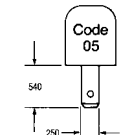
Extended Printed Circuit Pin

CATALOG NUMBER CODE: 04. Useful where extra length is needed, as in thicker printed circuit boards or single-wrap connections.



Quick Connect

CATALOG NUMBER CODE: 05. .250 in. wide x .032" thick blades accept .250" female quick connects.



For complete product information, order Catalog 1308389



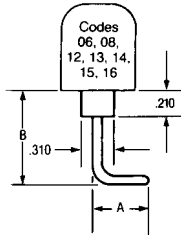
0.4375" Pitch, Series SSB7, Options

MOUNTING POSITION:

Right-Angle

CATALOG NUMBER CODES: 06, 08, 12, 13, 14, 15, 16.

Seven variations of right-angle contacts are available. Designed for circuit board and panel applications, this option saves space when printed circuit boards are stacked closely together. It provides access to top connections in restricted spaces. Mount with (Catalog No. L92).



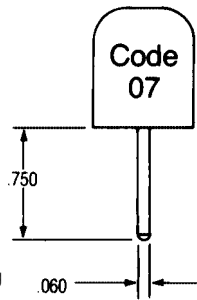
CATALOG NO. CODE	A IN.	B IN.
06*	0.46	0.11
08*	0.75	0.11
12	0.21	0.65
13	0.36	0.50
14*	0.41	0.16
15	0.51	0.35
16*	0.32	0.25

*Not available with turret base

Wire Wrap

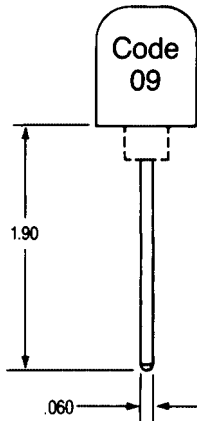
CATALOG NUMBER CODE: 07.

Longer than extended circuit board terminals. Post alignment is compatible with tolerances required for automatic wire wrapping equipment. Post dimensions are compatible with standard wire wrapping bits.



Extra Long Terminal

CATALOG NUMBER CODE: 09.



TOP HARDWARE OPTIONS:

Binding Head Screws

In most applications, binding head screws will provide excellent wire retention because of exclusive wire locking tabs. These binding head screws are available in four styles:



CATALOG NUMBER CODE:

- 01 *Bright Zinc and Chromate Plated Steel
- 02 Stainless Steel
- 03 *Nickel Plated Brass

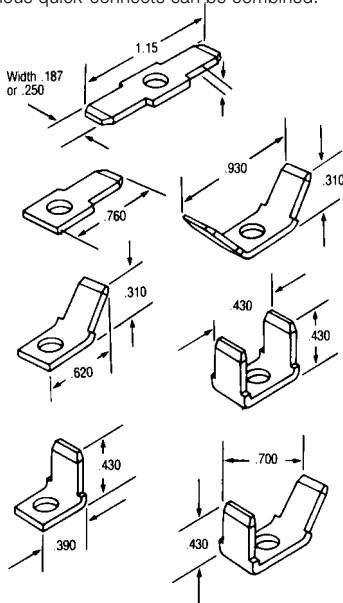
*Phil-slot design

Captive Clamp

CATALOG NUMBER CODES: 02 & 09. For applications requiring extra security, captive clamps under the screw heads augment the locking tabs on each contact. Screws have a unique Phil-slot design accepting either Phillips-head or straight screwdriver. Code 02 screw is Bright Zinc and Chromate plated steel. Code 09 screw is Nickel plated Brass.

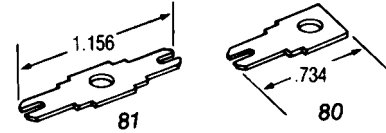


CATALOG NUMBER CODES: 20 through 56. A complete selection of .187" and .250" quick-connect blades are available for connecting wire terminated with female quick connects. Single- and double-sided types in flat, 45° and 90° angle bends can be supplied. Material is brass with tin plating. All blades supplied with 01 screws. Various quick-connects can be combined.



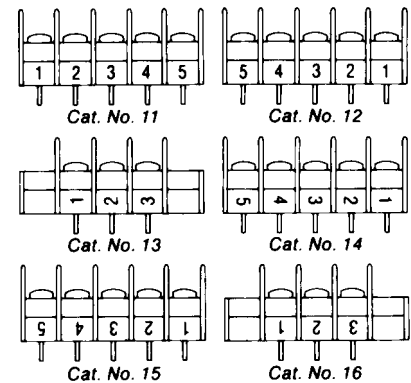
Solder Tabs

CATALOG NUMBER CODES: 80 & 81. Single- and double-sided, slotted solder tabs are available for making wrapped solder connections on the top side of SSBs.



CIRCUIT IDENTIFICATION OPTIONS:

CATALOG NUMBER CODES: 11 through 16. SSB blocks may be ordered with circuit identification numbers in white on the molding in six different variations. Custom markings are available on special order.



MOLDING MATERIAL OPTIONS:

The standard SSB molding material is UL94V-2 polypropylene. Consult Technical Support Center for other materials available on special order.

MOLDING COLOR OPTIONS:

SSB blocks are stocked in black. Consult Technical Support Center for availability of other colors.

For complete product information, order Catalog 1308389

0.4375" Pitch, Series SSB7, Accessories

DESCRIPTION

STEEL BINDING HEAD SCREWS,

Phil-slot Bright zinc and chromate plated

CAPTIVE CLAMP SCREW

L02 is steel, bright zinc and chromate plated
L09 is brass, nickel plated

PRESS-ON STAINLESS STEEL RETAINING CLIPS

for mounting turret base SSBs

MOUNTING INSERTS

for mounting SSBs with blank end sections,
nylon. Package of 100 (use No. 6 screw)

ANGLE BRACKET

for mounting SSBs with right-angle
terminals, copper alloy, tin plated

CATALOG NUMBER

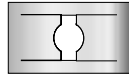


L01



L02

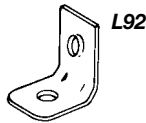
L09



1437661-7



L91



L92

Ordering Information

QUICK CONNECT BLADES DESCRIPTION		.250 WIDE	.187 WIDE
		X .032 THICK	X .020 THICK
Flat, Single-Sided	—	QC20-BU	QC40-BU
45°, Two-Sided	✓	QC21	QC41
90°, Two-Sided	U	QC22	QC42
Flat, Single-Sided	—	QC23	QC43
45°, Single-Sided	✓	QC24	QC44
90°, Single-Sided	U	QC25	QC45
90° -45°, Two-Sided	✓	QC36	QC56

SOLDER TABS:

For making top-side solder connections

Single-Sided

Double-Sided



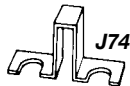
ST80

ST81

JUMPERS:

Spade Type (Brass, Tin plated)

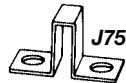
Two-Circuit, Over the Barrier. Fits SSB6 & SSB7



J74

Ring Tongue

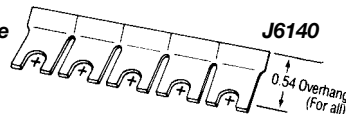
Two-Circuit, Over the Barrier. Fits SSB6 & SSB7



J75

SB6 Around the Barrier* Spade

40 circuits; snap apart
to desired lengths



J6140

Note: Before ordering, see Cross Reference
in Section 15 for equivalent Tyco Electronics
Part Number.

DESCRIPTION

JUMPERS: (Continued) SSB7 Around the Barrier* Spade

40 circuits; snap apart
to desired lengths

SSB7 Around the Barrier* Flanged Spade

40 circuits; snap apart
to desired lengths

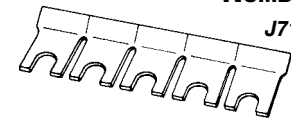
SSB7 Around the Barrier* Ring Tongue

40 circuits; snap apart
to desired lengths

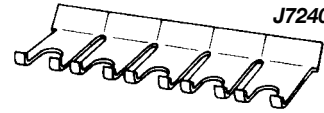
*NOTE: Jumper extends 0.54 horizontally from center of screw.

CATALOG NUMBER

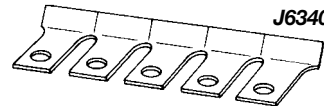
J7140



J7240



J6340



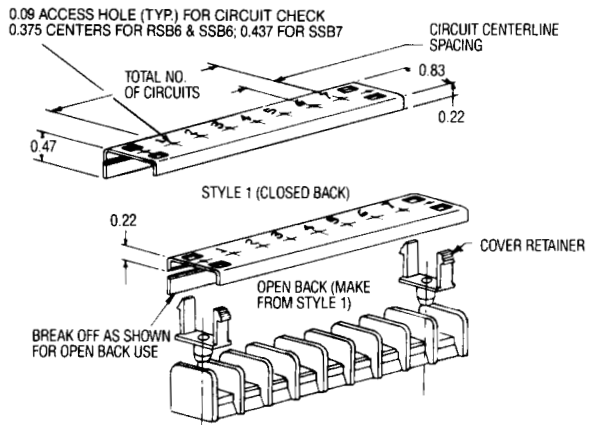
RELATED PRODUCT DATA

WIRE PINS AND FERRULES:

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

SAFETY COVERS (For RSB & SSB Barrier Strips)

Dead front protection designed to help prevent accidental contact with energized circuits. Access holes for test probes are provided over each terminal. Nylon clips are included with each cover. Covers meet UL94V-0, with 50°C temperature index. Blank circuit identification is optional.



ORDERING INFORMATION

7 C 1 N 07

Centerline
Dimensions
6=6/16 (3/8")
7=7/16

Style
1=Closed
Back

Cover Material
C=Yellow PVC

Number of
Circuits
(Use Two Digits)
Max. for SSB6=30
Max. SSB7=25
Max. RSB6=34

Circuit Identification
N=No Markings
F=Forward Sequence
(as shown)
R=Reverse Sequence

For complete product information, order Catalog 1308389

0.325" Pitch, Series USB Socket (For Series RSB3 and SSB3)

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polyamide, Type 6/6
FLAMMABILITY: UL94V-2
COLOR: Black

TERMINAL

TERMINALS CONTACT: Copper alloy, bright tin plating
PIN: Copper alloy, bright tin plating

MECHANICAL

PITCH (TERMINAL SPACING): 0.325"
RECOMMENDED PCB HOLE DIA.: .055"
PULLOUT FORCE: 5-7 lbs.

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 300V
DIELECTRIC WITHSTAND: 3500V

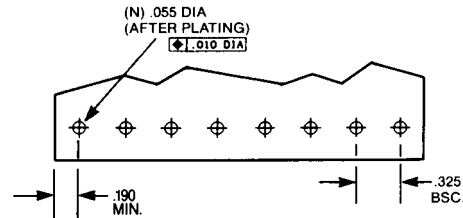
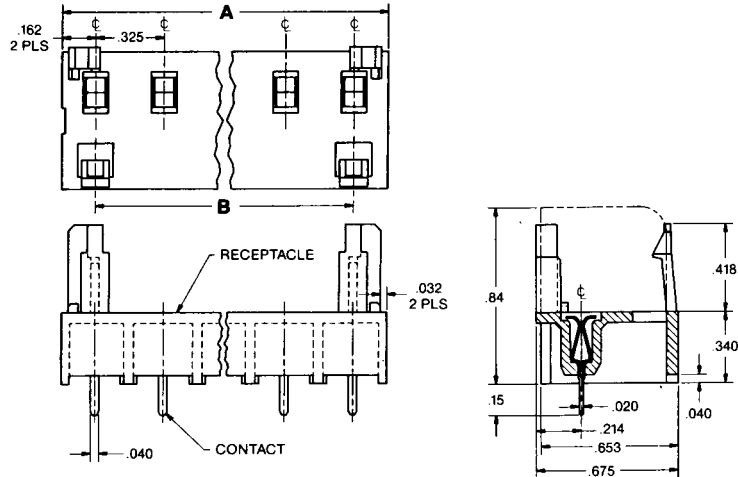
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE: -60°C to +105°C
(-76°F to +221°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



USB3B08S & SSB3FP080202



Recommended PCB Hole Pattern

Ordering Information and Mating Table

CATALOG NUMBER	NO. OF CIRCUITS	DIMENSION A	DIMENSION B	MATING STRIP CATALOG NUMBER	MATING STRIP CATALOG NUMBER
USB3B02S	2	.650	.325	SSB3FP0202...	RSB3VP0212...
USB3B03S	3	.975	.650	SSB3FP0302...	RSB3VP0312...
USB3B04S	4	1.300	.975	SSB3FP0402...	RSB3VP0412...
USB3B05S	5	1.625	1.300	SSB3FP0502...	RSB3VP0512...
USB3B06S	6	1.950	1.625	SSB3FP0602...	RSB3VP0612...
USB3B07S	7	2.275	1.950	SSB3FP0702...	RSB3VP0712...
USB3B08S	8	2.600	2.275	SSB3FP0802...	RSB3VP0812...
USB3B09S	9	2.925	2.600	SSB3FP0902...	RSB3VP0912...
USB3B10S	10	3.250	2.925	SSB3FP1002...	RSB3VP1012...
USB3B11S	11	3.575	3.250	SSB3FP1102...	RSB3VP1112...
USB3B12S	12	3.900	3.575	SSB3FP1202...	RSB3VP1212...
USB3B13S	13	4.225	3.900	SSB3FP1302...	RSB3VP1312...
USB3B14S	14	4.550	4.225	SSB3FP1402...	RSB3VP1412...

NOTE: Mating SSB3 Barrier Strips require printed circuit pin terminal style "02."
Mating RSB3 Barrier Strips require printed circuit pin terminal style "12."

For complete product information, order Catalog 1308389



8
Terminal Blocks

0.375" Pitch, Series RSB6B Socket (For Series RSB6 Tri-Barrier)

PHYSICAL PROPERTIES

HOUSING MATERIAL: Polyamide
FLAMMABILITY: UL94V-2
COLOR: Black

TERMINAL

TERMINALS: Copper alloy, bright tin plating
PIN: Copper alloy, bright tin plating

MECHANICAL

PITCH (TERMINAL SPACING): .375 in
RECOMMENDED PCB HOLE DIA.: .062"

ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 300V
DIELECTRIC WITHSTAND: 3500V

ENVIRONMENTAL PROPERTIES

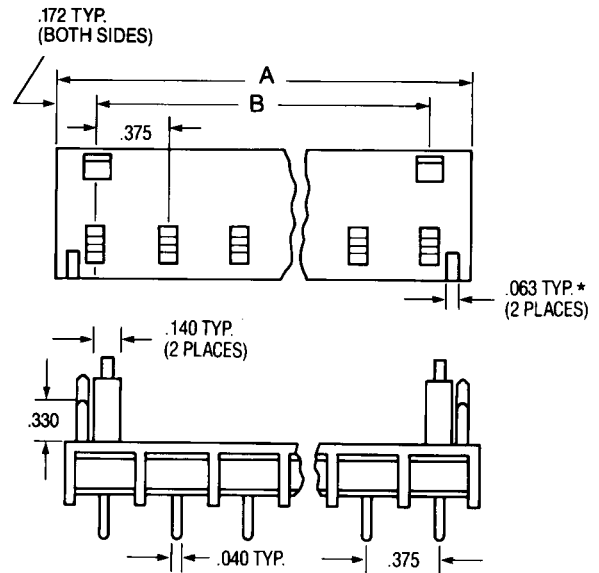
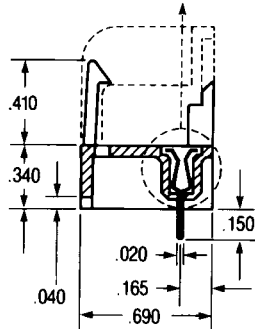
OPERATING TEMPERATURE RANGE: -60°C to +105°C
(-76°F to +221°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



RSB6B06S

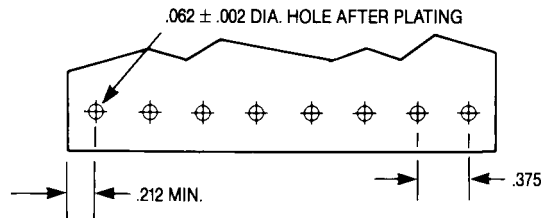
DETENT ACTION PROVIDED BY RSB MALE TERMINAL



Ordering Information

CATALOG NUMBER	NO. OF CIRCUITS	A IN.	B IN.
RSB6B02S	02	.720	.375
RSB6B03S	03	1.094	.750
RSB6B04S	04	1.469	1.125
RSB6B05S	05	1.844	1.500
RSB6B06S	06	2.219	1.875
RSB6B07S	07	2.594	2.250
RSB6B08S	08	2.869	2.625
RSB6B09S	09	3.244	3.000
RSB6B10S	10	3.720	3.375

NOTE: RSB Tri-Barrier Blocks should be ordered with Number 12 Terminal style (printed circuit pin, V mounting) when used in combination with this plug-in socket.



Recommended PCB Hole Pattern

For complete product information, order Catalog 1308389



Barrier Strip Covers

For Series BC6, #3, JC6

MOUNTING

TC 3: Aluminum mounting bushings and screws
TC 2, 9: Plastic fasteners attached to block with thru-bolts and nuts (not supplied)

CENTER SPACING

TC 3: 0.250 inch
TC 2, 9: 0.375 inch
MATERIAL: Clear, rigid PVC, UL94V-0

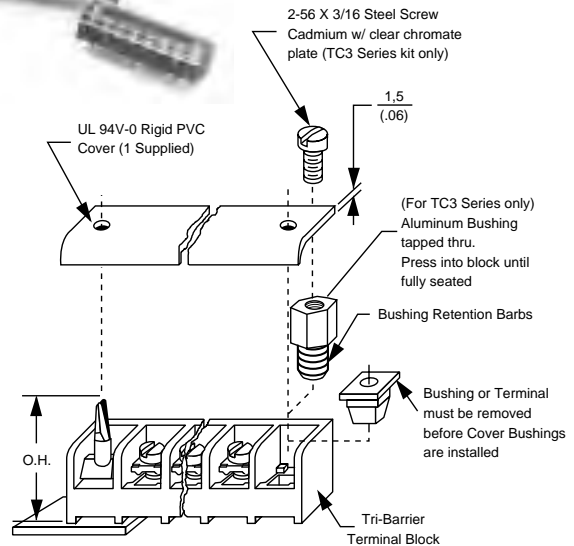
For Series #4, #6, #8

PHYSICAL PROPERTIES

CENTERLINE SPACING: 8,2/(.325) - 9,5/(.375)
11,1/(.4375)
POSITIONS: 2 thru 16, molded to length
MATERIAL: Black, thermoplastic, UL94V-0
SHOCK AND VIBRATION: to MIL.STD. 1344 method 2005.1 Condition III.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

For Series BC6, #3, JC6



ORDERING INFORMATION

TC 4 - 06 - PFH - CL

A **B** **C** **D** **E**

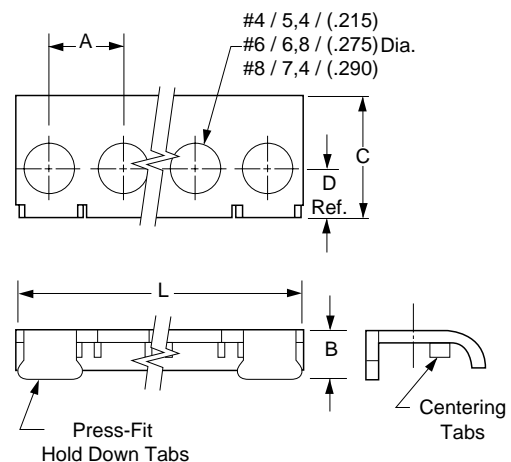
- A Series**
TC = Cover
- B Center Spacing**
2 = BC6 Series
3 = #3 Series
4 = #4 Series
6 = #6 Series
8 = #8 Series
9 = JC6 Series
- C No. of Circuits**
(Not positions)
02 through 24
for Series BC6, JC6
02 through 30
for Series #3
02 through 16
for Series #4, #6, #8

- D Access Holes**
PF* = Press Fit without holes
PFH* = Press Fit with holes
AG = Adder for Series BC6, #3, JC6
- E Color** (add for Series #4, #6, #8 only)
(blank) = Black (Series BC6, #3, JC6 are clear)
CL = Translucent (Available only for Series #4, #6, #8)

Overall Height (O.H.)		
TC2	TC3	TC9
0.970"	0.650"	0.970"



For Series #4, #6, #8



* ADD FOR SERIES #4, #6, #8

CATALOG #	A	B	C	D REF.	L
TC4	8,2 (.325)	6,0 (.238)	13,5 (.531)	5,7 (.225)	A* (N-1)+7,9/(.312) #4
TC6	9,5 (.375)	6,3 (.250)	14,3 (.562)	6,4 (.253)	A* (N-1)+(,4/(.370) #6
TC8	11,1 (.4375)	8,1 (.314)	21,5 (.846)	11,1 (.4375)	A* (N-1)+10,9/(.430) #8

For complete product information, order Catalog 1308389



0.200" Pitch PCB1A Series

PHYSICAL PROPERTIES

Housing

HOUSING MATERIAL: Polyester
FLAMMABILITY: UL94V-0
COLOR: White

Terminal

TUBULAR CONTACT: Brass
PC CONTACT: Phosphor Bronze with Bright Tin or Gold over Nickel plating
SCREW: Steel with Zinc + Chromate plating
CLAMP: Brass

Mechanical

PITCH (TERMINAL SPACING): .200"
SCREW SIZE: 6-32
MOUNTING SCREW SIZE: #4 or #6
WIRE STRIP LENGTH: .25"
RECOMMENDED TIGHTENING TORQUE: 5-8 in.-lbs.
RECOMMENDED SCREWDRIVERS: Xcelite R184, Sears Craftsman 41429, Stanley 1016
BOARD INSERTION FORCE (TYP.) PER CKT.: 5.6 oz. (160g)
BOARD SEPARATION FORCE (TYP.) PER CKT.: 1.8 oz. (50g)
DURABILITY: Passes MIL-C-21097: 500 cycles

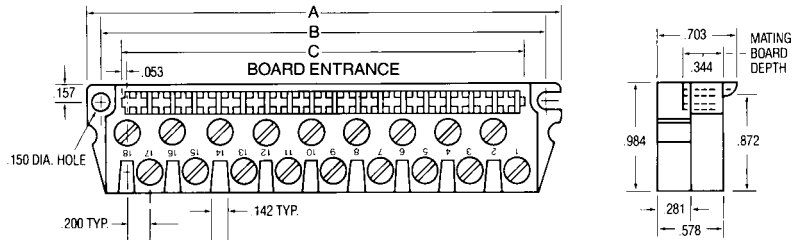
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 250V
WIRE RANGE: #12 Stranded Only
DIELECTRIC WITHSTAND: 2500V
INSULATION RESISTANCE: 10¹¹ ohms
CONTACT RESISTANCE: 6 milliohms

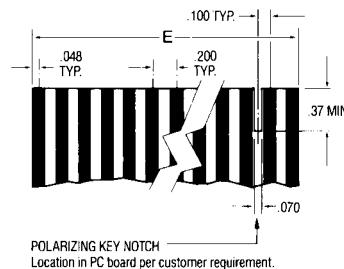
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE:
-65°C to +140°C
(-85°F to +284°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Recommended PC Board Layout



Ordering Information

CATALOG #*	NO. OF CIRCUITS	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C	DIMENSIONS E
PCB1A12S	12	2.920	2.670	2.310	2.295
PCB1A18S	18	4.120	3.870	3.510	3.495
PCB1A24S	24	5.320	5.070	4.710	4.695
PCB1A30S	30	6.520	6.270	5.910	5.895
PCB1A36S	36	7.720	7.470	7.110	7.095

*NOTE: For optional Gold-over-Nickel plating on contacts (instead of standard Bright Tin) change the letter "S" of the Catalog Number to "A".



For complete product information, order Catalog 1308389

0.156" Pitch PCB1B Series

PHYSICAL PROPERTIES

Housing

HOUSING MATERIAL: Polyester
FLAMMABILITY: UL94V-0
COLOR: Black

Terminal

TUBULAR CONTACT: Brass
PC CONTACT: Phosphor Bronze with Bright Tin or Gold over Nickel plating
SCREW: Steel with Zinc + Chromate plating
CLAMP: Brass

Mechanical

PITCH (TERMINAL SPACING): .156"
SCREW SIZE: 6-32
MOUNTING SCREW SIZE: #4 or #6
WIRE RANGE: #12 Stranded Only
WIRE STRIP LENGTH: .25"
RECOMMENDED TIGHTENING TORQUE: 5-8 in-lbs.
RECOMMENDED SCREWDRIVERS: Xcelite R184, Sears Craftsman 41429, Stanley 1016
BOARD INSERTION FORCE (TYP.) PER CKT.: 5.6 oz. (160g)
BOARD SEPARATION FORCE (TYP.) PER CKT.: 1.8 oz. (50g)
DURABILITY: Passes MIL-C-21097: 500 cycles

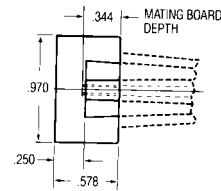
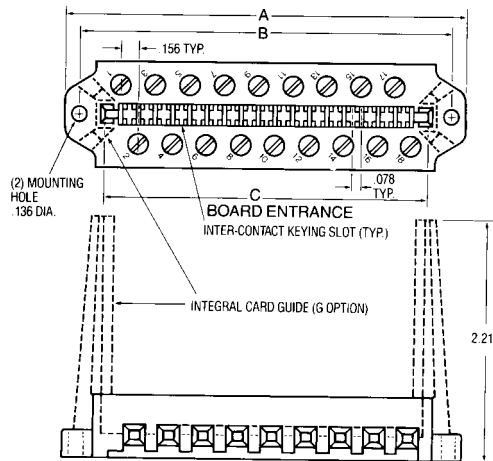
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 250V
WIRE RANGE: #12 Stranded Only
DIELECTRIC WITHSTAND: 3000V
INSULATION RESISTANCE: 10¹¹ ohms
CONTACT RESISTANCE: 6 milliohms

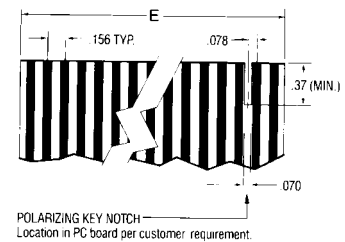
ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE:
-65°C to +140°C
(-85°F to +284°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Recommended PC Board Layout



Ordering Information

CATALOG #	NO. OF CIRCUITS	A	B	C	E
PCB1B06S	06	1.786	1.536	1.100	1.085
PCB1B08S	08	2.098	1.848	1.412	1.397
PCB1B10S	10	2.410	2.160	1.724	1.709
PCB1B12S	12	2.722	2.472	2.036	2.021
PCB1B15S	15	3.190	2.940	2.504	2.489
PCB1B16S	16	3.346	3.096	2.660	2.645
PCB1B18S	18	3.658	3.408	2.972	2.957
PCB1B22S	22	4.282	4.032	3.596	3.581
PCB1B24S	24	4.600	4.344	3.908	3.893
PCB1B28S	28	5.218	4.968	4.544	4.829
PCB1B30S	30	5.530	5.280	4.844	4.829
PCB1B32S	32	5.842	5.592	5.156	5.141
PCB1B36S	36	6.466	6.216	5.780	5.765
PCB1B43S	43	7.558	7.308	6.872	6.857

***NOTE:** For optional Gold-over-Nickel plating on contacts (instead of standard bright tin), change the letter "S" of the Catalog Number to "A".
For optional integral card guides, add the letter "G" to the end of the catalog number.

For complete product information, order Catalog 1308389



0.156" Pitch PCB2B Series

PHYSICAL PROPERTIES

Housing

HOUSING MATERIAL: Polyester
FLAMMABILITY: UL94V-0
COLOR: Black

Terminal

TUBULAR CONTACT: Brass
PC CONTACT: Phosphor Bronze with Bright Tin or
Gold over Nickel plating
SCREW: Steel with Zinc + Chromate plating
CLAMP: Brass

Mechanical

PITCH (TERMINAL SPACING): .156"
SCREW SIZE: 6-32
MOUNTING SCREW SIZE: #4 or #6
WIRE STRIP LENGTH: .25"
RECOMMENDED TIGHTENING TORQUE: 5-8 in.-lbs.
RECOMMENDED SCREWDRIVERS: Xcelite R184,
Sears Craftsman 41429, Stanley 1016
BOARD INSERTION FORCE (TYP.) PER CKT.: 5.6 oz.
(160g)
BOARD SEPARATION FORCE (TYP.) PER CKT.: 1.8 oz.
(50g)
DURABILITY: Passes MIL-C-21097: 500 cycles

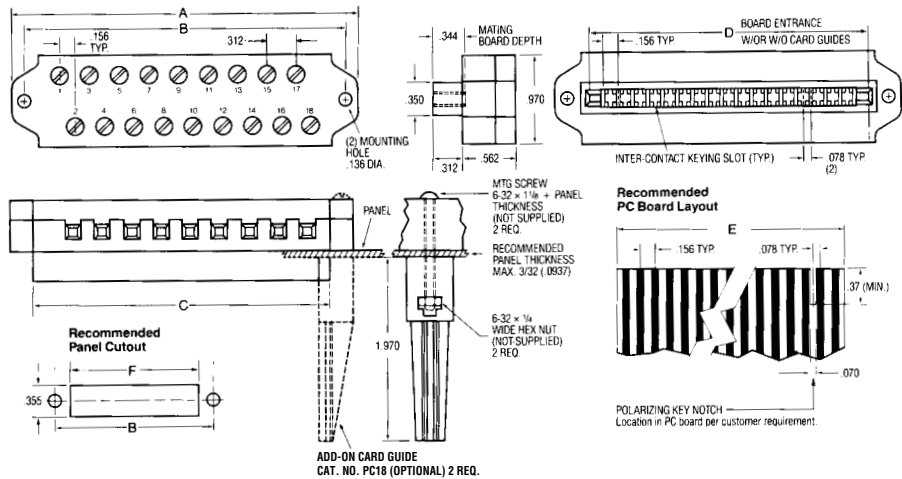
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 250V
WIRE RANGE: #12 Stranded Only
DIELECTRIC WITHSTAND: 3000V
INSULATION RESISTANCE: 10¹¹ ohms
CONTACT RESISTANCE: 6 milliohms

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE:
-65°C to +140°C
(-85°F to +284°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

CATALOG #*	NO. OF CIRCUITS	A	B	C	D	E	F(MIN.)
PCB2B06S	06	1.786	1.536	1.264	1.100	1.085	1.284
PCB2B08S	08	2.098	1.848	1.576	1.412	1.397	1.596
PCB2B09S	09	2.254	2.004	1.732	1.568	1.553	1.752
PCB2B10S	10	2.410	2.160	1.888	1.724	1.709	1.908
PCB2B12S	12	2.722	2.472	2.200	2.036	2.021	2.220
PCB2B15S	15	3.190	2.940	2.668	2.504	2.489	2.688
PCB2B16S	16	3.346	3.096	2.824	2.660	2.645	2.844
PCB2B18S	18	3.658	3.408	3.136	2.972	2.957	3.156
PCB2B22S	22	4.282	4.032	3.760	3.596	3.581	3.780
PCB2B24S	24	4.594	4.344	4.072	3.908	3.893	4.092
PCB2B28S	28	5.218	4.968	4.696	4.532	4.517	4.716
PCB2B30S	30	5.530	5.280	5.008	4.844	4.829	5.028
PCB2B32S	32	5.842	5.592	5.320	5.156	5.141	5.340
PCB2B36S	36	6.466	6.216	5.944	5.780	5.765	5.964
PCB2B43S	43	7.558	7.308	7.036	6.872	6.857	7.056

*NOTE: For optional Gold-over-Nickel plating on contacts (instead of standard bright tin), change the letter "S" of the Catalog Number to "A".



For complete product information, order Catalog 1308389

0.200" Pitch PCB3A Series

PHYSICAL PROPERTIES

Housing

HOUSING MATERIAL: Polyester
FLAMMABILITY: UL94V-0
COLOR: Black

Terminal

TUBULAR CONTACT: Brass
PC CONTACT: Phosphor Bronze with Bright Tin or Gold over Nickel plating
SCREW: Steel with Zinc + Chromate plating
CLAMP: Brass

Mechanical

PITCH (TERMINAL SPACING): .200"
SCREW SIZE: 6-32
MOUNTING SCREW SIZE: #6
WIRE STRIP LENGTH: .25"
RECOMMENDED TIGHTENING TORQUE: 5-8 in.-lbs.
RECOMMENDED SCREWDRIVERS: Xcelite R184, Sears Craftsman 41429, Stanley 1016
BOARD INSERTION FORCE (TYP.) PER CKT.: 5.6 oz. (160g)
BOARD SEPARATION FORCE (TYP.) PER CKT.: 1.8 oz. (50g)
DURABILITY: Passes MIL-C-21097: 500 cycles

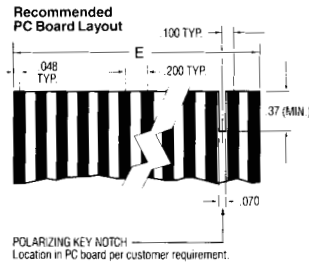
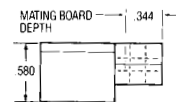
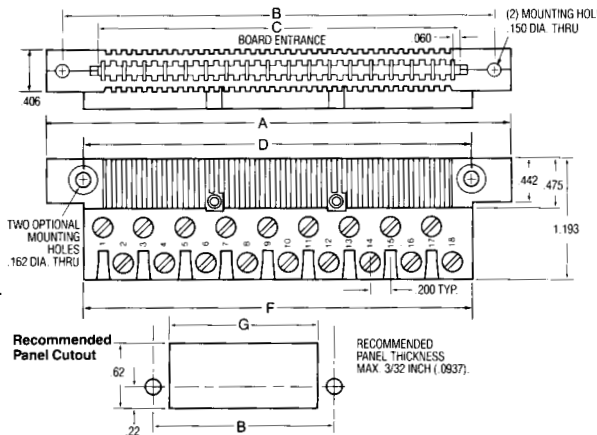
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 10A
OPERATING VOLTAGE: 250V
WIRE RANGE: #12 Stranded Only
DIELECTRIC WITHSTAND: 2500V
INSULATION RESISTANCE: 10¹¹ ohms
CONTACT RESISTANCE: 6 milliohms

ENVIRONMENTAL PROPERTIES

OPERATING TEMPERATURE RANGE:
-65°C to +140°C
(-85°F to +284°F)

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

CATALOG #	NO. OF CIRCUITS	A	B	C	D&F	E	G
PCB3A06S	06	2.150	1.800	1.120	1.400	1.105	1.43
PCB3A08S	08	2.550	2.200	1.520	1.800	1.505	1.83
PCB3A10S	10	2.950	2.600	1.920	2.200	1.905	2.23
PCB3A12S	12	3.350	3.000	2.320	2.600	2.305	2.63
PCB3A15S	15	3.950	3.600	2.920	3.200	2.905	3.23
PCB3A16S	16	4.150	3.800	3.120	3.400	3.105	3.43
PCB3A18S	18	4.550	4.200	3.520	3.800	3.505	3.83
PCB3A20S	20	4.950	4.600	3.920	4.200	3.905	4.23
PCB3A22S	22	5.350	5.000	4.320	4.600	4.305	4.63
PCB3A24S	24	5.750	5.400	4.720	5.000	4.705	5.03
PCB3A30S	30	6.950	6.600	5.920	6.200	5.905	6.23
PCB3A32S	32	7.350	7.000	6.320	6.600	6.305	6.63
PCB3A34S	34	7.750	7.400	6.720	7.000	6.705	7.03
PCB3A36S	36	8.150	7.800	7.120	7.400	7.105	7.43
PCB3A44S	44	9.750	9.400	8.720	9.000	8.705	9.03

*NOTE: For optional Gold-over-Nickel plating on contacts (instead of standard bright tin), change the letter "S" of the Catalog Number to "A".

For complete product information, order Catalog 1308389



0.150" Pitch Face Connector

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Glass filled polyester
FLAMMABILITY: UL94V-0
COLOR: black

Terminal

CONTACT: Copper alloy, selective gold over nickel
SCREW: #3-48 steel, zinc plating with clear chromate coating
CAM: steel alloy, zinc plating with clear chromate coating

Mechanical

PITCH (TERMINAL SPACING): .150"
SCREWS: #3-48 steel, zinc plating with clear chromate coating
WIRE RANGE: 14-22 AWG (solid or stranded)
RECOMMENDED TIGHTENING TORQUE: 5 in-lbs.

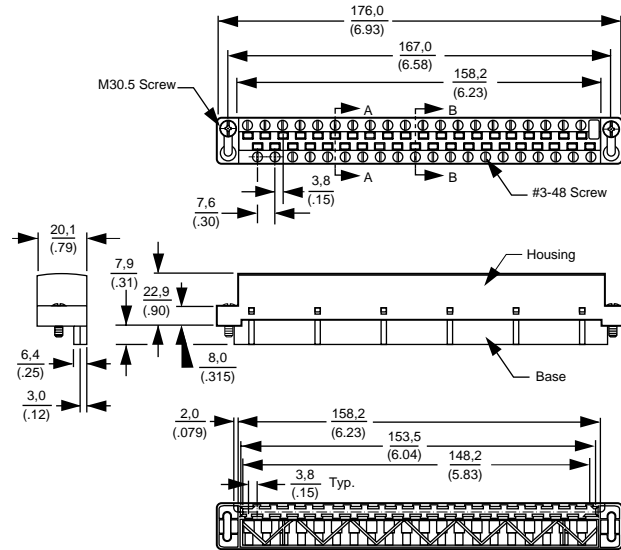
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 15A
OPERATING VOLTAGE: 300V
DIELECTRIC WITHSTAND: Tested to 1600V

ENVIRONMENTAL PROPERTIES

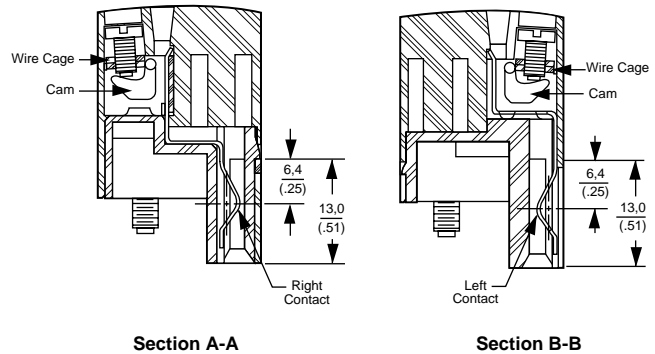
MAX. OPERATING TEMPERATURE: 130°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

CATALOG #	DESCRIPTION
FACE-40	40 circuit connector



For complete product information, order Catalog 1308389



D-Sub Connector

PHYSICAL PROPERTIES

Connectors:

HOUSING MATERIAL: Thermoplastic polyester.
FLAMMABILITY: UL94V-0
TERMINALS: Copper alloy, selective gold over nickel
SHELL MATERIAL: Bright tin plated, female screw locks installed

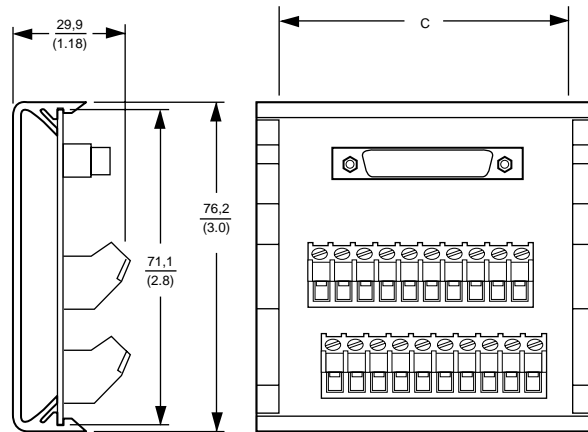
Terminal Block (2MA Series):

HOUSING MATERIAL: Thermoplastic polyester
FLAMMABILITY: UL94V-0
COLOR: Black
MAX. OPERATING TEMPERATURE: 120°C
TERMINALS: Bright acid-tin over copper alloy
SCREWS: #3-48, steel zinc plated
WIRE RANGE: 12-22 AWG
MOUNTING: 2TK2 and 2TK2D Series
 SNAPTRACK Channel

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



2M25DSM



Ordering Information

# OF POSITIONS	CATALOG** NUMBER	C
09	2M09DSM	(1.50) 38,1
15	2M15DSM	(2.10) 53,3
25	2M25DSM	(3.10) 78,7
37	2M37DSM	(4.31) 109,5
50	2M50DSM	(5.93) 150,6

Note: Female D-Sub connector available as 2MXXDSF. Consult Technical Support Center.

For complete product information, order Catalog 1308389

Flat Cable Connector

PHYSICAL PROPERTIES

Connector:

HEADER: Brass, gold over nickel, 94V-0 thermoplastic
CONNECTOR: Copper alloy; gold over nickel 94V-0 thermoplastic
WIRE RANGE: 26-30 AWG solid, 28 AWG stranded
MAXIMUM CURRENT: 1 Ampere

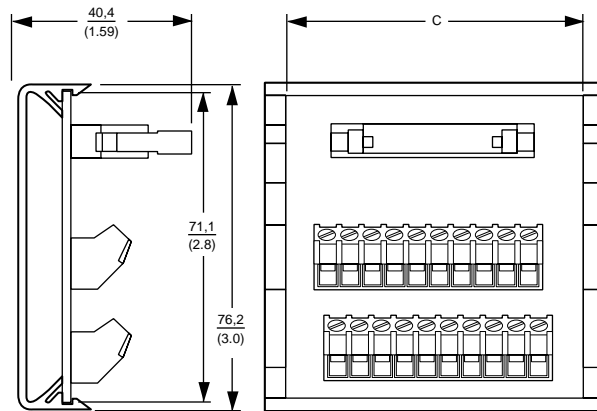
Terminal Block (2MA Series):

HOUSING MATERIAL: Thermoplastic polyester
FLAMMABILITY: UL94V-0
COLOR: Black
MAX. OPERATING TEMPERATURE: 120°C
TERMINALS: Bright acid-tin over copper alloy
SCREWS: #3-48, steel zinc plated
WIRE RANGE: 12-22 AWG
MOUNTING: 2TK2 and 2TK2D Series SNAPTRACK Channel

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



2M34FC



Ordering Information

# OF POSITIONS	CATALOG NUMBER	C
10	2M10FC	38,1 (1.50)
14	2M14FC	53,3 (2.10)
16	2M16FC	58,4 (2.30)
20	2M20FC	68,6 (2.70)
26	2M26FC	81,3 (3.20)
34	2M34FC	104,1(4.10)
40	2M40FC	119,4 (4.70)
50	2M50FC	139,7 (5.50)
60	2M60FC	165,1 (6.50)
64	2M64FC	170,2 (6.70)

Note: Strain relief connector supplied with all assemblies.

For complete product information, order Catalog 1308389

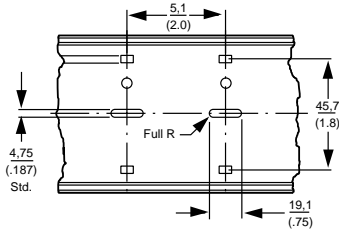
SNAPTRACK Channel

DESCRIPTION

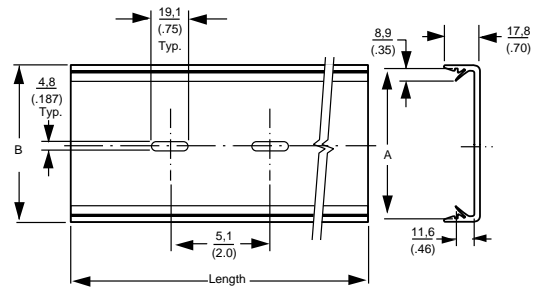
SNAPTRACK Channel can be mounted on standard DIN rails or A Series rail when used with TKAD. (Rails not included.)

SNAPTRACK Channel is a nonconductive, rigid extruded PVC chassis used for mounting socket assemblies and custom circuit boards. Available in a variety of fixed widths, including a split-apart version for wider PCB applications, SNAPTRACK Channel mounts to panels quickly with rivets or screws.

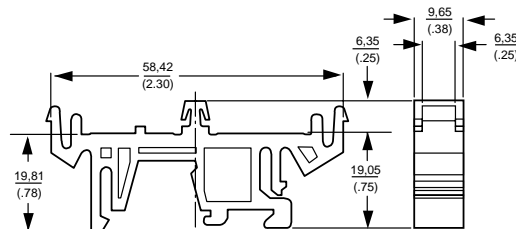
Printed circuit boards are simply snapped-in from the front, then held securely via intergral ribs which also serve as shock absorbers when the PCB is flexed. SNAPTRACK Channel permits easy, convenient PCB removal for field service. Slots on 2-inch centers are provided for fast, easy installation using either plastic rivets or other hardware. Double-faced tape may also be used effectively.



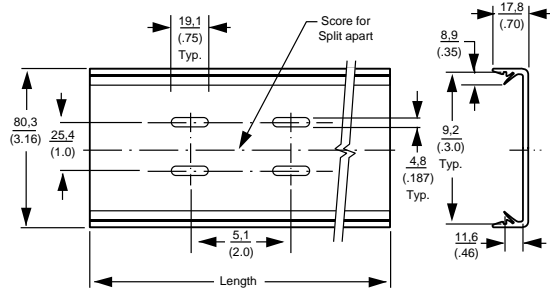
TK2D, 2TK2D, 3TK2D, 6TK2D Panel Mount, or use with TKAD to Mount on DIN Rail and A Series Rail



TK2, 3TK2, 8TK2, 2TK2, 6TK2 Panel Mount



TKAD use with SNAPTRACK Channel to Mount on DIN Rail or A Series Rail



4TK2 Panel Mount

Ordering Information

TRACK	A P.C. BOARD WIDTH	B OVERALL TRACK WIDTH
8TK2-48	55,5 (2.187)	58,4 (2.3)
2TK2-48	69,9 (2.75)	73,7 (2.9)
2TK2D-48	69,9 (2.75)	73,7 (2.9)
TK2-48-AG	76,2 (3.0)	78,7 (3.1)
TK2D-48-AG	76,2 (3.0)	78,7 (3.1)
3TK2-48	82,6 (3.25)	86,4 (3.40)
3TK2D-48	82,6 (3.25)	86,4 (3.40)
6TK2-48	101,6 (4.0)	105,4 (4.15)
6TK2D-48	101,6 (4.0)	105,4 (4.15)
4TK2-48	SPLIT-APART	

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Note: Standard length is 48". Custom cutting available 1" to 48"; consult Technical Support Center.

For complete product information, order Catalog 1308389



LR49571



E58648

Accessories

TRACK RIVETS

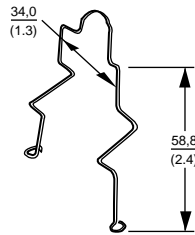
Plastic Track Rivet offers a low cost way to mount SNAPTRACK Channel. Requires 3/16" diameter hole in panels up to .125" thick. Cat. No. TR-1



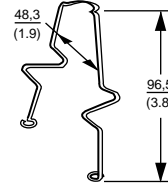
TR-1 Track Rivet

BAILS (TIE DOWNS)

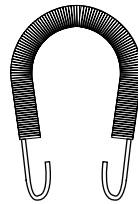
Helps prevent relays and timers from vibrating out of sockets. RB1-AG and TB1, for general purpose relays and timers, feature adjustable height; mount on PC board with plastic mounting rivets (2) furnished. New economy RB5 spring bails fits most general purpose relays and timers. RB4 clip to miniature sockets. Stainless steel wire.



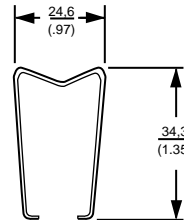
RB1-AG Relay Bail



TB1 Timer Bail



RB5-AG Universal Bail



RB4-AG

For complete product information, order Catalog 1308389



Introduction

DESCRIPTION / APPLICATION

Tyco Electronics Corporation offers the most extensive line of Europa products in five pitches:

- 8mm
- 10mm
- 12mm
- 13.5mm
- 14.5mm

Two connection styles are available. The Wire Protector version supplies a plate to shield the wire from being cut by the screw. The Tunnel connection is the same design, but without the shielding plate – it is ideal for solid wire or where the most economical price is required.



APPLICATIONS INCLUDE:

- Motor Controls
- Power Supplies
- Telecom
- Valve Actuators
- Spa Controllers
- Lighting

DESIGN ADVANTAGES

- Modular design — cut into smaller sections without altering electrical properties or order product molded to length. Mounting holes between every circuit.
- Tubular contacts — connect stripped, unterminated solid or stranded wire directly to each contact — no wire lugs needed.
- High voltage and current ratings — rated up to 600 volts and up to 65 amps depending on model and wire size used.
- Broad Wire Range — use wire from #6 to #26 AWG depending on model selected.

- Wire protectors — all models available with wire protectors to virtually eliminate twisting and breakage of stranded wire during connection.
- High circuit density — five models provide from 21 to 38 circuits per foot.
- “Dead-front” construction — both screws and tubular contacts are recessed in housing for safety and to help prevent short circuits.
- Captive screws — zinc with chromate plated steel screws are captive in tin plated brass contacts. They are supplied “backed-out” and ready to wire.
- Flammability rating of UL94V-2 is standard. High Temperature versions with UL94V-0 are available.

For complete product information, order Catalog 1308389

Europa Selector Chart

Panel Mounted Modular Blocks

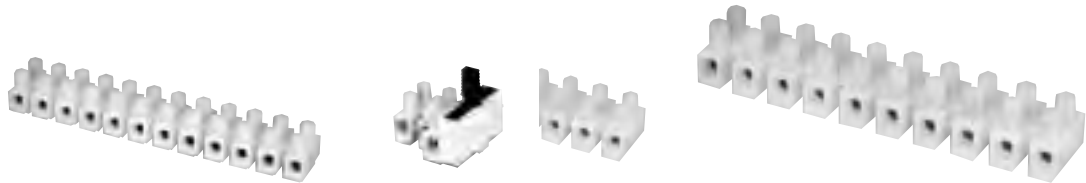


Series	TSB230	TSB230...HT	TSB500	TSB500...HT	TSB500SK	500Si	503Si
Pitch (mm) (in.)	8mm .315"	8mm .315"	10mm .394"	10mm .394"	10mm .394"	10, 12mm .394", .472"	10mm .394"
Circuits	1-12	1-12	1-12	1-12	1-12	1	1-5
Max. Current							
Wire protector	30A	30A	30A	30A	30A	—	10A
Tunnel connection	30A	—	40A	—	30A	10A	10A
Max. Voltage	250V	250V	250V	250V	600V	250V	250V
Wire Range (AWG)							
Wire protector	12-26	12-26	10-24	12-24	12-24	—	12-22
Tunnel connection	12-24	—	10-22	—	10-22	12-22	12-22
Flammability	UL94V-2	UL94V-0	UL94V-2	UL94V-0	UL94V-2	UL94V-2	UL94V-2
Max. Temp.	100° C	150° C	100° C	150° C	100° C	100° C	100° C
Page	8090	8091	8092	8093	8094	8100	8095

For complete product information, order Catalog 1308389

Europa Selector Chart (Continued)

Panel Mounted Modular Blocks



Series	TSB1000	TSB1000...HT	TSB1000...US	1003Si	TSB1500	TSB2000	TSB2000...HT	TSB2000...US
Pitch (mm) (in.)	12mm .472"	12mm .472"	12mm .472"	7/12mm .275-.472"	13.5mm .532"	14.5mm .571"	14.5mm .571"	14.5mm .571"
Circuits	1-12	1-12	1-12	1-5	1-12	1-12	1-12	1-12
Max. Current								
Wire protector	40A	40A	40A	16A	40A	65A	65A	65A
Tunnel connection	40A	—	40A	16A	40A	65A	65A	65A
Max. Voltage	250V	250V	600V	250V	300V	300V	300V	600V
Wire Range (AWG)								
Wire protector	10-22	10-24	10-24	10-24	8-18	6-14	6-14	6-14
Tunnel connection	8-22	—	8-22	8-22	8-16	6-14	6-14	6-14
Flammability	UL94V-2	UL94V-0	UL94V-2	UL94V-2	UL94V-2	UL94V-2	UL94V-0	UL94V-2
Max. Temp.	100° C	150° C	100° C	100° C	100° C	100° C	150° C	100° C
Page	8096	8097	8098	8099	Order Catalog 1308389	Order Catalog 1308389	Order Catalog 1308389	Order Catalog 1308389

For complete product information, order Catalog 1308389

8mm Pitch, 30A with Wire Protector—Series TSB230

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6
FLAMMABILITY: UL94V-2
COLOR: natural (off white)

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 8mm (.315")
WIRE STRIP LENGTH: 5mm (0.20")
MIN. WIRE PULL-OUT FORCE: 75lbs.
RECOMMENDED TIGHTENING TORQUE: 5in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

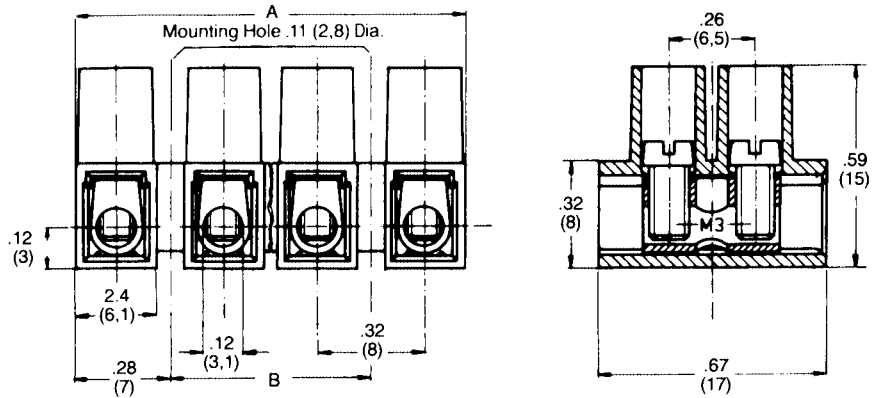
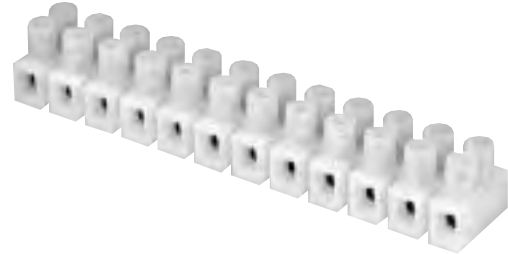
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 30A
OPERATING VOLTAGE: 250V
WIRE RANGE: 12-26 AWG
DIELECTRIC WITHSTAND: 3000V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB230 01DS	6 (.24)	—
2	TSB230 02DS	14 (.55)	—
3	TSB230 03DS	22 (.87)	8 (.31)
4	TSB230 04DS	30 (1.18)	16 (.63)
5	TSB230 05DS	38 (1.50)	24 (.94)
6	TSB230 06DS	46 (1.81)	32 (1.26)
7	TSB230 07DS	54 (2.13)	40 (1.57)
8	TSB230 08DS	62 (2.44)	48 (1.89)
9	TSB230 09DS	70 (2.76)	56 (2.20)
10	TSB230 10DS	78 (3.07)	64 (2.52)
11	TSB230 11DS	86 (3.39)	72 (2.83)
12	TSB230 12DS	94 (3.70)	80 (3.15)



For complete product information, order Catalog 1308389

8mm Pitch, 30A, High Temperature—Series TSB230...HT

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6
FLAMMABILITY: UL94V-0
HOUSING COLOR: **Brown**

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 8mm (.315)
WIRE STRIP LENGTH: 5mm (0.20")
MIN. WIRE PULL-OUT FORCE: 75lbs.
RECOMMENDED TIGHTENING TORQUE: 5in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

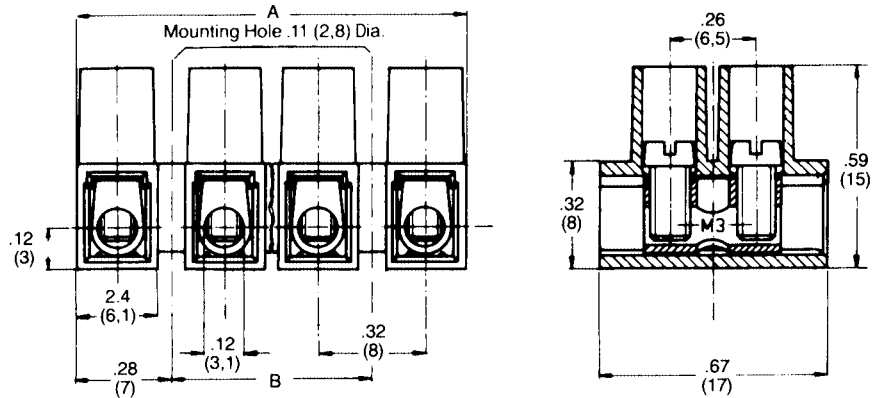
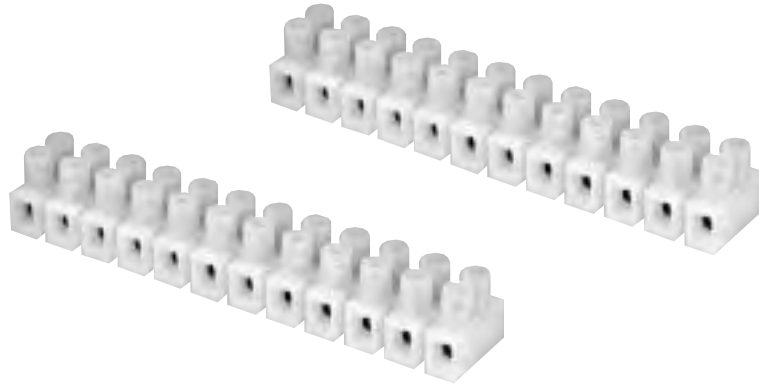
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 30A
OPERATING VOLTAGE: 250V
WIRE RANGE: 12-26 AWG
DIELECTRIC WITHSTAND: 3000V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 150°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB230 01DS HT	6 (.24)	—
2	TSB230 02DS HT	14 (.55)	—
3	TSB230 03DS HT	22 (.87)	8 (.31)
4	TSB230 04DS HT	30 (1.18)	16 (.63)
5	TSB230 05DS HT	38 (1.50)	24 (.94)
6	TSB230 06DS HT	46 (1.81)	32 (1.26)
7	TSB230 07DS HT	54 (2.13)	40 (1.57)
8	TSB230 08DS HT	62 (2.44)	48 (1.89)
9	TSB230 09DS HT	70 (2.76)	56 (2.20)
10	TSB230 10DS HT	78 (3.07)	64 (2.52)
11	TSB230 11DS HT	86 (3.39)	72 (2.83)
12	TSB230 12DS HT	94 (3.70)	80 (3.15)

Note: Minimum order quantities may apply.

For complete product information, order Catalog 1308389



10mm Pitch, 30A With Wire Protector—Series TSB500

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6
FLAMMABILITY: UL94V-2
COLOR: Natural (off white)

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 10mm (.394)
WIRE STRIP LENGTH: 5mm (0.20")
MIN. WIRE PULL-OUT FORCE: 75lbs.
RECOMMENDED TIGHTENING TORQUE: 5 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

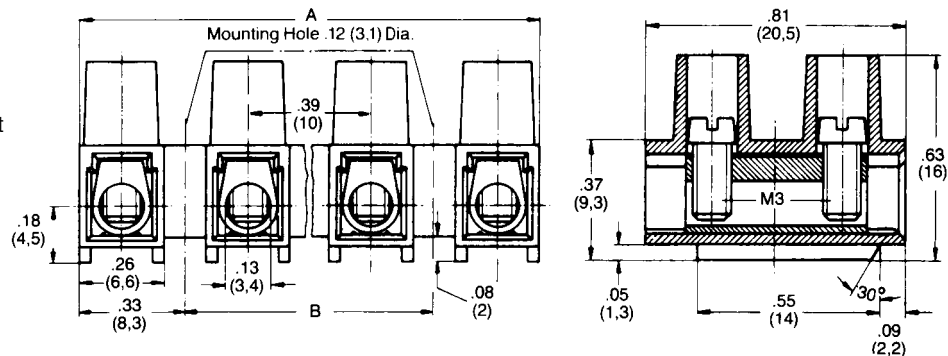
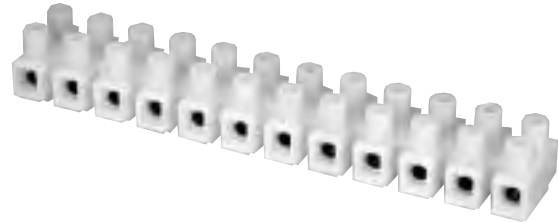
ELECTRICAL PROPERTIES

UL MAXIMUM CURRENT: 30A; 10-22 AWG
CSA MAXIMUM CURRENT: 25A; 12-24 AWG
OPERATING VOLTAGE: 250V
DIELECTRIC WITHSTAND: 3500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB500 0131DS	6,6 (.26)	—
2	TSB500 0231DS	16,6 (.65)	—
3	TSB500 0331DS	26,6 (1.05)	10 (.39)
4	TSB500 0431DS	36,6 (1.44)	20 (.79)
5	TSB500 0531DS	46,6 (1.83)	30 (1.18)
6	TSB500 0631DS	56,6 (2.23)	40 (1.57)
7	TSB500 0731DS	66,6 (2.62)	50 (1.97)
8	TSB500 0831DS	76,6 (3.02)	60 (2.36)
9	TSB500 0931DS	86,6 (3.41)	70 (2.76)
10	TSB500 1031DS	96,6 (3.80)	80 (3.15)
11	TSB500 1131DS	106,6 (4.20)	90 (3.54)
12	TSB500 1231DS	116,6 (4.59)	100 (3.94)

For complete product information, order Catalog 1308389



10mm Pitch, 30A High Temperature—Series TSB500...HT

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6
FLAMMABILITY: UL94V-0
HOUSING COLOR: **Brown**

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 10mm (.394)
WIRE STRIP LENGTH: 5mm (0.20")
MIN. WIRE PULL-OUT FORCE: 75lbs.
RECOMMENDED TIGHTENING TORQUE: 5 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

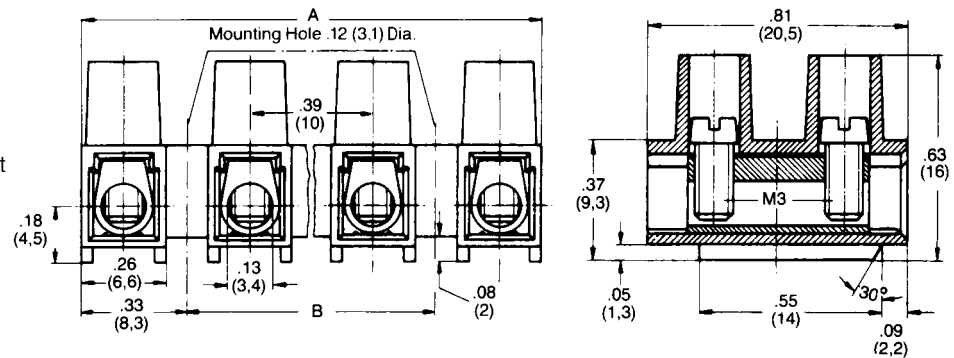
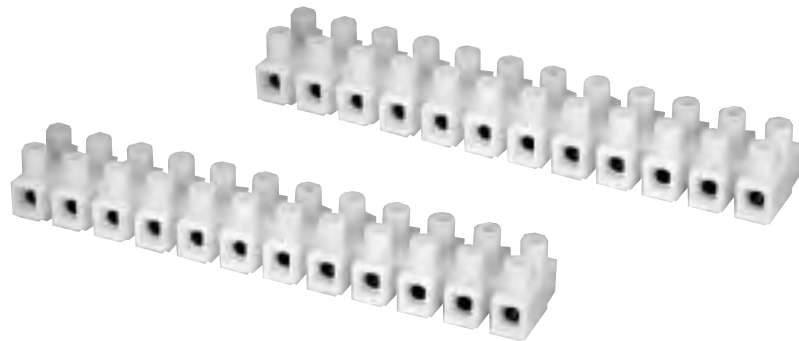
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 30A
OPERATING VOLTAGE: 250V
WIRE RANGE: 12-24 AWG
DIELECTRIC WITHSTAND: 3500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 150°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB500 0131DS HT	6,6 (.26)	—
2	TSB500 0231DS HT	16,6 (.65)	—
3	TSB500 0331DS HT	26,6 (1.05)	10 (.39)
4	TSB500 0431DS HT	36,6 (1.44)	20 (.79)
5	TSB500 0531DS HT	46,6 (1.83)	30 (1.18)
6	TSB500 0631DS HT	56,6 (2.23)	40 (1.57)
7	TSB500 0731DS HT	66,6 (2.62)	50 (1.97)
8	TSB500 0831DS HT	76,6 (3.02)	60 (2.36)
9	TSB500 0931DS HT	86,6 (3.41)	70 (2.76)
10	TSB500 1031DS HT	96,6 (3.80)	80 (3.15)
11	TSB500 1131DS HT	106,6 (4.20)	90 (3.54)
12	TSB500 1231DS HT	116,6 (4.59)	100 (3.94)

Note: Minimum order quantities may apply.

For complete product information, order Catalog 1308389



10mm Pitch, 30A Elongated Plastic—Series TSB500SK

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6
FLAMMABILITY: UL94V-2
COLOR: natural (off white)

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 10mm (.394")
WIRE STRIP LENGTH: 5mm (0.20")
MIN. WIRE PULL-OUT FORCE: 5 lbs.
RECOMMENDED TIGHTENING TORQUE: 5 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

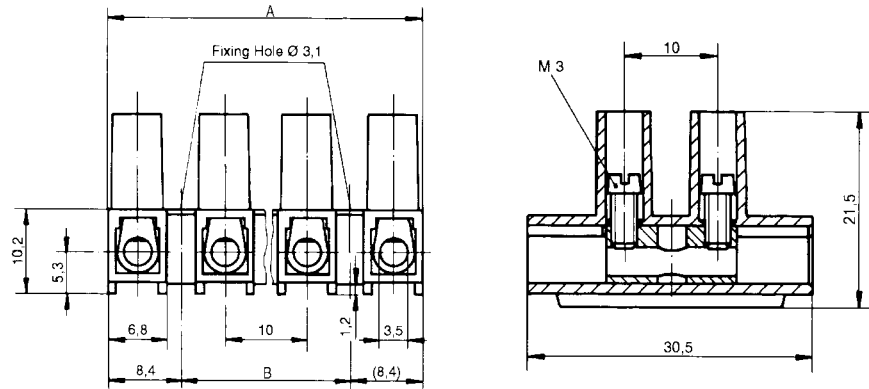
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 30A (UL), 25A (CSA)
OPERATING VOLTAGE: 600V
WIRE RANGE:
Wire Protector: 12-24 AWG
Tunnel Connection: 10-22 AWG
DIELECTRIC WITHSTAND: 3500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER TUNNEL CONNECTION	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB500 SK01	TSB500 SK01MDS	6,6 (.26)	—
2	TSB500 SK02	TSB500 SK02MDS	16,6 (.65)	—
3	TSB500 SK03	TSB500 SK03MDS	26,6 (1.05)	10 (.39)
4	TSB500 SK04	TSB500 SK04MDS	36,6 (1.44)	20 (.79)
5	TSB500 SK05	TSB500 SK05MDS	46,6 (1.83)	30 (1.18)
6	TSB500 SK06	TSB500 SK06MDS	56,6 (2.23)	40 (1.57)
7	TSB500 SK07	TSB500 SK07MDS	66,6 (2.62)	50 (1.97)
8	TSB500 SK08	TSB500 SK08MDS	76,6 (3.02)	60 (2.36)
9	TSB500 SK09	TSB500 SK09MDS	86,6 (3.41)	70 (2.76)
10	TSB500 SK10	TSB500 SK10MDS	96,6 (3.80)	80 (3.15)
11	TSB500 SK11	TSB500 SK11MDS	106,6 (4.20)	90 (3.54)
12	TSB500 SK12	TSB500 SK12MDS	116,6 (4.59)	100 (3.94)

NOTE: Add suffix HT for High Temperature version. Minimum order quantities may apply.
Flammability: UL94V-0. Continuous working temperature: 150°



For complete product information, order Catalog 1308389

10mm Pitch, Fused Terminal Blocks—Series 503Si

DESCRIPTION

Series 503Si & 503Si...DS version of TSB500 Series with an integrated fuse holder for 5 x 20mm fuses. Protection against unintentional touch of live parts to VBG4 and VDE 0106, part 100 and VDE 0470, part 1. Series 503Si...E & 503Si...EDS include a ground connection.



PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6
COLOR: Gray, handle is black

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel
CONTACTS FOR FUSES: Stainless steel spring
TUNNEL CONNECTION: Without wire protector

Mechanical:

PITCH (TERMINAL SPACING): 10mm (.393")
WIRE STRIP LENGTH: 7mm (.276")

ELECTRICAL PROPERTIES

MAXIMUM CURRENT:
To VDE 820: Fuse Holder 10A
To VDE 0100: Terminal Blocks 26A
To VDE 0700/0711: Terminal Blocks 10A

OPERATING VOLTAGE:
Fuse Holder: 250V
Terminal Blocks: 400V

WIRE RANGE:
Wire Protector: 12-22 AWG
Tunnel Connection: 12-22 AWG

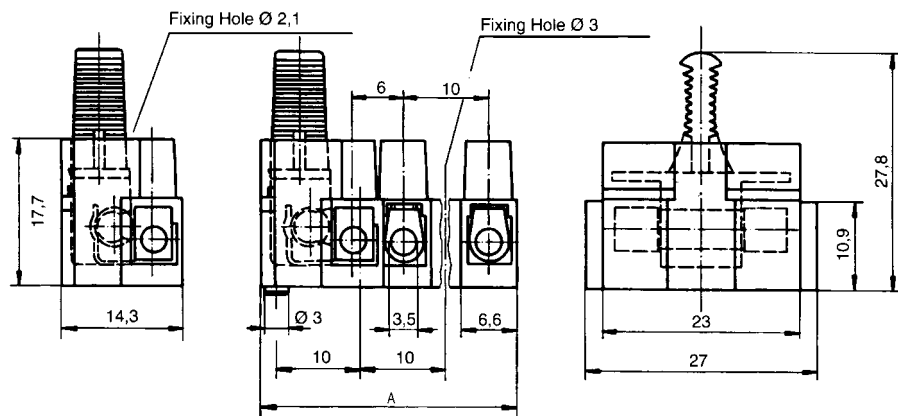
ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

500Si/1 (1 Circuit)

503Si (2-5 Circuits)



Ordering Information

NO. OF POS.	CATALOG # TUNNEL CONNECTION	CATALOG # WIRE PROTECTOR	CATALOG # TUNNEL CONNECTION GROUNDED	CATALOG # WIRE PROTECTOR GROUNDED	A
1	503Si 1	503Si 1DS	—	—	14,3
2	503Si 2	503Si 2DS	—	—	20
3	503Si 3	503Si 3DS	503Si 3E	503Si 3EDS	30
4	503Si 4	503Si 4DS	503Si 4E	503Si 4EDS	40
5	503Si 5	503Si 5DS	503Si 5E	503Si 5EDS	50

For complete product information, order Catalog 1308389

12mm Pitch, 40A with Wire Protector—Series TSB1000

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6
FLAMMABILITY: UL94V-2
COLOR: Natural (off white)

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3.5
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 12mm (.472")
WIRE STRIP LENGTH: 7mm (.28")
MIN. WIRE PULL-OUT FORCE: 125 lbs.
RECOMMENDED TIGHTENING TORQUE: 10 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

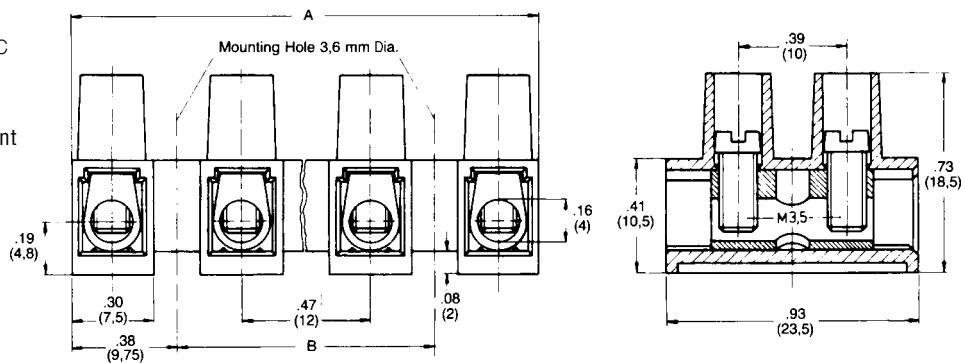
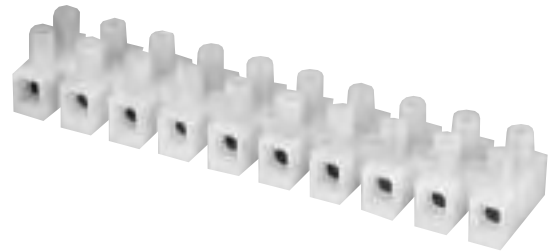
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 40A
OPERATING VOLTAGE: 250V
WIRE RANGE: 10-22 AWG
DIELECTRIC WITHSTAND: 4500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB1000 01DS	7,5 (.30)	—
2	TSB1000 02DS	19,5 (.77)	—
3	TSB1000 03DS	31,5 (1.24)	12 (.47)
4	TSB1000 04DS	43,5 (1.71)	24 (.95)
5	TSB1000 05DS	55,5 (2.19)	36 (1.42)
6	TSB1000 06DS	67,5 (2.66)	48 (1.89)
7	TSB1000 07DS	79,5 (3.13)	60 (2.36)
8	TSB1000 08DS	91,5 (3.60)	72 (2.84)
9	TSB1000 09DS	103,5 (4.07)	84 (3.31)
10	TSB1000 10DS	115,5 (4.55)	96 (3.78)
11	TSB1000 11DS	127,5 (5.02)	108 (4.25)
12	TSB1000 12DS	139,5 (5.49)	120 (4.72)

For complete product information, order Catalog 1308389



12mm Pitch, 40A High Temperature—Series TSB1000...HT

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6
FLAMMABILITY: UL94V-0
HOUSING COLOR: **Brown**

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3.5
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 12mm (.472")
WIRE STRIP LENGTH: 7mm (.28")
MIN. WIRE PULL-OUT FORCE: 125 lbs.
RECOMMENDED TIGHTENING TORQUE: 10 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

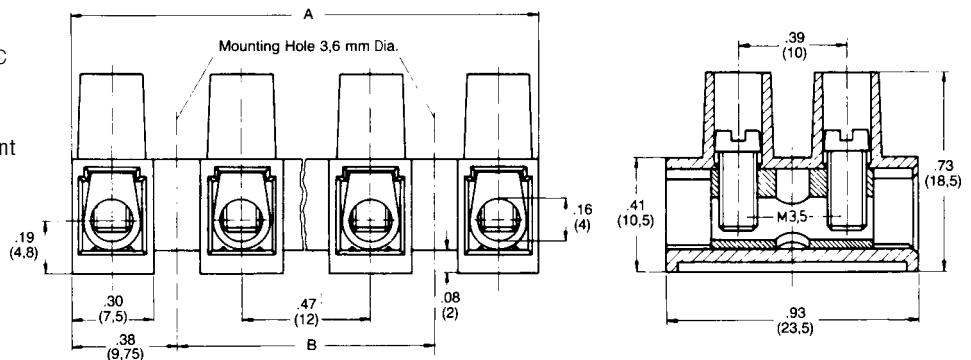
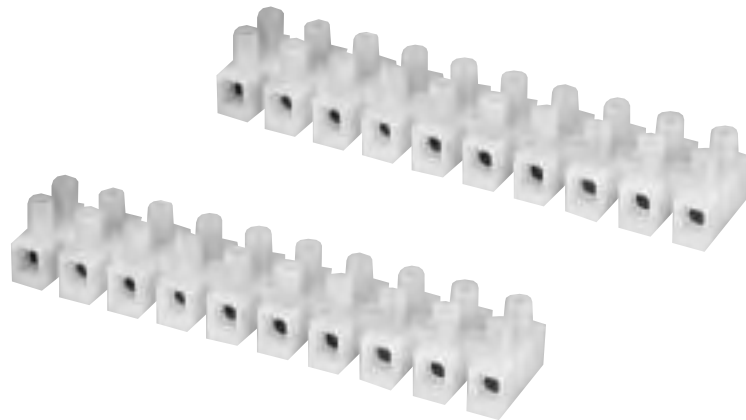
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 40A
OPERATING VOLTAGE: 250V
WIRE RANGE: 10-24 AWG
DIELECTRIC WITHSTAND: 4500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 150°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB1000 01DS HT	7,5 (.30)	—
2	TSB1000 02DS HT	19,5 (.77)	—
3	TSB1000 03DS HT	31,5 (1.24)	12 (.47)
4	TSB1000 04DS HT	43,5 (1.71)	24 (.95)
5	TSB1000 05DS HT	55,5 (2.19)	36 (1.42)
6	TSB1000 06DS HT	67,5 (2.66)	48 (1.89)
7	TSB1000 07DS HT	79,5 (3.13)	60 (2.36)
8	TSB1000 08DS HT	91,5 (3.60)	72 (2.84)
9	TSB1000 09DS HT	103,5 (4.07)	84 (3.31)
10	TSB1000 10DS HT	115,5 (4.55)	96 (3.78)
11	TSB1000 11DS HT	127,5 (5.02)	108 (4.25)
12	TSB1000 12DS HT	139,5 (5.49)	120 (4.72)

For complete product information, order Catalog 1308389



12mm Pitch, 40A High Voltage Version—Series TSB1000...US

PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6
FLAMMABILITY: UL94V-2
COLOR: Natural (off white)

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel, M3.5
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel

Mechanical:

PITCH (TERMINAL SPACING): 12mm (.472")
WIRE STRIP LENGTH: 7mm (.28")
MIN. WIRE PULL-OUT FORCE: 125 lbs.
RECOMMENDED TIGHTENING TORQUE: 10 in.- lbs.
RECOMMENDED SCREWDRIVERS: Stanley 1016,
Sears Craftsman 41429, Xcelite R184

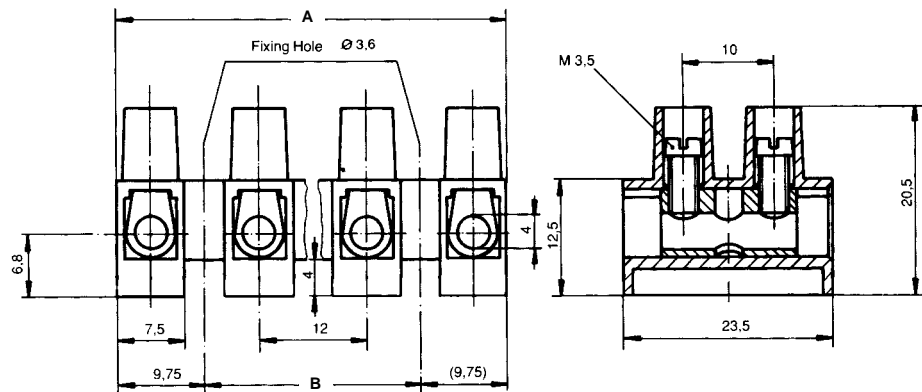
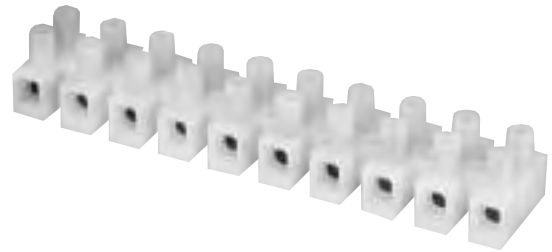
ELECTRICAL PROPERTIES

MAXIMUM CURRENT: 40A
OPERATING VOLTAGE: 600V
WIRE RANGE:
Wire Protector: 10-24 AWG
Tunnel Connection: 8-22 AWG
DIELECTRIC WITHSTAND: 4500V

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

NO. OF POS.	CATALOG NUMBER TUNNEL CONNECTION	CATALOG NUMBER WIRE PROTECTOR	A	B
1	TSB1000 01US	TSB1000 01DSUS	7,5 (.30)	—
2	TSB1000 02US	TSB1000 02DSUS	19,5 (.77)	—
3	TSB1000 03US	TSB1000 03DSUS	31,5 (1.24)	12 (.47)
4	TSB1000 04US	TSB1000 04DSUS	43,5 (1.71)	24 (.95)
5	TSB1000 05US	TSB1000 05DSUS	55,5 (2.19)	36 (1.42)
6	TSB1000 06US	TSB1000 06DSUS	67,5 (2.66)	48 (1.89)
7	TSB1000 07US	TSB1000 07DSUS	79,5 (3.13)	60 (2.36)
8	TSB1000 08US	TSB1000 08DSUS	91,5 (3.60)	72 (2.84)
9	TSB1000 09US	TSB1000 09DSUS	103,5 (4.07)	84 (3.31)
10	TSB1000 10US	TSB1000 10DSUS	115,5 (4.55)	96 (3.78)
11	TSB1000 11US	TSB1000 11DSUS	127,5 (5.02)	108 (4.25)
12	TSB1000 12US	TSB1000 12DSUS	139,5 (5.49)	120 (4.72)



For complete product information, order Catalog 1308389

12mm Pitch, Fused Terminal Blocks—Series 1003Si

DESCRIPTION

Series 1003Si & 1003Si...DS version of TSB1000 Series with an integrated fuse holder for 1/4" x 1" (6.3 x 25mm) or 1/4" x 1 1/4" (6.3mm x 32mm). Protection against unintended touch of live parts to VBG4.
Series 1003Si...E & 1003Si...EDS include a ground connection.



PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6
COLOR: Gray, handle is black

Terminal:

TUBULAR CONTACT: Brass, tin plated
SCREW: Steel
SCREW PLATING: Zinc with chromate
WIRE PROTECTOR: Stainless steel
CONTACTS FOR FUSES: Stainless steel screw
TUNNEL CONNECTION: Without wire protector

Mechanical:

PITCH (TERMINAL SPACING): 12mm (.472")
WIRE STRIP LENGTH: 7.5mm (.295")

ELECTRICAL PROPERTIES

MAXIMUM CURRENT:

To VDE 0820: Fuse Holder 16A
To VDE 0100: Terminal Blocks 34A
To VDE 0700/0711: Terminal Blocks 16A

OPERATING VOLTAGE:

Fuse Holder: 250V
Terminal Blocks: 400V

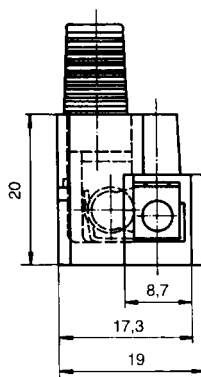
WIRE RANGE:

Wire Protector: up to 10mm² (10-24 AWG)
Tunnel Connection: up to 4mm² (8-22 AWG)

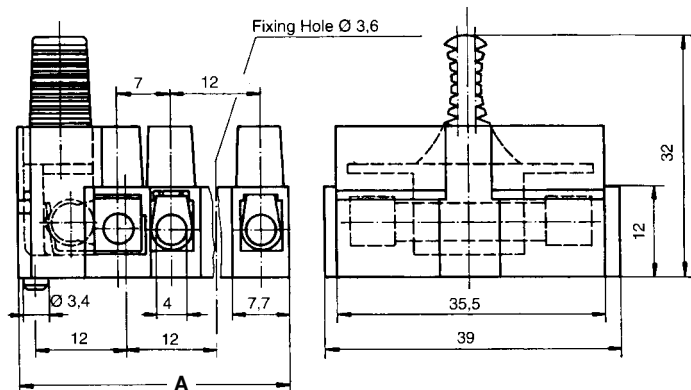
ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

1003Si/1 (1 Circuit)



1003Si (2-5 Circuits)



Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Ordering Information

NO. OF POS.	CATALOG # TUNNEL CONNECTION	CATALOG # WIRE PROTECTOR	CATALOG # TUNNEL CONNECTION GROUNDED	CATALOG # WIRE PROTECTOR GROUNDED	A
1	1003Si 1	1003Si 1DS	—	—	18,7 (.74)
2	1003Si 2	1003Si 2DS	—	—	24 (0.95)
3	1003Si 3	1003Si 3DS	1003Si 3E	1003Si 3EDS	36 (1.42)
4	1003Si 4	1003Si 4DS	1003Si 4E	1003Si 4EDS	48 (1.89)
5	1003Si 5	1003Si 5DS	1003Si 5E	1003Si 5EDS	60 (2.36)

For complete product information, order Catalog 1308389

Fuse Holder (For Series TSB500, TSB1000)—Series 500Si

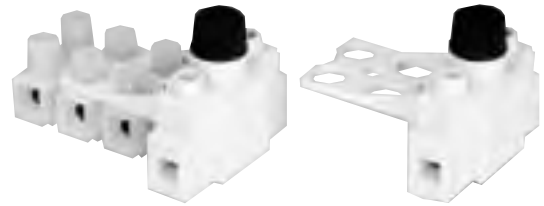
DESCRIPTION

Series 500Si:

Two versions mate with TSB500 and TSB1000 to provide a fuse holder for 5 x 20mm or 5mm x 25mm fuses. These connectors comply with VDE 0820, part 2.

Series 500Si...K:

Same as the standard series but provides a raised, transparent "bayonet catch" which serves as a Fuse Link Carrier for fuses 5 x 25mm (with indicator).



PHYSICAL PROPERTIES

Housing:

HOUSING MATERIAL: Polyamide 6/6

COLOR: Gray

Terminal:

TUBULAR CONTACT: Brass, tin plated

SCREW: Steel

SCREW PLATING: Zinc with chromate

Mechanical:

PITCH (TERMINAL SPACING): 10mm and 12mm

WIRE STRIP LENGTH: 6.5mm

ELECTRICAL PROPERTIES

MAXIMUM CURRENT:

To VDE 0820: 10A

To VDE 070010711: 10A

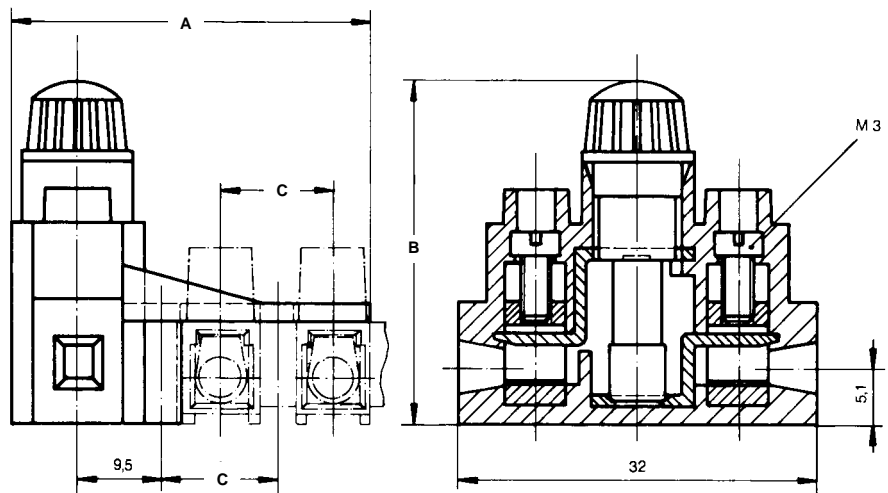
OPERATING VOLTAGE: 250V

WIRE RANGE: 12-22 AWG

ENVIRONMENTAL PROPERTIES

CONTINUOUS WORKING TEMPERATURE: 100°C

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

DESCRIPTION	CATALOG NUMBER	A	B	C
For TSB500 Series	500Si 5	35	29	10
For TSB1000 Series	500Si 10	37	30	12
w/ Fuse Link Carrier for TSB500 Series	500Si 5K	35	34	10
w/ Fuse Link Carrier for TSB1000 Series	500Si 10K	37	35	12

For complete product information, order Catalog 1308389

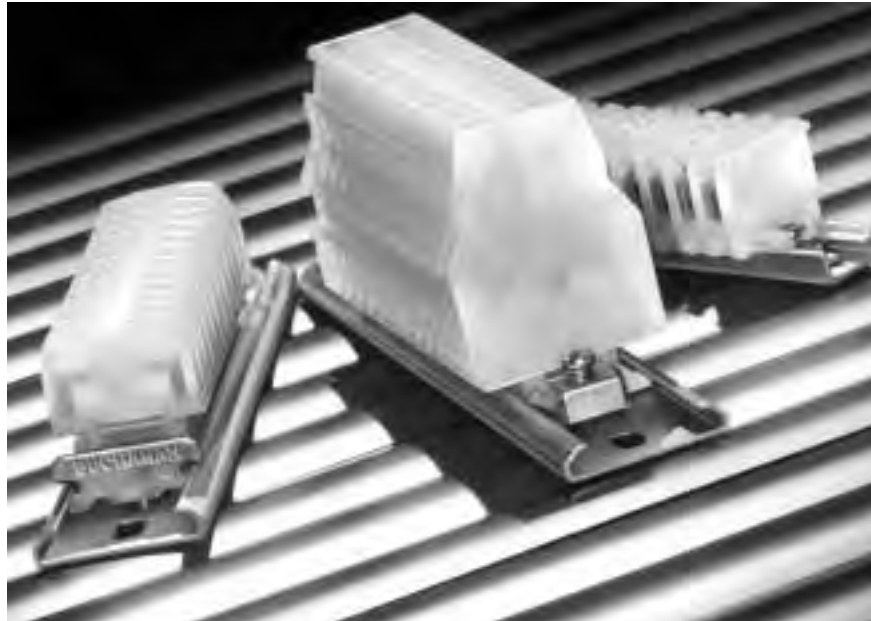
100 Series High Density Miniature Blocks

DESCRIPTION/APPLICATION

These miniature terminal blocks fit on a much smaller channel to save valuable panel space or can be surface mounted directly to the panel. Miniature blocks accept wire as large as #12 AWG and are available in four styles: Miniature (nylon), Miniature (polypropylene), Single Tier and Double Tier.

DESIGN ADVANTAGES

- No Wire Crimping Required — tubular clamp contacts hold wire ranging from #30 to #12 AWG better than crimp-on terminals.
- Saves Installation Time and Costs — tubular clamp contacts are supplied with captive screws backed out.
- Nylon housing standard; polypropylene for fire retardant characteristics.
- Positive Stop — helps prevent wire from being inserted too far, and helps prevent screw from being tightened on insulation. Easy access contact provides for safe, reliable, and cost-effective connection.
- Quick Installation and Change — additional sections may be added or removed without removing channel mounting screw.
- Choice of Five Mounting Channels:
 - Miniature aluminum
 - Zinc-plated steel
 - Pre-punched aluminum
 - Break-away steel
 - Elevated aluminum.
- Single and Double Tier blocks fit all standard BUCHANAN mounting channels. Single Tier blocks fit both miniature and standard channels.
- Choice of Marking Surfaces — matte-finish area for marking directly on block; slide-in vinyl strip (blank or preprinted) also available.



For complete product information, order Catalog 1308389

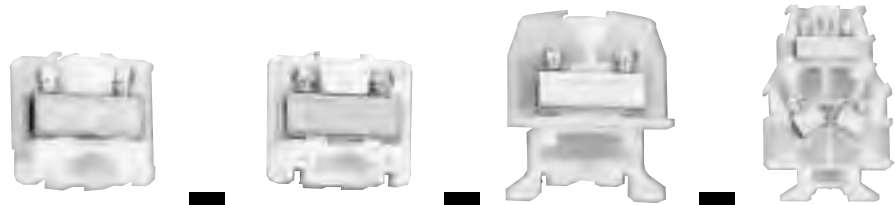


LR25557



E63810

100 Series High Density Miniature Blocks



CHARACTERISTICS	MINIATURE NYLON	MINIATURE POLYPROPYLENE	SINGLE TIER	DOUBLE TIER
Type of Block	Model	Model	Model	Model
Standard Block	125-BU	P125	115-BU	105-BU
Corrosion Resistant (nickel plated contacts)	D125	DP125	D115	D105
Specifications				
Housing Material	Nylon	Polypropylene	Nylon	Nylon
Max. Service Temperature	125°C (257°F)	105°C (221°F)	125°C (257°F)	125°C (257°F)
Flammability	UL94V-2	UL94V-0	UL94V-2	UL94V-2
Wire Strip Length (in.)	5/16	5/16	5/16	5/16
Torque, in-lbs.	6-9	6-9	6-9	6-9
Electrical Characteristics				
UL Rating	28 A @ 300V	28 A @ 300V	20 A @ 600V	20 A @ 600V
Wire Range (solid & stranded)	30-12	30-12	30-12	30-12
Spacing				
Pitch	0.25"	0.25"	0.25"	0.24"
Terminals per Foot	48	48	48	102
Accessories				
End Section (gray)	130-BU	P130	120	110-BU
Jumper, 2 pole	10	10	10	—
Jumper, 10 pole	—	—	—	J10
Jumper, Inter-tier	—	—	—	J2-BU
Mounting Channel				
Miniature	12	12	12	—
Steel, Zinc plated (6ft)	—	—	60	60
Steel, Zinc plated (3ft)	—	—	63-BU	63-BU
Breakaway, steel	—	—	60B36	60B36
Pre-punched aluminum (6ft)	—	—	64	64
Pre-punched aluminum (3ft)	—	—	67	67
Channel Clamps				
Miniature (use w/#12 channel)	11	11	11	—
Universal	—	—	68	68

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

For complete product information, order Catalog 1308389



100 Series Miniature Block Accessories

CHANNEL CLAMPS **MARKING ACCESSORIES**



SCREW STEEL CHANNEL	UNIVERSAL	SNAP-IN	MINIATURE FOR #12 CHANNEL	SEE-THRU COVER	GANGING ROD	MINIATURE VINYL MARKING STRIPS	ELEVATED MARKING STRIP	NYLON HOLDING PLUG
Catalog Number								
61	68	62	11	13	14	15	52-BU	16
Available For								
Single Tier Double Tier	Single Tier Double Tier	Single Tier Double Tier	Miniature Single Tier	Miniature Single Tier	Miniature Single Tier	Miniature Single Tier Double Tier	Miniature Single Tier Double Tier	Miniature Single Tier
Standard Package								
100	100	100	100	50	2 feet	25 feet	18 inches	100

Factory Assembled Blocks

DESCRIPTION	DIRECT MOUNT	CHANNEL MOUNT
Miniature (nylon)	125XX	0125XX
	D125XX (nickel)	D0125XX (nickel)
Single Tier (nylon)	115XX	0115XX
	D115XX (nickel)	D0115XX (nickel)
Double Tier (nylon)	105XX	0105XX
	D105XX (nickel)	D0105XX (nickel)
Miniature (polypropylene)	P125XX	P0125XX
	DP125XX (nickel)	DP0125XX (nickel)

NOTE: XX = number of blocks desired. For factory assembled blocks with removable marking strip, add "-1" to Catalog Number. Minimum order quantities may apply.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

RELATED PRODUCT DATA

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

For complete product information, order Catalog 1308389



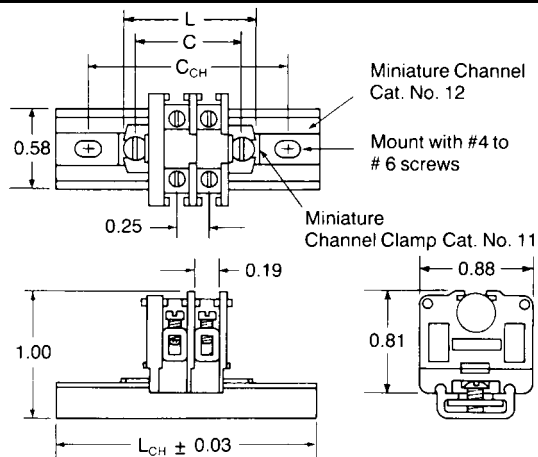
Miniature Blocks

MINIATURE

$C = .29 + (.25 \times N)$
 $L = .51 + (.25 \times N)$

On Miniature Channel:

$C_{CH} = 1.00 + (.25 \times A)$
 $L_{CH} = 1.35 + (.25 \times A)$
A = N when N is even
A = N + 1 when N is Odd
N = No. of Miniature Sections



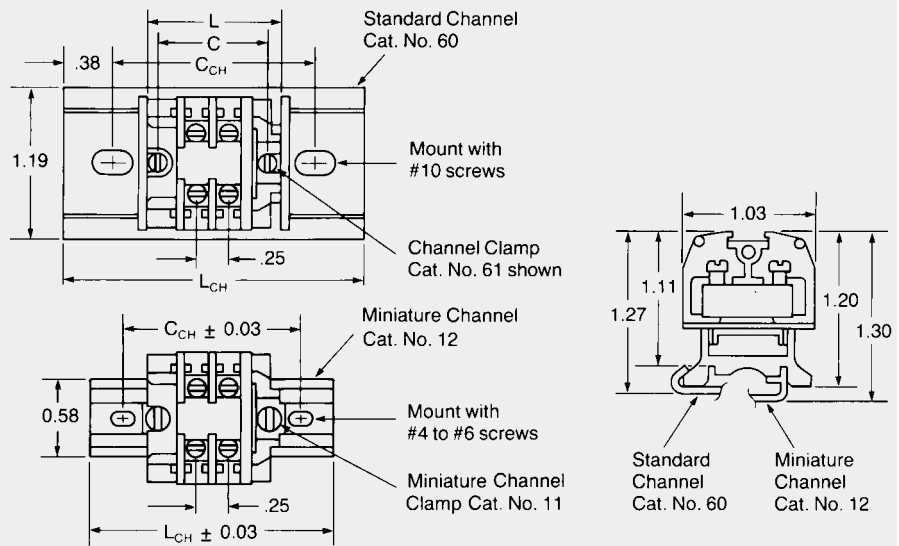
SINGLE TIER

$C = .35 + (.25 \times N)$
 $L = .50 + (.25 \times N)$

On Miniature Channel:

$C_{CH} = 2.00 + (.25 \times A)$
 $L_{CH} = 2.75 + (.25 \times A)$
N = No. of Single Tier Sections

$C_{CH} = 1.00 + (.25 \times A)$
 $L_{CH} = 1.35 + (.25 \times A)$
A = N when N is even
A = N + 1 when N is Odd
N = No. of Miniature Sections

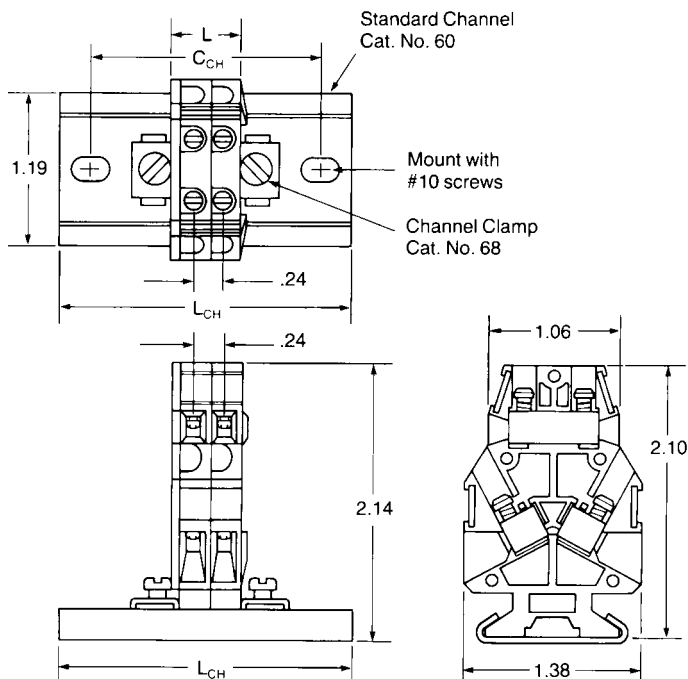


DOUBLE TIER

$L = .08 + (.24 \times N)$

On Miniature Channel:

$C_{CH} = 1.58 + (.24 \times A)$
 $L_{CH} = 2.33 + (.24 \times A)$
N = No. of Double Tier Sections



600 & 700 Series, 300 & 600 Volt Medium Duty

DESCRIPTION/APPLICATION

This versatile series of Medium Duty blocks is available in two major categories: 300 Volt (600 Series), and 600 Volt (700 Series).

DESIGN ADVANTAGES

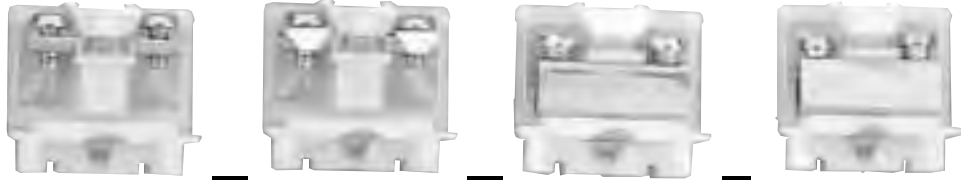
- High circuit density - 183 circuits per 6-foot length, 3/8 inch pitch.
- Select either 300 or 600 volt UL and NEMA rated models.
- Rated up to 50 amperes per circuit.
- Flat base models mount directly to surfaces or on miniature channel. Dovetail base mounts on standard size channel.
- Packaged for rapid handling and assembly - 100 per carton.
- Only one end section needed per block assembly.
- Fanning strips - interlocking sectional fanning strips allow entire circuit groups to be connected and disconnected as a single unit.
- Choice of six contact styles - tubular clamp, tubular screw, strap screw, strap clamp, quick connect and tubular screw quick connect.
- Readily identify circuits - mark directly on block sections or use removable marking strip. Preprinted marking strips also available.
- Factory assembled blocks available.
- Nylon housing is standard, polypropylene is available for fire retardant characteristics.
- Sections snap-fit with phenolic Medium Duty, Heavy Duty, Intermediate Heavy Duty, and Fuse & Switch blocks.







For complete product information, order Catalog 1308389



600 Series, 300V Medium Duty, 0.375" Pitch



CHARACTERISTICS	STRAP SCREW	STRAP CLAMP	TUBULAR SCREW	TUBULAR CLAMP
Type of Block	Model	Model	Model	Model
Direct Mount (Flat Base)				
Painted, Nylon	621	628	624	625
Unpainted, Nylon	611-BU	618-BU	614-BU	615-BU
Polypropylene	P621	P628	P624	P625
Channel Mount (Dovetail Base)				
Painted, Nylon	0621	0628	0624	0625
Unpainted, Nylon	0611	0618	0614	0615
Polypropylene	P0621	P0628	P0624	P0625
Contact Type				
				
Specifications				
Wire Range (AWG) Solid & Stranded	22-10	30-14	18-8	22-10
Wire Strip Length (in.)	—	11/32	11/32	11/32
Screw Type	6-32 slotted binding head	6-32 slotted binding head	10-32 slotted pan head	10-32 slotted pan head
Ampacity	35 A	20 A	50 A	30 A
End Sections				
Direct Mount, Nylon	630-BU	630-BU	630-BU	630-BU
Direct Mount, Polypropylene	P630	P630	P630	P630
Channel Mount, Nylon	0630	0630	0630	0630
Channel Mount, Polypropylene	P0630	P0630	P0630	P0630

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Comparison (Type of Block)



Direct Mount
(Flat Base)

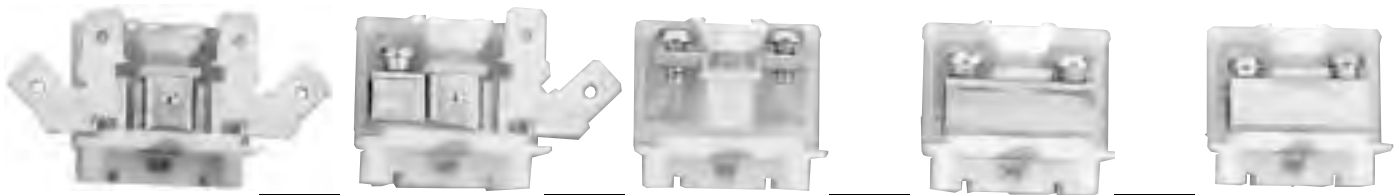


Channel Mount
(Dovetail Base)



For complete product information, order Catalog 1308389

600 Series, 300V Medium Duty, 0.375" Pitch (Continued)



QUICK CONNECT TUBULAR SCREW & QUICK CONNECT CORROSION RESISTANT STRAP SCREW CORROSION RESISTANT TUBULAR SCREW CORROSION RESISTANT TUBULAR CLAMP

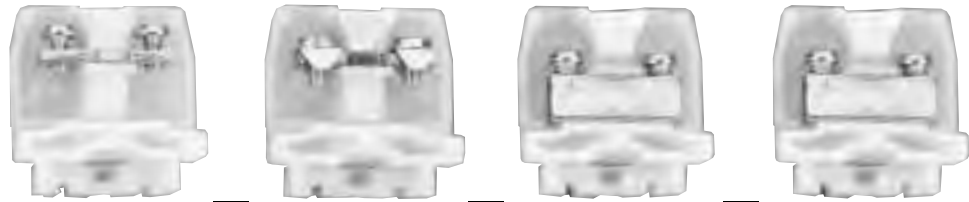
Model	Model	Model	Model	Model
627	629	D621	D624	D625
617	619	D611	D614	D615
P627	P629	DP621	DP624	DP625
0627	0629	D0621	D0624	D0625
0617	0619	D0611	D0614	D0615
P0627	P0629	DP0621	DP0624	DP0625
Contact Type				
22-12	18-8 & 22-12	22-10	18-8	22-10
—	—	—	1 ¹ / ₃₂	1 ¹ / ₃₂
#12 and smaller	#12 and smaller	6-32 Nickel plated Slotted Pan Head	10-32 Nickel plated Slotted Pan Head	10-32 Nickel plated Slotted Pan Head
20 A	20 A	35 A	50 A	30 A
630-BU	630-BU	630-BU	630-BU	630-BU
P630	P630	P630	P630	P630
0630	0630	0630	0630	0630
P0630	P0630	P0630	P0630	P0630

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

For complete product information, order Catalog 1308389



700 Series, 600V Medium Duty, 0.375" Pitch



CHARACTERISTICS	STRAP SCREW	STRAP CLAMP	TUBULAR SCREW	TUBULAR SCREW PHIL SLOT
-----------------	-------------	-------------	---------------	----------------------------

Type of Block	Model	Model	Model	Model
Direct Mount (Flat Base)				
Painted, Nylon	721	728	724	724PS
Unpainted, Nylon	711-BU	718	714	714PS
Polypropylene	P721	P728	P724	—
Channel Mount (Dovetail Base)				
Painted, Nylon	0721	0728	0724	0724PS
Unpainted, Nylon	0711	0718	0714	0714PS
Polypropylene	P0721	P0728	P0724	—

Contact Type



Specifications

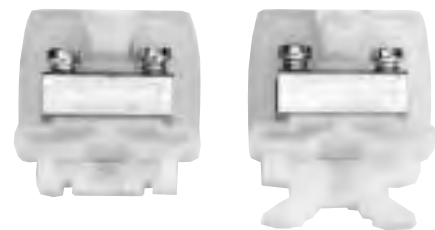
Wire Range (AWG) Solid & Stranded	22-10	30-14	18-8	18-8
Wire Strip Length (in.)	—	11/32	11/32	11/32
Screw Type	6-32 Slotted Binding Head	6-32 Slotted Binding Head	10-32 Slotted Pan Head	10-32 Phil Slot
Ampacity	35 A	20 A	50 A	50 A

End Sections

Direct Mount, Nylon	730	730	730	730
Direct Mount, Polypropylene	P730	P730	P730	P730
Channel Mount, Nylon	0730	0730	0730	0730
Channel Mount, Polypropylene	P0730	P0730	P0730	P0730

- Notes: 1. Standard package is 100 pieces for contact, 25 pieces for end section.
2. Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Comparison (Type of Block)



Direct Mount
(Flat Base)


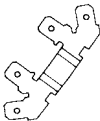




Channel Mount
(Dovetail Base)

For complete product information, order Catalog 1308389



700 Series, 600V Medium Duty, 0.375" Pitch (Continued)



TUBULAR CLAMP	QUICK CONNECT	TUBULAR SCREW & QUICK CONNECT	CORROSION RESISTANT STRAP SCREW	CORROSION RESISTANT TUBULAR SCREW	CORROSION RESISTANT TUBULAR CLAMP
Model	Model	Model	Model	Model	Model
725	727	729	D721	D724	D725
715-BU	717	719	D711	D714	D715
P725	P727	P729	DP721	DP724	DP725
0725	0727	0729	D0721	D0724	D0725
0715	0717	0719	D0711	D0714	D0715
P0725	P0727	P0729	DP0721	DP0724	DP0725
					
22-10 1 ¹ / ₃₂	22-12 —	18-8 & 22-12 —	22-10 —	18-8 1 ¹ / ₃₂	22-10 1 ¹ / ₃₂
10-32 Slotted Pan Head	#12 and smaller	#12 and smaller	6-32 Nickel plated Slotted Pan Head	10-32 Nickel plated Slotted Pan Head	10-32 Nickel plated Slotted Pan Head
30 A	20 A	20 A	35 A	50 A	30 A
730	730	730	730	730	730
P730	P730	P730	P730	P730	P730
0730	0730	0730	0730	0730	0730
P0730	P0730	P0730	P0730	P0730	P0730

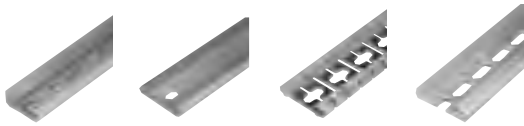
Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

For complete product information, order Catalog 1308389



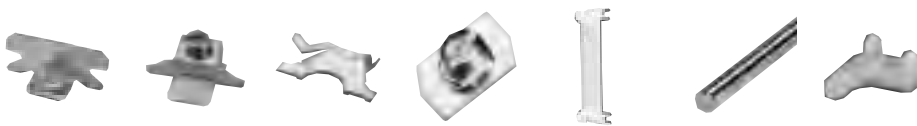
600 and 700 Series, Medium Duty Accessories

MOUNTING CHANNEL



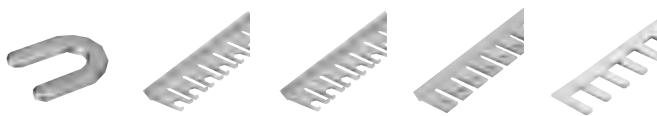
MINIATURE	STEEL CHANNEL	BREAK AWAY STEEL	PRE-PUNCHED ALUMINUM CHANNEL
Catalog Number			
12	60 63-BU	60-B-36	64 67
Standard Package			
3 feet	6 feet 3 feet	3 feet	6 feet 3 feet

CHANNEL CLAMPS



SCREW CHANNEL CLAMPS	UNIVERSAL CLAMPS	SNAP-IN CLAMPS	MINIATURE FOR #12 CHANNEL	SEE-THRU COVER	GANGING ROD	POLARIZING PLUG
Catalog Number						
61	68	62	11	71	30-BU	84
Standard Package						
100	100	100	100	50	2 feet	100

JUMPERS



JUMPER FOR TUBULAR CONTACTS	SNAP-APART SPADE JUMPER*	SNAP-APART FLANGED JUMPER*	SNAP-APART RING TONGUE JUMPER*	SNAP-APART FOR TUBULAR CONTACTS
Catalog Number				
70	J6140	J6240	J6340	73
Standard Package				
100	40 ckt	40 ckt	40 ckt	20 ckt

* Fits 600 Series (300 volt) strap screw blocks only

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

RELATED PRODUCT DATA

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

For complete product information, order Catalog 1308389

600 and 700 Series, Medium Duty Accessories (Continued)

MARKING ACCESSORIES



PLASTIC CLOTH TAPE	PLASTIC CLOTH TAPE	VINYL MARKING STRIPS	ELEVATED MARKING STRIP	NYLON HOLDING PLUG
Catalog Number				
66	55-BU	50-BU	52-BU	65-BU
Standard Package				
1 sheet	50 feet	25 feet	18 inches	100

PLUG-IN BLOCKS



TUBULAR CLAMP W/BLADE #22-10 AWG	TUBULAR CLAMP W/CANTILEVER #22-10 AWG
Catalog Number	
BPO35M	BP35F
Standard Package	
100	12
End Section	
0730	0730
Standard Package	
25	25

NOTES:

For factory assembled blocks on standard steel channel suffix Catalog Number with number of blocks desired. (Maximum number of flatbase, preassembled sections is 12.)

Example: Twenty preassembled tubular screw nylon sections on channel = 062420

Example: Ten preassembled tubular screw polypropylene sections on channel = P62510

For unpainted factory assembled blocks supplied with a removable marking strip add — 1 to Catalog Number.

For blocks with two or more different contact sections, imprinted marking strips, or special features, consult the Technical Support Center.

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

SECTIONAL FANNING STRIPS



Strap Screw



Tubular Screw

Ordering Information

CATALOG #	DESCRIPTION	STANDARD PACKAGE
74	Tubular Screw	50
78-TB	Strap Screw	50
74100	Molding Only, no contact	50

NOTES:

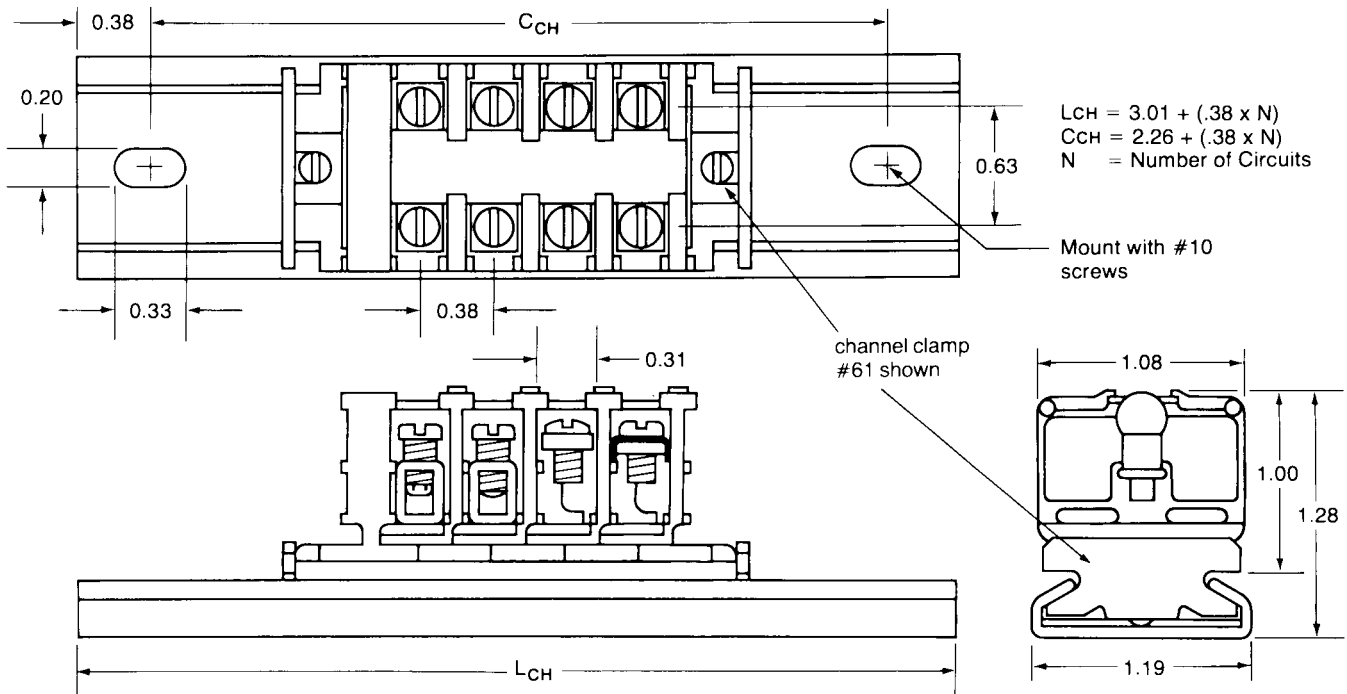
For factory assembled fanning strips, suffix Catalog Number with number desired.

Example: Ten factory assembled sections of #74 = 7410

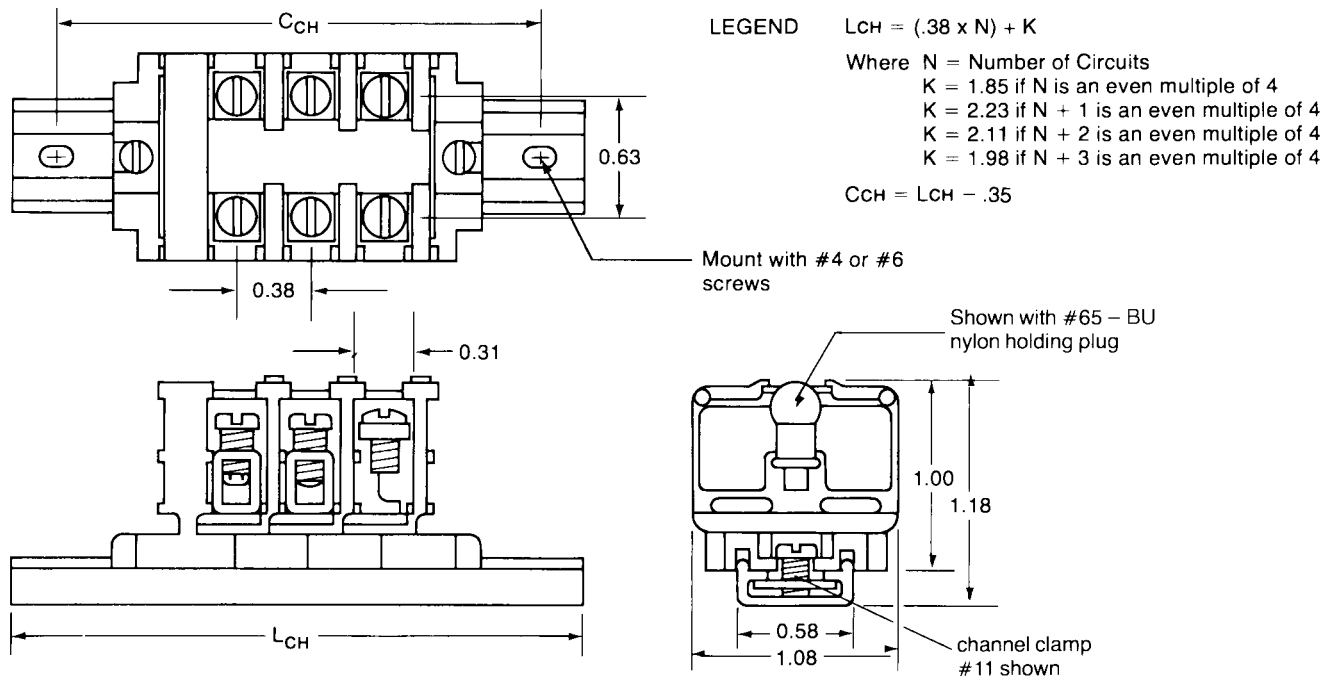
For complete product information, order Catalog 1308389

600 Series, 300 Volt Channel Mount

DOVETAIL BASE MOUNTED ON STANDARD #60 CHANNEL



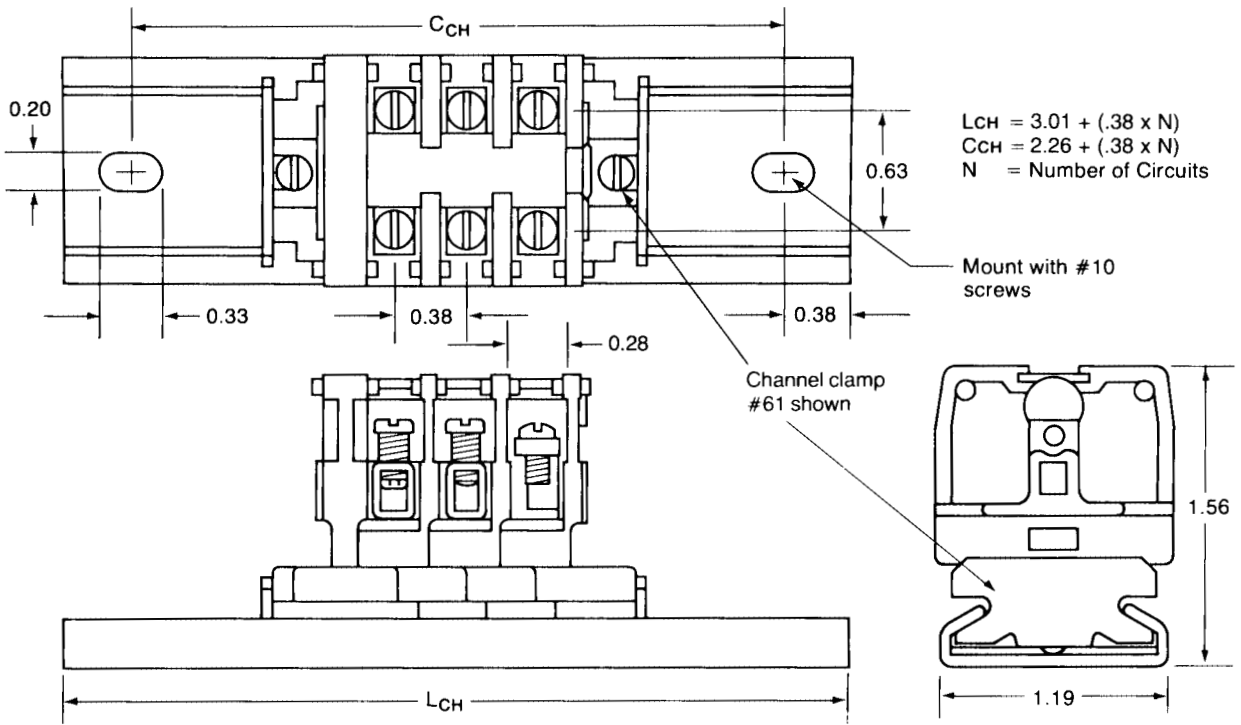
FLAT BASE MOUNTED ON STANDARD #12 CHANNEL



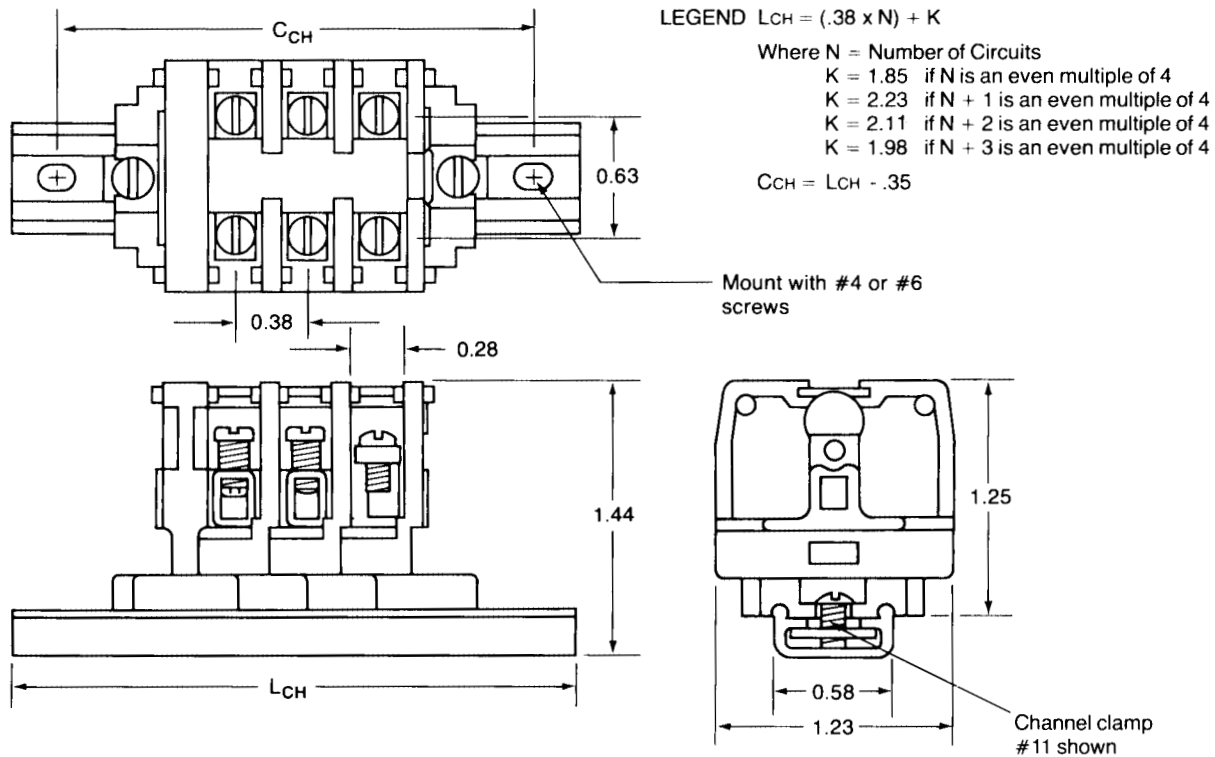
For complete product information, order Catalog 1308389

700 Series, 600 Volt Channel Mount

DOVETAIL BASE MOUNTED ON STANDARD #60 CHANNEL

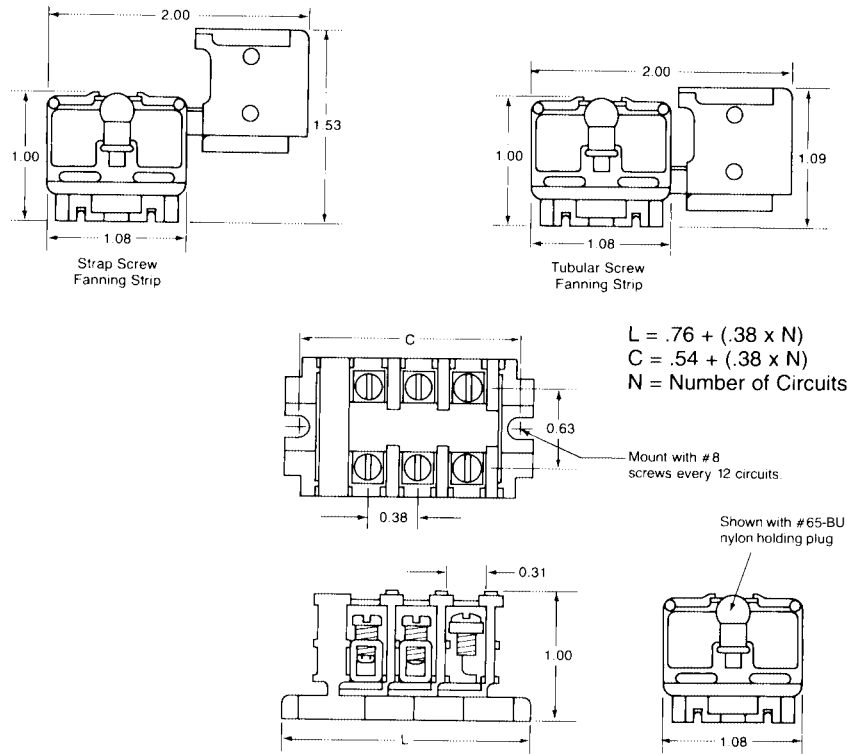


FLAT BASE MOUNTED ON MINIATURE #12 CHANNEL

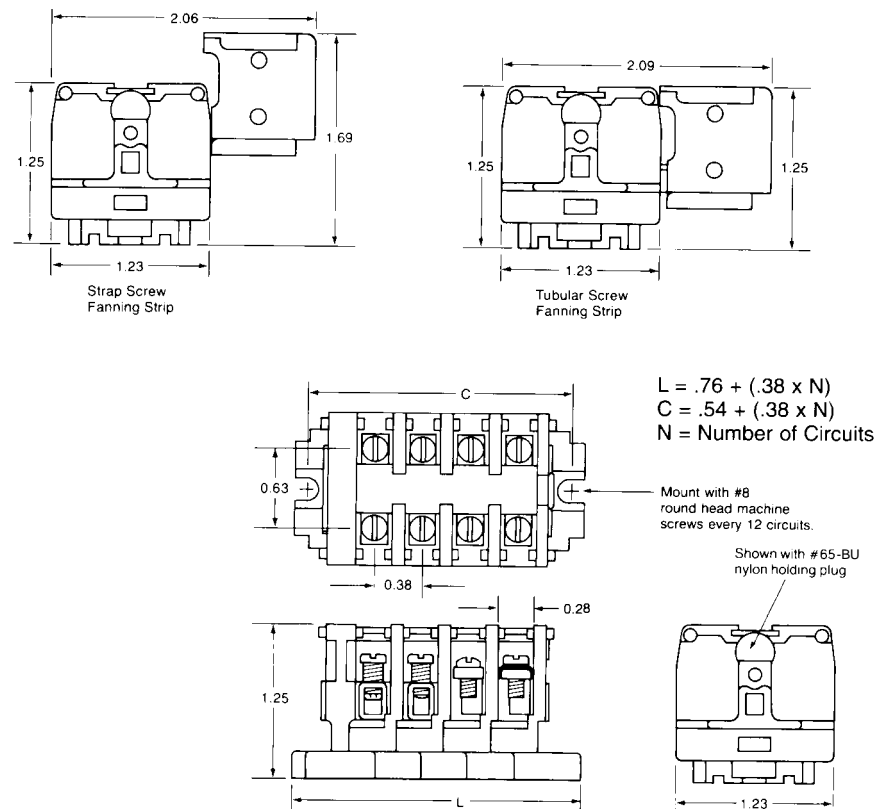


For complete product information, order Catalog 1308389

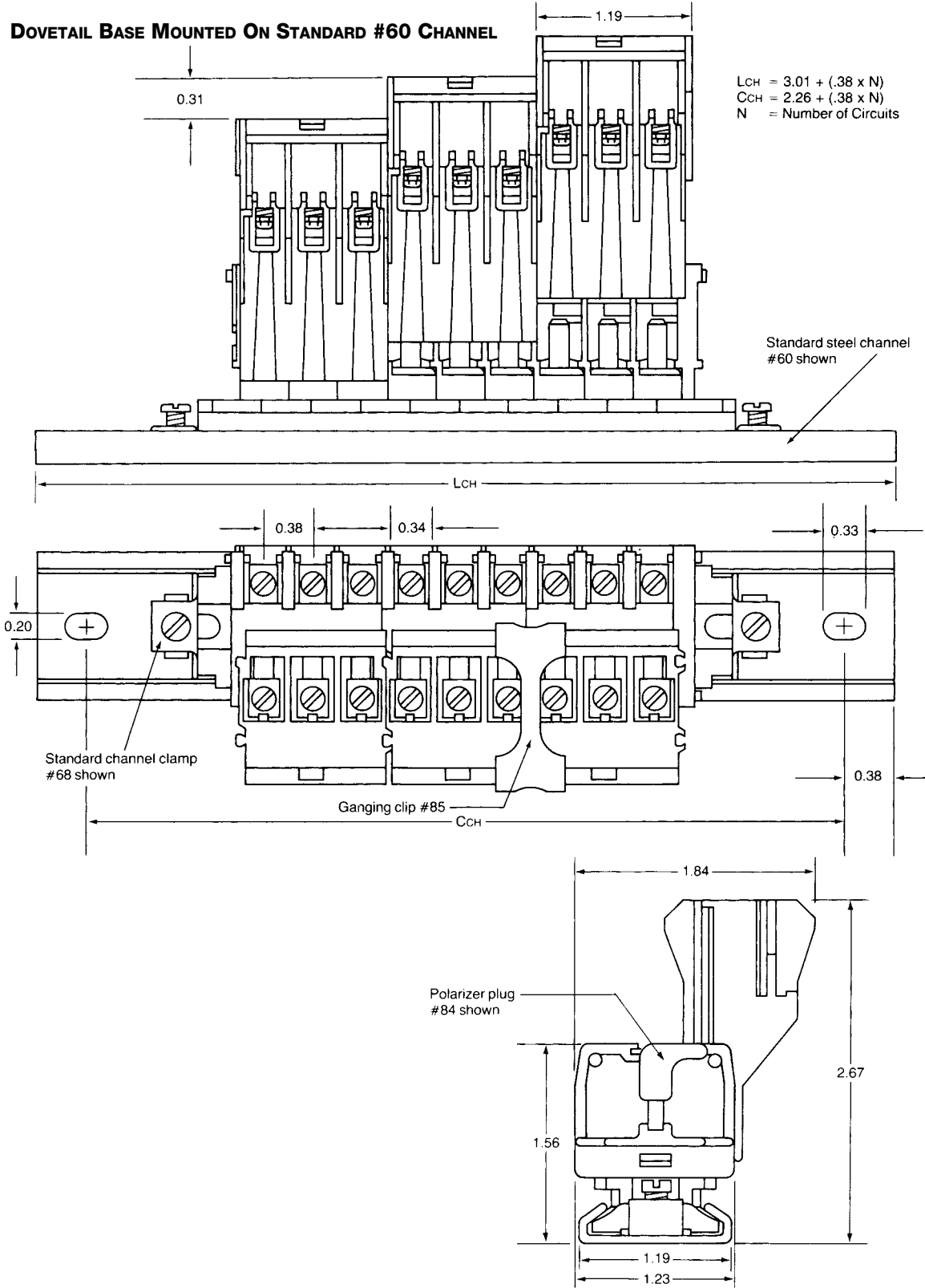
600 Series, 300 Volt Flat Base



700 Series, 600 Volt Flat Base






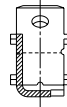
BP Series, Plug-In Blocks



For complete product information, order Catalog 1308389

500 Series, 300 V Phenolic, 0.44" Pitch, High Temperature



CHARACTERISTICS	STRAP SCREW	TUBULAR SCREW	TUBULAR CLAMP	QUICK CONNECT
Type of Block	Model	Model	Model	Model
Direct Mount (Flat Base)				
Painted	521-BU	524	525	527
Unpainted	511-BU	514	515-BU	517
Channel Mount (Dovetail Base)				
Painted	0521	0524	0525	0527
Unpainted	0511	0514	0515	0517
Contact Type				
				
Specifications				
Wire Range (AWG) Solid & Stranded	22-10	18-8	22-10	22-12
Wire Strip Length (in.)	—	11/32	11/32	—
Screw Type	6-32 slotted binding head	10-32 slotted pan head	10-32 slotted pan head	—
Ampacity	35 A	50 A	30 A	20 A
End Sections				
Direct Mount	530-BU	530-BU	530-BU	530-BU
Channel Mount	0530	0530	0530	0530

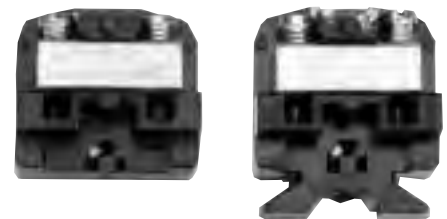
Notes: 1. Standard package is 100 pieces for contact and 25 pieces for end sections.
2. Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Notes:
For factory assembled blocks, suffix Catalog Number with number of blocks desired. (Maximum number of flat base preassembled sections is 12.)
Example: Twenty-five sections of tubular clamp sections preassembled on channel = 051525

For unpainted factory assembled blocks supplied with a removable marking strip add — 1 to Catalog Number.

For blocks with two or more different contact sections, imprinted marking strips, or special features, consult the Technical Support Center.

Comparison (Type of Block)



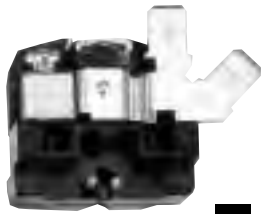
Direct Mount
(Flat Base)

Channel Mount
(Dovetail Base)



For complete product information, order Catalog 1308389

500 Series, 300 V Phenolic, 0.44" Pitch, High Temperature (Continued)








**TUBULAR SCREW
& QUICK CONNECT**

**TUBULAR
PHIL SLOT**

**CORROSION RESISTANT
STRAP SCREW**

**CORROSION RESISTANT
TUBULAR SCREW**

**CORROSION RESISTANT
TUBULAR CLAMP**

Model	Model	Model	Model	Model
529	524PS	D521	D524	D525
519	514PS	D511	D514	D515
0529	0524PS	D0521	D0524	D0525
0519	0514PS	D0511	D0514	D0515
Contact Type				
				
18-8 & 22-12	18-8	22-10	18-8	22-10
—	—	—	11/32	11/32
—	—	6-32 Nickel plated Slotted Binding Head	10-32 Nickel plated Slotted Pan Head	10-32 Nickel plated Slotted Pan Head
20 A	50 A	35 A	50 A	30 A
530-BU	530-BU	530-BU	530-BU	530-BU
0530	0530	0530	0530	0530

Notes: 1. Standard package is 100 pieces for contact and 25 pieces for end sections.
2. Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

SECTIONAL FANNING STRIPS

Ordering Information

CATALOG #	DESCRIPTION	STANDARD PACKAGE
54-BU	Tubular Screw	50
58	Strap Screw	50
54100	Molding Only, no contact	50

Notes:
For factory assembled fanning strips, suffix Catalog Number with number desired.
Example: Ten factory assembled sections of #58 = 5810




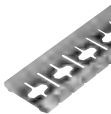






For complete product information, order Catalog 1308389


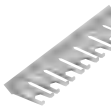
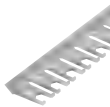








LR25557

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500 Series Accessories

MOUNTING CHANNEL		CHANNEL CLAMPS AND ACCESSORIES					
							
STEEL CHANNEL	BREAK AWAY STEEL	PRE-PUNCHED ALUMINUM CHANNEL	SCREW CHANNEL CLAMPS	UNIVERSAL CLAMPS	SNAP-IN CLAMPS	SEE-THRU COVER	GANGING ROD
Catalog Number							
60 63-BU	60-B-36	64 67	61	68	62	57	30-BU
Standard Package							
6 feet 3 feet	3 feet	6 feet 3 feet	100	100	100	50	2 feet

JUMPERS				MARKING ACCESSORIES				
								
JUMPER FOR TUBULAR CONTACTS	SNAP-APART SPADE JUMPER	SNAP-APART FLANGED JUMPER	SNAP-APART RING TONGUE JUMPER	PLASTIC CLOTH TAPE	PLASTIC CLOTH TAPE	VINYL MARKING STRIPS	ELEVATED MARKING STRIP	NYLON HOLDING PLUG
Catalog Number								
40-BU	J7140	J7240	J7340	66	55-BU	50-BU	52-BU	65-BU
Standard Package								
100	40 ckt	40 ckt	40 ckt	1 sheet	50 feet	25 feet	18 inches	100

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

RELATED PRODUCT DATA

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

For complete product information, order Catalog 1308389

500 Series Technical Data

Voltage Rating: Blocks meet 300 volt creepage and clearance requirements of NEMA, UL, and CSA for general industrial control equipment and panel boards. Withstand voltages greatly in excess of IEEE switchgear standards for 750 volts. Quick-connect Blocks retain 300V rating with insulated female quick connects.

Housing:

MATERIAL: Phenolic; Filled, flame retardant
MAXIMUM SERVICE TEMP.: 150°C (302°F)
BREAKDOWN VOLTAGE AC, 60Hz
 Contact-to-Contact: 6,600V (3,800V w/ Quick Connect)
 Contact-to-Ground: 9600V
DIELECTRIC STRENGTH: 300 Volts/mil thickness per ASTM D149 (25°C-RH40% at Sea Level)
UL HIGH VOLTAGE ARC TRACKING TEST (INCHES/MIN.): .49-.58
WATER ABSORPTION (24 HRS. % WT. GAIN): 0.45% per ASTM D570
FLAMMABILITY: UL94V-1
CHEMICAL RESISTANCE: Resistant to acids, alkalines, and aliphatic hydrocarbons and ketones, per ASTM D543.
RADIATION RESISTANCE (ERGS G-1 (C)): 2.7 x 10⁸
COLOR: Black

Standard Contacts

Electrical grade copper or copper alloy conductor. Steel Screws. Tube and screws are plated to resist corrosion in most industrial applications.

Environmental Contacts

(for highly corrosive atmospheres)

TUBULAR SCREW: Electrical grade copper tube with nickel plating. Nickel plated brass screws.
STRAP SCREW: Nickel plated brass straps and screws. Nickel plating exceeds specification QQ-N-290 Class I, Type VII. Maximum Width of Lugs is 5/16".



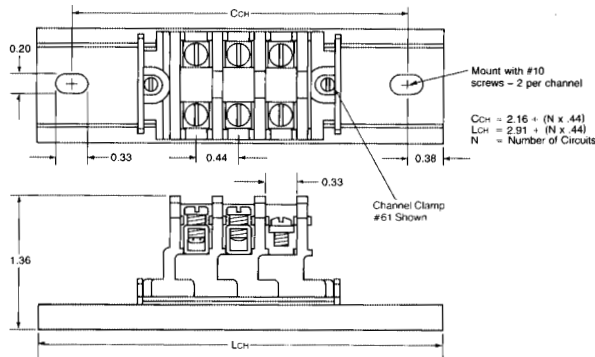
Group Circuits with Interlocking Fanning Strips

For complete product information, order Catalog 1308389

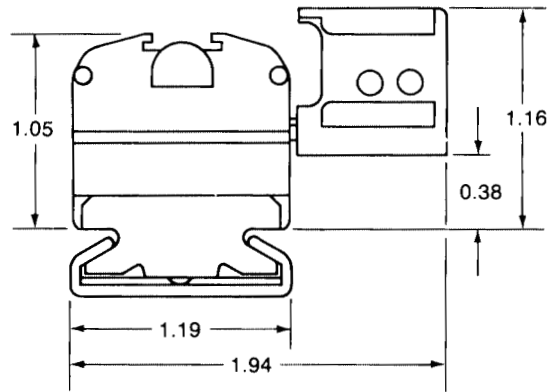


500 Series, 300 Volt

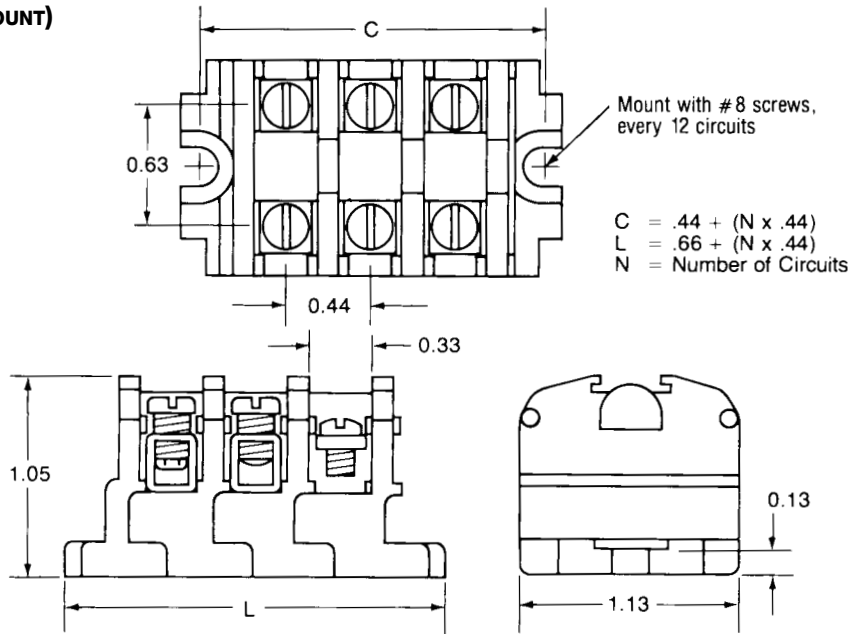
DOVETAIL BASE MOUNTED ON STANDARD #60 CHANNEL



SECTIONAL FANNING STRIPS



FLAT BASE (DIRECT MOUNT)



For complete product information, order Catalog 1308389



200 Series, Heavy Duty Phenolic Blocks

DESCRIPTION/APPLICATION

This family of phenolic heavy duty blocks is ideal for high temperature, high current applications. The rugged material withstands temperatures up to 302° F (150° C).

DESIGN ADVANTAGES

- Sturdy Heavy Duty block accepts single or combinations of wire up to #4 AWG solid or stranded — at least 122 circuits per 6-foot length, 9/16" center-to-center spacing.
- Choose from four different contact styles conservatively rated up to 90 amperes.
- 600 volt UL and NEMA rating.
- Surface mounted flat base and channel mounted dovetail base models available.
- Only one end section needed per block assembly.
- Interlocking sectional fanning strips allow entire circuit groups to be connected and disconnected as a single unit.
- Readily identify circuits — available with painted marking surface or use removable marking strip. Pre-printed strips are also available.
- Factory assembled blocks available.
- Heavy Duty Phenolic Block Sections Snap-fit with 300 & 600 volt, medium duty phenolic, heavy duty nylon and polypropylene, and Fuse and Switch blocks.







For complete product information, order Catalog 1308389



200 Series, Heavy Duty Phenolic, 600 V, 0.56" Pitch



CHARACTERISTICS	STRAP SCREW	STRAP CLAMP	TUBULAR SCREW	TUBULAR CLAMP
Type of Block	Model	Model	Model	Model
Direct Mount (Flat Base)				
Painted	221	228-BU	222-BU	223-BU
Unpainted	211	218	212	213
Channel Mount (Dovetail Base)				
Painted	0221	0228	0222	0223
Unpainted	0211	0218	0212	0213
Contact Type				
Specifications				
Wire Range (AWG) Solid & Stranded	22-10	18-8	18-4	18-6
Wire Strip Length (in.)	—	1/2	1/2	1/2
Screw Type	10-32 slotted binding head	8-32 pan head w/clamp	1/4-28 slotted headless	1/4-28 slotted headless
Ampacity	35 A	50 A	85 A	65 A
End Sections				
Direct Mount	230-BU	230-BU	230-BU	230-BU
Channel Mount	0230	0230	0230	0230

Notes: 1. Standard packaging is 40 pieces for contact and 25 pieces for end sections.
2. Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

Notes:
For factory assembled blocks, suffix Catalog Number with number of blocks desired. (Maximum number of flat base preassembled sections is 12).
Example: Twenty dovetail based, tubular clamp blocks, preassembled on channel = 021320 (plain marking area)

Example: Twelve preassembled flat base, strap screw blocks = 22112 (painted marking area)

For factory assembled blocks supplied with a removable marking strip add — 1 to Catalog Number.

For blocks with two or more different contact sections, imprinted marking strips, or special features, consult the Technical Support Center.

Environmental contacts for highly corrosive atmospheres are available with nickel plating on non-ferrous hardware. To order, prefix Catalog # with "D".

Comparison (Type of Block)



Direct Mount
(Flat Base)

Channel Mount
(Dovetail Base)

For complete product information, order Catalog 1308389



200 Series, Heavy Duty Phenolic, 600 V, 0.56" Pitch (Continued)



CORROSION RESISTANT STRAP SCREW CORROSION RESISTANT TUBULAR SCREW CORROSION RESISTANT TUBULAR CLAMP

Model	Model	Model
D221	D222	D223
D211	D212	D213
D0221	D0222	D0223
D0211	D0212	D0213
Contact Type		
22-10	18-4	22-10
—	1/2	1/2
10-32 Nickel plated Slotted Binding Head	1/4-28 Nickel plated Slotted Headless	1/4-28 Nickel plated Slotted Headless
35 A	85 A	65 A
230-BU	230-BU	230-BU
0230	0230	0230

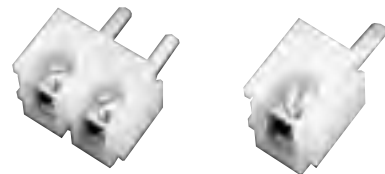
Notes: 1. Standard packaging is 40 pieces for contact and 25 pieces for end sections.
2. Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

SECTIONAL FANNING STRIPS

Ordering Information

CATALOG #	DESCRIPTION	STANDARD PACKAGE
24	Tubular Screw	25
27	Strap Screw	25
2400	Molding Only, no contact	50


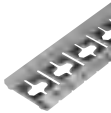






Note:
For factory assembled fanning strips, suffix Catalog Number with number desired
Example: Ten factory assembled sections of #24 = 2410










For complete product information, order Catalog 1308389



200 Series, Heavy Duty Phenolic Accessories

MOUNTING CHANNEL			CHANNEL CLAMPS				
							
STEEL CHANNEL	BREAK AWAY STEEL	PRE-PUNCHED ALUMINUM CHANNEL	SCREW CHANNEL CLAMPS	UNIVERSAL CLAMPS	SNAP-IN CLAMPS	SEE-THRU COVER	GANGING ROD
Catalog Number							
60 63-BU	60-B-36	64 67	61	68	62	23-BU	30-BU
Standard Package							
6 feet 3 feet	3 feet	6 feet 3 feet	100	100	100	25	2 feet

MARKING ACCESSORIES				JUMPERS		
						
PLASTIC CLOTH TAPE	PLASTIC CLOTH TAPE	VINYL MARKING STRIPS	ELEVATED MARKING STRIP	NYLON HOLDING PLUG	JUMPER FOR TUBULAR CONTACTS	JUMPER FOR STRAP SCREW
Catalog Number						
56	55-BU	50-BU	52-BU	65-BU	41-BU	43
Standard Package						
10 sheets	50 feet	25 feet	18 inches	100	100	100

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

RELATED PRODUCT DATA

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

For complete product information, order Catalog 1308389

200 Series, Heavy Duty Phenolic Specifications

Standard Contacts

MATERIAL: Electrical grade copper or copper alloy conductor. Steel Screws plated to resist corrosion in most industrial applications.

**Environmental Contacts
 (for highly corrosive atmospheres)**

TUBULAR SCREW: - Electrical grade copper tube with nickel plating.

Nickel plated brass screws.

STRAP SCREW: - Nickel plated brass straps and screws

Nickel plating exceeds specification QQ-N-290 Class I, Type VII.

WIRE RANGE: Strap Screw: #22-10 AWG max., solid or stranded with crimp terminals

STRAP CLAMP: #18-8 AWG, solid or stranded

TUBULAR SCREW: #18-4 AWG, solid or stranded

TUBULAR CLAMP: #18-6 AWG, solid or stranded

WIRE STRIP LENGTH: Strap Screw: As needed for lugging

STRAP CLAMP: 1/2 in.

TUBULAR SCREW: 1/2 in.

TUBULAR CLAMP: 1/2 in.

SCREW TYPE: Strap Screw: 10-32 slotted binding head

STRAP CLAMP: 8-32 pan head w/ clamp

TUBULAR SCREW: 1/4-28 slotted headless

TUBULAR CLAMP: 1/4-28 slotted headless

STRAP SCREW: Maximum width of lugs: 11/32 in.

Nylon Housing

MATERIAL: Phenolic, Filled Flame Retardant

MAX. CONTINUOUS TEMPERATURE: 150°C, (302°F)

BREAKDOWN VOLTAGE:

Contact-to-Contact: 7800V

Contact-to-Ground: 9400V

DIELECTRIC STRENGTH (RH 40% at Sea Level):

300 Volts/mil thickness per ASTM #D149

UL HIGH VOLTAGE ARC TRACKING (INCHES/MIN.):

.49-.58

WATER ABSORPTION (24 hrs. % wt. gain): 0.45% per ASTM D570

FLAMMABILITY: UL94V-1

CHEMICAL RESISTANCE: Resistant to acids, alkalis, and aliphatic hydrocarbons and ketones, per ASTM D543.

RADIATION RESISTANCE (ergs g-1 (C)): 2.7 x 10⁸ min.

COLOR: Black

**INDEPENDENT TESTING SERVICE
 LISTING AND RECOGNITION**

WIRE SIZES, Solid or Stranded Tubular Screw

Tubular Screw

1 #4 AWG, 1 #6 AWG,

1 or 2 #8 AWG, 1 to 4 #10 AWG,

1 or 5 #12 AWG, 1 to 6 #14 AWG,

1 or 6 #16 AWG, 1 to 8 #18 AWG,

Tubular Clamp

1 #6 AWG, 1 or 2 #8 AWG,

1 to 3 #10 AWG, 1 to 4 #12 AWG,

1 or 4 #14 AWG, 1 to 6 #16 AWG,

1 or 8 #18 AWG

Strap Clamp

1 #18 to 1 #8 AWG

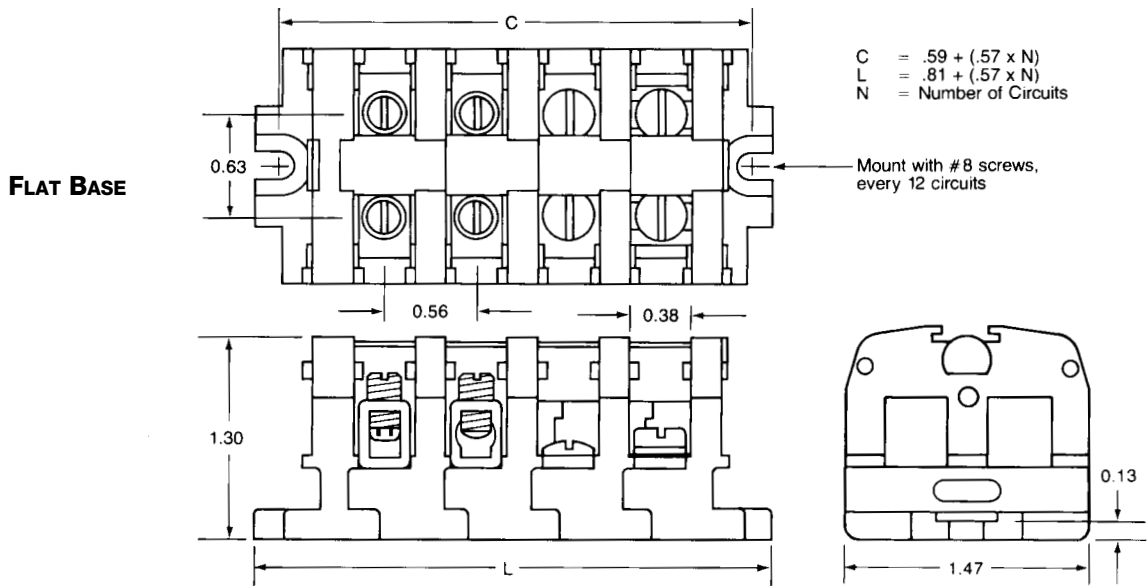


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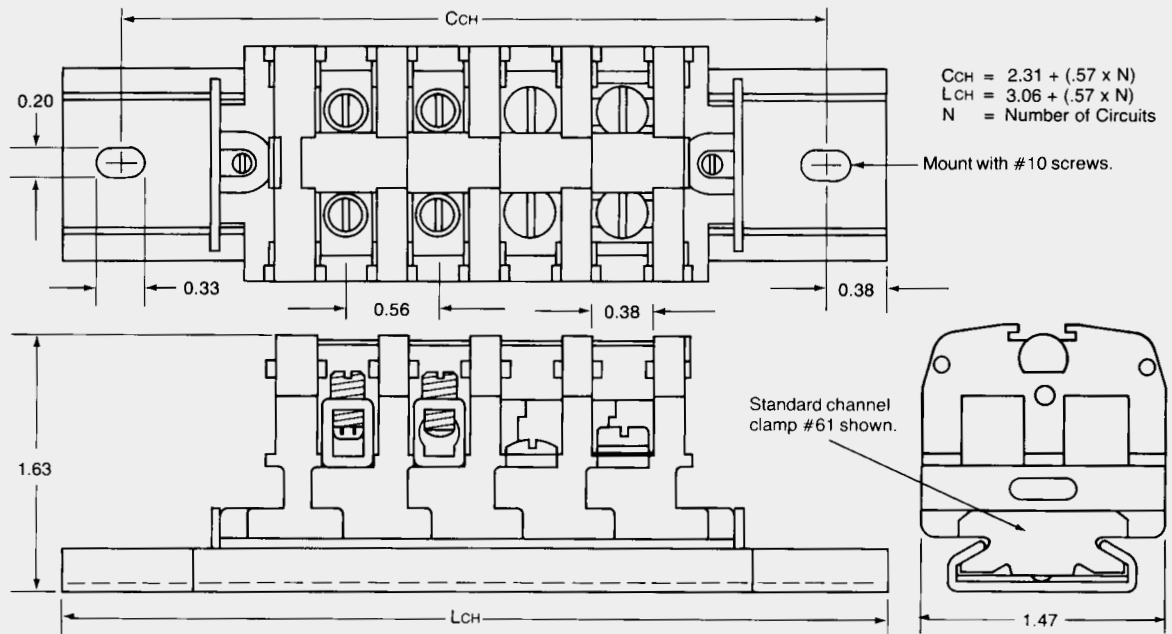
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For complete product information, order Catalog 1308389

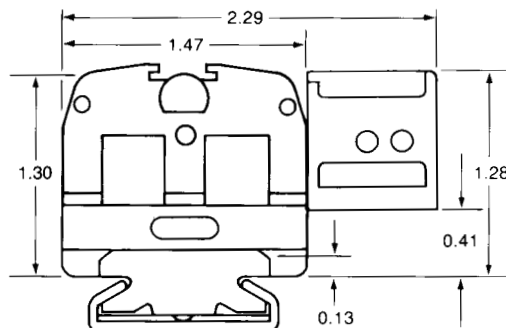
200 Series, Heavy Duty Phenolic



DOVETAIL BASE MOUNTED ON STANDARD #60 CHANNEL



SECTIONAL FANNING STRIPS



For complete product information, order Catalog 1308389

800 Series, Intermediate Heavy Duty

DESCRIPTION / APPLICATION

This line of 600 volt blocks is rated up to 150 A and is available in a standard version and a corrosion resistant version.

DESIGN ADVANTAGES

- An exceptionally compact block that accepts single or combinations of AWG wire sizes as large as #1/0 — at least 92 circuits per 6-foot length, 3/4 inch center-to-center spacing.
- Tubular screw contact style accepts AWG wire sizes from #12 thru #1/0, solid or stranded.
- Same block mounts on surface or channel — two-way mounting base fits standard channel or mounts directly to flat surfaces.
- Packaged for rapid handling and assembly — snap-fit sections packaged 10 per carton.
- Contacts conservatively rated at 155 amperes per circuit when used with copper wire.
- Only one end section needed per block assembly.
- Readily identify circuits — blocks available with painted marking surface or use removable vinyl marking strip. Preprinted marking strips are also available.
- Factory assembled blocks available.
- Nylon housing material for the most rugged applications.
- Allen head screw for aluminum wire — screw tip design helps protect aluminum wire from overtightening. Slotted screw head for copper wire.
- Intermediate Heavy Duty blocks snap-fit with 300 & 600V, Medium Duty phenolic, Heavy Duty nylon, polypropylene and phenolic and Fuse and Switch blocks.



For complete product information, order Catalog 1308389



800 Series, Intermediate Heavy Duty, 600 V, 0.75" Pitch

PHYSICAL PROPERTIES

Housing

MATERIAL: Polyamide type 6/6, unfilled
MAX CONTINUOUS TEMP.: 125° C (257° F)
WATER ABSORPTION (24HRS. % WT. GAIN): 1.5%
FLAMMABILITY: 94V-2
CHEMICAL RESISTANCE: Resistant to aromatic hydrocarbons, strong alkalis
RADIATION RESISTANCE (ERGS G⁻¹ (C): 8 x 10⁷
COLOR: Translucent white

ELECTRICAL PROPERTIES

VOLTAGE RATING: Blocks meet 600V clearance and creepage requirements of NEMA, UL, and CSA standards for general industrial control equipment and panelboards. Withstand voltages in excess of IEEE switchgear standards for 750V.
BREAKDOWN VOLTAGE, AC, 60Hz:
 Contact-to-Contact: 8,800V
 Contact-to-Ground: 9000V
DIELECTRIC STRENGTH — RH 40% @ SEA LEVEL:
 470-385 Volts/mil thickness per ASTM D149
OPERATING VOLTAGE: Blocks meet 600V creepage and clearance requirements; withstand voltage greatly exceeds standards for 750V
UL HIGH VOLTAGE ARC TRACKING (IN./MIN.): .01-.35

CONTACTS

Standard Contacts

MATERIAL: Electrical grade copper conductor
SCREWS: Steel, zinc plated to resist corrosion in most applications

**Duramax Contacts
(for highly corrosive atmospheres)**

TUBULAR SCREW: Electrical grade copper tube with nickel plating; nickel plated brass screws. Nickel plating exceeds specification QQ-N-290 Class 1, Type VII.
WIRE RANGE: #12-1/0 AWG, solid or stranded
WIRE STRIP LENGTH: 11/16"
SCREW TYPE: 7/16" - 20 slotted headless screw

INDEPENDENT TESTING SERVICE LISTING AND RECOGNITION

UL WIRE SIZES: Solid or Stranded, Tubular Screw
 1 — #1/0 AWG, 1 — #1 AWG
 1 — #2 AWG, 1 or 2 — #4 AWG
 1, 2 or 3 — #6 AWG, 1, 2, 3 or 5 — #8 AWG
 1 to 6 — #10 AWG, 1 to 7 — #12 AWG

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.



Ordering Information

CATALOG #	DESCRIPTION
814	Tubular Screw, Unpainted
824-BU	Tubular Screw, Painted
D814-BU	Corrosion Resistant, Unpainted
D824	Corrosion Resistant, Painted
830-BU	End Section

NOTES:

For factory assembled blocks on channel, prefix Catalog # with "0" and suffix with number of blocks desired. Without channel (maximum of 6 sections) delete "0".
 Example: Ten tubular screw sections preassembled on channel = 082410


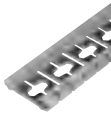






For unpainted factory assembled blocks supplied with a removable marking strip add -1 to Catalog Number.







For blocks with two or more different contact sections, imprinted marking strips or special features; consult the Technical Support Center.

For complete product information, order Catalog 1308389



800 Series, Intermediate Heavy Duty Accessories

MOUNTING CHANNEL			CHANNEL CLAMPS				
							
STEEL CHANNEL	BREAK AWAY STEEL	PRE-PUNCHED ALUMINUM CHANNEL	SCREW CHANNEL CLAMPS	UNIVERSAL CLAMPS	SNAP-IN CLAMPS	SEE-THRU COVER	GANGING ROD
Catalog Number							
60 63-BU	60-B-36	64 67	61	68	62	93-BU	30
Standard Package							
6 feet 3 feet	3 feet	6 feet 3 feet	100	100	100	25	2 feet

MARKING ACCESSORIES					JUMPERS
					
PLASTIC CLOTH TAPE	PLASTIC CLOTH TAPE	VINYL MARKING STRIPS	ELEVATED MARKING STRIP	NYLON HOLDING PLUG	SNAP-APART JUMPER
Catalog Number					
66	55-BU	50-BU	52	16	76
Standard Package					
1 sheet	50 feet	25 feet	18 inches	100	12 ckt

Note: Before ordering, see Cross Reference in Section 15 for equivalent Tyco Electronics Part Number.

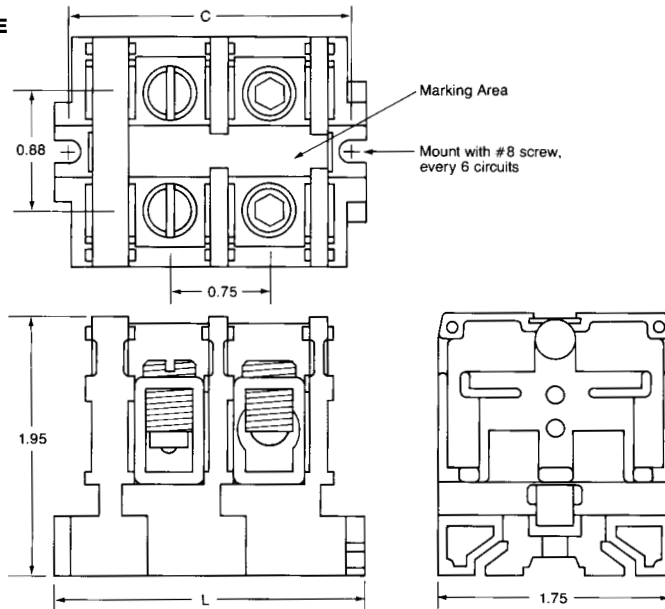
RELATED PRODUCT DATA

For more information on AMP Standard Terminals and Splices or Quick-Connect FASTON Receptacles and Tabs, request Catalog 82042.

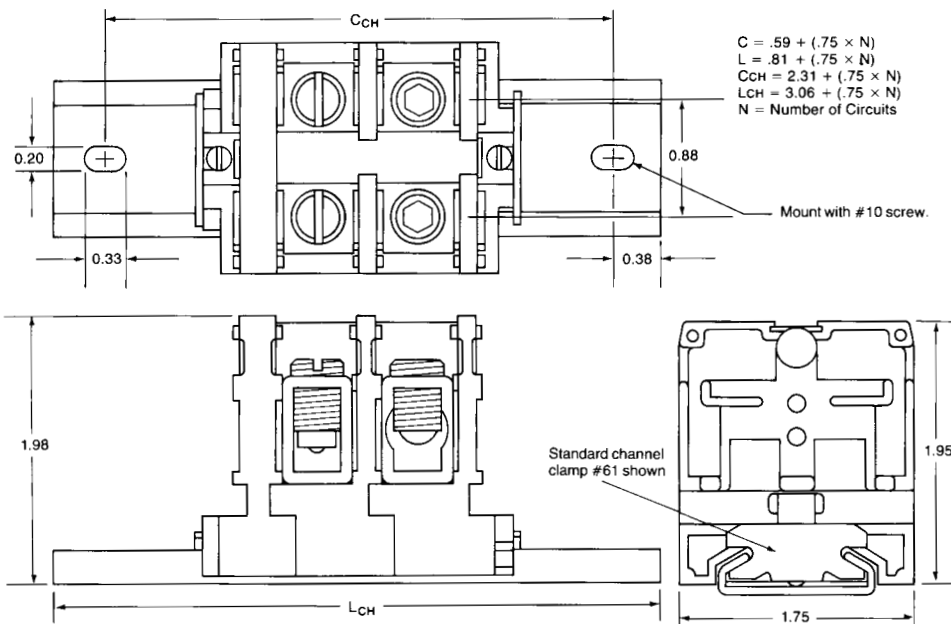
For complete product information, order Catalog 1308389

800 Series, Intermediate Heavy Duty

FLAT BASE



DOVETAIL BASE MOUNTED ON STANDARD #60 CHANNEL



For complete product information, order Catalog 1308389



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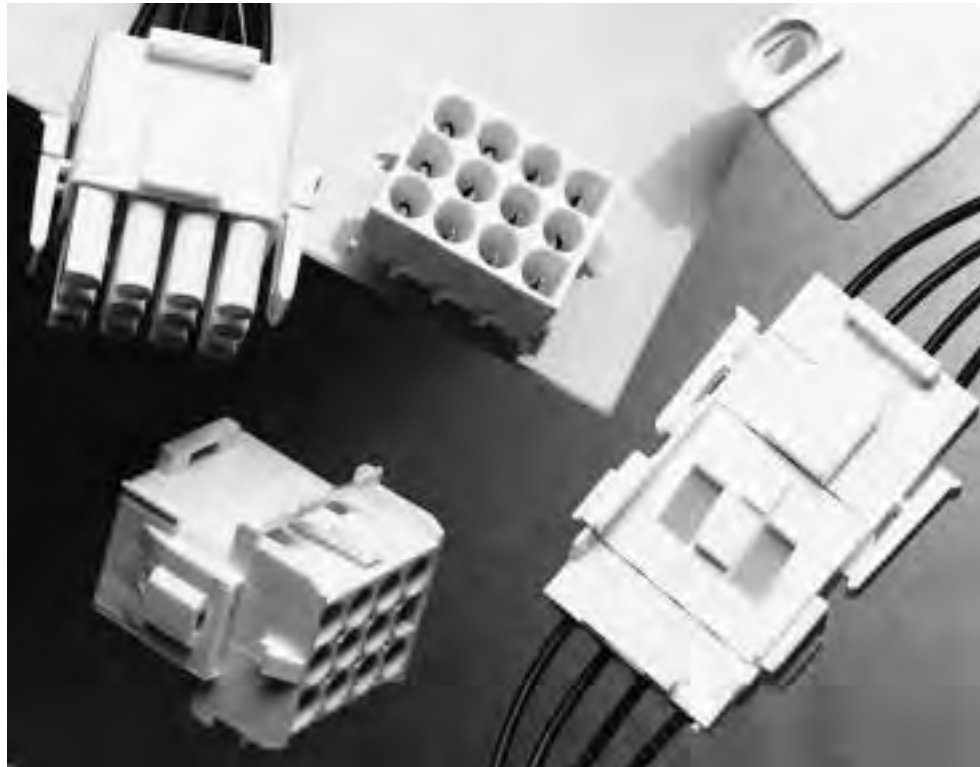
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Product Facts

- Ultimate reliability
- For use where repair or replacement would be difficult
- Pins and sockets can be intermixed in the same housing
- Available in 2 thru 15 circuit sizes for free hanging or panel mount wire-to-wire connection
- Mate with standard Universal MATE-N-LOK Housings and PC Board Headers
- Uses standard Universal MATE-N-LOK panel cutouts and strain reliefs
- Polarized housings available in UL94V-0 flammability rated material
- Enclosed contacts for shock protection
- F-Crimp terminals accept 30-10 AWG [.05-5.0 mm²] wire sizes
- Contacts available in strip and loose form
- Lanceless contacts for tangle free handling
- Insulation capability to .200 [5.08] diameter
- Connector design provides for complete contact insertion
- Three-point stabilization precisely controls contact alignment, minimizing stubbing
- Tin or duplex gold plated contacts
- Contacts are on .250 [6.35] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189
- Passed test by VDE under their Registration Number 3980/Continuous Surveillance



Performance Characteristics:

The Universal MATE-N-LOK II Connector performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage — 5.0 KV AC or DC between adjacent circuits initially

Insulation Resistance — 1000 megohms minimum between adjacent circuits

Voltage Rating — 600V AC or DC

Connector Mating — Split Pin — 1.5 lb. max. per circuit

Connector Unmating — Split Pin — .5 lb. min. per circuit

Contact Insertion Force — 3.0 lb. max. per contact unassembled

Contact Retention — 35 lb. min. per contact

Durability — 50 cycles, mating and unmating

Technical Documents:

Product Specification
108-1090 Universal MATE-N-LOK II Connectors

Application Specification
114-1043 Universal MATE-N-LOK II Contacts

Instruction Sheet
408-3200 Housing, Contacts and Accessories

For complete product information, order Catalog 82181

Universal MATE-N-LOK II Connector Mating Combinations

Connector Part Numbers				Mating Connector Part Numbers									
Number of Circuits	Flammability Rating	Style	Plug Kit Part Numbers ²	Cap Kit Part Numbers ²	Plating	PC Board Headers							
						Vertical Pin ²			Vertical Socket ²			Right-Angle ²	
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket
2	UL94V-0	In-Line	770017-1	770024-1	Pre-tin	350786-1	641964-1	350787-1	350824-1	643412-1	350831-1	1-350942-0	643226-1
					Duplex ¹	350786-2	641964-2	350787-2	350824-2	—	—	2-350942-0	—
3	UL94V-0	In-Line	770018-1	770025-1	Pre-tin	350789-1	641966-1	350790-1	350825-1	643414-1	350832-1	1-350943-0	643228-1
					Duplex ¹	350789-2	—	350790-2	350825-2	643414-2	350832-2	2-350943-0	—
4	UL94V-0	In-Line	770019-1	770026-1	Pre-tin	350792-1	641968-1	350793-1	350826-1	643416-1	350833-1	1-350944-0	643230-1
					Duplex ¹	350792-2	—	350793-2	350826-2	—	350833-2	2-350944-0	643230-2
5	UL94V-0	In-Line	770016-1	—	Pre-tin	640900-1	643406-1	—	640901-1	—	—	1-350945-0	643232-1
					Duplex ¹	640900-2	—	—	640901-2	—	—	2-350945-0	643232-2
6	UL94V-0	Matrix	770020-1	770027-1	Pre-tin	350711-1	641970-1	350732-1	350827-1	643424-1	350834-1	—	—
					Duplex ¹	350711-2	641970-2	350732-2	350827-2	643424-2	350834-2	—	—
9	UL94V-0	Matrix	770021-1	770028-1	Pre-tin	350712-1	641972-1	350742-1	350828-1	643426-1	350835-1	—	—
					Duplex ¹	350712-2	641972-2	350742-2	350828-2	643426-2	350835-2	—	—
12	UL94V-0	Matrix	770022-1	770029-1	Pre-tin	350713-1	641974-1	350737-1	350829-1	643428-1	350836-1	—	—
					Duplex ¹	350713-2	641974-2	350737-2	350829-2	—	350836-2	—	—
15	UL94V-0	Matrix	770023-1	770030-1	Pre-tin	350714-1	641976-1	350738-1	350830-1	643430-1	350837-1	—	—
					Duplex ¹	350714-2	—	350738-2	350830-2	—	350837-2	—	—

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Universal MATE-N-LOK II Plug and Cap housings accept pin or socket contacts. Use the appropriate contacts in the Plug housing as required by the mating component.

For complete product information, order Catalog 82181

Contacts

Product Specifications:

Split pin diameter—.086 [2.18]
Stock thickness—.012 [.305]

These contacts can be used in either Universal MATE-N-LOK II Plug or Cap housings.

Related Product Data:

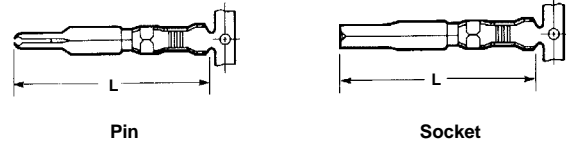
Performance Characteristics — page 9003
Housings — pages 9006-9008
Application Tooling — pages 9081-9083

Technical Documents:

pages 9003 and 9080
Product Specification
 108-1090 Universal MATE-N-LOK II Connectors

Application Specification

114-1043 Universal MATE-N-LOK II Contacts



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
		Pin	Socket		Pin		Socket			
					Strip Form	Loose Form	Strip Form	Loose Form		
30-26 [.05-.12]	.032-.057 .813-1.45	1.005 25.53	.980 24.90	Phos. Brz. Gold ¹	770011-6	770512-6	770012-6	770416-6	567252-1 ⁶ 567252-4 ⁶	58439-1
				Brass. Pre-tin	770009-1	770252-1	—	—		
24-18 [.2-.8]	.040-100 1.02-2.54	1.005 25.53	.980 24.90	Brass. Duplex ²	770009-2	770252-2	—	—	567214-1 ⁶ 567214-2 ⁶ 567214-4 ⁶	90300-2
				Phos. Brz. Pre-tin	—	—	770010-3	770253-3		
				Phos. Brz. Duplex ²	—	—	770010-4	770253-4		
				Brass. Pre-tin	770007-1	770250-1	—	—		
20-14 [.5-2.0]	.060-.130 1.52-3.30	1.005 25.53	.980 24.90	Brass. Duplex ²	770007-2	770250-2	—	—	567213-1 ⁶ 567213-2 ⁶ 567213-4 ⁶	90296-2
				Phos. Brz. Pre-tin	—	—	770008-3	770251-3		
				Phos. Brz. Duplex ²	—	—	770008-4	770251-4		
				Brass. Pre-tin	770005-1	770248-1	—	—		
20-14 [.5-2.0]	.130-.200 3.30-5.08	.995 25.27	.970 24.63	Brass. Duplex ²	770005-2	770248-2	—	—	567212-1 ⁶ 567212-2 ⁶ 567212-4 ⁶	90298-2 ⁴ 90299-2 ⁴
				Phos. Brz. Pre-tin	—	—	770006-3	770249-3		
				Phos. Brz. Duplex ²	770005-4	—	770006-4	770249-4		
				Phos. Brz. Pre-tin	770003-3	770246-3	770004-3	770247-3	567211-1 ⁶ 567211-2 ⁶ 567211-4 ⁶	69710-1 ⁵
12-10 [3.0-5.0]	.200 max.³ 5.08	1.005 25.53	.980 24.90	Phos. Brz. Duplex ²	770003-4	770246-4	770004-4	770247-4		

¹ Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.
² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000050 [.00127] min. tin-lead in crimp area over .000050 [.00127] min. nickel underplate on entire contact.

³ There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing. Use of strain relief is recommended with these contacts.

⁴ Use Hand Tool No. **90298-2** for 20–18 AWG and No. **90299-2** for 16–14 AWG.

⁵ Hand Tool No. 69710-1 uses die set No. **58380-1** for 12 AWG and No. **58380-2** for 10 AWG.

⁶ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 is used on AMP-O-LECTRIC Model G Machine. See page 9083 for further information.

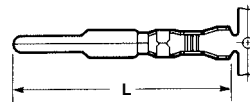
Grounding Pin

(Mate first, break last, not for interrupting current)

Solid pin diameter—.084 [2.13]
 .100 [2.54] longer than standard pin

Stock thickness—.012 [.304]

These contacts can be used in either Universal MATE-N-LOK II Plug or Cap housings only.



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.	Material & Finish	Contact Part Numbers		HDM Applicator Part Numbers	Hand Tool Part Numbers
				Strip Form	Loose Form		
20-14 [.5-2.0]	.060-.130 1.52-3.30	1.105 25.53	Brass. Pre-tin	770193-1	770254-1	567213-1 ³ 567213-2 ³ 567213-4 ³	90296-2
			Brass. Duplex ¹	770193-2	770254-2		
20-14 [.5-2.0]	.130-.200 3.30-5.08	1.085 27.56	Brass. Pre-tin	770194-1	770255-1	567212-1 ³ 567212-2 ³ 567212-4 ³	90298-2 90299-2 ²
			Brass. Duplex ¹	770194-2	770255-2		

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000050 [.00127] min. tin-lead in crimp area over .000050 [.00127] min. nickel underplate on entire contact.

² Use Hand Tool No. **90298-2** for 20–18 AWG and No. **90299-2** for 16–14 AWG.

³ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 is used on AMP-O-LECTRIC Model G Machine. See page 9083 for further information.



Latch Disengaging Tool
 Part Number 58382-1
IS 408-9436

For complete product information, order Catalog 82181



Contact Extraction Tool
 (For extracting contacts crimped on 24 AWG or smaller wire)
 Part Number 318851-1
IS 408-4371



Contact Insertion Tool
 (For inserting contacts applied to small diameter wire)
 Part Number 91002-1
IS 408-7347

Housing Kits, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Nylon

Flammability Rating—UL 94V-0

Related Product Data:

Performance Characteristics—
page 9003

Contacts—page 9005

Panel Cutout Recommendations—
page 9008

Test Connectors—page 9028

Keying Plug—page 9009

Strain Reliefs—page 9009

Kit Components—page 9008

Technical Documents: pages 9003
and 9080

Product Specification
108-1090 Universal MATE-N-LOK II
Connectors

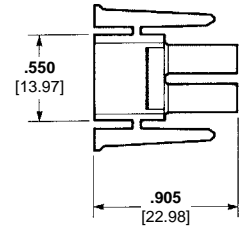
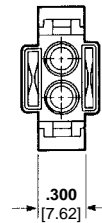
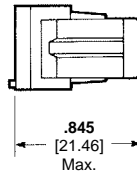
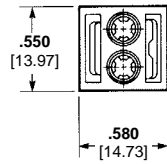
Other Mating Connectors:

Universal MATE-N-LOK Housings—
page 9019

Universal MATE-N-LOK Headers—
pages 9010 thru 9012

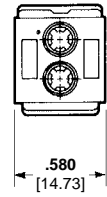
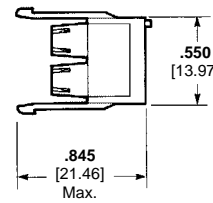
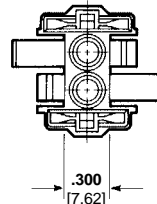
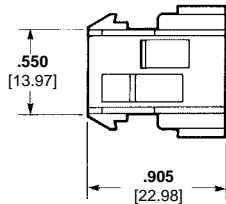
Universal MATE-N-LOK Test
Connectors—page 9028

2 Circuit, In-line



Plug Rear

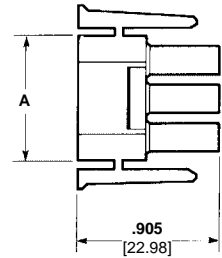
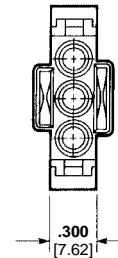
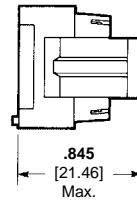
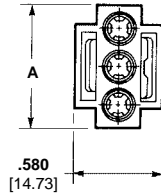
Plug Front



Cap Front

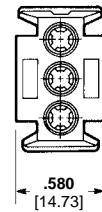
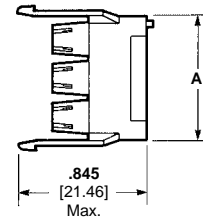
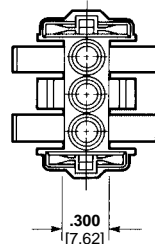
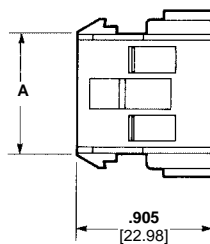
Cap Rear

3, 4 and 5 Circuit, In-Line



Plug Rear

Plug Front



Cap Front

Cap Rear

Number of Circuits	A Dim.	Kit Part Numbers (Includes Front and Rear)	
		Plug	Cap
2	—	770017-1	770024-1
3	.800 20.32	770018-1	770025-1
4	1.050 26.67	770019-1	770026-1
5	1.300 33.02	770016-1 ⁴	—

- Notes:**
1. Kits consist of a front and rear component.
 2. Kit components can be purchased separately. Page 9008
 3. Packaging: Bulk—250 each component per poly bag/box.
 4. Mates with standard Universal MATE-N-LOK cap housing Part Number 350810-1 and 640900-X or 640901-X Vertical headers.

For complete product information, order Catalog 82181

Housing Kits, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.250 [6.35]

Material :

Nylon

Flammability Rating—UL 94V-0

Related Product Data:

Performance Characteristics—
page 9003

Contacts— page 9005

Test Connectors— page 9028

Panel Cutout Recommendations—
page 9008

Keying Plug— page 9009

Strain Reliefs— page 9009

Kit Components— page 9008

Technical Documents: pages 9003
and 9080

Product Specification

108-1090 Universal MATE-N-LOK II
Connectors

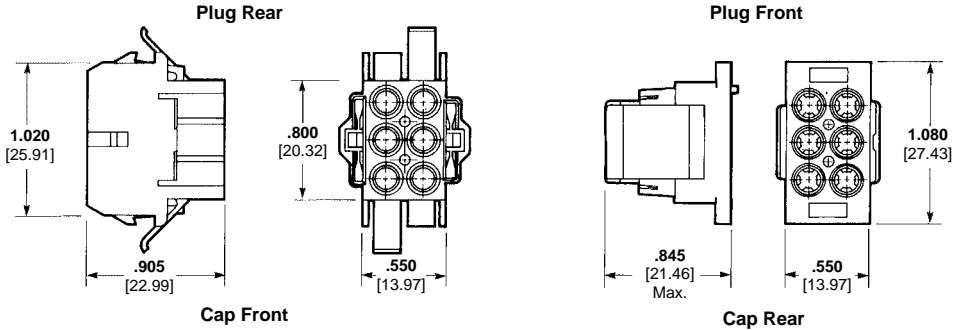
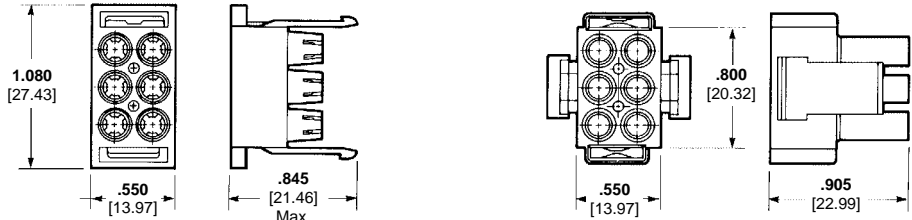
Other Mating Connectors:

Universal MATE-N-LOK
Connectors— page 9019

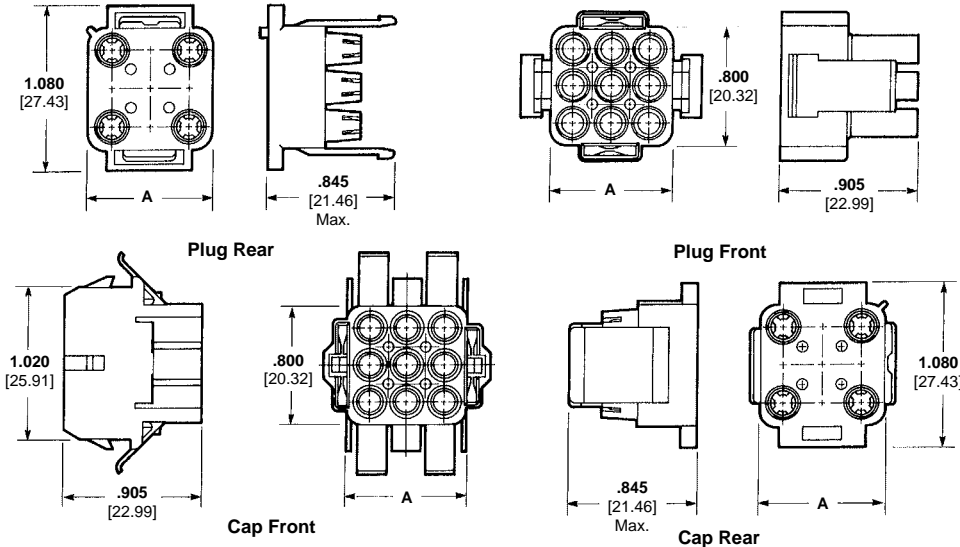
Universal MATE-N-LOK Headers—
pages 9010 thru 9012

Universal MATE-N-LOK Test
Connectors— page 9028

6 Circuit, Matrix



**9, 12 and 15 Circuit,
Matrix**



Number of Circuits	A Dim.	Kit Part Numbers (Includes Front and Rear)	
		Plug	Cap
6	—	770020-1	770027-1
9	.800 20.32	770021-1	770028-1
12	1.050 26.67	770022-1	770029-1
15	1.300 33.02	770023-1	770030-1

- Notes:**
1. Kits consist of a front and rear component.
 2. Kit components can be purchased separately. Pg. 9008
 3. Packaging: Bulk—250 each component per poly bag/box.

For complete product information, order Catalog 82181

Housing Components, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Nylon

Flammability Rating—UL 94V-0

Related Product Data:

Performance Characteristics — page 9003

Contacts — page 9005

Illustrations and Dimensions — pages 9006, 9007

Panel Cutout Recommendations — page 9008

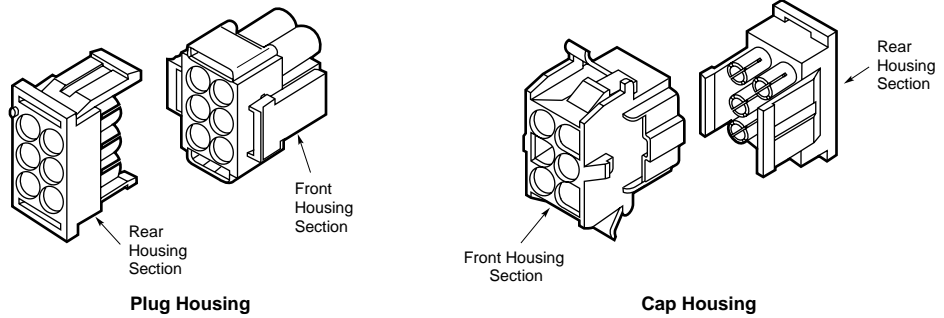
Keying Plug — page 9009

Strain Reliefs — page 9009

Technical Documents: pages 9003 and 9080

Product Specification

108-1090 Universal MATE-N-LOK II Connectors



Number of Circuit	Kit Component Part Numbers					
	Plug			Cap		
	Kit	Front	Rear	Kit	Front	Rear
2	770017-1	770031-1	770032-1	770024-1	770045-1	770046-1
3	770018-1	770033-1	770034-1	770025-1	770047-1	770048-1
4	770019-1	770035-1	770036-1	770026-1	770049-1	770050-1
5	770016-1	770319-1	770320-1	—	—	—
6	770020-1	770037-1	770038-1	770027-1	770051-1	770052-1
9	770021-1	770039-1	770040-1	770028-1	770053-1	770054-1
12	770022-1	770041-1	770042-1	770029-1	770055-1	770056-1
15	770023-1	770043-1	770044-1	770030-1	770057-1	770058-1

- Notes:**
1. Kits consist of a front and rear component.
 2. Kit components can be purchased separately.

Other Mating Connectors:

Universal MATE-N-LOK Connectors — page 9019

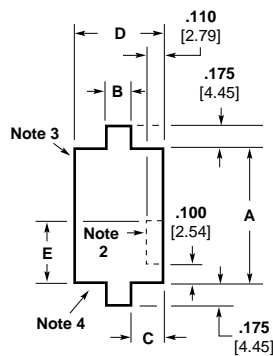
Universal MATE-N-LOK Headers — pages 9010 thru 9012

Universal MATE-N-LOK Test Connectors — page 9028

Recommended Cap Housing Panel Cutout

View is from cap entry side

Refer to Application Specification 114-1043



Number of Circuits	Dimensions				
	A	B	C	D	E
2	.565 14.35	.340 8.63	.095 2.41	.530 13.46	.250 6.35
3	.815 20.70	.340 8.63	.095 2.41	.530 13.46	.250 6.35
4	1.065 27.05	.340 8.63	.095 2.41	.530 13.46	.250 6.35
6	.565 14.35	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
9	.815 20.70	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
12	1.065 27.05	.480 12.19	.275 6.99	1.030 26.16	.350 8.89
15	1.315 33.40	.480 12.19	.275 6.99	1.030 26.16	.350 8.89

Notes:

1. Recommended panel thickness—.030-.090 [.762-2.286]. Panel must be punched so that housing enters panel in same direction as the punch.
2. Optional—Do not remove this material when keying cap housing to panel.
3. Circuit #1 location when using panel keying with 6, 9, 12 and 15 circuit housings.
4. Circuit #1 location when using panel keying with 2, 3, and 4 circuit housings.

For complete product information, order Catalog 82181

Plug or Cap Housing Strain Reliefs

Instruction Sheet:

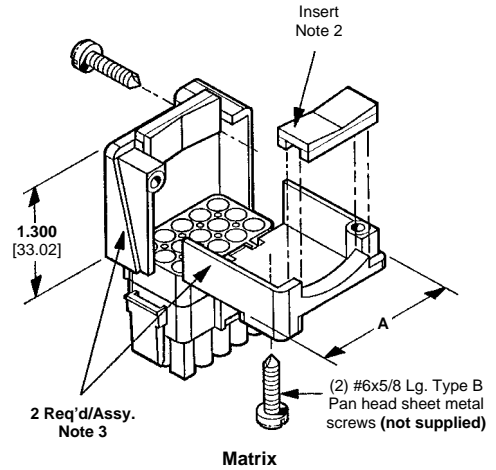
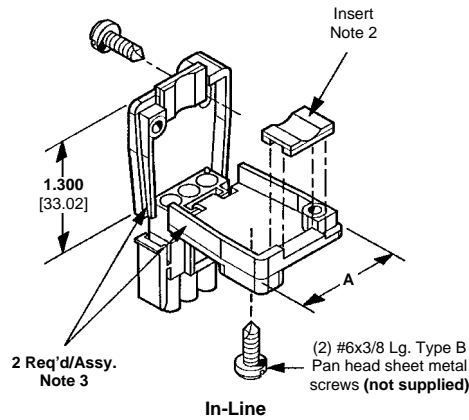
IS 408-3320

Material:

Nylon

Flammability Rating — UL 94V-0

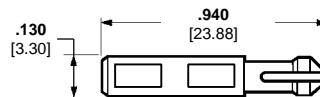
2, 3, 4, 5, 6, 9, 12 and 15 Circuit (Enclosed)



Style	Number of Circuits	A Dim.	Insert Supplied	Single Wire Dia. Range	Wire Bundle Dia. Range	Strain Relief Part Numbers
In-Line	2	.960 24.38	Yes	.040 – .190 1.02 – 4.83	—	640713-1
			No	—	.200 – .350 5.08 – 8.89	640713-2
	3	1.140 28.96	Yes	.040 – .190 1.02 – 4.83	—	640714-1
			No	—	.200 – .350 5.08 – 8.89	641945-1
	4	1.340 34.04	Yes	.040 – .190 1.02 – 4.83	—	641776-1
			No	—	.200 – .350 5.08 – 8.89	641776-2
5	1.530 38.86	Yes	.040 – .190 1.02 – 4.83	—	643030-1	
		No	—	.200 – .350 5.08 – 8.89	643030-4	
Matrix	6	1.030 26.16	Yes	—	.120 – .650 3.05 – 16.51	640715-1
	9	1.030 26.16	Yes	—	.120 – .650 3.05 – 16.51	640716-1
	12	1.280 32.51	Yes	—	.150 – .750 3.81 – 19.05	640717-1
	15	1.530 38.86	Yes	—	.200 – .850 5.08 – 21.59	640718-1

- Notes:** 1. Insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
 2. Insert to be positioned as shown by dotted lines.
 3. Strain relief part number represents one-half of a strain relief. Two of a part number are required for one connector.

Keying Plug



Related Product Data:

Housings — pages 9006 thru 9008

Part Number
UL94V-0 Nylon material — **770377-1**

Technical Documents: pages 9003 and 9080

IS 408-3200

For complete product information, order Catalog 82181

PC Board Vertical Pin Headers

Product Specification:
Centerline spacing—.250 [6.35]

Material:
Housing—Nylon
Flammability Rating—UL94V-0
Contacts—Phosphor bronze
Solder tail diameter .062 [1.57]

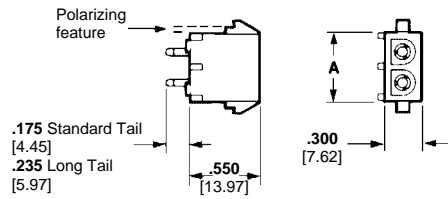
Related Product Data:
Performance Characteristics—
page 9015

Technical Documents: pages 9015
and 9080

Product Specification
108-1053 Universal MATE-N-LOK
PC Board Headers

Mating Connectors:
**Universal MATE-N-LOK II
Plug Housings**— pages 9006 thru
9008
**Universal MATE-N-LOK
Plug Housings**— page 9019

2, 3, 4 and 5 Circuit, In-Line



Number of Circuits	A Dim.	Pin Finish	Pin Header Part Numbers				Mates with Plug Housing Part Numbers (Using Socket Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	ACTION PIN Tail Polarized	Long Tail ³	UMNL II	UMNL
2	.550 13.97	Pre-tin	350786-1	641964-1 1-641964-1 ⁴	—	350787-1	770017-1	350777-1
		Duplex ¹	350786-2	641964-2	—	350787-2		
3	.800 20.32	Pre-tin	350789-1	641966-1 1-641966-1 ⁴	—	350790-1	770018-1	350766-1
		Duplex ¹	350789-2	—	—	350790-2		
4	1.050 26.67	Pre-tin	350792-1	641968-1	1318725-1 ⁴	350793-1 350793-2	770019-1	350779-1
		Duplex ¹	350792-2	643406-1	—	—		
5	1.300 33.02	Pre-tin	640900-1	643406-3 ⁴	—	—	770016-1	350809-1
		Duplex ¹	640900-2	—	—	—		

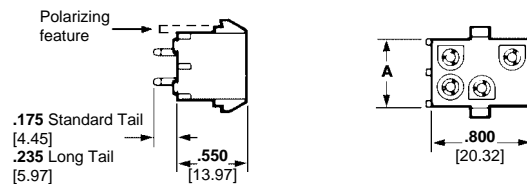
¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Use Standard Tail for .062 [1.57] thick PC Board.

³ Use Long Tail for .125 [3.18] thick PC Board.

⁴ Black in color.

6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Numbers (Using Socket Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL II	UMNL
6	.550 13.97	Pre-tin	350711-1	794605-1 ⁴	350732-1	770020-1	350715-1
		Duplex ¹	350711-2	641970-2	350732-2		
9	.800 20.32	Pre-tin	350712-1	641972-1 794603-1 ^{4,5} 794674-1	350742-1	770021-1	350720-1
		Duplex ¹	350712-2	641972-2 1-641972-1 ⁴	350742-2		
		Pre-tin	350713-1	641974-1 1-641974-1 ⁴	350737-1		
12	1.050 26.67	Duplex ¹	350713-2	641974-2	350737-2		
		Pre-tin	350714-1	641976-1	350738-1	770023-1	350736-1
15	1.300 33.02	Duplex ¹	350714-2	—	350738-2		

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Use Standard Tail for .062 [1.57] thick PC Board.

³ Use Long Tail for .125 [3.18] thick PC Board.

⁴ Black in color.

⁵ Material—UL 94V-2.

For complete product information, order Catalog 82181

PC Board Vertical Socket Headers

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Housing—Nylon

Flammability Rating—UL94V-0

Contacts—Phosphor bronze
Solder tail diameter .062 [1.57]

Related Product Data:

Performance Characteristics—
page 9015

Technical Documents: pages 9015 and
9080

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Mating Connectors:

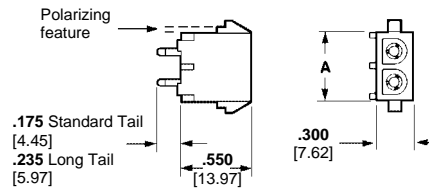
Universal MATE-N-LOK II

Plug Housings—pages 9006 thru
9008

Universal MATE-N-LOK

Plug Housings—page 9019

2, 3, 4 and 5 Circuit, In-Line



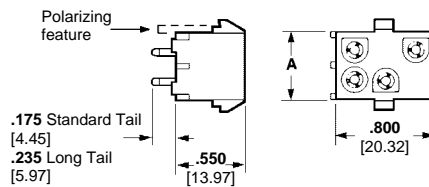
Number of Circuits	A Dim.	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Numbers (Using Pin Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL II	UMNL
2	.550 13.97	Pre-tin	350824-1	643412-1	350831-1	770017-1	350777-1
		Duplex ¹	350824-2	643412-2	—		
3	.800 20.32	Pre-tin	350825-1	643414-1	350832-1	770018-1	350766-1
		Duplex ¹	350825-2	643414-2	350832-2		
4	1.050 26.67	Pre-tin	350826-1	643416-1	350833-1	770019-1	350779-1
		Duplex ¹	350826-2	—	350833-2		
5	1.300 33.02	Pre-tin	640901-1	—	—	770016-1	350809-1
		Duplex ¹	640901-2	—	—		

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Use Standard Tail for .062 [1.57] thick PC Board.

³ Use Long Tail for .125 [3.18] thick PC Board.

6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Numbers (Using Pin Contacts)	
			Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL II	UMNL
6	.550 13.97	Pre-tin	350827-1	643424-1	350834-1	770020-1	350715-1
		Duplex ¹	350827-2	643424-2	350834-2		
9	.800 20.32	Pre-tin	350828-1	643426-1	350835-1	770021-1	350720-1
		Duplex ¹	350828-2	643426-2	350835-2		
12	1.050 26.67	Pre-tin	350829-1	643428-1	350836-1	770022-1	350735-1
		Duplex ¹	350829-2	—	350836-2		
15	1.300 33.02	Pre-tin	350830-1	643430-1	350837-1	770023-1	350736-1
		Duplex ¹	350830-2	—	350837-2		

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Use Standard Tail for .062 [1.57] thick PC Board.

³ Use Long Tail for .125 [3.18] thick PC Board.

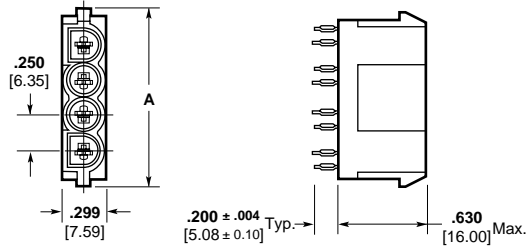
For complete product information, order Catalog 82181

PC Board Vertical Pin Headers with ACTION PIN Contacts

PC Board Vertical Pin Headers with ACTION PIN Contacts

Material:

Housing — PBT, black
Flammability Rating — UL94V-0
Contacts — Copper alloy, plated with tin-lead over nickel on entire contact



Related Product Data:

Performance Characteristics — page 9015

Technical Documents: pages 9015 and 9080

Product Specification
 108-5222 ACTION PIN Universal MATE-N-LOK ACTION PIN Header Assembly

Number of Circuits	A Dim.	Part Numbers	Mates with Housing Part Numbers (Using Socket Contacts)	
			UMNL II	UMNL
2	.750 19.05	173924-1*	770017-1	350777-1
3	1.000 25.40	173925-1*	770018-1	350766-1
4	1.250 31.75	173926-1*	770019-1	350779-1

Note: Install in PC Board with arbor frame tool.

Mating Connectors:

Universal MATE-N-LOK II Plug Housings — pages 9006 thru 9008
Universal MATE-N-LOK Plug Housings — page 9019

Product Specification:

Centerline spacing — .250 [6.35]

Material:

Housing — Nylon
Flammability Rating — UL 94V-0
Contacts — Phosphor bronze
 Solder tail width .052 [1.32]

Related Product Data:

Performance Characteristics — pg. 9015

Technical Documents: pg. 9015 and 9080

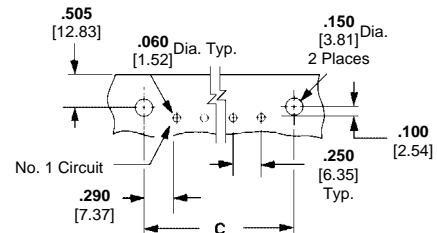
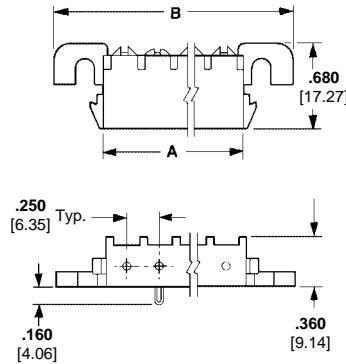
Product Specification
 108-1053 Universal MATE-N-LOK PC Board Headers

Mating Connectors:

Universal MATE-N-LOK II Plug Housings — pg. 9006 and 9008
Universal MATE-N-LOK Plug Housings — pg. 9019

PC Board Right-Angle Pin and Socket Headers

2, 3, 4 and 5 Circuit, In-line



Use 6-32 UNC Pan Head Screw 3/8 [9.53] long for mounting (Not Supplied)

Recommended PC Board Hole Layout
 .062 [1.57] Board Thickness

Number of Circuits	Dimensions			Contact Finish	Right-Angle Header Part Numbers			
	A	B	C		Pin	Socket	Mates with	
							UMNL II	UMNL
2	.550 13.97	1.245 31.62	.830 21.08	Pre-tin	1-350942-0	643226-1	770017-1	350777-1
				Duplex ¹	2-350942-0	—		
3	.800 20.32	1.495 37.97	1.080 27.43	Pre-tin	1-350943-0	643228-1	770018-1	350766-1
				Duplex ¹	2-350943-0	643228-2		
4	1.050 26.67	1.745 44.32	1.330 33.78	Pre-tin	1-350944-0	643230-1	770019-1	350779-1
				Duplex ¹	2-350944-0	643230-2		
5	1.300 33.02	1.995 50.67	1.580 40.13	Pre-tin	1-350945-0	643232-1	770016-1	350809-1
				Duplex ¹	2-350945-0	643232-2		

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.



For complete product information, order Catalog 82181

Cable-to-Cable Connectors

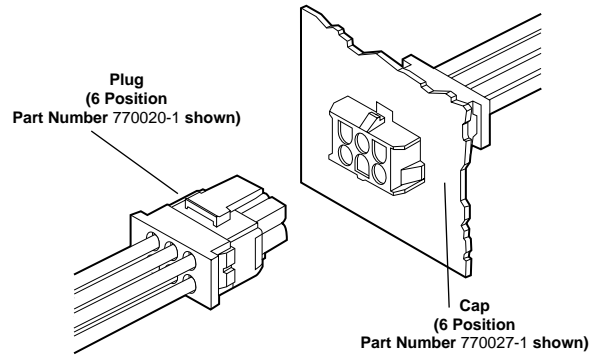
Material:

Body — Copper Alloy
Louvertac Band — Beryllium Copper
Finish — Silver

Contact Extraction Tool **Part Number** 318851-1
 Latch Disengaging Tool **Part Number** 58382-1

- **Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476** 
- **Certified by Canadian Standards Association File No. LR7189** 
- **Passed test by VDE under their Registration Number 3980/Continuous Surveillance**

Design Objective — 108-1583



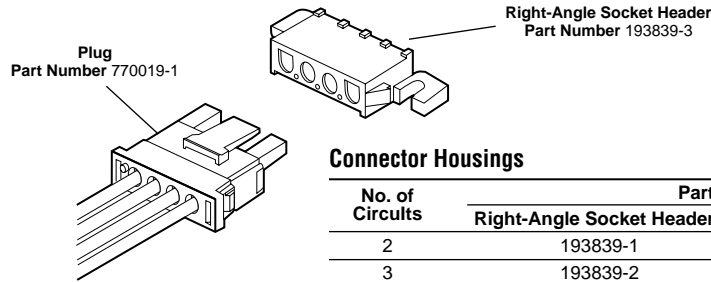
Cable-to-Right-Angle Board Connectors

Material:

Housing — UL 94V-0 Nylon
Contact Body — Copper Alloy
Louvertac Band — Beryllium Copper
Finish — Silver

Technical Documents:

Design Objective — 108-1594



Connector Housings

No. of Circuits	Part Numbers	
	Right-Angle Socket Header	Mates with Housing
2	193839-1	770017-1
3	193839-2	770018-1
4 (shown)	193839-3	770019-1
5	193839-4	770016-1

Notes: 1. High Current contacts with Louvertac bands are not intermateable with any other contact.
 2. Additional information on connectors is available in Tyco Electronics High Current Products Catalog No. 65141.

High Current Contacts

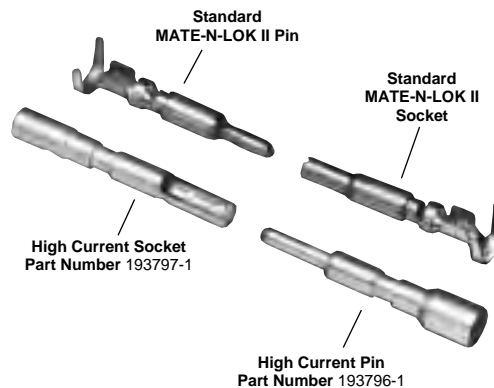
High Current Contacts

The Louvertac bands have the versatility of being designed into contact dimensions used in existing AMP connectors.

Universal MATE-N-LOK II High Current contacts have been designed to fit into an existing Universal MATE-N-LOK II housing. An initial T-Rise test of a fully energized 4 circuit connector with 10 gage wires has shown a 31 amp capability per line with a 30°C T-rise.

Contacts

Wire Size AWG	Contact Part Numbers		Crimp Tools
	Pin	Sockets	
10	193796-1	193797-1	Daniels Hand Tool #M310 or Tyco Electronics Part Number 356114-1 Positioner #TP1013 or Tyco Electronics Part Number 356337-1
12-14	193841-1	193842-1	



Connector Housings

No. of Circuits	Kit Part Numbers	
	Plug	Cap
2	770017-1	770024-1
3	770018-1	770025-1
4	770019-1	770026-1
5	770016-1	—
6	770020-1	770027-1
9	770021-1	770028-1
12	770022-1	770029-1
15	770023-1	770030-1

For complete product information, order Catalog 82181

High Current Vertical Pin Headers

High Current Universal MATE-N-LOK II Vertical Pin Headers are designed to accept Universal MATE-N-LOK II Plugs with High Current Socket contacts. All housings are polarized in order to allow proper circuit board placement. Eight versions are available from 2 circuits to 15 circuits.

Material:

Housing — UL 94V-0 Nylon
Contacts — Copper Alloy
Finish — Silver over Nickel

■ **Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476**



■ **Certified by Canadian Standards Association, File No. LR7189**



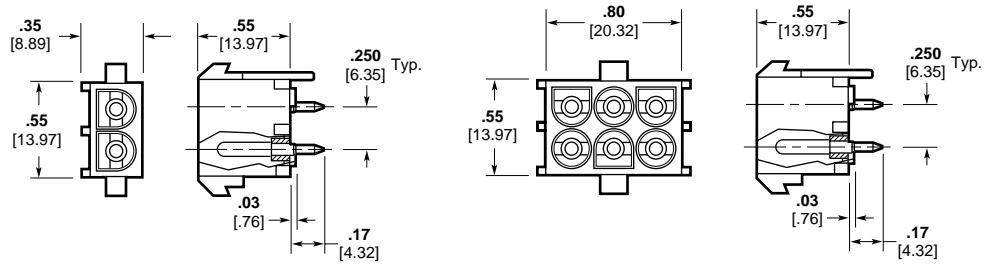
■ **Passed test by VDE under their Registration Number 3980/Continuous Surveillance**

Technical Documents:

Design Objective — 108-1594

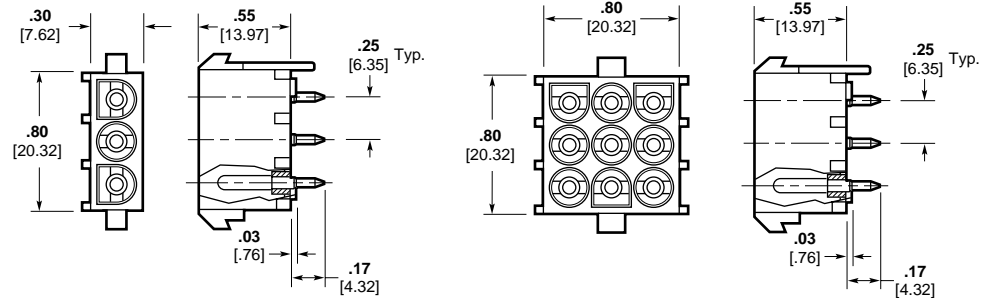
Mating Connectors:

Universal MATE-N-LOK II Plug Housings — page 9013



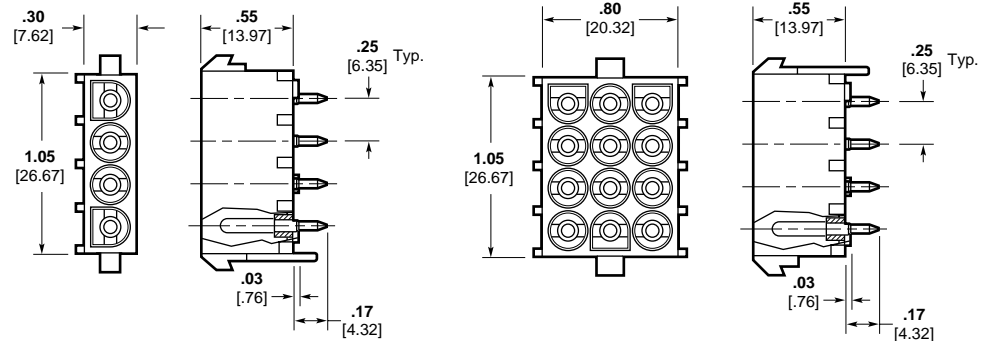
2 Circuit
Part Number 194009-1

6 Circuit
Part Number 194002-1 (Bulk Packaging)
Part Number 194002-3 (Tube Packaging)



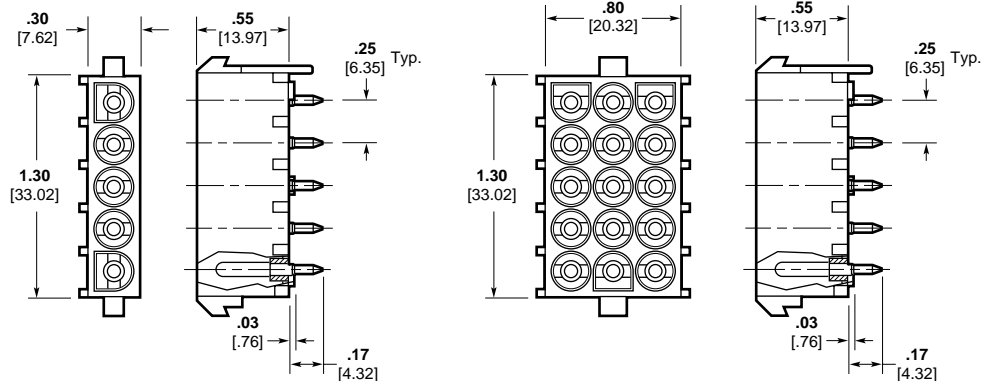
3 Circuit
Part Number 194017-1

9 Circuit
Part Number 194012-1



4 Circuit
Part Number 194010-1

12 Circuit
Part Number 194014-1 (Individual)
Part Number 194014-2 (Tube Packaging)



5 Circuit
Part Number 194018-1

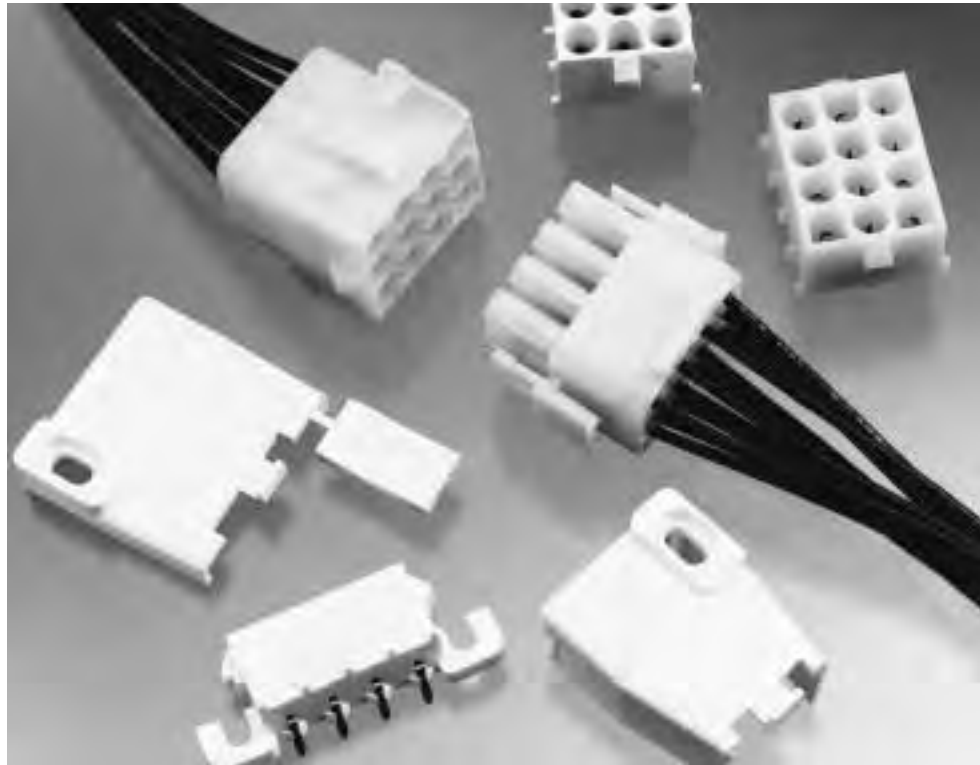
15 Circuit
Part Number 194013-1

Notes: 1. High Current contacts with Louvertac bands are not intermateable with any other contact.
2. Additional information on High Current connectors is available in Tyco Electronics Catalog No. 65141.

For complete product information, order Catalog 82181

Product Facts

- Pins and sockets can be intermixed in the same housing
- Positive polarization
- Rear cavity identification
- Contacts completely enclosed in housings
- Positive locking housings
- Insulation capability to .200 [5.08] diameter
- Removable, crimp snap-in contacts
- Low contact mating force
- Contacts accept 30-10 AWG [.05-5.0 mm²] wire sizes
- Contacts available with pre-tin or gold plating
- Dual locking lances provide optimum contact stability
- Panel mount or free hanging
- Mate with Universal MATE-N-LOK II Housings
- Available in UL 94V-0 flame retardant material. Meets the material requirements of table 25.1 of UL Standard 1410 (television receivers and video products)
- Not for interrupting current
- Harness to PC Board capability using pin or socket headers
- Pin and socket headers are available in both vertical and right-angle style
- Solderability — headers meet MIL-STD 202 Method 208
- Contacts are on .250 [6.35] centerline spacing
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 
- Passed test by VDE under their Registration Number 3980/Continuous Surveillance



Performance Characteristics:

The Universal MATE-N-LOK Connector performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage — 5.0 KVAC or 10.0 KVDC between adjacent circuits

Insulation Resistance — 1000 megohms minimum initial between adjacent circuits

Voltage Rating — 600V AC or DC

Connector Mating —
Solid Pin — 3.0 lb. max. per circuit
Split Pin — 1.5 lb. max. per circuit

Connector Unmating —
Solid Pin — .7 lb. min. per circuit
Solid Pin — .5 lb. min. per circuit

Contact Insertion Force — 5.0 lb. max. per contact

Contact Retention — 15 lb. min. per contact

Durability — 50 cycles, mating and unmating

Universal MATE-N-LOK connectors also will withstand the following tests:

Vibration — 10-55-10 cycles per minute at .06 inch total excursion

Physical Shock — 18 drops, 50 g sawtooth at 10 milliseconds

Housing Panel Retention — 75 lb. min.

Housing Lock Strength — 30 lb. min.

Thermal Shock — -55°C to +85°C

Temperature-Humidity Cycling — 25°C to 65°C at 95% RH

Corrosion — 48 hr. at 5% salt concentration

Technical Documents:

Product Specifications

108-1031 Universal MATE-N-LOK Connectors

108-1053 Universal MATE-N-LOK PC Board Headers

Application Specification

114-1010 Universal MATE-N-LOK Contacts

Instruction Sheet

408-7714 Plug, Cap, Headers, Pin, Socket and Accessories

For complete product information, order Catalog 82181

Universal MATE-N-LOK Connector Mating Combinations

Connector Part Numbers				Mating Connector Part Numbers										
Number of Circuits	Flammability Rating	Style	Plug Part Numbers ²	Cap Part Numbers ²	Plating	Vertical Pin ²			PC Board Headers			Right-Angle ²		
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket	
1	UL94V-2	—	1-350867-0 1-641084-0 ³	770421-1 1-641083-0 ³	—	—	—	—	—	—	—	—	—	—
	UL94V-0	—	350865-1	350866-1	—	—	—	—	—	—	—	—	—	—
2	UL94V-2	In-Line	1-480698-0 1-770113-0 ³	1-480699-0 1-770114-0 ³	Pre-tin Duplex ¹	350428-1 350428-2	641963-1 641963-2	350582-1 350582-2	350759-4 350759-3	643411-1	350986-4	—	—	—
	UL94V-0	In-Line	350777-1	350778-1	Pre-tin Duplex ¹	350786-1 350786-2	<u>641964-1</u> 1-641964-1 ⁴ 641964-2	350787-1 350787-2	350824-1 350824-2	643412-1	350831-1	1-350942-0	643226-1	—
3	UL94V-2	In-Line	1-480700-0 1-641771-0 ³	1-480701-0 1-641767-0 ³	Pre-tin Duplex ¹	350429-1 350429-2	641965-1	350583-1 350583-2	350760-4 350760-3	643413-1	350987-4	—	—	—
	UL94V-0	In-Line	350766-1	350767-1	Pre-tin Duplex ¹	350789-1 350789-2	<u>641966-1</u> 1-641966-1 ⁴	350790-1	350825-1	643414-1	350832-1	1-350943-0	643228-1	—
4	UL94V-2	In-Line	1-480702-0 770208-1 ³	1-480703-0 770209-1 ³	Pre-tin Duplex ¹	350430-1 350430-2	641967-1	350584-1 350584-2	350761-4 350761-3	643415-1	350988-4 350988-3	1-350948-0	—	—
	UL94V-0	In-Line	350779-1	350780-1	Pre-tin Duplex ¹	350792-1 350792-2	641968-1	350793-1 350793-2	350826-1 350826-2	643416-1	350833-1	1-350944-0	643230-1	643230-2
5	UL94V-2	In-Line	1-480763-0	1-480764-0	Pre-tin Duplex ¹	640466-1 640466-2	643405-1	—	640467-1 640467-2	—	—	1-350949-0	—	—
	UL94V-0	In-Line	350809-1	350810-1	Pre-tin Duplex ¹	640900-1 640900-2	643406-1	—	640901-1 640901-2	—	—	1-350945-0	643232-1	643232-2
6	UL94V-2	In-Line	640585-1	926307-1	Pre-tin Duplex ¹	641832-1	643407-1	—	—	—	—	640587-1	—	—
	UL94V-0	In-Line	640581-1	926307-3	Pre-tin Duplex ¹	641831-1	643408-1	—	770262-2	—	—	640583-1	643234-1	643234-2
8	UL94V-2	In-Line	640586-1	926308-1	Pre-tin Duplex ¹	641825-1	—	770143-1	—	—	—	—	—	—
	UL94V-0	In-Line	640582-1	926308-3	Pre-tin Duplex ¹	641828-1	643410-1	—	—	—	—	640584-1	643326-1	643326-2
9	UL94V-2	Matrix	1-480706-0 1-641769-0 ³	1-480707-0 1-641765-0 ³	Pre-tin Duplex ¹	350432-1 350432-2	641971-1 641971-2	350586-1 350586-2	350763-4 350763-3	643425-1	350990-4 350990-3	—	—	—
	UL94V-0	Matrix	350715-1	350781-1	Pre-tin Duplex ¹	350711-1 350711-2	641970-1 641970-2	350732-1 350732-2	350827-1 350827-2	643424-1 643424-2	350834-1 350834-2	—	—	—
10	UL94V-2	In-Line	926302-1	926309-1	Pre-tin Duplex ¹	—	—	—	—	—	—	—	—	—
	UL94V-0	In-Line	926302-3	926309-3	Pre-tin Duplex ¹	—	—	—	—	—	—	—	—	—
12	UL94V-2	Matrix	1-480708-0 1-641768-0 ³	1-480709-0 641764-1 ³	Pre-tin Duplex ¹	350433-1 350433-2	641973-1	350587-1 350587-2	350764-4 350764-3	—	350991-4 350991-3	—	—	—
	UL94V-0	Matrix	350735-1	350783-1	Pre-tin Duplex ¹	350713-1 350713-2	<u>641974-1</u> 1-641974-1 ⁴ 641974-2	350737-1 350737-2	350829-1 350829-2	643428-1	350836-1 350836-2	—	—	—
15	UL94V-2	Matrix	1-480710-0	1-480711-0	Pre-tin Duplex ¹	350434-1 350434-2	641975-1	350588-1 350588-2	350765-4 350765-3	643429-1	350992-4	—	—	—
	UL94V-0	Matrix	350736-1	350784-1	Pre-tin Duplex ¹	350714-1 350714-2	641976-1	350738-1 350738-2	350830-1 350830-2	643430-1	350837-1 350837-2	—	—	—

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Universal MATE-N-LOK Plug and Cap housings accept pin or socket contacts. Use the appropriate contacts in the Plug housing as required by the mating component.

³ Housing material has 125°C temperature rating. Lime green color. 12 Circuit cap black color.

⁴ Black in color.

⁵ Tool Removable

For complete product information, order Catalog 82181

Contacts

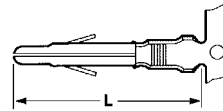
Product Specifications:

Solid pin diameter—.084 [2.13]
Split pin diameter—.086 [2.18]
Stock thickness—.012 [.305] unless otherwise noted.

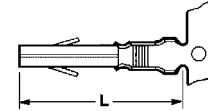
These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings only.

Related Product Data:

Performance Characteristics— page 9015
Application Tooling— pages 9081 thru 9083
Housings— page 9019
Technical Documents: page 9080
Product Specification
 108-1031 Universal MATE-N-LOK Connectors
Application Specification
 114-1010 Universal MATE-N-LOK Contacts



Pin



Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
		Pin	Socket		Pin		Socket			
					Strip Form	Loose Form	Strip Form	Loose Form		
30-26 [.05-.12]	.032-.057 .813-1.45	.790 20.06	.760 19.30	Brass, Pre-tin	350924-1	770672-1	350925-1	770673-1	466616-2 ⁶ 466616-3 ⁶	58439-1
				Phos. Brz., Gold ²	350924-6	770672-6	350925-6	—		
24-18 [.2-.8]	.040-.100 1.02-2.54	.790 20.06	.760 19.30	Brass, Pre-tin	350561-1	350690-1	350851-1 350570-1 ¹	350689-1 ¹	466320-1 ⁶ 466320-2 ⁶ 466320-4 ⁶	90300-2
				Brass, Gold ²	350561-2	350690-2	350851-2 350570-2 ¹	640347-2 350689-2 ¹		
				Brass, Select Gold ³	350561-7	350690-7	350851-7 350570-7 ¹	350689-7 ¹		
				Phos. Brz., Pre-tin	350561-3	350690-3	350570-3 ¹	350689-3 ¹		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.790 20.06	.760 19.30	Phos. Brz., Select Gold ³	—	—	350570-6 ¹	—	687763-1 ⁶ 687763-2 ⁶ 687763-6 ⁶	90296-2
				Brass, Pre-tin	350218-1	350547-1	350536-1	350550-1		
				Brass, Gold ²	350218-2	350547-2	350536-2	350550-2		
				Brass, Select Gold ³	350218-7	350547-7	350536-7	350550-7		
				Phos. Brz., Pre-tin	350218-3	350547-3	350536-3	350550-3		
20-14 [.5-2.0]	.130-.200 3.30-5.08	.810 20.57	.780 19.81	Phos. Brz., Select Gold ³	350218-6	350547-6	350536-6	350550-6	687926-1 ⁶ 687926-2 ⁶ 687926-6 ⁶	90298-2 ⁷ 90299-2 ⁷
				Brass, Pre-tin	350538-1	350552-1	350537-1	350551-1		
				Brass, Gold ²	350538-2	350552-2	350537-2	350551-2		
				Brass, Select Gold ³	350538-7	350552-7	350537-7	350551-7		
				Phos. Brz., Pre-tin	350538-3	350552-3	350537-3	350551-3		
18-14 ⁴ [.8-2.0]	.130-.200 3.30-5.08	.810 20.57	.780 19.81	Phos. Brz., Select Gold ³	350538-6	350552-6	350537-6	350551-6	466588-1 ⁶ 466588-2 ⁶ 466588-3 ⁶	90298-2 ⁷ 90299-2 ⁷
				Brass, Pre-tin	350873-1	—	350874-1	—		
				Phos. Brz., Pre-tin	350873-3	350918-3	350874-3	350919-3		
12-10 [3.0-5.0]	.200 max.⁵ 5.08	.810 20.57	.780 19.81	Phos. Brz., Pre-tin	350922-3	640309-3	350923-3	640310-3	466597-1 ⁶ 466597-2 ⁶ 466597-3 ⁶	69710-1 ⁷
				Phos. Brz., Select Gold ³	350922-6	640309-6	350923-6	640310-6		
				Phos. Brz., Gold ²	350922-4	—	350923-4	—		

¹ Socket Contact—.010 [.254] stock thickness

² Gold Finish—Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

³ Select Gold Finish—Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

⁴ Recommended for predominant use of 14 AWG wire.

⁵ There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing.

⁶ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See page 9083 for further information.

⁷ Hand Tool No. **90298-2** is for wire size 20-18 AWG; Hand Tool No. **90299-2** is for wire size 16-14 AWG. Hand Tool No. **69710-1** uses die set No. **58380-1** for 12 AWG and No. **58380-2** for 10 AWG.

Note: Phosphor bronze material contacts should be used in high temperature/humidity cycling applications.



Contact Extraction Tool
 Part Number 318851-1
 IS 408-4371



Contact Insertion Tool
 (For inserting contacts applied to small diameter wire)
 Part Number 91002-1
 IS 408-7347

For complete product information, order Catalog 82181

Contacts

Product Specifications:

Solid pin diameter—.084 [2.13]

Split pin diameter—.086 [2.18]

Stock thickness—.012 [.305]

These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings only.

Related Product Data:

Performance Characteristics — page 9015

Application Tooling — pages 9081 thru 9083

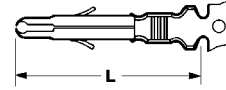
Housings— page 9019

Technical Documents: pages 9015 and 9080

Product Specification
108-1031 Universal MATE-N-LOK Connectors

Application Specification
114-1010 Universal MATE-N-LOK Contacts

Split Pins



Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.	Material & Finish	Contact Part Numbers		HDM Applicator Part Numbers	Hand Tool Part Numbers
				Strip Form	Loose Form		
24-18 [.2-.8]	.040-.100 1.02-2.54	.790 20.06	Brass, Pre-tin	350699-1	350706-1	466320-1 ³ 466320-2 ³ 466320-4 ³	90300-2
			Brass, Gold ¹	350699-2	350706-2		
			Brass, Select Gold ²	350699-7	350706-7		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.790 20.06	Brass, Pre-tin	350687-1	350705-1	687763-1 ³ 687763-2 ³ 687763-6 ³	90296-2
			Brass, Gold ¹	350687-2	350705-2		
			Brass, Select Gold ²	350687-7	350705-7		
20-14 [.5-2.0]	.130-.200 3.30-5.08	.810 20.57	Brass, Pre-tin	350700-1	350707-1	687926-1 ³ 687926-2 ³ 687926-6 ³	90298-2 ⁴ 90299-2 ⁴
			Brass, Gold ¹	350700-2	350707-2		
			Brass, Select Gold ²	350700-7	350707-7		

¹ Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

² Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

³ HDM Applicator part number ending in -1, is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See page 9083 for further information.

⁴ Hand Tool No. **90298-2** for wire size 20-18 AWG. Hand Tool No. **90299-2** for wire size 16-14 AWG.

Notes: 1. Tyco Electronics recommends split pins be used in housings having 6, 9, 12 and 15 circuits to reduce mating force.

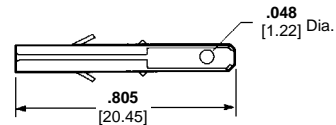
2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics.

Programmable Connector Contact

(Socket with 110 Series Special FASTON Tab)

Material and Finish:

Brass, pre-tin



Part Number
350877-1

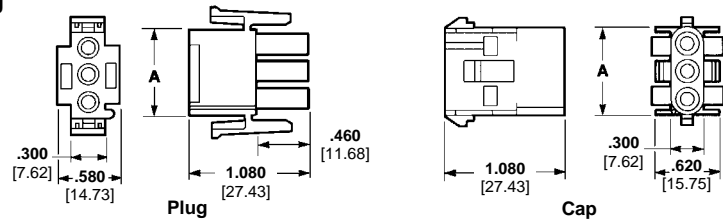
Note: This contact will accept a 110 Series FASTON Receptacle — Part Number **350871-1** (strip form) allows simple field wiring or wiring changes.

For complete product information, order Catalog 82181

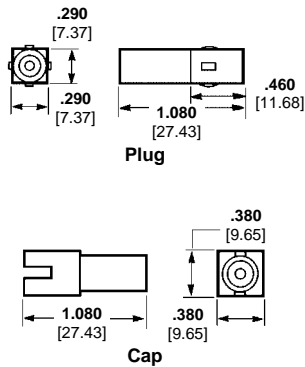
Housings, Free Hanging or Panel Mount

Product Specification:
Centerline spacing—.250 [6.35]

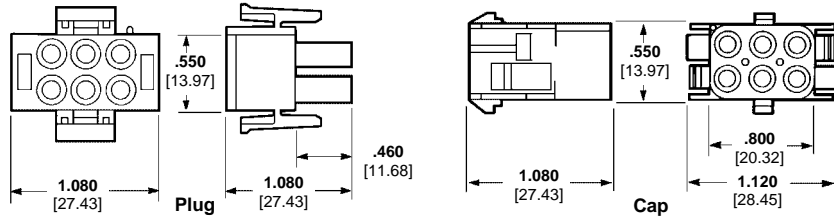
2, 3, 4, 5, 6, 8 and 10 Circuit, In-Line



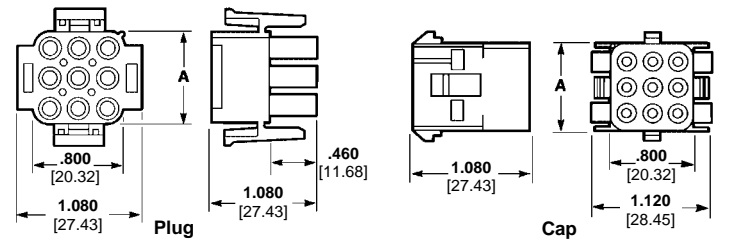
1 Circuit, Free Hanging



6 Circuit, Matrix



9, 12 and 15 Circuit, Matrix



Related Product Data:

Performance Characteristics — page 9015

Contacts — pages 9017 and 9018

Panel Cutout Recommendations — page 9020

Keying Plug — page 9020

Strain Reliefs — pages 9020 and 9021

Mating Headers — pages 9025 thru 9028

Technical Documents: pages 9015 and 9080

Product Specification
108-1031 Universal MATE-N-LOK Connectors

Other Mating Connectors:

Universal MATE-N-LOK II Housings — pages 9006 thru 9008

Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-2 Nylon, Natural Color ²		UL94V-0 Nylon ³	
		Plug	Cap	Plug	Cap
1	—	1-350867-0	770421-1	350865-1	350866-1
2	.550 13.97	1-480698-0 ¹	1-480699-0 ¹	350777-1 ¹	350778-1 ¹
3	.800 20.32	1-480700-0 ¹	1-480701-0 ¹	350766-1 ¹	350767-1 ¹
4	1.050 26.67	1-480702-0 ¹	1-480703-0 ¹	350779-1 ¹	350780-1 ¹
5	1.300 33.02	1-480763-0 ¹	1-480764-0 ¹	350809-1 ¹	350810-1 ¹
6	1.550 39.37	640585-1 ¹	926307-1 ¹	640581-1 ¹	926307-3 ¹
		1-480704-0 ¹ 794096-1 ⁴	1-480705-0	350715-1	350781-1
8	2.050 52.07	640586-1 ¹	926308-1 ¹	640582-1 ¹	926308-3 ¹
9	.800 20.32	1-480706-0	1-480707-0	350720-1	350782-1
10	2.550 64.77	926302-1 ¹	926309-1 ¹	926302-3 ¹	926309-3 ¹
12	1.050 26.67	1-480708-0	1-480709-0	350735-1	350783-1
15	1.300 33.02	1-480710-0	1-480711-0	350736-1	350784-1

¹ In-Line style.

² Housing material has 125°C temperature rating.

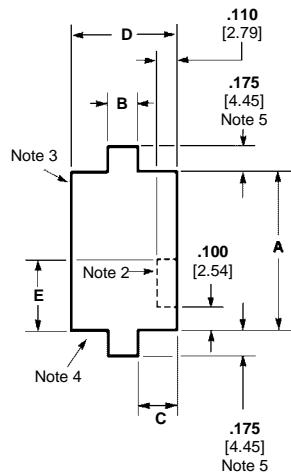
³ Housing material has 120°C temperature rating.

⁴ Tool Removable.

For complete product information, order Catalog 82181

Recommended Cap Housing Panel Cutout

View is from cap entry side
Refer to Application Specification
114-1010



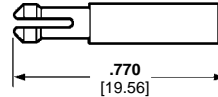
Style	Number of Circuits	Dimensions					
		A	B	C	D	E	
In-Line	2	.565 14.35	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	3	.815 20.70	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	4	1.065 27.05	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	5	1.315 33.40	.340 8.64	.095 2.41	.530 13.46	.250 6.35	
	6	1.567 39.80	.154 3.91	.189 4.80	.531 13.49	.394 10.0	
	8	2.067 52.50	.154 3.91	.189 4.80	.531 13.49	.394 10.0	
	10	2.567 65.20	.154 3.91	.189 4.80	.530 13.46	.394 10.0	
	Matrix	6	.565 14.35	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
		9	.815 20.70	.480 12.19	.275 6.99	1.030 26.16	.250 6.35
		12	1.065 27.05	.480 12.19	.275 6.99	1.030 26.16	.350 8.89
15		1.315 33.40	.480 12.19	.275 6.99	1.030 26.16	.350 8.89	

Notes:

1. Recommended panel thickness — .030-.090 [.762-2.286]. Panel must be punched so that housing enters panel in same direction as the punch.
2. Optional — Do not remove this material when keying cap housing to panel.
3. Circuit #1 location when using panel keying with 6, 9, 12 and 15 circuit Matrix housings.
4. Circuit #1 location when using panel keying with 2, 3, 4, 5, 6, 8 and 10 circuit In-Line housings.
5. .175 [4.45] dimension is .125 [3.18] for 6, 8 and 10 circuit In-Line housings.

Keying Plug

IS 408-3320



Part Numbers

UL94V-2 Nylon material, natural color — 1-640415-1

UL94V-0 Nylon material — 1-640415-0

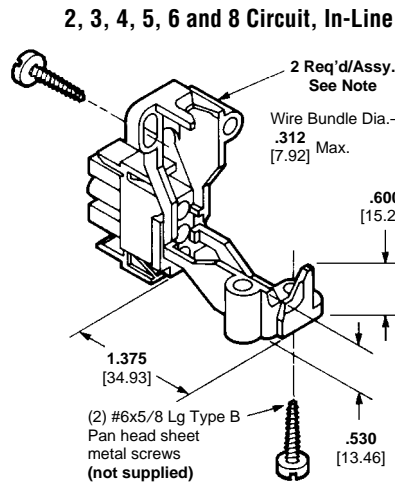
Note: Keying plug snaps into plug or cap housing

Plug Housing Strain Reliefs

IS 408-3320

Related Product Data:
Plug Housings — page 9019

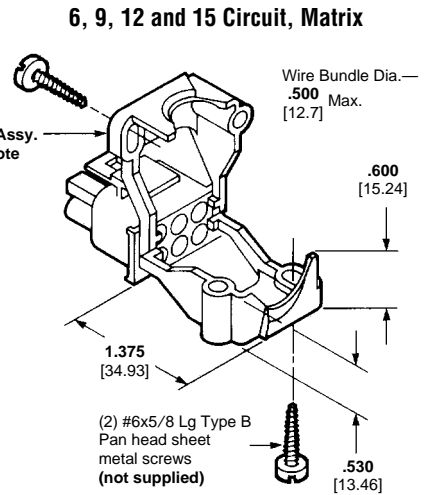
Technical Documents: pages 9015 and 9080



Part Numbers

UL94V-2 Nylon material, natural color — 1-350589-0

UL94V-0 Nylon material — 350811-1



Part Numbers

UL94V-2 Nylon material, natural color — 1-350590-0

UL94V-0 Nylon material — 350812-1

Note: Strain relief part number represents one half of a strain relief. Two strain reliefs required per housing.

For complete product information,
order Catalog 82181

Plug or Cap Housing Strain Reliefs

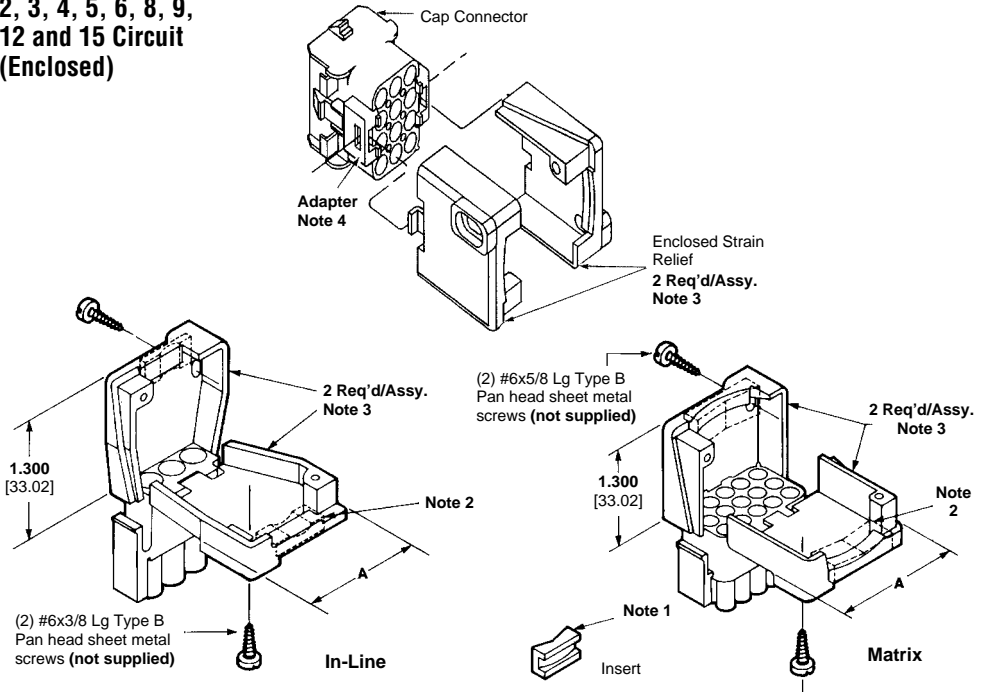
IS 408-3320

Related Product Data:

Housings—page 9019

Technical Documents: pages 9015 and 9080

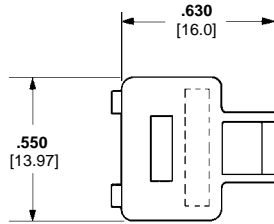
**2, 3, 4, 5, 6, 8, 9,
12 and 15 Circuit
(Enclosed)**



Cap Housing Adapters are designed to anchor the cap housing strain reliefs to the housings and prevent the strain relief halves from "drawing in" when the screws are being torqued down to clamp the cable.

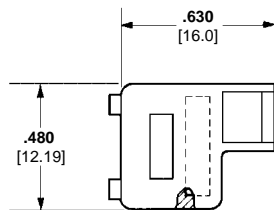
IS 408-3320

For All Positions Except 2, 6 and 8 Circuit Cap Housings



UL94V-2 Nylon material, natural color—**641777-1**
UL94V-0 Nylon material—**641778-1**

For In-Line 2 and Matrix 6 Circuit Cap Housings Only



UL94V-2 Nylon material, natural color—**643182-1**
UL94V-0 Nylon material—**643182-2**

Style	Number of Circuits	A Dim.	Insert Supplied	Single Wire Dia. Range	Wire Bundle Dia. Range	Part Numbers	
						UL94V-2 Nylon, Natural Color	UL94V-0 Nylon
In-Line	2	.960 24.38	Yes	.040-.190 1.02-4.83	—	1-640719-0	640713-1
			No	—	.200-.350 5.08-8.89	1-640719-1	640713-2
	3	1.140 28.96	Yes	.040-.190 1.02-4.83	—	1-640720-0	640714-1
			No	—	.200-.350 5.08-8.89	641763-1	641945-1
	4	1.325 33.65	Yes	.040-.190 1.02-4.83	—	641775-1	641776-1
			No	—	.200-.350 5.08-8.89	641775-2	641776-2
	5	1.530 38.86	Yes	.040-.190 1.02-4.83	—	643030-3	643030-1
			No	—	.200-.350 5.08-8.89	643030-2	643030-4
	6 Note 5	1.780 45.21	Yes	.040-.190 1.02-4.83	—	643585-1	643313-1
			No	—	.200-.350 5.08-8.89	643585-2	643313-2
8 Note 5	2.280 56.08	Yes	.040-.190 1.02-4.83	—	—	643314-1	
		No	—	.200-.350 5.08-8.89	—	643314-2	
Matrix	6	1.030 26.16	Yes	—	.120-.650 3.05-16.51	1-640721-0	640715-1
	9	1.030 26.16	Yes	—	.120-.650 3.05-16.51	1-640722-0	640716-1
	12	1.280 32.51	Yes	—	.150-.750 3.81-19.05	1-640723-0	640717-1
	15	1.530 38.86	Yes	—	.200-.850 5.08-21.59	1-640724-0	640718-1

- Notes:**
1. Cable clamping insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
 2. Insert to be positioned as shown by dotted lines.
 3. **Strain relief part number represents one-half of a strain relief. Two strain reliefs required per housing.**
 4. **Must use cap housing adapters when attaching strain reliefs to a cap housing. Two adapters required per housing.**
 5. Strain reliefs for 6 and 8 position In-Line fits plug housings only.

For complete product information, order Catalog 82181

Flanged Cap Housings with Twist and Lock Feature

Product Facts

- Available in a 6, 9, and 12 circuit design
- Designed for household appliances where a bulkhead connector system is needed in conjunction with foam-in insulation
- Mates with standard Universal MATE-N-LOK plug housings
- Accepts Universal MATE-N-LOK pin and socket contacts
- Designed to utilize the Splash Proof/Sealed Universal MATE-N-LOK seals for additional sealing protection



Material and Finish:

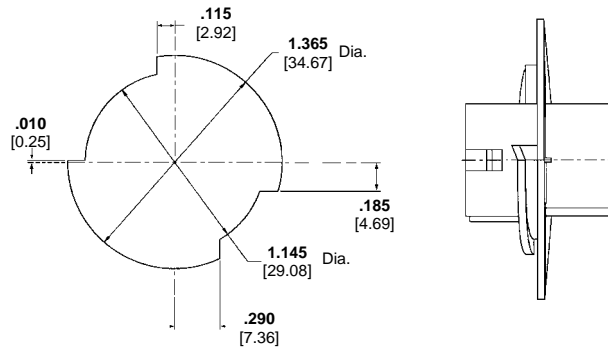
Housing—Nylon, UL 94V-0 or UL 94V-2 rated

Contacts—Phosphor Bronze or Brass

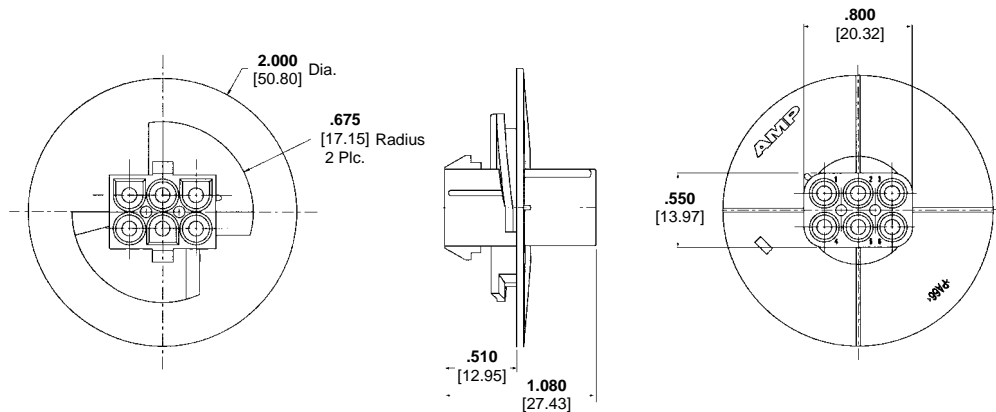
Plating—Pre-tin or Gold

Related Product Data:

Contacts—Page 9024



**Recommended Panel Cutout
(for 6 and 9 Pos. Housings)**



Notes:

1. Recommended Panel Thickness: 0.76-2.29 [0.30-.090]
2. Panel must be punched so that the housing enters the panel in the same direction as the punch.
3. Asymmetrical panel cutout provides polarization for Pin 1 location.

Number of Circuits	Housing Part Numbers	
	UL 94V-0	UL 94V-2
6	794760-1	794714-1
9	794761-1	794715-1
12	794762-1	794716-1

For complete product information, order Catalog 82181

Connector Seals

Product Facts

- Economical splash proof/immersion sealed connector system
- No design changes to existing Universal MATE-N-LOK housings
- Existing applications utilizing Universal MATE-N-LOK Connectors can be upgraded to a splash proof system
- Utilizes two wire seals and one interface seal
- Wire range is 20-14 AWG [.5-2.0 mm²] with insulation diameter range .060-.130 [1.52-3.30]
- .110-.130 [2.79-3.30] insulation diameter passed European IP sealing level #5/7 (swirling dust/immersion to 1 meter for 30 minutes)
- .060-.110 [1.52-2.79] insulation diameter passed European IP sealing level #5/6 (swirling dust/heavy seas)
- Universal MATE-N-LOK II keying plug can be used to seal unused circuits
- Primary application is for wire-to-wire, wire-to-board application must use a closed bottom header

Material:

Silicone rubber, blue color

Related Product Data:

Contacts — page 9024

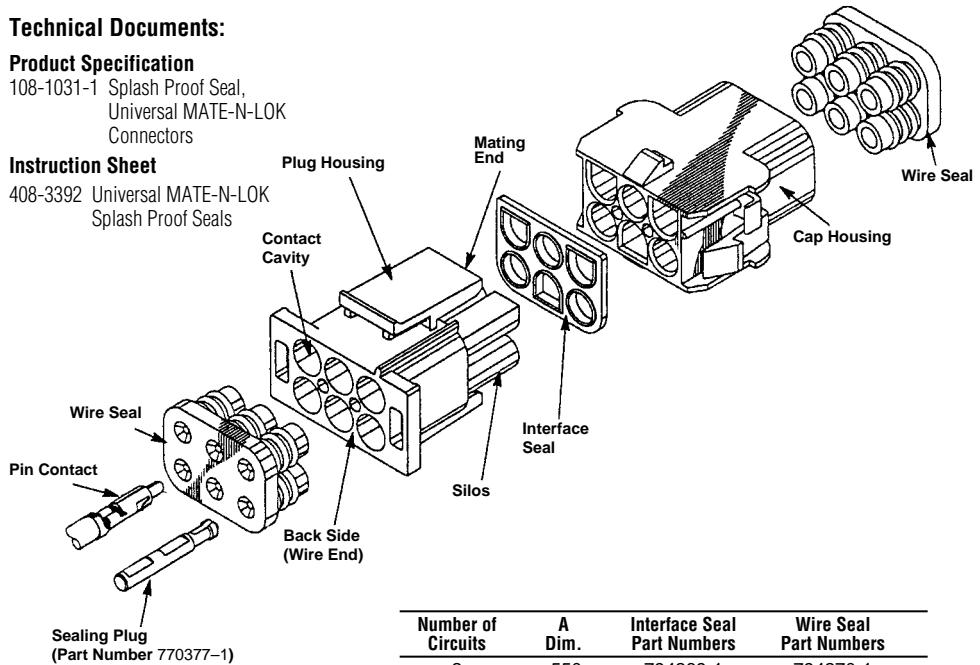
Housings — page 9019

Technical Documents:

Product Specification
108-1031-1 Splash Proof Seal, Universal MATE-N-LOK Connectors

Instruction Sheet
408-3392 Universal MATE-N-LOK Splash Proof Seals

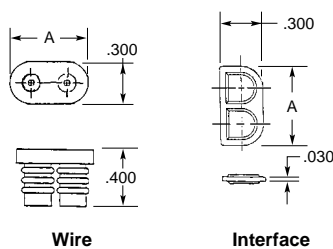
****For proper use of this product, customer should make sure that the Instruction Sheet 408-3392 is available for review.**



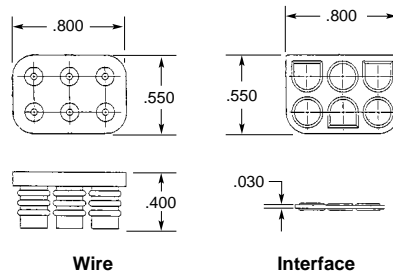
Number of Circuits	A Dim.	Interface Seal Part Numbers	Wire Seal Part Numbers
2	.550	794269-1	794270-1
3	.800	794271-1	794272-1
4	1.050	794273-1	794274-1
6	—	794275-1	794276-1
9	.800	794277-1	794278-1
12	1.050	794279-1	794280-1
15	1.300	794281-1	794282-1

Note: One interface seal and two wire seals required per mated assembly.

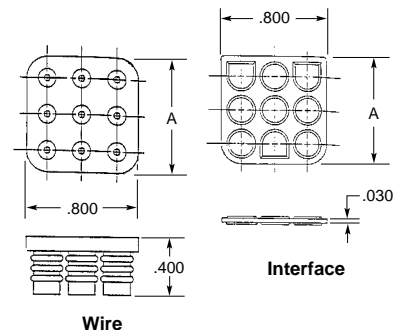
2, 3, 4 Circuit, In-Line



6 Circuit, Matrix



9, 12, and 15 Circuit, Matrix



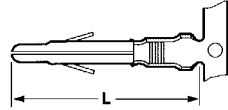
For complete product information, order Catalog 82181

Contacts Used with Splash Proof Seals

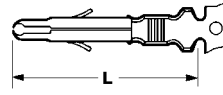
Product Specifications:

- Solid pin diameter**—.084 [2.13]
- Split pin diameter**—.086 [2.18]
- Stock thickness**—.012 [.305] unless otherwise noted.

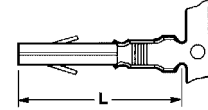
These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings only.



Solid Pin



Split Pin



Solid Socket

Related Product Data:

Performance Characteristics — page 9015

Application Tooling — pages 9081 thru 9083

Housings — page 9019 and 9022

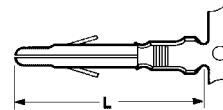
Technical Documents: pages 9015 and 9080

Product Specification

108-1031 Universal MATE-N-LOK Connectors

Application Specification

114-1010 Universal MATE-N-LOK Contacts



Grounding Pin

(100 [2.54] longer than standard pin)
(Mate first, break last, not for interrupting current)

Wire Size Range AWG [mm ²]	Ins. Dia. Range	L Dim.		Material & Finish	Style	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
		Pin	Socket			Pin		Socket			
						Strip Form	Loose Form	Strip Form	Loose Form		
20-14 [.5-2.0]	.060-.130 1.52-3.30	.790 20.06	.760 19.30	Brass, Pre-tin	Solid	350218-1	350547-1	350536-1	350550-1	687763-1 ³ 687763-2 ³ 687763-6 ³	90296-2
				Brass, Gold ¹		350218-2	350547-2	350536-2	350550-2		
				Brass, Select Gold ²		350218-7	350547-7	350536-7	350550-7		
				Phos. Brz., Pre-tin		350218-3	350547-3	350536-3	350550-3		
				Phos. Brz., Select Gold ²		350218-6	350547-6	350536-6	350550-6		
				Brass, Pre-tin		350687-1	350705-1	—	—		
		Brass, Gold ¹	350687-2	350705-2	—	—					
		Brass, Select Gold ²	350687-7	350705-7	—	—					
		.890 22.60	—	Brass, Pre-Tin	Ground	350654-1	350669-1	—	—		

¹ Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

² Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

³ HDM Applicator part number ending in -1, is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -4 & -6 are used on AMP-O-LECTRIC Model G Machine. See page 9083 for further information.

Notes: 1. Tyco Electronics recommends split pins be used in housings having 6, 9, 12 and 15 circuits to reduce mating force.

- 2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics Corporation.
- 3. 18-24 AWG contacts page 9017 can be used with splash proof seals if insulation diameter range is .060-.100.

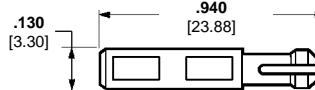
UMNL II Keying Plug/Splash Proof Sealing Plug

IS 408-3392

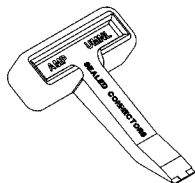
Related Product Data:

Housings — pgs. 9006-9008

Technical Documents: pg. 9015 and 9080



Part Number
UL94V-0 Nylon material — 770377-1



Seal Latch Tool
Part Number 794381-1
IS 408-3392



Contact Extraction Tool
Part Number 318851-1
IS 408-4371



Contact Insertion Tool (For inserting contacts applied to small diameter wire)
Part Number 91002-1
IS 408-7347

For complete product information, order Catalog 82181

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Housing—UL94V-2 Nylon, natural color, UL94V-0 Nylon

Contacts—Phosphor bronze
Solder tail diameter .062 [1.57]

Related Product Data:

Performance Characteristics—
page 9015

Technical Documents: pages 9015 and 9080

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Mating Connectors:

Universal MATE-N-LOK

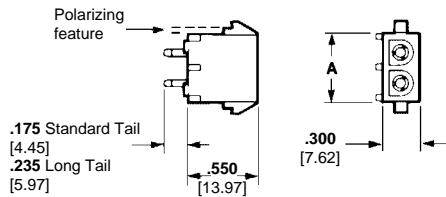
Plug Housings— page 9019

Universal MATE-N-LOK II

Plug Housings— pages 9006 thru 9008

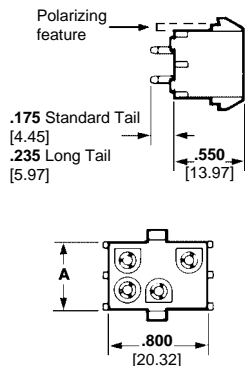
PC Board Vertical Pin Headers

2, 3, 4, 5, 6 and 8 Circuit, In-Line



Number of Circuits	A Dim.	Flammability Rating	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Numbers (Using Socket Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL	UMNL II
2	.550 13.97	UL94V-2	Pre-tin	350428-1	641963-1	350582-1	1-480698-0	—
			Duplex ¹	350428-2	641963-2	350582-2		
		UL94V-0	Pre-tin	350786-1	641964-1	350787-1	350777-1	770017-1
			Duplex ¹	350786-2	641964-2	350787-2		
3	.800 20.32	UL94V-2	Pre-tin	350429-1	641965-1	350583-1	1-480700-0	—
			Duplex ¹	350429-2	—	350583-2		
		UL94V-0	Pre-tin	350789-1	641966-1	350790-1	350766-1	770018-1
			Duplex ¹	350789-2	1-641966-1 ⁴	350790-2		
4	1.050 26.67	UL94V-2	Pre-tin	350430-1	641967-1	350584-1	1-480702-0	—
			Duplex ¹	770351-1 ⁵	—	—		
		UL94V-0	Pre-tin	350430-2	—	350584-2	350779-1	770019-1
			Duplex ¹	350792-1	641968-1	350793-1		
5	1.300 33.02	UL94V-2	Pre-tin	640466-1	643405-1	—	1-480763-0	—
			Duplex ¹	640466-2	—	—		
		UL94V-0	Pre-tin	640900-1	643406-1	—	350809-1	770016-1
			Duplex ¹	640900-2	—	—		
6	1.550 39.37	UL94V-2	Pre-tin	641832-1	643407-1	—	640585-1	—
		UL94V-0	Pre-tin	641831-1	643408-1	—	640581-1	—
8	2.050 52.07	UL94V-2	Pre-tin	641825-1	—	770143-1	640586-1	—
		UL94V-0	Pre-tin	641828-1	643410-1	770272-1	640582-1	—
		UL94V-0	Duplex ¹	—	643410-2	770272-2	—	—

6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Flammability Rating	Pin Finish	Pin Header Part Numbers			Mates with Plug Housing Part Numbers (Using Socket Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL	UMNL II
6	.550 13.97	UL94V-2	Pre-tin	350431-1	641969-1	350585-1	1-480704-0	—
			Duplex ¹	350431-2	—	643749-1 ⁵		
		UL94V-0	Pre-tin	350711-1	641970-1	350732-1	350715-1	770020-1
			Duplex ¹	350711-2	1-641970-1 ⁴	641970-2		
9	.800 20.32	UL94V-2	Pre-tin	350432-1	641971-1	350586-1	1-480706-0	—
			Duplex ¹	350432-2	641971-2	350586-2		
		UL94V-0	Pre-tin	350712-1	641972-1	350742-1	350720-1	770021-1
			Duplex ¹	350712-2	1-641972-1 ⁴	641972-2		
12	1.050 26.67	UL94V-2	Pre-tin	350433-1	641973-1	350587-1	1-480708-0	—
			Duplex ¹	350433-2	—	350587-2		
		UL94V-0	Pre-tin	350713-1	641974-1	350737-1	350735-1	770022-1
			Duplex ¹	350713-2	1-641974-1 ⁴	641974-2		
15	1.300 33.02	UL94V-2	Pre-tin	350434-1	641975-1	350588-1	1-480710-0	—
			Duplex ¹	350434-2	—	350588-2		
		UL94V-0	Pre-tin	350714-1	641976-1	350738-1	350736-1	770023-1
			Duplex ¹	350714-2	—	350738-2		

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Use Standard Tail for .062 [1.57] thick PC Board.

³ Use Long Tail for .125 [3.18] thick PC Board.

⁴ Black in color.

⁵ No drain holes, used w/ seals, page 9023.

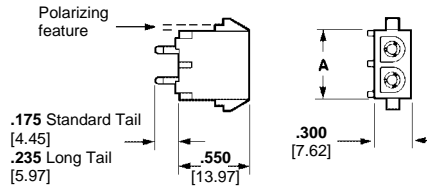
For complete product information, order Catalog 82181

PC Board Vertical Socket Headers

Product Specification:
Centerline spacing—.250 [6.35]

Material:
Housing—UL94V-2 Nylon, natural color, UL94V-0 Nylon
Contacts—Phosphor bronze
Solder tail diameter .062 [1.57]

2, 3, 4, 5, and 6 Circuit, In-Line



Related Product Data:
Performance Characteristics—page 9015

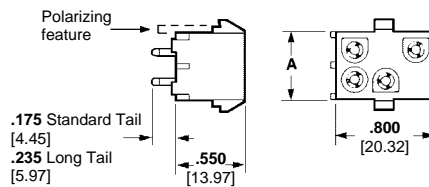
Technical Documents: pages 9015 and 9080

Product Specification
108-1053 Universal MATE-N-LOK PC Board Headers

Mating Connectors:
Universal MATE-N-LOK
Plug Housings—page 9019
Universal MATE-N-LOK II
Plug Housings—pages 9006 thru 9008

Number of Circuits	A Dim.	Flammability Rating	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Numbers (Using Pin Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL	UMNL II
2	.550 13.97	UL94V-2	Pre-tin	350759-4	643411-1	350986-4	1-480698-0	—
			Duplex ¹	350759-3	—	—	—	—
		UL94V-0	Pre-tin	350824-1	643412-1	350831-1	350777-1	770017-1
			Duplex ¹	350824-2	643412-2	—	—	—
3	.800 20.32	UL94V-2	Pre-tin	350760-4	643413-1	350987-4	1-480700-0	—
			Duplex ¹	350760-3	—	—	—	—
		UL94V-0	Pre-tin	350825-1	643414-1	350832-1	350766-1	770018-1
			Duplex ¹	350825-2	643414-2	350832-2	—	—
4	1.050 26.67	UL94V-2	Pre-tin	350761-4	643415-1	350988-4	1-480702-0	—
			Duplex ¹	350761-3	—	350988-3	—	—
		UL94V-0	Pre-tin	350826-1	643416-1	350833-1	350779-1	770019-1
			Duplex ¹	350826-2	—	350833-2	—	—
5	1.300 33.02	UL94V-2	Pre-tin	640467-1	—	—	1-480763-0	—
		UL94V-0	Pre-tin	640901-1	—	—	350809-1	770016-1
6	1.550 39.37	UL94V-2	Pre-tin	640901-2	—	—	—	—
		UL94V-0	Duplex ¹	770262-2	—	—	640581-1	—

6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Flammability Rating	Socket Finish	Socket Header Part Numbers			Mates with Plug Housing Part Numbers (Using Pin Contacts)	
				Standard Tail ²	Standard Tail Polarized ²	Long Tail ³	UMNL	UMNL II
6	.550 13.97	UL94V-2	Pre-tin	350762-4	643423-1	350989-4	1-480704-0	—
			Duplex ¹	350762-3	—	350989-3	—	—
		UL94V-0	Pre-tin	350827-1	643424-1	350834-1	350715-1	770020-1
			Duplex ¹	350827-2	643424-2	350834-2	—	—
9	.800 20.32	UL94V-2	Pre-tin	350763-4	643425-1	350990-4	1-480706-0	—
			Duplex ¹	350763-3	—	350990-3	—	—
		UL94V-0	Pre-tin	350828-1	643426-1	350835-1	350720-1	770021-1
			Duplex ¹	350828-2	643426-2	350835-2	—	—
12	1.050 26.67	UL94V-2	Pre-tin	350764-4	—	350991-4	1-480708-0	—
			Duplex ¹	350764-3	—	350991-3	—	—
		UL94V-0	Pre-tin	350829-1	643428-1	350836-1	350735-1	770022-1
			Duplex ¹	350829-2	—	350836-2	—	—
15	1.300 33.02	UL94V-2	Pre-tin	350765-4	643429-1	350992-4	1-480710-0	—
			Duplex ¹	350765-3	—	—	—	—
		UL94V-0	Pre-tin	350830-1	643430-1	350837-1	350736-1	770023-1
			Duplex ¹	350830-2	—	350837-2	—	—

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.
² Use Standard Tail for .062 [1.57] thick PC Board.
³ Use Long Tail for .125 [3.18] thick PC Board.

For complete product information, order Catalog 82181

PC Board Vertical Pin Headers with ACTION PIN Contacts

Material:

Housing — PBT, black

Flammability Rating — UL94V-0

Contacts — Copper alloy, plated with tin-lead over nickel on entire contact

Technical Documents: pages 9015 and 9080

Product Specification

108-5222 Universal
MATE-N-LOK ACTION PIN
Header Assembly

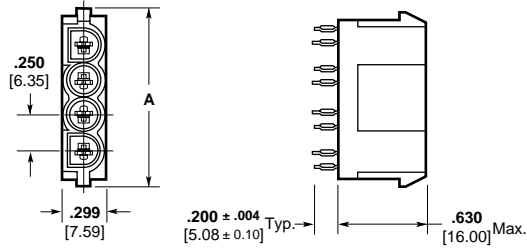
Mating Connectors:

Universal MATE-N-LOK

Plug Housings — page 9019

Universal MATE-N-LOK II

Plug Housings — pages 9006 thru 9008



Number of Circuits	A Dim.	Part Numbers	Mates with Housing	
			Part Numbers (Using Socket Contacts)	
			UMNL	UMNL II
2	.750 19.05	173924-1	1-480698-0 350777-1	770017-1
3	1.000 25.40	173925-1	1-480700-0 350766-1	770018-1
4	1.250 31.75	173926-1	1-480702-0 350779-1	770019-1

Note: Install in PC Board with arbor frame tool.

For complete product information, order Catalog 82181

PC Board Right-Angle Pin and Socket Headers

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Housing—Nylon

Contacts—Phosphor bronze
Solder tail width .052 [1.32]

Related Product Data:

Performance Characteristics—
page 9015

Technical Documents: pages 9015 and 9080

Product Specification

108-1053 Universal MATE-N-LOK
PC Board Headers

Mating Connectors:

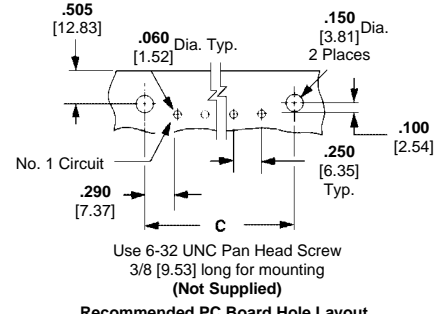
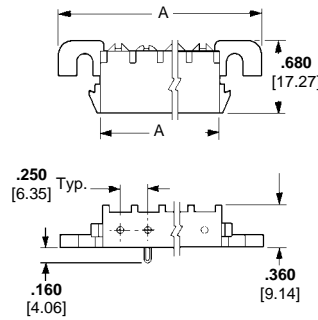
Universal MATE-N-LOK

Plug Housings—page 9019

Universal MATE-N-LOK II

Plug Housings—pages 9006 thru 9008

2, 3, 4, 5, 6 and 8 Circuit, In-line



Recommended PC Board Hole Layout
.062 [1.57] Board Thickness

No. of Circuits	Dimensions			Contact Finish	Right-Angle Header Part Numbers						
	A	B	C		UL94V-2			UL94V-0			
					Pin	Socket	Mates with	Pin	Socket	Mates with	
									UMNL	UMNL II	
2	.550 13.97	1.245 31.62	.830 21.08	Pre-tin	—	—	—	1-350942-0	643226-1	350777-1	770017-1
				Duplex ¹	—	—	—	2-350942-0	—		
3	.800 20.32	1.495 37.97	1.080 27.43	Pre-tin	—	—	—	1-350943-0	643228-1	350766-1	770018-1
				Duplex ¹	—	—	—	2-350943-0	643228-2		
4	1.050 26.67	1.745 44.32	1.330 33.78	Pre-tin	1-350948-0	—	1-480702-0	1-350944-0	643230-1	350779-1	770019-1
				Duplex ¹	—	—	—	2-350944-0	643230-2		
5	1.300 33.02	1.995 50.67	1.580 40.13	Pre-tin	1-350949-0	—	1-480763-0	1-350945-0	643232-1	350809-1	770016-1
				Duplex ¹	—	—	—	2-350945-0	643232-2		
6	1.550 39.37	2.245 57.02	1.830 46.48	Pre-tin	640587-1	—	—	640583-1	643234-1	640581-1	—
				Duplex ¹	—	643235-1	640585-1	640583-2	643234-2		
8	2.050 52.07	2.745 69.72	2.330 59.18	Pre-tin	—	—	—	640584-1	643236-1	640582-1	—
				Duplex ¹	—	643237-1	640586-1	640584-2	643236-2		

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Black in color.

Test Connectors (with spring loaded contacts)

Material:

Housing—Nylon

Flammability Rating—UL94V-0

Related Product Data:

Mating Connectors—Housings and headers having the same number of circuits. The housings can have pin or socket contacts, or a combination of both.

Mating Housings—page 9019

Mating Headers—pages 9025 thru 9027

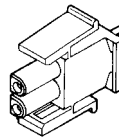
Other Mating Connectors:

Universal MATE-N-LOK II Housings

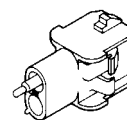
—pages 9006 thru 9008

2, 3, 4 and 5 Circuit, In-Line

Plug

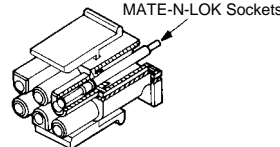


Cap

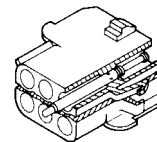


6, 9, 12 and 15 Circuit, Matrix

Plug



Cap





Number of Circuits	Part Numbers	
	Plug	Cap
2	350848-2	350849-2
3	350848-3	350849-3
4	350848-4	350849-4
5	350848-5	350849-5
6	350848-6	350849-6
9	350848-9	350849-9
12	1-350848-2	1-350849-2
15	1-350848-5	1-350849-5

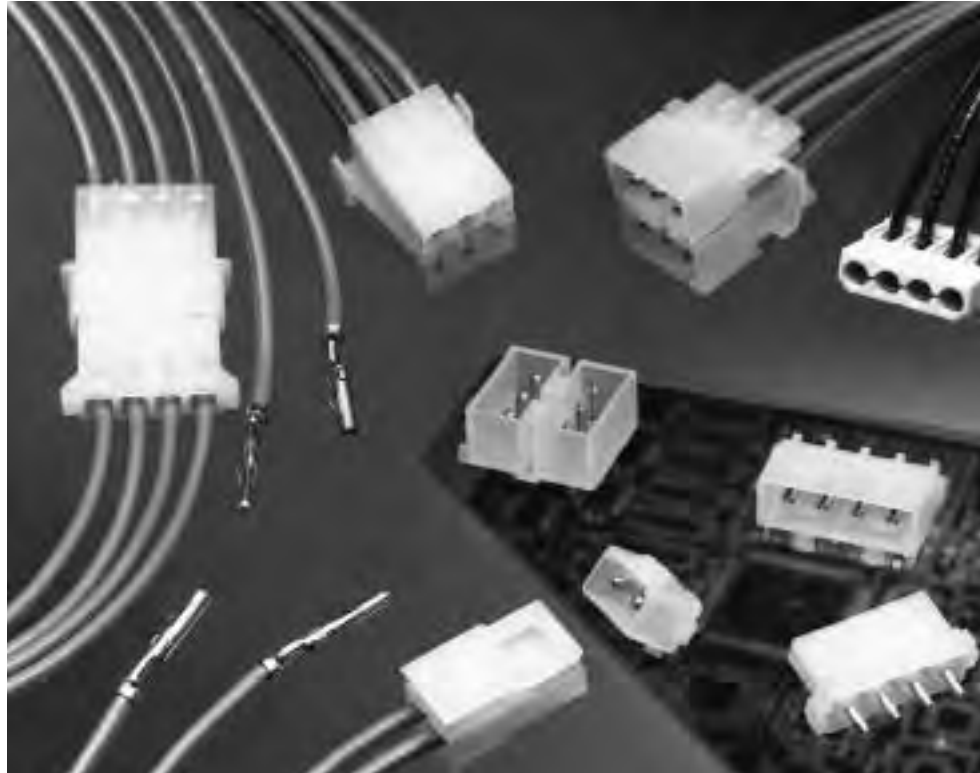
Notes:

1. Test probes have 5 amp maximum current rating, 1,000,000 cycles.
2. Test Connector housings are of the same configuration as standard housings. Refer to page 9019 for dimensional specifications.

For complete product information, order Catalog 82181

Product Facts

- Fully polarized nylon housings
- Easy cavity identification
- Locking devices are integral part of design. Mated connector halves are designed to withstand a high degree of vibration and shock
- Built-in contact stabilization and self-aligning features
- Hot side egg-crate design for safety
- Precision molded to exacting tolerances
- Contacts accept a wire size range of 30-14 AWG [.05-2.0 mm²]
- Keying plug available
- “Clean” design contact—no sharp projections to impede insertion or damage housings
- Low insertion/extraction forces
- Contacts available in pre-tin or gold over nickel plated to fit the application requirements
- Wire to PC board capability using pin or socket headers
- Solderability: Headers meet MIL-STD 202 method 208
- Four circuit PC Board-to-PC Board capability available by mating vertical socket header with either vertical, right-angle or surface mount pin header
- Four circuit insulation displacement connector (IDC) available
- Ultraviolet (UV) stable housings available in 1, 2 and 3 circuit
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189A 



Performance Characteristics:

The Commercial MATE-N-LOK Connector performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage — 1.5 KVAC between adjacent circuits

Insulation Resistance — 500 megohms minimum initial between adjacent circuits

Voltage Rating — 250V AC or DC

Connector Mating — 4 lb. max. per circuit

Connector Unmating — 0.7 lb. min. per circuit

Contact Retention — 15 lb. min. per contact

Durability — 50 cycles, mating and unmating

Commercial MATE-N-LOK connectors also will withstand the following tests:

Vibration — 10-55-10 cycles per minute at .06 inch total excursion

Physical Shock — 18 drops, 50 g sawtooth at 11 milliseconds

Mounting Housing Panel Retention — 40 lb. min. 3 and 4 circuit
65 lb. min. 6, 9, 12, and 15 circuit

Housing Lock Strength with Positive Locking Devices Engaged — 25 lb. min.

Thermal Shock — -55°C to +85°C

Temperature-Humidity Cycling — 25°C to 65°C at 95% RH

Corrosion — 48 hr. at 5% salt concentration

Technical Documents:

Product Specifications

108-1000 Commercial MATE-N-LOK Connectors

108-1077 Commercial MATE-N-LOK PC Board Headers

108-49000 IDC Connectors

Application Specifications

114-1012 Commercial MATE-N-LOK Contacts

114-49001 IDC Connectors

Instruction Sheets

408-7209, 408-7166, 408-7200, 408-7201, 408-7215, 408-3186

For complete product information, order Catalog 82181

Commercial MATE-N-LOK Connector Mating Combinations

Connector Part Number					Mating Connector Part Numbers							
Number of Circuits	Flammability Rating	Style	Housing Type	Connector Part Numbers	Housing Part Numbers	Housing Type	PC Board Headers					
							Plating	Vertical Pin		Right-Angle Pin	Vertical Socket	
							Standard Tail	Long Tail			Standard Tail	Long Tail
1	UL94V-2	In-Line	Socket: FH	1-480349-0	1-480350-0	Pin: FH	—	—	—	—	—	—
			Socket: FH Positive Lock	1-480400-0	1-480351-0	Pin: FH Positive Lock	—	—	—	—	—	—
			Socket: FH UV Stable	1-480401-1	1-480401-1	Pin: FH UV Stable	—	—	—	—	—	—
2	UL94V-2	In-Line	Socket: FH	1-480318-0	1-480319-0	Pin: FH	Pre-tin	350209-1	350422-1	794120-1	—	—
			Socket: FH UV Stable	1-480393-1	1-480498-1	Pin: FH UV Stable	—	—	—	—	—	—
			Socket: FH Positive Lock	1-480720-0	794012-1	Pin: FH Positive Lock	Pre-tin	350539-1	350540-1	—	—	—
			Socket: FH UV Stable	1-480303-0	1-480305-0	Pin: FH	Duplex ¹	350209-2	—	—	—	—
3	UL94V-2	In-Line	Socket: PM	1-480304-0	—	—	Pre-tin	350210-1	350423-1	643488-1	—	—
			Socket: FH Positive Lock	1-480721-0	—	—	Duplex ¹	350210-2	—	—	—	—
			Socket: FH UV Stable	1-480388-0	1-480387-0	Pin: FH UV Stable	Pre-tin	350541-1	350542-1	—	—	—
			Socket: FH Positive Lock	1-480721-0	—	—	Duplex ¹	350541-2	—	—	—	—
4	See page 9031 for 4 position mating combinations											
6	UL94V-2	Matrix	Socket: FH Positive Lock	1-480270-0	1-480340-0	Pin: FH Positive Lock	Pre-tin	1-380999-0	350425-1	—	—	—
			Socket: PM Positive Lock	1-480273-0	1-480271-0	Pin: MM Positive Lock	Duplex ¹	2-380999-0	350425-2	—	—	—
			Pin: PM Positive Lock	1-480276-0	1-480276-0	Pin: PM Positive Lock	—	—	—	—	—	—
8	UL94V-2	Dual Row	Socket: FH Positive Lock	1-480283-0	1-480345-0	Pin: FH Positive Lock	Pre-tin	350212-1	350426-1	—	—	—
			Pin: PM Positive Lock	1-480277-0	1-480284-0	Pin: MM Positive Lock	Duplex ¹	350212-2	350426-2	—	—	—
9	UL94V-2	Matrix	Pin: PM Positive Lock	1-480277-0	1-480274-0	Socket: PM Positive Lock	Pre-tin	—	—	—	350642-1	350577-1
			Socket: FH Positive Lock	1-480285-0	1-480274-0	Pin: MM Positive Lock	Duplex ¹	—	—	—	—	350642-2
10	UL94V-2	Dual Row	Socket: FH Positive Lock	1-480285-0	1-480339-0	Pin: FH Positive Lock	Pre-tin	1-380991-0	350219-1	—	—	—
			Pin: PM Positive Lock	1-480277-0	1-480286-0	Pin: MM Positive Lock	Duplex ¹	2-380991-0	—	—	—	—
			Socket: MM Positive Lock	1-480287-0	1-480288-0	Pin: MM Positive Lock	Pre-tin	350213-1	350220-1	—	—	—
12	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480287-0	1-480288-0	Pin: MM Positive Lock	Duplex ¹	350213-1	350220-2	—	—	—
		Matrix	Pin: PM Positive Lock	1-480278-0	1-480275-0	Socket: PM Positive Lock	Pre-tin	—	—	—	350643-1	350578-1
15	UL94V-2	Matrix	Pin: PM Positive Lock	1-480324-0	1-480323-0	Socket: PM Positive Lock	Pre-tin	—	—	—	350644-1	350579-1
16	UL94V-2	Dual Row	Socket: MM Positive Lock	1-480438-0	1-480439-0	Pin: MM Positive Lock	Pre-tin	350214-1	350427-1	—	—	—
			Pin: PM Positive Lock	1-480324-0	1-480439-0	Pin: MM Positive Lock	Duplex ¹	350214-2	350427-2	—	—	—

FH: Free Hanging

PM: Panel Mount

MM: Motor Mount

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Commercial MATE-N-LOK 4-Position In-Line Mating Combinations

(Note: These connectors are used by the disk drive industry.)

Connector Part Number		Mating Connector Part Number														
Flammability Rating	Connector Type	Connector Part Numbers	Socket Connectors				PC Board Pin Headers									
			Housing Type	Plating	Insulation Displacement Connector	AWG	PC Board Vertical Socket Header	Vertical Standard Tail	Vertical Long Tail	Surface Mount	EdgeMount	Standard	Mid Mount Reverse Pol.	Right-Angle W/Fixed Belt	W/Fixed Reverse Pol.	
UL94V-2	Socket Housing Positive Lock	1-480772-0	Pre-tin	—	—	—	—	350543-1	350544-1	—	—	—	—	—	—	—
			Duplex ¹	—	—	—	—	350543-2	350544-2	—	—	—	—	—	—	—
	Socket Housing Detent Lock	1-480424-0	Pre-tin	—	—	—	—	350211-1	—	641737-1	175332-2	84069-1	174804-1	174552-1		
			Duplex ¹	—	—	—	—	770328-13 1-770328-14	350424-1	770829-1	175332-3	770846-1	174804-2 174804-3	—		
UL94V-2	Pin Housing Detent Lock	1-480426-0	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
	Pin Housing Detent Lock High Temp	3-480426-0	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
UL94V-0	Socket Header	770997-1 794287-1 ²	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
	Insulation Displacement Connector (IDC)	770156-2 770156-3 770156-4 770156-5	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
UL94V-0	Socket Housing	770827-1	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
	Insulation Displacement Connector (IDC)	794036-1 794036-2 794036-3 794036-4	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
UL94V-0	Right-Angle Pin Header	1-641737-1	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	
	Insulation Displacement Connector (IDC)	794036-1 794036-2 794036-3 794036-4	Pre-tin	—	—	—	—	—	—	—	—	—	—	—	—	
			Duplex ¹	—	—	—	—	—	—	—	—	—	—	—	—	

For complete product information, order Catalog 82181

PM: Panel Mount

- ¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.
- ² Surface Mount Compatible.
- ³ With Drainholes
- ⁴ Tube Loaded



Contacts

Product Specifications:

Pin diameter—.084 [2.13]
Stock thickness—.012 [.305]

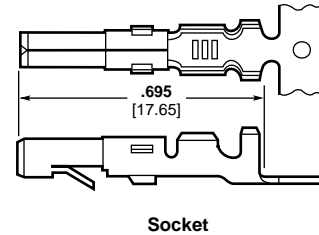
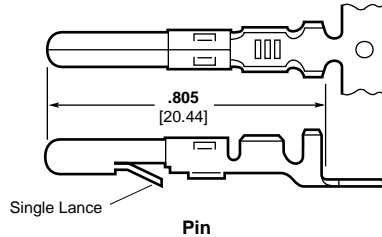
These contacts are to be used in Commercial MATE-N-LOK housings only.

Related Product Data:

Performance Characteristics— pages 9029 and 9030

Housings— pages 9034 thru 9036

Application Tooling— pages 9081, 9082 and 9084



Technical Documents: page 9029 and 9080

Product Specification

108-1000 Commercial MATE-N-LOK Connectors

Application Specification

114-1012 Commercial MATE-N-LOK Contacts

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
			Pin		Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
30-22 [.05-.3]	.040-.075 1.02-1.91	Brass, Pre-tin	350079-1	61174-1	350078-1	61173-1	466426-1 ³ 466426-2 ³ 466426-3 ³	90066-7
		Phos. Brz., Pre-tin	350079-4	—	350078-4	61173-4		
		Brass, Gold ¹	350079-5	61174-5	350078-5	61173-5		
24-18 [.2-.8]	.060-.100 1.52-2.54	Brass, Pre-tin	61116-1	60618-1	61314-1	60617-1	466320-1 ³ 466320-2 ³ 466320-4 ³	90123-2 90123-5 ⁴
		Phos. Brz., Pre-tin	61116-4	60618-4	61314-4	60617-4		
		Brass, Gold ¹	61116-5	60618-5	61314-5	60617-5		
		Phos. Brz., Select Gold ²	61116-6	60618-6	61314-6	60617-6		
		Brass, Select Gold ²	61116-7	—	61314-7	—		
20-14 [.5-2.0]	.100-.130 2.54-3.30	Brass, Pre-tin	61118-1	60620-1	61117-1	60619-1	687763-1 ³ 687763-2 ³ 687763-6 ³	90124-2
		Phos. Brz., Pre-tin	61118-4	60620-4	61117-4	60619-4		
		Brass, Gold ¹	61118-5	60620-5	61117-5	60619-5		
		Phos. Brz., Gold ¹	61118-6	—	61117-6	60619-7		
		Brass, Select Gold ²	61118-7	—	61117-7	—		
(2) 18 [.8] or (2) .115 Max. (1) 18 [.8] and 2.92 (1) 16 [1.2] (stacked)		Brass, Pre-tin	350558-1	350639-1	350557-1	—	687898-1 ³ 687898-2 ³ 687898-4 ³	90124-2
		Phos. Brz., Pre-tin	350558-4	—	350557-4	350638-4		

¹ Gold Finish — Plated with .000030 [.000762] min. gold in mating area and inside wire barrel over .000050 [.00127] min. nickel underplate on entire contact.

² Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

³ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine; -3, -4, or -6 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

⁴ Use Hand Tool No. 90123-5 for .043-.075 [1.09-1.90] insulation diameter.

Notes: 1. Extraction Tools: Pins — No. **1-305183-1** (IS 408-7158); Sockets — No. **1-305183-2** (IS 408-7158);

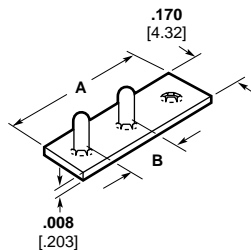
Pins and Sockets — No. **465644-1** (IS 408-7211)

2. Insertion Tool: No. **455830-1** (IS 408-7984)

Commoning Tabs

Material and Finish:

Brass, tin plated
 Stock thickness .008 [.203]



Number of Holes	Dimensions		Part Numbers
	A	B	
2	.377	.203	60843-1
	9.58	5.16	
2	.355	.195	350444-1
	9.02	4.95	
3	.579	.203	60842-1
	14.71	5.16	
3	.550	.195	350444-2
	13.97	4.95	

Note: Commoning tabs are designed to be used with pin housings.

For complete product information, order Catalog 82181

Contacts

Product Specifications:

Pin diameter—.084 [2.13]

Stock thickness—.012 [.305]

These contacts are to be used in Commercial MATE-N-LOK housings only.

Related Product Data:

Performance Characteristics— pages 9029 and 9030

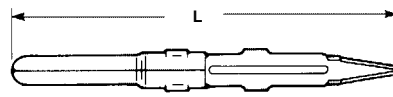
Housings— pages 9034 thru 9036

Technical Documents: pages 9029 and 9080

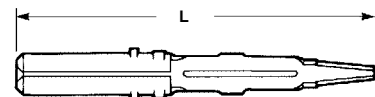
Product Specifications
108-1000 Commercial MATE-N-LOK Connectors

Application Specification
114-1012 Commercial MATE-N-LOK Contacts

PC Board Contacts



Pin



Socket

Type of Contact	L Dimensions		Material & Finish	Part Numbers	
	Pin	Socket		Pin	Socket
				Loose Form	Loose Form
PC Board	1.110 [28.19]	1.010 [25.65]	Phos. Brz., Pre-tin	61518-1 ¹	61320-1 ¹
	1.210 [30.73]	1.110 [28.19]	Phos. Brz., Pre-tin	350074-1 ²	350073-1 ²

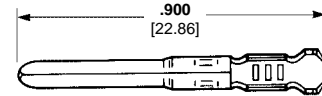
¹ For .062 [1.57] max. board thickness— Board hole size .057 [1.45]

² For .125 [3.14] max. board thickness— Board hole size .057 [1.45]

Grounding Pin

(.095 [2.41] longer than standard pin)

(Mate first, break last, not for interrupting current)



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers		HDM Applicator Part Numbers	Hand Tool Part Number
			Strip Form	Loose Form		
24-18 [2-.8]	.060-.100 1.52-2.54	Brass, Pre-tin	61527-2	—	466320-1 ¹ 466320-2 ¹ 466320-4 ¹	90123-2

¹ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine; -3, -4, or -6 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

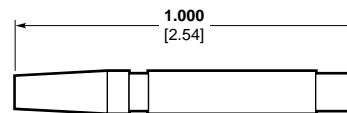
Keying Plug

IS 408-7582

Material:

Housing— Nylon, natural color

Flammability Rating— UL94V-2



Part Number
200821-1

Note: Keying plug snaps into socket housing

For complete product information, order Catalog 82181

Housings, Free Hanging

Product Specification:

Centerline spacing—.200 [5.08]

Material:

Housing—Nylon, natural color

Flammability Rating—UL94V-2

Related Product Data:

Performance Characteristics—pages 9029 and 9030

Contacts—pages 9032 and 9033

Keying Plug—page 9033

Commoning Tab—page 9032

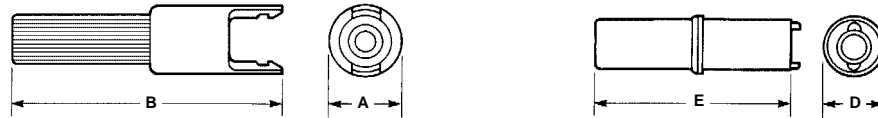
Mating Pin Headers—pages 9037 and 9040

Mating Socket Header—page 9038

Technical Documents: pages 9029 and 9080

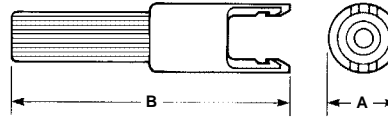
Product Specification
108-1000 Commercial MATE-N-LOK
Connectors

1 Circuit



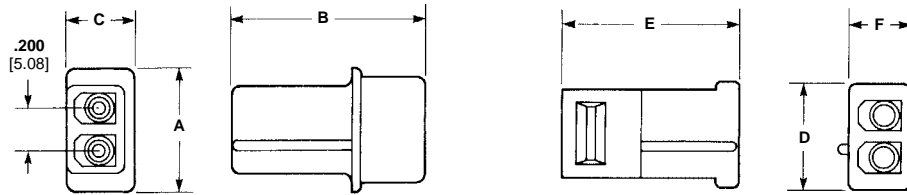
Pin Housing (Cap) Detent Lock

Socket Housing (Plug)



Pin Housing (Cap) Positive Lock

2, 3 and 4 Circuit, In-Line



Pin Housing (Cap)

Socket Housing (Plug)

Number of Circuits	Dimensions						Part Numbers	
	A	B	C	D	E	F	Pin Housing (Cap)	Socket Housing (Plug)
1	.300	1.200	—	.260	.870	—	1-480350-0 ¹	1-480349-0
	7.62	30.48	—	6.60	22.10	—	1-480351-0 ²	1-480349-0
	.300	1.240	—	.260	.870	—	1-480401-0 ^{1,3}	1-480400-0 ³
2	.300	1.325	—	.260	.995	—	1-480401-0 ^{1,3}	1-480400-0 ³
	7.62	33.65	—	6.60	25.27	—	1-480319-0 ^{1,5}	1-480318-0 ⁵
	.610	.930	.330	.530	.860	.295	1-480498-1 ^{1,3,5}	1-480393-1 ^{3,5}
3	.610	.930	.330	.530	.860	.295	1-480305-0 ^{1,5}	1-480303-0 ⁵
	15.49	23.62	8.38	13.46	21.84	7.49	1-480387-0 ^{1,3,5}	1-480388-0 ^{3,5}
	.810	.930	.325	.825	.850	.290	1-480426-0 ^{1,5,6}	1-480424-0 ^{5,6}
4	.810	.930	.325	.825	.850	.290	1-480426-0 ^{1,5,6}	1-480424-0 ^{5,6}
	20.57	23.62	8.25	20.95	21.60	7.37	794132-1 ^{4,5,6}	770827-1 ^{4,5,6}
	1.010	.930	.330	1.030	.850	.310		
	25.65	23.62	8.38	26.16	21.60	7.88		
	—	—	—	1.030	.850	.310		
				26.16	21.60	7.88		

¹ Detent lock

² Positive lock

³ UV Stable black color

⁴ Housing Material UL94V-0 rated

⁵ Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.92].

⁶ Used by the disk drive industry.

For complete product information, order Catalog 82181

Material:

Housing — Nylon, natural color
Flammability Rating — UL94V-2

Related Product Data:

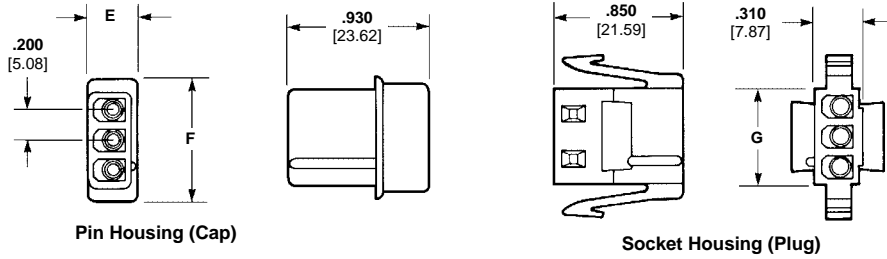
Performance Characteristics — pages 9029 and 9030
Contacts — pages 9032 and 9033
Keying Plug — page 9033
Commoning Tab — page 9032
Mating Socket Headers — page 9038
Mating IDC — page 9039

Technical Documents: pages 9029 and 9080

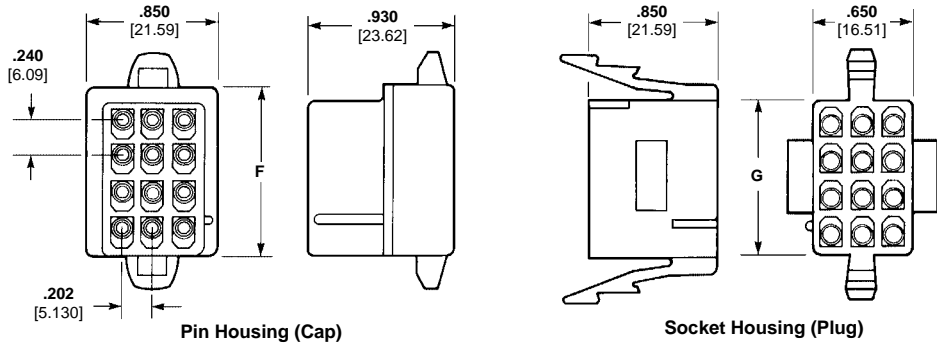
Product Specification
 108-1000 Commercial MATE-N-LOK Connectors

Housings, Panel Mount Positive Lock

3 and 4 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	Dimensions			Part Numbers	
	E	F	G	Pin Housing (Cap)	Socket Housing (Plug)
3	.325 8.26	.810 20.57	.630 16.00	1-480305-0 ²	1-480304-0
4	.330 8.38	1.010 25.65	.825 20.96	1-480426-0 ^{2,4} 3-480426-0 ^{1,2,4}	1-480425-0 ⁴ 3-480425-0 ^{1,4}
6	—	.665 16.89	.555 14.10	1-480276-0 ³	1-480273-0
9	—	.905 22.99	.795 20.19	1-480277-0 ³	1-480274-0
12	—	1.145 29.08	1.045 26.54	1-480278-0 ³	1-480275-0
15	—	1.382 35.10	1.280 32.51	1-480324-0 ³	1-480323-0

¹ Housing material has 125°C temperature rating
² Detent lock
³ Positive lock
⁴ Used by disk drive industry

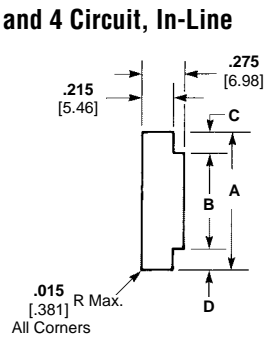
Recommended Panel Cutout for Panel Mount Socket Housing

View is from socket housing entry side

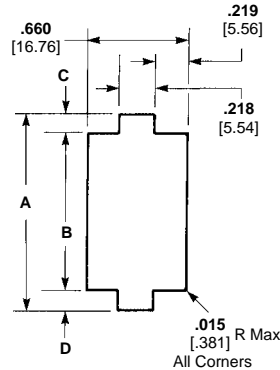
Mounting Information

1. Recommended panel thickness— .025-.065 [.635-1.65].
2. Both locking legs are to be squeezed together and the housing is to be inserted "straight-in", as opposed to a rocking manner.
3. The panel should be punched so that the housing enters the panel in the same direction as the punch.
4. The panel must not have any material (paint, porcelain, etc.) applied in the mounting hole area that would decrease the retention of the housing in the panel.
5. If the two items above are not complied with, the "A" dimension should be reduced .020 [5.08] to allow proper retention.

3 and 4 Circuit, In-Line



6, 9, 12 and 15 Circuit, Matrix



Number of Circuits	Dimensions	
	A	B
3	.890 22.61	.645-.635 16.38-16.13
4	1.100 27.94	.845-.835 21.46-21.21
6	.840 21.34	.575-.570 14.61-14.48
9	1.075 27.31	.815-.810 20.70-20.57
12	1.320 33.53	1.055-1.050 26.80-26.67
15	1.550 39.37	1.285-1.285 32.77-32.64

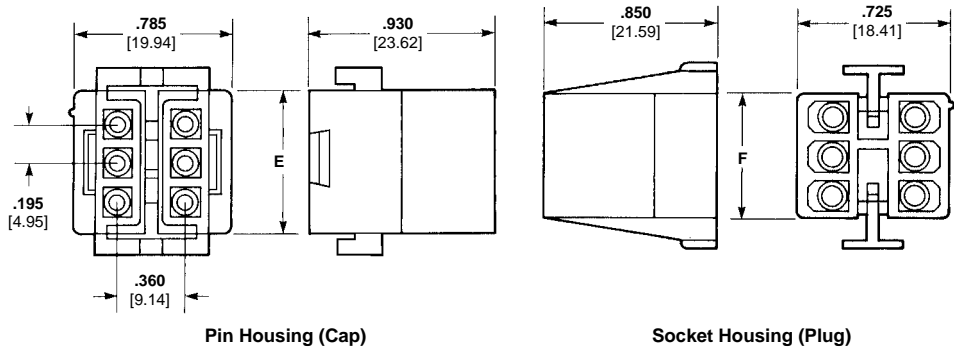
Note: Dimensions "C" and "D" are to be equal.

For complete product information, order Catalog 82181

Motor Mount—6, 8, 12 and 16 Circuit, Dual Row, Positive Lock

Material:

Housing—UL94V-2 Nylon, Natural Color

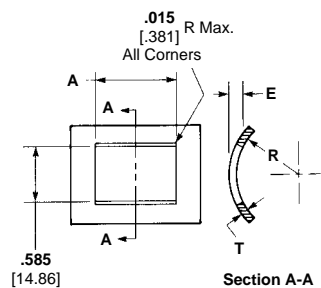


Number of Circuits	Dimensions		Part Numbers	
	E	F	Pin Housing (Cap)	Socket Housing (Plug)
6	.705 17.90	.610 15.49	1-480271-0	1-480270-0 ¹
8	.900 22.86	.805 20.45	1-480284-0	1-480283-0 ¹
10	1.095 27.81	1.000 25.4	1-480286-0	1-480285-0 ¹
12	1.290 32.77	1.195 30.35	1-480288-0	1-480287-0
16	1.680 42.67	1.585 40.26	1-480439-0	1-480438-0

¹ Housing accepts double wire applications where individual insulation diameters do not exceed .115 [2.92].

Recommended Panel Cutout for Motor Mount Pin Housing

View is from pin housing entry side.



Note: Motor mount housings may be used in flat panels

Number Circuits	A Dim.
6	.715 18.16
8	.910 23.11
10	1.105 28.07
12	1.300 33.02
16	1.690 42.93

Mounting Information

1. Recommended panel thickness "E" is .040-.100 [1.02-2.54] and is dependent on "T" and "R".
2. The pin housing must be inserted in a rocking manner.
3. The panel must be punched so that the housing enters the panel in the same direction as the punch.

For complete product information, order Catalog 82181

PC Board Vertical Pin Headers

Material:

Housing — Nylon, natural color
Flammability Rating — UL94V-2
Contacts — Phosphor bronze
 Solder tail diameter .062 [1.57]

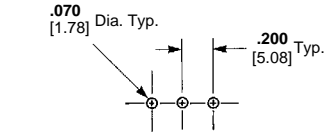
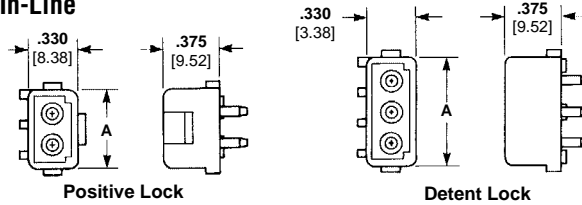
Related Product Data:

Performance Characteristics — page 9029
Mating Socket Housings — pages 9034 thru 9036
Mating Socket Header — page 9038
Mating IDC Socket — page 9039

Technical Document: pages 9029 and 9080

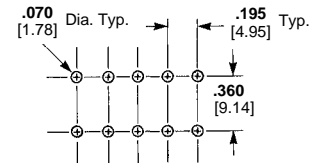
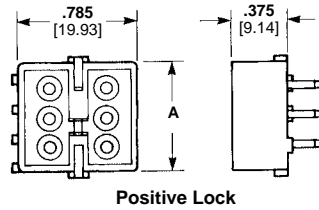
Product Specification
 108-1077 Commercial MATE-N-LOK PC Board Headers

2, 3, and 4 Circuit, In-Line



Recommended PC Board Hole Layout Mounting Dimensions

6, 8, 10, 12 and 16 Circuit, Dual Row



Recommended PC Board Hole Layout Mounting Dimensions

Number of Circuits	A Dim.	Type Lock	Finish	Part Numbers		Mates with Socket Housing Part Numbers
				Standard ² Tail	Long ³ Tail	
2	.515 13.09	Positive	Pre-tin	350539-1	350540-1	1-480720-0
			Duplex ¹	350539-2	—	
		Detent	Pre-tin	350209-1	350422-1	1-480318-0
			Duplex ¹	350209-2	—	
3	.715 18.17	Positive	Pre-tin	350541-1	350542-1	1-480721-0
			Duplex ¹	350541-2	—	
		Detent	Pre-tin	350210-1	350423-1	1-480303-0 or 1-480303-9
			Duplex ¹	350210-2	—	
4	.915 23.24	Positive	Pre-tin	350543-1 ⁵	350544-1 ⁵	1-480722-0 ⁵
			Duplex ¹	350543-2 ⁵	350544-2 ⁵	
		Detent	Pre-tin	770328-1 ^{5,6}	350424-1 ⁵	1-480424-0 ^{4,5}
			1-770328-1 ^{5,6,7}	794431-1 ^{5,8}		
			794236-1 ^{5,8}	—		
			Duplex ¹	350211-2 ⁵	350424-2 ⁵	
6	.705 17.91	Positive	Pre-tin	1-380999-0	350425-1	1-480270-0
			Duplex ¹	2-380999-0	350425-2	
8	.900 22.86	Positive	Pre-tin	350212-1	350426-1	1-480283-0
			Duplex ¹	350212-2	350426-2	
10	1.095 27.81	Positive	Pre-tin	1-380991-0	350219-1	1-480285-0
			Duplex ¹	2-380991-0	—	
12	1.290 32.77	Positive	Pre-tin	350213-1	350220-1	1-480287-0
			Duplex ¹	350213-2	350220-2	
16	1.680 42.68	Positive	Pre-tin	350214-1	350427-1	1-480438-0
			Duplex ¹	350214-2	350427-2	

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.
² Use standard tail for .062 [1.57] thick PC Board.
³ Use long tail for .125 [3.18] thick PC Board.
⁴ Other mating connectors include a vertical PC board socket header and the insulation displacement connectors (IDC).
⁵ Used by the disk drive industry.
⁶ With drain holes.
⁷ Tube loaded.
⁸ Housing material UL94V-0 rated.

For complete product information, order Catalog 82181

PC Board Surface Mount Right-Angle Pin Header

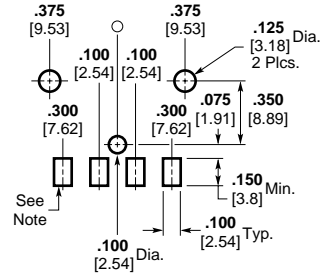
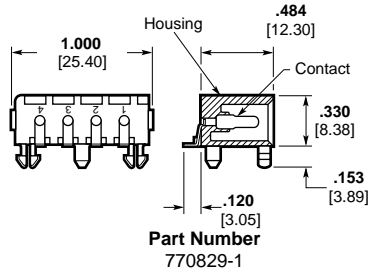
Material and Finish:

Housing — Nylon, black color (770829-1); natural color (770149-1)

Flammability Rating — UL94V-2

Contact — Phosphor bronze, pre-tin
Solder tail width .052 [1.32]

4 Circuit, In-Line



- Note:**
- Mating parts include socket housings, a vertical PC board socket header below and the insulation displacement connectors (IDC).
 - Used by the disk drive industry.

Note: .010 [25] min. thick solder paste, 63/27
Recommended PC Board Layout
.062 [1.57] thick PC Board

PC Board Vertical Socket Headers

Material:

Housing — Nylon, natural color
Flammability Rating — UL94V-2
Contacts — Phosphor bronze
Solder tail diameter .062 [1.57]

Related Product Data:

Performance Characteristics — page 9029

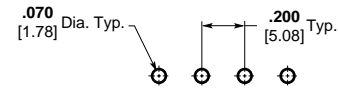
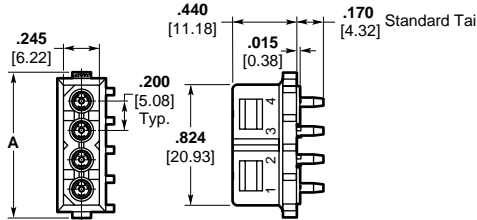
Mating Pin Housings — pages 9034 thru 9036

Mating Pin Headers — pages 9037 thru 9040

Technical Document: pages 9029 and 9080

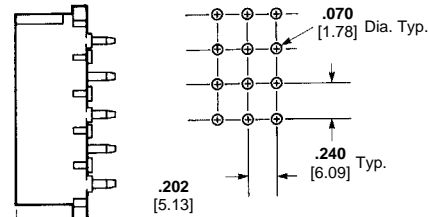
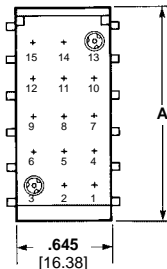
Product Specification
108-1077 Commercial MATE-N-LOK PC Board Headers

4 Circuit, In-Line



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

6, 9, 12 and 15 Circuit, Matrix



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

Number of Circuits	A Dim.	Finish	Part Numbers		Mates with Pin Housing Part Numbers
			Standard Tail ⁵	Long Tail ⁶	
4	1.000 25.40	Pre-tin	770997-1 ³	—	1-480426-0 ^{2,3}
			794285-1 ^{3,7}	—	
			794287-1 ^{3,4}	—	
6	.720 18.29	Pre-tin	350641-1	350576-1	1-480276-0
9	.960 24.39	Pre-tin	350642-1	350577-1	1-480277-0
		Duplex ¹	350642-2	—	
12	1.200 30.49	Pre-tin	350643-1	350578-1	1-480278-0
15	1.440 36.58	Pre-tin	350644-1	350579-1	1-480324-0

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

² Other mating connectors include vertical, right-angle and surface mount PC Board pin headers.

³ Used by the disk drive industry.

⁴ Surface mount compatible.

⁵ Use standard tail for .062 [1.57] thick PC Board.

⁶ Use long tail for .125 [3.18] thick PC Board.

⁷ Low Mating Force

For complete product information, order Catalog 82181

PC Board Right-Angle Pin Headers

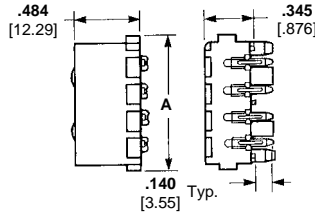
PC Board Right-Angle Pin Headers

2, 3 and 4 Circuit, In-Line

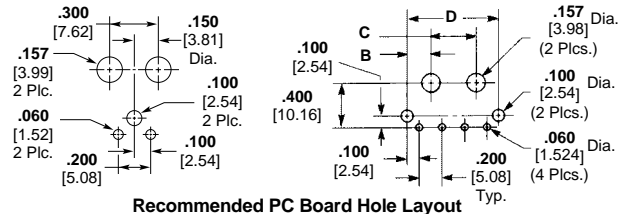
Material and Finish:

Contact—Phosphor bronze, pre-tin
Solder tail width .052 [1.32]

2, 3, and 4 Circuit, In-Line



2, 3, and 4 Circuit



Recommended PC Board Hole Layout
.062 [1.57] thick PC Board

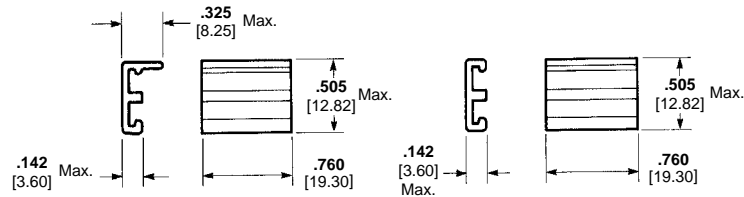
Number of Circuits	Dimensions				Housing Material	Part Numbers	Mates with Socket Housing Part Numbers
	A	B	C	D			
2	.600 15.24	—	.300 7.62	—	UL94V-2 Nylon Natural Color	794120-1	1-480318-0
3	.800 20.32	.150 3.81	.300 7.62	.600 15.24	UL94V-0 Nylon	643488-1	1-480303-0 or 1-480303-9
4	1.000 25.40	.200 5.08	.400 10.16	.800 20.32	UL94V-2 Nylon, Natural Color	641737-1 ³ 770846-1 ^{1,3}	1-480424-0 ^{2,3}
					UL94V-0 Nylon	1-641737-1 ³	770827-1 ^{2,3}

¹ Surface Mount Compatible. ² Other mating connectors include a vertical PC board socket header and the insulation displacement connectors (IDC). ³ Used by the disk drive industry.

Material:

Housing—Polyester, white color
Flammability Rating—UL94V-2

Dust Covers



For Feed To Wiring
Part Number 770232-1

For Feed Through Wiring
Part Number 770233-1

Note: These parts are used with the insulation displacement connectors below

Material:

Housing—Nylon
Contact—Phosphor bronze

Insulation Displacement Connectors (IDC)

Related Product Data:

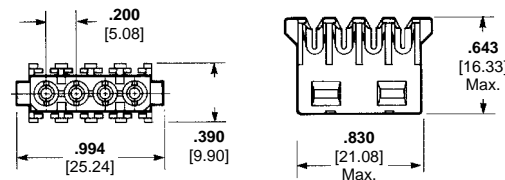
Used by the disk drive industry.
Performance Characteristics—
page 9029
Mating Pin Housings— pages 9034
and 9035
Mating Pin Headers— pages 9037
thru 9039

Technical Documents: pages 9029
and 9080

Product Specifications
108-1077 Commercial MATE-N-LOK
PC Board Headers
108-49000 IDC Connectors

Application Specification
114-49001 IDC Connectors

4 Circuit, In-Line



Socket Assembly (Plug)

Wire Size Range AWG [mm ²]	Color Code	Finish	Part Numbers		Mates with Part Numbers
			UL94V-2	UL94V-0	
22 [.3]	Red	Pre-tin	770156-2	794036-3	1-480426-0 ² 350211-1 350211-2 350424-1 350424-2
20 [.5]	Yellow	Pre-tin	770156-4	794036-2	641737-1 1-641737-1
18 [.8]	Orange	Pre-tin	770156-3	794036-1	770827-1 770829-1 770846-1
16 [1.2]	Blue	Pre-tin	770156-5	794036-4	

¹ Duplex Finish—Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact. ² Pin Housing

Notes: 1. Insulation diameter .095 [2.41] max.

2. Application Tooling:

Power Unit No. **91112-2** (IS 408-7763) uses Head No. **231920-2** (IS 408-9330) and Hand Tool Handle No. **58074-1** (IS 408-6790) uses Head No. **231894-1** (IS 408-3186)

For complete product information,
order Catalog 82181

PC Board Right-Angle Header with Fix Belt

Material:

Housing — Thermoplastic
Flammability Rating — UL94V-2
Contacts — Copper Alloy

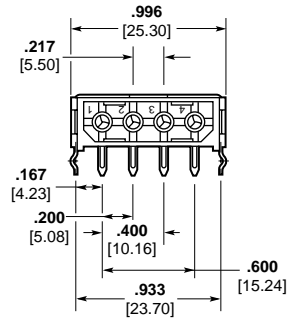
Related Product Data:

Used by the disk drive industry

Technical Document:

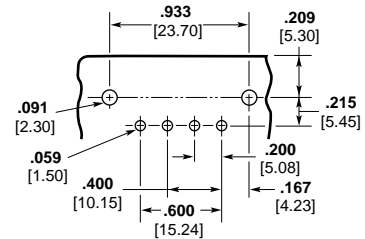
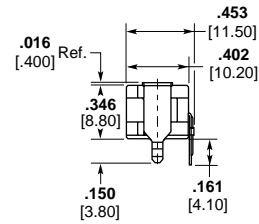
Product Specification
 108-5155

4 Circuit, In-Line



Part Number 174552-1

Notes: Mates with socket housing (plug) Part Number 1-480424-0 on page 9034. Other mating connectors include a vertical PC board socket header and the insulation displacement connectors (IDC).



Recommended PC Board Hole Layout
 .062 [1.57] thick PC Board

PC Board Right-Angle Headers with Fix Belt

Reverse Polarization

Material:

Housing — Nylon
Flammability Rating — UL94V-2
Contacts — Tin plated, Copper alloy

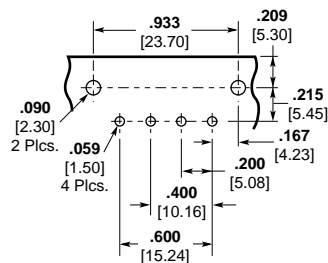
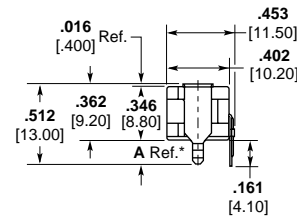
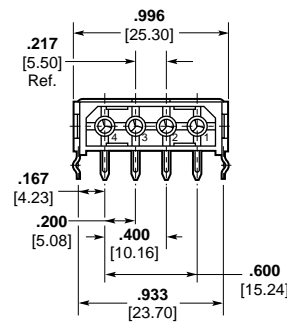
Related Product Data:

Used by the disk drive industry

Technical Document:

Product Specification
 108-5155

4 Circuit, In-Line



Part Number 174804*



Recommended PC Board Hole Layout
 .062 [1.57] thick PC Board

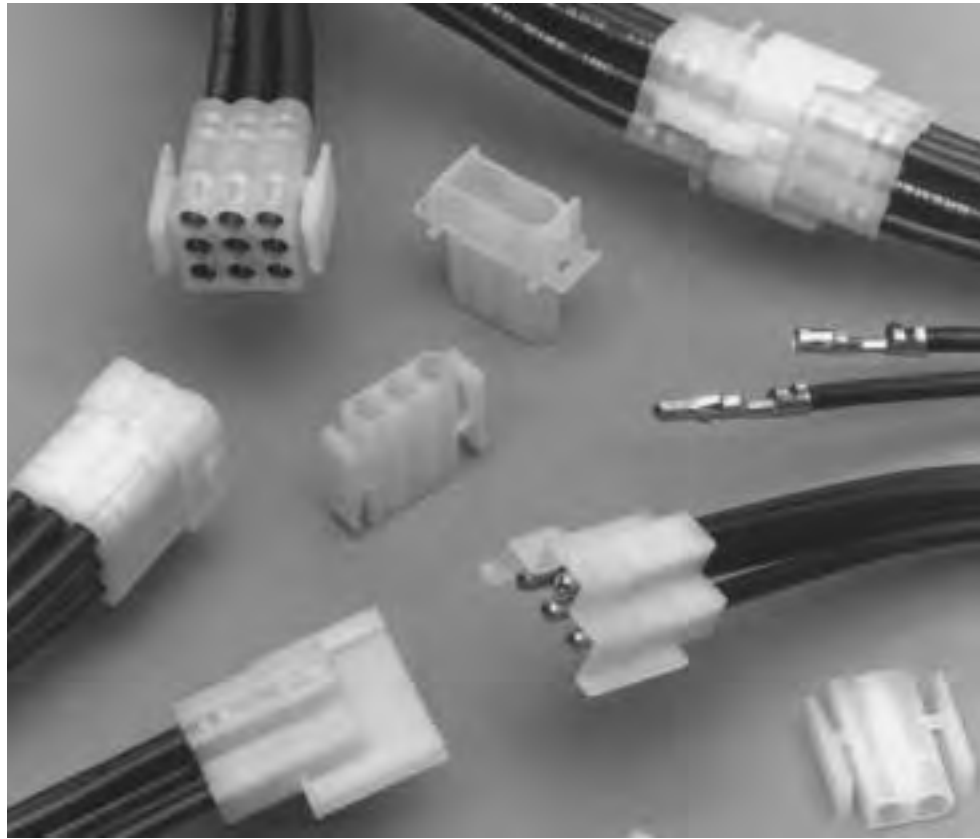
Part Numbers	A Dim. *	Description
174804-1	.150 3.80	Long Clamp with Kink
174804-2	.150 3.80	Clamp without Kink
174804-3	.116 2.95	Short Clamp

For complete product information, order Catalog 82181

Notes: Mates with socket housing (plug) Part Number 1-480424-0 on page 9034. Other mating connectors include a vertical PC board socket header and the insulation displacement connectors (IDC).

Product Facts

- Available in 2, 3 and 9 circuit configurations for panel mounting; 4 and 9 circuit configurations for free hanging applications
- Standard natural nylon housings
- Housings fully polarized
- Contacts fully protected in housings
- Contacts accept wire size range 20-10 AWG [.5-5.0 mm²] with insulation diameters from .100 [2.54] to .180 [4.57]
- Low insertion/extraction forces
- Dual locking lances promote optimum contact stability
- Extraction tool removes both pins and sockets
- Contacts are on .240 [6.09] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189A 



Performance Characteristics:

The .140 MATE-N-LOK Connector performance characteristics found on this page are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstand Voltage — 3.0 KVAC between adjacent circuits

Insulation Resistance — 1000 megohms minimum initial between adjacent circuits

Voltage Rating — 250V AC or DC

Connector Mating — 4.5 lb. max. per circuit

Connector Unmating — .8 lb. min. per circuit

Contact Retention — 30 lb. min.

Durability — 25 cycles, mating and unmating

Thermal Shock — -55°C to 85°C

Temperature-Humidity Cycling — 25°C to 65°C at 95% RH

Maximum Current Maximum current rating of .140 MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is 105°C and the temperature rise of the contacts which is 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

Wire Size Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current carrying capabilities since the wire conducts heat away from the connector.

Connector Size In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature The higher the ambient temperature, the less current can be carried in any given connector.

Technical Documents:

Product Specification
108-1032 .140 Diameter
MATE-N-LOK Connectors

Application Specification
114-1007 .140 Diameter
MATE-N-LOK Contacts

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.) lbs.	N
20	.5	4.5	3.0	20	89
18	.8	6	2.5	30	133
16	1.2	8	2.5	45	200
14	2.0	10	2.0	50	222
12	3.0	12	1.5	60	267
10	5.0	14	1.5	65	289

Note: This is the total resistance between wire crimps of a mated pin and socket.

Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

Wire-to-Wire

.140 MNL Calculated Current Table

Number of Circuits	Wire AWG					
	10	12	14	16	18	20
2	28.00	23.00	18.50	15.00	13.50	10.50
3	25.00	21.00	17.00	13.50	12.00	9.50
9	18.50	15.00	12.00	10.00	9.00	7.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

Minimum Wire Lengths for T-Rise vs. Current Testing See page 9042.

Note: If wire lengths used are less than those listed, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Contacts

Product Specifications:

Pin diameter—.140 [3.57]
Stock thickness—.014 [.357]

Related Product Data:

Performance Characteristics — page 9041

Keying Plug — none

Housings — pages 9042 and 9043

Application Tooling — pages 9081, 9082 and 9084

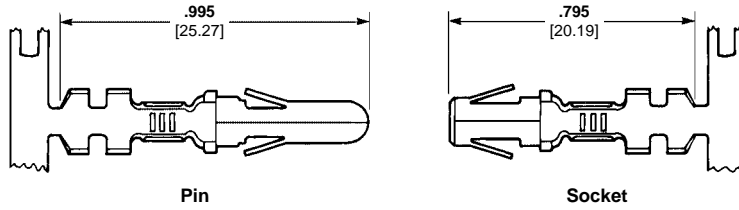
Technical Documents: pages 9041 and 9080

Product Specification

108-1032 .140 Diameter
 MATE-N-LOK Connectors

Application Specification

114-1007 .140 Diameter
 MATE-N-LOK Contacts



Wire Size Range AWG [mm ²]	Ins. Dia. Range	Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
			Pin		Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
20-14 [.5-2.0]	.100-.180 2.54-4.5	Brass, pre-tin	61627-1	350389-1	61626-1	350388-1	567306-1 567306-2 567306-3	90247-1
		Phos. Brz., pre-tin	61627-2	—	61626-2	—		
14-10 [2.0-5.0]	.100-.180 2.54-4.5	Brass, pre-tin	350201-1	350391-1	350200-1	350390-1	567309-1 567309-2 567309-3	69710-1 ²
		Phos. Brz., pre-tin	350201-2	350391-2	350200-2	350390-2		

¹HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

²Hand Tool No. 69710-1 uses die set No. 58374-1 for 14-12 AWG and No. 58373-1 for 10 AWG.



Contact Extraction Tool
 Part Number 453300-1
 IS 408-9569

Housings, Free Hanging

Product Specification:

Centerline spacing—.240 [6.09]

Material:

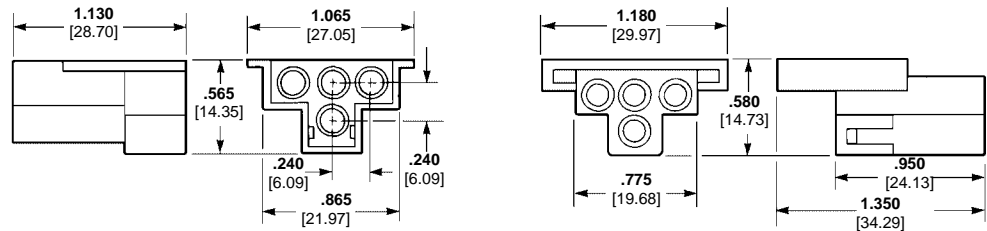
Nylon, natural color

Flammability Rating — UL94V-2

Cavity Identification

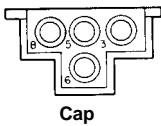
(Rear View)

4 Circuit

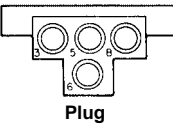


Pin Housing (Cap)
 Part Number 1-480512-0
 Part Number 794700-1 (Black Color)

Socket Housing (Plug)
 Part Number 1-480510-0

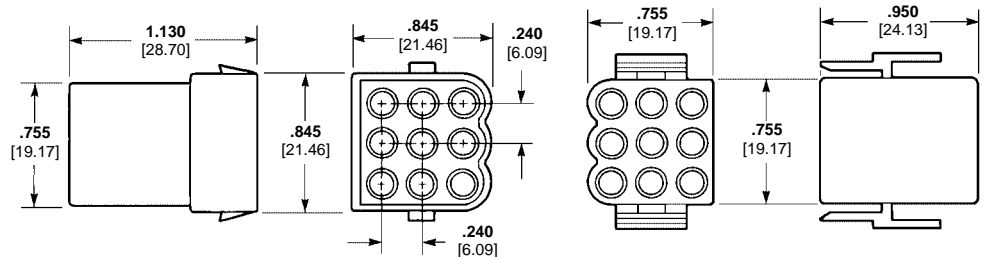


Cap



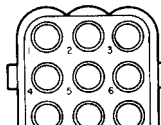
Plug

9 Circuit, Matrix

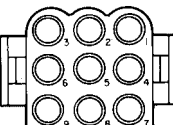


Pin Housing (Cap)
 Part Number 1-480586-0

Socket Housing (Plug)
 Part Number 1-480585-0



Cap



Plug

For complete product information, order Catalog 82181

Housings, Panel Mount

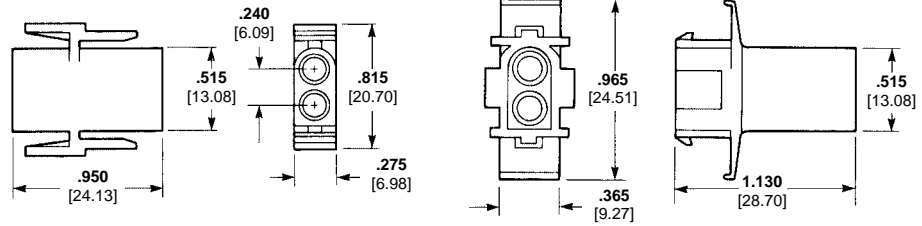
Product Specification:

Centerline spacing—.240 [6.09]

Material:

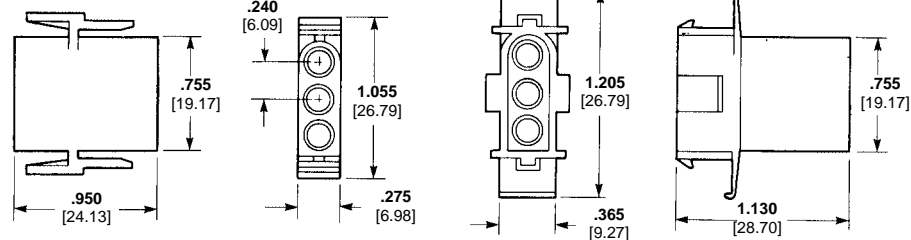
Housing—Nylon, natural color
Flammability Rating—UL94V-2
Cavity Identification
 (Rear View)

2 and 3 Circuit, In-Line



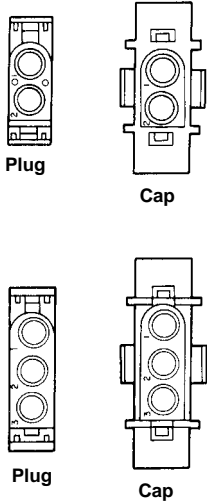
Socket Housing (Plug)
 Part Number 1-350344-0
 Part Number 794699-1 (Black Color)

Pin Housing (Cap)
 Part Number 1-350345-0

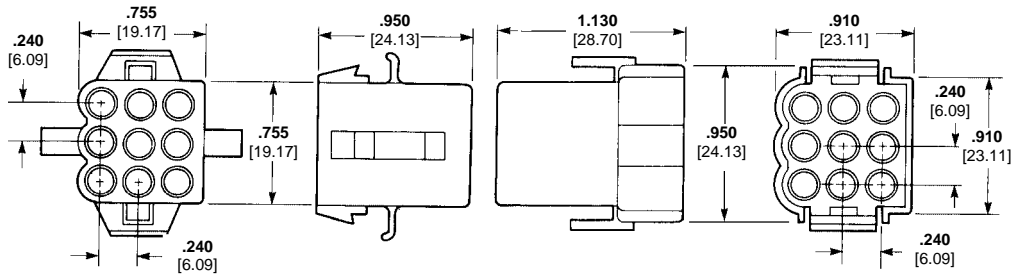


Socket Housing (Plug)
 Part Number 1-350346-0

Pin Housing (Cap)
 Part Number 1-350347-0
 Part Number 794061-1 (Black Color)

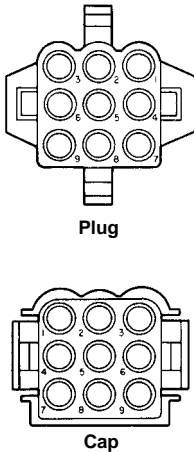


9 Circuit, Matrix



Socket Housing (Plug)
 Part Number 1-480672-0

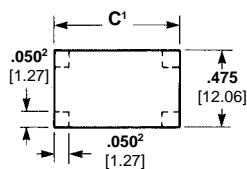
Pin Housing (Cap)
 Part Number 1-480673-0
 Part Number 794683-1 (Black Color)



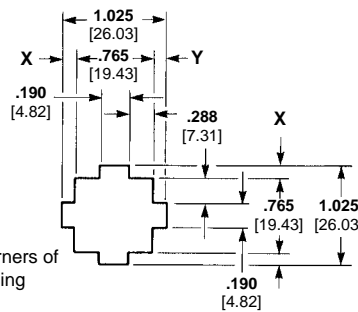
Recommended Panel Cutouts

View is from housing entry side

2 and 3 Circuit



9 Circuit



- 1 2 Circuit-.725 [18.42]
- 3 Circuit-.965 [24.51]
- 2 .050 x .050 [1.27-1.27] tabs in corners of outlet are optional to reduce housing float in panel.

Notes:

1. Panel thickness .040-.070 [1.02-1.78].
2. "X" and "Y" dimensions must be within .005 [0.127] of each other.
3. Panel should be punched so that the housing enters the panel in the same direction as the punch for ease of assembly.

Related Product Data:

Performance Characteristics—page 9041

Keying Plug—none

Contacts—page 9042

Technical Documents: pages 9041 and 9080

Product Specification



108-1032 .140 Diameter MATE-N-LOK Connectors

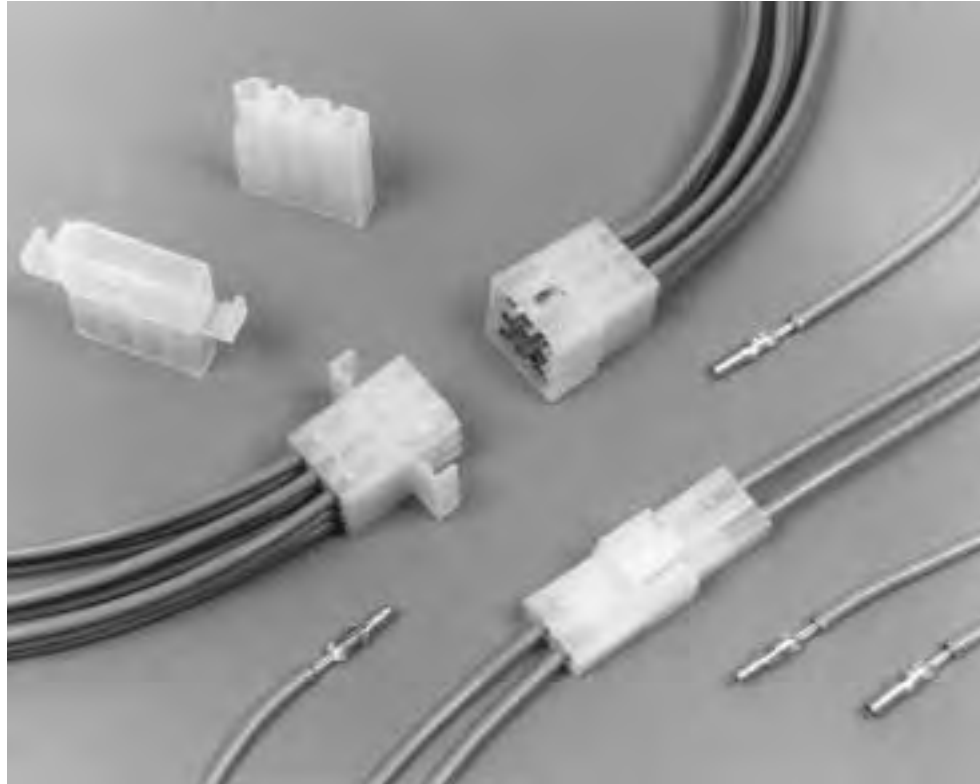
Application Specification

114-1007 .140 Diameter MATE-N-LOK Contacts

For complete product information, order Catalog 82181

Product Facts

- Polarized
- Cavity identification
- Low contact-mating force
- Dual locking lances
- Detent and positive locking
- Contacts available in brass and phosphor bronze with tin and gold plating
- Panel-mounting and free-hanging styles
- "F" crimp contacts
- Applicator and hand tool available
- Economical commercial-grade connectors
- Compatible with high-speed application machinery and competitive soft shells
- Wire range from 24 to 14 AWG [0.2 to 2 mm²]
- Accepts wires with insulation diameters as large as .180 [4.57]
- Housings available in 1 to 15 positions
- .093 plug and receptacle housings accept pin or socket contacts. The preferred convention is to use socket contacts with receptacle housings
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189



Performance Characteristics:

The .093 Commercial Pin and Socket Connectors performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Thermal Shock — -55°C to +105°C

Temperature-Humidity Cycling — +25°C to +65°C at 90–95% RH

Corrosion — 48 hr. at 5% salt concentration

Vibration — 10-55-10 cycles per minute at .06 [1.52] total excursion

Physical Shock — 18 shocks, 50 Gs sawtooth in 11 milliseconds

Durability — 50 mating cycles

Dielectric Withstanding Voltage — 1.0 kVAC

Insulation Resistance — 1000 megohms min. initial

Voltage Rating — 250 V AC or DC

Connector Mating — 2.5 lb. [11.1 N] max. per contact

Connector Unmating — 1.5 lb. [6.7 N] min. per contact

Contact Retention — 10 lb. [44.5 N] min.

Technical Documents:

Product Specification
108-1038

Application Specification
114-49000

For complete product information, order Catalog 82181

Contacts

Product Specification:

Pin Diameter—.093 [2.36]

Material:

.010 [0.25] Stock Thickness
Pin and socket contacts can be used in either plug or receptacle housings.

Related Product Data:

Performance Characteristics— page 9044

Housings—
.198 [5.03] Centerline— pages 9046 and 9047
.250 [6.35] Centerline— pages 9048 and 9049

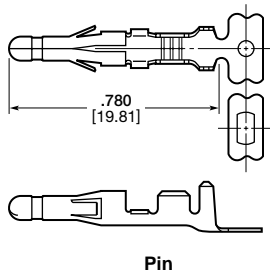
Panel Cutouts—
.250 [6.35] Centerline Housings— page 9048

Application Tooling— pages 9081, 9082 and 9084

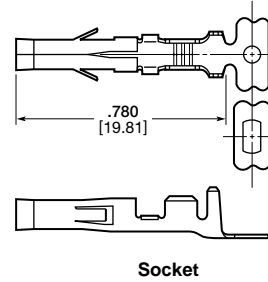
Technical Documents: pages 9044 and 9080

Product Specification
108-1038

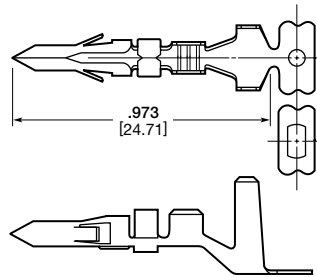
Application Specification
114-49000



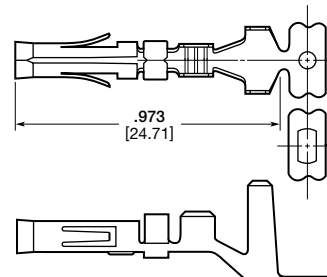
Pin



Socket



Pin
Part Number 770385-1³



Socket
Part Number 770383-1³



**Contact Insertion Tool
(For Pins and Sockets)**
Part Number 91002-1
IS 408-7347



Contact Extraction Tool
Part Number 318837-1
IS 408-4375

Wire Size AWG	mm ²	Ins. Dia.	Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
				Pin		Socket			
				Strip Form	Loose Form	Strip Form	Loose Form		
24-18	0.2-0.9	.110 2.79	Brass, Pre-tin	350418-1	770147-1	350417-1	770146-1	466656-1 ⁵	90872-1
			Brass, Gold ²	—	—	350417-3 ²	770146-3 ²	466656-2 ⁵	
			Brass Select Gold ¹	350418-5 ¹	770147-5 ¹	350417-5 ¹	770146-5 ¹	466656-3 ⁵	
20-14	0.6-2	.140 3.56	Brass, Pre-tin	350416-1	770145-1	350415-1	770144-1	466878-1 ⁵	90871-1
			Brass, Select Gold ¹	350416-5 ¹	770145-5 ¹	350415-5 ¹	770144-5 ¹	466878-2 ⁵	
			Phos. Brz., Pre-tin	—	—	350415-6	770144-6	466878-3 ⁵	
18-14 or 2 (18)	0.8-2 or 2 (0.8-0.9)	.180 4.57	Brass, Pre-tin	770530-1 ⁴	—	770529-1 ⁴	—	567337-3 ⁶	—
			Phos. Brz., Pre-tin	—	—	770383-1 ³	—	567337-4 ⁶	
			Brass, Pre-tin	770385-1 ³	—	—	—	567337-6 ⁶	
			Phos. Brz., Pre-tin	—	—	770383-1 ³	—	567273-2 ⁷	
								567273-3 ⁷	
								567273-4 ⁷	

¹ Select Gold—.000030 [.000762] min gold in mating area over .000050 [.00127] min nickel.
² Gold—.000050 [.00127] min gold in mating area, overall gold flash over .000050 [.00127] min nickel.
³ These contacts have a .0125 [.318] stock thickness and accept two wires, each with maximum .180 [4.57] insulation diameters. They can be used **only** with the following housing part numbers: 770364-1, 770365-1, 770450-1, 770451-1, 770452-1, and 770453-1 (see page 9049).
⁴ Contact length is .875 [22.23].
⁵ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.
⁶ HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-ELECTRIC Model K Machine, -6 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.
⁷ HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -4 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

Note: Phosphor bronze contacts should be used in high-temperature/humidity cycling applications.

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.198 [5.03]

Material:

Housing—Nylon, natural color

Flammability Rating—UL94V-2

Related Product Data:

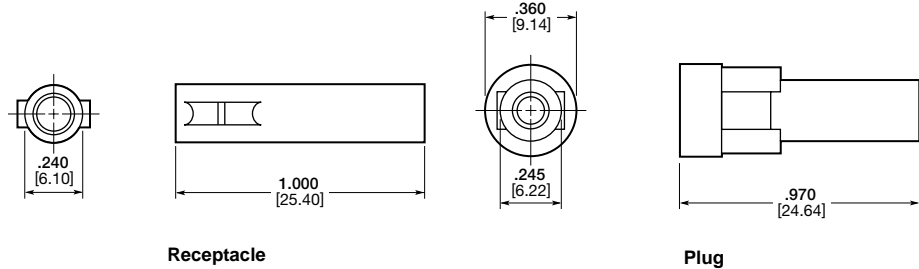
Contacts—page 9045

Technical Document:

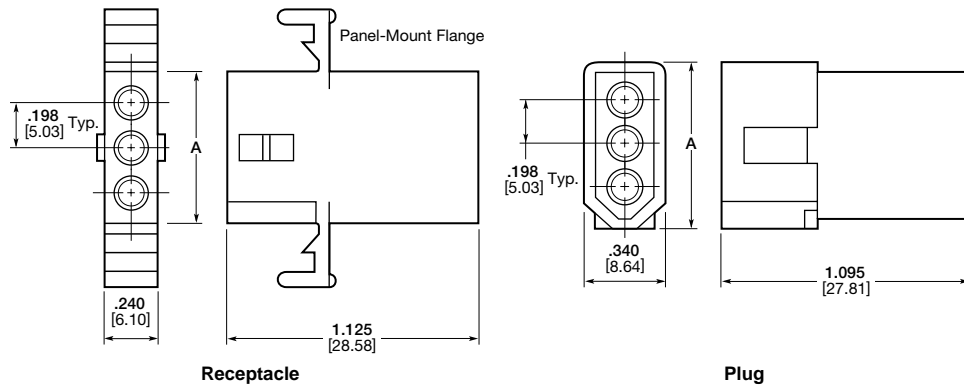
Product Specification

108-1038

1 Circuit



2, 3, 4 and 6 Circuit, In-Line



No. of Circuits	A Dim.		Receptacle Part Numbers				Plug Part Numbers	
	Receptacle	Plug	Panel-Mount		Free-Hanging		Panel-Mount	Free-Hanging
			Without Detents	With Detents	Without Detents	With Detents		
1	—	—	—	—	—	770063-1	—	770064-1
2	.540 13.72	.640 16.26	—	770066-1 ^{1,5}	—	770065-1 ^{1,5} 770266 ^{1,3,5}	770068-1 ¹	770069-1 ¹
3	.670 17.02	.770 19.56	—	770071-1	—	770070-1 770264-1 ³	770073-1	770074-1
4 (In-Line)	.870 22.10	.970 24.64	—	770076-1	—	770075-1	770077-1	770078-1
4 (Matrix)	.443 11.25	.540 13.71	—	—	—	770843-1	—	770842-1
5	1.070 27.18	1.170 29.72	—	—	—	770083-1 794015-1 ³	—	770084-1
6 (In-Line)	1.268 32.21	1.378 35.00	—	—	—	770782-1 ⁴	—	770892-1 ⁴
6 (Matrix)	.435 11.05	.535 13.59	770085-1	770087-1	770088-1	770086-1	770089-1	770090-1
9	.670 17.02	.770 19.56	770091-1	770093-1	770094-1	770092-1	770095-1 ² 770108-1	770096-1
12	.870 22.10	.970 24.64	770097-1	770099-1	770100-1	770098-1	770101-1	770102-1
15	1.070 27.18	1.170 29.72	770103-1	—	770105-1	—	770106-1	770107-1

¹ .248 [6.30] centerline.

² Mounting ears at wire end.

³ Tool removable.

⁴ Positive lock.

⁵ 600V AC or DC

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.198 [5.03]

Material:

Housing—Nylon, natural color

Flammability Rating—UL94V-2

Related Product Data:

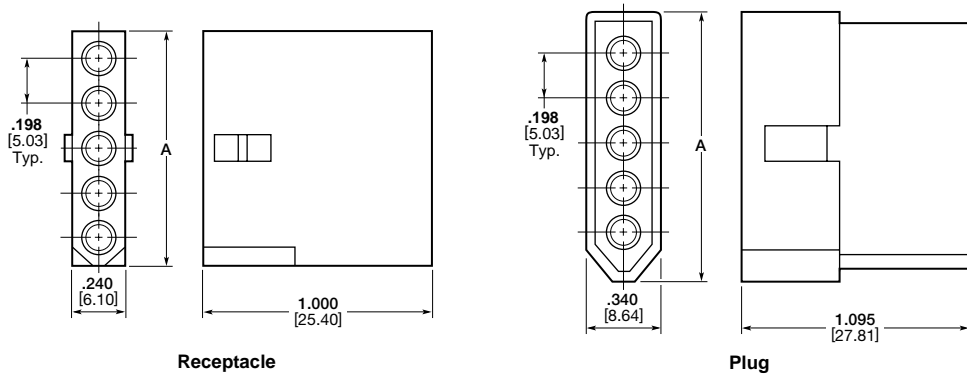
Contacts—page 9045

Technical Document:

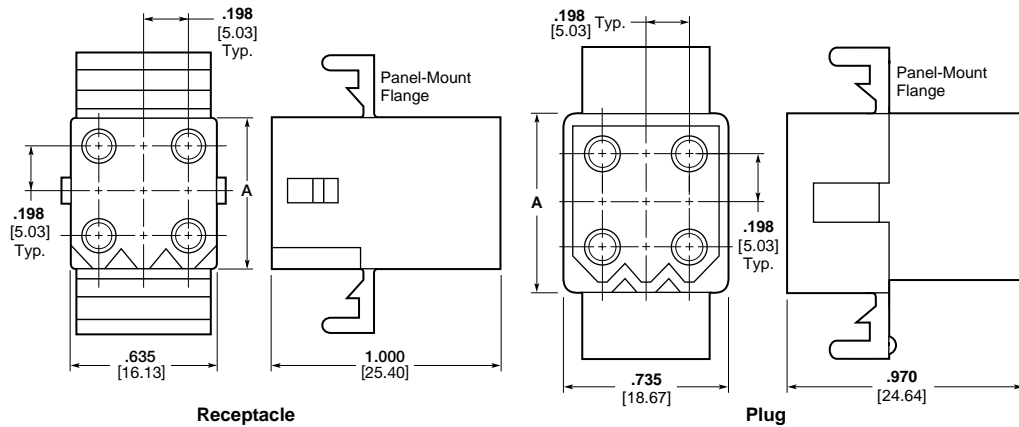
Product Specification

108-1038

5 Circuit, In-Line



4, 6, 9, 12, and 15 Circuit, Matrix



For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Housing—Nylon, natural color
 Flammability Rating—UL94V-2
 Voltage Rating—600V AC or DC

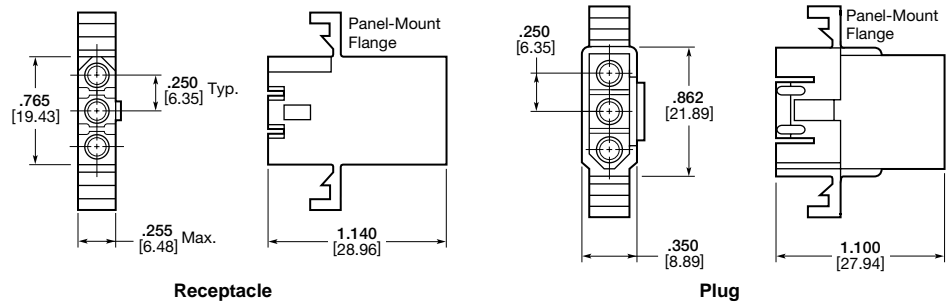
Related Product Data:

Contacts—page 9045

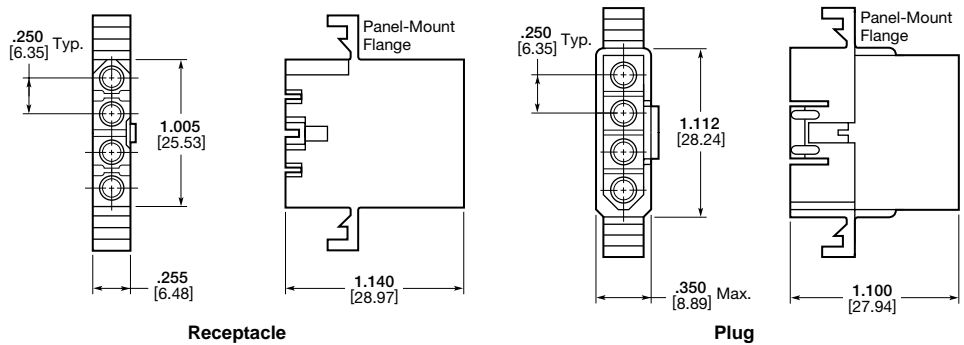
Technical Document:

Product Specification
 108-1038

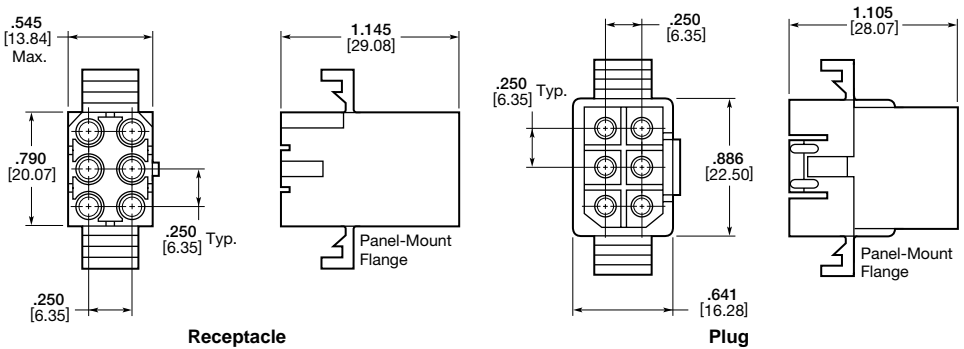
3 Circuit, In-Line



4 Circuit, In-Line



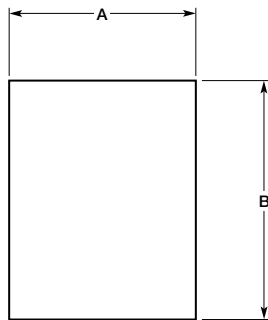
6 Circuit, Matrix



Recommended Panel Cutouts

Maximum panel thickness is .062 [1.57].

Note: The panel should be punched so that the housing enters in the same direction as the punch.



No. of Circuits	Receptacle Part Numbers		Plug Part Numbers	
	Panel-Mount	Free-Hanging	Panel-Mount	Free-Hanging
3	770269-1 770771-1 ¹	770339-1	770338-1	770276-1
4	770329-1	770337-1	770330-1	770336-1
6	770372-1	770360-1	770373-1	770361-1

¹ Pre-bent mounting ears.

No. of Circuits	Panel Cutout Dimensions			
	Receptacle		Plug	
	A	B	A	B
3	.310 7.87	.920 23.37	.365 9.27	1.022 25.96
4	.310 7.87	1.168 29.67	.365 9.27	1.270 32.26
6	.608 15.44	.946 24.03	.658 16.71	1.048 26.62

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.250 [6.35]

Material:

Housing—Nylon, natural color
 Flammability Rating—UL94V-2
 Voltage Rating—600V AC or DC

Related Product Data:

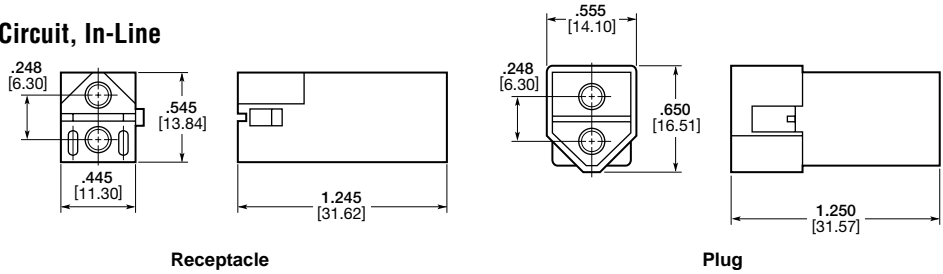
Contacts—page 9045

Technical Document:

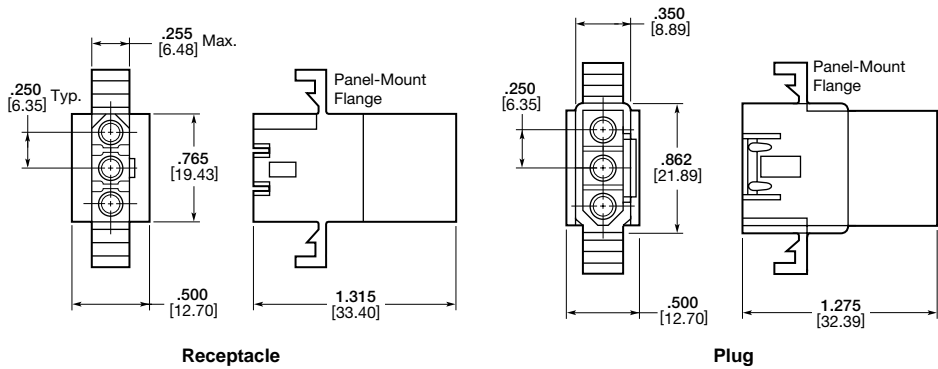
Product Specification
 108-1038

Dual Wire

2 Circuit, In-Line



3 Circuit, In-Line

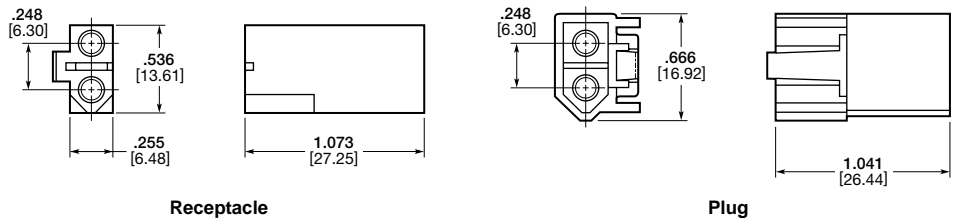


No. of Circuits	Receptacle Part Numbers		Plug Part Numbers	
	Panel-Mount	Free-Hanging	Panel-Mount	Free-Hanging
2	—	770364-1 ¹	—	770365-1 ¹
3	770453-1	770451-1	770452-1	770450-1

¹.248 centerline.

Positive Lock

2, 3 and 4 Circuit, In-Line



No. of Circuits	Receptacle Part Numbers	Plug Part Numbers
	Free-Hanging	Free-Hanging
2	770424-1 ¹	770425-1 ¹
3	770785-1	770783-1
4	770784-1	770810-1

¹.248 centerline.

For complete product information, order Catalog 82181

Product Facts

- One molded piece, secondary locking plug and cap housing assemblies
- Three-point stabilization to provide consistent terminal position
- Fully polarized to provide proper plug-to-cap mating
- Lanceless contacts for virtually tangle-free handling
- Toolless contact removal
- Tin or duplex gold plated contacts
- Available in 2 thru 24 circuit sizes, wire-to-wire and wire-to-board
- Mates with standard Mini Universal MATE-N-LOK headers and connectors
- Contacts available in strip and loose piece
- Polarized housing available in UL 94V-0 flammability rated material
- Mini Universal MATE-N-LOK 2 pins and sockets can be intermixed in Mini Universal MATE-N-LOK II housings
- Mini Universal MATE-N-LOK 2 pins and sockets can not be used in standard Mini Universal MATE-N-LOK housings
- Contacts accept wire size range 30-16 AWG [.05-1.2 mm²]
- .163 [4.14] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Submitted for testing by VDE



Performance Characteristics:

The Mini-Universal MATE-N-LOK 2 Connector performance characteristics found below are based on free hanging connectors, loaded with contacts crimped on stranded wire.

Low Level Termination

Resistance— 20 milliohms max. total resistance between wire crimps of a mated pin and socket

Dielectric Withstanding Voltage— 1500 V AC or DC between adjacent circuits at sea level

Insulation Resistance—100 megohms minimum between adjacent circuits

Voltage Rating— 600V AC or DC

Contact Retention— 20 lb. min. per contact

Durability— 25 cycles, mating and unmating

Current Rating— up to 10.5 amps per circuit; 2 position

Mating Force— 0.75 lb. max. per circuit

Unmating Force— 0.25 lb. minimum per circuit

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm ²	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.)	
				lbs.	N
30	.05	—	—	—	—
28	.08	—	—	—	—
26	.12	—	—	4	18
24	.2	—	—	—	—
22	.3	—	—	11	49
20	.5	—	—	13	58
18	.8	—	—	15	67
16	1.2	—	—	18	80

Technical Documents:

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Application Specification

114-1111 Mini-Universal MATE-N-LOK 2 Connectors

Instruction Sheet

408-3393 Mini-Universal MATE-N-LOK 2 Connectors

Mini-Universal MATE-N-LOK 2 connectors also will withstand the following tests:

Housing Lock Strength— 6 lb. min.

Thermal Shock— -20°C to +105°C

Temperature-Humidity Cycling— 25°C to 65°C at 95% RH

Vibration— 10-55-10 cycles per minute at .06 inch total excursion

Physical Shock— 18 drops, 50 G half-sine at 11 milliseconds

For complete product information, order Catalog 82181

Mini-Universal MATE-N-LOK 2 Connector Mating Combinations

Number of Circuits	Connector Part Numbers				Mating Connector Part Numbers				
	Flammability Rating	Style	Plug ¹ Housing Part Numbers	Cap ¹ Housing Part Numbers	PC Board Pin Headers ⁴				Right-Angle Board Lock
					Plating	Vertical With Drain Holes	Vertical Without Drain Holes	Blindmate	
2	UL94V-2	In-line	794237-1	794238-1	—	—	—	—	—
	UL94V-0	In-line	794184-1	794185-1	Tin-Lead ³	770166-1	770872-1	—	770966-1
3	UL94V-2	In-line	794239-1	794240-1	Duplex ²	770166-2	770872-2	—	770966-2
	UL94V-0	In-line	794186-1	794187-1	Tin-Lead ³	770170-1	770873-1	—	770967-1
4	UL94V-2	Dual Row	794241-1	794242-1	Duplex ²	770170-2	770873-2	—	770967-2
	UL94V-0	Dual Row	794188-1	794189-1	—	—	—	—	—
6	UL94V-2	Dual Row	794243-1	794244-1	Tin-Lead ³	770174-1	770874-1	794325-1	770968-1
	UL94V-0	Dual Row	794190-1	794191-1	Duplex ²	770174-2	770874-2	794325-2	770968-2
8	UL94V-2	Dual Row	794245-1	794246-1	—	—	—	—	—
	UL94V-0	Dual Row	794192-1	794193-1	Tin-Lead ³	770178-1	770875-1	794326-1	770969-1
9	UL94V-2	Matrix	794247-1	794248-1	Duplex ²	770178-2	770875-2	794326-2	770969-2
	UL94V-0	Matrix	794194-1	794195-1	—	—	—	—	—
10	UL94V-2	Dual Row	794249-1	794250-1	Tin-Lead ³	770182-1	770876-1	794130-1	—
	UL94V-0	Dual Row	794196-1	794197-1	Duplex ²	770182-2	770876-2	794130-2	—
12	UL94V-2	Matrix	794253-1	794254-1	—	—	—	—	—
	UL94V-0	Dual Row	794251-1	794252-1	—	—	—	—	—
14	UL94V-2	Matrix	794200-1	794201-1	Tin-Lead ³	770743-1	770858-1	794328-1	770971-1
	UL94V-0	Dual Row	794198-1	794199-1	Duplex ²	770743-2	770858-2	794328-2	770971-2
16	UL94V-2	Dual Row	794255-1	794256-1	—	—	—	—	—
	UL94V-0	Dual Row	794202-1	794203-1	Tin-Lead ³	770186-1	794040-1	794329-1	—
18	UL94V-2	Matrix	794257-1	794258-1	Duplex ²	770186-2	794040-2	794329-2	—
	UL94V-0	Matrix	794204-1	794205-1	Tin-Lead ³	794066-1	770621-1	—	770972-1
20	UL94V-2	Dual Row	794259-1	794260-1	Duplex ²	794066-2	770621-2	—	770972-2
	UL94V-0	Dual Row	794206-1	794207-1	—	—	—	—	—
22	UL94V-2	Dual Row	794261-1	794262-1	Tin-Lead ³	794067-1	794074-1	—	770973-1
	UL94V-0	Dual Row	794208-1	794209-1	Duplex ²	794067-2	794074-2	—	770973-2
24	UL94V-2	Dual Row	794263-1	794264-1	—	—	—	—	—
	UL94V-0	Dual Row	794210-1	794211-1	Tin-Lead ³	770190-1	770859-1	794330-1	—
26	UL94V-2	Dual Row	794212-1	794213-1	Duplex ²	770190-2	770859-2	794330-2	—
	UL94V-0	Dual Row	794212-1	794213-1	—	—	—	—	—
28	UL94V-2	Dual Row	794267-1	794268-1	Tin-Lead ³	794070-1	794077-1	—	794106-1
	UL94V-0	Dual Row	794214-1	794215-1	Duplex ²	794070-2	794077-2	—	794106-2
30	UL94V-2	Dual Row	794212-1	794213-1	—	—	—	—	—
	UL94V-0	Dual Row	794212-1	794213-1	Tin-Lead ³	794071-1	794078-1	—	794107-1
32	UL94V-2	Dual Row	794267-1	794268-1	Duplex ²	794071-2	794078-2	—	794107-2
	UL94V-0	Dual Row	794214-1	794215-1	—	—	—	—	—
34	UL94V-2	Dual Row	794214-1	794215-1	Tin-Lead ³	794072-1	794079-1	—	794108-1
	UL94V-0	Dual Row	794214-1	794215-1	Duplex ²	794072-2	794079-2	—	794108-2

¹ Mini-Universal MATE-N-LOK 2 plug and cap housings accept pin or socket contacts. Use the appropriate contacts in the plug housing as required by the mating connector. All **Plugs** and **Caps** are **free hanging**.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

³ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

⁴ All PC board pin headers have 94V-0 flammability rating and can mate to V-0 or V-2 plug housings.

For complete product information, order Catalog 82181

Contacts

Product Specification:

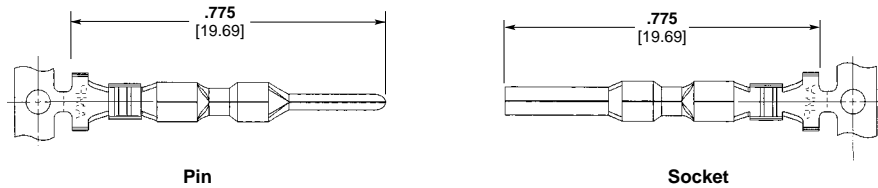
Pin diameter — .039 [0.99]

Material:

Brass

Stock Thickness .010 [0.25]

These contacts can be used in either Mini-Universal MATE-N-LOK 2 Plug or Cap housings only.



Not to be used with Mini-Universal MATE-N-LOK Connectors

Related Product Data:

Performance Characteristics — pages 9050, 9051

Housings — pages 9053 and 9054

Technical Documents: pages 9050 and 9080

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

108-1694 Mini-Universal MATE-N-LOK 2 Headers

Application Specification

114-1111 Mini-Universal MATE-N-LOK 2 Connectors

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
			Pin		Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
30-26 [.05-.12]	.035-.050 .889-1.27	Pre-tin	794216-1	794224-1	794217-1	794225-1	567418-1 ² 567418-2 ² 567418-3 ²	—
		Duplex ¹	794216-3	794224-3	794217-3	794225-3		
26-22 [.12-.3]	.047-.069 1.19-1.75	Pre-tin	794218-1	794226-1	794219-1	794227-1	567066-3 ³ 567066-4 ³ 567066-5 ³	90710-2
		Duplex ¹	794218-3	794226-3	794219-3	794227-3		
22-18 [.3-.8]	.059-.110 1.50-2.39	Pre-tin	794220-1	794228-1	794221-1	794229-1	567067-1 ² 567067-2 ² 567067-3 ²	90711-2
		Duplex ¹	794220-3	794228-3	794221-3	794229-3		
20-16 [.5-1.2]	.079-.126 2.01-3.20	Pre-tin	794222-1	794230-1	794223-1	794231-1	650582-2 ² 650582-3 ²	90707-2
		Duplex ¹	794222-3	794230-3	794223-3	794231-3		

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin-lead in crimping area over .000050 [.00127] min. nickel underplate on entire contact.

² HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine.

³ HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-ELECTRIC Model K Machine, -5 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

For complete product information, order Catalog 82181

Housings, Free Hanging

Product Specification:

Centerline spacing—.163 [4.14]

Related Product Data:

Performance Characteristics — pages 9050, 9051

Contacts — page 9052

Mating Headers — pages 9055 thru 9057

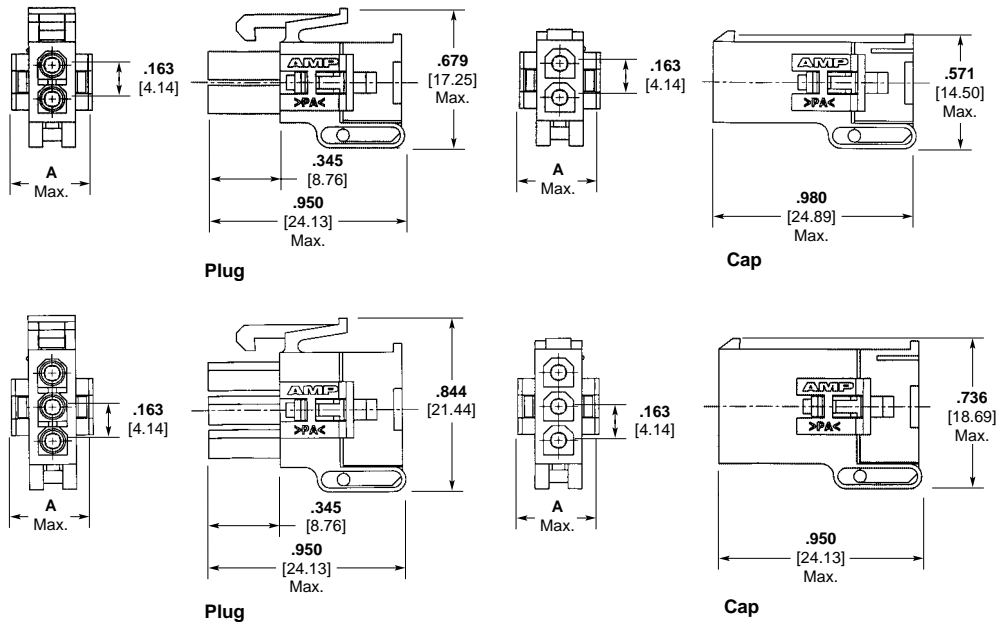
Technical Documents: pages 9050 and 9080

Product Specifications

108-1693 Mini-Universal MATE-N-LOK 2 Connectors

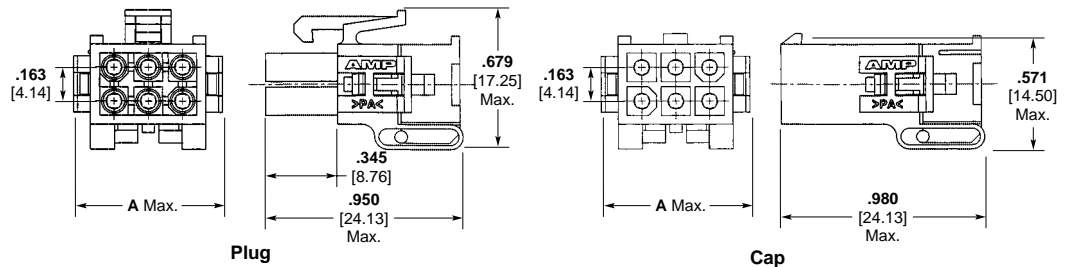
108-1694 Mini-Universal MATE-N-LOK 2 Headers

2 and 3 Circuit, In-Line



Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
2	.405 10.29	794184-1	794185-1	794237-1	794238-1
3	.405 10.29	794186-1	794187-1	794239-1	794240-1

4 and 6 Circuit, Dual Row

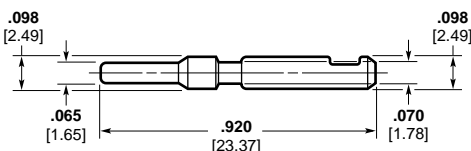


Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
4	.571 14.50	794188-1	794189-1	794241-1	794242-1
6	.736 18.70	794190-1	794191-1	794243-1	794244-1

Keying Plug

Material:

UL94V-0 Nylon, white color



Part Number 794369-1

For complete product information, order Catalog 82181

Housings, Free Hanging

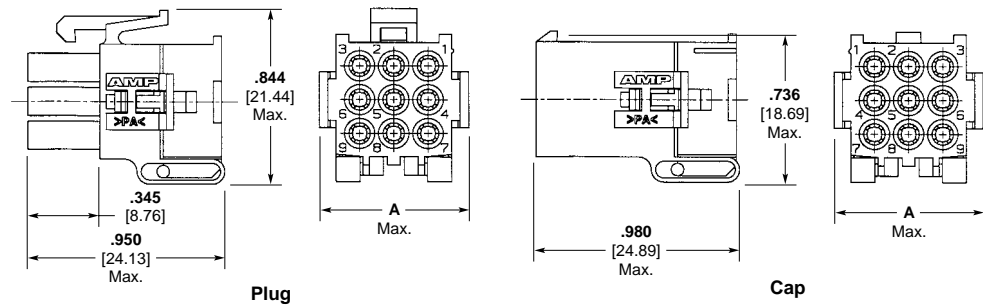
Product Specification:
Centerline spacing—.163 [4.14]

Related Product Data:
Performance Characteristics — pages 9050, 9051
Contacts — page 9052
Keying Plug — page 9053
Mating Headers — page 9055 thru 9057

Technical Documents: pages 9050 and 9080

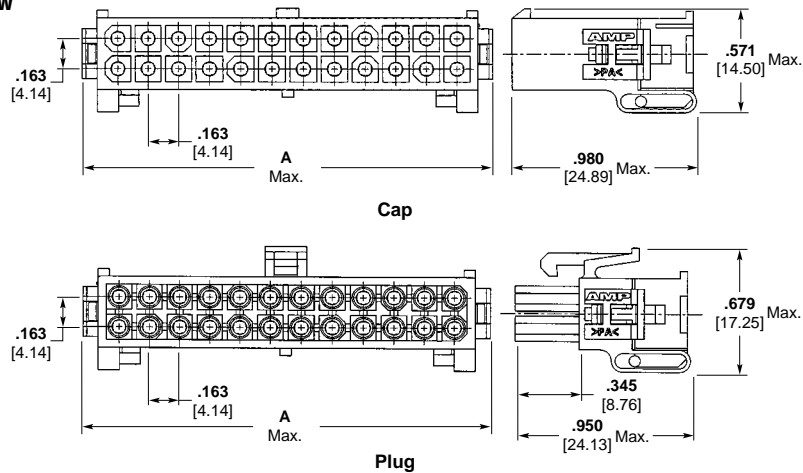
Product Specifications
108-1693 Mini-Universal MATE-N-LOK 2 Connectors
108-1694 Mini-Universal MATE-N-LOK 2 Headers

9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
9	.736 18.69	794194-1	794195-1	794247-1	794248-1
12	.901 22.89	794200-1	794201-1	794253-1	794254-1
15	1.067 27.10	794204-1	794205-1	794257-1	794258-1

8 thru 24 Circuit, Dual Row



Number of Circuits	A Dim.	Housing Part Numbers			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
8	.899 22.84	794192-1	794193-1	794245-1	794246-1
10	1.062 26.98	794196-1	794197-1	794249-1	794250-1
12	1.225 31.12	794198-1	794199-1	794251-1	794252-1
14	1.388 35.26	794202-1	794203-1	794255-1	794256-1
16	1.551 39.40	794206-1	794207-1	794259-1	794260-1
18	1.714 43.54	794208-1	794209-1	794261-1	794262-1
20	1.877 47.68	794210-1	794211-1	794263-1	794264-1
22	2.040 51.82	794212-1	794213-1	794265-1	794266-1
24	2.203 55.96	794214-1	794215-1	794267-1	794268-1

For complete product information, order Catalog 82181

Vertical PC Board Pin Headers

Product Specification:

Centerline spacing—.163 [4.14]

Material:

Housing—Nylon, white

Flammability Rating—UL94V-0

Contacts—Brass

Solder tail diameter .039 [1.00]

Related Product Data:

Performance Characteristics—
page 9050

Technical Documents: pages 9050
and 9080

Product Specification

108-1693 Mini-Universal MATE-N-LOK 2
Connectors

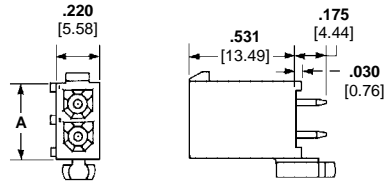
108-1694 Mini-Universal MATE-N-LOK 2
Headers

Mating Connectors:

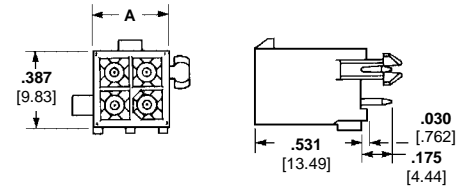
Mini-Universal MATE-N-LOK 2
Plug Housings— pages 9053 and
9054

Mini-Universal MATE-N-LOK
Plug Housings— pages 9061 and
9062

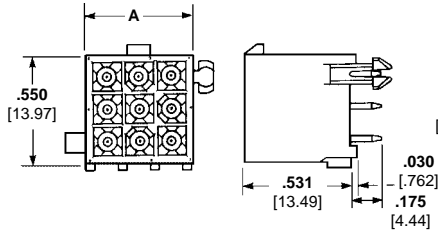
2 and 3 Circuit, In-Line



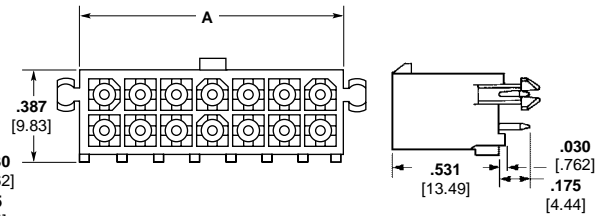
4, 6, 8, 10 and 12 Circuit, Double Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Double Row



Number of Circuits	Style	A Dim.	Pin Finish	Vertical Pin Header Part Numbers		Mates with Plug Housing Part Numbers (Using Socket Contacts)	
				With Drain Holes	Without Drain Holes	Mini-UMNL	Mini-UMNL 2
2	In-Line	.387 9.83	Tin-Lead ¹	770166-1	770872-1	172165-1	794184-1
			Duplex ²	770166-2	770872-2		
3	In-Line	.550 13.97	Tin-Lead ¹	770170-1	770873-1	172166-1	794186-1
			Duplex ²	770170-2	770873-2		
4	Dual Row	.387 9.83	Tin-Lead ¹	770174-1	770874-1	172167-1	794188-1
			Duplex ²	770174-2	770874-2		
6	Dual Row	.550 13.97	Tin-Lead ¹	770178-1	770875-1	172168-1	794190-1
			Duplex ²	770178-2	770875-2		
8	Dual Row	.713 18.11	Tin-Lead ¹	794065-1	794073-1	770579-1	794192-1
			Duplex ²	794065-2	794073-2		
9	Matrix	.551 14.00	Tin-Lead ¹	770182-1	770876-1	172169-1	794194-1
			Duplex ²	770182-2	770876-2		
10	Dual Row	.877 22.28	Tin-Lead ¹	770743-1	770858-1	770580-1	794196-1
			Duplex ²	770743-2	770858-2		
12	Dual Row	1.039 26.39	Tin-Lead ¹	794066-1	770621-1	770581-1	794198-1
			Duplex ²	794066-2	770621-2		
	Matrix	.713 18.11	Tin-Lead ¹	770186-1	794040-1	172170-1	794200-1
			Duplex ²	770186-2	794040-2		
14	Dual Row	1.202 30.53	Tin-Lead ¹	794067-1	794074-1	770582-1	794202-1
			Duplex ²	794067-2	794074-2		
15	Matrix	.877 22.28	Tin-Lead ¹	770190-1	770859-1	172171-1	794204-1
			Duplex ²	770190-2	770859-2		
16	Dual Row	1.365 34.67	Tin-Lead ¹	794068-1	794075-1	770583-1	794206-1
			Duplex ²	794068-2	794075-2		
18	Dual Row	1.528 38.81	Tin-Lead ¹	794069-1	794076-1	770584-1	794208-1
			Duplex ²	794069-2	794076-2		
20	Dual Row	1.691 42.95	Tin-Lead ¹	794070-1	794077-1	770585-1	794210-1
			Duplex ²	794070-2	794077-2		
22	Dual Row	1.854 47.09	Tin-Lead ¹	794071-1	794078-1	770586-1	794212-1
			Duplex ²	794071-2	794078-2		
24	Dual Row	2.017 51.23	Tin-Lead ¹	794072-1	794079-1	770587-1	794214-1
			Duplex ²	794072-2	794079-2		

¹ Tin-Lead Finish—Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Vertical PC Board Blindmate Pin Headers

Product Specification:
Centerline spacing—.163 [4.14]

Material:

Housing—Nylon, white
Flammability Rating—UL94V-0
Contacts—Brass
Solder tail diameter .039 [1.00]

Related Product Data:
Performance Characteristics—
page 9050

Technical Documents: pages 9050
and 9080

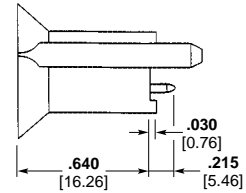
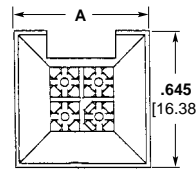
Product Specification
108-1693 Mini-Universal MATE-N-LOK 2
Connectors
108-1694 Mini-Universal MATE-N-LOK 2
Headers

Mating Connectors:

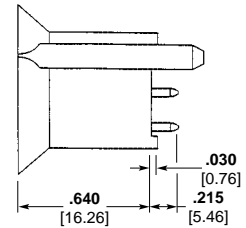
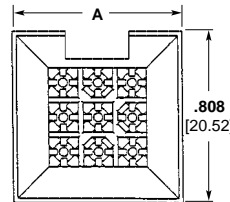
**Mini-Universal MATE-N-LOK 2
Plug Housings**— pages 9053, 9054

**Mini-Universal MATE-N-LOK
Plug Housings**— pages 9061 and
9062

**4, 6, 8 and 10 Circuit,
Double Row**



**9, 12 and 15 Circuit,
Matrix**



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Numbers with Drain Holes	Mates with Plug Housing Part Numbers (Using Socket Contacts)	
					Mini-UMNL	Mini-UMNL 2
4	Dual Row	.645 16.38	Tin-Lead ¹	794325-1	172167-1	794188-1
			Duplex ²	794325-2		
6	Dual Row	.808 20.52	Tin-Lead ¹	794326-1	172168-1	794190-1
			Duplex ²	794326-2		
8	Dual Row	.971 24.66	Tin-Lead ¹	794327-1	770579-1	794192-1
			Duplex ²	794327-2		
9	Matrix	.808 20.52	Tin-Lead ¹	794432-1	172169-1	794194-1
			Duplex ²	794432-2		
10	Dual Row	1.134 28.80	Tin-Lead ¹	794328-1	770580-1	794196-1
			Duplex ²	794328-2		
12	Matrix	.971 24.66	Tin-Lead ¹	794329-1	172170-1	794200-1
			Duplex ²	794329-2		
15	Matrix	1.134 28.80	Tin-Lead ¹	794330-1	172171-1	794204-1
			Duplex ²	794330-2		

¹ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Right-Angle PC Board Pin Headers

Product Specification:

Centerline spacing—.163 [4.14]

Material:

Housing — Nylon, white color

Flammability Rating — UL94V-0

Contacts — Brass

Solder tail diameter .039 [1.00]

Related Product Data:

Performance Characteristics — page 9050

Technical Document: pages 9050 and 9080

Product Specification

108-1694 Mini-Universal MATE-N-LOK Headers

Mating Connectors:

Mini-Universal MATE-N-LOK 2

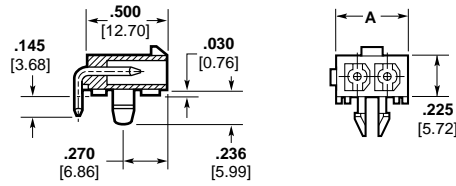
Plug Housings — pages 9053 and 9054

Mini-Universal MATE-N-LOK

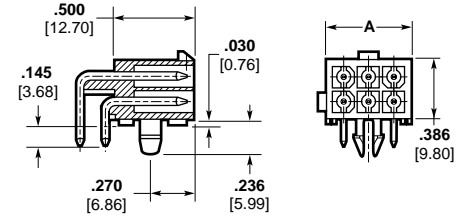
Plug Housings — pages 9061 and 9062

With Board Lock Feature

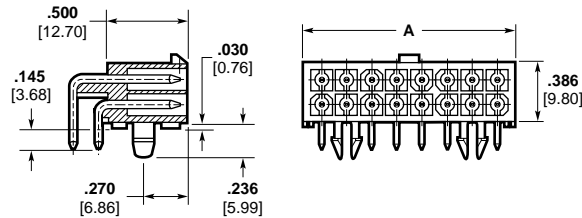
2 and 3 Circuit, In-Line



4, 6, 8, 10 and 12 Circuit, Dual Row



14, 16, 18, 20, 22 and 24 Circuit, Dual Row





Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Number with Board Lock	Mates with Plug Housing Part Numbers (Using Socket Contacts)	
					Mini-UMNL	Mini-UMNL 2
2	In-line	.388 9.86	Tin-Lead ¹	770966-1	172165-1	794184-1
			Duplex ²	770966-2		
3	In-line	.551 14.00	Tin-Lead ¹	770967-1	172166-1	794186-1
			Duplex ²	770967-2		
4	Dual Row	.388 9.86	Tin-Lead ¹	770968-1	172167-1	794188-1
			Duplex ²	770968-2		
6	Dual Row	.551 14.00	Tin-Lead ¹	770969-1	172168-1	794190-1
			Duplex ²	770969-2		
8	Dual Row	.714 18.14	Tin-Lead ¹	770970-1	770579-1	794192-1
			Duplex ²	770970-2		
10	Dual Row	.877 22.28	Tin-Lead ¹	770971-1	770580-1	794196-1
			Duplex ²	770971-2		
12	Dual Row	1.040 26.42	Tin-Lead ¹	770972-1	770581-1	794198-1
			Duplex ²	770972-2		
14	Dual Row	1.203 30.56	Tin-Lead ¹	770973-1	770582-1	794202-1
			Duplex ²	770973-2		
16	Dual Row	1.366 34.70	Tin-Lead ¹	770974-1	770583-1	794206-1
			Duplex ²	770974-2		
18	Dual Row	1.529 38.84	Tin-Lead ¹	794105-1	770584-1	794208-1
			Duplex ²	794105-2		
20	Dual Row	1.692 42.98	Tin-Lead ¹	794106-1	770585-1	794210-1
			Duplex ²	794106-2		
22	Dual Row	1.855 47.12	Tin-Lead ¹	794107-1	770586-1	794212-1
			Duplex ²	794107-2		
24	Dual Row	2.018 51.26	Tin-Lead ¹	794108-1	770587-1	794214-1
			Duplex ²	794108-2		

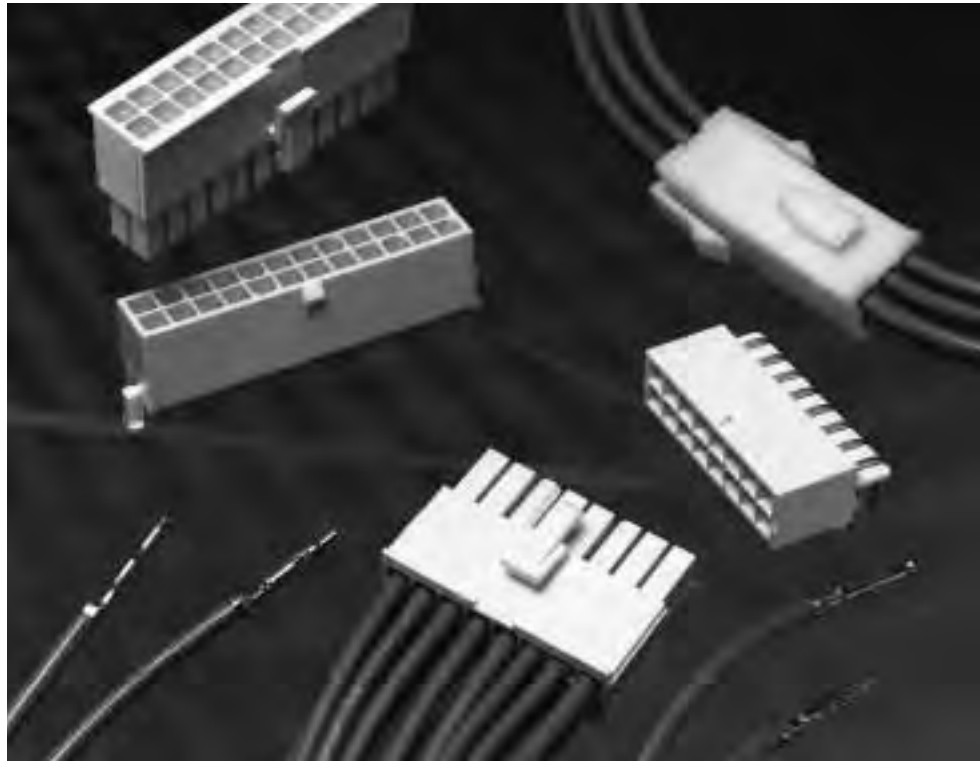
¹ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Product Facts

- Compact, durable housings
- Pins and sockets can be accommodated in the same housings
- Contacts fully protected in the housings. Both pins and sockets can be used on the power supply wiring
- Fully polarized to provide proper plug-to-cap mating incorporating a positive locking mechanism to help prevent accidental disengagement of mated connectors. Also facilitates panel mounting
- Free hanging or panel mount
- Housings available in 1, 2, 3, 4, 6, 9, 12 and 15 circuit configuration for wire-to-wire connection
- Connectors can be mounted to .031-.079 [0.79-2.00] thick panels
- Printed circuit board pin headers are available in 2 thru 24 circuit vertical and right-angle configurations
- Hermaphroditic housings available in 2, 3 and 4 circuits for free hanging applications
- Low insertion/extraction forces
- Contacts accept wire size range 30-16 AWG [.05-1.2 mm²]
- Test probe contacts available
- .163 [4.14] centerline spacing
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 38721
- Passed test by VDE under their Registration Number 3476/ Continuous Surveillance



Performance Characteristics:

The Mini-Universal MATE-N-LOK Connector performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Low Level Termination

Resistance—20 milliohms max. total resistance between wire crimps of a mated pin and socket

Dielectric Withstanding Voltage—1.5 KVAC between adjacent circuits

Insulation Resistance—1000 megohms minimum between adjacent circuits

Voltage Rating—600V AC or DC

Contact Retention—8 lb. min. per contact

Durability—20 cycles, mating and unmating

Mini-Universal MATE-N-LOK connectors also will withstand the following tests:

Housing Panel Retention—26 lb. min.

Housing Lock Strength—6 lb. min.

Thermal Shock— -20°C to +105°C

Temperature-Humidity Cycling—25°C to 65°C at 95% RH

Corrosion—48 hr. at 5% salt concentration

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G half-sine at 11 milliseconds

Technical Documents:

Product Specifications

108-1542 Mini-Universal MATE-N-LOK Connectors

108-1543 Mini-Universal MATE-N-LOK Headers

108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)

108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Application Specification

114-16017 Mini-Universal MATE-N-LOK Connectors

Instruction Sheet

408-3234 Mini-Universal MATE-N-LOK Connectors

For complete product information, order Catalog 82181

Mini-Universal MATE-N-LOK Connector Mating Combinations

Connector Part Numbers					Mating Connector Part Numbers				
Number of Circuits	Flammability Rating	Style	Plug ¹ Housing Part Numbers	Cap ¹ Housing Part Numbers	PC Board Pin Headers				
					Plating	With Drain Holes	Vertical Without Drain Holes	Blindmate	Right-Angle With Board Lock
1	UL94V-2	In-Line	172335-1	172327-1 ⁴	—	—	—	—	—
	UL94V-0	In-Line	172164-1	172156-1 ⁴	Tin - Lead ⁶	—	—	—	794347-1
2	UL94V-2	In-Line	172336-1	172328-1 ²	Duplex ⁵	—	—	—	794347-2
			172807-1 ³	172343-1 ⁴	—	—	—	—	—
	UL94V-0	In-Line	173956-1 ³	172807-1 ³	—	—	—	—	—
			172165-1	173956-1 ³	Tin - Lead ⁶	770166-1	770872-1	—	770966-1
3	UL94V-2	In-Line	172808-1 ³	172157-1 ²	Duplex ⁵	770166-2	770872-2	—	770966-2
			172337-1	172808-1 ³	—	—	—	—	—
	UL94V-0	In-Line	173957-1 ³	172329-1 ²	Tin - Lead	—	—	—	—
			172166-1	172344-1 ⁴	Duplex ⁵	—	—	—	794044-2
4	UL94V-2	Dual Row	172809-1 ³	173957-1 ³	—	—	—	—	—
			172338-1	172158-1 ²	Tin - Lead	770170-1	770873-1	—	770967-1
	172958-1 ³	172234-1 ⁴	Duplex ⁵	770170-2	770873-2	—	770967-2		
	UL94V-0	Dual Row	172167-1	172809-1 ³	—	—	—	—	
6	UL94V-2	Dual Row	172339-1	172330-1	—	—	—	—	
			172168-1	172958-1 ³	Tin - Lead	770174-1	770874-1	794325-1	770968-1
8	UL94V-0	Dual Row	770579-1	172159-1	Duplex ⁵	770174-2	770874-2	794325-2	770968-2
			UL94V-2	Matrix	172340-1	172331-1	—	—	—
9	UL94V-0	Matrix	172169-1	172160-1	Tin - Lead	770178-1	770875-1	794326-1	770969-1
			UL94V-2	Matrix	172341-1	172332-1	Duplex ⁵	770178-2	770875-2
10	UL94V-0	Dual Row	770580-1	—	Tin - Lead	794065-1	794073-1	794327-1	770970-1
			UL94V-2	Matrix	172341-1	172333-1	Duplex ⁵	794065-2	794073-2
12	UL94V-0	Dual Row	770581-1	—	Tin - Lead	770182-1	770876-1	794130-1	—
			UL94V-2	Matrix	172170-1	172162-1	Duplex ⁵	770182-2	770876-2
	UL94V-0	Dual Row	770581-1	—	Tin - Lead	770743-1	770858-1	794328-1	770971-1
			UL94V-2	Matrix	172341-1	172333-1	Duplex ⁵	770743-2	770858-2
14	UL94V-0	Dual Row	770582-1	—	Tin - Lead	770186-1	794040-1	794329-1	—
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	770186-2	794040-2
15	UL94V-0	Matrix	172171-1	172163-1	Tin - Lead	794066-1	770621-1	—	770972-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794066-2	770621-2
16	UL94V-0	Dual Row	770583-1	—	Tin - Lead	794067-1	794074-1	—	770973-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794067-2	794074-2
18	UL94V-0	Dual Row	770584-1	—	Tin - Lead	770190-1	770859-1	794330-1	—
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	770190-2	770859-2
20	UL94V-0	Dual Row	770585-1	—	Tin - Lead	794068-1	794075-1	—	770974-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794068-2	794075-2
22	UL94V-0	Dual Row	770586-1	—	Tin - Lead	794069-1	794076-1	—	794105-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794069-2	794076-2
24	UL94V-0	Dual Row	770587-1	—	Tin - Lead	794070-1	794077-1	—	794106-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794070-2	794077-2
	UL94V-0	Dual Row	770588-1	—	Tin - Lead	794071-1	794078-1	—	794107-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794071-2	794078-2
	UL94V-0	Dual Row	770589-1	—	Tin - Lead	794072-1	794079-1	—	794108-1
			UL94V-2	Matrix	172342-1	172334-1	Duplex ⁵	794072-2	794079-2

¹ Mini-Universal MATE-N-LOK plug and cap housings accept pin or socket contacts. Use the appropriate contacts in the plug housing as required by the mating connector. All **Plugs** are **free hanging** and **Caps** are **free hanging** or **panel mount**, unless otherwise noted.

² Panel mount only.

³ Hermaphroditic: Mates to itself.

⁴ Free hanging only.

⁵ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

⁶ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

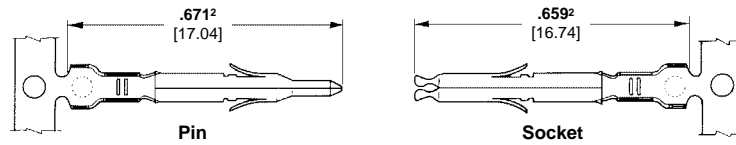
Contacts

Product Specifications:

Pin diameter—.039 [0.99]

Stock Thickness—.008 [0.20]

These contacts are to be used in Mini-Universal MATE-N-LOK Plug or Cap housings only.



Material:

Brass

Related Product Data:

Performance Characteristics — page 9058

Housings — pages 9061 and 9062

Application Tooling — pages 9081, 9082 and 9084

Technical Documents: pages 9058 and 9080

Product Specifications

108-1542 Mini-Universal MATE-N-LOK Connectors

108-1543 Mini-Universal MATE-N-LOK Headers

Application Specification

114-16017 Mini-Universal MATE-N-LOK Connectors

Wire Size Range AWG [mm²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
			Pin		Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
30-26 [.05-.12]	.035-.050 .889-1.27	Pre-tin	770835-1	794059-1	770834-1	794058-1	567418-1 ³ 567418-2 ³ 567418-3 ³	—
		Duplex ¹	770835-3	794059-3	770834-3	794058-3		
26-22 [.12-.3]	.047-.069 1.19-1.75	Pre-tin	770901-1	770985-1	770902-1	770986-1	567066-3 ⁴ 567066-4 ⁴ 567066-5 ⁴	90710-2
		Duplex ¹	770901-3	770985-3	770902-3	770986-3		
22-18 [.3-.8] or 22 x (2) [.3]	.059-.110 1.50-2.39 or .133 Max. 3.38	Pre-tin	770903-1	770987-1	770904-1	770988-1	567067-1 ³ 567067-2 ³ 567067-3 ³	90711-2
		Duplex ¹	770903-3	770987-3	770904-3	770988-3		
20-16 [.5-1.2] or 20 x (2) [.5]	.079-.126 2.01-3.20 or .094 x (2) 2.39	Pre-tin	171636-1 ²	171638-1 ²	171637-1 ²	171639-1 ²	567251-2 ³ 567251-3 ³	90707-1
		Duplex ¹	—	—	171637-3 ²	—		

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and .000100 [.00254] min. tin-lead in crimping area over .000050 [.00127] min. nickel underplate on entire contact.

² .671 [17.04] and .659 [16.74] dimensions are .689 [17.50] for indicated part numbers.

³ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -3 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.

⁴ HDM Applicator part number ending in -3 is used on AMPOMATOR CLS Machine with T or G Terminators, -4 is used on AMP-O-ELECTRIC Model K Machine, -5 is used on AMP-O-ELECTRIC Model G Machine. See page 9084 for further information.



Contact Extraction Tool
Part Number 189727-1
IS 408-4118

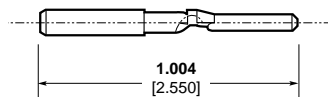


Contact Insertion Tool
(For inserting contacts applied to small diameter wire)
Part Number 455830-1
IS 408-7984

Keying Plug

Material:

UL94V-0 Nylon, white color

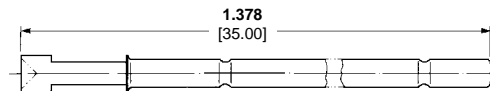


Part Number
174670-1

Test Probe Contact

Material and Finish:

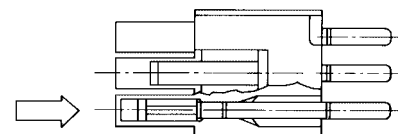
Phosphor bronze, nickel plated



Part Number
172971-1

Notes:

1. The test probe is inserted into the housing in the same direction as indicated by the **arrow** shown to the right.
2. The test probe can be used in the Cap or Plug Housing.
3. Test probes are supplied unassembled.



For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.163 [4.14]

Related Product Data:

Performance Characteristics — page 9058

Contacts — page 9060

Keying Plug — page 9060

Test Probe Contact — page 9060

Mating Headers — pages 9063 thru 9065

Technical Documents: pages 9058 and 9080

Product Specifications

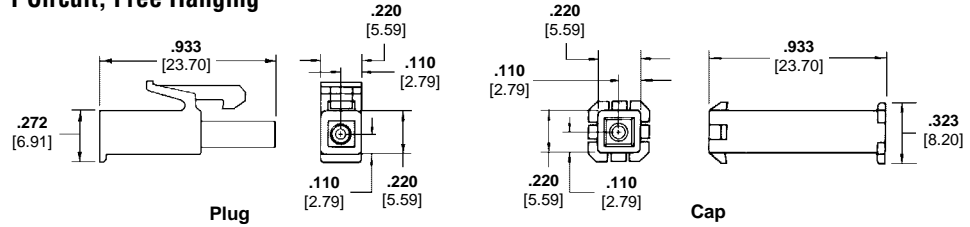
108-1542 Mini-Universal MATE-N-LOK Connectors

108-1543 Mini-Universal MATE-N-LOK Headers

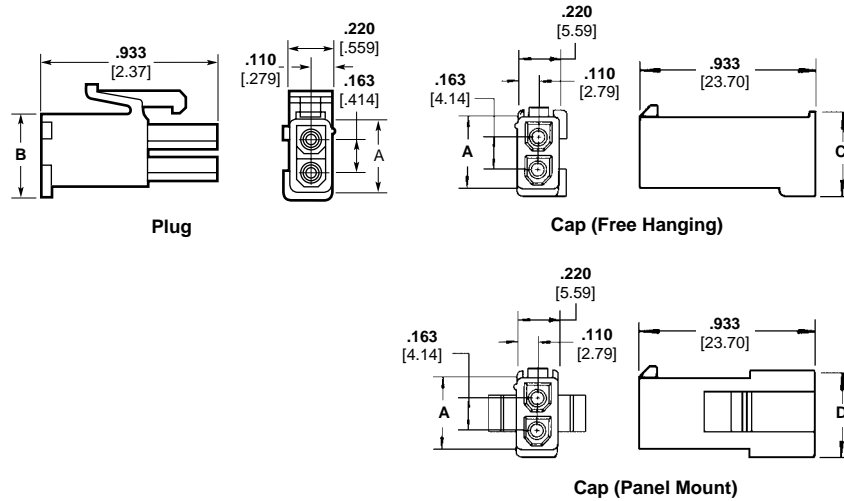
108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)

108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

1 Circuit, Free Hanging

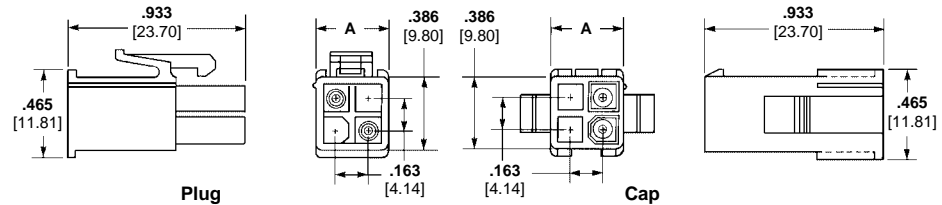


2 and 3 Circuit, In-Line



Number of Circuits	Dimensions				Housing Part Numbers ¹					
					UL94V-0 Nylon, White Color			UL94V-2 Nylon, Natural Color		
					Plug	Cap		Plug	Cap	
	A	B	C	D		Panel Mount	Free Hanging		Panel Mount	Free Hanging
1	—	—	—	—	172164-1	—	172156-1	172335-1	—	172327-1
2	.386 9.80	.425 10.79	.488 12.39	.464 11.78	172165-1	172157-1	172233-1	172336-1	172328-1	172343-1
3	.551 14.00	.591 15.01	.654 16.61	.630 16.00	172166-1	172158-1	172234-1	172337-1	172329-1	172344-1

4 and 6 Circuit, Dual Row



Number of Circuits	A Dim.	Housing Part Numbers ¹			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
4	.386 9.80	172167-1	172159-1	172338-1	172330-1
6	.551 14.00	172168-1	172160-1	172339-1	172331-1

¹ Housing part numbers shown in the tables are all natural color. Other colors, red, green, blue, black, are also available. To order connectors in these colors use the appropriate dash numbers as follows: Red 1-XXXXXX-2, Green 1-XXXXXX-5, Blue 1-XXXXXX-6, Black 1-XXXXXX-9

For complete product information, order Catalog 82181

Housings

Product Specification:
Centerline spacing—.163 [4.14]

Related Product Data:

Performance Characteristics — page 9058

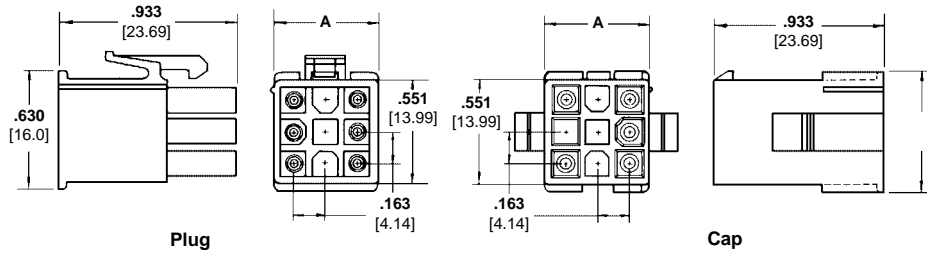
Contacts — page 9060

Keying Plug — page 9060

Test Probe Contact — page 9060

Mating Headers — pages 9063 thru 9065

9, 12 and 15 Circuit, Free Hanging or Panel Mount, Matrix



Technical Documents: pages 9058 and 9080

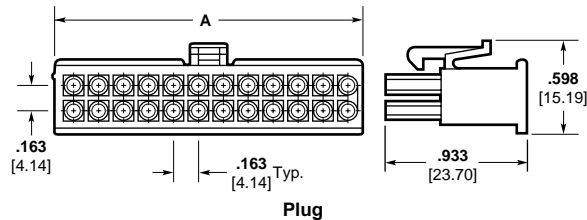
Product Specifications

- 108-1542 Mini-Universal MATE-N-LOK Connectors
- 108-1543 Mini-Universal MATE-N-LOK Headers
- 108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)
- 108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Number of Circuits	A Dim.	Housing Part Numbers ¹			
		UL94V-0 Nylon, White Color		UL94V-2 Nylon, Natural Color	
		Plug	Cap	Plug	Cap
9	.551 13.99	172169-1	172161-1	172340-1	172332-1
12	.716 18.19	172170-1	172162-1	172341-1	172333-1
15	.882 22.40	172171-1	172163-1	172342-1	172334-1

¹ Housing part numbers shown in table are all natural color. Other colors, red, green, blue, black, are also available. To order connectors in these colors use the appropriate dash numbers as follows: Red 1-XXXXXX-2, Green 1-XXXXXX-5, Blue 1-XXXXXX-6, Black 1-XXXXXX-9

8 thru 24 Circuit, Free Hanging, Dual Row



Number of Circuits	A Dim.	Plug Part Numbers
		UL94V-0 Nylon, White Color
8	.714 18.14	770579-1
10	.877 22.28	770580-1
12	1.040 26.42	770581-1
14	1.203 30.56	770582-1
16	1.366 34.70	770583-1
18	1.529 38.84	770584-1
20	1.692 42.98	770585-1
22	1.855 47.12	770586-1
24	2.018 51.26	770587-1

For complete product information, order Catalog 82181

Vertical PC Board Pin Headers

Product Specification:

Centerline spacing— .163 [4.14]

Material:

Housing— Nylon, white

Flammability Rating— UL94V-0

Contacts— Brass

Solder tail diameter .039 [1.00]

Related Product Data:

Performance Characteristics— page 9058

Technical Documents: pages 9058 and 9080

Product Specification

108-1542 Mini-Universal MATE-N-LOK Connectors

108-1543 Mini-Universal MATE-N-LOK Headers

108-5151 Mini-Universal MATE-N-LOK Connectors (UL94V-2)

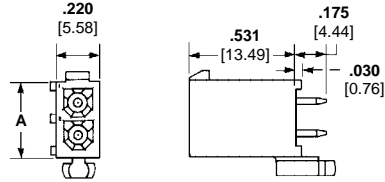
108-5138 Mini-Universal MATE-N-LOK Connectors (UL94V-0)

Mating Connectors:

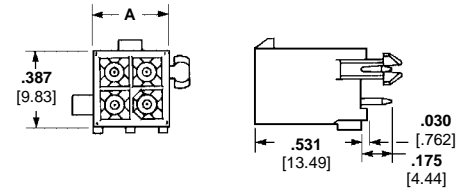
Mini-Universal MATE-N-LOK Plug Housings—pages 9061, 9062

Mini-Universal MATE-N-LOK 2 Plug Housings—pages 9053, 9054

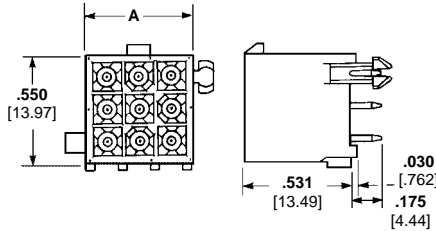
2 and 3 Circuit, In-Line



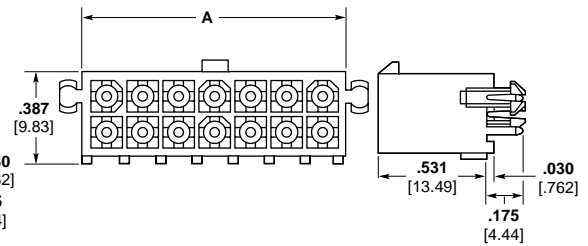
4, 6, 8, 10 and 12 Circuit, Double Row



9, 12 and 15 Circuit, Matrix



14, 16, 18, 20, 22 and 24 Circuit, Double Row



Number of Circuits	Style	A Dim.	Pin Finish	Vertical Pin Header Part Numbers		Mates with Plug Housing Part Numbers (Using Socket Contact)	
				With Drain Holes	Without Drain Holes	Mini-UMNL	Mini-UMNL 2
2	In-Line	.387 9.83	Tin-Lead ¹	770166-1	770872-1	172165-1	794184-1
			Duplex ²	770166-2	770872-2		
3	In-Line	.550 13.97	Tin-Lead ¹	770170-1	770873-1	172166-1	794186-1
			Duplex ²	770170-2	770873-2		
4	Dual Row	.387 9.83	Tin-Lead ¹	770174-1	770874-1	172167-1	794188-1
			Duplex ²	770174-2	770874-2		
6	Dual Row	.550 13.97	Tin-Lead ¹	770178-1	770875-1	172168-1	794190-1
			Duplex ²	770178-2	770875-2		
8	Dual Row	.713 18.11	Tin-Lead ¹	794065-1	794073-1	770579-1	794192-1
			Duplex ²	794065-2	794073-2		
9	Matrix	.551 14.00	Tin-Lead ¹	770182-1	770876-1	172169-1	794194-1
			Duplex ²	770182-2	770876-2		
10	Dual Row	.877 22.28	Tin-Lead ¹	770743-1	770858-1	770580-1	794196-1
			Duplex ²	770743-2	770858-2		
12	Dual Row	1.039 26.39	Tin-Lead ¹	794066-1	770621-1	770581-1	794198-1
			Duplex ²	794066-2	770621-2		
	Matrix	.713 18.11	Tin-Lead ¹	770186-1	794040-1	172170-1	794200-1
			Duplex ²	770186-2	794040-2		
14	Dual Row	1.202 30.53	Tin-Lead ¹	794067-1	794074-1	770582-1	794202-1
			Duplex ²	794067-2	794074-2		
15	Matrix	.877 22.28	Tin-Lead ¹	770190-1	770859-1	172171-1	794204-1
			Duplex ²	770190-2	770859-2		
16	Dual Row	1.365 34.67	Tin-Lead ¹	794068-1	794075-1	770583-1	794206-1
			Duplex ²	794068-2	794075-2		
18	Dual Row	1.528 38.81	Tin-Lead ¹	794069-1	794076-1	770584-1	794208-1
			Duplex ²	794069-2	794076-2		
20	Dual Row	1.691 42.95	Tin-Lead ¹	794070-1	794077-1	770585-1	794210-1
			Duplex ²	794070-2	794077-2		
22	Dual Row	1.854 47.09	Tin-Lead ¹	794071-1	794078-1	770586-1	794212-1
			Duplex ²	794071-2	794078-2		
24	Dual Row	2.017 51.23	Tin-Lead ¹	794072-1	794079-1	770587-1	794214-1
			Duplex ²	794072-2	794079-2		

¹ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Vertical PC Board Blindmate Pin Headers

Product Specification:
Centerline spacing—.163 [4.14]

Material:
Housing—Nylon, white
Flammability Rating—UL94V-0
Contacts—Brass
Solder tail diameter .039 [1.00]

Related Product Data:
Performance Characteristics—
page 9058

Technical Documents: pages 9058
and 9080

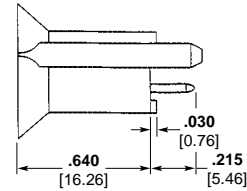
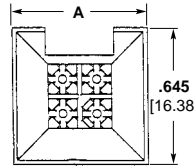
Product Specification
108-1693 Mini-Universal MATE-N-LOK 2
Connectors
108-1694 Mini-Universal MATE-N-LOK 2
Headers

Mating Connectors:

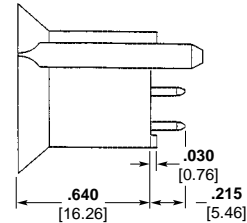
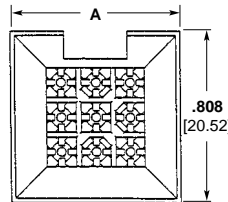
**Mini-Universal MATE-N-LOK
Plug Housings**—pages 9061 and
9062

**Mini-Universal MATE-N-LOK 2
Plug Housings**—pages 9053 and
9054

**4, 6, 8 and 10 Circuit,
Double Row**



**9, 12 and 15 Circuit,
Matrix**



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Numbers with Drain Holes	Mates with Plug Housing Part Numbers (Using Socket Contacts)	
					Mini-UMNL	Mini-UMNL 2
4	Dual Row	.645 16.38	Tin-Lead ¹	794325-1	172167-1	794188-1
			Duplex ²	794325-2		
6	Dual Row	.808 20.52	Tin-Lead ¹	794326-1	172168-1	794190-1
			Duplex ²	794326-2		
8	Dual Row	.971 24.66	Tin-Lead ¹	794327-1	770579-1	794192-1
			Duplex ²	794327-2		
9	Matrix	.808 20.52	Tin-Lead ¹	794432-1	172169-1	794194-1
			Duplex ²	794432-2		
10	Dual Row	1.134 28.80	Tin-Lead ¹	794328-1	770580-1	794196-1
			Duplex ²	794328-2		
12	Matrix	.971 24.66	Tin-Lead ¹	794329-1	172170-1	794200-1
			Duplex ²	794329-2		
15	Matrix	1.134 28.80	Tin-Lead ¹	794330-1	172171-1	794204-1
			Duplex ²	794330-2		

¹ Tin-Lead Finish — Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish — Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Right-Angle PC Board Pin Headers

Product Specification:

Centerline spacing—.163 [4.14]

Material:

Housing—Nylon, white color

Flammability Rating—UL94V-0

Contacts—Brass

Solder tail diameter .039 [1.00]

Related Product Data:

Performance Characteristics—
page 9058

Technical Documents: pages 9058
and 9080

Product Specification

108-1694 Mini-Universal MATE-N-LOK
Headers

Mating Connectors:

Mini-Universal MATE-N-LOK

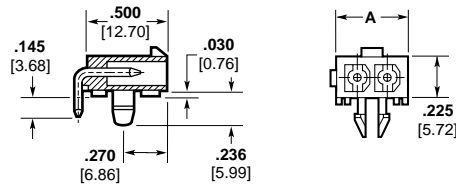
Plug Housings—pages 9061 and
9062

Mini-Universal MATE-N-LOK 2

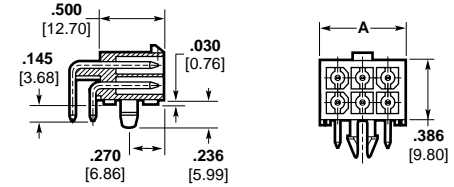
Plug Housings—pages 9053 and
9054

With Board Lock Feature

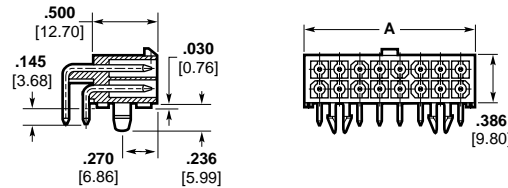
1, 2 and 3 Circuit, In-Line



4, 6, 8, 10 and 12 Circuit, Dual Row



14, 16, 18, 20, 22 and 24 Circuit, Dual Row



Number of Circuits	Style	A Dim.	Pin Finish	Pin Header Part Numbers with Board Lock	Mates with Plug Housing Part Numbers (Using Socket Contacts)	
					Mini-UMNL	Mini-UMNL 2
1	—	.225 5.72	Tin-Lead ¹	794374-1	172164-1	—
			Duplex ²	794374-2		
2	In-line	.388 9.86	Tin-Lead ¹	770966-1	172165-1	794184-1
			Duplex ²	770966-2		
3	In-line	.551 14.00	Tin-Lead ¹	770967-1	172166-1	794186-1
			Duplex ²	770967-2		
4	Dual Row	.388 9.86	Tin-Lead ¹	770968-1	172167-1	794188-1
			Duplex ²	770968-2		
6	Dual Row	.551 14.00	Tin-Lead ¹	770969-1	172168-1	794190-1
			Duplex ²	770969-2		
8	Dual Row	.714 18.14	Tin-Lead ¹	770970-1	770579-1	794192-1
			Duplex ²	770970-2		
10	Dual Row	.877 22.28	Tin-Lead ¹	770971-1	770580-1	794196-1
			Duplex ²	770971-2		
12	Dual Row	1.040 26.42	Tin-Lead ¹	770972-1	770581-1	794198-1
			Duplex ²	770972-2		
14	Dual Row	1.203 30.56	Tin-Lead ¹	770973-1	770582-1	794202-1
			Duplex ²	770973-2		
16	Dual Row	1.366 34.70	Tin-Lead ¹	770974-1	770583-1	794206-1
			Duplex ²	770974-2		
18	Dual Row	1.529 38.84	Tin-Lead ¹	794105-1	770584-1	794208-1
			Duplex ²	794105-2		
20	Dual Row	1.692 42.98	Tin-Lead ¹	794106-1	770585-1	794210-1
			Duplex ²	794106-2		
22	Dual Row	1.855 47.12	Tin-Lead ¹	794107-1	770586-1	794212-1
			Duplex ²	794107-2		
24	Dual Row	2.018 51.26	Tin-Lead ¹	794108-1	770587-1	794214-1
			Duplex ²	794108-2		

¹ Tin-Lead Finish—Plated with .000150 [.00381] min. tin-lead over .000050 [.00127] min. nickel underplate on entire contact.

² Duplex Finish—Plated with .000030 [.000762] min. gold in mating area and matte tin-lead on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Plug or Cap Housing Strain Reliefs

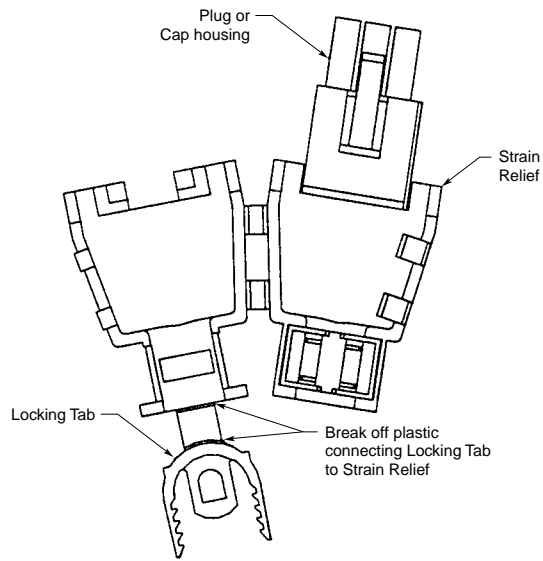
Related Product Data:

Housings—pages 9061, 9062

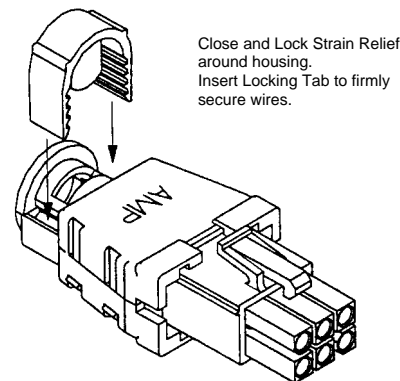
Technical Documents: pages 9058 and 9080

These Strain Reliefs may also be used with AMP-DUAC Receptacle housings on page 9087.

6 and 8 Circuit



Step 1



Step 2

Style	Number of Circuits	A Dim.	Wire Bundle Dia. Range	Part Numbers
				UL94V-0 Nylon, White Color
Dual Row	6	.920 23.36	.165-.220 4.19-5.59	794423-1
	8	.920 23.36	.180-.245 4.57-6.22	794370-1

For complete product information, order Catalog 82181

Product Facts

- Available in 2-24 position vertical and right-angle headers for surface mount and through-hole applications
- Dual beam contact design
- High temperature header housings for IR reflow solder capability
- Fully polarized to mating headers and plugs
- PCB pegs for board polarization
- Footprint compatible and intermateable with other manufacturers

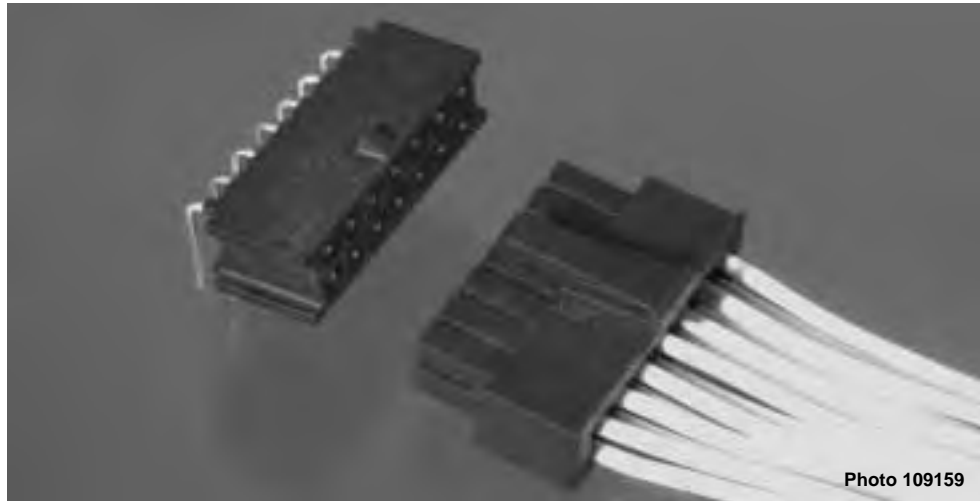
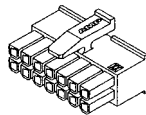


Photo 109159

Material and Finish:

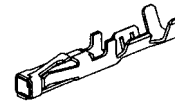
- Housing**—Nylon, UL 94V-0
- Contacts**—Phosphor Bronze
- Header Pins**—Brass
- Plating**—Tin or Gold 15µ" or 3µ"

RECEPTACLE HOUSING



x-794617-x Receptacle Housing

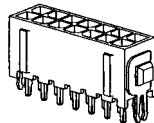
RECEPTACLE CONTACTS



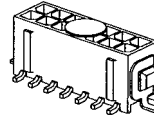
Wire Size	Plating	Part Nos.		Tooling Part Nos.	
		Strip	Loose Piece	Applicator	Hand Tool
20-24 AWG	Tin	794606-1	794610-1	680893-*	91501-1
	15µ"	794606-2	794610-2		
	30µ"	794606-3	794610-3		
26-30 AWG	Tin	794607-1	794611-1	680894-*	91502-1
	15µ"	794607-2	794611-2		
	30µ"	794607-3	794611-3		

* 1= CLS, 2= K-Terminator, 3= G-Terminator
Extraction Tool 843996-3

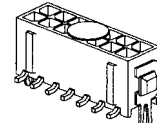
VERTICAL HEADER ASSEMBLIES



- Thru-Hole With Boardlock**
- x-794680-x Kinked Leg, Tin
 - x-794681-x Kinked Leg, 15µ" Gold
 - x-794682-x Kinked Leg, 30µ" Gold
- Thru-Hole Without Boardlock**
- x-794630-x Kinked Leg, Tin
 - x-794631-x Kinked Leg, 15µ" Gold
 - x-794632-x Kinked Leg, 30µ" Gold

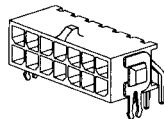


- Surface Mount Solder Pad**
- x-794636-x Tin
 - x-794637-x 15µ" Gold
 - x-794638-x 30µ" Gold

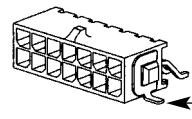


- Surface Mount With Mechanical Boardlock**
- x-794633-x Tin
 - x-794634-x 15µ" Gold
 - x-794635-x 30µ" Gold

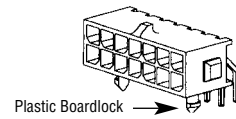
RIGHT-ANGLE HEADER ASSEMBLIES



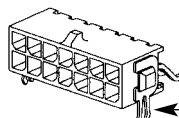
- Right-Angle Thru-Hole With Mechanical Boardlock**
- x-794677-x Tin
 - x-794678-x 15µ" Gold
 - x-794679-x 30µ" Gold



- Right-Angle Surface Mount Solder Pad**
- x-794627-x Tin
 - x-794628-x 15µ" Gold
 - x-794629-x 30µ" Gold



- Right-Angle Thru-Hole With Plastic Boardlock**
- x-794618-x Tin
 - x-794619-x 15µ" Gold
 - x-794620-x 30µ" Gold



- Right-Angle Surface Mount With Boardlocks**
- x-794621-x Plastic, Tin
 - x-794622-x Plastic, 15µ" Gold
 - x-794623-x Plastic, 30µ" Gold
 - x-794624-x Mechanical, Tin
 - x-794625-x Mechanical, 15µ" Gold
 - x-794626-x Mechanical, 30µ" Gold

Note—Base part number prefixes and suffixes (x) indicate the number of circuit positions, e.g. 2-pos. = 0-xxxxx-2 and 12-pos. = 1-xxxxx-2

For complete product information, order Catalog 82181

Product Facts

- Housings positively lock to help prevent unintentional disengagement
- Either cap or plug housing can be mounted in same rectangular panel cutout without additional hardware
- UL94V-0 housings
- Plug and cap design includes molded-in polarizing feature to promote proper mating
- Numbered cavities for easy circuit identification
- Egg crate design of plug half fully encloses socket contacts, reducing shock hazard
- Molded skirt extension on cap protects pin contacts
- Strain reliefs for 6 thru 36 positions are available
- Choice of tin or gold plated contacts
- Not for interrupting current
- Socket solder tail contacts available for hot side PC board mounting
- High density achieved through .165 [4.19] contact centerline spacing
- Extraction tool removes both pins and sockets
- Contacts accept 26-18 AWG [.12-.8 mm²] wire sizes and insulation diameters of .025-.115 [.635-2.92]
- Same applicator crimps pins and sockets
- Vertical PC board pin headers are available
- Pin header standoffs on housings at board interface facilitate gas venting and cooling during soldering
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Performance Characteristics:

The Miniature Rectangular Connector performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage—2.5 KVAC between adjacent circuits

Insulation Resistance—1500 megohms minimum initial between adjacent circuits

Voltage Rating—250V AC

Connector Mating—Split Pin—1.0 lb. max. per circuit

Connector Unmating—Split Pin—.25 lb. min. per circuit

Contact Insertion Force—1.75 lb. max. per contact

Contact Retention—10 lb. min. per contact

Durability—25 cycles, mating and unmating

Miniature Rectangular connectors also will withstand the following tests:

Vibration—10-55-10 cycles per minute at .06 inch total excursion

Physical Shock—18 drops, 50 G sawtooth at 10 milliseconds

Housing Panel Retention—50 lb. min.

Housing Lock Strength—20 lb. min.

Thermal Shock— -55°C to +85°C

Temperature-Humidity Cycling—25°C to 65°C at 95% RH

Corrosion—48 hr. at 5% salt concentration

Technical Documents:

Product Specifications

108-1022 (MR) Miniature Rectangular Connectors

108-1078 (MR) Miniature Rectangular Headers

Application Specification

114-1014 (MR) Miniature Rectangular Contacts

Instruction Sheet

408-3231 Pin, Socket, Housing, Contacts, and Accessories

For complete product information, order Catalog 82181

(MR) Miniature Rectangular Connector Mating Combinations

Number of Circuits	Connector Part Numbers			Mating Connector Part Numbers			
	Flammability Rating	Style	Pin Housing (Cap) Part Numbers	Socket Housing (Plug) Part Numbers	PC Board Vertical Pin Headers		
					Plating	.062 Board	.120 Board
2	UL94V-0	In-Line	1-640507-0	1-640517-0	Tin	640497-1	640497-3
					Duplex ¹	640497-2	640497-4
3	UL94V-0	In-Line	1-640508-0	1-640518-0	Tin	640498-1	640498-3
					Duplex ¹	640498-2	640498-4
4	UL94V-0	Matrix	1-640509-0	1-640519-0	Tin	640499-1	640499-3
					Duplex ¹	640499-2	640499-4
6	UL94V-0	Matrix	1-640510-0	1-640520-0	Tin	640500-1	640500-3
					Duplex ¹	640500-2	640500-4
9	UL94V-0	Matrix	1-640511-0	1-640521-0	Tin	640501-1	640501-3
					Duplex ¹	640501-2	640501-4
12	UL94V-0	Matrix	1-640512-0	1-640522-0	Tin	640502-1	640502-3
					Duplex ¹	640502-2	640502-4
15	UL94V-0	Matrix	1-640513-0	1-640523-0	Tin	640503-1	640503-3
					Duplex ¹	640503-2	640503-4
20	UL94V-0	Matrix	1-640514-0	1-640524-0	Tin	640504-1	640504-3
					Duplex ¹	640504-2	640504-4
24	UL94V-0	Matrix	1-640515-0	1-640525-0	Tin	640505-1	640505-3
					Duplex ¹	640505-2	640505-4
36	UL94V-0	Matrix	1-640516-0	1-640526-0	Tin	640506-1	640506-3
					Duplex ¹	640506-2	640506-4

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

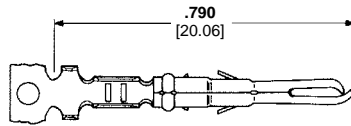
Contacts

Product Specifications:

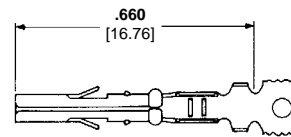
Pin diameter—.068 [1.73]
Stock thickness—.008 [.203]

Material:

Contact—Phosphor bronze



Live Split Pin



Standard Socket

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
			Live Split Pin		Standard Socket			
			Strip Form	Loose Form	Strip Form	Loose Form		
26-24 [.12-.2]	.025-.050 .635-1.27	Pre-tin	350968-1	640579-1	794000-1	794001-1	466352-1 ³ 466352-2 ³ 466352-3 ³	90326-1
		Select Gold ¹	350968-2	640579-2	794000-2	794001-2		
26-18 ² [.12-.8]	.050-.115 1.27-2.92	Pre-tin	350967-1	640545-1	641294-1	641300-1	466351-1 ³ 466351-2 ³ 466351-4 ³	90325-1
		Select Gold ¹	350967-2	640545-2	641294-2	641300-2		

¹ Select Gold Finish — Plated with .000030 min. [.000762] gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

² 1650 CMA maximum.

³ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 or -4 is used on AMP-O-LECTRIC Model G Machine. See page 9084 for further information.

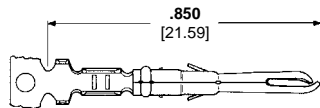
Product Specifications:

Pin diameter—.068 [1.73]
Stock thickness—.008 [.203]

Mate first, break last, not for interrupting current

Material:

Contact—Phosphor Bronze



Grounding Pin

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Pin Part Numbers		HDM Applicator Part Numbers	Hand Tool Part Number
			Strip Form	Loose Form		
26-18 ² [.12-.8]	.050-.115 1.27-2.92	Pre-tin	350969-1	640580-1	466351-1 ³ 466351-2 ³ 466351-4 ³	90325-1
		Select Gold ¹	350969-2	640580-2		

¹ Select Gold Finish — Plated with .000030 [.000762] min. gold in mating area over .000050 [.00127] min. nickel underplate on entire contact.

² 1650 CMA maximum.

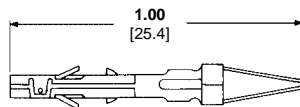
³ HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 or -4 is used on AMP-O-LECTRIC Model G Machine. See page 9084 for further information.

Solder Tail Socket

Material and Finish:

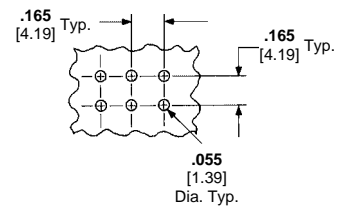
Contact—Phosphor bronze, pre-tin or select gold

Stock thickness—.008 [.203]



Part Number 350838-1 (Pre-tin)
 Part Number 350838-1 (Select Gold Stripe)

Note: Recommended for use with MR Socket Housings

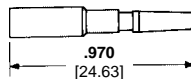


Recommended PC Board Hole Layout

.062 [1.57] or .093 [2.36] thick board

Keying Plug

IS 408-3231



Part Number 350591-1
 UL94V-0 Nylon material
Note: Use in socket housings only.

Related Product Data:

Performance Characteristics — page 9068

Housing—page 9071 thru 9073

Application Tooling — pages 9081, 9082 and 9084

Technical Documents: pages 9068 and 9080

Product Specification

108-1022 (MR) Miniature Rectangular Connectors

Application Specification

114-1014 (MR) Miniature Rectangular Contacts



Contact Extraction Tool
 Part Number 455822-2
 IS 408-9570



Contact Insertion Tool
 (For inserting contacts applied to small diameter wire)
 Part Number 455830-1
 IS 408-7984

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.165 [4.19]

Material:

Housing—Nylon, Natural Color-Brick Red

Flammability Rating—UL94V-0

Related Product Data:

Performance Characteristics—page 9068

Panel Cutout Recommendations—page 9073

Contacts—page 9070

Keying Plug—page 9070

Strain Reliefs—page 9074

Commoning Bar—page 9074

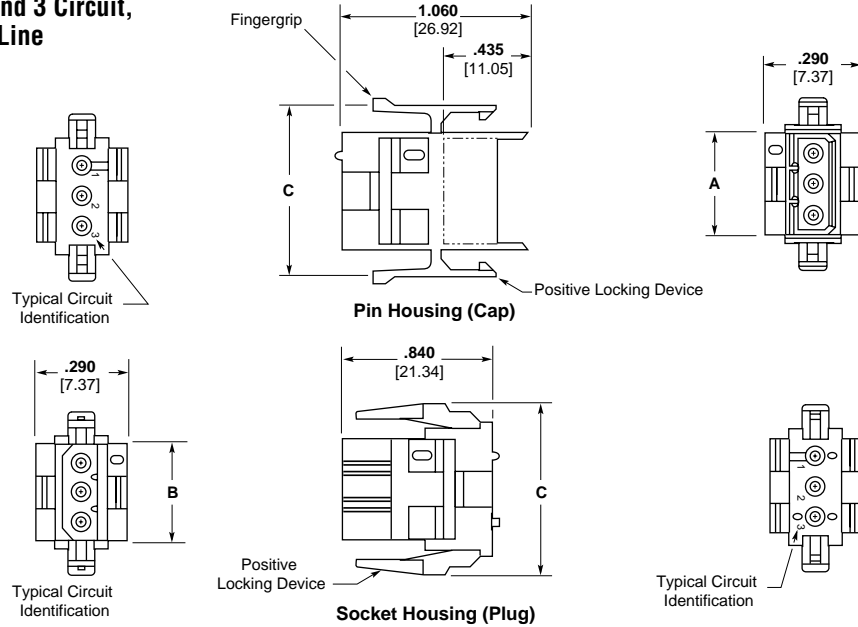
Mating Headers—page 9075 thru 9076

Technical Document: page 9068 and 9080

Product Specification

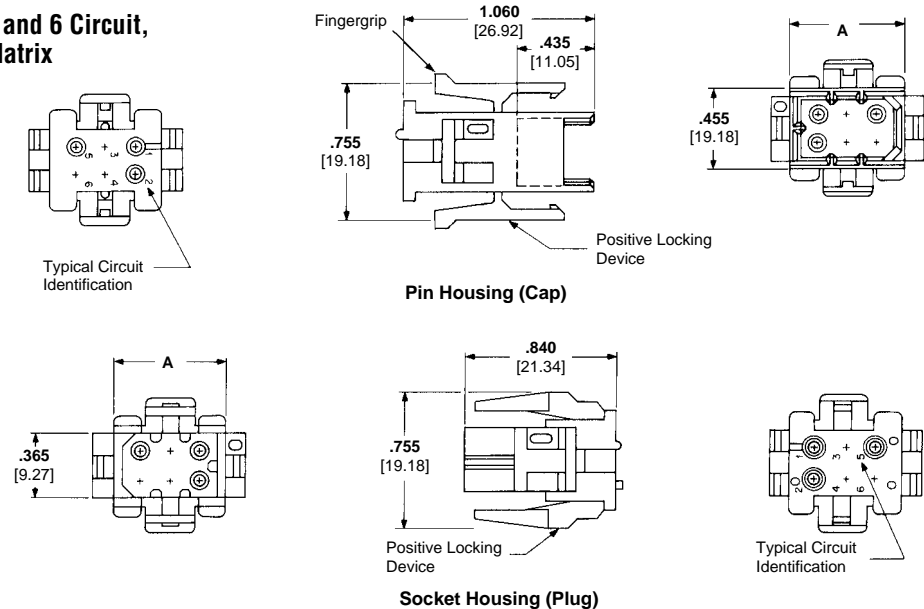
108-1022 (MR) Miniature Rectangular Connectors

2 and 3 Circuit, In-Line



Number of Circuits	Dimensions			Part Numbers	
	A	B	C	Pin Housing (Cap)	Socket Housing (Plug)
2	.455 11.56	.365 9.27	.755 19.18	1-640507-0	1-640517-0
3	.620 15.75	.530 13.46	.920 23.37	1-640508-0	1-640518-0

4 and 6 Circuit, Matrix



Number of Circuits	A Dim.	Part Numbers	
		Pin Housing (Cap)	Socket Housing (Plug)
4	.455 11.56	1-640509-0	1-640519-0
6	.620 15.75	1-640510-0	1-640520-0

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:
Centerline spacing—.165 [4.19]

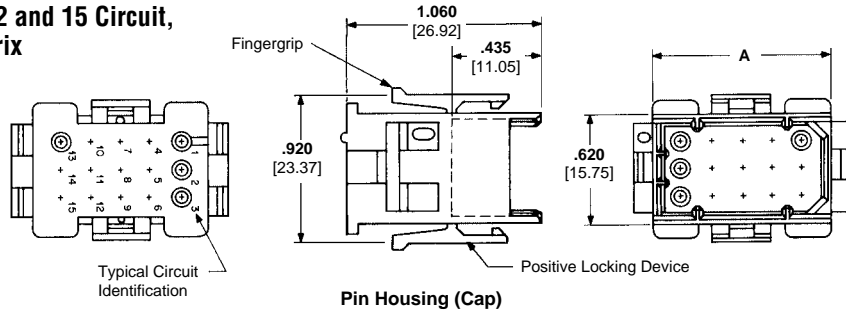
Material:
Housing—Nylon, Natural Color-
Brick Red
Flammability Rating—UL94V-0

Related Product Data:
Performance Characteristics —
page 9068
Panel Cutout Recommendations —
page 9073
Contacts — page 9070
Keying Plug — page 9070
Strain Reliefs — page 9074
Commoning Bar — page 9074
Mating Headers — pages 9075 thru
9076

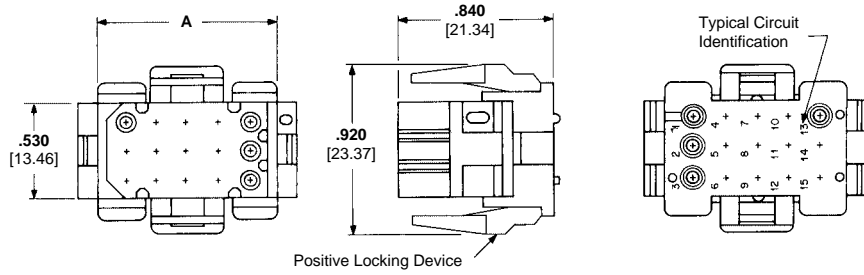
Technical Document: page 9068 and
9080

Product Specification
108-1022 (MR) Miniature Rectangular
Connectors

9, 12 and 15 Circuit, Matrix

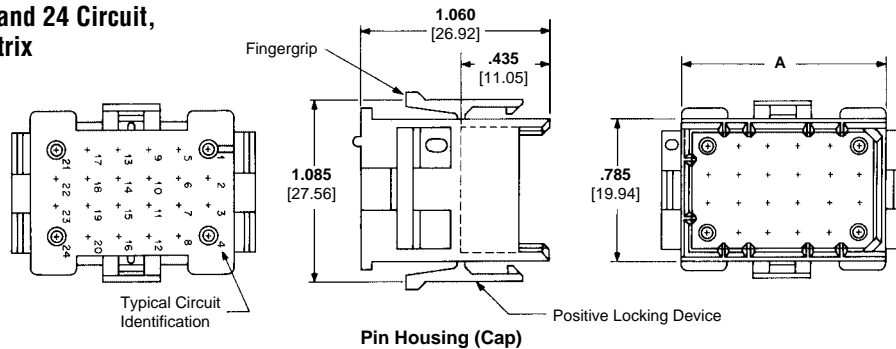


Pin Housing (Cap)

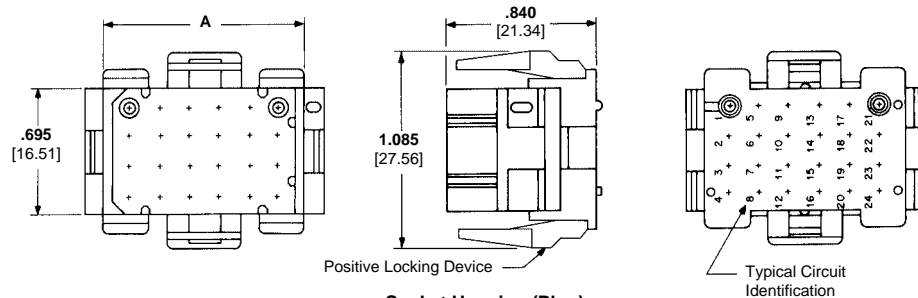


Socket Housing (Plug)

20 and 24 Circuit, Matrix



Pin Housing (Cap)



Socket Housing (Plug)

Number of Circuits	A Dim.	Part Numbers	
		Pin Housing (Cap)	Socket Housing (Plug)
9	.620 15.75	1-640511-0	1-640521-0
12	.785 19.94	1-640512-0	1-640522-0
15	.950 24.13	1-640513-0	1-640523-0
20	.950 24.13	1-640514-0	1-640524-0
24	1.115 28.32	1-640515-0	1-640525-0

For complete product information,
order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:
Centerline spacing—.165 [4.19]

Material:

Housing—Nylon, Natural Color-
Brick Red

Flammability Rating—UL94V-0

Related Product Data:

Performance Characteristics—
page 9068

Contacts—page 9070

Housings—page 9071 thru 9073

Keying Plug—page 9070

Strain Reliefs—page 9074

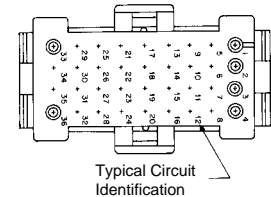
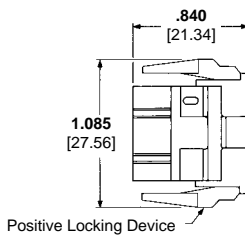
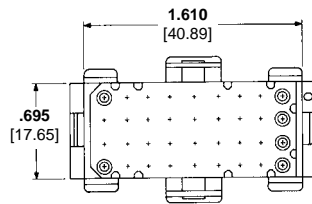
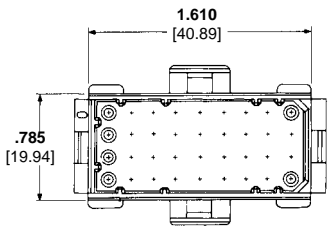
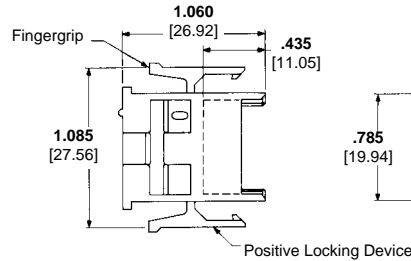
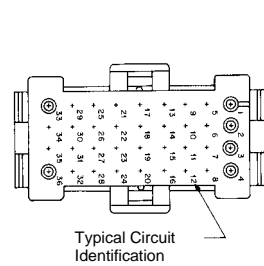
Commoning Bar—page 9074

Mating Headers—pages 9075 thru
9076

Technical Documents: page 9068 and
9080

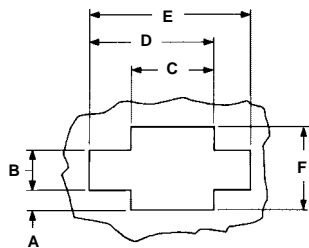
Product Specification
108-1022 (MR) Miniature Rectangular
Connectors

36 Circuit, Matrix



Recommended Panel Cutout for Pin and Socket Housings

View is from housing entry side



Panel Thickness .068 [1.75] Max.

Number of Circuits	Panel Cutout Dimensions					
	A	B	C	D	E	F
2	.105 2.67	.220 5.59	.475 12.07	.630 16.00	.785 19.94	.430 10.92
3	.105 2.67	.220 5.59	.640 16.26	.795 20.19	.950 24.13	.430 10.92
4	.157 3.99	.280 5.28	.475 12.07	.630 16.00	.785 19.94	.595 15.11
6	.208 5.28	.345 8.76	.475 12.07	.630 16.00	.785 19.94	.760 19.30
9	.208 5.28	.345 8.76	.640 16.26	.795 20.19	.950 24.13	.760 19.30
12	.225 5.72	.475 12.07	.640 16.26	.795 20.19	.950 24.13	.925 23.50
15	.308 7.82	.475 12.07	.640 16.26	.795 20.19	.950 24.13	1.090 27.69
20	.308 7.82	.475 12.07	.805 20.45	.960 24.38	1.115 28.32	1.090 27.69
24	.390 9.91	.475 12.07	.805 20.45	.960 24.38	1.115 28.32	1.255 31.88
36	.625 15.86	.500 12.70	.800 20.32	.950 24.13	1.100 27.94	1.750 44.45

- Notes:**
- When mounted in a .060 [1.52] thick panel, the cap's mating end extends .800 [20.32] beyond the panel front; wire end extends .220 [55.88] from the panel rear. Plug mating end extends .580 [14.73] beyond the panel front; wire end extends .220 [55.88] from the panel rear.
 - The panel should be punched so that the housing enters the panel in the same direction as the punch for ease of assembly.

For complete product information, order Catalog 82181

Accessories

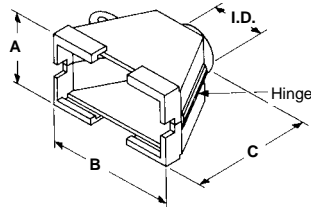
One-Piece Clam Shell Strain Reliefs

(Illustrated in closed position)
IS 408-3231

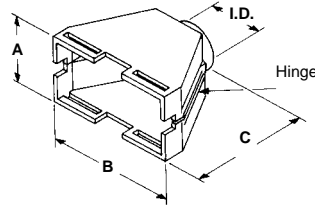
Material:

Housing—Nylon, Color-Brick Red or Black

Flammability Rating—UL94V-0 (Brick Red) or UL94V-2 (Black)



6, 9, 12, 15 and 20 Circuit



24 and 36 Circuit

Number of Circuits	Dimensions				Part Numbers	
	I.D.	A	B	C	UL94V-0	UL94V-2
6	.374	.634	.760	1.000	350373-1	1-350373-9
	9.50	16.10	19.30	25.4		
9	.420	.800	.760	1.000	350522-1	1-350522-9
	10.67	20.32	19.30	25.4		
12	.420	.790	.925	1.000	350374-1	1-350374-9
	10.67	20.07	23.50	25.4		
15	.420	.790	1.090	1.000	350523-1	1-350523-9
	10.67	20.07	27.69	25.4		
20	.560	.960	1.090	1.280	480634-1	1-480634-9
	14.22	24.38	27.69	23.51		
24	.560	.900	1.255	1.280	350524-1	1-350524-9
	14.22	22.86	31.88	23.51		
36	.560	.900	1.750	1.280	480594-1	1-480594-9
	14.22	22.86	44.45	23.51		

Notes: These strain reliefs can be used with either pin or socket housings.
Customer supplied: One No. 6 Panhead Type B self-taping screw, 3/8 long. Plating is optional to conform to customer requirements.

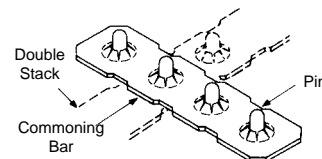
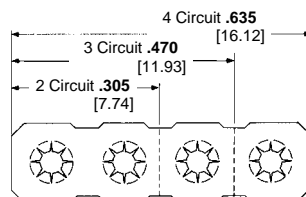
Commoning Bar

IS 408-3231

Material:

Finish—Brass

Stock thickness—.008 [.203]



Finish	Part Numbers		
	2 Circuit	3 Circuit	4 Circuit
Pre-tin	350020-1	350021-1	350022-1
Gold ¹	350020-2	350021-2	350022-2

¹ Gold Finish — Plated with .000030 [.000762] min. gold over .000050 [.00127] min. nickel underplate on entire contact.

Related Product Data:

Housings — pages 9071 thru 9073

Notes:

1. Commoning bars can be used to common adjacent pin contacts in any column or row. Maximum stack per pin is two.
2. The above illustrates the proper insertion of the Commoning Bar.
3. Use the mating socket housing to assemble the Commoning Bar onto the pins.



Commoning Bar Extraction Tool

Part Number 457306-1

IS 408-3231

For complete product information, order Catalog 82181

PC Board Vertical Pin Headers

Product Specification:

Centerline spacing—.165 [4.19]

Material:

Housing—Nylon, Natural Color-Brick Red

Flammability Rating—UL94V-0

Contacts—Phosphor bronze
Solder tail diameter .040 [1.02]

Related Product Data:

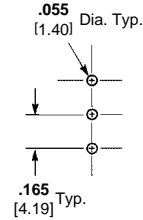
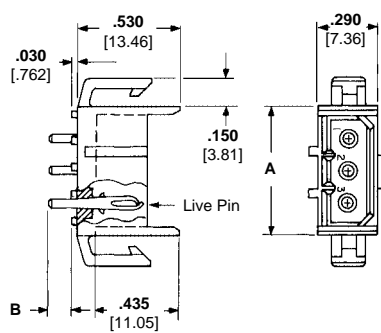
Mating Socket Housings—pages 9071 thru 9072

Technical Document: pages 9068 and 9080

Product Specification

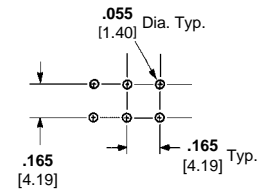
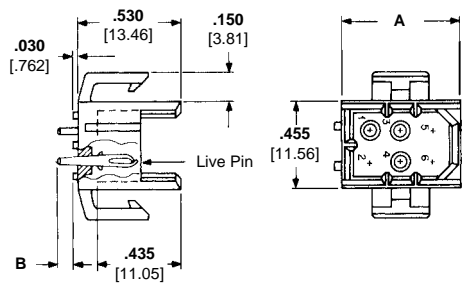
108-1078 (MR) Miniature Rectangular Headers

2 and 3 Circuit, In-Line



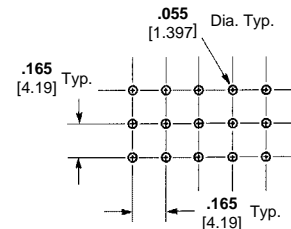
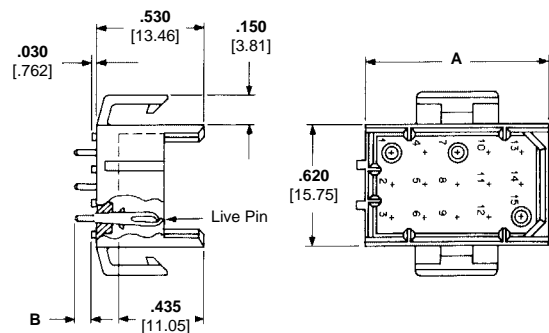
Recommended PC Board Hole Layout

4 and 6 Circuit, Matrix



Recommended PC Board Hole Layout

9, 12 and 15 Circuit, Matrix



Recommended PC Board Hole Layout

For complete product information, order Catalog 82181

PC Board Vertical Pin Headers

Product Specification:
Centerline spacing—.165 [4.19]

Material:

Housing—Nylon, Natural Color-Brick Red

Flammability Rating—UL94V-0

Contacts—Phosphor bronze
Solder tail diameter .040 [1.02]

Related Product Data:

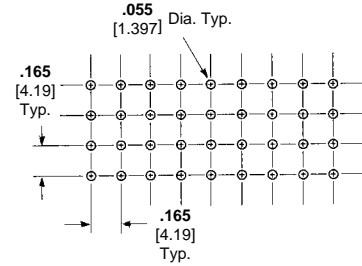
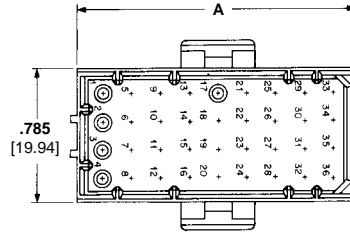
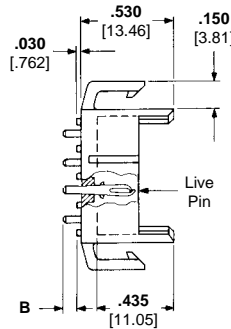
Mating Socket Housings—pages 9072 thru 9073

Technical Document: page 9068 and 9080

Product Specification

108-1078 (MR) Miniature Rectangular Headers

20, 24 and 36 Circuit, Matrix





Recommended PC Board Hole Layout

Number of Circuits	PC Board Thickness	Dimensions		Part Numbers		Mates with Socket Housing Part Numbers
		A	B	Tin Finish Contacts	Duplex Finish Contacts ¹	
2	.062 1.57	.455 11.56	.120 3.05	640497-1	640497-2	1-640517-0
	.120 3.05	.455 11.56	.180 4.57	640497-3	640497-4	
3	.062 1.57	.620 15.75	.120 3.05	640498-1	640498-2	1-640518-0
	.120 3.05	.620 15.75	.180 4.57	640498-3	640498-4	
4	.062 1.57	.455 11.56	.120 3.05	640499-1	640499-2	1-640519-0
	.120 3.05	.455 11.56	.180 4.57	640499-3	640499-4	
6	.062 1.57	.620 15.75	.120 3.05	640500-1	640500-2	1-640520-0
	.120 3.05	.620 15.75	.180 4.57	640500-3	640500-4	
9	.062 1.57	.620 15.75	.120 3.05	640501-1	640501-2	1-640521-0
	.120 3.05	.620 15.75	.180 4.57	640501-3	640501-4	
12	.062 1.57	.785 19.94	.120 3.05	640502-1	640502-2	1-640522-0
	.120 3.05	.785 19.94	.180 4.57	640502-3	640502-4	
15	.062 1.57	.950 24.13	.120 3.05	640503-1	640503-2	1-640523-0
	.120 3.05	.950 24.13	.180 4.57	640503-3	640503-4	
20	.062 1.57	.950 24.13	.120 3.05	640504-1	640504-2	1-640524-0
	.120 3.05	.950 24.13	.180 4.57	640504-3	640504-4	
24	.062 1.57	1.115 28.32	.120 3.05	640505-1	640505-2	1-640525-0
	.120 3.05	1.115 28.32	.180 4.57	640505-3	640505-4	
36	.062 1.57	1.610 40.89	.120 3.05	640506-1	640506-2	1-640526-0
	.120 3.05	1.610 40.89	.180 4.57	640506-3	640506-4	

¹ Duplex Finish — Plated with .000030 [.000762] min. gold in mating area, matte tin on solder tail end over .000050 [.00127] min. nickel underplate on entire contact.

For complete product information, order Catalog 82181

Product Facts

- Polarized
- Cavity identification
- Low contact-mating force
- Dual locking lances
- Detent and positive locking
- Contacts available in brass and phosphor bronze with tin and gold plating
- Panel-mounting and free-hanging styles
- "F" crimp contacts
- Applicator and hand tool available
- Economical commercial-grade connectors
- Compatible with high-speed application machinery and competitive soft shells
- Wire range from 30 to 18 AWG [0.05 to 0.9 mm²]
- Accepts wires with insulation diameters as large as .110 [2.79]
- Housings available in 1 to 9 positions
- .062 plug and receptacle housings accept pin or socket contacts. The preferred convention is to use socket contacts with receptacle housings
- Not for interrupting current
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189



Performance Characteristics:

The .062 Commercial Pin and Socket Connectors performance characteristics found below are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Durability—10 mating cycles

Dielectric Withstanding Voltage—1.0 kVAC

Insulation Resistance—1000 megohms min. initial

Voltage Rating—250 V AC or DC

Connector Mating—2.5 lb. [11.1 N] max. per contact

Connector Unmating—0.3 lb. [1.3 N] min. per contact

Contact Insertion Force—4.0 lb. [17.8 N] max. per contact

Contact Retention—7 lb. [31.1 N] min.

15 lb. [66.6N] min. for contacts 770983-1 and 794380-1

Technical Documents:

Product Specification
108-1037

Application Specification
114-1013

For complete product information, order Catalog 82181

Contacts

Product Specification:

Pin Diameter—.062 [1.57]

Material:

Stock Thickness—.008 [0.20]

Pin and socket contacts can be used in either plug or receptacle housings.

Related Product Data:

Performance Characteristics—

page 9077

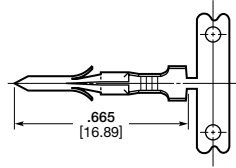
Housings— page 9079

Application Tooling— pages 9081, 9082 and 9084

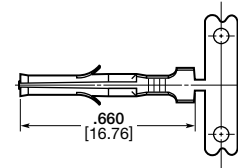
Technical Documents: pages 9077 and 9080

Product Specification
108-1037

Application Specification
114-1013



Pin



Socket

Wire Size		Ins. Dia.	Material & Finish	Contact Part Numbers				HDM Applicator Part Numbers	Hand Tool Part Numbers
AWG	mm ²			Pin		Socket			
				Strip Form	Loose Form	Strip Form	Loose Form		
30-24	0.05-0.2	.060 1.52 Max.	Brass Pre-tin	640391-1	794018-1	640392-1	794019-1	466686-1 ³ 466686-2 ³ 466686-3 ³	90870-1
			Brass, Select Gold ¹	640391-5 ¹	—	640392-5 ¹	—		
			Phos. Brz., Pre-tin	—	—	640392-2	—		
24-18	0.2-0.9	.050-.110 1.27-2.79	Brass Pre-tin	350629-1	794017-1	350628-1	794016-1	687996-1 ³ 687996-2 ³ 687996-3 ³	90869-1
			Phos. Brz., Pre-tin	—	—	350628-2	—		
			Brass, Select Gold ¹	350629-5 ¹	—	350628-5 ¹	—		
			Phos. Brz., Select Gold ¹	—	—	350628-6 ¹	—		

¹Select Gold—.000030 min. in mating area over .000050 nickel.

²Lanceless Socket for Overmolding.

³HDM Applicator part number ending in -1 is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-LECTRIC Model K Machine, -3 is used on AMP-O-LECTRIC Model G Machine. See page 9084 for further information.

⁴Contact Retention 15 lbs. min.

Note: Phosphor bronze contacts should be used in high-temperature/humidity cycling applications.



**Contact Insertion Tool
(for Pins and Sockets)**
Part Number 91002-1
IS 408-7347



Contact Extraction Tool
Part Number 318831-1
IS 408-4370

For complete product information, order Catalog 82181

Housings, Free Hanging or Panel Mount

Product Specification:

Centerline spacing—.145 [3.68]

Material:

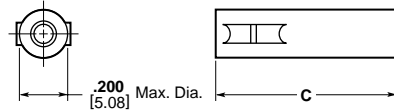
Housing—Nylon, natural color

Flammability Rating—UL94V-2

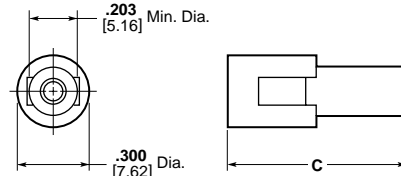
Technical Document:

Product Specification
108-1037

1 Circuit

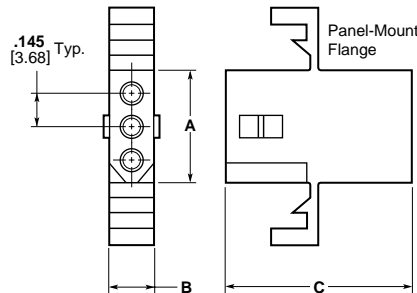


Receptacle

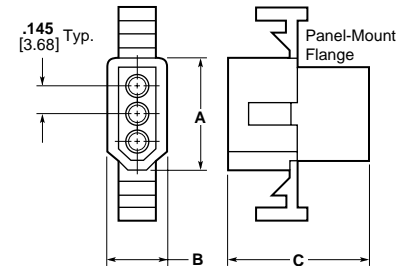


Plug

2, 3, and 4 Circuit, In-Line



Receptacle



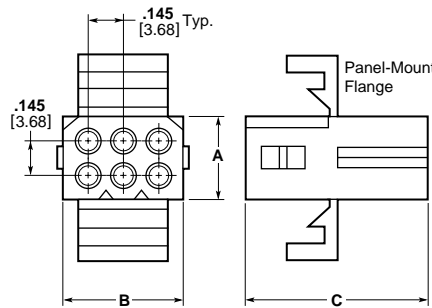
Plug

No. of Circuits	Dimensions						Receptacle Part Numbers		Plug Part Numbers	
	Receptacle			Plug			Panel Mount	Free Hanging	Panel Mount	Free Hanging
	A	B	C	A	B	C				
1	—	—	.785 19.94	—	—	.750 19.05	—	770277-1	—	770278-1
2	.340 8.64	.199 5.05	.820 20.83	.440 11.18	.300 7.62	.780 19.81	770343-1	770342-1 770419-1 ¹	770341-1	770340-1
3	.490 12.45	.199 5.05	.785 19.94	.590 14.99	.300 7.62	.750 19.05	770326-1	770333-1	770332-1	770331-1
4 (In-Line)	.635 16.13	.199 5.05	.785 19.94	.733 18.62	.300 7.62	.750 19.05	770335-1	770274-1	770334-1	770275-1
4 (Matrix)	.345 8.76	.345 8.76	.878 22.30	.445 11.30	.445 11.30	.868 22.04	770441-1	770442-1 794124-1 ²	770443-1	770433-1
6	.345 8.76	.495 12.57	.785 19.94	.445 11.30	.600 15.24	.750 19.05	770354-1	770356-1	770353-1	770355-1
9	.490 12.45	.495 12.57	.790 20.07	.590 14.99	.600 15.24	.750 19.05	770427-1	770429-1	770426-1	770428-1

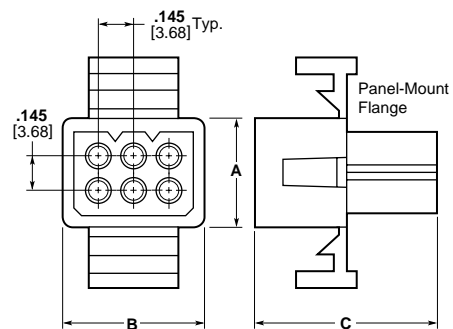
¹ Positive Lock

² Housing fits through a .395 [10.03] dia. cutout.

4, 6, and 9 Circuit, Matrix



Receptacle



Plug

For complete product information, order Catalog 82181

Technical Documents

Related Product Data:**Connectors:****Universal MATE-N-LOK II** —
pages 9003 thru 9014**Universal MATE-N-LOK** —
pages 9015 thru 9028**Commercial MATE-N-LOK** —
pages 9029 thru 9040**.140 MATE-N-LOK** —
pages 9041 thru 9043**.093 [2.36] Commercial
Pin and Socket** — pages 9044
thru 9049**Mini-Universal MATE-N-LOK 2** —
pages 9050 thru 9057**Mini-Universal MATE-N-LOK** —
pages 9058 thru 9066**(MR) Miniature Rectangular** —
pages 9068 thru 9076**.062 [1.57] Commercial
Pin and Socket** — pages 9077
thru 9079

Various technical documents are available for your use:

Product Specifications describe technical performance characteristics and verification tests.

They are intended for the Design, Component and Quality Engineer.

108-1090	Universal MATE-N-LOK II Connector
108-1031	Universal MATE-N-LOK Connector
108-1053	Universal MATE-N-LOK Printed Circuit Board Header
108-1031-1	Universal MATE-N-LOK Splash Proof Seal
108-1000	Commercial MATE-N-LOK Connector
108-1077	Commercial MATE-N-LOK Printed Circuit Board Header
108-49000	Commercial MATE-N-LOK IDC Insulation Displacement Connector
108-8002	.156 Diameter MATE-N-LOK Connector
108-1032	.140 Diameter MATE-N-LOK Pin and Socket Connector
108-1038	.093 Commercial Pin and Socket Connectors
108-1693	Mini-Universal MATE-N-LOK 2 Connectors
108-1694	Mini-Universal MATE-N-LOK 2 Headers
108-1542	Mini-Universal MATE-N-LOK Connectors
108-1543	Mini-Universal MATE-N-LOK Headers
108-5151	Mini-Universal MATE-N-LOK Connector (UL 94V-2)
108-5138	Mini-Universal MATE-N-LOK Connector (UL 94V-0)
108-1022	(MR) Miniature Rectangular Connector
108-1078	(MR) Miniature Rectangular Printed Circuit Board Header
108-1037	.062 Commercial Pin and Socket Connectors

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-1043	Universal MATE-N-LOK II Connectors (housings, contacts and strain reliefs)
114-1010	Universal MATE-N-LOK Contact
114-1012	Commercial MATE-N-LOK Contact
114-49001	Commercial MATE-N-LOK IDC Insulation Displacement Connector
114-1109	.156 Diameter MATE-N-LOK Connectors
114-1007	.140 Diameter MATE-N-LOK Contact
114-49000	.093 Commercial Pin and Socket Connectors
114-1111	Mini-Universal MATE-N-LOK 2 Connectors
114-16017	Mini-Universal MATE-N-LOK Connectors
114-1014	MR Miniature Rectangular Contact
114-1013	.062 Commercial Pin and Socket Connectors

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.**Universal MATE-N-LOK II Connectors:** 408-3200 Housing, Contacts and Accessories**Universal MATE-N-LOK Connectors:** 408-7714 Plug, Cap Header, Pin and Socket Contacts;
408-3320 Strain Relief Assembly and Keying Plug
408-3392 Universal MATE-N-LOK Splash Proof Seals**Commercial MATE-N-LOK Connectors:**408-3186 IDC Insulation Displacement Connector
408-7166 Panel Mount Connector
408-7200 Free-Hanging Connector
408-7201 Detent Engagement Connectors -2 and 3 circuit
408-7209 Commoning Tabs
408-7215 Single Circuit Connector**Mini-Universal MATE-N-LOK 2 Connectors:** 408-3393 Mini-Universal MATE-N-LOK 2 Connectors**Mini-Universal MATE-N-LOK Connectors:** 408-3234 Mini-Universal MATE-N-LOK Connectors**(MR) Miniature Rectangular Connectors:** 408-3231 Pin Housing, Socket Housing, Contacts, and Accessories

For complete product information, order Catalog 82181

Applicator and Hand Tool Selection Guide

Related Product Data:

Contacts:

Universal MATE-N-LOK II — page 9005

Universal MATE-N-LOK — page 9017 and 9018

Commercial MATE-N-LOK — page 9032 and 9033

.140 MATE-N-LOK — page 9042

.093 [2.36] Commercial Pin and Socket Connectors — page 9045

Mini-Universal MATE-N-LOK 2 — page 9052

Mini-Universal MATE-N-LOK — page 9060

(MR) Miniature Rectangular — page 9070

.062 [1.57] Commercial Pin and Socket Connectors — page 9078

Product Line	Applicators			Hand Tools	
	A	B	C	D	E
Universal MATE-N-LOK II	X	X	X	X	X
Universal MATE-N-LOK	X	X	X	X	X
Commercial MATE-N-LOK	X	X	X	X	X
.156 MATE-N-LOK	X	—	—	X	—
.140 MATE-N-LOK	X	X	X	X	—
.093 [2.36] Commercial Pin and Socket Connectors	X	X	X	—	X
Mini-Universal MATE-N-LOK 2	X	X	X	X	X
Mini-Universal MATE-N-LOK (MR) Miniature Rectangular	X	X	X	X	—
.062 [1.57] Commercial Pin and Socket Connectors	X	X	X	—	X

A— Heavy Duty Miniature Applicators (HDM)
 B— Stripper-Crimper Applicators (SCA)
 C— Crimp Quality Monitor Applicators (CQM)
 D— CERTI-CRIMP Hand Tool
 E— PRO-CRIMPER II Hand Tool

Note: This listing is for reference purposes only. To obtain part numbers for specific applications call the Technical Support Center (1-800-522-6752).

For complete product information, order Catalog 82181

Hand Tools

Related Product Data:

Contacts:

Universal MATE-N-LOK II — page 9005

Universal MATE-N-LOK — pages 9017 and 9018

Commercial MATE-N-LOK — pages 9032 and 9033

.140 MATE-N-LOK — page 9042

.093 [2.36] Commercial Pin and Socket Connectors — page 9045

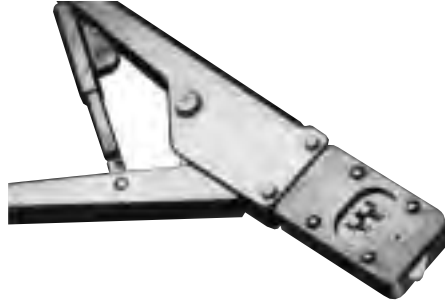
Mini-Universal MATE-N-LOK 2 — page 9052

Mini-Universal MATE-N-LOK — page 9060

(MR) Miniature Rectangular — page 9070

.062 [1.57] Commercial Pin and Socket Connectors — page 9078

CERTI-CRIMP Hand Tool



Catalog 65780

PRO-CRIMPER II Hand Tool



Catalog 82276

Features	CERTI-CRIMP Tool	PRO-CRIMPER II Tool
Field Repair/Prototyping	X	X
OEM Applications/Low Volume Production	X	—
Ratchet Control	X	X
Brush/Bellmouth Control	X	X
Precision Crimp Height Control	X	X
Little/No Operator Training Required	X	—
Insulation Adjustment	X	—
Repairable	X	—

Product Line	CERTI-CRIMP Tool Part Number	Instruction Sheet	PRO-CRIMPER II Tool Part Number	Instruction Sheet
Universal MATE-N-LOK II	58439-1	408-9591	—	—
	90300-2	408-9479	90548-1	408-9885
	90296-2	408-9476	90546-1	408-9883
	90298-2	408-9477	90547-1	408-9884
	90299-2	408-9478	90547-1	408-9884
Universal MATE-N-LOK	69710-1 ¹	408-2095	—	—
	58380-1 ²	408-9433	—	—
	58380-2 ²	408-9433	—	—
Commercial MATE-N-LOK	90066-7	408-6610	—	—
	90123-2	408-7332	90574-1	408-9886
	90124-2	408-7332	90575-1	408-9887
.156 MATE-N-LOK	58631-1	408-4341	—	—
	58632-1	408-4340	—	—
	90247-1	408-7434	—	—
.140 MATE-N-LOK	69710-1 ¹	408-2095	—	—
	58373-1 ²	408-9442	—	—
	58374-1 ²	408-9442	—	—
.093 Commercial Pin & Socket	—	—	90872-1	408-9967
	—	—	90871-1	408-9966
Mini-Universal MATE-N-LOK 2	90710-2	—	—	—
	90711-2	—	—	—
	90707-2	—	—	—
Mini-Universal MATE-N-LOK	90710-2	408-4148	90758-1	408-9938
	90711-2	408-4149	90759-1	408-9962
	90707-2	408-4137	90760-1	408-9963
Miniature Rectangular (MR)	90326-1	408-7749	58514-1	408-9973
	90325-1	408-7748	58514-1	408-9973
.062 Commercial Pin & Socket	—	—	90870-1	408-9965
	—	—	90869-1	408-9964

¹ Hand tool requires die set.

² Die set.

Note: This listing is for reference purposes only. To obtain part numbers for specific applications call the Technical Support Center (1-800-522-6752).

For complete product information, order Catalog 82181

Applicator Options

Universal MATE-N-LOK II Connectors or Contacts

Strip Form Contact Part Number		Heavy-Duty Miniature Applicator Part Numbers			
Pin	Socket	Used on Bench Top Terminators		Used on Automatic Leadmaking Equipment (AMPOMATOR CLS Machine with T or G Terminators)	Used on AMP-O-MATIC Stripper-Crimper Machine
		AMP-O-LECTRIC Model K Machine	AMP-O-LECTRIC Model G Machine		
770011-6	770012-6	—	567252-4	567252-1	—
770009-1	—	—	—	—	—
770009-2	—	—	—	—	—
—	770010-3	—	567214-4	567214-1	567914-1
—	770010-4	—	—	—	—
770007-1	—	—	—	—	—
770007-2	—	—	—	—	—
—	770008-3	—	567213-4	567213-1	567913-1
—	770008-4	—	—	—	—
770005-1	—	—	—	—	—
770005-2	—	—	—	—	—
—	770006-3	—	567212-4	567212-1	—
770005-4	770006-4	—	—	—	—
770003-3	770004-3	—	567211-4	567211-1	—
770003-4	770004-4	—	—	—	—
770193-1	—	—	—	—	—
770193-2	—	—	567213-4	567213-1	567913-1
770194-1	—	—	—	—	—
770194-2	—	—	567212-4	567212-1	—
350924-1	350925-1	466616-2	466616-3	—	—
350924-6	350925-6	—	—	—	—
350561-1	350851-1	—	—	—	—
—	350570-1	—	—	—	—
350561-2	350851-2	—	—	—	—
—	350570-2	—	—	—	—
350561-7	350851-7	466320-2	466320-4	466320-1	466917-1
—	350570-7	—	—	—	—
350561-3	350570-3	—	—	—	—
—	350570-6	—	—	—	—
350218-1	350536-1	—	—	—	—
350218-2	350536-2	—	—	—	—
350218-7	350536-7	687763-2	687763-6	687763-1	466920-1
350218-3	350536-3	—	—	—	—
350218-6	350536-6	—	—	—	—
350538-1	350537-1	—	—	—	—
350538-2	350537-2	—	—	—	—
350538-7	350537-7	687926-2	687926-6	687926-1	466989-1
350538-3	350537-3	—	—	—	—
350538-6	350537-6	—	—	—	—
350873-1	350874-1	—	—	—	—
350873-3	350874-3	466588-2	466588-3	466588-1	—
350922-3	350923-3	—	—	—	—
350922-6	350923-6	466597-2	466597-3	466597-1	—
350922-4	350923-4	—	—	—	—
350699-1	—	—	—	—	—
350699-2	—	466320-2	466320-4	466320-1	466917-1
350699-7	—	—	—	—	—
350687-1	—	—	—	—	—
350687-2	—	687763-2	687763-6	687763-1	466920-1
350687-7	—	—	—	—	—
350700-1	—	—	—	—	—
350700-2	—	687926-2	687926-6	687926-1	466989-1
350700-7	—	—	—	—	—
770210-1	—	567216-2	567216-3	567216-1	—
350654-1	—	687763-2	687763-6	687763-1	466920-1
770234-3	—	466597-2	466597-3	466597-1	—

Universal MATE-N-LOK Connectors or Contacts

Note: Stripper Crimper (SCA) and Crimp Quality Monitor Applicators may be available. Call the Technical Support Center at 1-800-522-6752 for Part Numbers.

For complete product information, order Catalog 82181

Applicator Options

Commercial MATE-N-LOK Connectors or Contacts

Strip Form Contact Part Number		Heavy-Duty Miniature Applicator Part Numbers			
Pin	Socket	Used on Bench Top Terminators		Used on Automatic Leadmaking Equipment (AMPOMATOR CLS Machine with T or G Terminators)	Used on AMP-O-MATIC Stripper-Crimper Machine
		AMP-O-LECTRIC Model K Machine	AMP-O-LECTRIC Model G Machine		
350079-1	350078-1				
350079-4	350078-4	466426-2	466426-3	466426-1	—
350079-5	350078-5				
61116-1	61314-1				
61116-4	61314-4				
61116-5	61314-5	466320-2	466320-4	466320-1	466917-1
61116-6	61314-6				
61116-7	61314-7				
61118-1	61117-1				
61118-4	61117-4				
61118-5	61117-5	687763-2	687763-6	687763-1	466920-1
61118-6	61117-6				
61118-7	61117-7				
350558-1	350557-1	687898-2	687898-4	687898-1	—
350558-4	350557-4				
61527-2	—	466320-2	466320-4	466320-1	466917-1

.156 MATE-N-LOK Contacts

61086-1	61085-1	466462-1	466462-3	466462-1	—
61234-1	61233-1	687765-2	687765-2	—	—

.140 MATE-N-LOK Connectors or Contacts

61627-1	61626-1	567306-2	567306-3	567306-1	—
61627-2	61626-2				
350201-1	350200-1	567309-2	567309-3	587309-1	—
350201-2	350200-2				

.093 Pin and Socket Connectors or Contacts

350418-1	350417-1				
—	350417-3	466656-2	466656-3	466656-1	466922-1
350418-5	350417-5				
350416-1	350415-1				
350416-5	350415-5	466878-2	466878-3	466878-1	466959-1
—	350415-8				
770530-1	770529-1	567337-4	567337-6	567337-3	—
770385-1	770383-1	567273-2	567273-4	567273-3	—
—	—				

Mini-Universal MATE-N-LOK 2 Connectors or Contacts

794216-1	794217-1	567418-2	567418-3	567418-1	—
794216-3	794217-3				
794218-1	794219-1	567066-4	567066-5	567066-3	466990-2
794218-3	794219-3				
794220-1	794221-1	567067-2	567067-3	567067-1	466986-1
794220-3	794221-3				
794222-1	794223-1	650582-2	650582-2	—	567902-1
794222-3	794223-3				

Mini-Universal MATE-N-LOK Connectors or Contacts

770835-1	770834-1	567418-2	567418-3	567418-1	—
770835-3	770834-3				
770901-1	770902-1	567066-4	567066-5	567066-3	466990-2
770901-3	770902-3				
770903-1	770904-1	567067-2	567067-3	567067-1	466986-1
770903-3	770904-3				
171636-1	171637-1	680582	567251-1	680582	567902-1
—	171637-3				

(MR) Miniature Rectangular Connectors or Contacts

350968-1	794000-1	466352-2	466352-3	466352-1	—
350968-2	794000-2				
350967-1	641294-1	466351-2	466351-4	466351-1	466913-1
350967-2	641294-2				
350969-1	—	466351-2	466351-4	466351-1	466913-1
350969-2	—				

.062 Pin and Socket Connectors or Contacts

640391-1	640392-1				
640391-5	640392-5	466686-2	466686-3	466686-1	466955-1
—	640392-2				
—	794046-1				
350629-1	350628-1				
—	350628-2				
350629-5	350628-5	687996-2	687996-3	687996-1	—
—	350628-6				
—	794103-1				

For complete product information, order Catalog 82181

Note: Stripper Crimper (SCA) and Crimp Quality Monitor Applicators may be available. Call the Technical Support Center at 1-800-522-6752 for Part Numbers.

Feature Comparisons

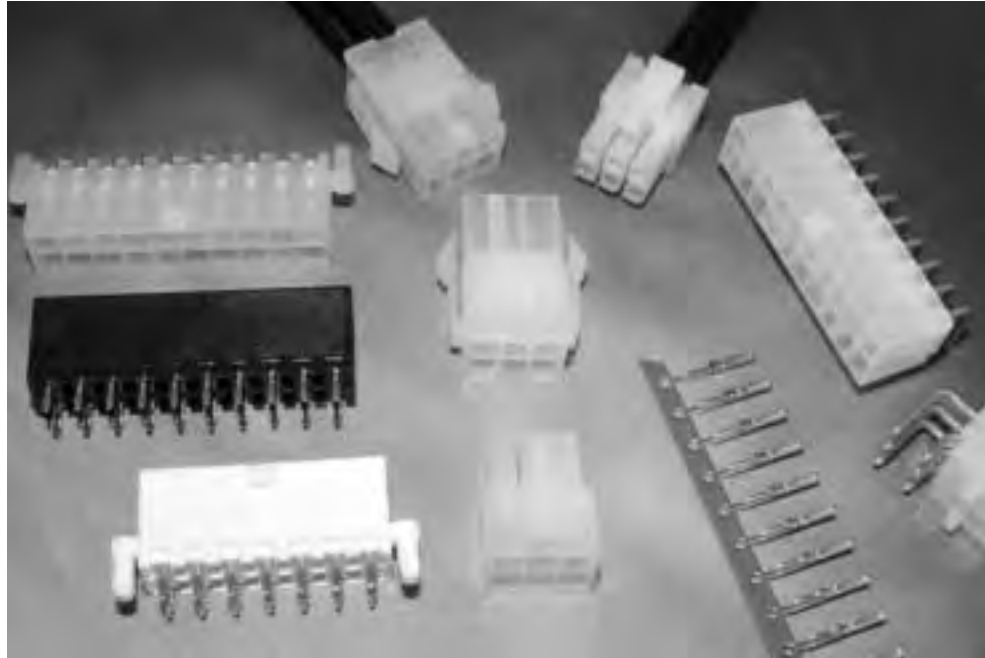
	Standard Density				High Density			
	UMNL II	UMNL	CMNL	.093	.062	Mini-UMNL 2	Mini-UMNL	MR
Wire AWG —								
Maximum	10	10	14	14	18	16	16	18
Minimum	30	30	30	24	30	30	30	26
Current Rating —								
14 AWG Wire	15	15	15	15	—	—	—	—
18 AWG Wire	—	—	—	—	9	10.5	9	6
Max. Operating Voltage (AC or DC)	600	600	250	250	250	600	600	250
Flammability Rating —								
UL 94V-0	Yes	Yes	Yes	No	No	Yes	Yes	Yes
UL 94V-2	No	Yes	Yes	Yes	Yes	Yes	Yes*	No
Approvals —								
UL	Yes	Yes	Yes	Yes	Yes	Submitted	Yes	Yes
CSA	Yes	Yes	Yes	Yes	Yes	Submitted	Yes	Yes
VDE	Yes	Yes	No	No	No	Submitted	Yes	No
Contact Material —								
Brass	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Phos. Bronze	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Plating Finish —								
Tin Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gold Plating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Centerline Spacing —	.250	.250	.200; .240 x .202; .195 x .360	.198; .250; .248	.145	.163	.163	.165
Housings —								
Panel Mount	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Free Hanging	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Secondary Locking Latches	Yes	No	No	No	No	Yes	No	No
Terminal Position	Yes	No	No	No	No	Yes	No	No
In-Line Config.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dual Row Config.	No	No	Yes	No	No	Yes	Yes	No
Matrix Config.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Accessories —								
Strain Relief	UMNL	Yes	No	No	No	No	No	Yes
Keying Plug	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Seals	No	Yes	No	No	No	No	No	No
Headers —								
Vertical	UMNL	Yes	Yes	No	No	MUMNL	Yes	Yes
Blindmate	No	No	No	No	No	MUMNL	Yes	No
Right-Angle	UMNL	Yes	Yes	No	No	MUMNL	Yes	No
Positions —								
Minimum	2	1	1	1	1	2	1	2
Maximum	15	15	16	15	9	24	24	36

*Wire-to-Wire Only.

For complete product information, order Catalog 82181

Product Facts

- Wire-to-Board and Wire to Wire Connector System
- Free Hanging or Panel Mount Plug Housings
- Vertical header with or without mounting pegs and with or without drain holes
- Selective loading available on vertical headers
- 4.2mm x 4.2mm centerline
- Male and female contacts designed for 26-22 AWG and 22-18 AWG wire
- AMP receptacle housings accept AMP female contacts with less orientation than competitive product
- Right Angle Headers
- Designed for power applications
- Positive latch feature helps prevent disconnection
- Dual action (DUAC) receptacle contacts
- Anti-stubbing contact design
- Polarized housings
- Six-position plug, receptacle, and strain relief meet NAMA standard for International Multi-Drop Bus Interface
- Intermateable with Molex Mini-Fit, Jr.



Technical Documents:

Product Specification

Headers — 108-1699
Receptacles — 108-19099

Application Specification

114-6067 for crimping contacts,
114-19048 — Use of Receptacles

Qualification Test Report

501-434
UL File E28476
CSA File LR7189

The dual action (DUAC) design of the receptacle contact guarantees low insertion force while maintaining high current capacity performance.

Performance Data:

Voltage Rating — 600 vac

Current Rating — 9 amps maximum
in 2 position applications

Low Level Resistance —
10 megohms max

Dielectric Withstanding Voltage —
1,500 vac/min.

Insulation Resistance —
1,000 megohms minimum

Operating Temperature —
-55° to 105°C

For complete product information, order Catalog 1307012

Receptacle Housings

2-24 Positions

Material:

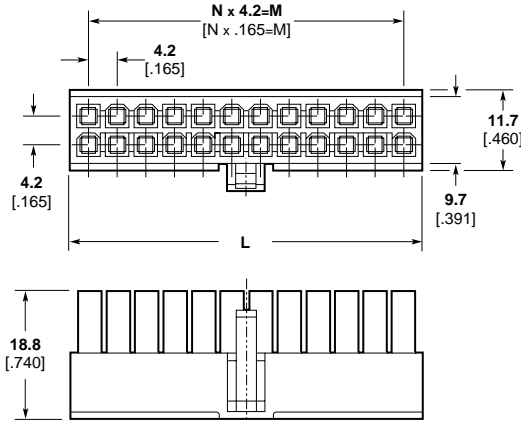
Housings—Nylon, UL94V-2, Natural color, Nylon, UL94V-0, White color

Technical Documents : page 9086

Mates with vertical headers, right-angle headers and plug housings.
Accepts female contacts.

Related Product Data:

Strain Reliefs—Pages 9066 and 9088



Number of Positions	Dimensions			Part Numbers	
	L	M	N	94V-2	94V-0
2	5.5 .216	—	1	106527-2	794657-2
4	9.7 .381	4.2 .165	1	106527-4	794657-4
6	13.9 .547	8.4 .330	2	106527-6	794657-6
8	18.1 .712	12.6 .496	3	106527-8	794657-8
10	22.3 .877	16.8 .661	4	1-106527-0	1-794657-0
12	26.5 1.043	21.0 .826	5	1-106527-2	1-794657-2
14	30.7 1.208	25.2 .992	6	1-106527-4	1-794657-4
16	34.9 1.374	29.4 1.157	7	1-106527-6	1-794657-6
18	39.1 1.539	33.6 1.322	8	1-106527-8	1-794657-8
20	43.3 1.704	37.8 1.488	9	2-106527-0	2-794657-0
22	47.5 1.870	42.0 1.653	10	2-106527-2	2-794657-2
24	51.7 2.035	46.2 1.818	11	2-106527-4	2-794657-4

Contacts, Female

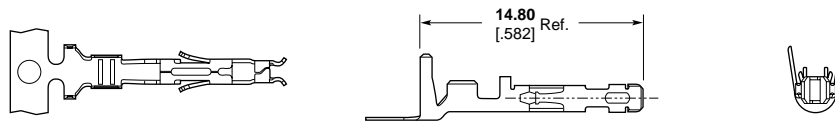
Technical Documents:

Product Specification

108-1699 AMP-DUAC Header
108-19099 AMP-DUAC Receptacle

Application Specification

114-19048 AMP-DUAC Receptacle contact
114-6067 for crimping contacts
Used in receptacle housings.



Female Contact

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Plating	Part Numbers	
			Strip	Loose Piece
22-18 [.3-.8]	1.5-2.4 .059-.094	Tin	106529-2	1-106529-2
26-22 [.12-.3]	1.3-1.75 .047-.069	Tin	106528-2	1-106528-2
2@18 [.8]	3.3 Total Max. .130	Tin	794418-1	—
22-18 [.3-.8]	1.5-2.4 .059-.094	Gold	794138-3	794141-3
26-22 [.12-.3]	1.3-1.75 .047-.069	Gold	794139-3	794142-3
2@18 [.8]	3.3 Total Max. .130	Gold	794140-3	—

For complete product information, order Catalog 1307012

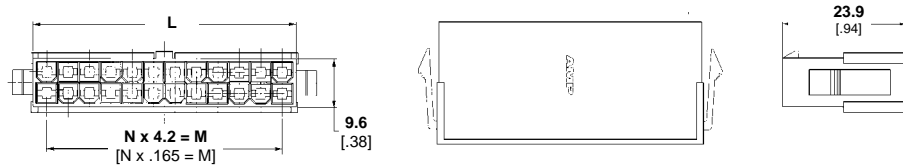
Plug Housings

2-24 Positions

Material:

Housing — Nylon UL94V-2,
Natural color
Nylon, UL94V-0, White color
Mates with receptacle housings on
page 9087.
Accepts pin contacts.

Technical Documents : page 9086



Number of Positions	Dimensions			94V-2		94V-0	
	L	M	N	Free Hanging	Panel Mount	Free Hanging	Panel Mount
2	5.4 .213	—	1	794542-2	794550-2	794594-2	794598-2
4	9.6 .378	4.2 .165	1	794542-4	794550-4	794594-4	794598-4
6	13.8 .543	8.4 .330	2	794542-6	794550-6	794594-6	794598-6
8	18 .709	12.6 .496	3	794542-8	794550-8	794594-8	794598-8
10	22.2 .874	16.8 .661	4	1-794542-0	1-794550-0	1-794594-0	1-794598-0
12	26.4 1.039	21.0 .826	5	1-794542-2	1-794550-2	1-794594-2	1-794598-2
14	30.6 .205	25.2 .992	6	1-794542-4	1-794550-4	1-794594-4	1-794598-4
16	34.8 1.370	29.4 1.157	7	1-794542-6	1-794550-6	1-794594-6	1-794598-6
18	39 1.535	33.6 1.322	8	1-794542-8	1-794550-8	1-794594-8	1-794598-8
20	43.2 1.701	37.8 1.488	9	2-794542-0	2-794550-0	2-794594-0	2-794598-0
22	47.4 1.866	42.0 1.653	10	2-794542-2	2-794550-2	2-794594-2	2-794598-2
24	51.6 2.032	46.2 1.818	11	2-794542-4	2-794550-4	2-794594-4	2-794598-4

Contacts, Male

Used in Plug Housings
Contacts to be used with AMP housings
only.

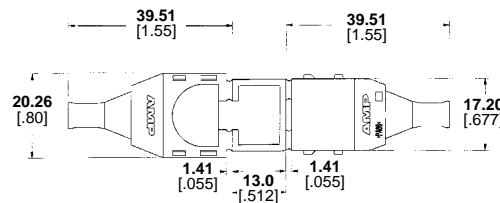


Male Contact

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Plating	Part Numbers	
			Strip	Loose Piece
22-18 .3-.8	1.5-2.4 .059-.094	Tin	794576-1	794577-1
26-22 .12-.3	1.3-1.75 .047-.069	Tin	794578-1	794579-1

Strain Reliefs

Used with plug or receptacle housings.



Pos. Size	Description	Comments	Part Number
6	Strain Relief	Wire Bundle 4.19 - 5.59, color - white	1375618-1

For complete product information, order Catalog 1307012

Vertical Header Assemblies

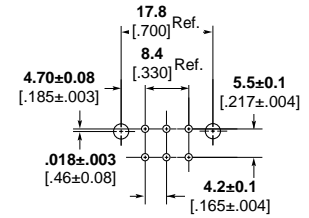
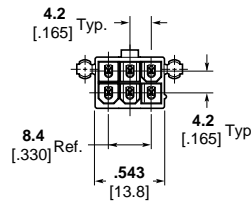
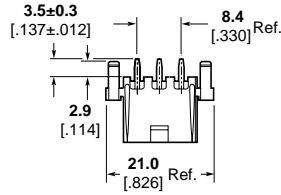
2, 4 & 6 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts — 0.25 thick copper alloy

Technical Documents : page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
2	N	N	Tin/Lead	794664-2	794668-2
2	N	N	30 Gold	794665-2	794669-2
2	Y	N	Tin/Lead	794662-2	794666-2
2	Y	N	30 Gold	794663-2	794667-2
2	N	Y	Tin/Lead	794349-1	794543-1
2	N	Y	30 Gold	794349-2	794543-2
2	Y	Y	Tin/Lead	794302-1	794540-1
2	Y	Y	30 Gold	794302-2	794540-2
4	Y	N	Tin/Lead	794662-4	794666-4
4	Y	N	30 Gold	794663-4	794667-4
4	N	N	Tin/Lead	794664-4	794668-4
4	N	N	30 Gold	794665-4	794669-4
4	Y	Y	Tin/Lead	794303-1	794466-1
4	Y	Y	30 Gold	794303-2	794466-2
4	N	Y	Tin/Lead	794350-1	794484-1
4	N	Y	30 Gold	794350-2	794484-2
6	Y	Y	Tin/Lead	794304-1	794467-1
6	Y	Y	30 Gold	794304-2	794467-2
6	N	Y	Tin/Lead	794351-1	794485-1
6	N	Y	30 Gold	794351-2	794485-2
6	Y	N	Tin/Lead	794662-6	794666-6
6	Y	N	30 Gold	794663-6	794667-6
6	N	N	Tin/Lead	794664-6	794668-6
6	N	N	30 Gold	794665-6	794669-6

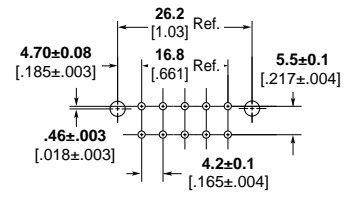
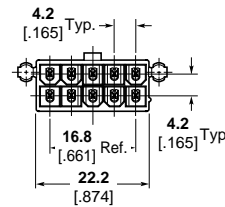
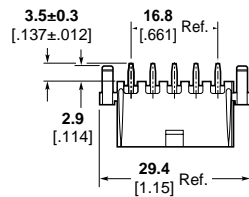
8 & 10 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts — 0.25 thick copper alloy

Technical Document: page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
8	Y	N	Tin/Lead	794662-8	794666-8
8	Y	N	30 Gold	794663-8	794667-8
8	N	N	Tin/Lead	794664-8	794668-8
8	N	N	30 Gold	794665-8	794669-8
8	Y	Y	Tin/Lead	794305-1	794468-1
8	Y	Y	30 Gold	794305-2	794468-2
8	N	Y	Tin/Lead	794352-1	794486-1
8	N	Y	30 Gold	794352-2	794486-2
10	Y	N	Tin/Lead	1-794662-0	1-794666-0
10	Y	N	30 Gold	1-794663-0	1-794667-0
10	N	N	Tin/Lead	1-794664-0	1-794668-0
10	N	N	30 Gold	1-794665-0	1-794669-0
10	Y	Y	Tin/Lead	794306-1	794469-1
10	Y	Y	30 Gold	794306-2	794469-2
10	N	Y	Tin/Lead	794353-1	794487-1
10	N	Y	30 Gold	794353-2	794487-2

For complete product information, order Catalog 1307012

Vertical Header Assemblies

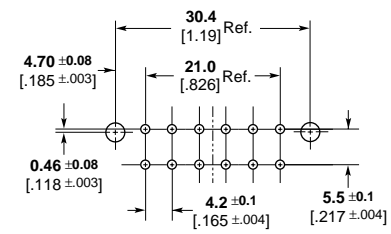
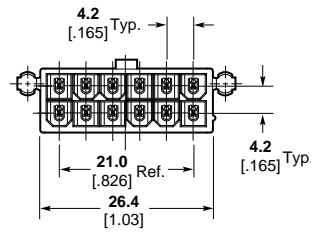
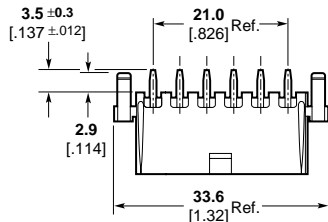
12 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts — 0.25 thick copper alloy

Technical Documents : page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
12	Y	N	Tin/Lead	1-794662-2	1-794666-2
12	Y	N	30 Gold	1-794663-2	1-794667-2
12	N	N	Tin/Lead	1-794664-2	1-794668-2
12	N	N	30 Gold	1-794665-2	1-794669-2
12	Y	Y	Tin/Lead	794307-1	794470-1
12	Y	Y	30 Gold	794307-2	794470-2
12	N	Y	Tin/Lead	794354-1	794488-1
12	N	Y	30 Gold	794354-2	794488-2

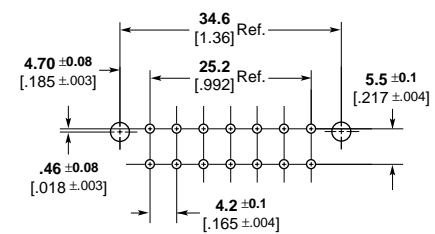
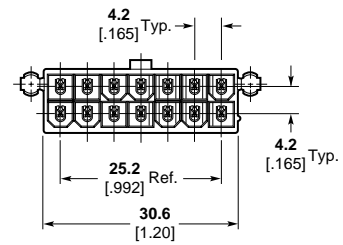
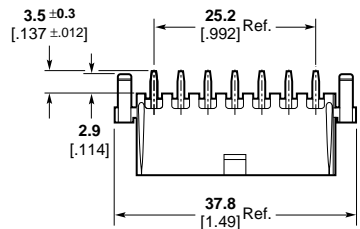
14 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts — 0.25 thick copper alloy

Technical Documents : page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
14	Y	N	Tin/Lead	1-794662-4	1-794666-4
14	Y	N	30 Gold	1-794663-4	1-794667-4
14	N	N	Tin/Lead	1-794664-4	1-794668-4
14	N	N	30 Gold	1-794665-4	1-794669-4
14	Y	Y	Tin/Lead	794308-1	794453-1
14	Y	Y	30 Gold	794308-2	794453-2
14	N	Y	Tin/Lead	794355-1	794489-1
14	N	Y	30 Gold	794355-2	794489-2

For complete product information, order Catalog 1307012

Vertical Header Assemblies

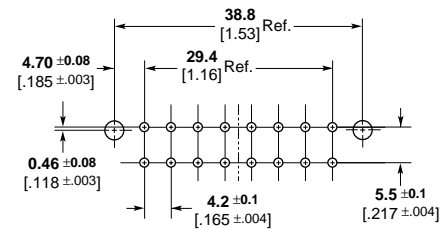
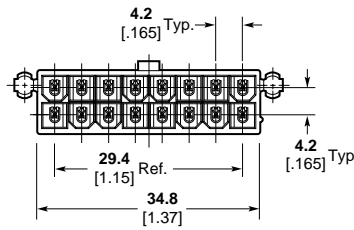
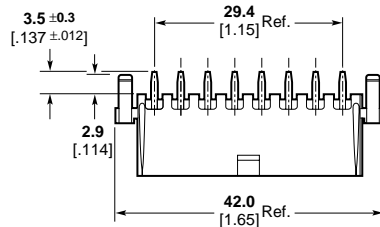
16 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing— Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts— 0.25 thick copper alloy

Technical Documents : page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
16	Y	N	Tin/Lead	1-794662-6	1-794666-6
16	Y	N	30 Gold	1-794663-6	1-794667-6
16	N	N	Tin/Lead	1-794664-6	1-794668-6
16	N	N	30 Gold	1-794665-6	1-794669-6
16	Y	Y	Tin/Lead	794309-1	794429-1
16	Y	Y	30 Gold	794309-2	794429-2
16	N	Y	Tin/Lead	794356-1	794490-1
16	N	Y	30 Gold	794356-2	794490-2

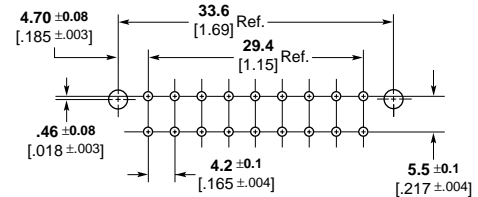
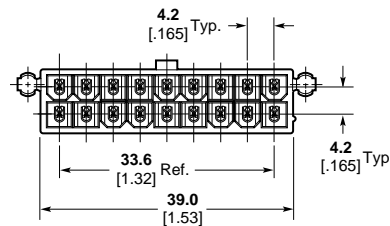
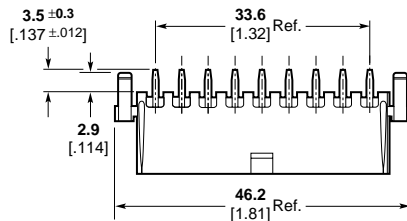
18 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing— Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts— 0.25 thick copper alloy

Technical Documents : page 9086



Recommended PC Board Layout

Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
18	Y	N	Tin/Lead	1-794662-8	1-794666-8
18	Y	N	30 Gold	1-794663-8	1-794667-8
18	N	N	Tin/Lead	1-794664-8	1-794668-8
18	N	N	30 Gold	1-794665-8	1-794669-8
18	Y	Y	Tin/Lead	794310-1	794454-1
18	Y	Y	30 Gold	794310-2	794454-2
18	N	Y	Tin/Lead	794357-1	794491-1
18	N	Y	30 Gold	794357-2	794491-2

For complete product information, order Catalog 1307012

Vertical Header Assemblies

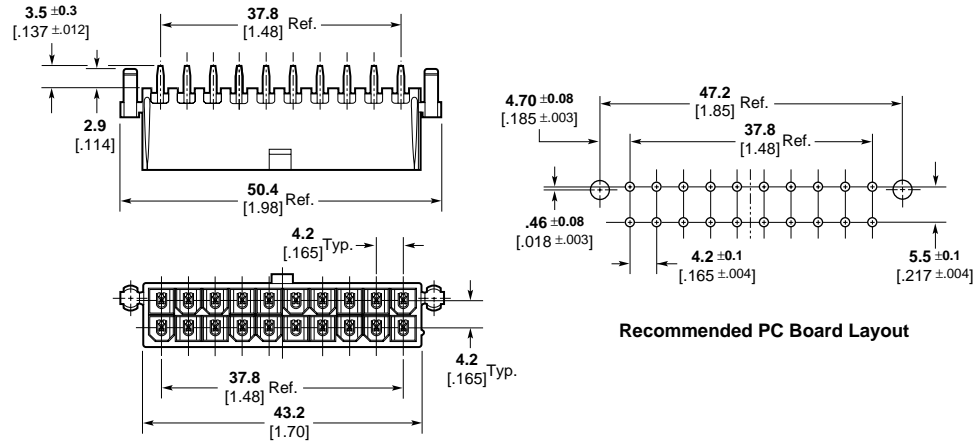
20 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing— Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts— 0.25 thick copper alloy

Technical Documents : page 9086



Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
20	Y	N	Tin/Lead	2-794662-0	2-794666-0
20	Y	N	30 Gold	2-794663-0	2-794667-0
20	N	N	Tin/Lead	2-794664-0	2-794668-0
20	N	N	30 Gold	2-794665-0	2-794669-0
20	Y	Y	Tin/Lead	794311-1	794455-1
20	Y	Y	30 Gold	794311-2	794455-2
20	N	Y	Tin/Lead	794358-1	794492-1
20	N	Y	30 Gold	794358-2	794492-2

High Temperature Headers — IR Reflow compatible. Black color.

Number of Circuits	Flammability Rating	PCB Pegs	Drain Holes	Plating	Part Numbers
20	UL94V-0	N	N	Tin/Lead	794415-1
				30 Gold	794415-2

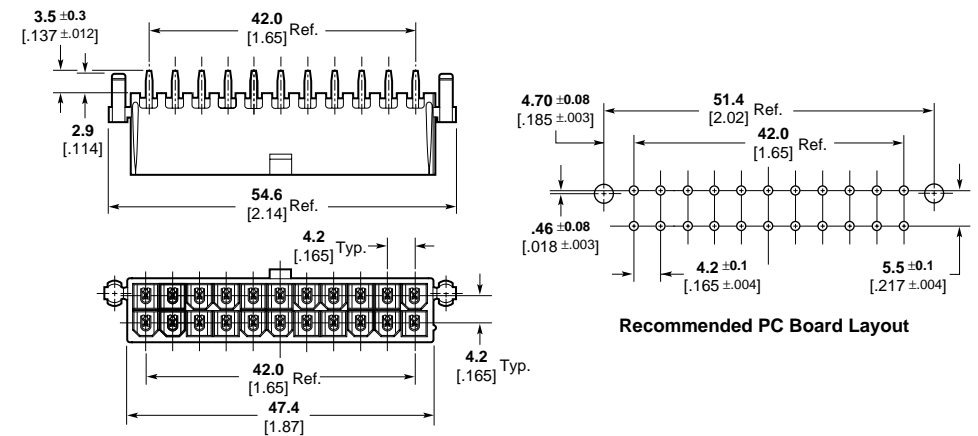
22 Position, with and without Pegs and with and without Drain Holes

Material and Finish:

Housing— Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts— 0.25 thick copper alloy

Technical Documents : page 9086



Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
22	Y	N	Tin/Lead	2-794662-2	2-794666-2
22	Y	N	30 Gold	2-794663-2	2-794667-2
22	N	N	Tin/Lead	2-794664-2	2-794668-2
22	N	N	30 Gold	2-794665-2	2-794669-2
22	Y	Y	Tin/Lead	794312-1	794471-1
22	Y	Y	30 Gold	794312-2	794471-2
22	N	Y	Tin/Lead	794359-1	794493-1
22	N	Y	30 Gold	794359-2	794493-2

For complete product information, order Catalog 1307012

24 Position, with and without Pegs and with and without Drain Holes

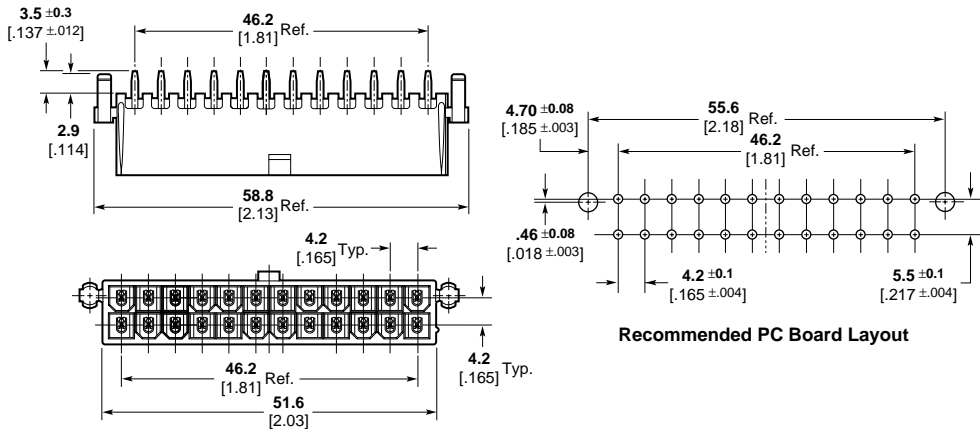
Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color

Contacts — 0.25 thick copper alloy

Technical Documents : page 9086

Vertical Header Assemblies



Number of Circuits	PCB Pegs	Drain Holes	Plating	Part Numbers	
				UL94V-2	UL94V-0
24	Y	N	Tin/Lead	2-794662-4	2-794666-4
24	Y	N	30 Gold	2-794663-4	2-794667-4
24	N	N	Tin/Lead	2-794664-4	2-794668-4
24	N	N	30 Gold	2-794665-4	2-794669-4
24	Y	Y	Tin/Lead	794313-1	794472-1
24	Y	Y	30 Gold	794313-2	794472-2
24	N	Y	Tin/Lead	794360-1	794494-1
24	N	Y	30 Gold	794360-2	794494-2

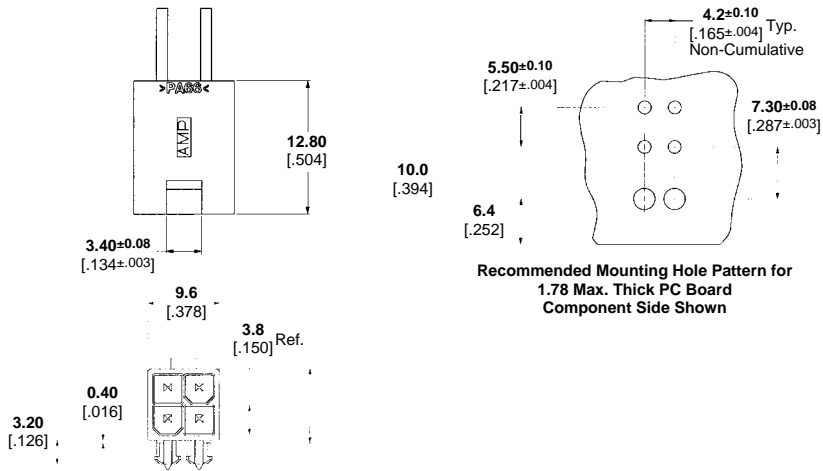
Right-Angle Headers

Right-Angle Headers with Pegs

Material and Finish:

Housing — Nylon
UL94V-2, Natural color
UL94V-0, White color
Mates with Receptacle Housings on page 9087.

Technical Documents : page 9086



Number of Circuits	Plating	Part Numbers	
		UL94V-2	UL94V-0
4	Tin/Lead	794508-1	794527-1
6	Tin/Lead	794448-1	794528-1
8	Tin/Lead	794509-1	794529-1
10	Tin/Lead	794510-1	794530-1
12	Tin/Lead	794511-1	794531-1
14	Tin/Lead	794512-1	794532-1
16	Tin/Lead	794513-1	794533-1
18	Tin/Lead	794514-1	794588-1
20	Tin/Lead	794449-1	794534-1
22	Tin/Lead	794515-1	794589-1
24	Tin/Lead	794516-1	794590-1

For complete product information, order Catalog 1307012

Introduction

As the world's leading manufacturer of electrical/electronic connecting devices, Tyco Electronics produces a wide assortment of connector contacts. Included in this catalog is an array of the most popular pin and socket type contacts for signal and power, for coaxial cable, and posted versions for backpanel wiring applications. Also included is information on available application tooling to meet your production requirement.

How to choose the correct connector/contact combination.

Choosing the appropriate connector/contact combination is essential to the proper function of any Tyco Electronics connector. A customer must first evaluate each individual application with regards to wire size(s), number of circuits, available space, and fastening method. The customer must then consider the following factors to make the appropriate selection of connector/contact/ hardware:

- a. Connector Type. This decision is based on the selected contact types, coupling method, circuit density requirements and, if posted connectors are desired, in-plant production capabilities of wiring connectors using hand tools or semiautomatic tooling.
- b. Contact Type. This decision is based on wire size(s) and the reliability and cost requirements of an application, as well as the customer's in-plant production capabilities.
- c. Hardware Selection. This decision is based on the connector type, and the application requirements for fastening, protection, shielding, guiding, strain relief and keying.

■ Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request.



For complete product information, order Catalog 65910

Current Carrying Capabilities

Current Carrying Capabilities

The total current capacity of each contact in a given connector is dependent upon the heat rise resulting from the combination of electrical loads of the contacts in the connector arrangement and the maximum ambient temperature in which the connector will be operating. Caution must be taken to ensure that this combination of conditions does not cause the internal temperature of the connector to exceed the maximum operating temperature of the housing material. Several variables which must be considered when determining this maximum current capability for your application are:

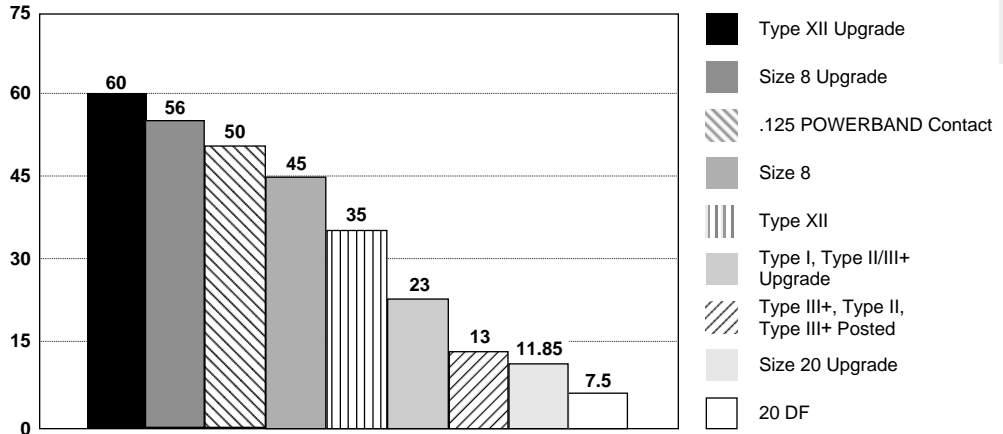
- **Wire Size**—Larger wire will carry more current since it has less internal resistance to current flow and generates less heat. The wire also conducts heat away from the connector.
- **Connector Size**—In general, with more circuits in a connector, less current per contact can be carried.
- **Current Load Distribution**—Spreading those lines with greater current loads throughout the connector, particularly around the outer perimeter, will enhance heat dissipation.
- **Ambient Temperature**—With higher ambient temperatures, less current can be carried.

**Current Rating Verification
Can a contact rated at 10 amperes carry 10 amperes?**

Maybe yes, but probably not. The reason lies in the test conditions used to rate the contact. If these conditions do not adequately reflect the application conditions, the actual allowable current levels may be lower than specified levels. For example, many manufacturers, including Tyco Electronics, test a single contact in air. This gives an accurate measure of the basic current-carrying capacity of the contact. Use the contact alone in air and it can certainly carry 10 amperes. Use it in a multi-position connector surrounded by other current-carrying contacts or in high ambient temperatures, and the contact should carry less current.

Similarly, as the contact ages and stress relaxation, environmental cycling, and other degradation factors take their toll, the contact's current-carrying capacity decreases. A prudent design must set current levels for such end-of-design-life (EODL) conditions.

CONTACT CURRENT GUIDE Maximum Current (Amperes)



Practical current-carrying capacity is not an absolute, but an application-dependent condition.

New Method Simplifies Ratings

To help the designer set the appropriate current level, Tyco Electronics has developed a method of specifying current-carrying capacity. This method takes into account the various application factors that influence current rating.

The method can be summarized as follows:

- The contact is aged to EODL conditions by durability cycling, thermal cycling, and environmental exposure.
- The contact's resistance stability is verified.
- The current necessary to produce the specified temperature rise is measured. This T-rise is usually 30°C.
- A rating factor is determined to allow derating of multiple contacts in the same housing and for different conductor sizes.

Temperature

One other factor influencing current levels is the maximum operating temperature, for example, 105°C. If the application has a high ambient temperature (over 75°C) the contact's T-rise is limited by the maximum operating temperature. For example, an application temperature of 90°C limits the contact T-rise to 15°C. Since current produces heat (the I²R law), the current must be lowered to limit the T-rise.

A contact's T-rise depends not only on its I²R Joule heating, but also on its ability to dissipate the heat. Consider a contact in a multi-contact housing. Joule heating in multiple contacts will raise the local ambient temperature.

Since the contact will not be able to dissipate its own heat as well by convection, the maximum T-rise will be realized at a lower current level. Consequently, the allowable current level must be lower to maintain an acceptable T-rise.

For a given connector, the current level will be set by the loading density. A connector containing 50% current-carrying contacts will permit higher currents (per contact) than a connector will at 75% loading. The loading percentage assumes an even distribution of contacts within the housing. If all 10 contacts are grouped together in one section of a 20-position connector, the loading density may approach 100%.

The Importance of EODL

As stated, T-rise in a contact depends on both resistance and current. As it ages, a contact's resistance will increase. The contact designer will specify a maximum resistance for the contact, this level is the end-of-design-life resistance. Before the contact is tested for current, Tyco Electronics subjects it to a

sequence of tests that exercises the major failure mechanisms and thereby simulates EODL conditions. Conditioning includes mating cycling, industrial mixed-flowing gases, humidity and temperature cycling, and vibration to sequentially introduce wear, corrosion, stress relaxation, and mechanical disturbance.

Presentation

The presentation of current-carrying capacity in AMP product specifications includes two parts:

- First, a base curve showing current levels versus T-rise for a single circuit and the largest wire size. This represents the maximum current capacity of the contact. The curve is usually flat up to 75°C ambient and then drops off. Up to 75°C, the 30°C T-rise limits the amount of current, and above 75°C the current must be reduced to keep the combination of ambient temperature and T-rise from exceeding the maximum operating temperature of 105°C.

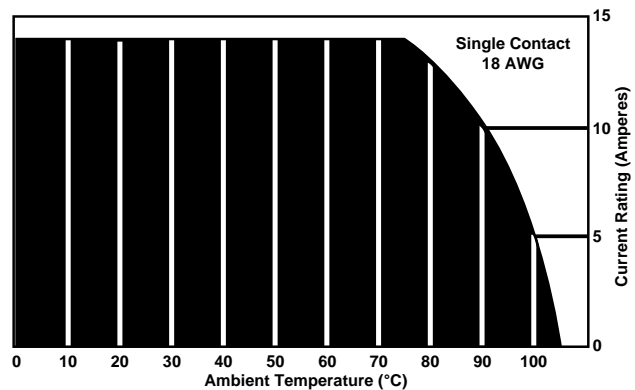


Figure 1
Graph shows the relationship between base current, ambient temperature, and contact T-rise.

For complete product information, order Catalog 65910

Current Carrying Capabilities

- Next are rating factors, a table of multipliers to account for connector loading and for smaller wire sizes. The designer first determines the base current for the ambient conditions of the application; then multiplies this base current by the rating factors to find the current level for the application's loading factor and wire size.

Practical Values

The current-rating method gives designers practical values applicable to their applications. While the specified current levels for a contact may be lower than for other testing methods, they are more realistic and simplify the system design process.

"Spec-manship" is replaced by a realistic assessment of the current-carrying capacity of a contact under varying conditions of temperature, connector loading, and wire size.

An Example:

To demonstrate the method of specifying current, consider the following application conditions; an ambient temperature of 65°C, a 50% loading of contacts in the housing, and 20 AWG [0.6mm²] wire.

- From Figure 1, the base current rating is 14 ampere with 18 AWG [0.8mm²] wire.
- Figure 2, the rating factor for 50% loading and 20 AWG [0.6mm²] wire is 0.68.
- The specific rating for this application is the product of the base rating and the rating factor:
 $14 \times 0.68 = 9.5$ ampere
- Each of the contacts can carry 9.5 ampere.
- However, if the ambient temperature is 80°C the allowable T-rise becomes 25°C. The base current must be lowered to 12.8 ampere so that the 105°C maximum operating temperature is not exceeded. The current rating then becomes:
 $12.8 \times 0.68 = 8.7$ ampere.

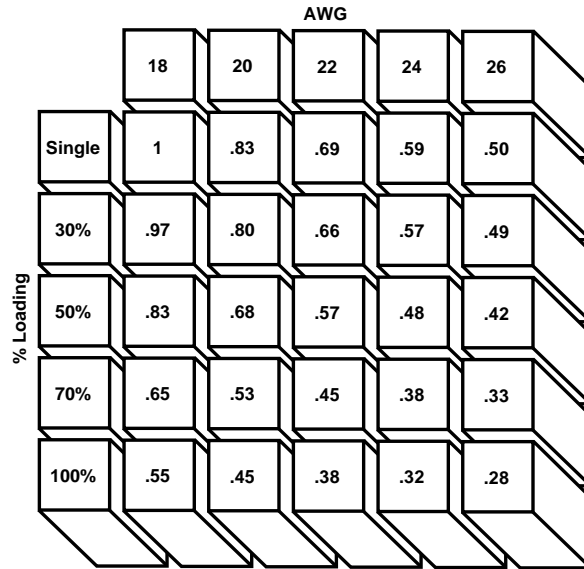


Figure 2

Rating factors allow the base current to be adjusted for various connector loading and wire sizes.

Connector/Contact Acceptability

As previously stated, choosing the correct connector/contact combination is fundamental to the successful function of all connectors. The Selection Chart shown below, is designed to simplify your choice of connectors and their acceptable contacts. Once you have selected the wire size, current-carrying capacity need, number of positions required, and the type of contacts needed in your choice of connector, refer to this matrix for a quick look at exactly what is acceptable in a given connector type.

Technical Documents

Technical Documents consist of *Product Specifications* and *Application Specifications*. *Product Specifications* define the performance characteristics of the product; i.e., Current Rating, Temperature Rating, etc. They are intended for the Design or Component Engineer. *Application Specifications* describe how the product is to be applied; i.e., Crimping, Assembling, etc. They are intended for Manufacturing and Operation/ Set Up Personnel. Where Application Specifications are not available, an Instruction Sheet is provided. Additional Instruction Sheets on the product may be available.

Technical Document Selection Chart

Contact Type	Product Specifications	Application Specifications	Instruction Sheet
20DF	108-40005	114-10000 114-40030	—
Type I	108-10108	114-10037	—
Type II	108-10039	114-10026	—
Type III+	108-10042	114-10004	—
Type XII	108-10037	114-10005	—
M Series Posted	108-10042	—	408-09155
.125 POWERBAND	—	114-10043	—
Size 8	108-01317	114-10014	—
Size 8 Upgrade	108-1449	—	—
Mini Coax	108-12021	—	408-1770
Sub-Mini Coax	108-12008 108-12011	—	408-2024-3

Contact Selection Chart

Connector Type	20 DF & Size 20 Upgrade	Type I	Type II	Type III+ & Type II/III+ Upgrade	Posted Type III+	Type XII & Type XII Upgrade	.125 POWERBAND	Size 8 & Size 8 Upgrade	Mini-Coax	Sub-Mini Coax
Metrimate			✓	✓	✓					
Metrimate Drawer			✓	✓	✓			✓		
Metrimate Drawer (.125 POWERBAND)							✓			
CPC Series 1			✓	✓	✓					✓
CPC Series 2	✓									
CPC Series 3						✓				
CPC Series 4			✓	✓		✓				✓
CPC Series 5							✓			
CPC Series 6			✓	✓			✓			
M Series			✓	✓	✓					✓
M Series Special		✓	✓	✓	✓	✓			✓	✓
"G" Series		✓	✓	✓		✓			✓	

For complete product information, order Catalog 65910

Signal Contacts

Type III+, Crimp, Snap-In, Size 16

Precision formed pin and socket contacts in Size 16. They are used in M Series, Special M Series, "G" Series, Metrimate, Metrimate Drawer, and CPC Series 1 and 4 connectors. Contacts feature a high normal force which provides a low resistance in significant applications such as dry circuit signal conditions. Mating entry is closed-ended to help prevent damage from stubbing due to misalignment. Stainless steel spring provides superior normal force and retention in the housing. Tyco Electronics proprietary gold plating process is designed so that specified plating thicknesses are controlled on the inside of the socket, which is the critical contact mating area. The contacts are formed from brass. Single contact rating is 13 amperes at 30°C Temperature Rise.

See page 9101 for product details.

Type III+, Solder Type, Size 16

As with the crimp snap-in Type III+, these precision formed solder-type contacts are also used in M Series, Special M Series, Metrimate, Metrimate Drawer, and CPC Series 1 and 4 connectors. Contacts feature a high normal force which provides a low resistance in significant applications, such as dry circuit conditions. A preformed wire barrel accepts both stranded and solid wire, while the preformed insulation barrel provides strain relief for various wire insulation thicknesses. Mating entry is closed-ended to help prevent damage from stubbing due to misalignment. A stainless steel spring provides superior normal force and retention in the housing. Tyco Electronics proprietary gold plating process is designed so that specified plating thicknesses are controlled on the inside of the socket, which is the critical contact area. Single contact current rating is 13 amperes at 30°C Temperature Rise.

See page 9102 for product details.

Type III+, Solder Tab, Size 16

A companion contact style to the crimp snap-in and solder-type, the Type III+ Solder Tab is compatible with the same Tyco Electronics connector families, and features high normal forces to provide a low resistance in significant applications. A pre-crimped solder tab with slot accepts various sizes of solid and stranded wire. Mating entry is closed-ended to prevent stubbing due to misalignment. A stainless steel spring provides superior normal force and retention in the housing. Tyco Electronics proprietary gold plating process is designed so that specified plating thicknesses are controlled on the inside of the socket, which is the critical contact area. Single contact current rating is 13 amperes at 30°C Temperature Rise.

See page 9102 for product details.

For complete product information, order Catalog 65910

Signal Contacts

Type III+, Posted Version, Size 16

The last member of the Type III+ family of contacts, the posted version is compatible with M Series, Special M Series, Metrimate, Metrimate Drawer, and CPC Series 1 connectors. Precision formed, they are pre-crimped to various post configurations including those that accept TERMI-POINT Clip or wire-wrap type terminations. Contacts feature high normal force which provides a low resistance in significant applications. Mating entry is closed-ended to help prevent damage from stubbing due to misalignment. A stainless steel spring provides superior normal force and retention in the housing. Tyco Electronics proprietary gold plating process is designed so that specified plating thicknesses are controlled on the inside of the socket, which is the critical contact mating area. Contacts are formed from brass. Single contact current rating is 13 amperes at 30°C Temperature Rise.

See page 9104 for product details.

Type II, Crimp, Snap-In, Size 16

Precision screw-machined pin and socket contacts, they are used in M Series, Special M Series, "G" Series, Metrimate, Metrimate Drawer, and CPC Series 1 and 4 connectors. Contacts feature high normal force which provides a low resistance in significant applications such as dry circuit signal conditions. Mating entry is closed-ended to help prevent damage from stubbing due to misalignment. A stainless steel spring provides superior normal force and retention in the housing. The contact bodies are machined from solid brass. Single contact current rating is 13 amperes at 30°C Temperature Rise.

See page 9105 for product details.

Size 20 DF, Crimp, Snap-In

Precision formed lance-less pin and socket, crimp, snap-in contacts in Size 20. These contacts are used in CPC Series 2 and AMPLIMITE Subminiature D connectors (see catalog 82068 for AMPLIMITE connectors). Contacts feature a low mating force to facilitate high pin counts in the connector housings. Tulip entry design on socket and generous lead-in on pin prevents contact stubbing. Pin contacts are formed from brass, whereas socket contacts are formed from phosphor bronze providing excellent spring properties. Contacts are available with or without insulation support. Single contact current rating is 7.5 amperes at 30°C Temperature Rise.

See pages 9106 thru 9107 for product details.

Size 20 DF, Solder Cup, Snap-In

Precision formed lance-less pin and socket, solder contacts in Size 20. These contacts are used in CPC Series 2 and AMPLIMITE Subminiature D Connectors (see catalog 82068 for AMPLIMITE connectors). Contacts feature a low mating force to facilitate high pin counts in the connector housings. Tulip entry design on socket and generous lead-in on pin prevents contact stubbing. Pin contacts are formed from brass, whereas sockets are formed from phosphor bronze providing excellent spring properties. Contacts may be soldered to solid or stranded wire up to 18 AWG [0.8 mm²] maximum. Single contact current rating is 7.5 amperes at 30°C Temperature Rise.

See page 9107 for product details.

For complete product information,
order Catalog 65910

Power Contacts

Type I, Crimp, Snap-In, Size 12

Precision screw-machined pin and socket, Size 12 contacts, they are used in Special M Series and "G" Series connectors, and are inserted into the same cavities as Miniature Coaxial contacts. These contacts feature a high normal force which provides a low resistance in significant applications. Mating entry is closed-ended to help prevent damage from stubbing due to misalignment. Beryllium copper springs are used to provide contact normal force and are assisted by a stainless steel hood which provides anti-overstress assurance. Single contact current rating is 23 amperes at 30°C Temperature Rise.

See page 9108 for product details.

.125 POWERBAND, Crimp, Snap-In

Specifically designed for AMP CPC Connectors (Series 5 and 6) and Metrimate .125 POWERBAND Drawer Connectors, the new .125 POWERBAND contact offers the performance of a MIL-Spec screw machine contact with the economy of a stamped and formed, strip-feed contact. Contacts are formed from copper with beryllium copper springs. Single contact current rating is 50 amperes at 30°C Temperature Rise.

See page 9111 for product details.

Size 8, 4/8 Indent Crimp

Precision screw-machined pin and socket, Size 8 contacts, they are used in Metrimate Drawer Connectors, and other Tyco Electronics product lines, which require high current carrying capability in a small size. Pins are made from a solid high conductivity copper alloy, and the sockets are machined from solid beryllium copper, a material which exhibits excellent spring properties. Industry standard 4/8 indent crimp offers higher reliability and ease of termination. Single contact current rating is 45 amperes at 30°C Temperature Rise.

See page 9112 for product details.

Type XII, Crimp-Type

Precision formed male and female contacts used in CPC Series 3 and 4, Special M Series and "G" Series connectors, these contacts offer a low cost power option which provides additional applied cost savings when terminated with semiautomatic application equipment. The contact body is made from 100% copper, which provides for excellent conductivity. Spring characteristics are derived from a captive stainless steel spring which assists the dual cantilever spring members of the female contact. Single contact current rating is 35 amperes at 30°C Temperature Rise.

See page 9114 for product details.

High Current Upgrades

Precision screw-machined pin and socket contacts have increased current capability. All upgraded contacts use the high amperage Louvertac contact band. The design of this contact allows for increased current in the same form factor. For example, Type II/Type III+ upgraded contacts increase the current from 13 amperes free air to 23 amperes free air at 30°C Temperature Rise.

See pages 9109, 9110, 9113 and 9115 for further details.

For complete product information,
order Catalog 65910

Coaxial Contacts

Subminiature, Crimp, Snap-In, Size 16

Precision screw-machined pin and socket, Size 16 contacts, they are used in M Series, Special M Series, and CPC Series 1 and 4. They provide cost effective solutions in applications where mixtures of signal, power, and coaxial cable terminations are desired. The contact outer shell is made from brass, while the center pin conductor is beryllium copper, and the socket is brass. Both the pin and socket center conductor are gold plated for maximum corrosion resistance and minimum contact resistance. The retention spring is stainless steel, while the ferrule is tin-lead plated copper. Contact design offers application of coaxial cable, shielded conductors, and twisted pair wire with a voltage rating of up to 200 VRMS, and a current rating of 1.0 ampere at 30°C Temperature Rise.

See pages 9116 and 9117 for product details.

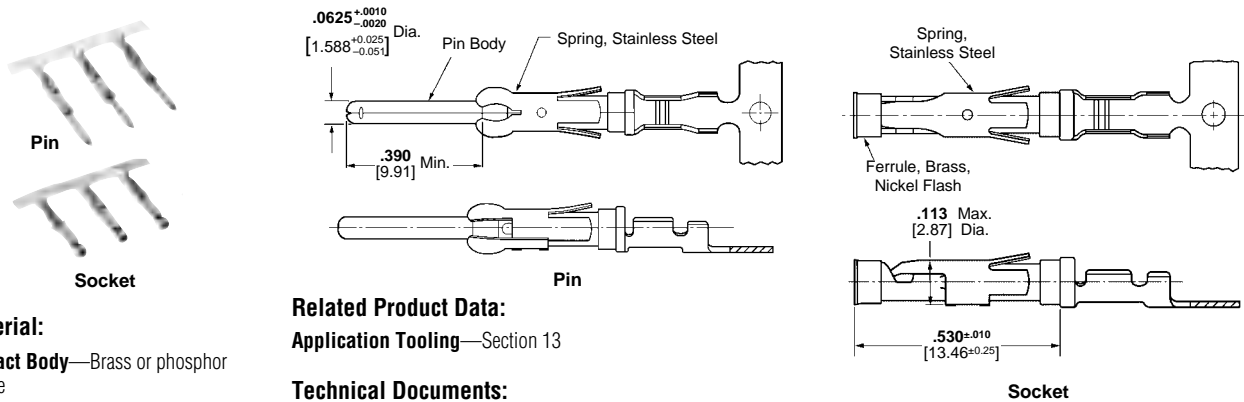
Miniature, Crimp, Snap-In, Size 12

Precision screw-machined, Size 12 pin and socket contacts, they are used in Special M Series and "G" Series connectors. They provide cost effective solutions in applications where a mixture of signal, power, and coaxial cable terminations is desirable. Contact body and center wire conductor are made from brass, and are gold plated for maximum corrosion resistance and minimum contact resistance. The retention spring is beryllium copper, and the ferrule is tin-lead plated copper. Contact design offers application of coaxial cable, shielded conductors, and twisted pair wire with a voltage rating of up to 325 VRMS, and a current rating of 7.5 amperes at 30°C Temperature Rise.

See pages 9117 and 9118 for product details.

For complete product information, order Catalog 65910

Type III+, Crimp, Snap-In



Material:

Contact Body—Brass or phosphor bronze

Retention Spring—Stainless steel

Finish:

See chart.

Related Product Data:

Application Tooling—Section 13

Technical Documents:

Product Specification

108-10042

Application Specification

114-10004

Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)‡

AWG	Wire Size Range mm ²	Ins. Dia. Range	Contact Finish	Strip Form Contact No.		Loose Piece Contact No.		Tooling Part Numbers		
				Pin	Socket	Pin	Socket	Loose Piece Hand Tool	Strip Form Applicators	
30-28	0.05-0.09	.015-.030 0.38-0.76	Gold/Nickel ²	788085-3	788088-2	—	—	90716-1	567867-1*** or 567947-1*** or 680602-□***	
			Sel. Gold/Nickel ³	788085-1	788088-1	788085-4	788088-3			
			Bright Tin-Lead	66425-6	66424-6	—	—			
30-26	0.05-0.15	.040-.060 ¹ 1.02-1.52	Gold/Nickel ²	66425-7	66424-7	66429-3	66428-3	90066-7 ⁶	466598-□***	
			Sel. Gold/Nickel ³	66425-8	66424-8	66429-4	66428-4			
			Bright Tin-Lead	66393-7	66394-7	—	—			
26-24	0.12-0.2	.035-.055 ¹ 0.89-1.40	Gold/Nickel ²	66393-8	66394-8	66406-4	66405-4	90225-2 ⁶	466585-3***	
			Sel. Gold/Nickel ³	66393-8	66394-8	66406-4	66405-4			
			Bright Tin-Lead	66106-6	66108-6	66107-2	66109-2			
24-20	0.2-0.6	.080-.100 ¹ 2.03-2.54	Gold/Nickel ²	66106-7	66108-7	66107-3	66109-3	90066-7 ⁶ or 58495-1*	466321-□*** or 466908-2***	
			Sel. Gold/Nickel ³	66106-8	66108-8	66107-4	66109-4			
			Bright Tin-Lead	66102-7	66104-7	66103-2	66105-2			
18-16	0.8-1.4	.080-.100 ¹ 2.03-2.54	Gold/Nickel ²	66102-8	66104-8	66103-3	66105-3	90066-7 ⁶ or 58495-1*	466323-□*** or 466907-2***	
			Sel. Gold/Nickel ³	66102-9	66104-9	66103-4	66105-4			
			Bright Tin-Lead	2-66102-2	2-66104-3	1-66103-2	1-66105-3			
18-14	0.8-2.0	.080-.100 ¹ 2.03-2.54	Gold/Nickel ²	66564-6	66563-6	66566-2	66565-2	90331-1 ⁶	466383-4*** or 466979-1*** or 567363-□***	
			Sel. Gold/Nickel ³	66564-8	66563-8	66566-4	66565-4			
			Bright Tin-Lead	66332-5	66331-5	66400-1	66399-1			
18-14	0.8-2.0	.110-.150 ⁵ 2.79-3.81	Gold/Nickel ²	66332-7	66331-7	66400-3	66399-3	90067-5 ⁶ or 90225-2 ⁶	466324-□*** or 466942-1***	
			Sel. Gold/Nickel ³	66332-8	66331-8	66400-4	66399-4			
			Bright Tin-Lead	66098-2 ⁵	66100-7	66099-2	66101-2			
18-14	0.8-2.0	.080-.100 ¹ 2.03-2.54	Gold/Nickel ²	66098-7	66100-8	66099-3	66101-3	90067-4 ⁶ or 90067-5 ⁶ or 58495-1*	466325-□*** or 466906-1***	
			Sel. Gold/Nickel ³	66098-8	66100-9	66099-4	66101-4			
			Bright Tin-Lead	66359-6	66358-6	66361-2	66360-2			
18-14	0.8-2.0	.080-.100 ¹ 2.03-2.54	Gold/Nickel ²	1-66359-1	1-66358-2	66361-7	66360-7	90310-3 ⁶	466326-□*** or 466923-2***	
			Sel. Gold/Nickel ³	66359-9	66358-9	66361-3	66360-3			
			Bright Tin-Lead	1-66359-0	1-66358-0	66361-4	66360-4			
18-14	0.8-2.0	.110-.150 ⁵ 2.79-3.81	Gold/Nickel ²	1-66359-2	1-66358-3	66361-8	66360-8	90310-2 ⁶	466958-1*** or 567364-□***	
			Sel. Gold/Nickel ³	—	66358-1	—	66360-1			
			Bright Tin-Lead	66597-1	66598-1	66602-1	66601-1			
18-14	0.8-2.0	.110-.150 ⁵ 2.79-3.81	Gold/Nickel ²	66597-2	66598-2	66602-2	66601-2			
			Sel. Gold/Nickel ³	—	66598-2	66602-2	66601-2			

¹ Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
² .000015 [0.00038] gold in the mating area over .000050 [0.00127] min. nickel.
³ .000030 [0.00076] gold in the mating area, with gold flash on remainder, over .000050 [0.00127] min. nickel.
⁴ .000030 [0.00076] gold in the mating area, with gold gradient on remainder, over .000050 [0.00127] min. nickel.
⁵ Contacts can only be used in Metrimate, Series 1 (Arr. 23-24), Series 4 (Arr. 23-13M, 23-16M, 23-22M), and VDE connectors.

⁶ To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter Part Number 217201-1, Adapter Holder Part Number 356304-1 (with ratchet) or 189928-1 (without), and Power Unit Part Number 189721-1 (hand actuated) or 189722-1 (foot actuated).
[‡] Standard reeling of strip form contacts.
^{*} Commercial PRO-CRIMPER II hand tool for field repair only. **Note:** Die Set can be adapted for use with the 626 Pneumatic Tool System.

[‡] Single contact, free-air test current is not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information on page 9095.
Insertion Tool Part Number 91002-1 (for insulation diameters .070 [1.78] or less), **Number** 200893-2 (for insulation diameters .090 [2.29] max.).
Extraction Tool Part Number 305183. (Instruction Sheet 408-1216)
***Call the Technical Support Center at 1-800-522-6752 for Automatic Machine Applicator Part Numbers.

For complete product information, order Catalog 65910

Type III+, Solder Versions

Material:

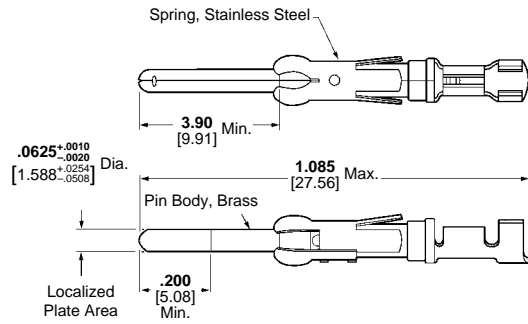
Contact Body and Tab—Brass

Retention Spring—Stainless steel

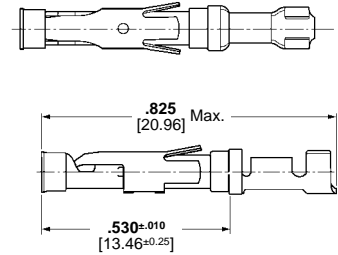
Finish:

See chart

Solder-Type
(with Preformed Wire
Barrel/Insulation Support)



Pin



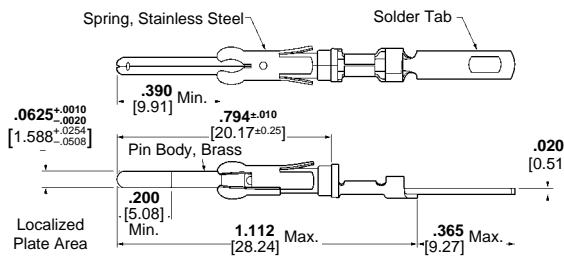
Socket



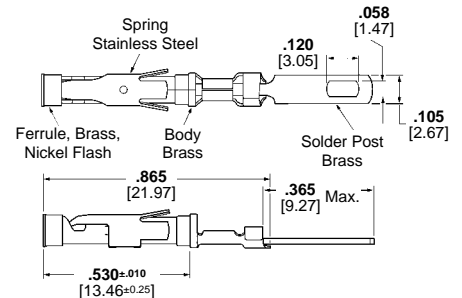
Pin



Socket



Pin



Socket



Pin



Socket

Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)‡

Wire Size Range		Contact Finish	Loose Piece Contact Part Numbers	
AWG	[mm ²]		Pin	Socket
26-20	0.12-0.6	Gold/Nickel ¹	66182-1	66183-1
18-16	0.8-1.4	Gold/Nickel ¹	66180-1	66181-1
Solder Tab		Duplex ²	202236-1	202237-1
		Bright Tin-Lead ³	202236-2	202237-2

¹ .000030 [0.00076] gold in mating area over .000050 [0.00127] nickel.

² Duplex plated .000030 [0.00076] gold in mating area over .000050 [0.00127] nickel on contact body; bright tin-lead on solder tab.

³ Bright tin-lead on entire contact.

Note: These contacts can be used in Multimatch contact cavities of all connector housings.

‡Single contact, free-air test current is not to be construed as contact rating current. Use only for testing.

Refer to contact current carrying capability information on page 9095.

Extraction Tool **Part Number** 305183 (Instruction Sheet 408-1216)

For complete product information, order Catalog 65910

Type III+, Crimp, Snap-In Grounding Pins (make first - break last)

Material and Finish:

Contact Body—Copper alloy, plated tin or gold

Spring—Stainless steel

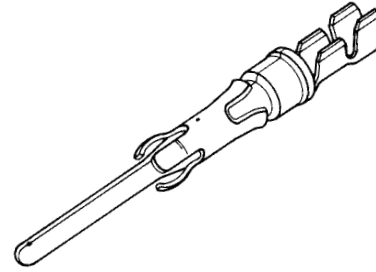
Contact Size—16

Pin Diameter—.062 [1.57]

Related Product Data:

Application Tooling—Section 13

Technical Documents: page 9096



Contact Size 16—Pin Diameter .062 [1.57]

Wire Size Range		Ins. Dia. Range ¹	Contact Finish	Grounding Pin Part Numbers		Strip Form Applicator Part No.	Loose Piece Hand Tool Part No.
[mm ²]	AWG			Strip Form	Loose Piece		
0.12-0.2	26-24	.035-.055 0.89-1.4	Tin-Lead	164159-3	164162-1	—	90066-7 ⁵ or 58495-1*
			Sel. Gold/Nickel ⁴	164159-4	164162-2		
0.2-0.6	24-20	.045-.070 1.14-1.78	Bright Tin-Lead	164160-3	164163-1	466323-□*** or 466907-2***	90066-7 ⁵ or 90067-4 ⁵ or 58495-1*
			Sel. Gold/Nickel ⁴	164160-4	164163-2		
0.8-1.4	18-16	.078-.098 1.98-2.49	Tin-Lead	164161-3	164164-1	466741-□*** or 680114-3***	90067-5 ⁵ or 90067-4 ⁵ or 58495-1*
			Sel. Gold/Nickel ⁴	164161-4	164164-2		

¹ Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].

⁴ Gold flash over .000030 [0.00076] min. nickel on entire contact, with .000030 [0.00076] gold in contact area.

⁵ To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter **Part Number** 217201-1, Adapter Holder **Part Number** 356304-1 (with ratchet) or 189928-1 (without), and Power Unit **Part Number** 189721-1 (hand actuated) or 189722-1 (foot actuated).

*Commercial PRO-CRIMPER II hand tool for field repair only. **Note:** Die Set can be adapted for use with the 626 Pneumatic Tool System.

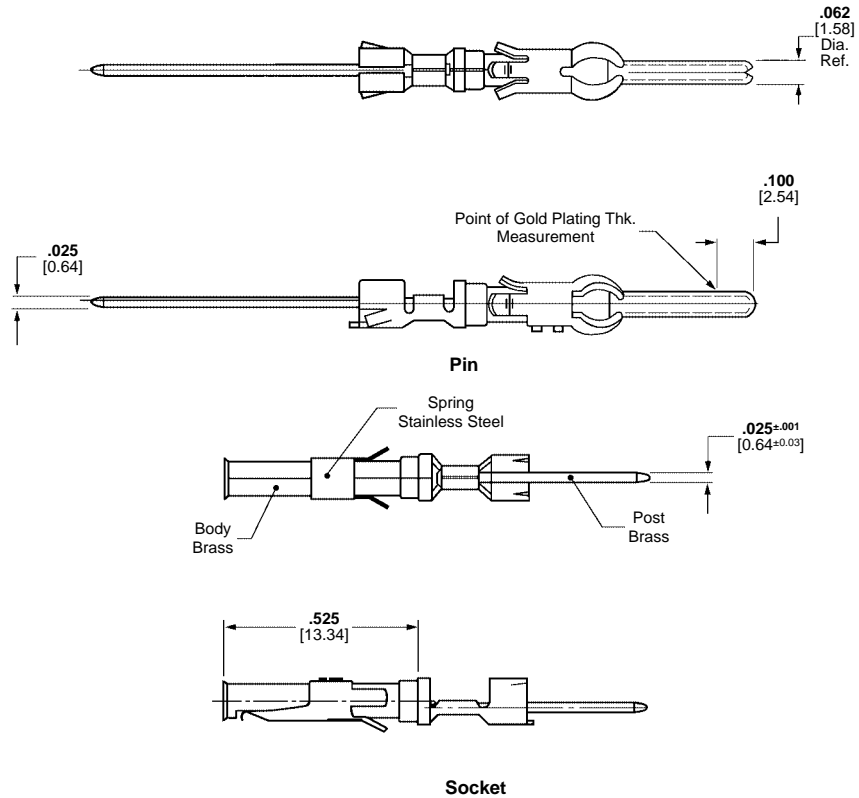
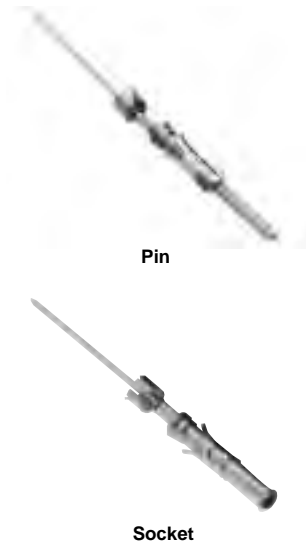
***Call the Technical Support Center at 1-800-522-6752 for Automatic Machine Applicator Part Numbers.

Extraction Tool Part Number 725840-1

For complete product information, order Catalog 65910

Type III+, Posted

(Replacement Contacts,
See Note Below)



Material:

Contact Body and Post—Brass

Retention Spring—Stainless steel

Finish:

See chart.

Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)‡

Termination Method	Post Configuration	Contact Finish	Loose Piece Contact Part Numbers					
			3 Termination High Post		2 Termination High Post		1 Termination High Post	
			Pin	Socket	Pin	Socket	Pin	Socket
Wrap-Type	.025 x .025 0.64 x 0.64	Sel. Gold/Nickel ¹	66460-9	66461-9	66460-8	66461-8	66460-7	66461-7
		Gold/Nickel ²	66460-6	66461-6	—	66461-5	66460-4	66461-4
	Bright Tin-Lead	66460-3	66461-3	66460-2	66461-2	66460-1	66461-1	
	.045 x .045 1.14 x 1.14	Sel. Gold/Nickel ¹	66471-9	66473-9	—	—	66471-7	66473-7
Bright Tin-Lead		66471-3	66473-3	—	—	66471-1	66473-1	
	.031 x .062 0.79 x 1.57	Sel. Gold/Nickel ¹	66470-9	—	—	—	66470-7	—
TERMI-POINT Clip	.031 x .062 0.79 x 1.57	Sel. Gold/Nickel ¹	66468-9	66459-9	—	—	—	—

¹ Gold flash over .000050 [0.00127] nickel on entire contact, with .000030 [0.00076] gold to a distance of .200 [5.08] from mating end. Gold thickness controlled on socket O.D.

² .000030 [0.00076] gold over .000050 [0.00127] nickel on contact body. Gold thickness controlled on socket O.D.

Posts plated tin-lead over copper.

Extraction Tool **Part Number** 305183 (Instruction Sheet 408-1216)

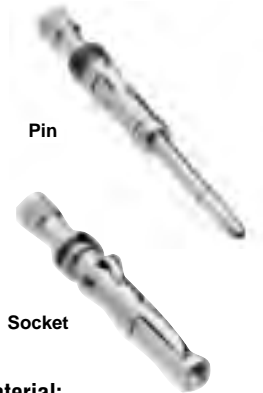
Insertion Tool **Part Number** 200893-2

Note: These contacts are used as replacement contacts for all posted connectors.

‡Single contact, free-air test current is not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information on page 9095.

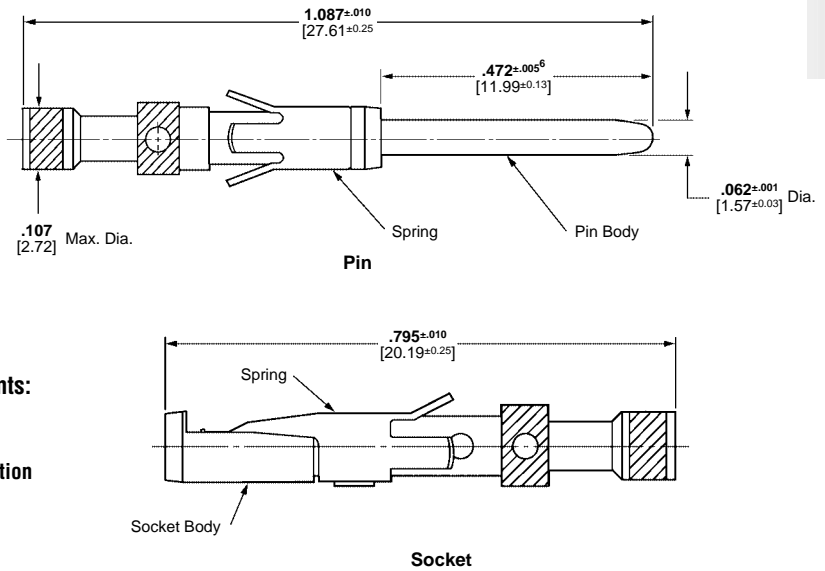
For complete product information, order Catalog 65910

Type II, Crimp, Snap-In



Pin

Socket



Material:

Contact Body — Brass
Retention Spring — Stainless steel

Finish:

Contact Body — .000030 [0.00076] gold over .000050 [0.00127] nickel. Gold thickness controlled on socket O.D.

Technical Documents:

Product Specification
 108-10039
Application Specification
 114-10026

Contact Size 16—Pin Diameter .062 [1.57] (Test Current, 13 Ampere)†

Wire Size Range AWG [mm ²]	Ins. Dia. Range ¹	Tape Mounted Contact Part Numbers ²		Loose Piece Contact Part Numbers		Contact Color Code	Tooling Part Numbers		
		Pin	Socket	Pin	Socket		Tape Mounted Dies for AMP-TAPETRONIC Machine 69875	Loose Piece Dies for Pneumatic Tool*	Hand Tool
28-24 0.08-0.20	.035-.055 0.89-1.40	201611-4	—	201611-1 ⁴	201613-1 ⁵	Red/Red	90249-2	90230-1	58305-1
		—	—	201334-1 ⁴	201332-1 ⁵	Red/Red			or 601967-1
24-20 0.2-0.6	.040-.062 1.02-1.57	201578-4	—	201578-1 ⁴	201580-1 ⁵	Yellow/Red	90249-2	90230-1	58305-1
		201330-6	201328-9	201330-1 ⁴	201328-1 ⁵	Yellow/Red			58541-1** or 601967-1
18 (Two) 0.9-0.9 (Two)	No. Ins. Support	—	—	202725-1 ⁴	202726-1 ⁴	Blue	—	90231-2	45098 or 601967-1
		—	—	202507-1 ⁴	202508-1 ⁵	—	—	—	90136-1 or 601967-1
18-16 0.8-1.4	.080-.105 2.03-2.67	200336-6	200333-8	200336-1 ⁴	200333-1 ⁴	Blue/Blue	90250-1	90231-2	45098 58541-1** or 601967-1
		—	—	204219-1 ^{5,6}	—	Blue/Blue	—		or 601967-1
14 2	No. Ins. Support	212618-2 ³	201568-3	201570-1 ⁴	201568-1 ⁵	Violet/Blue	90250-1	90231-2	45098 58541-1** or 601967-1
		—	—	212618-13,6,†	—	—	—		or 601967-1

¹ Overall insulation crimp diameter, including crimp barrel, must not exceed .125 [3.18].
² For AMP-TAPETRONIC Machine No. 69875, order contacts by Tape Mounted Contact No., plus packaging code "IM REEL" (5000 parts per reel).
³ Grounding pin is used to provide a make-first/break-last condition when mating and unmating connector halves.
⁴ Use turret TH502 (1-601967-6) with hand tool 601967-1.
⁵ Use turret TH501 (1-601967-5) with hand tool 601967-1.
⁶ Pin length is .630 \pm .005 [16.002 \pm .127] on these two pins.
 *Use hand actuated Power Unit **Part Number** 189721-2 or foot actuated Power Unit **Part Number** 189722-2. Both units require "C" Head Die Set Adapter **Part Number** 318161-1 and an Adapter Holder **Part Number** 356304-1 (with ratchet) or **Part Number** 189928-1 (without ratchet). Request Catalog 124208 for more information on the 626 Pneumatic Tool System.

**Commercial PRO-CRIMPER II Hand Tool for field repair use only.
 † Does not use Hand Tool **Part Number** 601967-1.

‡ Single contact, free-air test current is not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information on page 9095.

Insertion Tool **Part Number** 200893-2 (for insulation diameters .070 [1.78] or less).

Extraction Tool **Part Number** 305183 (Instruction Sheet 408-1216)

Metrimate Pin, Size 16 (with insulation support); Socket, Size 16 (with insulation support); Grounding Pin, Size 16 (without insulation support).

For complete product information, order Catalog 65910

Size 20 DF, Crimp, Snap-In

Contact Size—20

Pin Diameter—.040 [1.02]

***Test Current**—7.5 ampere

(Single contact, free-air test current; not to be construed as contact rating current. Use only for testing.)



Pin



Socket

Material:

Pin Body—Brass

Socket—Phosphor bronze

Contact Finish:

A—Select gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end

B—Duplex plated .000030 [0.00076] gold on mating end, tin-lead on termination end, with entire contact nickel underplated

C—Gold flash over nickel on entire contact

D—Duplex plated gold flash on mating end, tin-lead on termination end, with entire contact nickel underplated

***Note:** Total current capacity of each contact in any given connector is dependent on the heat rise resulting from the combination of electrical loads of all contacts in the connector arrangement and the maximum ambient temperature in which the connector will be operating. See page 9095.

Insertion/Extraction Tool

Part Number 91285-1

Instruction Sheet—408-9404

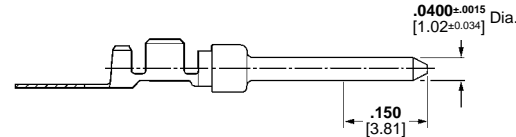
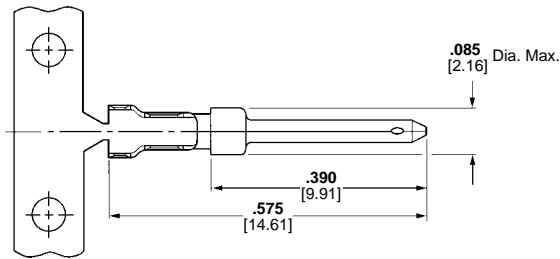
This tool includes interchangeable tips to Insert/Extract:

Size 22, 28-22 AWG [0.08-0.03mm²] Crimp Contacts

Size 20, 28-20 AWG [0.08-0.6mm²] Crimp and Solder Cup Contacts

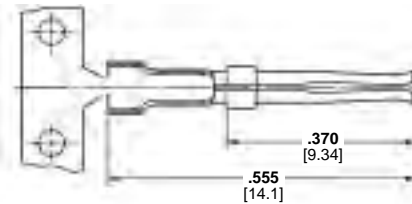
Size 20, Posted Contacts

With Insulation Support

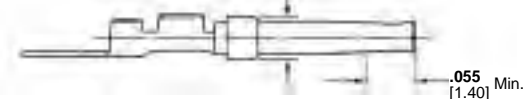


Localized Gold Plate Area

Pin



.085 [2.16] Dia. Max.



Localized Gold Plate Area

Socket

Wire Size Range	Ins. Dia. Max.	Contact Finish Code	Contact Part Numbers				Tooling		Color Code (Loose Piece)
			Pin		Socket		Strip Form Applicator ^{††}	Hand Tool	
			Strip Form	Loose Piece	Strip Form	Loose Piece			
28-24 AWG [0.08-0.2 mm ²]	.040 1.02	A	66507-3	66507-9	66505-3	66505-9	466423-□ ² or 466901-1 ² or 1016015-1 ²	90302-1 ¹	Blue Dot
		B	3-66507-0	5-66507-7	6-66505-0	6-66505-2			
		C	66507-4	1-66507-0	66505-4	1-66505-0			
		D	3-66507-1	5-66507-9	5-66505-7	5-66505-9			
26-22 AWG [0.12-0.4 mm ²]	.060 1.52	A	66682-2	66682-4	66683-2	66683-4	466758-2 ² or 466963-1 ² or 567804-1 ²	90374-1 ¹	Black Dot
		B	66682-9	1-66682-1	1-66683-0	—			
		D	66682-6	—	66683-7	—			
		A	745254-2	745254-6	745253-2	745253-6			
24-20 AWG [0.2-0.6 mm ²]	.050 1.27	B	1-745254-4	1-745254-6	1-745253-4	1-745253-6	466968-1 ² or 567036-□ ² or 567849-1 ²	90406-1 ¹	Yellow Dot
		C	745254-3	745254-7	745253-3	745253-7			
		D	1-745254-1	1-745254-3	1-745253-1	1-745253-3			
		A	66506-3	66506-9	66504-3	66504-9			
24-20 AWG [0.2-0.6 mm ²]	.050 1.27	B	2-66506-4	5-66506-7	5-66504-9	6-66504-0	466422-□ ² or 466900-1 ² or 567801-1 ² or 1016002-1 ²	90302-1 ¹	Red Dot
		C	66506-4	1-66506-0	66504-4	1-66504-0			
		D	2-66506-5	5-66506-9	5-66504-6	5-66504-7			

¹ To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter **Part Number** 217201-1, Adapter Holder **Part Number** 356304-1 (with ratchet) or 189928-1 (without), and Power Unit **Part Number** 189721-1 (hand actuated) or 189722-1 (foot actuated).

² For complete information on AMP Strip Form Applicators for fully automatic and semiautomatic machines, contact the Technical Support Center: 1-800-522-6752.

Note: Commercial PRO-CRIMPER II Maintenance and Repair Hand Tool for Wire Size 28-24 AWG [0.08-0.2mm²] (Ins. Dia. Max. .040 [1.02]), and Wire Size 24-20 AWG [0.2-0.6mm²] (Ins. Dia. Max. .060 [1.52])—

Part Number 58448-2.

Note: Die Set **Part Number** 58448-3 can be adapted for use with the 626 Pneumatic Tool System.

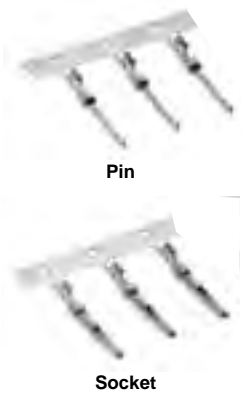
For complete product information, order Catalog 65910

Size 20 DF, Crimp, Snap-In

Contact Size—20

***Test Current**—7.5 ampere

(Single contact, free-air test current; not to be construed as contact rating current. Use only for testing.)



Pin

Socket

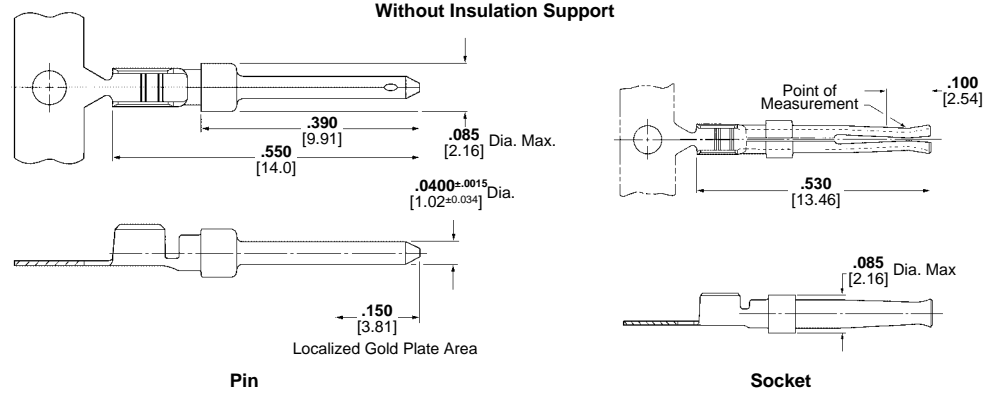
Material:

Pin—Brass

Socket—Phosphor bronze

Contact Finish:

Gold flash over nickel on entire contact, with additional .000030 [0.00076] gold on mating end



Pin

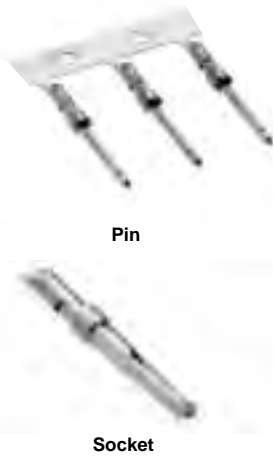
Socket

Wire Size Range	Ins. Dia. Max.	Contact Finish Code	Contact Part Numbers				Tooling		Color Code (Loose Form)
			Pin		Socket		Strip Form Applicator ¹	Hand Tool	
			Strip Form	Loose Piece	Strip Form	Loose Piece			
28-24 AWG [0.08-0.2 mm ²]	.068 1.73	A	205310-2	—	205311-3	—	90265-1	Blue Dot	
		B	—	—	2-205311-1	—			
		C	205310-4	—	205311-4	—			
		D	2-205310-2	—	1-205311-8	—			
24-20 AWG [0.2-0.6 mm ²]	.068 1.73	A	205202-2	205202-4	205201-3	205201-5	90265-1	Red Dot	
		B	2-205202-5	—	2-205201-5	—			
		C	205202-6	205202-7	205201-6	205201-7			
		D	2-205202-2	—	2-205201-2	—			
22-18 AWG [0.4-0.8 mm ²]	.068 1.73	A	745229-2	745229-4	745230-2	745230-4	90405-1	Green Dot	
		B	1-745229-1	—	1-745230-1	1-745230-3			
		C	745229-5	745229-7	745230-5	745230-7			
		D	—	—	745230-8	—			

¹ For complete information on AMP Strip Form Applicators for fully automatic and semiautomatic machines, contact the Technical Support Center: 1-800-522-6752.

Note: Wire insulation diameter is limited by the connector housing cavity and clearance for the insertion/extraction tool.

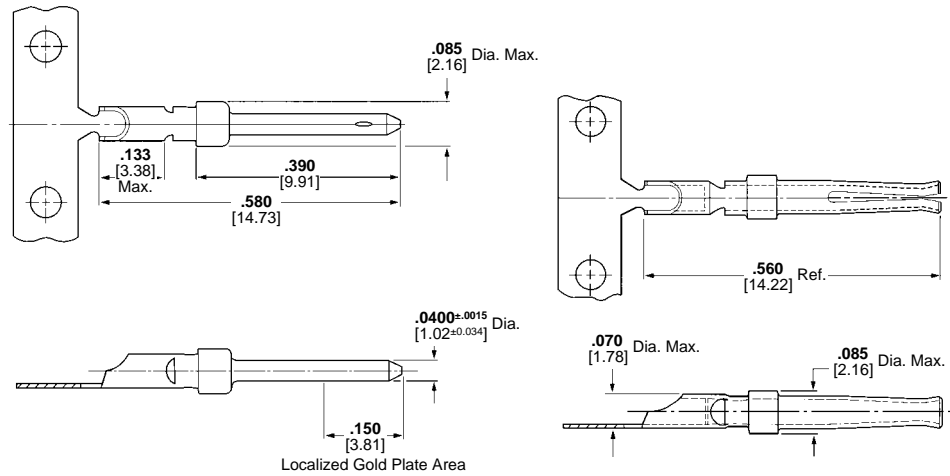
Size 20 DF, Solder, Snap-In



Pin

Socket

Contacts to be soldered to wire before being inserted into housing. 18 AWG [0.8-0.9mm²] Max. Wire



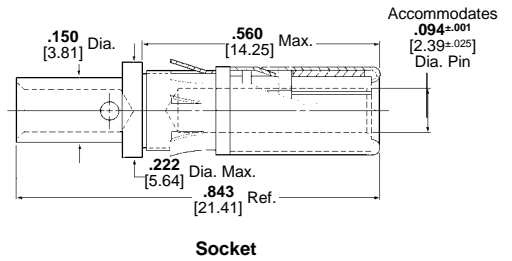
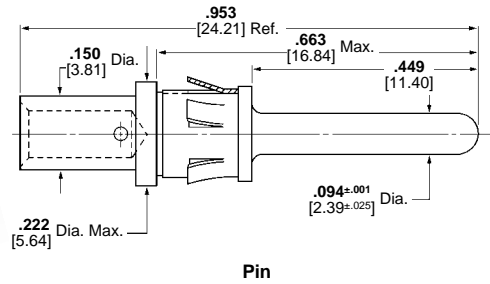
Pin

Socket

Strip Form Contact Part Number		Loose Piece Contact Part Number	
Pin	Socket	Pin	Socket
66570-2	66569-2	66570-3	66569-3

For complete product information, order Catalog 65910

Type I, Crimp, Snap-In



Material:

Contact Body—Bronze

Retention Spring—Beryllium copper

Finish:

Contact Body—.000030 [0.00076] gold over .000050 [0.00127] nickel. Gold thickness controlled on socket O.D.

Retention Spring—Nickel plated

Related Product Data:

Application Tooling—Section 13

Technical Documents:

Product Specification
108-10108

Application Specification
114-10037

Size 12—Pin Diameter .094 [2.39] (Test Current, 23 Ampere)‡

Wire Size Range		Loose Piece Contact Part Numbers		Tooling Part Numbers	
AWG	[mm ²]	Pin	Socket	Dies for Pneumatic Tool*	Hand Tool
18-16	0.8-1.4	202421-1	202418-1	90122	90121
14-12	2-3	202422-1	202417-1	90122	90121

* Use hand actuated Power Unit **Part Number** 189721-2 or foot actuated Power Unit **Part Number** 189722-2. Both units require "C" Head Die Set Adapter **Part Number** 318161-1 and an Adapter Holder **Part Number** 356304-1 (with ratchet) or **Part Number** 189928-1 (without ratchet). Request Catalog 124208 for more information on the 626 Pneumatic Tool System.

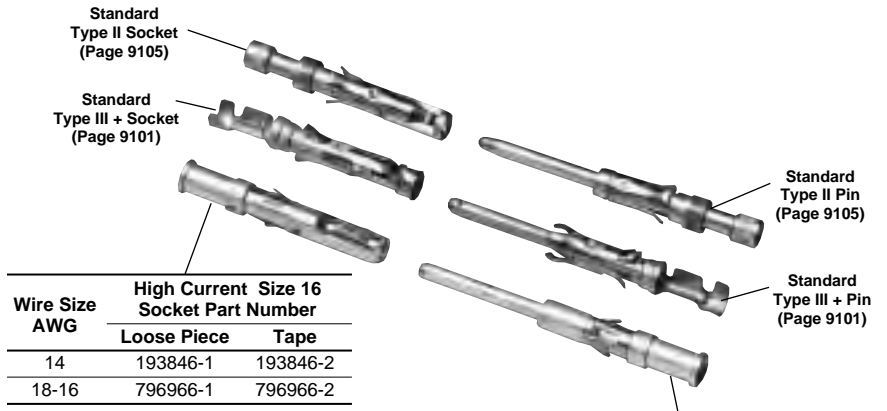
‡Single contact, free-air test current; not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information, page 9095.

Extraction Tool **Part Number** 305183-8 (Instruction Sheet 408-1216)

For complete product information, order Catalog 65910

Type II and Type III+, Size 16

The Multimate features of the High Current Size 16 contact have been designed to fit into the existing AMP Connectors such as CPC (Circular Plastic Connector), CMC (Circular Metal-Shell Connector), G Series, M Series, Econoseal Metrimate Square Grid and Drawer Connector housings. An initial T-Rise test in free air has shown a **23 amp** capability with a 30°C T-Rise. The contact may be crimped onto 14 AWG wire with an AMP hand tool **Part Number** 601967-1. Use turret TH502 (1-601967-6) for the pin and turret TH501 (1-601967-5) for the socket.



Material:

- Pin Body** — Leaded brass
- Socket Body** — Copper alloy
- Louvertac Band** — Beryllium copper
- Retention Spring** — Stainless steel

Finish :

- Body** — Silver
- Louvertac Band** — Gold

Current Rating for 30°C Temperature Rise 100% Energized

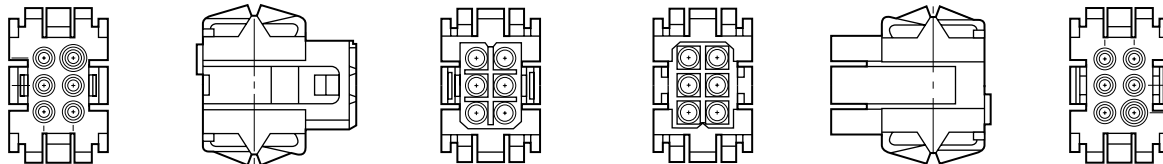
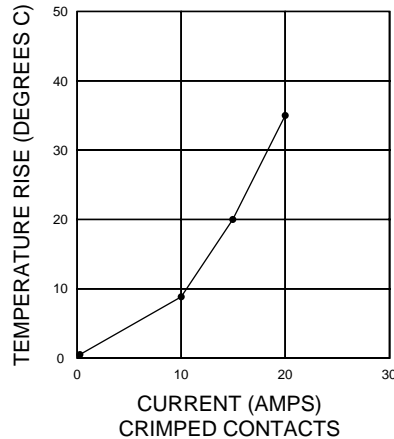
6 Circuit Metrimate Connector (Wire-to-Wire)

TEMPERATURE RISE VS. CURRENT



Extraction Tool
Part Number 305183
(Instruction Sheet 408-1216)

Current-Carrying Capacity. The graph shows current-carrying capacity versus temperature rise for a fully energized 6 position Metrimate Square Grid plug **Part Number** 207152-1 and receptacle **Part Number** 207153-1. These initial representative amperage ratings were conducted with 14 AWG wires that were 2 feet long.



Plug (for Sockets)

Receptacle (for Pins)

- Notes:**
1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
 2. Additional information on CPC and CMC connectors is available in Tyco Electronics Catalog No. 82021.
 3. Additional information on G Series connectors is available in Tyco Electronics Catalog No. 82046.
 4. Additional information on M Series connectors is available in Tyco Electronics Catalog No. 82003.
 5. Additional information on Metrimate connectors is available in Tyco Electronics Catalog No. 82045.
 6. Additional information on Econoseal connectors is available in Tyco Electronics Catalog No. 82057.
 7. Additional information on LGH connectors is available in Tyco Electronics Catalog No. 82024.

For complete product information, order Catalog 65910

Size 20, Posted

The High Current Size 20 contact has been designed to fit into the Series 109 AMPLIMITE Connectors per MIL-C-24308.

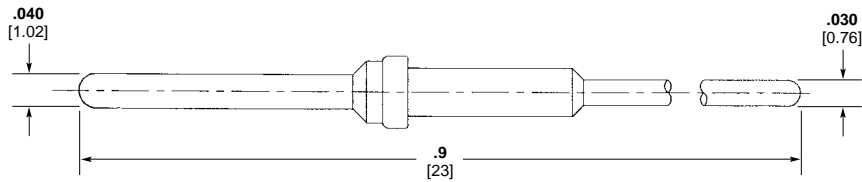
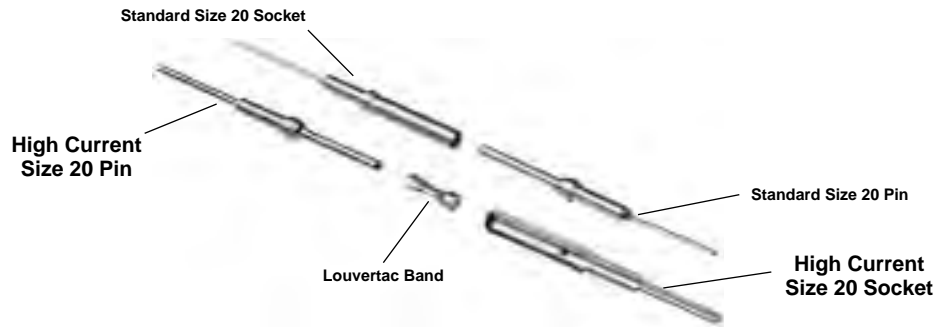
Material:

Body — Copper alloy
Louvertac Band — Beryllium copper

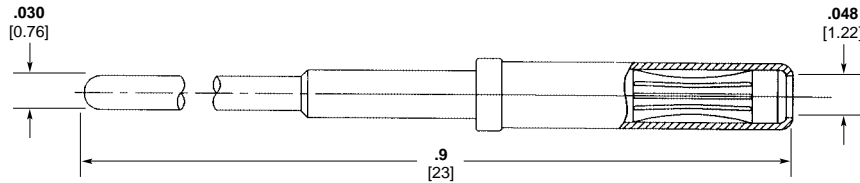
Finish:

Body — Gold
Louvertac Band — Gold

Current-Carrying Capacity. The High Current Size 20 contact with a 20 gage wire attached to the .030 diameter solder tail acquired an initial 30°C T-Rise of **11.85 amps** in free air.



Pin
Part Number 194081-1



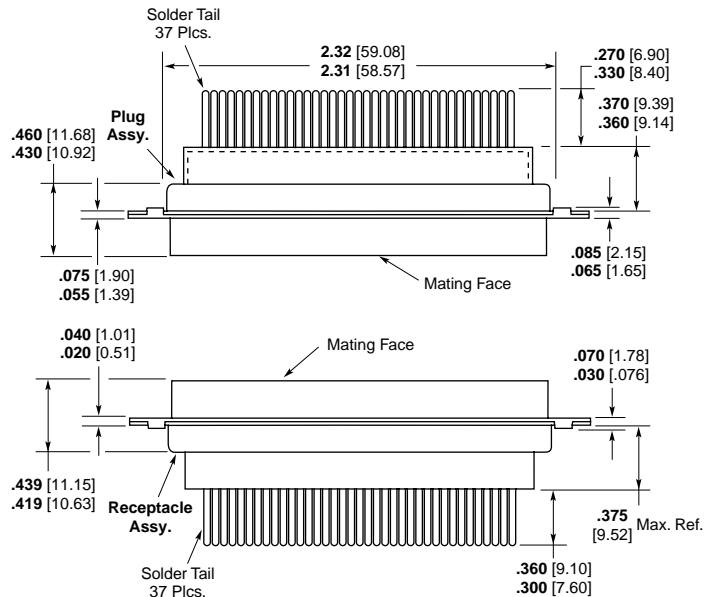
Socket
Part Number 194083-1

The contacts can be sold loose piece or installed into any of the MIL Standard connectors.



Pin and Socket Insertion/Extraction Tool

Part Number 91067-2 or
MIL number M81969/1-02



Typical Fully Loaded 37 Position Plug and Receptacle

- Notes:** 1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
 2. Additional information on connectors is available in Tyco Electronics Catalog No. 82069.

For complete product information, order Catalog 65910

Insertion tip, for replacement
Part Number 126195-3

Extraction tip, for replacement
Part Number 126195-4

.125 POWERBAND Contacts, Crimp, Snap-In

Material and Finish:

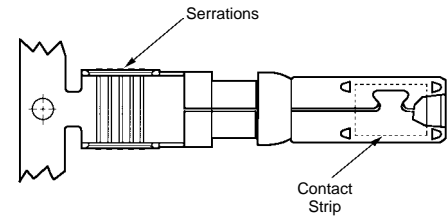
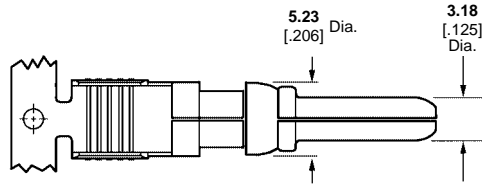
Contact — Copper

Spring — Beryllium copper

Plating Code

A. 0.00508 [.000200] min. silver on contact area, 0.00127 [.000050] min. on remainder, all over 0.00127 [.000050] min. nickel underplate

B. 0.00076 [.000030] min. gold on contact area, gold flash on remainder, all over 0.00127 [.000050] min. nickel underplate

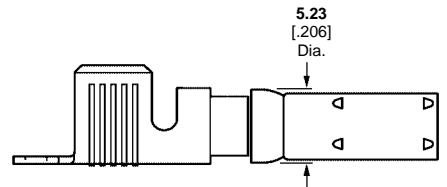
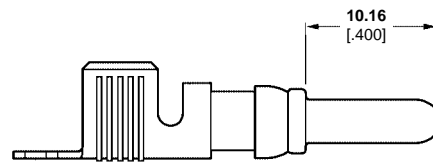


Related Product Data:

Application Tooling—Section 13

Technical Documents: page 9096

Instruction Sheet
408-4374



Extraction Tool Part Number 318813-1

.125 POWERBAND Pin Contact

.125 POWERBAND Socket Contact

Pin Diameter .125 [3.175] — (Test Current, 50 Amperes)[‡]

Wire Size AWG/mm ²	Contact Finish	Pin Length	Contact Part Numbers				Tooling Part Numbers	
			Strip		Loose Piece		Heavy Duty Miniature (HDM) Applicators (for AMP-O-LECTRIC Model G Machine, Base Part No. 354500)	Die Sets for Hand Tool 69710-1 or 626 Pneumatic Tool System*
			Pin	Socket	Pin	Socket		
14-12 2-3	A	Standard	213845-1	213847-1	213845-3	213847-3	680195-3	356612-1
	B	Standard	213845-2	213847-2	213845-4	213847-4		
	A	Extended [†]	213845-5	—	213845-7	—		
	B	Extended [†]	213845-6	—	213845-8	—		
10-8 5-8	A	Standard	213841-1	213843-1	213841-3	213843-3	680197-3	356611-1 (8 AWG)
	B	Standard	213841-2	213843-2	213841-4	213843-4		
	A	Extended [†]	213841-5	—	213841-7	—		356611-2 (10 AWG)
	B	Extended [†]	213841-6	—	213841-8	—		

[†] For use in Metrimate Drawer Connectors only.

[‡] Single contact, free-air test current; not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information, page 9095.

Note: Standard Size 8, High Current Size 8 upgrade, and .125 POWERBAND contacts are **not** interchangeable.

*A typical 626 Pneumatic Tool System requires: a power unit (**Part Number** 189721-2, hand actuated or 189722-2, foot actuated), an adapter holder (**Part Number** 356304-1, with ratchet), and "C" Head adapter **Part Number** 318161-1.

For complete product information, order Catalog 65910

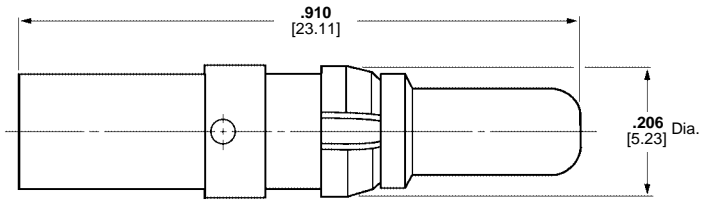
Standard, Size 8, 4/8 Indent Crimp



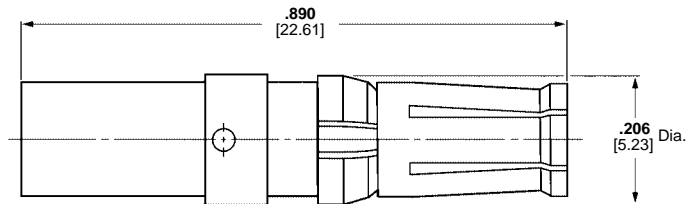
Pin



Socket



Pin



Socket

Note: Standard Size 8 is not intermateable with High Current Size 8.

Material:

Contact Body—Copper alloy
Retention Clip—Phosphor bronze

Finish:

Contact Body—.000050 [0.00127] gold over .000050 [0.00127] nickel
Retention Spring—Nickel plated

Technical Documents:

Product Specification
 108-10045
Application Specification
 114-10014

Power Contacts, Standard, Size 8 (Test Current, 45 Amperes)†

Wire Range		Part Numbers			
AWG	[mm ²]	Contacts		Crimping Tools	
		Pin	Socket	Tool No.	Positioner
18-16	0.8-1.4	213567-1*	212014-1*	608668-1	(P) SP867 (S) 608668-2
14-12	2-3	213662-1*	212008-1*	608651-1	(P) SP867 (S) 608651-2
10	5	213740-1	213737-1	608651-1	(P) 608651-3 (S) 608651-2
8	8	213552-2	213750-1	608651-1	(P) 608651-3 (S) 608651-2

* Mating pin and socket combinations shown are NOT for use in AMPLIMITE Subminiature D connectors.

† Single contact, free-air test current; not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information, page 9095.

For complete product information, order Catalog 65910

High Current, Size 8 for Metrimate Drawer Connectors

The Louvertac bands have the versatility of being designed into contact dimensions used in existing AMP connectors.

Metrimate High Current contacts have been designed to fit into the existing Drawer Connector housings. A fully energized 8 position connector with 8 gage wires can handle 30 amps per line with a 30°C T-rise on either the cable-to-cable or cable-to-board.

Material:

- Contact Body** — Copper alloys
- Louvertac Band** — Beryllium copper
- Retention Spring** — Stainless steel

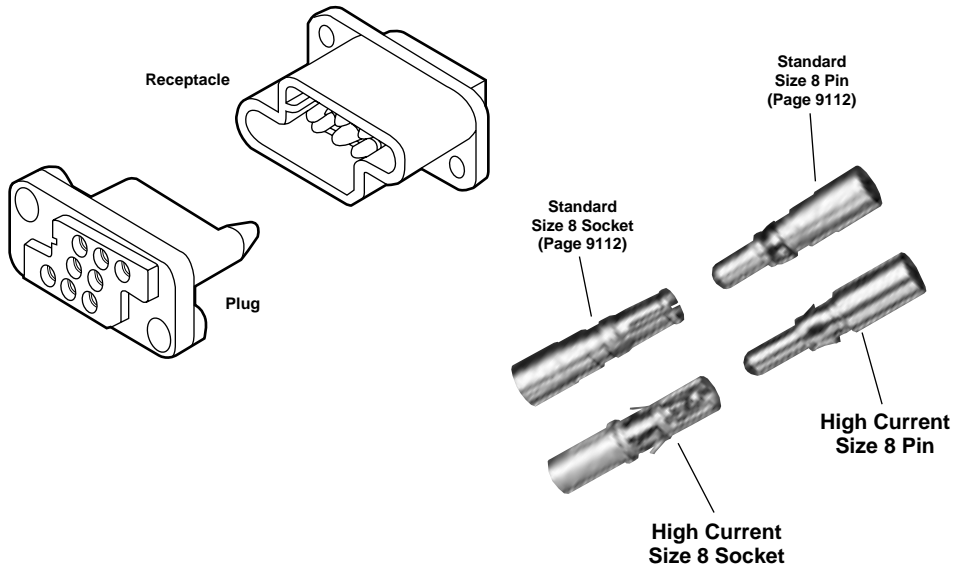
Finish:

Gold

Performance Characteristics:

Connector Voltage Rating — 600 VAC

Cable-to-Cable

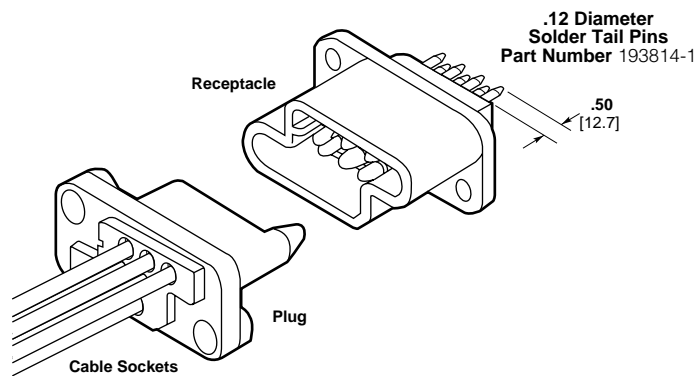


Power Contacts, High Current, Size 8 (Test Current, 56 Amperes)

Wire Size		Contact Part Numbers		Crimp Tools	
AWG	[mm ²]	Pin	Socket	Hand Tool	Positioner
8	8	193457-1	193458-1	Daniels ¹ #M310 or Tyco Electronics Part Number 356114-1	Daniels ¹ #TP944 or Tyco Electronics Part Number 356336-1
10	5	193642-1	193643-1		
12-14	2-3	193534-1	193535-1		

¹ Daniels Manufacturing Corp., Orlando, FL
Extraction Tool Part Number 318813-1

Cable-to-Board



A typical application would have solder tail pins mounted into the receptacle and crimp sockets mounted into the plug.

Technical Documents:

Product Specification
108-1449 Metrimate Pin and Socket with Louvertac High Current Contact

Drawer Connector Housings

Size Configuration	Housing Part Numbers	
	Plug	Receptacle
8 Positions (8 Size 8 Cavities)	213499-1	213500-1
15 Positions (3 Size 8 Cavities & 12 Size 16 Cavities)	213426-1	213427-1

Extraction Tool Part Number 318813-1

- Notes:** 1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
2. Additional information on connectors is available in AMP Metrimate Pin and Socket Connectors Catalog 82045.

For complete product information, order Catalog 65910

Type XII, Precision Formed, Crimp, Snap-In

Material:

Copper

Finish:

A—Tin-lead

B—.000030 [0.00076] selective gold over .000030 [0.00076] nickel

C—.000100 [0.00254] silver plated contacts with lubricant added

Test Current Rating:

Silver or Gold—35 amperes ‡

Tin Lead—15 amperes ‡

Related Product Data:

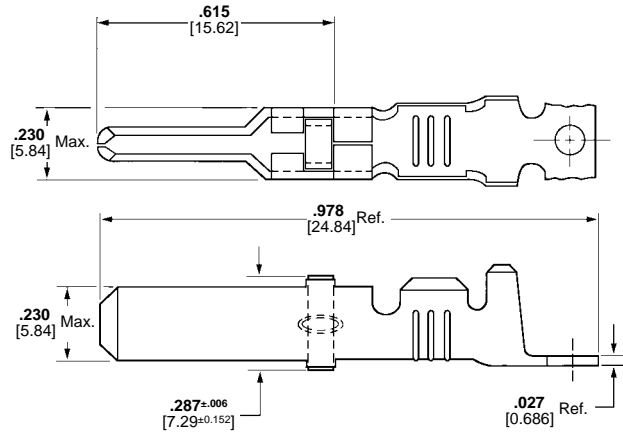
Application Tooling—Section 13

Technical Documents: page 9096

‡Single contact, free-air test current; not to be construed as contact rating current. Use only for testing. Refer to contact current carrying capability information, page 9095.



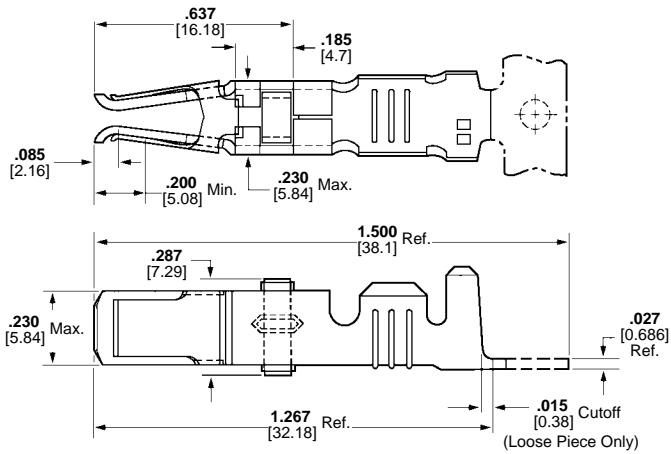
Male



Male



Female



Female



Extraction Tool
Part Number 91019-3

Wire Size Range ¹		Ins. Dia. Range	Contact Finish	Strip Form Contact Part Numbers				Loose Piece Contact Part Numbers		Tooling	
AWG	mm ²			Standard***		Heavy Duty Miniature***		Male	Female	Heavy Duty Miniature Applicator	Die Set for Hand Tool 69710-1 or 626 Pneumatic Tool System
16 and 14-12	1.25-1.4 and 2-3	.135-.160 3.43-4.06	A	66255-1	66740-7	66255-5	1-66740-2	66261-1	66740-8	567455-□***	90145-2 ^{3,7} and 90145-1 ^{4,7}
				66256-1 ²	—	66256-5 ²	—	66262-1 ²	—		
			B	66255-2	66740-5	66255-6	1-66740-1	66261-2	66740-6		
				66256-2 ²	—	66256-4 ²	—	66262-2 ²	—		
			C ⁵	66255-7	66740-1	66255-8	66740-9	66261-4	66740-2		
				66256-6 ²	—	66256-7 ²	—	66262-4 ²	—		
10	5-6	.190-.220 4.83-5.59	A	66253-1	66741-7	66253-5	1-66741-2	66259-1	66741-8	567021-□***	90140-17
				66254-1 ²	—	—	—	66260-1 ²	—		
			B	66253-2	66741-5	66253-6	1-66741-1	66259-2	66741-6		
				66254-2 ²	—	—	—	66260-2 ²	—		
			C ⁵	66253-4	66741-1	66253-8	66741-9	66259-4	66741-2		
				66254-4 ²	—	—	—	66260-4 ²	—		

¹ Wire strip length—.281 [7.14].

² Ground contact.

³ Die insert **Part Number** 90145-2 is for crimping 16 AWG [1.25-1.4 mm²] wire.

⁴ Die insert **Part Number** 90145-1 is for crimping 14-12 AWG [2-3 mm²] wire.

⁵ Recommended for high current/vibration applications where fretting corrosion is a problem.

⁷ Die Set requires "C" Head Adapter **Part Number** 318161-1; Adapter Holder **Part Number** 356304-1 (with ratchet) or 189928-1 (without); and Power Unit **Part Number** 189721-2 (hand actuated) or 189722-2 (foot actuated).

Extraction Tool **Part Number** 91019-3

***Call the Technical Support Center at 1-800-522-6752 for Automatic Machine Applicator Part Numbers.

For complete product information, order Catalog 65910

Type XII, Crimp, Snap-In

The Multimatte features of the High Current Type XII contact have been designed to fit into the existing AMP Connectors such as CPC (Circular Plastic Connector), CMC (Circular Metal-Shell Connector), G Series, and M Series housings. An initial T-Rise test in free air has shown a **60 amp** capability with a 30°C T-Rise with 8 gage wires. The contact may be crimped onto 8 AWG wire with a Daniels Hand Tool M310 or Tyco Electronics Part Number 356114-1 and Positioner TP1068S or Tyco Electronics Part Number 356119-1.

Material:

Body — Copper alloy
Louvertac Band — Beryllium copper
Retention Spring — Stainless steel

Finish:

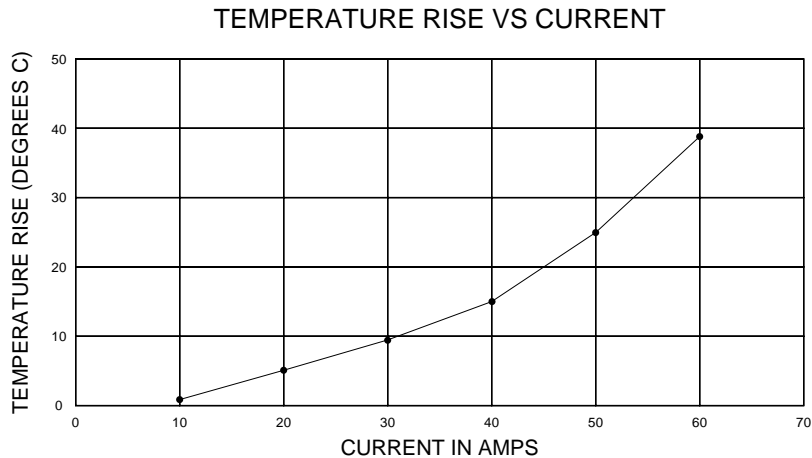
Body — Silver
Louvertac Band — Gold

Cable-to-Cable



Current-Carrying Capacity. The graph shows current-carrying capacity versus temperature rise for a fully energized 3 position CPC plug Tyco Electronics Part Number 206037-2 and receptacle Tyco Electronics Part Number 206036-2. These initial representative amperage ratings were conducted with 8 AWG wires that were 3 feet long.

**Current Rating for 30°C Temperature Rise 100% Energized
 3 Circuit Connector (Wire-to-Wire)**



Plug
 (For Sockets)



Square Flange Receptacle
 (For Pins)

- Notes:** 1. High Current contacts with Louvertac bands are **not** intermateable with any other contact.
 2. Additional information on GPC and CMC connectors is available in Tyco Electronics Catalog No. 82021.
 3. Additional information on G Series connectors is available in Tyco Electronics Catalog No. 82046.
 4. Additional information on M Series connectors is available in Tyco Electronics Catalog No. 82003.
 5. Additional information on LGH connectors is available in Tyco Electronics Catalog No. 82024.

For complete product information, order Catalog 65910

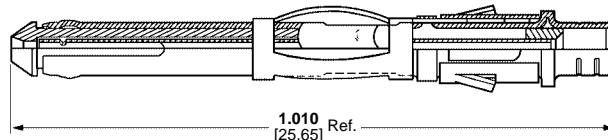
Subminiature, Crimp, Snap-In, Size 16



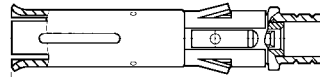
Pin



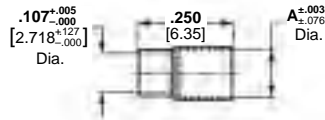
Socket



Pin



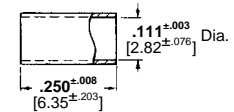
.650
[16.51] Ref.
Socket



Ferrule

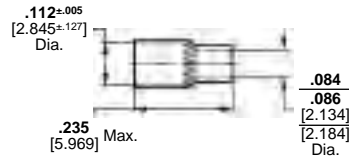
Part Number 225088-1—Dim. A $.120$ Dia. [3.05]

225088-3—Dim. A $.123$ Dia. [3.12]



Ferrule

Part Number 1-332056-0



Ferrule

Part Number 1-332057-0

Selection Chart for Coaxial Cable

Cable Size (RG/U)	Contact Finish	Loose Piece Contact Part Number		Ferrule Part Numbers	Tooling Part Numbers	
		Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool
178, 196	Gold/Nickel Gold/Copper ¹	226537-2	51565-2	1-332057-0	69690-2	69656-2
	Gold/Nickel Gold/Copper ²	—	51565-5			
196 (Double Braid)	Gold/Nickel Gold/Copper ¹	226537-2	51565-2	225088-1	—	69656-9
	Gold/Nickel Gold/Copper ²	—	51565-5			
174, 188, 316	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	1-332056-0	69690	69656
	Gold/Nickel Gold/Copper ²	226537-4	51565-4			
174 (Double Braid)	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	225088-3	—	69656-7
	Gold/Nickel Gold/Copper ²	226537-4	51565-4			
179, 187	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	1-332056-0	69690-1	69656-1
	Gold/Nickel Gold/Copper ²	226537-4	51565-4			
187 (Double Braid)	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	225088-1	—	69656-8
	Gold/Nickel Gold/Copper ²	226537-4	51565-4			
161	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	1-332056-0	—	69656-5
	Gold/Nickel Gold/Copper ²	226537-4	51565-4			

*Use hand actuated Power Unit Part Number 189721-2 or foot actuated Power Unit Part Number 189722-2. Both units require "C" Head Die Set Adapter Part Number 318161-1 and an Adapter Holder Part Number 356304-1 (with ratchet) or Part Number 189928-1 (without ratchet). Request Catalog 124208 for more information on the 626 Pneumatic Tool System.

Extraction Tool Part Number 305183

For complete product information, order Catalog 65910

Subminiature, Crimp, Snap-In, Size 16

Selection Chart for Twisted Pair and Shielded Wire

Wire Size		Contact Finish	Loose Piece Contact Part Numbers		Ferrule Part Numbers	Tooling Part Numbers	
AWG	[mm ²]		Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool
30	0.05 (Twisted Pair, Solid)	Gold/Nickel Gold/Copper ¹	226537-3	51565-3	1-332057-0	69690-2	69656-2
28	0.08-0.09 (Twisted Pair, Solid)	Gold/Nickel Gold/Copper ¹	226537-3	51565-3	1-332057-0	69690	69656
28	0.08-0.09 (Twisted Pair, Stranded 7 Str., .0050 [0.13] Dia.)	Gold/Nickel Gold/Copper ¹	226537-3	51565-3	1-332057-0	69690-1 or 69690-2	69656-1 or 69656-2
26	0.12-0.15 (Twisted Pair, Solid or Stranded 7 Str. .0063 [0.16] Dia.)	Gold/Nickel ¹ Gold/Copper	226537-3	51565-3	1-332057-0	69690	69656
26	0.12-0.15 (Shielded, .075 [1.91] Max. O.D.)	Gold/Nickel Gold/Copper ¹	226537-1	51565-1	1-332057-0	69690-3	69656-3
		Gold/Nickel Gold/Copper ²	226537-4	51565-4			

¹.000030 [0.00076] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000030 [0.00076] gold over .000100 [0.00254] copper—pin center conductor.

².000050 [0.00127] gold over .000050 [0.00127] nickel—outer shell and socket center conductor; .000050 [0.00127] gold over .000100 [0.00254] copper—pin center conductor.

* Use hand actuated Power Unit **Part Number** 189721-2 or foot actuated Power Unit **Part Number** 189722-2. Both units require "C" Head Die Set Adapter **Part Number** 318161-1 and an Adapter Holder **Part Number** 356304-1 (with ratchet) or **Part Number** 189928-1 (without ratchet). Request Catalog 124208 for more information on the 626 Pneumatic Tool System.

Note: A ferrule is required for each pin and socket.
Extraction Tool Part Number 305183

Miniature, Crimp, Snap-In, Size 12



Pin

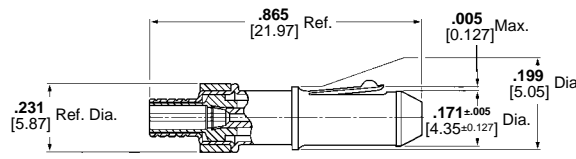


Socket

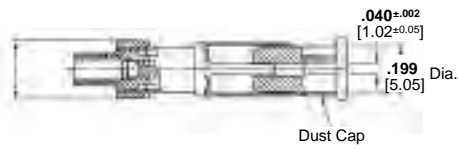
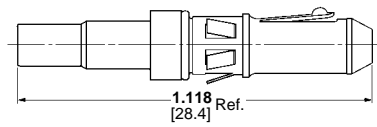


Ferrule

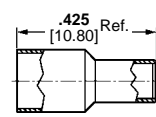
Retention Spring
Part Number 201142-1



Pin



Socket



Ferrule

For complete product information, order Catalog 65910

Miniature, Crimp, Snap-In, Size 12

Material:
Outer Shell—Brass per MIL-C-50

Center Conductor—Brass per QQ-B-626

Inner Dielectric—Polymethylpentene

Retention Spring—Beryllium copper per QQ-C-533

Ferrule—Copper per QQ-C-576

Finish:
Outer Shell, Center Conductor—
See charts on this page

Retention Spring—Nickel per QQ-N-290

Ferrule—Tin-lead per MIL-T-10727

 Extraction Tool **Part Number** 305183-8

Selection Chart for Coaxial Cable

Cable Size (RG/U)	Contact Finish	Loose Piece Contact Part Numbers		Ferrule Part Numbers	Tooling Part Numbers	
		Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool
55, 55A, 55B 141, 142, 223	Gold/Nickel ¹	201145-4	201146-4	330478	69315-4	69248-4
	Gold/Copper ²	—	201146-9			
58, 58A, 58B, 58C	Gold/Nickel ¹	201145-4	201146-4	328663	69220-2	45740-2
	Gold/Copper ²	—	201146-9			
174, 179A, 187, 21-598	Gold/Nickel ¹	201143-1	201144-1	328666	69227-2	45638-2
	Gold/Copper ²	—	201144-6			
180, 180A, 195, 21-597	Gold/Nickel ¹	201145-2	201146-2	328664	69222-2	45639-2
	Gold/Copper ²	1-201145-0	1-201146-0			
178, 178A, 196	Gold/Nickel ¹	201511-1	201512-1	328667	69373	69186-2
	Gold/Nickel ¹	201143-5	201144-5			
188	Gold/Nickel ¹	201143-7	201144-7	328666	69227-2	45638-2
	Gold/Copper ²	201143-7	201144-7			
122	Gold/Nickel ¹	201145-1	—	328664	69222-2	45639-2
	Gold/Nickel ¹	201143-5	201144-5			
188 Double Braid 316 Double Braid	Gold/Nickel ¹	201143-7	201144-7	221848-3	—	58290-1
	Gold/Copper ²	201143-7	201144-7			
Special .125, .100, .066, .012DB	Gold/Nickel ¹	201143-1	201144-1	221848-3	—	58290-1
	Gold/Nickel ¹	201143-1	201144-1			

Selection Chart for Twisted Pair

Wire Size AWG	Max. Ins. Dia. (Two Wires Combined)	Contact Finish	Loose Piece Contact Part Numbers		Ferrule Part Numbers	Tooling Part Numbers	
			Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool
28-26 (Solid)	0.08-0.15 2.03	Gold/Nickel ¹	201511-1	201512-1	328667	69373	69186-2
24-22 (Stranded)	0.2-0.4 2.92	Gold/Nickel ¹	201143-5	201144-5	328666	69672	45638-3
		Gold/Copper ²	201143-7	201144-7			
24-22 (Solid or Stranded)	0.2-0.4 4.06	Gold/Nickel ¹	50079-1	50080-1	329029	69222-2	45639-2

Selection Chart for Shielded Wire

Shielded Wire AWG	No.	Contact Finish	Loose Piece Contact Part Numbers		Ferrule Part Numbers	Tooling Part Numbers	
			Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool
22	NAS-702, Class A	Gold/Nickel ¹	—	201144-3	328666	69227-2	45638-2
	MIL-C-7078A, Type II		201145-4	201146-4			
22	NAS-702, Class B	Gold/Nickel ¹	201145-4	201146-4	328663	69220-2	45740-2
		Gold/Copper ²	—	201146-9			

Selection Chart for Various Manufacturers' Cables

Cable Size AWG/Type	Dielectric O.D. (Max.)	Cable O.D. Range	Braid	Contact Finish	Loose Piece Contact Part Numbers		Ferrule Part Numbers	Tooling Part Numbers		
					Pin	Socket		Die Inserts for Hand Tool 69710-1 or Pneumatic Tool*	Hand Tool	
Brand Rex T209A 29 AWG	0.08	.076 1.93	.112-.122 2.84-3.10	Single	Gold/Nickel ¹	—	201146-6	330587	—	69360-2
Brand Rex T5788A 26 AWG	0.12-0.15	.106 2.69	.160 4.06	Single	Gold/Nickel ¹	201145-2	201146-2	328664	69222-2	45639-2
					Gold/Copper ²	1-201145-0	1-201146-0			
Raychem 0030D1314 Army Ord. 11207177 32-26 AWG	0.03-0.15	.129 3.28	.122-.137 3.10-3.48	Single	Gold/Nickel ¹	—	201146-6	330587	—	69360-2

¹ .000030 [0.00076] gold over .000030 [0.00076] nickel.

² .000100 [0.00254] gold over .000100 [0.00254] copper.




 * Use hand actuated Power Unit **Part Number** 189721-2 or foot actuated Power Unit **Part Number** 189722-2. Both units require "C" Head Die Set Adapter **Part Number** 318161-1 and an Adapter Holder **Part Number** 356304-1 (with ratchet) or **Part Number** 189928-1 (without ratchet). Request Catalog 124208 for more information on the 626 Pneumatic Tool System.


Note: A ferrule and retention spring (201142-2) are required for each pin and socket.

For complete product information, order Catalog 65910

Introduction

Product Facts

- Lightweight, all-plastic and metal-shell connectors
- CPC connectors are UL 94V-0 rated and made of stabilized, heat resistant, self-extinguishing thermoplastic material
- Metal-shell CPC connector housings made of UL 94V-0 rated thermoplastic
- Operating temperature range: -55°C to +125°C
- Available in panel or chassis mount and free-hanging configurations
- Quick connect/disconnect capability with thread assist, positive detent coupling
- Built-in pin and socket protection
- Polarized for proper mating of connector halves
- Special connector configurations offer special solder and posted contacts, special receptacles with or without threaded inserts
- Full complement of optional accessories
- Recognized under the Component Program of Underwriters Laboratories Inc.,  for 250 VAC, rms or 250 VDC, Service±; Series 1 and Series 3 (600 V); Series 2, Series 4, Series 5 and Series 6 (250 V) File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189
- Produced under a Quality Management System certified to ISO 9001 

A copy of the certificate is available upon request.
- Certain products meet VDE Standard 0627 

±Select connectors are recognized for 600 volts service.

Six connector series for different interconnection requirements:

- Series 1—Standard density, signal and low-current applications using durable Multimate contacts (.062 [1.57] pin diameter)
- Series 2—High density applications using Size 20 DM and 20 DF contacts (.040 [1.02] pin diameter)
- Series 3—Low density, power applications with Type XII contacts capable of carrying up to 35 amperes of current
- Series 4—Combination of standard and power density application with Type III+ and Type XII contacts
- Series 5—Power density application with Size 8 screw machined and precision formed contacts
- Series 6—Combination of standard and power density application with Type III+ and Size 8 contacts

Technical Documents:

Product Specifications

describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-1579 Sealed CPC Connectors with Removable Contacts

108-10024 CPC Connectors

108-10037 Contacts, Type XII

108-10040 Metal-Shell CPC Connectors

108-10042 Contacts, Type III+

108-40005 Contacts, Size 20 DF

Application Specifications

describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-10000 Contacts, Size 20 DF

114-10004 Contacts, Type III +

114-10005 Contacts, Type XII

114-10038 CPC Connectors

MIL-C-5015 Style Circular Plastic Connectors (CPC)

Product Facts

- Intermateable with Metal-Shell sizes 20-14 and 18-10, MIL-C-5015 Style connectors
- High impact resistant plastic housing made of UL 94V-0 rated material
- Lightweight
- Lower cost than standard MIL-C-5015 connectors
- Industry accepted Type III+ pin and socket contacts, available on reels in strip form for high volume, low cost, automatic machine terminations, or in loose piece form for low volume, prototype or maintenance and repair
- Improved alignment (U.S. Standard MIL-C-5015 Connectors) prevents mismatching with other housing insert arrangements

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 

- Certified by Canadian Standards Association, File No. LR 7189 

Instruction Sheets

provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-4317 Two-Piece Sealed CPC Connectors

408-6641 Metal-Shell CPC Connectors

408-7582 Accessories for CPC Connectors

408-7593 CPC Connectors

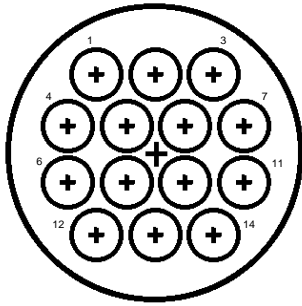
408-7901 Application and Maintenance for AMP Hand Crimp Tool

Application Tooling/Instruction Sheet Cross Reference

Tool Part Number	Instruction Sheet
58495-1	408-9819
69710-1	408-2095
90310-1	408-7680
90310-2	408-7942
90310-3	408-9387
90363-1	408-7901
91019-3	408-7276
91067-2	408-7508
91136-1	408-7859
91285-1	408-9404
305183	408-1216
318813-1	408-4374

For complete product information, order Catalog 82021

Connector Series and Types

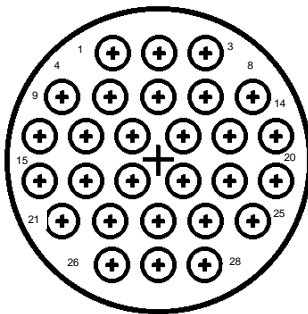


Series 1—Size 16 Contacts

Series 1 connectors permit the use of multiple combinations of signal and coaxial circuits in the same housing by accepting durable Multimate contacts. These pin and socket contacts include Type III+ and

subminiature coaxial contacts, interchangeable in the same Multimate contact cavity. Type III+ contacts (.062 [1.57] pin diameter) are capable of carrying a maximum of 13 amperes when crimped in wire.

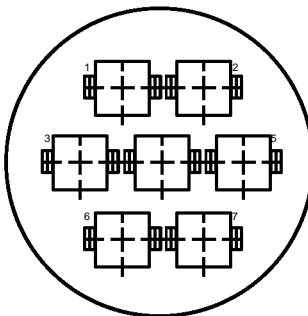
Type III solder contacts and posted contacts for pc board applications are also available. Many connector arrangements offer both standard and reverse sex contact loading—**from 4 thru 37 positions.**



Series 2—Size 20 Contacts

Series 2 connectors accept Size 20 DF (precision formed) and Size 20 DM (screw-machined) pin and socket contacts with a .040 [1.02] pin diameter. Size 20 DF contacts are available in crimp and solder versions, as well as a posted version

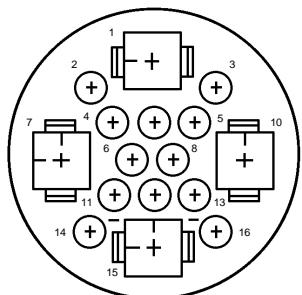
for wrap-type and pc board applications. Maximum current carrying capability is 7.5 amperes. Many connector arrangements offer both standard and reverse sex contact loading—**from 8 thru 63 positions.**



Series 3—Power Contacts

Series 3 connectors accept Type XII power contacts which can carry up to 25 amps per contact. These contacts will accommodate a wire size range of 16 to

10 AWG [1.4 to 5 mm²]. Two connector sizes are available in both standard and reverse sex connector arrangements **3 and 7 positions.**



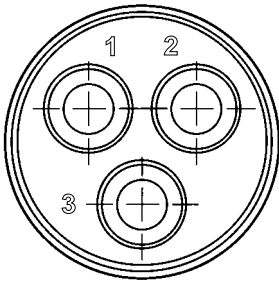
Series 4—Combination Size 16 and Power Contacts

Series 4 connectors accept Size 16 Multimate and Type XII power contacts, combining the signal and coaxial circuit capabilities of Series 1 connectors with the

power circuit capabilities of Series 3 connectors. Available in two connector sizes offering power mixing combinations totaling **16 and 22 positions.**

For complete product information, order Catalog 82021

Connector Series and Types



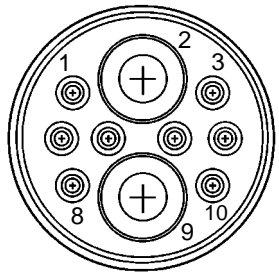
Series 5—Power Contacts .125 POWERBAND

Series 5 connectors combine the revolutionary performance of the new AMP POWERBAND, high current contact in configurations similar to the Series 3 connectors. AMP POWERBAND contacts offer the electrical

performance of the best Mil Spec Size 8 screw-machined contacts with the economy and productivity of strip-fed, precision formed contacts.

Series 5 connectors are environmentally sealable to meet IEC IP 65 and IP 67 specifications.

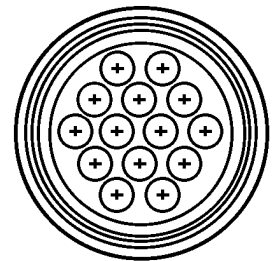
Rated at 600 VAC or VDC, 45 amperes maximum in a single contact, the connectors are available in free-hanging and panel-mount applications—**one connector configuration containing three .125 POWERBAND contacts.**



Series 6—Combination, Size 16 and .125 POWERBAND Contacts

Series 6 combines the high current and environmental sealing capability of Series 5, POWERBAND contacts, and the reliability of signal carrying, low current Type III+ contacts.

This combination of power and signal contacts is offered in **one connector configuration containing two .125 POWERBAND contacts and eight Type III+ signal pin and socket contacts.**

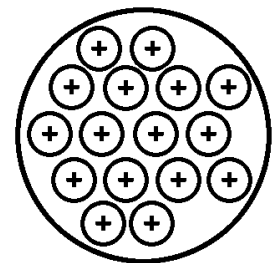


MIL-C-5015 Style—Size 16 Contacts

This new addition to the AMP Circular Plastic Connector Line is specifically designed to be **intermateable with Metal-Shell size 20-14 and 18-10, MIL-C-5015 Style connector systems.** The high impact resistant plastic housing offers the advantages of light weight

and lower cost than existing metal-shell connectors. In addition the connector design prevents mismatching when used with other insert arrangements. As part of the AMP Multimate family of connectors, the MIL-C-5015 style connector offers the

economies of crimp Type III+ pin and socket contacts in reel-mounted, strip-form for high volume automatic machine termination, as well as in loose piece-form for low volume, prototype or maintenance and repair.



Metal-Shell, Circular Plastic Connectors

Metal-Shell CPC connectors consist of a black thermoplastic insert in a nickel-plated, zinc alloy shell. These connectors

are currently available in **shell sizes 14, 22 and 28, and in two basic configurations consisting of plugs and square flange receptacles.**

For complete product information, order Catalog 82021

Performance Characteristics—CPC and Metal-Shell CPC Connectors

More information on the performance of AMP CPC and metal-shell CPC connectors is available by requesting the following AMP Product Specifications:

- 108-10024**—
CPC Connectors
- 108-10037**—
Type XII Contacts
- 108-10020**—
Size 20 DM and 20 DF
Contacts
- 108-10040**—
Metal-Shell CPC
Connectors
- 108-10042**—
Type III+ Contacts
- 108-1579**—
Sealed CPC Connectors
with Removeable Contacts

Test Description	Procedure	Requirements
Maintenance Aging	Contacts removed and reinserted 10 times using applicable tools	No damage to contacts or housings. Contact retention maintained
Contact Retention	Axial load applied to contact to displace to the rear of the connector	Contacts remain in place when subjected to a minimum 10 lb. load*
Dielectric Withstanding Voltage (MIL-STD-1344, Method 3001)	Connectors subjected to 1500 volts rms at sea level	No breakdown or flashover
Thermal Shock	Connectors subjected to five cycles of temperature change (-55°C and +125°C)	No damage
Vibration (MIL-STD-202, Method 204, Test Condition B)	Connectors vibrated (wired and mated). Contacts wired in series with 100 milliamperes flowing during the test	No damage or loosening of parts. No interruption of electrical continuity longer than 10 microseconds
Physical Shock (MIL-STD-202, Method 213A, Test Condition A)	Connectors shocked 50 G (wired and mated). Contacts wired in series with 100 milliamperes flowing during the test	No damage or loosening of parts. No interruption of electrical continuity longer than 10 microseconds
Durability	Connectors mated and unmated 25 times with tin plated contacts and 500 times with gold plated contacts	No wear through damage to plating
Corrosion (Salt Spray) (MIL-STD-202, Method 101, Test Condition B)	Mated connectors subjected to 5% salt spray for 48 hours	No damage
Protection Against Solids	a. Test wire is pushed into mated connectors b. Mated connectors subjected to circulating talcum powder	a. Must not touch live parts b. No dust deposits observed on mating surfaces
Protection Against Water	Water is projected through jets against mated connector from any direction and then temporarily immersed in water	No water deposits shall be observed on mating surfaces of contacts or housings
Temperature Life	Mated connectors subjected to a temperature of +125°C for 200 hours	No damage
Insulation Resistance (MIL-STD-1344, Method 3003)	Measurement made between adjacent contacts with connector mated	5000 megohms minimum ambient temperature
Humidity (MIL-STD-202, Method 103, Test Condition B)	Mated connectors subjected to 10 days moisture test	Minimum insulation resistance of 100 megohms

*For size 16 contacts. Size 8 contacts 25 lb. load, min.

For complete product information, order Catalog 82021

Levels of Protection for Electric Operating Material According to IEC 60529 and IEC 60947, Appendix C

Environmentally Protected Circular Plastic Connectors, for Mated CPC Connectors Utilizing Peripheral Seals and either Wire Entry Seals (for Discrete Wire Applications) or Heat Shrink Boots (for Jacketed Cable Applications). Available are Various Sizes, Series 1, 5 and 6.

Internal Protection (IP)

Definition:

- **Per IEC 60947, Appendix C**—Pertains to low voltage switchgear and control gear.
- **Per IEC 60529**—Pertains to degrees of protection provided by enclosures (IP code).

Sample Designation:

(Where x is a numeral value), i.e. IP 65

Connector/Contact Acceptability

As previously stated, choosing the appropriate connector/contact combination is fundamental to the successful function of all connectors. The Selector Chart, shown at right, is designed to simplify your choice of connectors and their acceptable contacts. Once you have selected the wire size, current-carrying capacity need, number of positions required, and the type of contacts needed in your choice of connector, refer to this matrix for a quick look at exactly what is acceptable in a given connector type.

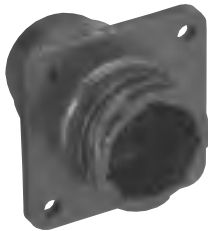
Contact Selector Chart

Connector Type	20 DF	Type I	Type II	Type III+	Posted Type III+	Type XII	Sub-Mini Coax	POWERBAND
CPC Series 1			✓	✓	✓		✓	
CPC Series 2	✓							
CPC Series 3						✓		
CPC Series 4			✓	✓		✓	✓	
CPC Series 5								✓
CPC Series 6		✓	✓	✓				✓
CPC 5015				✓				
CMC Series 1			✓	✓	✓		✓	
CMC Series 2	✓							
CMC Series 3						✓		
CMC Series 4			✓	✓		✓	✓	

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 1

CPC Connectors, Series 1 for Cable or Panel Mount (Accepts Type III+, High-Current Power, Type II and Subminiature Coax Contacts)



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black (unless noted otherwise)

Related Product Data:

Contacts—Pages 9101-9103, 9105, 9109, 9116, 9117

Contact Arrangements—Page 9129

Component Dimensions—Page 9130

Accessories—Pages 9139 thru 9142, 9151, 9152

Performance Characteristics—Page 9122

Technical Documents: Page 9119

Replacement Coupling Rings

Shell Size	Part Numbers
11	213811-1
13	213813-1
17	213810-1
23	213812-1

Keying

Molded-in keying in two configurations:

A—Standard Configuration: 5 Keys

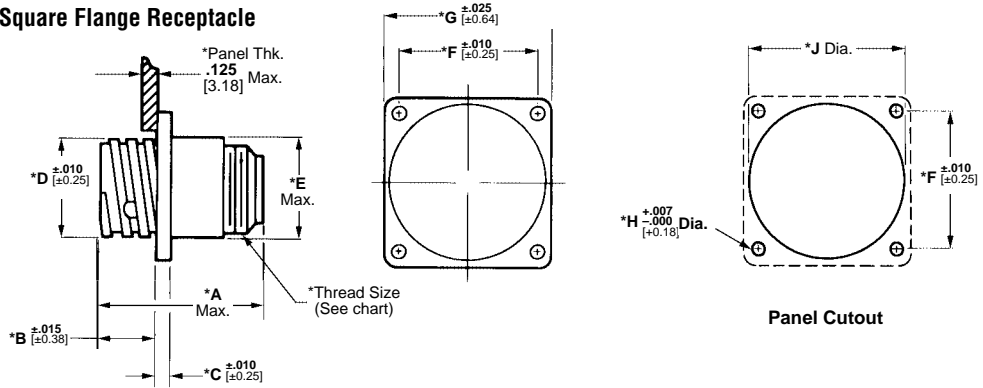


B—Optional Configuration: 4 Keys to prevent mismatching of standard and reverse sex.

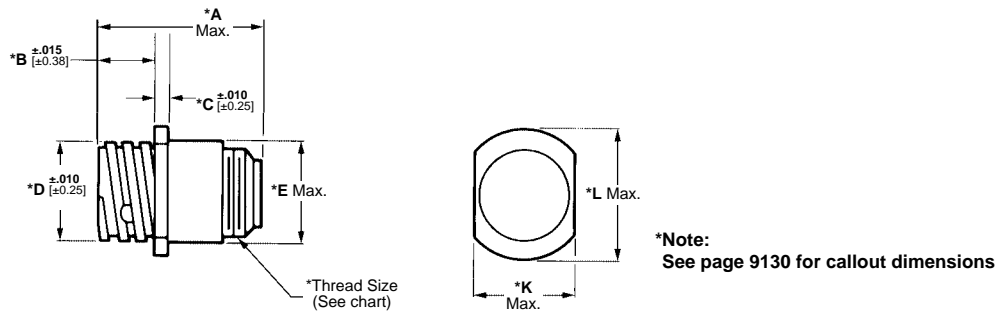


For complete product information, order Catalog 82021

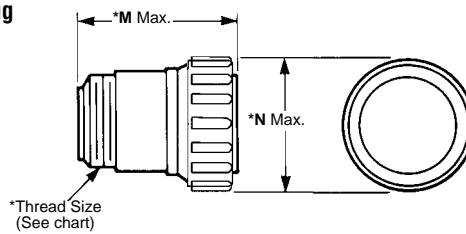
Square Flange Receptacle



Free-Hanging Receptacle



Plug



Standard Sex Connectors (Receptacles accept pin contacts, Plugs accept socket contacts)

Arrangement	Keying	Square Flange Receptacle		Free-Hanging Receptacle	Plug
		With Threaded Inserts ¹	With Mounting Holes		
11-4	A	208130-1	206061-1	206153-1	206060-1
13-9	A	208131-1	206705-1	206705-2	206708-1
17-16	A	206036-8	206036-1	206036-3	206037-1
	B	—	213862-1	—	213849-1
23-24	A	211839-1	206838-1	206838-2	206837-1
	B	—	213866-1	—	213851-1
23-37	A	787610-1	206151-1	206151-2	206150-1
	B	—	213860-1	—	213848-1

¹ Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors (Receptacles accept socket contacts, Plugs accept pin contacts)

Arrangement	Keying	Square Flange Receptacle		Free-Hanging Receptacle	Plug
		With Threaded Inserts ¹	With Mounting Holes		
11-4	A	211102-1	206430-1 211908-12	206430-2	206429-1 211882-13
	B	—	206043-1	206043-3	206044-1
17-14	A	211103-1	—	—	796449-1
	B	—	796437-2	—	796449-1
23-37	A	206306-5	206306-1	206306-2	206305-1
	B	—	213864-1	—	213850-1

¹ Four 4-40 threaded inserts per receptacle.

² Material—Polyester, gray

³ Material—Thermoplastic, gray

Circular Plastic Connectors, Series 1, VDE Tested

CPC Connectors, Series 1, for Cable or Panel Mount
(Accepts Type III+, High-Current Power, Type II and Subminiature Coax Contacts)



Product Facts

- Designed to meet requirements of VDE as shown in DIN Specification 57627
- Recognized under the Component Program of Underwriters Laboratories Inc. for 600 VAC and 600 VDC service, File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black

Related Product Data:

Contacts—Pages 9101-9103, 9105, 9109, 9116, 9117

Contact Arrangements—Page 9129

Component Dimensions—Page 9130

Accessories—Pages 9139 thru 9142, 9151, 9152

Performance Characteristics—Page 9122

Technical Documents: Page 9119

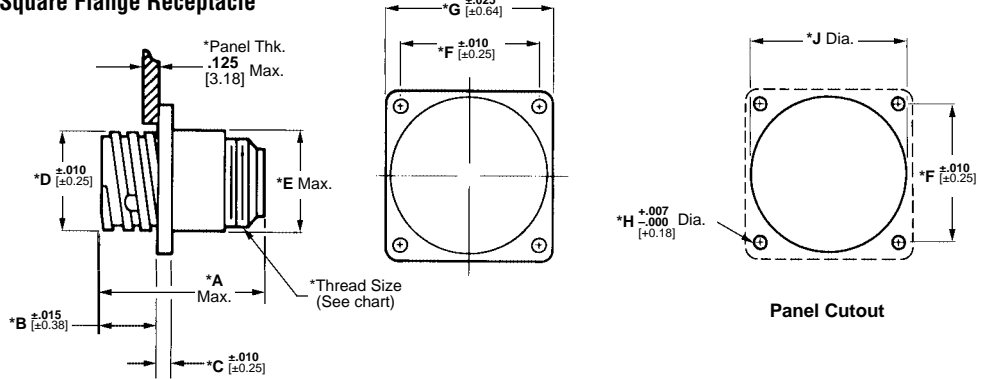
Replacement Coupling Rings

Shell Size	Part Numbers
13	213813-1
17	213810-1
23	213812-1

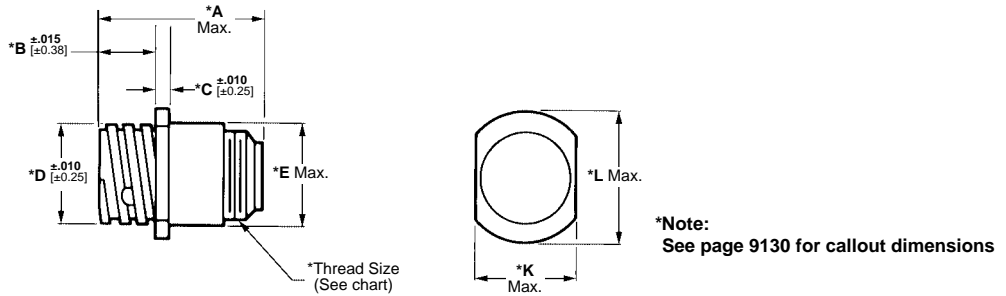
Keying

- A**—Standard Configuration: 5 Keys
- B**—Optional Configuration: 4 Keys

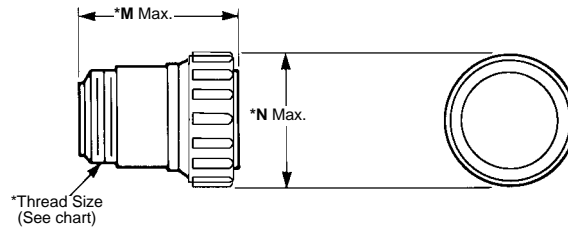
Square Flange Receptacle



Free-Hanging Receptacle



Plug



Standard Sex Connectors (Receptacles accept pin contacts, Plugs accept socket contacts)

Arrangement	Keying	Square Flange Receptacle		Plug
		With Threaded Inserts ¹	With Mounting Holes	
13-7	A	211401-4	211401-1	211399-1
17-9	A	211767-2	211767-1	211766-1
23-19	A	211771-2	211771-1	211770-2
	B	—	213870-1	213853-1

¹ Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors (Receptacles accept socket contacts, Plugs accept pin contacts)

Arrangement	Keying	Square Flange Receptacle		Free-Hanging Receptacle	Plug
		With Threaded Inserts ¹	With Mounting Holes		
13-7	A	211398-4	211398-1	211398-2	211400-1
17-9	A	—	211769-1	211769-3	211768-1
	B	—	796439-2	—	796450-1
23-19	A	—	211773-1	—	211772-1
	B	—	213868-1	—	213852-1

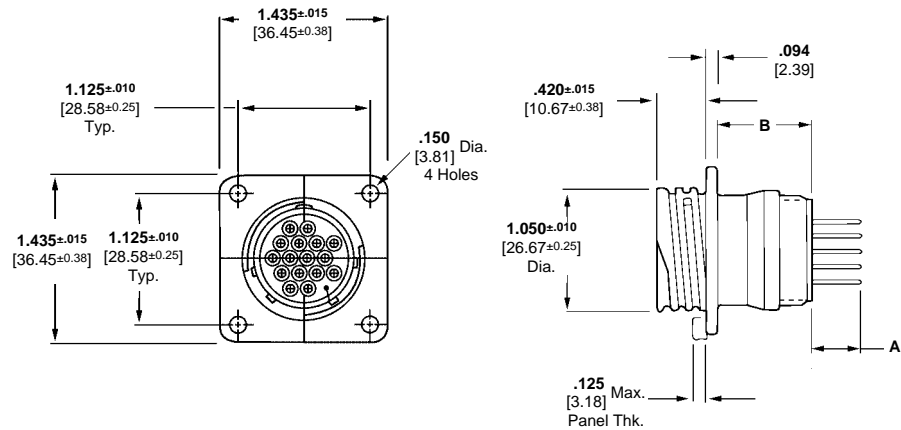
¹ Four 4-40 threaded inserts per receptacle.

Key Style "A" is the Standard 5 Locating Key arrangement. Key Style "B" is the 4 Locating Key arrangement.

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 1

Square Flange Receptacles, Printed Circuit Board Mount
with .025 [0.64] sq. solder tails



Material and Finish:

Housing—Thermoplastic, 94V-0 rated, black

Contacts—

A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin-lead on the termination area

C—Plated tin on the entire contact, tin-lead on the termination area

Related Product Data:

Contact Arrangements—Page 9129

Performance Characteristics—Page 9122

Technical Documents: Page 9119

Keying

Molded-in keying in two configurations:

A—Standard Configuration: 5 Keys

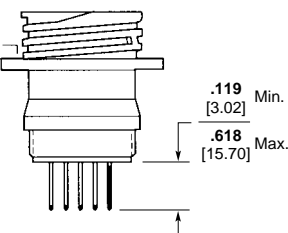


B—Optional Configuration: 4 Keys to prevent mismatching of standard and reverse sex.



Other Available Posted Contacts

Tyco Electronics can make available contacts with various solder tail lengths for loading into the standard or reverse sex, square flange receptacles for applications requiring custom solder tail lengths.



Standard Sex (Posted Pin Contacts)

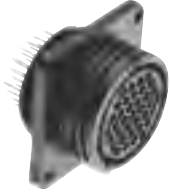
Arrangement No.	Receptacle Assemblies		Keying Style	Dimensions		Contact Finish Code	Peripheral Seal
	Mounting Holes	4-40 Threaded Inserts		A	B		
11-4	—	207825-1	A	.119 3.02	.816 20.73	A	N
13-7	—	796433-1	A	.220 5.59	.816 20.73	A	N
13-9	208223-1	—	A	.220 5.59	.816 20.73	A	N
	—	208223-3	A	.220 5.59	.816 20.73	A	N
17-16	207303-1	1-207303-1	A	.220 5.59	.816 20.73	C	N
	207303-3	—	A	.220	.816	A	N
	213855-1	213855-2	B	5.59	20.73	A	N
23-19	213782-1	—	A	.429 10.90	.679 17.24	A	N
	213859-1	—	B	.618 15.70	.674 17.12	A	N
23-24	—	213588-1	A	.220 5.59	.654 16.61	C	N
	213798-1	—	A	.618 15.70	.679 17.24	A	N
	213780-1	—	A	.220 5.59	.536 13.61	A	N
	213857-1	—	B	.429 10.90	.679 17.24	A	N
	206934-1	—	A	.220 5.59	.654 16.61	A	N
23-37	206934-5	—	A	.119 3.02	.654 16.61	A	N Y
	—	206934-9	A	.119 3.02	.654 16.61	A	N Y
	208132-1	—	A	.429	.654	C A	N
	206934-6	—	A	10.90	16.61	A	N
	213854-1	—	B	.618	.654	A	N
206934-7	—	A	.618 15.70	.654 16.61	A	N	

Note: Posts are .017 [0.43] offset from centerline of contacts. All posts must be oriented in the same plane for proper contact/post location.

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 1

Square Flange Receptacles, Printed Circuit Board Mount with .025 [0.64] sq. solder tails



Material and Finish:

Housing—Thermoplastic, 94V-0 rated, black

Contacts—

A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin-lead on the termination area

C—Plated tin on the entire contact, tin-lead on the termination area

Related Product Data:

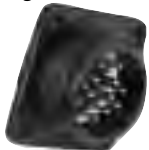
Contact Arrangements—Page 9129

Performance Characteristics—Page 9122

Technical Documents: Page 9119

Keying—Page 9126

Special CPC Connectors, Square Flange Receptacles, Printed Circuit Board Mount With Round Posted Contacts (Size 16), Contact Arrangement 17-16



Material and Finish:

Housing—Thermoplastic, 94V-0 rated, heat-stabilized, fire-resistant, self-extinguishing, black

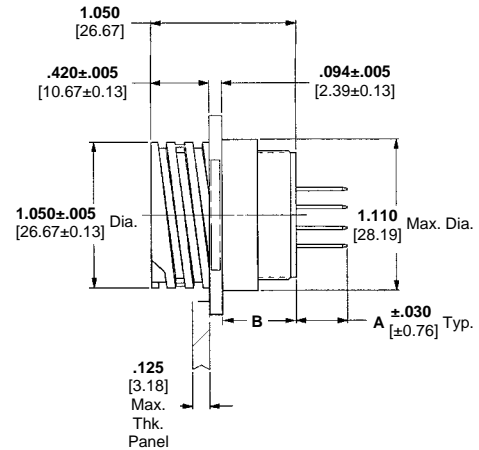
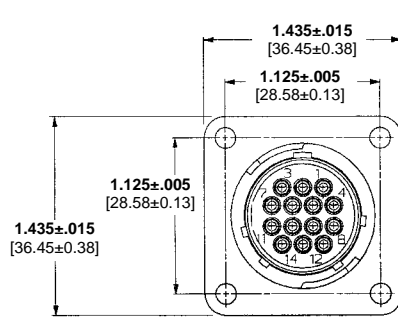
Contacts—Brass

Plating—

Connector Part Number 207292-1 (.125 Post Length) or 207292-3 (.175 Post Length)—Plated tin over .000050 [0.00127] min. nickel on entire contact

Connector Part Number 207292-2 (.125 Post Length)—Plated .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel on entire contact

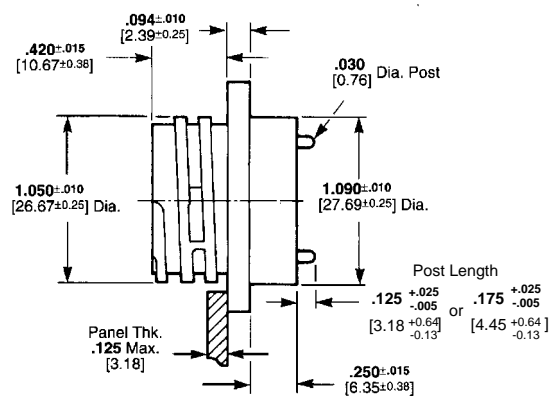
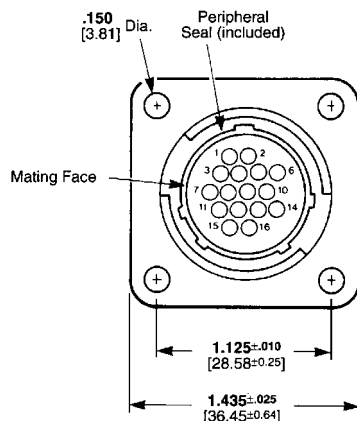
- Notes:**
1. Connector can be used for pressure bulkhead feed-thru (sealed) applications.
 2. Receptacle is standard sex, supplied preloaded with 16 special round posted pin contacts, .030 [0.76] diameter.



Reverse Sex (Posted Socket Contacts)

Arrangement No.	Receptacle Assemblies		Keying Style	Dimensions		Contact Finish Code	Peripheral Seal
	Mounting Holes	4-40 Threaded Inserts		A	B		
11-4	208283-1	—	A	.159 4.04	.536 13.61	A	N
	788130-1	—	A	.704 17.88	.541 13.74	C	N
17-9	213826-1	—	A	.220 5.59	.536 13.61	C	Y
17-14	213729-1	213729-2	A	.368 9.35	.536 13.61	A	N
	213825-1	—	A	.220 5.59	.536 13.61	C	Y
	—	213729-4	A	.159 4.04	.536 13.61	C	N
23-19	213858-1	—	B	.645 16.38	.394 10.00	A	N
	213781-1	—	A	.557 14.15	.374 9.50	C	N
	213827-1	—	A	.368 9.35	.374 9.50	C	Y
23-37	208224-1	—	A	.557 14.15	.374 9.50	A	N
	213856-1	—	B	.557 14.15	.374 9.50	A	N
	208224-2	—	A	.368 9.35	.374 9.50	C	N
	213828-1	—	A	.368 9.35	.374 9.50	C	Y
	207890-1	—	A	.159 4.04	.374 9.50	A	N

Note: Posts are .017 [0.43] offset from centerline of contacts. All posts must be oriented in the same plane for proper contact/post location.



For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 1

Special CPC Connectors, Square Flange Receptacles, With Solder Type Contacts (Size 16), Contact Arrangement 17-16



Material and Finish:

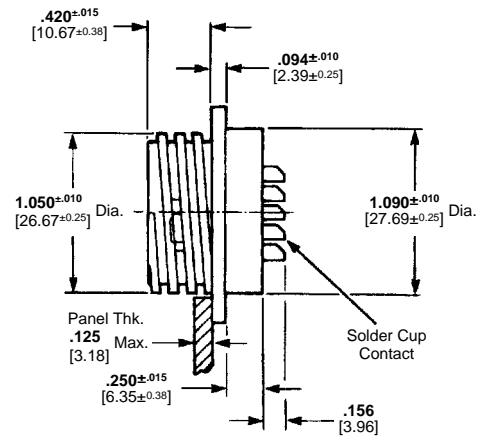
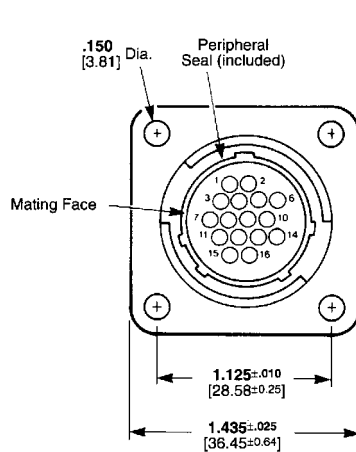
Housing—Thermoplastic, 94V-0 rated, heat-stabilized, fire-resistant, self-extinguishing, black

Contacts—Brass

Plating—

Connector Part Number 206404-1
Plated .000030 [0.00076] min. gold over .000030 [0.00076] min. nickel on entire contact

Connector Part Number 206404-2
Plated tin over .000100 [0.00254] min. copper on entire contact



- Notes:**
1. Connector can be used for pressure bulkhead feed-thru (sealed) applications.
 2. Receptacle is standard sex, supplied preloaded with 16 special solder cup pin contacts.

Special CPC Connectors, Feed-Thru

Pressure Rating up to 30 psi

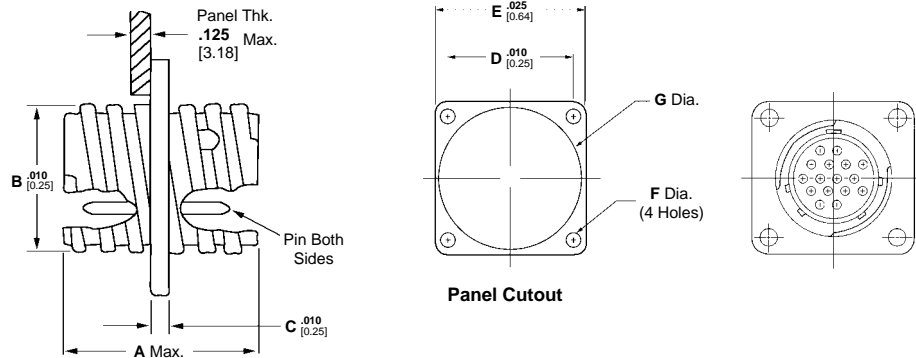


Material and Finish:

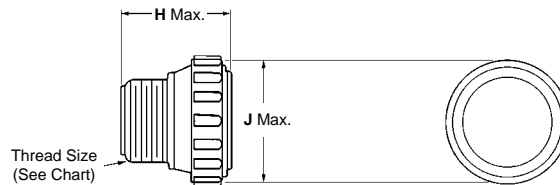
Housing—Thermoplastic, 94V-0 rated, black

Contacts—Copper alloy, gold over nickel plated

Receptacle, Feed-Thru



Plug



Part Numbers

Arrangement	Standard Numbering Plug	Reverse Numbering Plug	Feed-Thru Receptacle
11-4	206060-1	206516-1	206518-2
17-16	206037-1	206554-1	206552-1

Dimensions

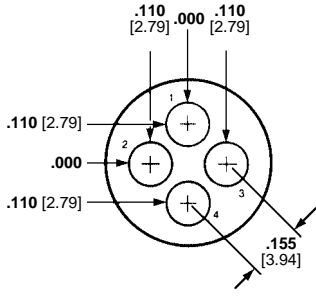
Arrangement	Dimensions									Thread Size
	A	B	C	D	E	F	G	H	J	
11-4	1.209 30.71	.687 17.45	.094 2.39	.844 21.44	1.125 28.58	.125 3.18	.840 21.34	1.080 27.43	.975 24.77	5/8-24 UNEF-2A
17-16	1.209 30.71	1.050 26.67	.094 2.39	1.125 28.58	1.435 36.45	.150 3.81	1.210 30.73	1.080 27.43	1.349 34.26	15/16-20 UNEF-2A

Note: Feed-Thru Receptacles are fully loaded with Size 16, feed-thru pin contacts. Order Size 16 crimp, snap-in socket contacts for plugs separately.

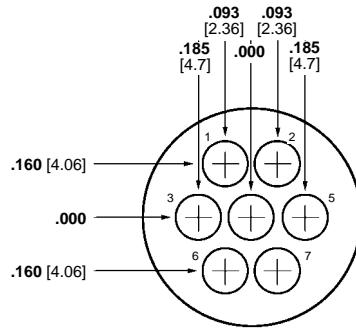
For complete product information, order Catalog 82021

Contact Arrangements, Series 1

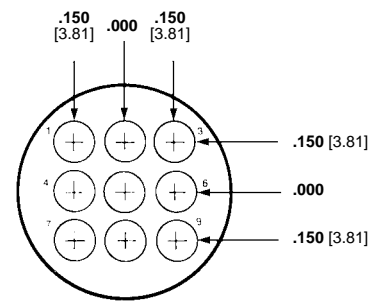
Shell Sizes 11 and 13



Arrangement 11-4
Max. Wire Ins. Dia. = .100 [2.54]

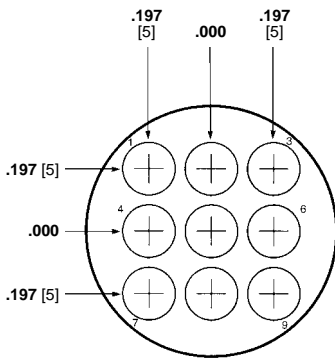


Arrangement 13-7
Max. Wire Ins. Dia. = .100 [2.54]

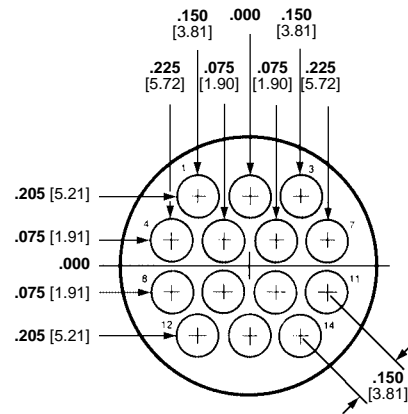


Arrangement 13-9
Max. Wire Ins. Dia. = .100 [2.54]

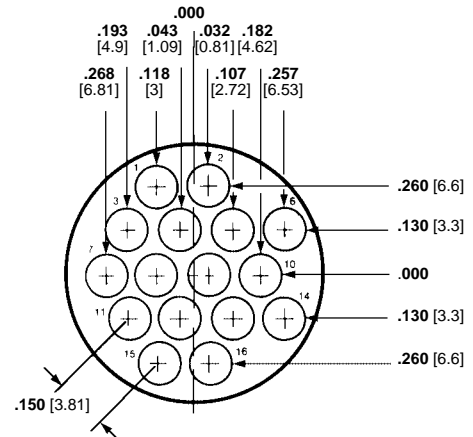
Shell Size 17



Arrangement 17-9
Max. Wire Ins. Dia. = .150 [3.81]

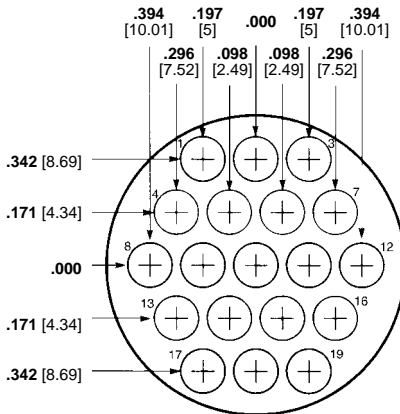


Arrangement 17-14
Max. Wire Ins. Dia. = .100 [2.54]

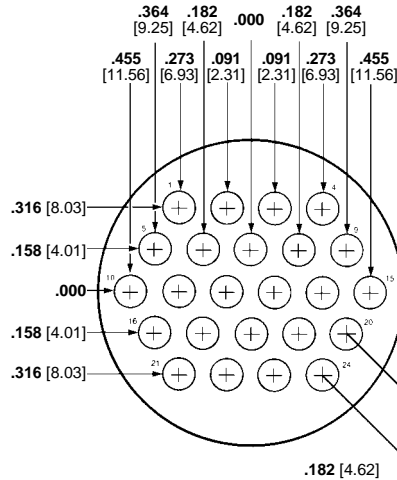


Arrangement 17-16
Max. Wire Ins. Dia. = .100 [2.54]

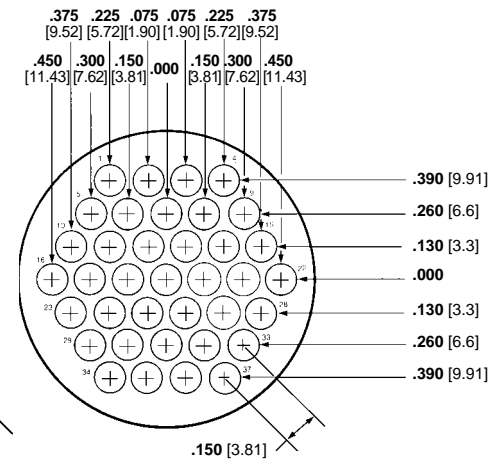
Shell Size 23



Arrangement 23-19
Max. Wire Ins. Dia. = .150 [3.81]



Arrangement 23-24
Max. Wire Ins. Dia. = .150 [3.81]



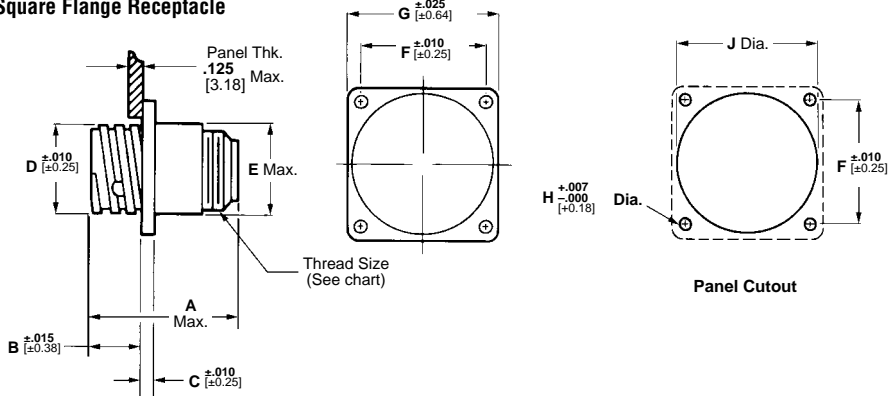
Arrangement 23-37
Max. Wire Ins. Dia. = .100 [2.54]

Note: Contact arrangements shown are for pin mating face (plug or receptacle). Socket mating face is mirror image.

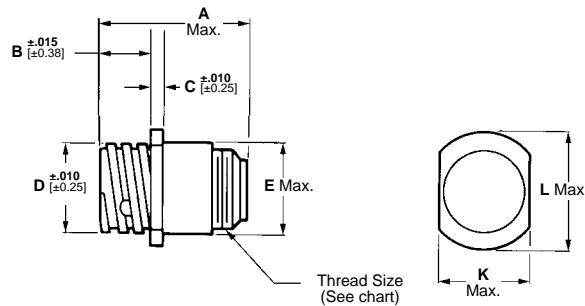
For complete product information, order Catalog 82021

Component Dimensions, Series 1

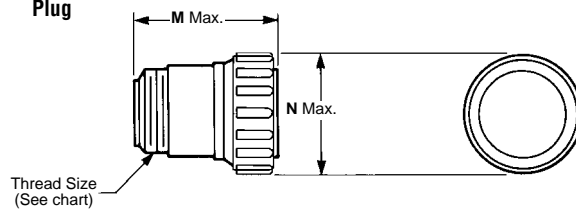
Square Flange Receptacle



Free-Hanging Receptacle



Plug



Shell Size	Sex	Dimensions														Thread Size
		A	B	C	D	E	F	G	H	J	K	L	M	N		
11	Rev.	1.070 27.18	.420	.094	.687	.740	.844	1.125	.125	.840	.817	.935	1.365 34.67	.975	5/8-24 UNEF-2A	
	Std.	1.350 34.29	10.67	2.39	17.45	18.8	21.44	28.58	3.18	21.34	20.75	23.75	1.080 27.43	24.77		
13	Std.	1.350 34.29	.420 10.67	.094 2.39	.812 20.62	.879 22.33	.969 24.61	1.281 32.54	.125 3.18	.979 24.87	.874 22.2	1.072 27.23	1.080 27.43	1.105 28.07	3/4-20 UNEF-2A	
17	Rev.	1.070 27.18	.420	.094	1.050	1.110	1.125	1.435	.150	1.210	1.161	1.310	1.365 34.67	1.349	15/16-20 UNEF-2A	
	Std.	1.350 34.29	10.67	2.39	26.67	28.19	28.58	36.45	3.81	30.73	29.49	33.27	1.080 27.43	34.26		
23	Rev.	1.070 27.18	.520	.156	1.438	1.510	1.438	1.750	.150	1.610	1.505	1.733	1.365 34.67	1.783	1-3/8-18 UNEF-2A	
	Std.	1.350 34.29	13.21	3.96	36.53	38.35	36.53	44.45	3.81	40.89	38.23	44.02	1.080 27.43	45.29		

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 2

CPC Connectors, Series 2 for Cable or Panel Mount (Accepts Size 20 DM or DF Crimp, Snap-In Contacts)



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black

Related Product Data:

Contacts— Pages 9106, 9107

Contact Arrangements—Page 9134

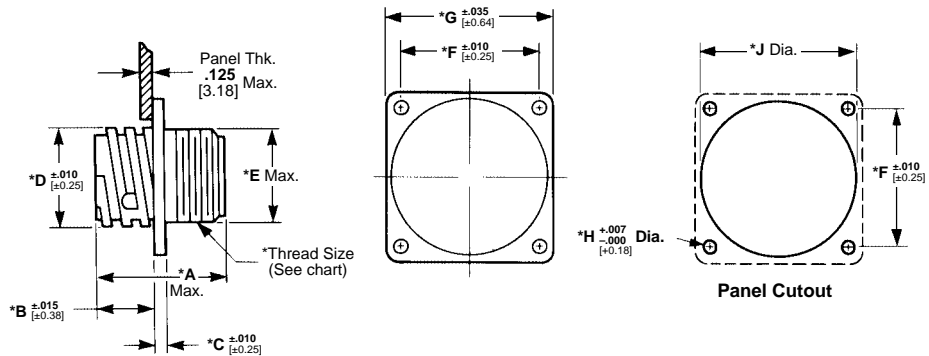
Component Dimensions—Page 9135

Accessories— Pages 9139 thru 9142

Performance Characteristics—Page 9122

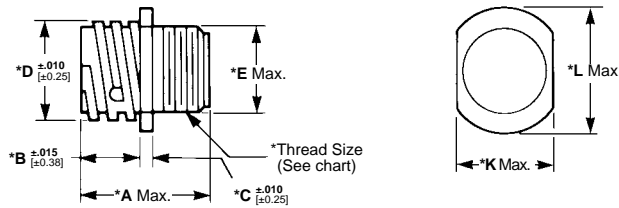
Technical Documents: Page 9119

Square Flange Receptacle

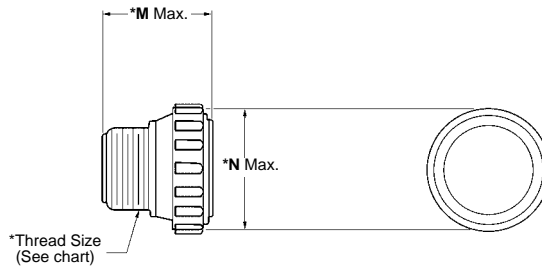


***Note:**
See page 9135 for callout dimensions

Free-Hanging Receptacle



Plug



Standard Sex Connectors

(Receptacles accept Size 20 DM or DF pin contacts, Plugs accept Size 20 DM or DF socket contacts)

Arrangement	Square Flange Receptacle		Free-Hanging Receptacle	Plug
	With Mounting Holes	With Threaded Inserts ¹		
11-8	205841-1	205841-3	205841-2	205838-1
11-9	206486-1	206852-8	206486-2	206485-1
17-28	205840-3	205840-4	206152-1	205839-3
23-63	205843-1	—	205843-2	205842-1

¹ Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors

(Receptacles accept Size 20 DM or DF socket contacts, Plugs accept Size 20 DM or DF pin contacts)

Arrangement	Square Flange Receptacle		Free-Hanging Receptacle	Plug
	With Mounting Holes	With Threaded Inserts ¹		
11-8	206433-1	206433-3	206433-2	206434-1
17-28	206038-1	206038-4	206038-2	206039-1
23-57	206438-1	—	206438-2	206437-1

¹ Four 4-40 threaded inserts per receptacle.

Note: For Standard and Reverse Sex Connectors the maximum wire insulation diameter is .068 [1.73].

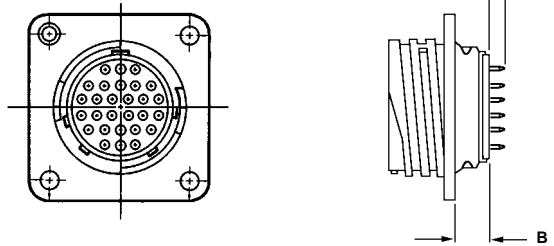
Replacement Coupling Rings

Shell Size	Part Numbers
11	213811-1
17	213810-1
23	213812-1

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 2

Receptacles, Printed Circuit Board Mount
with .025 [0.64] sq. solder tails



Material and Finish:

Housing—Thermoplastic, 94V-0 rated, black

Contacts—

A—Duplex plated gold flash on entire contact with .000030 [0.00076] min. gold on contact engagement area, tin-lead on the termination area, all over .000050 [0.00127] min. nickel under-plating

B—Plated gold flash on the entire contact, tin-lead on the termination area

Related Product Data:

Contact Arrangements—Page 9134

Performance Characteristics—Page 9122

Accessories — Pages 9139 thru 9142, 9151

Technical Documents: Page 9119

Standard Sex (Posted Pin Contacts)

Arrangement No.	Receptacle Assemblies		Dimensions		Contact Finish Code
	Mounting Holes	4-40 Threaded Inserts ¹	A	B	
11-9	206852-2	—	.125 3.18	.230 5.84	A
	206852-1	—	.352 8.94	.230 5.84	A
17-28	207369-1	—	.125 3.18	.230 5.84	A
	207369-3	—	.352 8.94	.230 5.84	A
23-63	206455-2	—	.227 5.77	.338 8.59	A
	206455-1	—	.449 11.40	.338 8.59	A

¹ Four 4-40 threaded inserts per receptacle.

Reverse Sex (Posted Socket Contacts)

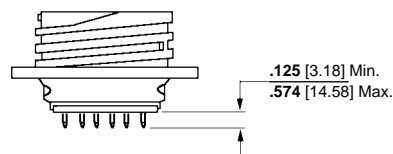
Arrangement No.	Receptacle Assemblies		Dimensions		Contact Finish Code
	Mounting Holes	4-40 Threaded Inserts ¹	A	B	
11-8	208657-1	—	.352 8.94	.285 7.24	A
	—	208657-5	.574 14.58	.230 7.24	A
17-28	207216-2	—	.125 3.18	.230 5.84	B
	—	1-207216-1 ²	.132 3.35	.270 6.86	B
	207216-8	—	.352 8.94	.230 5.84	A
23-57	796329-1	—	.232 5.89	.348 8.84	A

¹ Four 4-40 threaded inserts per receptacle.

² With peripheral seal.

Other Available Posted Contacts

Tyco Electronics can make available contacts with various solder tail lengths for loading into the standard or reverse sex, square flange receptacles for applications requiring custom solder tail lengths.



For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 2

Special CPC Connectors, Series 2

(Pressure rated up to 30 psi)



Listed plug connector part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black

Feed-Thru Contacts—Copper alloy, plated gold over nickel

Related Product Data:

Socket Contacts (for Plugs)—
Pages 9106, 9107

Contact Arrangements—Page 9134

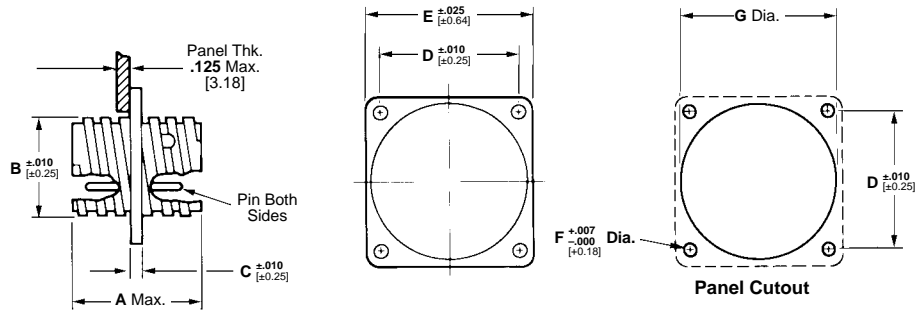
Performance Characteristics—
Page 9122

Accessories—Pages 9139 thru 9142, 9151

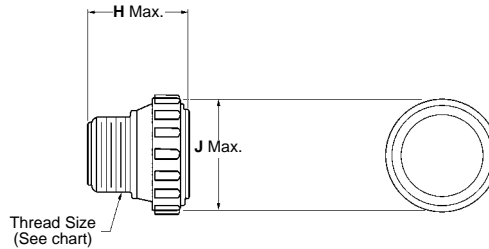
Technical Documents: Page 9119

Square Flange Feed-Thru Receptacles

(with Permanently Sealed .040 [1.02] Dia. Solid Pins)



Plug



Arrangement No.	Dimensions									Thread Size
	A	B	C	D	E	F	G	H	J	
11-8	1.035 26.29	.688 17.48	.188 4.78	.844 21.44	1.125 28.58	.125 3.18	.840 21.34	.800 20.32	.975 24.77	5/8-24 UNEF-2A
17-28	1.040 26.42	1.050 26.67	.188 4.78	1.125 28.58	1.435 36.45	.150 3.81	1.210 30.73	.800 20.32	1.349 34.26	15/16-20 UNEF-2A

Part Numbers

Arrangement No.	Standard Numbering Plug	Reverse Numbering Plug	Square Flange Feed-Thru Receptacle
11-8	205838-1	206460-1	206458-1
17-28	206125-1	206126-1	206127-1

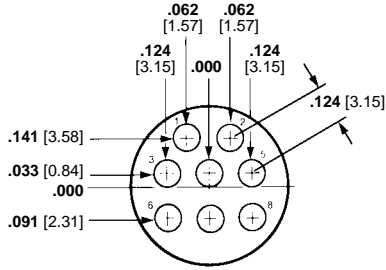
Note: One plug must have standard numbering of cavities, and the other plug must have reverse numbering of cavities.

For complete product information, order Catalog 82021

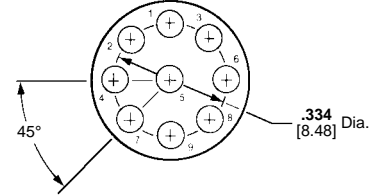
Contact Arrangements, Series 2

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

Shell Size 11

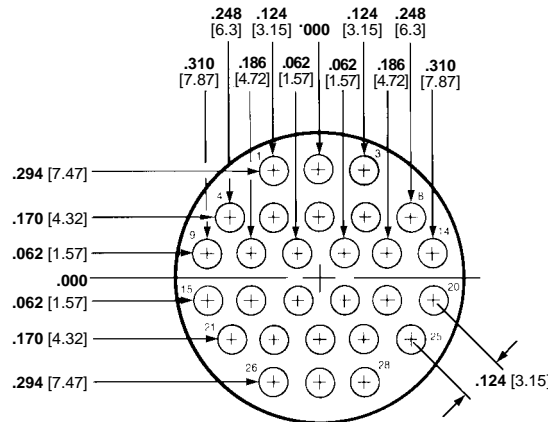


Arrangement 11-8
Max. Wire Ins. Dia. = .068 [1.73]



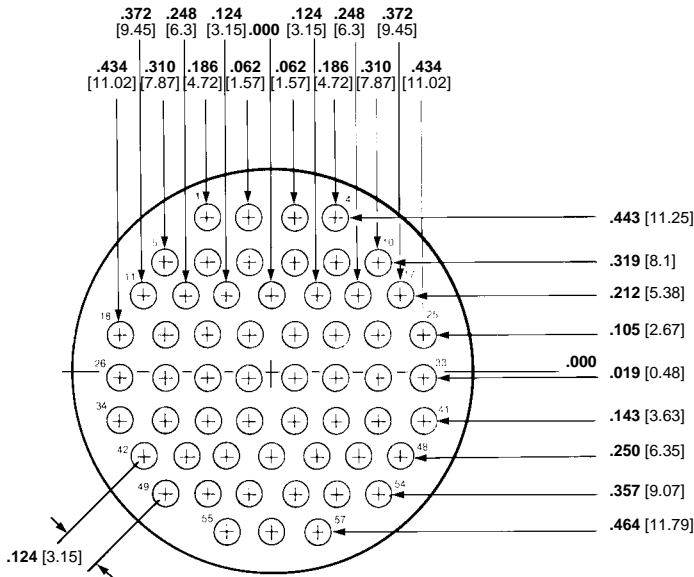
Arrangement 11-9
Max. Wire Ins. Dia. = .068 [1.73]

Shell Size 17

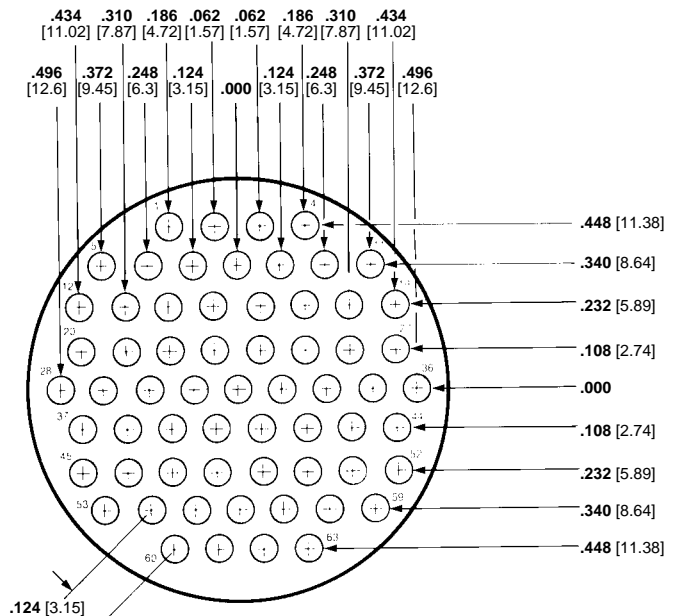


Arrangement 17-28
Max. Wire Ins. Dia. = .068 [1.73]

Shell Size 23



Arrangement 23-57
Max. Wire Ins. Dia. = .068 [1.73]

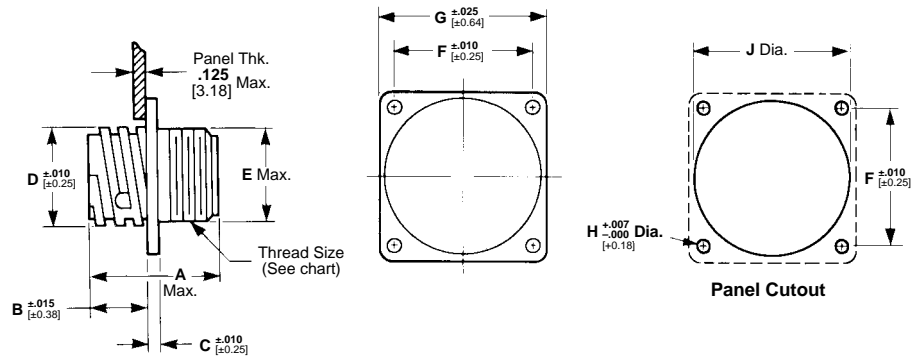


Arrangement 23-63
Max. Wire Ins. Dia. = .068 [1.73]

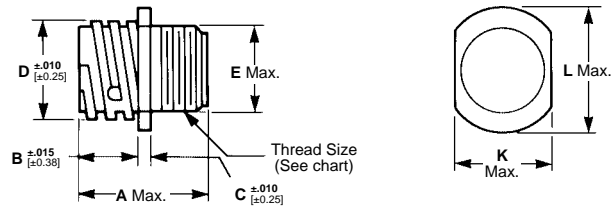
For complete product information, order Catalog 82021

Component Dimensions, Series 2

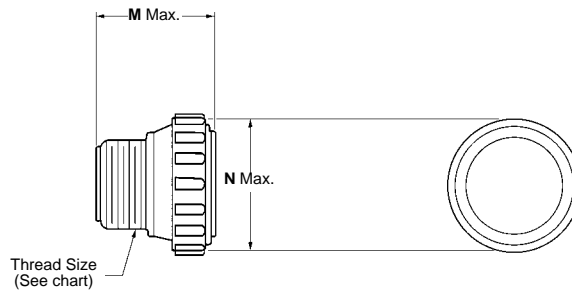
Square Flange Receptacle



Free-Hanging Receptacle



Plug



Arrangement No.	Dimensions												Thread Size	
	A	B	C	D	E	F	G	H	J	K	L	M		N
11-8	.809	.420	.094	.688	.630	.844	1.125	.125	.840	.817	.935	.800	.975	5/8-24
11-9	20.55	10.67	2.39	17.48	16.00	21.44	28.58	3.18	21.34	20.75	23.75	20.32	24.77	UNEF-2A
17-28	.809	.420	.094	1.050	.943	1.125	1.435	.150	1.210	1.161	1.310	.800	1.349	15/16-20
	20.55	10.67	2.39	26.67	23.95	28.58	36.45	3.81	30.73	29.49	33.27	20.32	34.26	UNEF-2A
23-57	.924	.420	.156	1.438	1.515	1.438	1.750	.150	1.610	1.500	1.733	.915	1.788	1-3/8-18
23-63	23.47	10.67	3.96	36.53	38.48	36.53	44.45	3.81	40.89	38.1	44.02	23.24	45.42	UNEF-2A

Note: All dimensions apply to both standard and reverse sex connectors.

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 3

CPC Connectors, Series 3



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black

Related Product Data:

Contacts—Page 9114, 9115

Contact Arrangements—Page 9137

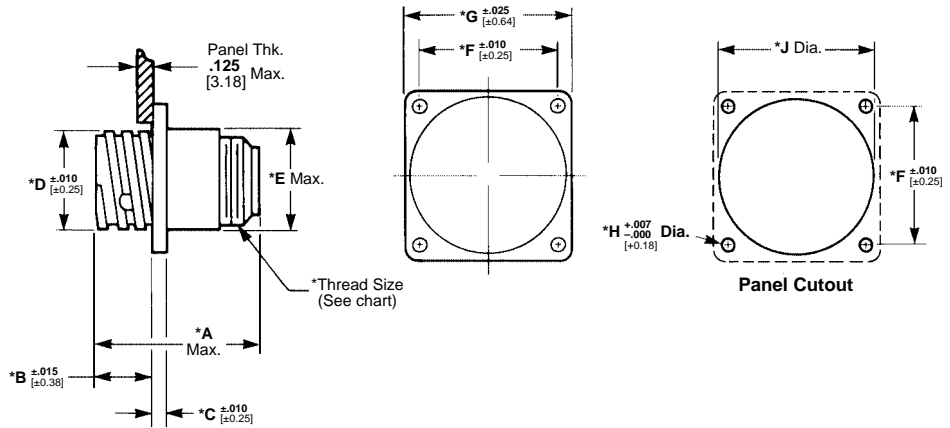
Component Dimensions—Page 9137

Accessories—Pages 9139 thru 9142

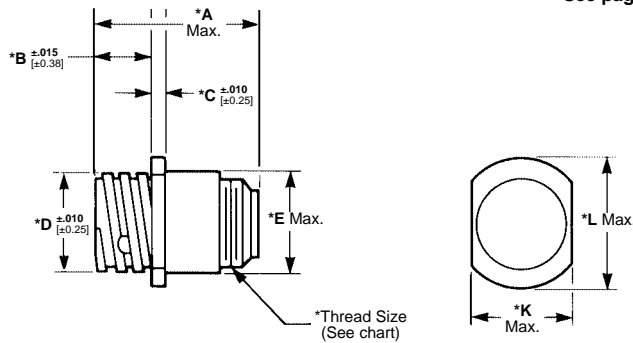
Performance Characteristics—Page 9122

Technical Documents: Page 9119

Square Flange Receptacle

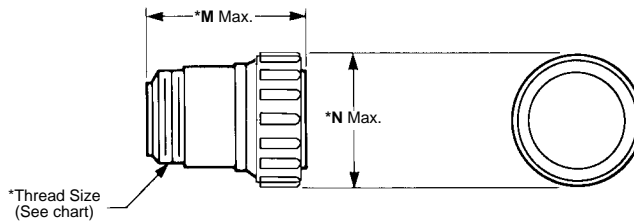


Free-Hanging Receptacle



***Note:**
See page 9137 for Callout Dimensions

Plug



Standard Sex Connectors

(Receptacles accept Type XII Male/pin contacts, Plugs accept Type XII Female/socket contacts)

Arrangement	Square Flange Receptacle		Free-Hanging Receptacle	Plug
	With Mounting Holes	With Threaded Inserts ¹		
17-3	206036-2	213581-1	206207-1	206037-2
23-7	206137-1	206137-5	206137-2	206136-1

¹ Four 4-40 threaded inserts per receptacle.

Reverse Sex Connectors

(Receptacles accept Type XII Female/socket contacts, Plugs accepts Type XII Male/pin contacts)

Arrangement	Square Flange Receptacle		Free-Hanging Receptacle	Plug
	With Mounting Holes	With Threaded Inserts ¹		
17-3	206425-1	206425-5	206425-2	206426-1
23-7	206227-1	206227-6	206227-2	206226-1

¹ Four 4-40 threaded inserts per receptacle.

Note: Maximum wire insulation diameter is .220 [5.59].

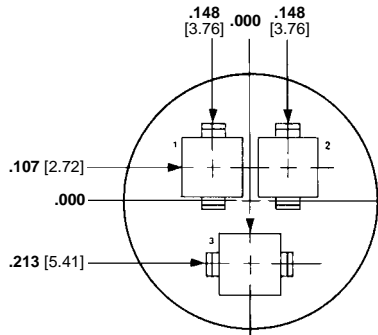
Replacement Coupling Rings

Shell Size	Part Numbers
17	213810-1
23	213812-1

For complete product information, order Catalog 82021

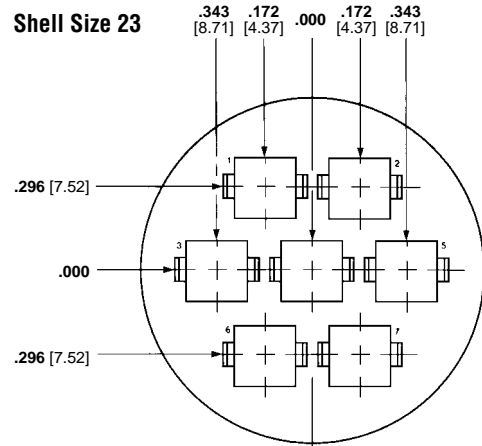
Contact Arrangements, Series 3

Shell Size 17



Arrangement 17-3
Max. Wire Ins. Dia. = .220 [5.59]

Shell Size 23

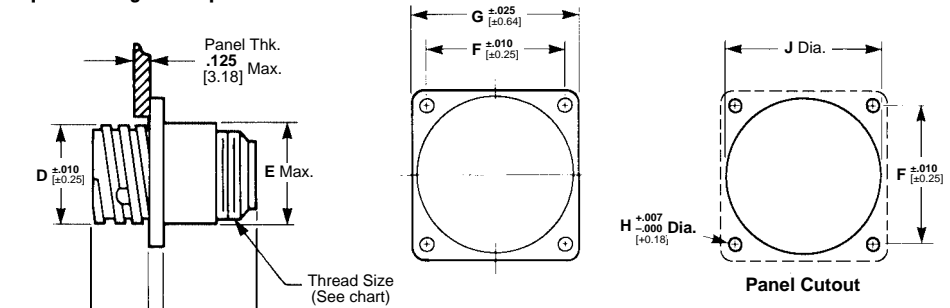


Arrangement 23-7
Max. Wire Ins. Dia. = .220 [5.59]

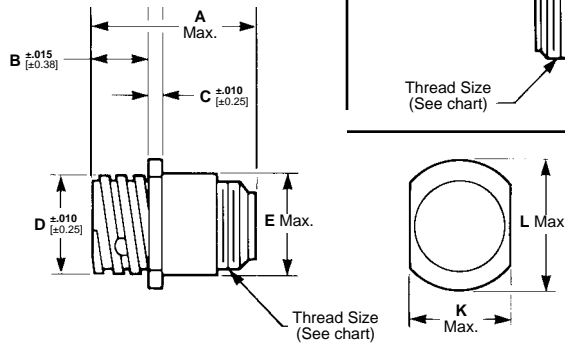
Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

Component Dimensions, Series 3

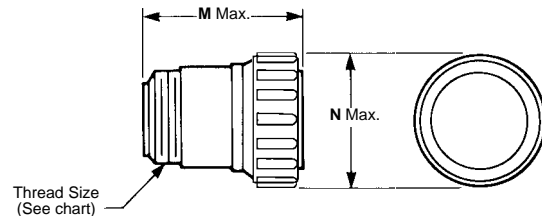
Square Flange Receptacle



Free-Hanging Receptacle



Plug



Arrangement No.	Dimensions													Thread Size
	A	B	C	D	E	F	G	H	J	K	L	M	N	
17-3	1.635	.420	.094	1.050	1.110	1.125	1.435	.150	1.210	1.161	1.310	1.645	1.349	15/16-20
	41.53	10.67	2.39	26.67	28.19	28.58	36.45	3.81	30.73	29.49	33.27	41.78	34.26	UNEF-2A
23-7	1.635	.520	.156	1.438	1.510	1.438	1.750	.150	1.610	1.505	1.733	1.645	1.788	1-3/8-18
	41.53	13.21	3.96	36.53	38.35	36.53	44.45	3.81	40.89	38.23	44.02	41.78	45.42	UNEF-2A

Note: All dimensions apply to both standard and reverse sex.

For complete product information, order Catalog 82021

Circular Plastic Connectors, Series 4

CPC Connectors, Series 4, Standard Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Thermoplastic, 94V-0 rated, black

Coupling Ring—(-1) Polyester, black; (-2) Polyphenylene, black

Related Product Data:

Contacts—Pages 9101-9103, 9105, 9109, 9114, 9115

Contact Arrangements—Below

Accessories—Pages 9139 thru 9142

Performance Characteristics—Page 9122

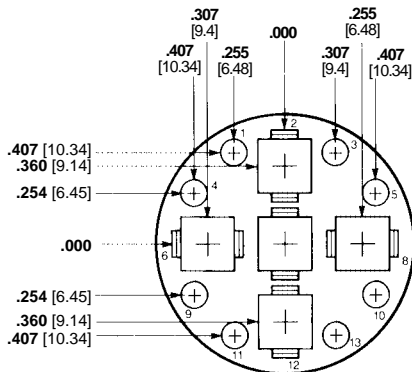
Technical Documents: Page 9119

Replacement Coupling Rings

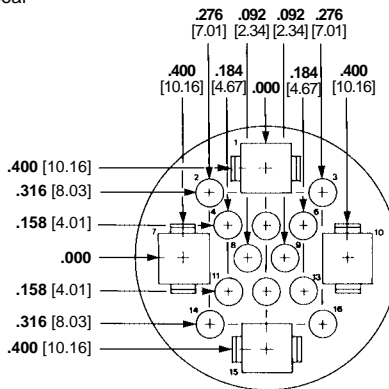
Shell Size	Part Numbers
23	213812-1

Contact Arrangements, Series 4 Shell Size 23

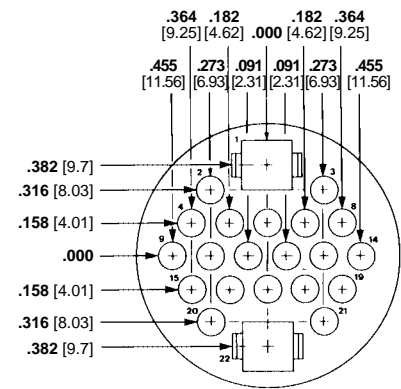
Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.



Arrangement 23-13M
Max. Wire Ins. Dia. =
.150 [3.81] for Multimate Contacts,
.220 [5.59] for Power Contacts

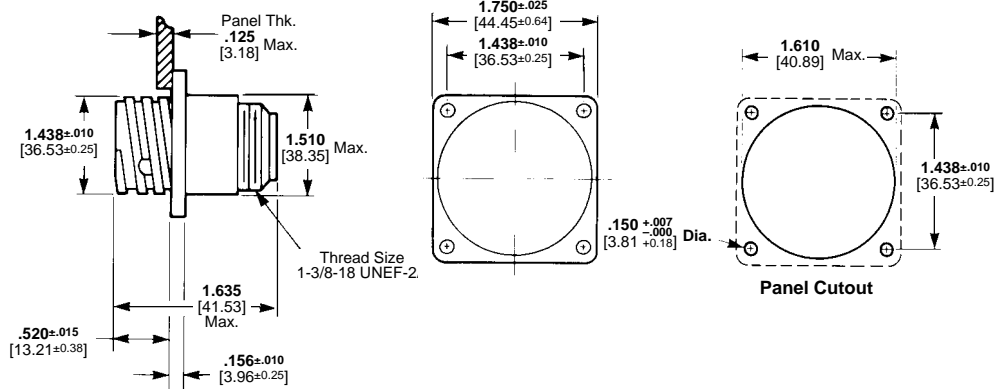


Arrangement 23-16M
Max. Wire Ins. Dia. =
.150 [3.81] for Multimate Contacts,
.220 [5.59] for Power Contacts

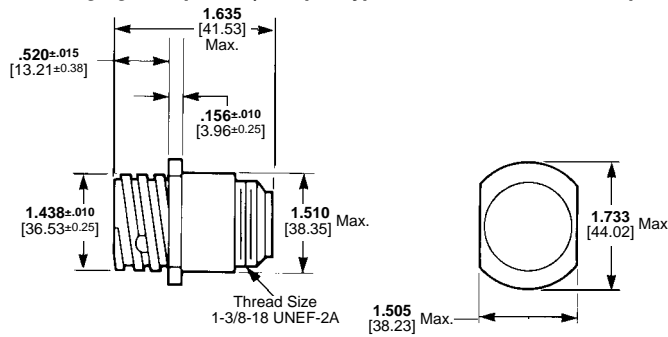


Arrangement 23-22M
Max. Wire Ins. Dia. =
.150 [3.81] for Multimate Contacts,
.220 [5.59] for Power Contacts

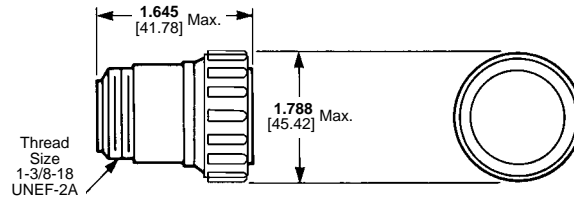
Square Flange Receptacle (Accepts Type XII Male and Multimate pin contacts)



Free-Hanging Receptacle (Accepts Type XII Male and Multimate pin contacts)



Plug (Accepts Type XII Female and Multimate socket contacts)



Arrangement	No. of Cavities		Square Flange Receptacle	Free-Hanging Receptacle	Plug
	Power	Multimate			
23-13M	5	8	211825-1 207486-5*	211825-2	211824-1
23-16M	4	12	207486-1	207486-2	207485-1
23-22M	2	20	206613-1 206613-5*	206613-3	206612-1

Note: Maximum wire insulation diameter is .150 [3.81] for Multimate contacts; .220 [5.59] for Power contacts.
* With Peripheral Seal

Cable Clamps

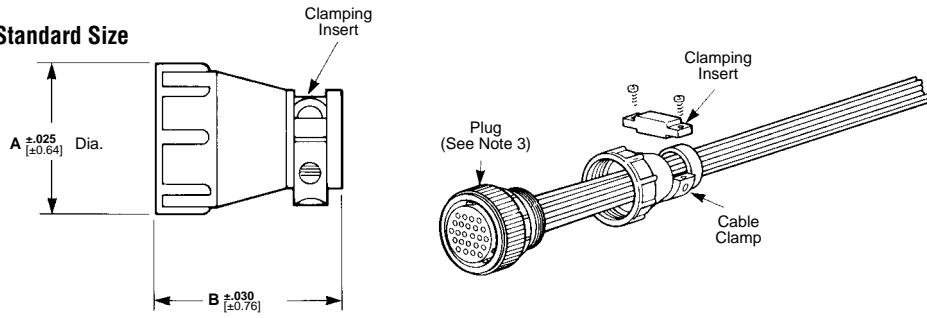
Cable clamps provide strain relief and can be used on all series receptacles and plugs.

Material:

Black thermoplastic heat-stabilized, fire-resistant, self-extinguishing, UL 94V-0 rated

CPC Connector Accessories

Standard Size

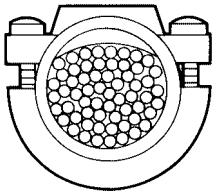


Shell Size	Dimensions		Cable O.D. (Max.)	Thread Size	Part Numbers	
	A	B			Individually Packaged	Bulk Packaged*
11	.825	1.250	.329	5/8-24 UNEF-2B	—	206062-2** (400)
	20.96	31.75	8.36		206062-3	206062-4** (400)
13	.950	1.400	.453	3/4-20 UNEF-2B	206966-1	206966-2** (200)
17	1.125	1.400	.453	15/16-20 UNEF-2B	206070-1	206070-3** (200)
23	1.600	1.555	.703	1-3/8-18 UNEF-2B	206138-1	206138-2** (100)

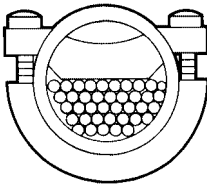
*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.

Packaging includes two screws: shell sizes 11-17, screw length .500 [12.7]; except shell size 11 **Part Number 206062-2, screw length .375 [9.53]; shell size 23, screw length .625 [15.88].

- Notes:**
1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 11 cable clamps, one insert; for all other cable clamps, two inserts.
 2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.
 3. Cable clamps can be threaded directly onto plugs or receptacles, or onto back-shell extenders.
 4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—19024-1, 1/2 in. [12.7]—19024-2, 5/8 in. [15.88]—19024-3, 1 in. [25.4]—19024-4, 3/4 in. [19.05]—19024-5.
 5. Cable clamp inserts not sold separately.

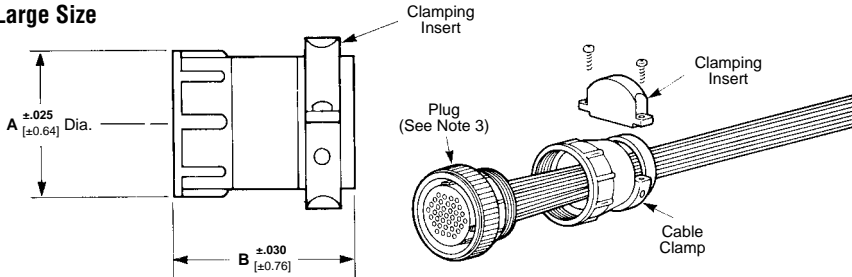


The clamping area can be adjusted by reversing the clamping insert as shown below.



For additional information concerning cable clamps, refer to Instruction Sheet 408-7582.

Large Size



Shell Size	Dimensions		Cable O.D. (Max.)	Thread Size	Part Numbers	
	A	B			Individually Packaged	Bulk Packaged*
11	.850	1.450	.453	5/8-24 UNEF-2B	206358-1	206358-2** (200)
	21.59	36.83	11.51		—	—
13	1.131	1.655	.703	3/4-20 UNEF-2B	207008-1	207008-2** (100)
	28.73	42.04	17.86		206322-1	206322-2** (100)
17	1.131	1.655	.703	15/16-20 UNEF-2B	—	206322-6** (100)
	28.73	42.04	17.86		206512-1	206512-2** (75)
23	1.600	1.655	1.125	1-3/8-18 UNEF-2B	206512-1	206512-2** (75)

*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.

Packaging includes two screws: shell size 11, screw length .500 [12.7]; shell sizes 13-23, screw length .625 [15.88]; except shell size 17 **Part Number 206322-6, screw length .500 [12.7].

- Notes:**
1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 23 cable clamps, four inserts; for all other cable clamps, two inserts.
 2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.
 3. Cable clamps can be threaded directly onto plugs or receptacles.
 4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—19024-1, 1/2 in. [12.7]—19024-2, 5/8 in. [15.88]—19024-3, 1 in. [25.4]—19024-4, 3/4 in. [19.05]—19024-5.
 5. Cable clamp inserts not sold separately.

For complete product information, order Catalog 82021

CPC Connector Accessories

Self-Centering Cable Clamp (for Shell Size 23)

The self-centering cable clamp is used in applications where strain relief protection is required and the cable or wire bundle is large and/or stiff.

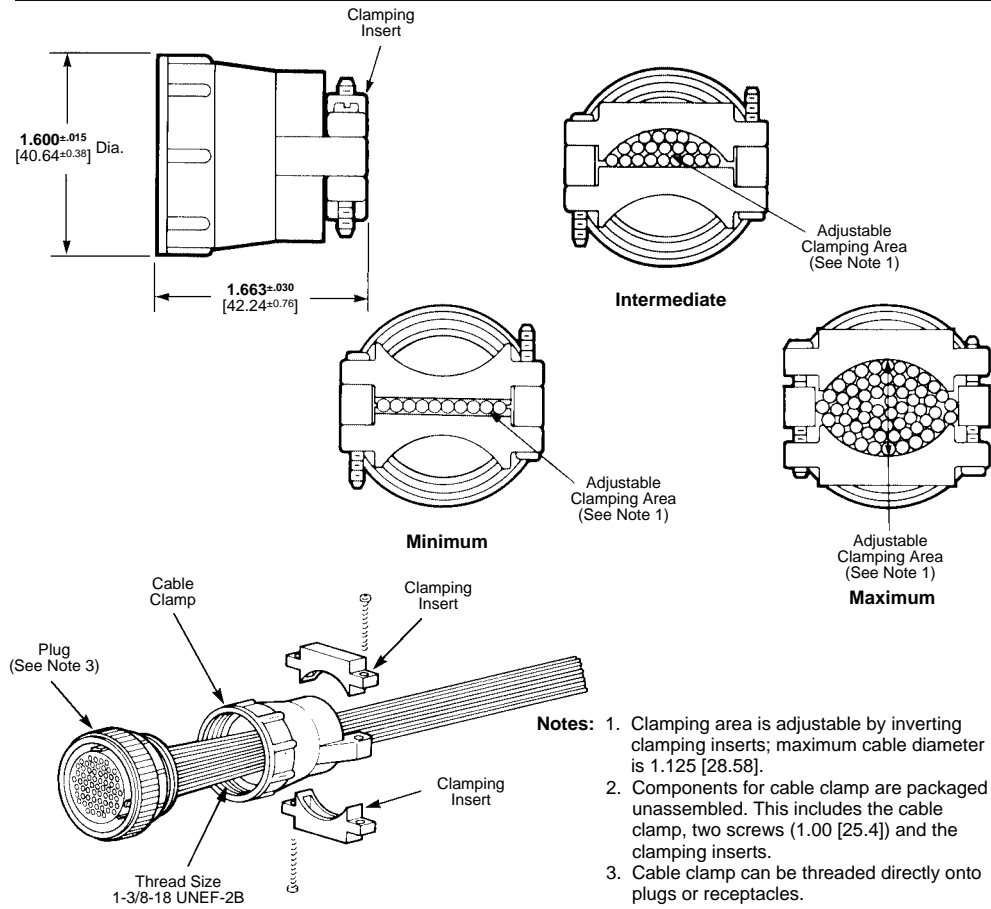
Material:

Black thermoplastic, UL 94V-0 rated

Part Numbers

207774-1 (individually packaged)

207774-2 (bulk packaged)

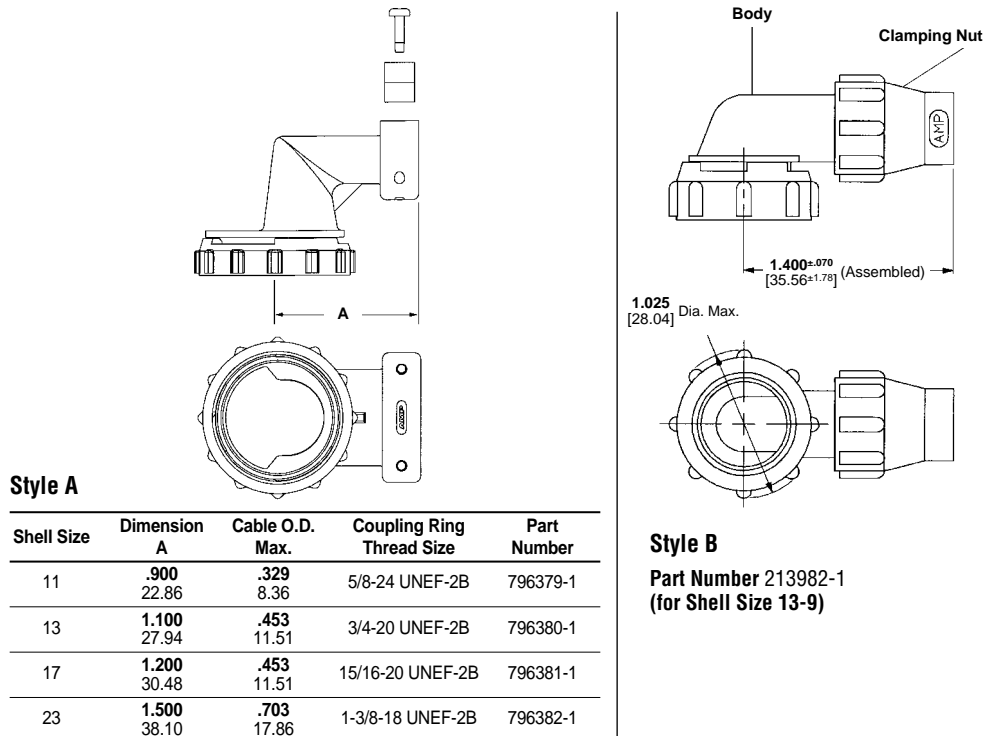


Right-Angle Cable Clamps

Right-angle cable clamps are used in tight areas where typical 180° cable clamp strain reliefs will not fit.

Material:

Black thermoplastic, UL 94V-0 rated



For complete product information, order Catalog 82021

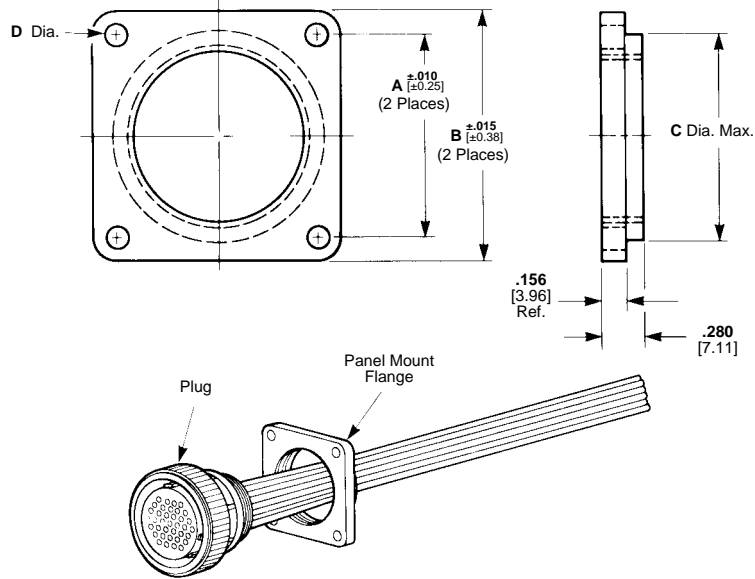
CPC Connector Accessories

Panel Mount Flanges (for Plugs only)

A panel mount flange is used in applications that require the plug half of a connector to be panel mounted.

Material:

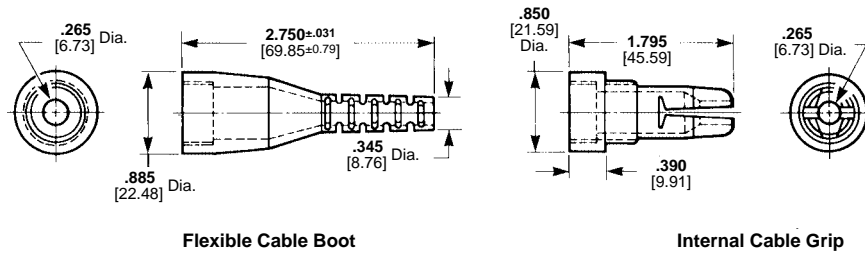
Black thermoplastic



Shell Size	Dimensions				Part Numbers
	A	B	C	D	
11	.844 21.44	1.125 28.58	.750 19.05	.125 3.18	207299-1
13	.969 24.61	1.280 32.51	.875 22.22	.125 3.18	207299-2
17	1.125 28.58	1.435 36.45	1.110 28.19	.150 3.81	207299-3
23	1.438 36.53	1.750 44.45	1.510 38.35	.150 3.81	207299-4

Flexible Cable Boot and Internal Cable Grip (for Shell Size 11)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.



Material:

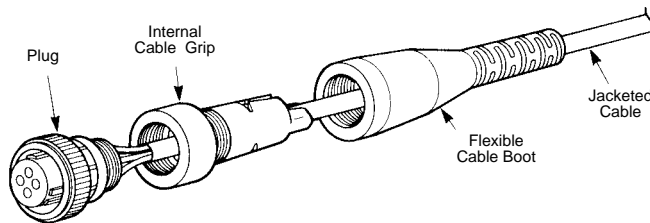
Black thermoplastic

Cable Range:

.150-.250 [3.81-6.35] Dia.

Part Numbers

207489-1 (Cable Boot)
207490-1 (Cable Grip)

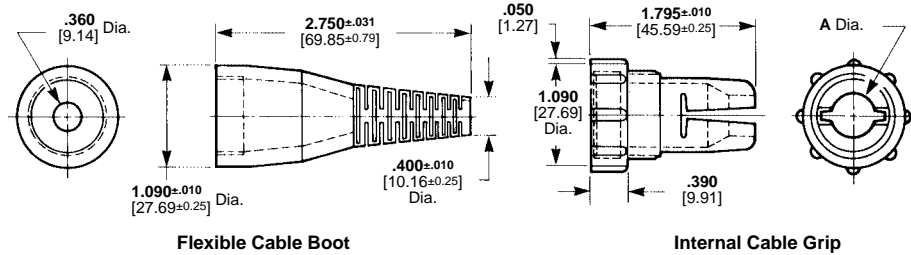


For complete product information, order Catalog 82021

CPC Connector Accessories

Flexible Cable Boot and Internal Cable Grip (for Shell Size 17)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.



Material:

Black thermoplastic

Part Numbers

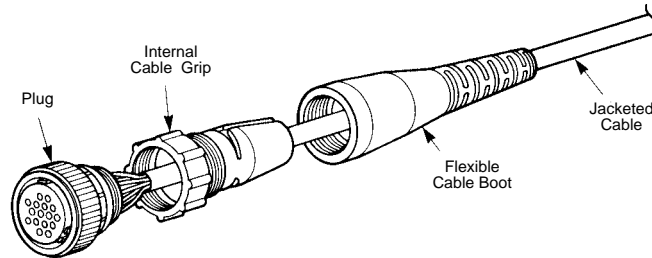
207241-1 (Cable Boot)

207387-1 (Cable Grip)

A Dia. = .325 [8.26] for cable range of .200-.250 [5.08-6.35]

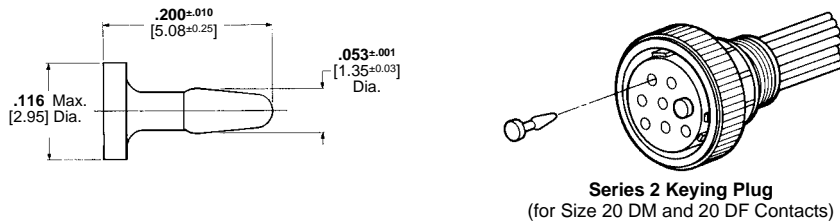
207387-2 (Cable Grip)

A Dia. = .385 [9.78] for cable range of .250-.350 [6.35-8.89]



Keying Plugs

Keying plugs are used to provide keying capabilities for all connector series. Keying plugs are used in socket cavities of standard sex plugs and reverse sex receptacles, except when used with sealing caps.

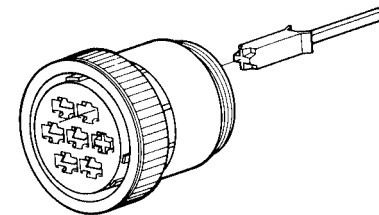
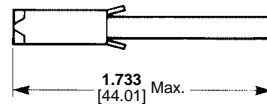


Series 2 Keying Plug
(for Size 20 DM and 20 DF Contacts)

Part Number 206509-1

Material:

Polyphenylene oxide, white, UL 94V-1 rated



Series 3 and Series 4 Keying Plugs
(for Type XII Contacts)

Part Numbers 206508-1 (Socket Cavities)—Shown Above
207597-1 (Pin Cavities)

For complete product information, order Catalog 82021



CPC/Flexa Selection Aid

CPC Shell Size	Flexa Connector Female	PA6 Flexa Tubing	Flexa Connector Male	Flexa R/A Connector Female	Flexa Counter Nut	Flat Sealing Washer
11	1-969807-2	969789-2	969803-2	969817-2	796260-2	796257-2
13	1-969809-3	969789-3	969903-3	969817-3	796260-3	796255-2
17	1-969811-4	969789-4	969803-4	969817-4	796260-5	796255-3
23	2-969813-5	969789-5	969803-5	969817-5	796260-6	796255-4

For complete product information, order Catalog 1307244

One-Piece Sealed Circular Plastic Connectors

Product Facts

- Economical environmentally sealed connector designed for industrial applications
- Meets major Industrial Standards
- High strength, impact resistant thermoplastic housing, rated UL 94V-0
- Contains wire entry and peripheral seals
- AMP POWERBAND precision formed power contact (Series 5 and 6)
- Type III+ precision formed signal/low current contacts (Series 1 and Series 6)
- Other configurations in Series 1 can be made available, contact your local Tyco Electronics Sales Engineer or Tyco Electronics, Harrisburg, PA



The new Sealed One-Piece Circular Plastic Connectors are the latest product innovation to the sealed CPC product family. This design allows for easier assembly. The housing and the seal are attached. A newly designed wire entry seal protects the rear of the connector and a peripheral seal protects the connector interface. Simply crimp the contact onto a wire and insert the crimped wire contact through the seal and into the housing cavity. The connector loads the same as if the seal wasn't there. All connector cavities come in a sealed condition. No plugs are required if you do not use a position cavity. We have the

capability to provide this product sealing to you in all the shell sizes. If you don't see your particular size configuration, contact your local Tyco Electronics Sales Engineer or call Tyco Electronics for the latest information.

Industry Standards One-Piece Sealed CPC products meet –

- IP 67 (Temporary immersion)

Fluid Protection Against – diesel fuel, gear and engine lubricants, gasoline, anti-freeze, hydraulic fluid, water, salt sprays, etc.

Performance Characteristics: meets the same performance characteristics as shown on page 9122.

Operating Temperature Range—
-50°C to +125°C

Voltage Rating—

- Series 1 600 V (AC or DC)
- Series 6 250 V (AC or DC)

Power Contact—125 POWERBAND
45 amps, single contact rating at 30°C T-Rise

Type III+ Contacts –
13 amps, single contact rating at 30°C T-Rise

Flammability Rating—
UL 94V-0 rated

Sealing Capability—
Per IP 67

Housing Material—
High strength, impact resistant thermoplastic

Fluid Resistance—
Diesel fuel, gear and engine lubricants, gasoline, anti-freeze, hydraulic fluid, water

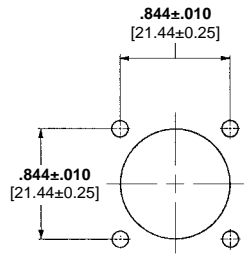
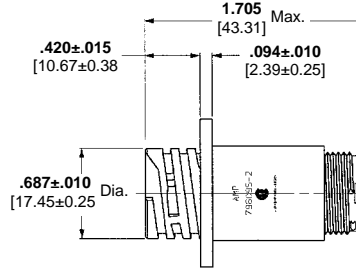
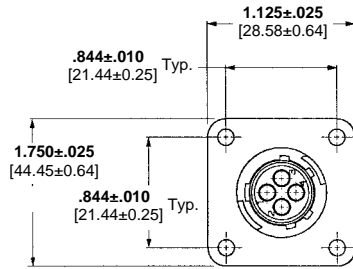
For complete product information, order Catalog 82021

One-Piece Sealed Circular Plastic Connectors, Series 1

Sealed CPC Receptacles, Special Series 1 with Pre-Installed, Bonded Peripheral Seal



Square Flange Receptacle (Uses Flange Seal Part Number 81665-□ on page 9150)



Recommended Panel Cutout

Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Housing—Thermoplastic, UL 94V-0 rated, black

Seal—Elastomer, gray

Related Product Data:

Contacts—Pages 9101-9103, 9105, 9109

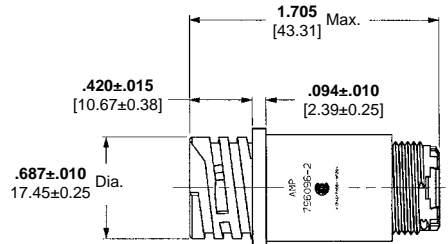
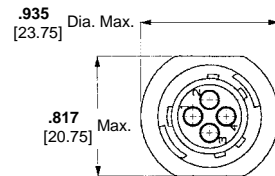
Contact Arrangement—Page 9129

Component Dimensions—Size 11-4 shown; request Customer Drawings for other sizes

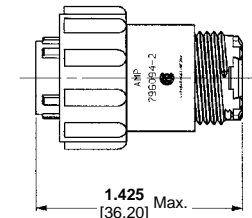
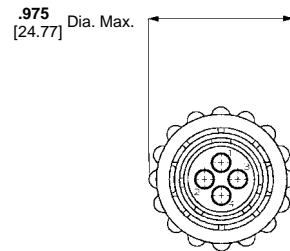
Accessories—Pages 9139 thru 9142 and 9150 and 9152

Performance Characteristics—Page 9122

Free-Hanging Receptacle



Plug



Technical Documents: Page 9119

Arrangement	Shell Size	No. of Positions	Sex	Square Flange Receptacle		Free-Hanging Receptacle	Plug	Insulation Diameter
				With Mounting Holes	With Threaded Inserts ¹			
11-4			Standard	796095-2	—	796096-2	796094-2	.065-.100 [1.65-2.54]
			Reverse	788154-2	—	788155-2	788153-2	.065-.100 [1.65-2.54]
13-9			Standard	788158-2	—	788159-2	788157-2	.065-.100 [1.65-2.54]
17-14			Reverse	796272-1	—	796273-1	796271-1	.065-.100 [1.65-2.54]
17-16			Standard	796275-1	796275-3	796276-1	796274-1	.065-.100 [1.65-2.54]
			Standard	796275-2	—	796276-2	796274-2	.040-.080 [1.01-2.03]
23-24			Standard	796190-1	—	796291-1	796188-1	.065-.120 [1.65-3.04]
23-37			Standard	796286-1	—	796287-1	796288-1	.065-.100 [1.65-2.54]

¹Four 4-40 threaded inserts per receptacle.

Assembly Accessories

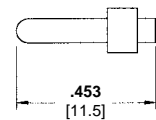
Seal Protectors are recommended to aid contact insertion through the wire entry seal. They are reusable.



Part Number 208337-1 (Insert Pins)
Part Number 208338-1 (Insert Sockets)

Wire Entry Seal Plug

Part Number 796075-1 (6 per carrier strip)
Material—Polypropylene, natural



For complete product information, order Catalog 82021

CPC Connectors, Series 5 Sealed – Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data:

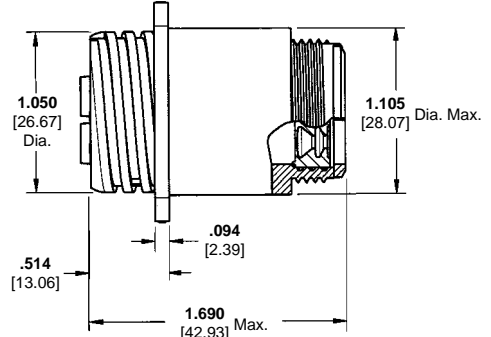
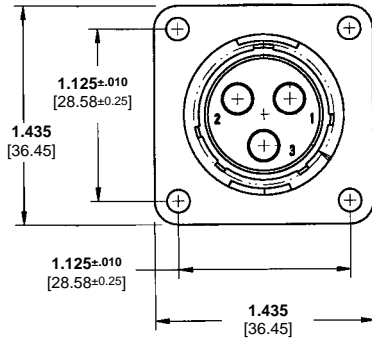
Contacts—Pages 9111

Accessories—Page 9150

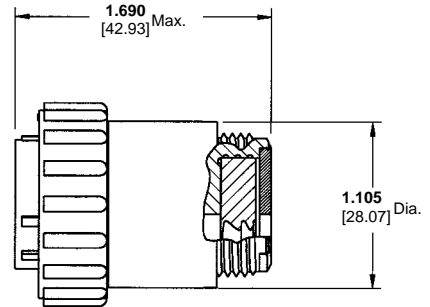
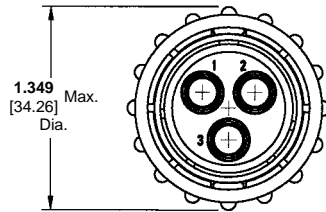
Technical Documents: Page 9119

One-Piece Sealed Circular Plastic Connectors, Series 5

Square Flange Receptacle (Uses Flange Seal Part Number 81665-2 on page 9150)



Plug



Arrangement	Insulation Diameter	Square Flange Receptacle	Free Hanging Receptacle	Plug
17-3	.095-.205 [2.41-5.21]	788189-1	796112-1	788188-1
	.150-.265 [3.81-6.73]	788189-2	796112-2	788188-2

CPC Connectors, Series 6 Sealed



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Nylon, glass-filled UL rated 94V-0, black

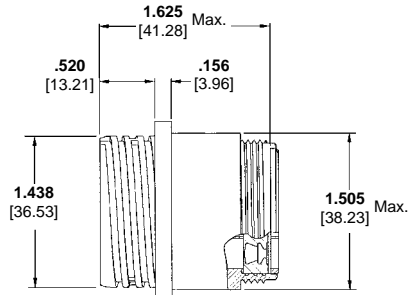
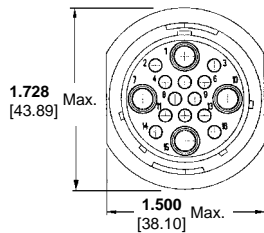
Related Product Data:

Contacts—Pages 9101-9103, 9105, 9109, 9111

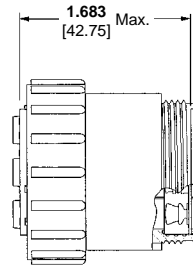
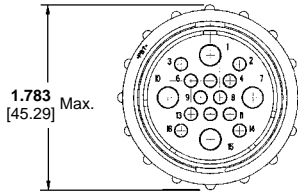
Technical Documents: Page 9119

One-Piece Sealed Circular Plastic Connectors, Series 6

Free Hanging Receptacle



Plug



Arrangement	Sex	Free-Hanging Receptacle	Plug	Insulation Diameter	
				Power	Signal
23-16	Standard	796207-1	796203-1	.095-.205 [2.41-5.21]	.065-.100 [1.65-2.54]
	Reverse	796330-1	796332-1	.150-.265 [3.81-6.73]	.065-.100 [1.65-2.54]

For complete product information, order Catalog 82021

Two-Piece Sealed Circular Plastic Connectors

Product Facts

- Economical environmentally sealed connector designed for industrial applications
- Meets major Industrial Standards
- High strength, impact resistant thermoplastic housing, rated UL 94V-0
- Contains wire entry, peripheral, and full interfacial seals
- AMP POWERBAND precision formed power contact (Series 5 and 6)
- Type III+ precision formed signal/low current contacts (Series 6)
- Other configurations in Series 1 can be made available, contact your local Tyco Electronics Sales Engineer or Tyco Electronics, Harrisburg, PA



Sealed CPC connectors are the latest additions to the growing family of AMP Circular Plastic Connectors. Sealed CPC connectors were developed as part of the Series 5 and 6 product line, specifically to meet the increasing needs for an economical environmentally sealed connector.

Sealed CPC connectors are designed to meet the requirements of UL, CSA, and VDE for environmentally sealed connectors used in industrial applications.

In addition, sealed CPC connectors are designed to meet the latest SAE and ASAE requirements as outlined in the standards listed here.

Sealed CPC connectors incorporated the latest technology in thermoplastic design and use the new AMP POWERBAND precision formed high current contact.

Illustrated above are the Series 5 (power) and Series 6 (power/signal mix) sealed connector configurations. Other sizes are available in a Series 1 (signal/low current) configuration. Contact your local Tyco Electronics Sales Engineer, or call Tyco Electronics for the latest design information.

Industry Standards

Two-Piece Sealed CPC connectors meet—

- SAE— J2030
- ASAE— EP455
- IP— 65
- UL— 1977
- NEMA 250— Class 4

Performance Characteristics:

Operating Temperature Range—
-50°C to +125°C

Voltage Rating—

Series 5 600 V (AC or DC)

Series 6 250 V (AC or DC)

.125 POWERBAND Power Contact—
45 amps, single contact rating at
30°C T-Rise

Type III+ Contacts –
13 amps, single contact
rating at 30°C T-Rise

Flammability Rating—UL 94V-0
rated

Sealing Capability—Per IP 65

Housing Material—High strength,
impact resistant thermoplastic

Fluid Resistance—Diesel fuel, gear
and engine lubricants, gasoline,
anti-freeze, hydraulic fluid, water

Technical Documents:

Product Specification

108-1579 Sealed CPC Connectors with
Removable Contacts

Instruction Sheet

408-4317 Two-Piece Sealed CPC
Connectors

For complete product information, order Catalog 82021

Two-Piece Sealed Circular Plastic Connectors, Series 5

CPC Connectors, Series 5 Sealed – Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data:

Contacts—page 9111

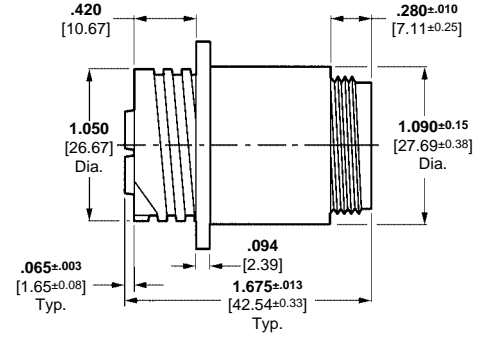
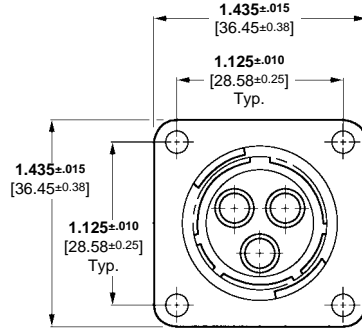
Accessories—page 9150

Technical Documents: page 9146

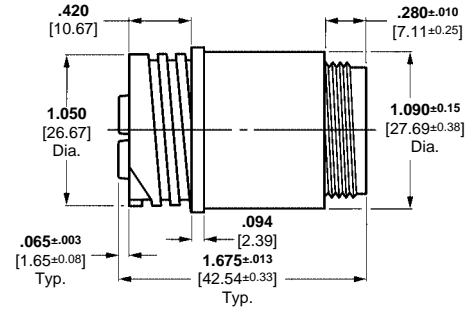
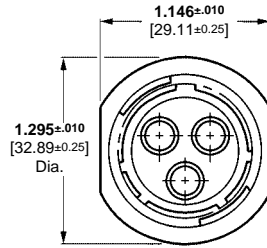
Replacement Coupling Rings

Shell Size	Part Number
17-3	213810-1

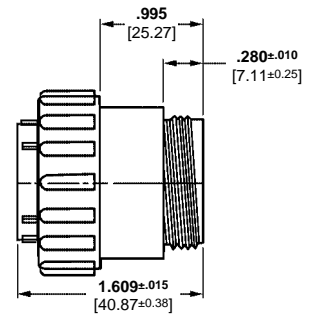
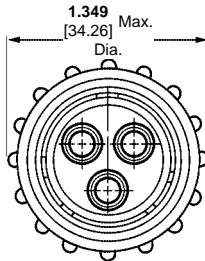
Square Flange Receptacle (Uses Flange Seal Part Number 81665-2 on page 9150)



Free-Hanging Receptacle



Plug (With Full Interfacial Seal)



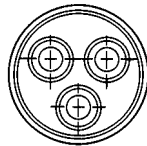
(Receptacles accept socket contacts, Plugs accept pin contacts)

Arrangement	Square Flange Receptacle	Free-Hanging Receptacle	Plug
17-3 - Connector	213889-2	213890-2	213905-1
17-3 - Wire Entry Seal Kit	213899-1	213899-1	213899-1

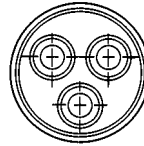
Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate.
*Wire entry seals require cable clamp kits.

Wire Entry Seals*

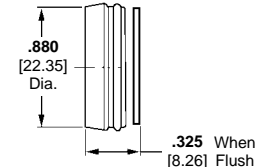
*Cable clamp kit 213902-1 required. (Similar to 206322-1. See page 9139 for dimensional detail of cable clamp) or cable clamp kit 213904-1. (Similar to 206070-1. See page 9139 for dimensional detail of cable clamp).



Rear View Receptacles



Rear View Plugs



Side View Plugs/Receptacles

Note: Minimum insulation diameter is .156 [3.96]; maximum insulation diameter is .260 [6.60].

For complete product information, order Catalog 82021

Two-Piece Sealed Circular Plastic Connectors, Series 6

CPC Connectors, Series 6 Sealed – Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material:

Housing—Nylon, glass-filled UL rated 94V-0, black

Related Product Data:

Contacts—pages 9101-9103, 9105, 9109, 9111

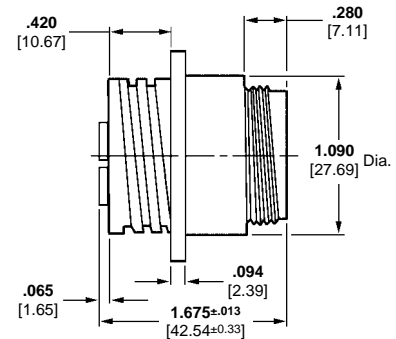
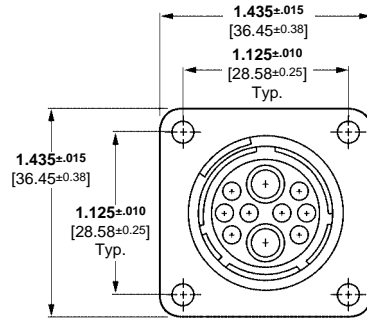
Accessories—page 9150

Technical Documents: page 9146

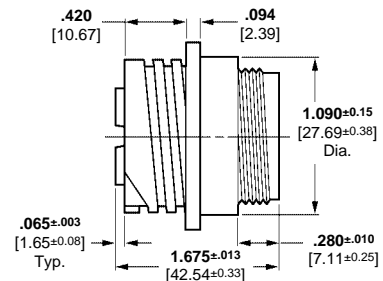
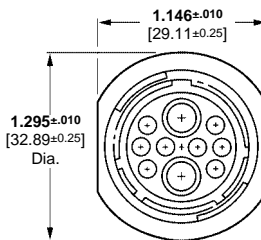
Replacement Coupling Rings

Shell Size	Part Number
17-10	213810-1

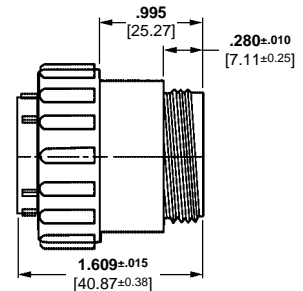
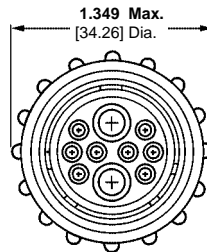
Square Flange Receptacle (Uses Flange Seal Part Number 81665-2 on page 9150)



Free-Hanging Receptacle



Plug (With Full Interfacial Seal)



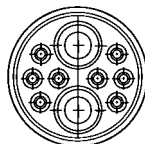
(Receptacles accept socket contacts, Plugs accept pin contacts)

Arrangement	Square Flange Receptacle	Free-Hanging Receptacle	Plug
17-10 Connector	213893-2	213894-2	213906-1
17-10 Wire Entry Seal Kit	213900-1	213900-1	213900-1

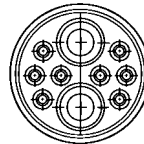
Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate.
*Wire entry seals require cable clamp kits.

Wire Entry Seal*

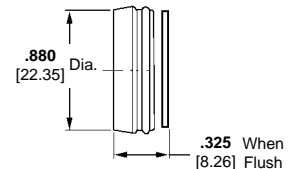
*Cable clamp kit 213902-1 required. (Similar to 206322-1. See page 9139 for dimensional detail of cable clamp) or cable clamp kit 213904-1. (Similar to 206070-1. See page 9139 for dimensional detail of cable clamp).



Rear View Receptacles



Rear View Plugs



Side View Plugs/Receptacles

Note: Minimum insulation diameter is .156 [3.96]; maximum insulation diameter is .260 [6.60] for power contacts. Minimum insulation diameter is .060 [1.50]; maximum insulation diameter is .130 [3.30] for signal contacts.

For complete product information, order Catalog 82021

Two-Piece Sealed Circular Plastic Connectors, Special Series 1

Sealed CPC Receptacles, Special Series 1 with Pre-Installed, Bonded Peripheral Seal



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Housing—Thermoplastic, UL 94V-0 rated, black

Seal—Elastomer, gray

Related Product Data:

Contacts—pages 9101-9103, 9105, 9109

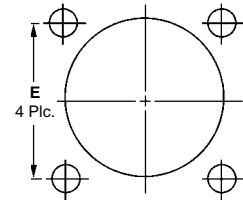
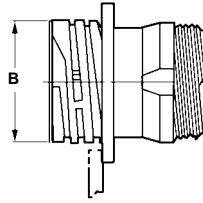
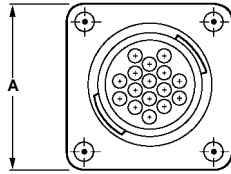
Contact Arrangement—page 9129

Accessories—pages 9139 thru 9142 and 9150 thru 9152

Performance Characteristics—page 9122

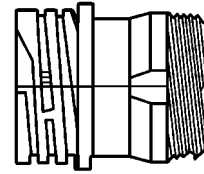
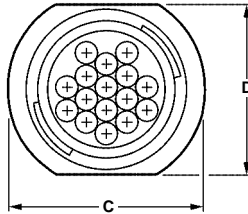
Technical Documents: page 9146

Square Flange Receptacle (Uses Flange Seal Part Number 81665-□ on page 9150)



Recommended Panel Cutout

Free-Hanging Receptacle

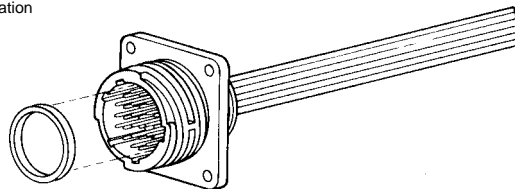


Shell Size	Dimension E
11	.844 21.44
13	.969 24.61
17	1.125 28.58
23	1.438 36.53

Shell Size	Dimensions		Contact Arrangement	Sex	Square Flange Part Numbers	Dimensions		Free-Hanging Part Numbers	Mates with Plug Part Numbers
	A	B				C	D		
11	1.125	.607	11-4	Std.	206061-2	.935	.817	206153-2 206430-4	206060-1 206429-1
	28.58	15.42		Rev.	206430-3	23.75	20.75		
13	1.281	.812	13-9	Std.	206705-3	1.072	.874	206705-4	206708-1
	32.54	20.62		Rev.	206036-4	27.23	22.20		
17	1.435	1.050	17-16 17-14	Std.	206036-4	1.310	1.161	206036-5 206043-5	206037-1 206044-1
	36.45	26.67		Rev.	206043-4	33.27	29.49		
23	1.750 44.45	1.438 36.53	23-24	Std.	206838-3	1.733	1.505	206838-4 206151-4	206305-4 206150-3
				Std.	206151-3				
			Rev.	206306-3	206306-4	206837-3			

- Notes:** 1. For detailed performance data on peripheral seals, refer to AMP Product Specification No. 108-10024.
2. Receptacle mates with Series 1 plugs found on page 9124.

Seal shown outside of connector for illustration purposes only.



Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.

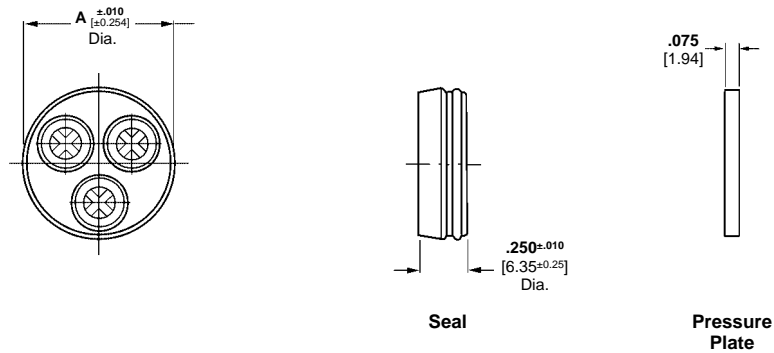
For complete product information, order Catalog 82021

Two-Piece Circular Plastic Connector Sealing Accessories

Wire Entry Seal Kits for Plug and Receptacle Housings

Material and Finish:

Seal—Silicon, black
Pressure Plate—Nylon, black



Arrangement No.	Insulation Dia. Range	Dimension A	Kit for Pins	Kit for Sockets
13-9	.075-.125 1.91-3.18	.681 17.30	213926-1	213925-1
17-3	.178-.265 4.52-6.73	.790 20.07	213899-1	213899-1
17-10	.178-.265 4.52-6.73	.790 20.07	213900-1	213900-1
	.075-.125 1.91-3.18			
17-14	.075-.125 1.91-3.16	.790 20.07	213919-2	213919-1
17-16	.075-.125 1.91-3.16	.790 20.07	213920-2	213920-1

Notes: 1. Kits include one Gang Seal and one pressure plate marked for cavity identification.
2. Arrangement No. 17-10 Insulation Dia. Range .178-.265 [4.52-6.73] for two holes, .075-.125 [1.95-3.18] for eight holes.

One-Piece or Two-Piece Sealed CPC Sealing Accessories

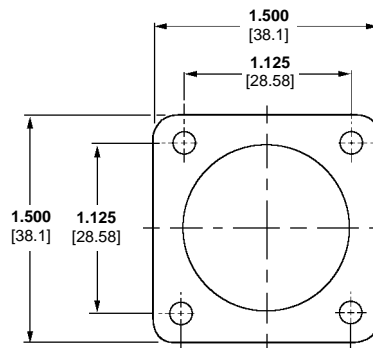
Flange Seals

Material:

Neoprene, black

Dimensions—Size 17 shown; request Customer Drawings for other sizes

Shell Size	Part Numbers
11	81665-3
13	81665-4
17	81665-2
23	81665-5

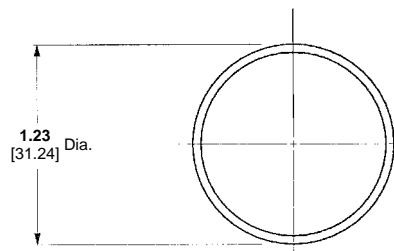


Peripheral Seal

Material:

Elastomer, gray

Shell Size	Part Number
23	206403-3



For complete product information, order Catalog 82021

Circular Plastic Connector Sealing Accessories

Sealing Caps

for Receptacles only

Sealing caps are used to protect exposed contacts of unmated receptacles.

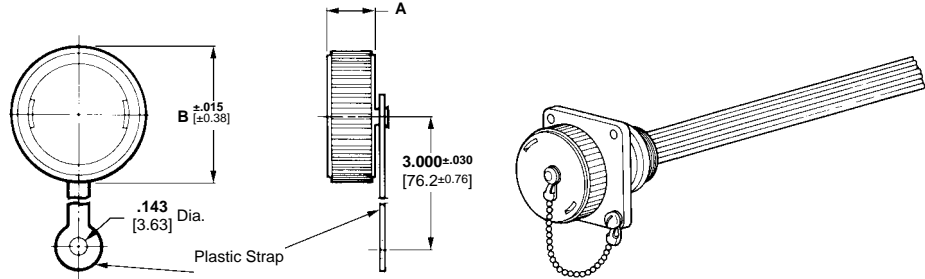
Material and Finish:

Cap—Thermoplastic, heat stabilized, fire resistant, self-extinguishing, 94V-1 rated, black

Sealing Gasket—Neoprene, black

Bead Chain—Steel, nickel plated

Bead Chain Coupling—Brass, plated nickel

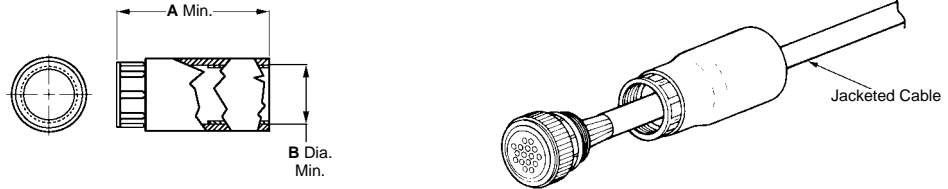


Shell Size	Series	Dimensions		Part Numbers	
		A	B	With Plastic Strap	With Metal Bead Chain
11	1 & 2	.360	.927	206903-1	208800-1
		9.14	23.55		
13	1	.360	1.055	211870-1	213485-1
		9.14	26.80		
17	1,2,& 3	.360	1.295	207445-1	208652-1
		9.14	32.89		
23	1, 3, & 4 2	.460	1.728	207446-1	208680-1
		11.68	43.89	207446-2	208680-2

Cable Entry Seals

Heat Shrinkable Sealing Boots

Cable entry seals are used with jacketed cable to provide an environmentally sealed wire-to-connector system. They can be used with either plugs or receptacles.



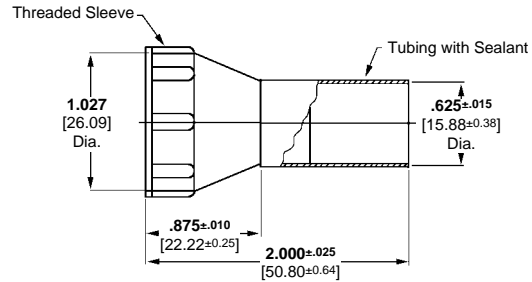
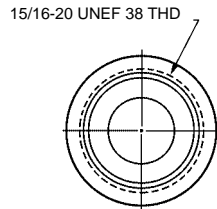
Shell Size	Dimensions		Expanded Wall Thickness	Sealing Range (Dia.)	Max. Recovered Wall Thickness	Part Numbers
	A	B				
11	2.500	.625	.080 Ref.	.260 - .600	.120 Ref.	54010-1
	63.50	15.88	2.03	6.60 - 15.25	2.59 Ref.	
13	2.500	.775	.080 Ref.	.375 - .725	.120 Ref.	54123-1
	63.50	19.68	2.03	9.53 - 18.42	2.59 Ref.	
17	2.500	.975	.080 Ref.	.400 - .875	.120 Ref.	54011-1
	63.50	24.76	2.03	10.16 - 22.22	2.59 Ref.	
23	3.000	.975	.080 Ref.	.400 - .875	.120 Ref.	54011-3
	76.20	24.76	2.03	10.16 - 22.22	2.59 Ref.	
23	3.000	1.250	.080 Ref.	.550 - 1.250	.120 Ref.	54012-1
	76.20	31.75	2.03	13.97 - 31.75	2.59 Ref.	

Thick Wall Boots

Material:

Internal Sleeve—Nylon

Outer Tubing—Polyolefin



Thin Wall Boot

Material:

Inter Sleeve—Nylon

Outer Tubing—Polyolefin

Expanded Wall Thickness—
.020 [0.51]

Max. Recovered Wall Thickness—
.040 [10.16]

Sealing Range—.250 [6.35]-
.500 [12.70] Dia.

Shell Size 17
Part Number 213933-1

For complete product information, order Catalog 82021

Circular Plastic Connector Sealing Accessories

Jacketed Cable Seals (for Shell Size 23)

A jacketed cable seal kit provides an environmentally sealed connection for jacketed cable.

Material:

Peripheral Seal—Grey elastomer

Collar—Aluminum

Jacketed Cable Seal—Black rubber

Back-Shell Extender—Black glass-filled thermoplastic

Special Clamp Saddle—Black thermoplastic

Note: Jacketed cable seals must be used with large cable clamps and can be used on plugs or receptacles. Large cable clamps are to be ordered separately (see page 9139). Each jacketed cable seal kit includes:

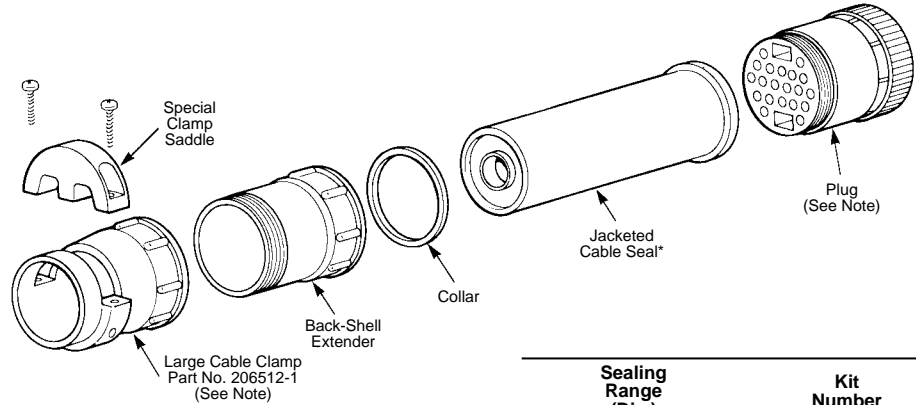
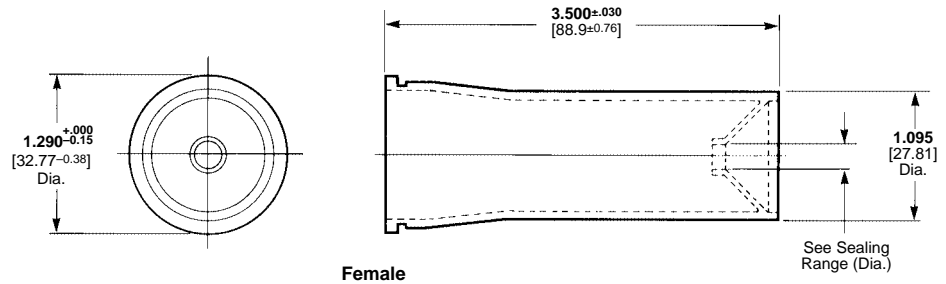
- Peripheral Seal—to be discarded if kit is used on plug. Additional seals may be purchased (see page 9150)
- Collar—provides bearing surface for back-shell extender
- Jacketed Cable Seal
- Back-Shell Extender
- Special Clamp Saddle—to be used in lieu of clamping insert supplied with large cable clamp

Rubber Boot

Rubber boots are used with jacketed cable to provide splash-proof connections for Series 1 and Series 3 connectors. (Not for Metal-Shell CPC)

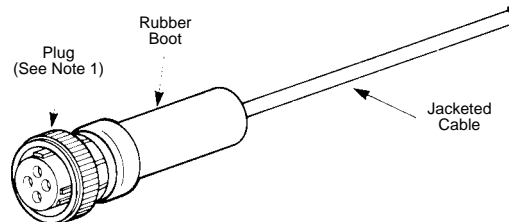
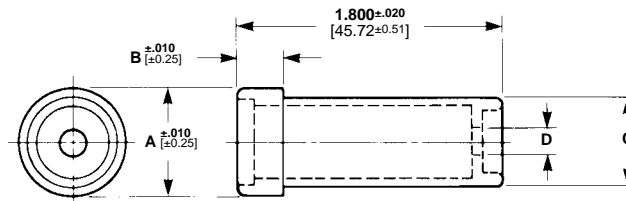
Material:

Black neoprene



*Jacketed cable seal is pressed flush against rear connector face when back-shell extender is threaded onto rear of connector.

Sealing Range (Dia.)	Kit Number
.300-.450 7.62-11.43	207052-1
.450-.600 11.43-15.24	207052-2
.600-.875 15.24-22.22	207052-3



Shell Size	Cable Dia. Sealing Range	Dimensions				Part Number
		A	B	C	D	
11	.219-.438 5.56-11.13	.750 19.05	.300 7.62	.600 15.24	.170 4.32	206304-1

- Notes:**
1. Rubber boots are recommended for use with jacketed cable and can be used on plugs or receptacles, except Series 2 connectors.
 2. For detailed performance data on rubber boots, refer to AMP Product Specification No. 108-10024.

For complete product information, order Catalog 82021

MIL-C-5015 Style Circular Plastic Connectors (CPC)

Product Facts

- Intermateable with other manufacturers' Metal-Shell Sizes 20-14 and 18-10, MIL-C-5015 Style Connectors
- High impact resistant plastic housing
- Lighter weight
- Lower cost
- Industry accepted, Type III+ pin and socket contacts, available on reels in strip-form for high volume, low cost, automatic machine terminations
- Contacts also available in loose piece form for low volume, prototype or maintenance and repair
- Housing designed to prevent mismatching with other insert arrangements
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



This new addition to the AMP Circular Plastic Connector Line is specifically designed to be intermateable with other manufacturers' Metal-Shell sizes 20-14 and 18-10, MIL-C-5015 Style Connector Systems. The high impact resistant plastic housing offers the advantages of lighter weight and lower cost than existing metal shell connectors. In addition, the connector design prevents mismatching when used with other insert arrangements. As part of the AMP Multimate Family of Connectors, the MIL-C-5015 style connector offers the additional economies of crimp Type III+ Pin and Socket contacts in reel-mounted, strip-form for high volume automatic machine termination, as well as in loose piece form for low volume, prototype or maintenance and repair.

Technical Documents:

- Product Specifications**
- 108-10024** CPC Connectors
- 108-10042** Contacts, Type III+
- Application Specification**
- 114-10004** Contacts, Type III+
- Instruction Sheets**
- 408-7582** Accessories for CPC Connectors
- 408-7592-A** Improved Strain Relief Clamps for CPC Connectors
- 408-7593** CPC Connectors

For complete product information, order Catalog 82021

MIL-C-5015 Style Circular Plastic Connectors (CPC), Shell Size 20-14

Plug Kits, Unassembled

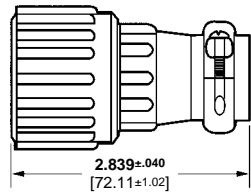
Reverse Sex (Accepts pins)

Part Number 213571-2
without Cable Clamp

Standard Sex (Accepts sockets)

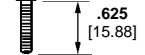
Part Number 213652-1
without Cable Clamp

Cable Clamps		O.D. Max.
Part Numbers	Type	
206070-1	standard	.453 [11.51]
206322-1	large	.703 [17.86]

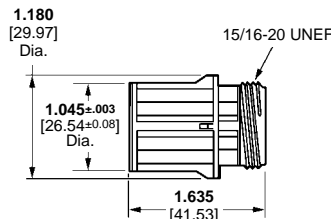


Assembled with Cable Clamp

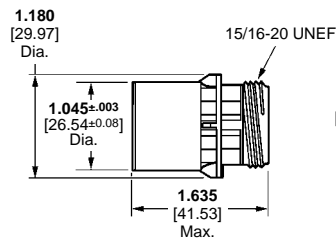
5-20 Self Tapping Screw,
Quantity 2



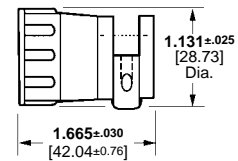
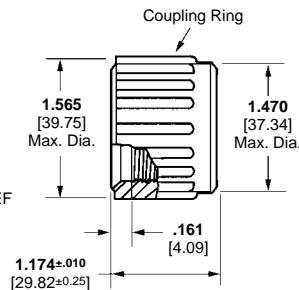
Clamping Inserts
.703 [17.86]
Max. Outside Dia.



Standard Sex



Reverse Sex



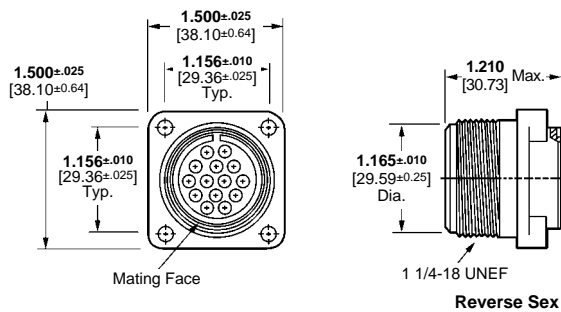
Receptacles, Square Flange

Reverse Sex (Accepts sockets)

Part Number 213570-1

Standard Sex (Accepts pins)

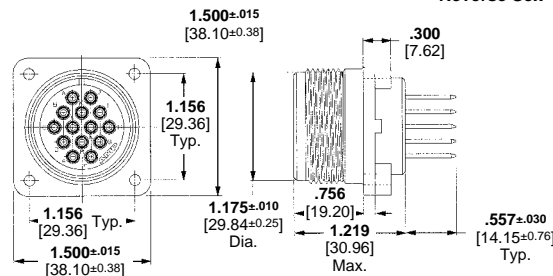
Part Number 213651-1



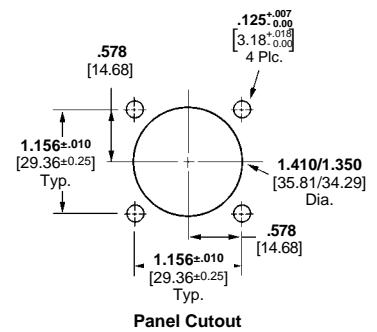
Reverse Sex

Reverse Sex (with .045 [1.14] sq. posted socket contacts loaded in 6 pos.)

Part Number 213928-2



Reverse Sex

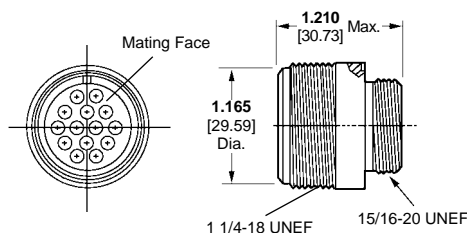


Panel Cutout

Receptacle, Free-Hanging

Reverse Sex (Accepts sockets)

Part Number 213650-1

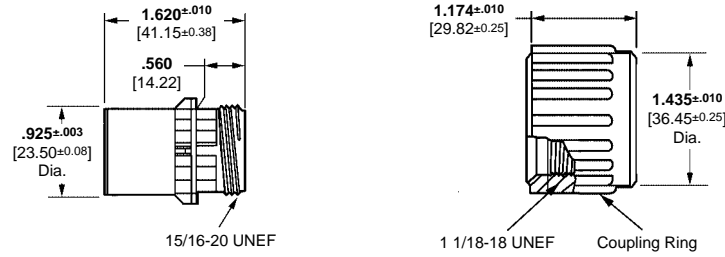


For complete product information, order Catalog 82021

MIL-C-5015 Circular Plastic Connectors (CPC), Shell Size 18-10

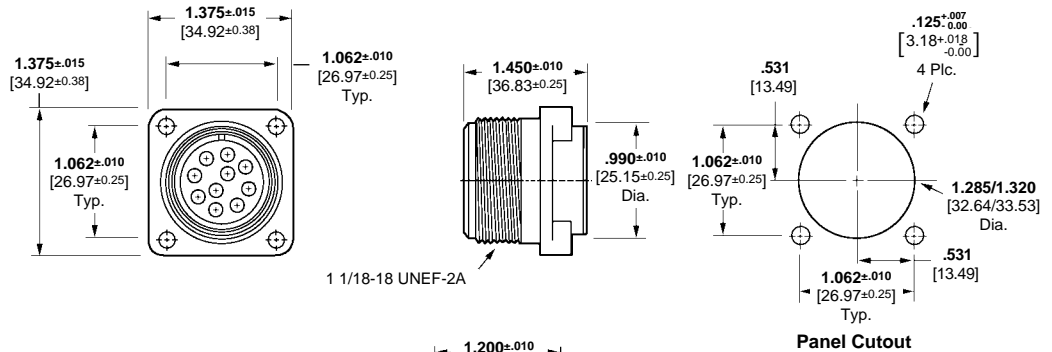
Plug Kit, Unassembled

Reverse Sex (Accepts pins)
Part Number 213671-1
without Cable Clamp



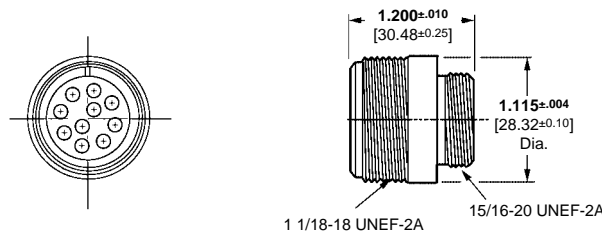
Receptacle, Square Flange

Reverse Sex (Accepts sockets)
Part Number 213667-1



Receptacle, Free-Hanging

Reverse Sex (Accepts sockets)
Part Number 213668-1



Type III+ Contacts

Material:

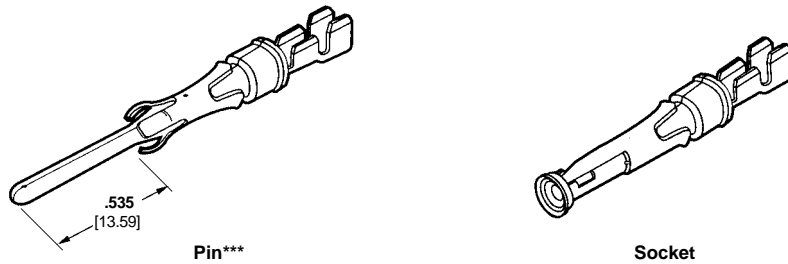
Contact—Brass
Spring—Stainless Steel

Contact Finish:

A—.000015 [0.000038] gold on the electrical engagement area over .000030 [0.00076] min. nickel

B—.000030 [0.00076] gold on the electrical engagement area over .000030 [0.00076] min. nickel

C—Tin



Wire Size Range		Ins. Dia. Range	Contact Finish Code	Strip Form Contact No.		Loose Piece Contact No.		Strip Form Applicator	Hand Tool Part Numbers
AWG	mm ²			Pin	Socket	Pin	Socket		
24-20	0.2-0.6	.060-.135 1.52-3.43	C	213605-1	66563-6	213605-2	66565-2	567363-□††	90331-1 ⁵
			A	—	66563-7	—	66565-3		
			B	213605-5	66563-8	213605-6	66565-4		
18-14	0.8-2	.110-.150 2.79-3.812	C	213603-1	66598-1	213603-2	66601-2	466958-1†† (for Sockets) or 567364-□††	90310-2 ⁵
			B	213603-3	66598-2	—	—		

††Note: Applicators for AMP semiautomatic or fully-automatic termination equipment are available. Contact the Technical Support Center 1-800-522-6752.

***MIL-C-5015 style connectors require a longer Multimate pin contact. This contact is .145 [3.68] longer than the standard Multimate pin contacts. It is not for use in other Multimate connectors, socket contacts are standard Multimate Type III+ contacts.

Extraction Tool Part Number 305183

Note: Gold-plated contacts should not be mated with tin or silver plated contacts.

⁵To use with the 626 Pneumatic Tool System: remove the crimping head from the Straight Action Hand Tool (SAHT) Assembly, order SAHT Adapter Part Number 217201-1, Adapter Holder Part Number 356304-1 (with ratchet) or 189928-1 (without), and Power Unit Part Number 189721-1 (hand actuated) or 189722-1 (foot actuated).

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors

Product Facts

- Economical combination of thermoplastic UL 94V-0 rated connector housings and metal shells
- Available in four Series:
 - Series 1—Accepts Multimate contacts, shell sizes 14-5, 14-7, 22-16, 28-24, and 28-37 standard sex; 14-5, 14-7, 22-14, and 28-37 reverse sex
 - Series 2—Accepts 20 DF and 20 DM contacts, shell sizes 22-28 and 28-63 standard sex; 22-28 and 28-57 reverse sex
 - Series 3—Accepts Type XII power contacts, shell sizes 22-3 and 28-7 standard and reverse sex
 - Series 4—Accepts Multimate contacts, and Type XII power contacts, shell size 28-16M and 28-22M standard sex
- Compatible with MIL Spec metal housing type connectors
- Choice of application tooling to meet all production requirements



AMP Metal-Shell Circular Plastic Connectors offer the reliability of higher priced all metal connectors at a fraction of the cost, and are offered in the more popular contact configurations.

Connector housings are made of lightweight, sturdy, thermoplastic material that are UL 94V-0 rated, with zinc alloy, nickel plated shells for added strength and protection. These connectors are available in a variety of configurations to meet your signal, low current and high current requirements. Operating temperatures range from -55°C to +125°C.

Signal and low current is provided by a choice of AMP Multimate contacts: .062 [1.57] pin diameter and 20 DF and 20 DM contacts, .040 [1.02] pin diameter. High current requirements are met by the Type XII capable of carrying up to 35 amperes of current.

These quick connect/disconnect circular connectors feature polarized housings to prevent mismatching with other insert arrangements.

AMP Metal-Shell Circular Plastic Connectors are available in square flange receptacles and free-hanging plug connectors.

For additional economy, industry accepted AMP Type III+ pin and socket contacts are available on reels in strip-form for high volume, low cost, automatic machine terminations. For low volume, prototype or maintenance and repair Type III+ contacts are also available in loose piece form.

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 1

Metal-Shell CPC Connectors, Series 1, Standard Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Square Flange Receptacle—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Grooved Pin—Steel alloy, plated nickel

Plug—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Tetraseal Seal—Fluorocarbon

Retainer Ring—Stainless steel

Coupling Ring—Zinc alloy, plated nickel

Related Product Data:

Contacts—pages 9101-9103, 9105, 9109

Contact Arrangements—page 9159

Component Dimensions—page 9168

Accessories—page 9169

Performance Characteristics—page 9122

Technical Documents: page 9119

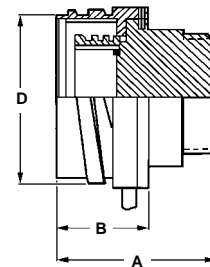
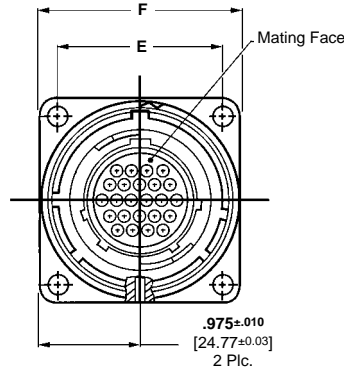
Tetraseal Seal

(Installed in plugs only.)

The Tetraseal Seal provides splash-proof sealing between mating metal shells. It is located behind the plug shell external keys (under the coupling ring). When mated with a receptacle, the seal is compressed against the inside diameter of the mating end edge of the receptacle shell.

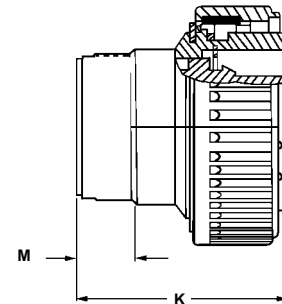
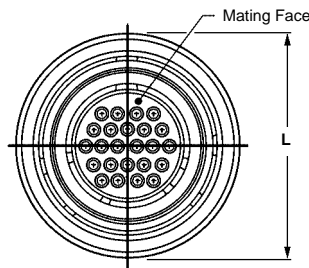
Square Flange Receptacles

(Accepts Multimite Pins)



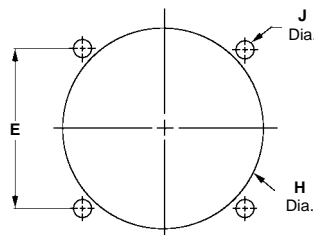
Plugs

(Accepts Multimite Sockets)

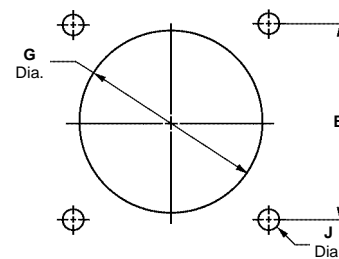


Arrangement	Square Flange Receptacle	Plug Part Numbers	
		without Tetraseal Seal	with Tetraseal Seal
14-5	208719-1	208718-1	208718-2
14-7	208715-1	208714-1	208714-2
22-16	208489-1	208488-1	208488-3
28-24	208459-1	208457-1	208457-3
28-37	208471-1	208470-1	208470-3

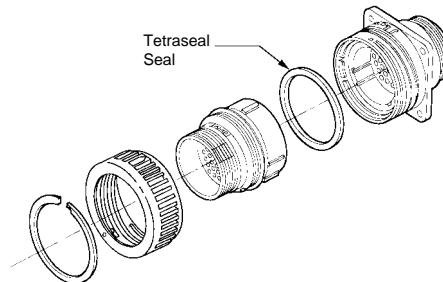
Note: Maximum wire insulation diameter is .100 [2.54], except arrangements 14-5 and 28-24 are .150 [3.81] max.



Rear Mount Panel Cutout



Front Mount Panel Cutout



For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 1

Metal-Shell CPC Connectors, Series 1, Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Square Flange Receptacle—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Grooved Pin—Steel alloy, plated nickel

Plug—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Tetraseal Seal—Fluorocarbon

Retainer Ring—Retainer Ring

Coupling Ring—Zinc alloy, plated nickel

Related Product Data:

Contacts—pages 9101-9103, 9105, 9109

Contact Arrangement—page 9159

Component Dimensions—page 9168

Accessories—page 9169

Performance Characteristics—page 9122

Technical Documents: page 9119

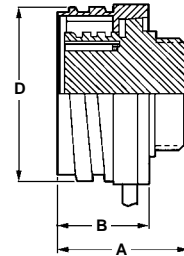
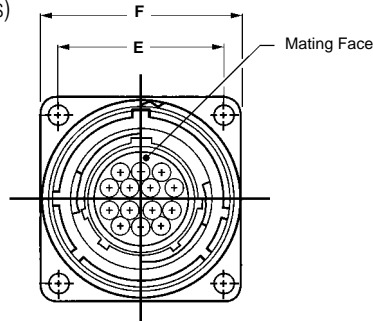
Tetraseal Seal

(Installed in plugs only.)

The Tetraseal Seal provides splash-proof sealing between mating metal shells. It is located behind the plug shell external keys (under the coupling ring). When mated with a receptacle, the seal is compressed against the inside diameter of the mating end edge of the receptacle shell.

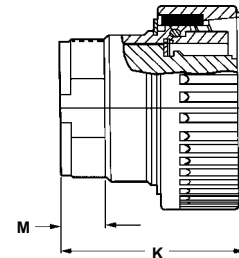
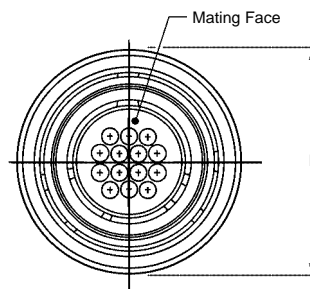
Square Flange Receptacles

(Accepts Multimate Sockets)



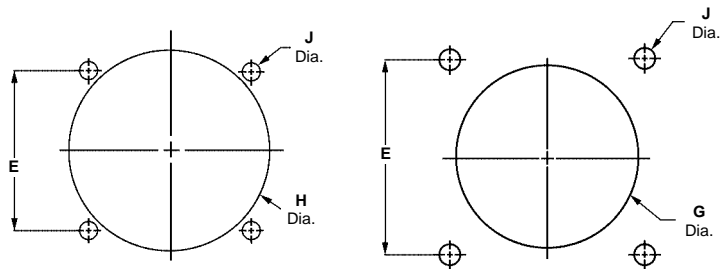
Plugs

(Accepts Multimate Pins)



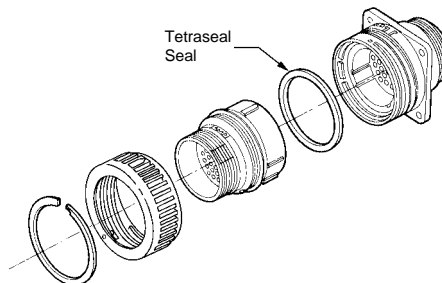
Arrangement	Square Flange Receptacle	Plug Part Numbers	
		without Tetraseal Seal	with Tetraseal Seal
14-5	208721-1	208720-1	—
14-7	208717-1	208716-1	208716-2
22-14	208487-1	208486-1	208486-3
28-37	208473-1	208472-1	208472-3

Note: Maximum wire insulation diameter is .100 [2.54], except arrangements 14-5 and 28-37 are .150 [3.81] max.



Rear Mount Panel Cutout

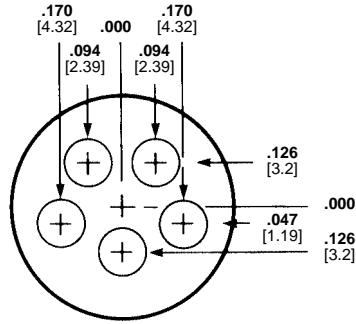
Front Mount Panel Cutout



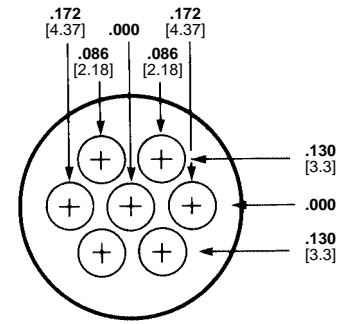
For complete product information, order Catalog 82021

Metal-Shell CPC Connectors, Series 1, Contact Arrangements

Shell Size 14

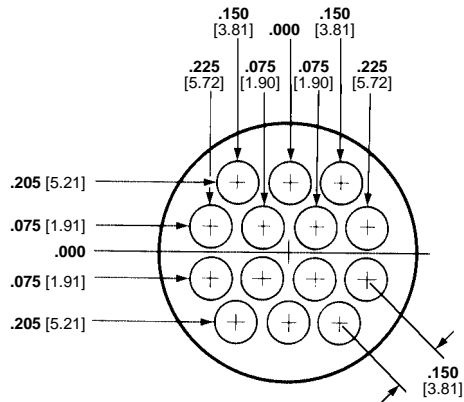


Arrangement 14-5
Max. Wire Ins. Dia. = .150 [3.81]

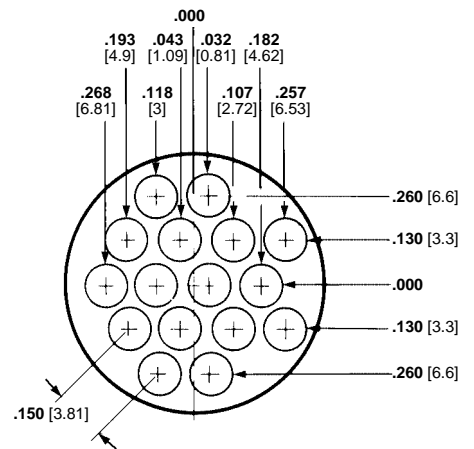


Arrangement 14-7
Max. Wire Ins. Dia. = .100 [2.54]

Shell Size 22



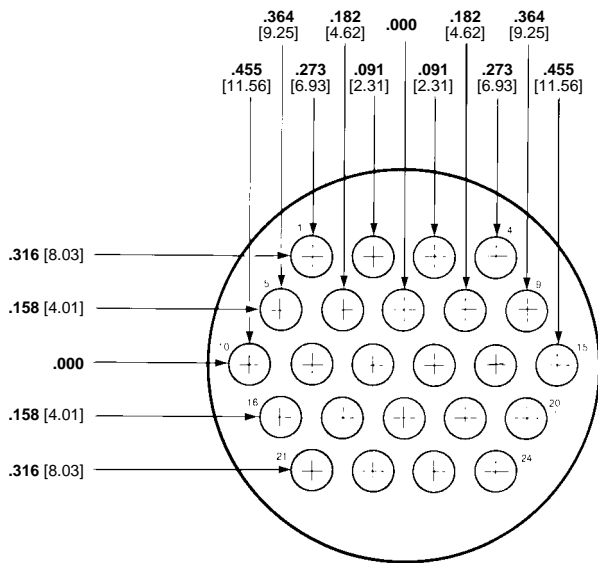
Arrangement 22-14
Max. Wire Ins. Dia. = .100 [2.54]



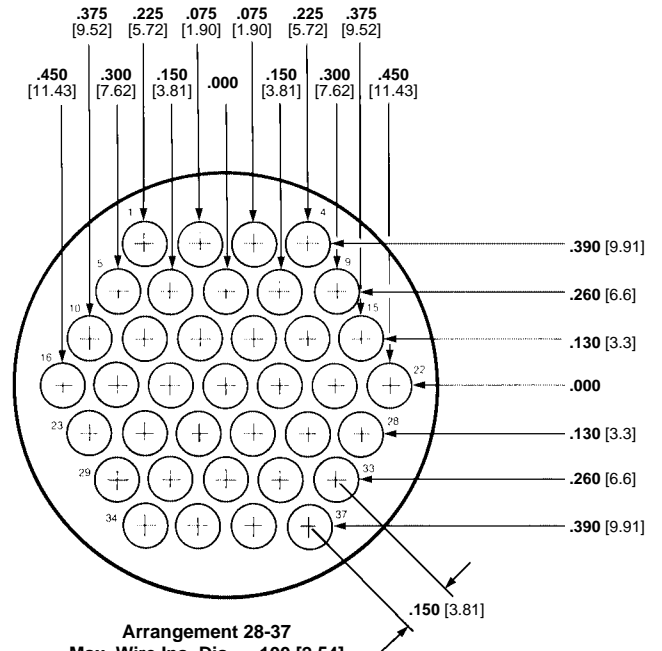
Arrangement 22-16
Max. Wire Ins. Dia. = .100 [2.54]

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

Shell Size 28



Arrangement 28-24
Max. Wire Ins. Dia. = .150 [3.81]



Arrangement 28-37
Max. Wire Ins. Dia. = .100 [2.54]

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 2

Metal-Shell CPC Connectors, Series 2, Standard Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

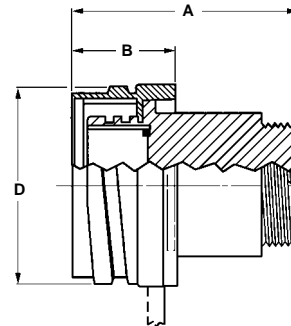
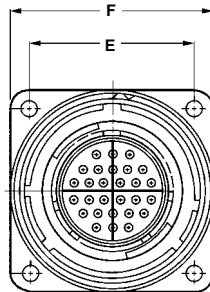
- Square Flange Receptacle—**
- Housing and Retention Insert—** Thermoplastic, UL 94V-0 rated, black
- Metal-Shell—** Zinc alloy, plated nickel
- Grooved Pin—** Steel alloy, plated nickel
- Plug—**
- Housing—** Thermoplastic, UL 94V-0 rated, black
- Metal-Shell—** Zinc alloy, plated nickel
- Tetraseal Seal—** Fluorocarbon
- Retainer Ring—** Stainless steel
- Coupling Ring—** Zinc alloy, plated nickel

Related Product Data:

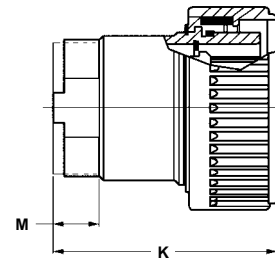
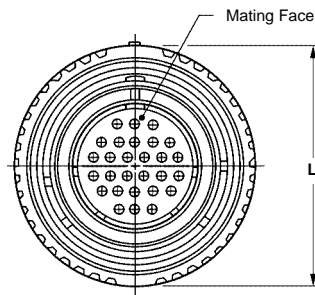
- Contacts—** pages 9106, 9107
- Contact Arrangements—** page 9162
- Component Dimensions—** page 9168
- Accessories—** page 9169
- Performance Characteristics—** page 9122

Technical Documents: page 9119

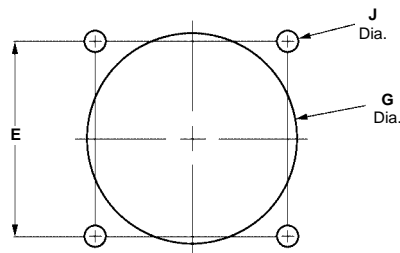
Square Flange Receptacles (Accepts 20 DF and 20 DM Pins)



Plugs (Accepts 20 DF and 20 DM Sockets)



Arrangement	Part Number	
	Square Flange Receptacle	Plug without Tetraseal Seal
22-28	208491-1	208490-1
28-63	208477-1	208476-1



Recommended Panel Cutout

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 2

Metal-Shell CPC Connectors, Series 2, Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

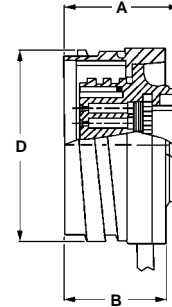
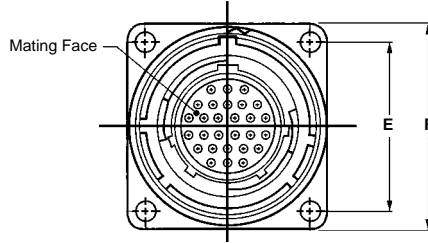
- Square Flange Receptacle**—Thermoplastic, UL 94V-0 rated, black
- Housing and Retention Insert**—Thermoplastic, UL 94V-0 rated, black
- Metal-Shell**—Zinc alloy, plated nickel
- Grooved Pin**—Steel alloy, plated nickel
- Plug**—Thermoplastic, UL 94V-0 rated, black
- Housing**—Thermoplastic, UL 94V-0 rated, black
- Metal-Shell**—Zinc alloy, plated nickel
- Tetraseal Seal**—Fluorocarbon
- Retainer Ring**—Stainless steel
- Coupling Ring**—Zinc alloy, plated nickel

Related Product Data:

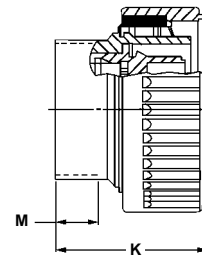
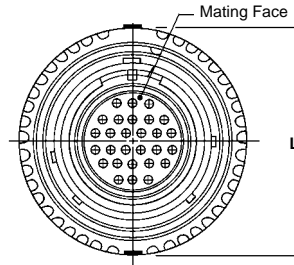
- Contacts**—pages 9106, 9107
- Contact Arrangements**—page 9162
- Component Dimensions**—page 9168
- Accessories**—page 9169
- Performance Characteristics**—page 9122

Technical Documents: page 9119

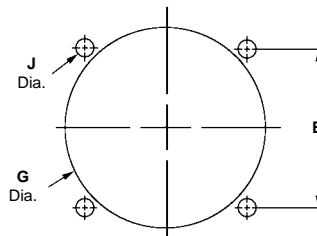
Square Flange Receptacles (Accepts 20 DF and 20 DM Sockets)



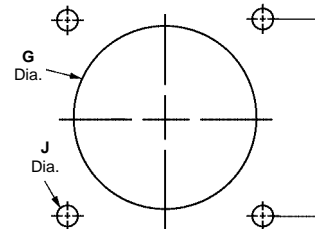
Plugs (Accepts 20 DF and 20 DM Pins)



Arrangement	Part Number	
	Square Flange Receptacle	Plug without Tetraseal Seal
22-28	208493-1	208492-1
28-57	208475-1	208474-1



Rear Mount Panel Cutout

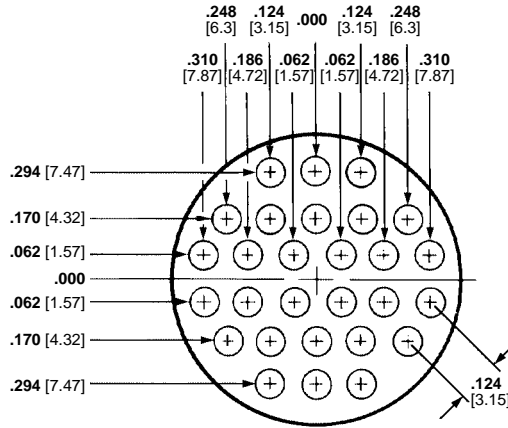


Front Mount Panel Cutout

For complete product information, order Catalog 82021

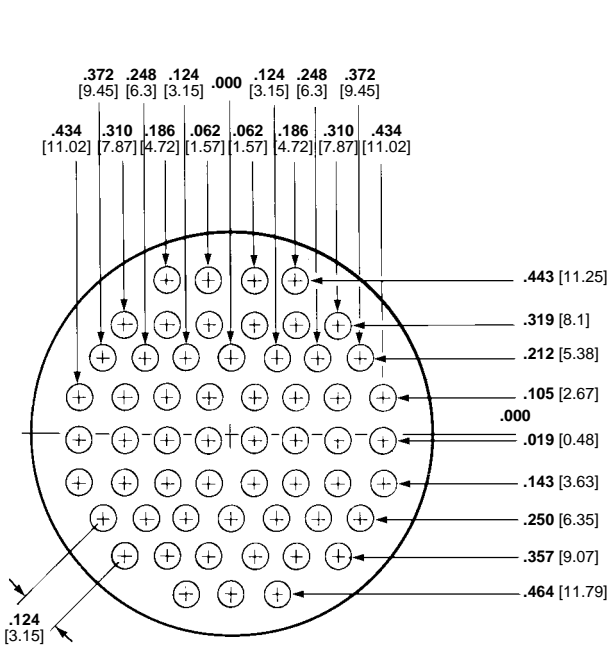
Metal-Shell CPC Connectors, Series 2, Contact Arrangements

Shell Size 22

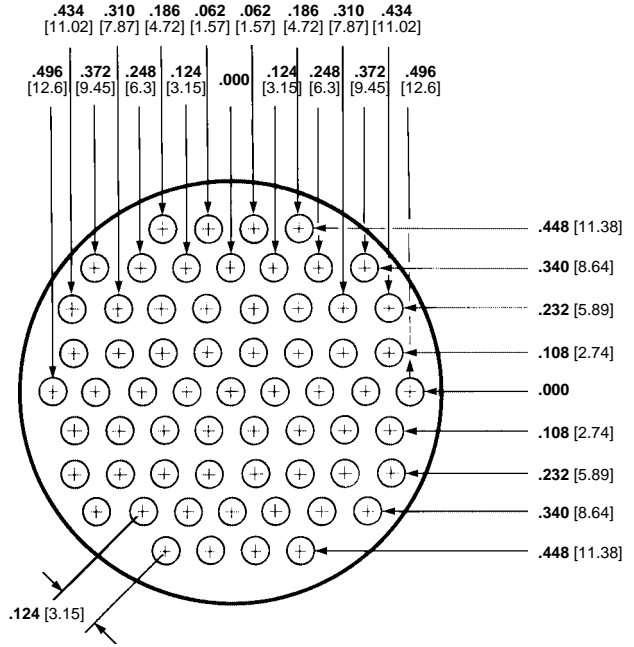


Arrangement 22-28
Max. Wire Ins. Dia. = .068 [1.73]

Shell Size 28



Arrangement 28-57
Max. Wire Ins. Dia. = .068 [1.73]



Arrangement 28-63
Max. Wire Ins. Dia. = .068 [1.73]

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 3

Metal-Shell CPC Connectors, Series 3, Standard Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Square Flange Receptacle—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Peripheral Seal—Elastomer, grey

Grooved Pin—Stainless steel

Plug—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Tetraseal Seal—Fluorocarbon

Retainer Rings—Stainless Steel

Coupling Ring—Zinc alloy, plated nickel

Related Product Data:

Contacts—pages 9114, 9115

Contact Arrangements—page 9165

Component Dimensions—page 9168

Accessories—page 9169

Performance Characteristics—page 9122

Technical Documents: page 9119

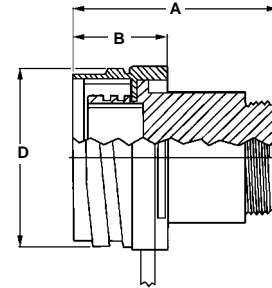
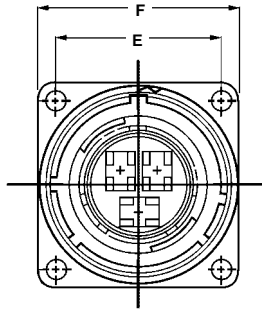
Tetraseal Seal

(Installed in Plugs only)

The Tetraseal Seal provides splash-proof sealing between connector metal-shells. It is located behind the plug-shell external keys (under the coupling ring). When mated with a receptacle, the seal is compressed against the inside diameter of the mating end edge of the receptacle shell.

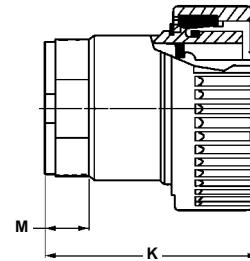
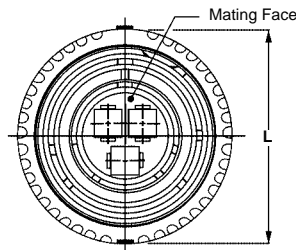
Square Flange Receptacles

(Accepts Type XII Male Pins)

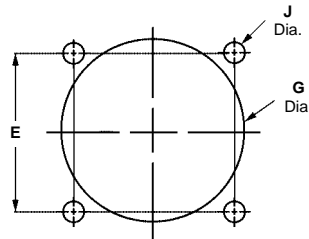


Plugs

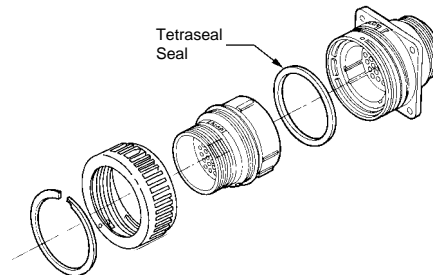
(Accepts Type XII Female Sockets)



Arrangement	Square Flange Receptacle	Plug Part Number	
		without Tetraseal Seal	with Tetraseal Seal
22-3	208495-1	208494-1	208494-3
28-7	208483-1	208482-1	—



Recommended Panel Cutout



For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 3

Metal-Shell CPC Connectors, Series 3, Reverse Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

- Square Flange Receptacle**—
- Housing**—Thermoplastic, UL 94V-0 rated, black
- Metal-Shell**—Zinc alloy, plated nickel
- Peripheral Seal**—Elastomer, grey
- Grooved Pin**—Stainless steel
- Plug**—
- Housing**—Thermoplastic, UL 94V-0 rated, black
- Metal-Shell**—Zinc alloy, plated nickel
- Tetraseal Seal**—Fluorocarbon
- Retainer Rings**—Stainless Steel
- Coupling Ring**—Zinc alloy, plated nickel

Related Product Data:

- Contacts**—pages 9114, 9115
- Contact Arrangements**—page 9165
- Component Dimensions**—page 9168
- Accessories**—page 9169
- Performance Characteristics**—page 9122

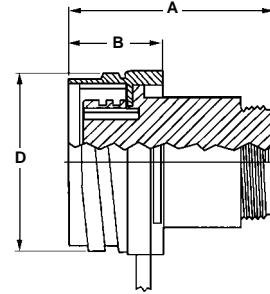
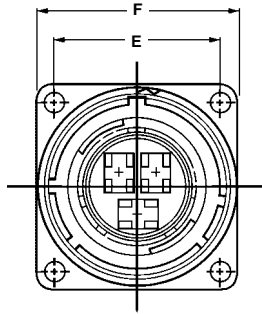
Technical Documents: page 9119

Tetraseal Seal

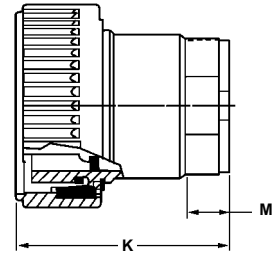
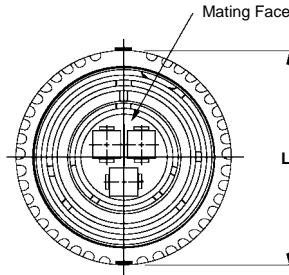
(Installed in Plugs only)

The Tetraseal Seal provides splash-proof sealing between connector metal-shells. It is located behind the plug-shell external keys (under the coupling ring). When mated with a receptacle, the seal is compressed against the inside diameter of the mating end edge of the receptacle shell.

Square Flange Receptacles (Accepts Type XII Female Sockets)

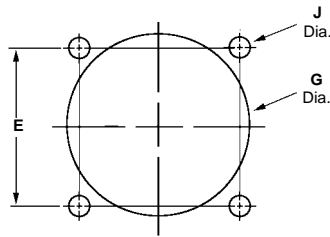


Plugs (Accepts Type XII Male Pins)

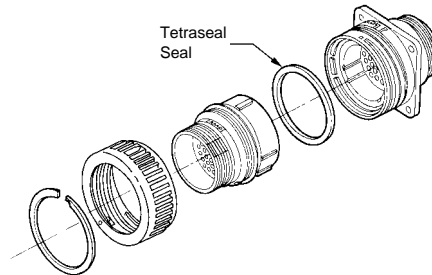


Arrangement	Square Flange Receptacle	Plug Part Number	
		without Tetraseal Seal	with Tetraseal Seal
22-3	208497-1	208496-1	—
	208497-2 ¹		
28-7	208485-1	208484-1	208484-3

¹ With peripheral seal



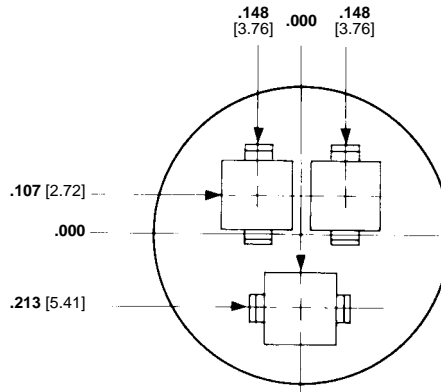
Recommended Panel Cutout



For complete product information, order Catalog 82021

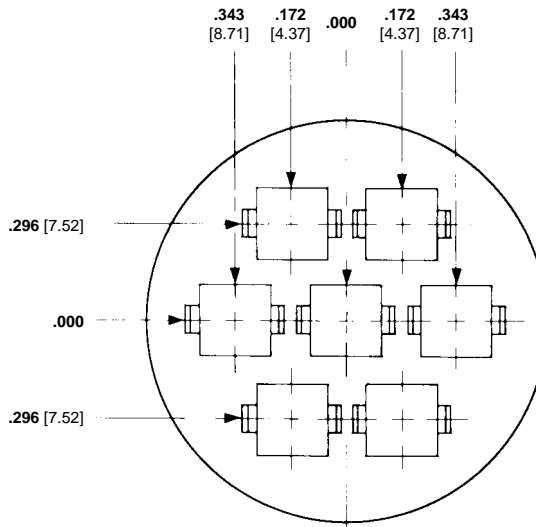
Metal-Shell CPC Connectors, Series 3, Contact Arrangements

Shell Size 22



Arrangement 22-3
Max. Wire Ins. Dia. = .220 [5.59]

Shell Size 28



Arrangement 28-7
Max. Wire Ins. Dia. = .220 [5.59]

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

For complete product information, order Catalog 82021

Metal-Shell Circular Plastic Connectors, Series 4

Metal-Shell CPC Connectors, Series 4, Standard Sex



Listed part numbers are for connectors only; **contacts must be ordered separately.**

Material and Finish:

Square Flange Receptacle—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Grooved Pin—Stainless steel

Plug—

Housing—Thermoplastic, UL 94V-0 rated, black

Metal-Shell—Zinc alloy, plated nickel

Tetraseal Seal—Fluorocarbon

Retainer Rings—Stainless Steel

Coupling Ring—Zinc alloy, plated nickel

Related Product Data:

Contacts—pages 9101-9103, 9105, 9109, 9114-9117

Contact Arrangements—page 9167

Component Dimensions—page 9168

Accessories—page 9169

Performance Characteristics—page 9122

Technical Documents: page 9119

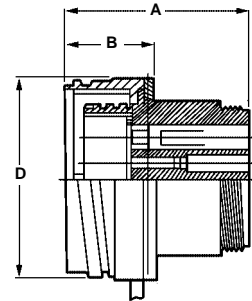
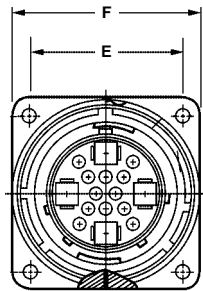
Tetraseal Seal

(Installed in Plugs only)

The Tetraseal Seal provides splash-proof sealing between connector metal-shells. It is located behind the plug-shell external keys (under the coupling ring). When mated with a receptacle, the seal is compressed against the inside diameter of the mating end edge of the receptacle shell.

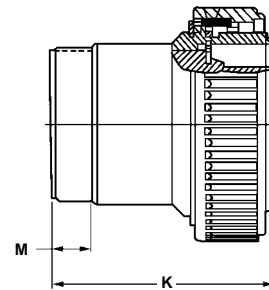
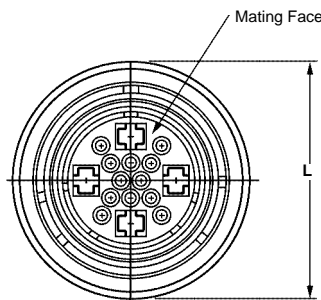
Square Flange Receptacles

(Accepts Type XII Male and Multimate Pins)

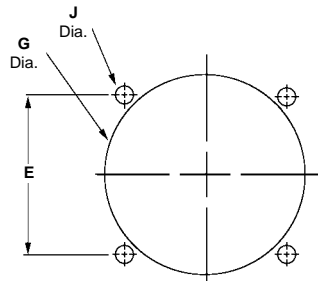


Plugs

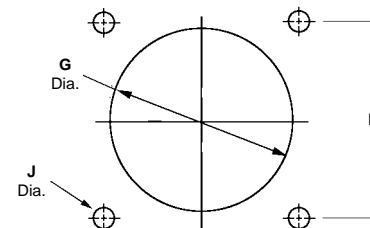
(Accepts Type XII Female and Multimate Sockets)



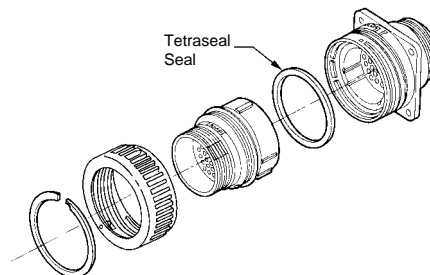
Arrangement	Square Flange Receptacle	Plug Part Numbers	
		without Tetraseal Seal	with Tetraseal Seal
28-16M	208479-1	208478-1	208478-3
28-22M	208481-1	208480-1	208480-3



Rear Mount Panel Cutout



Front Mount Panel Cutout

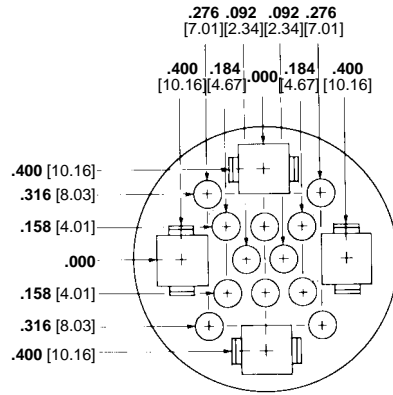


For complete product information, order Catalog 82021

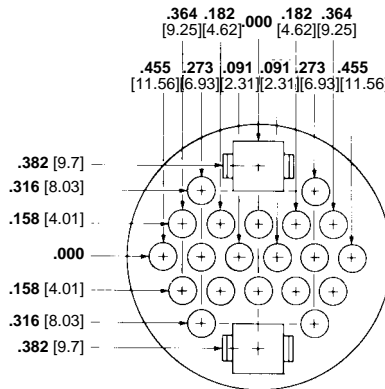
Metal-Shell CPC Connectors, Series 4, Contact Arrangements

Shell Size 28

9 Pin and Socket Connectors



Arrangement 28-16M
Max. Wire Ins. Dia. =
.150 [3.81] for Multimate Contacts,
.220 [5.59] for Power Contacts



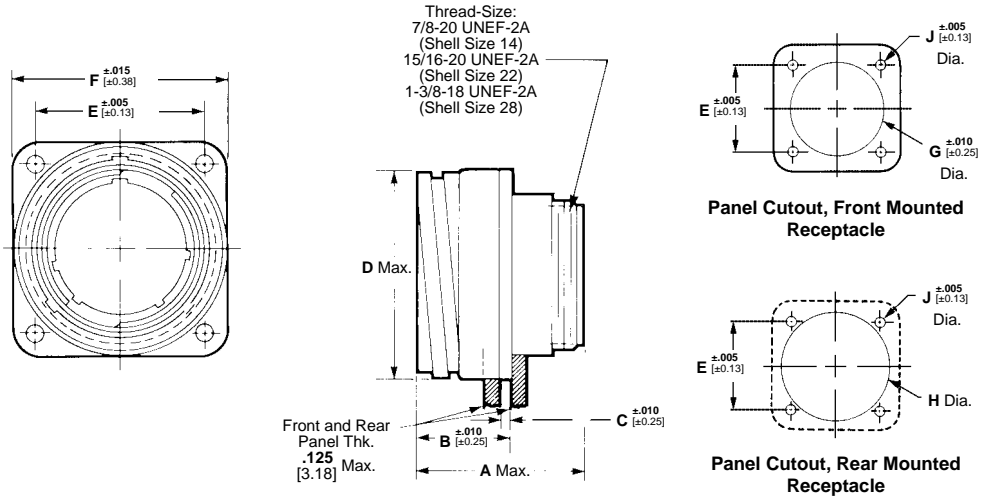
Arrangement 28-22M
Max. Wire Ins. Dia. =
.150 [3.81] for Multimate Contacts,
.220 [5.59] for Power Contacts

Note: Contact arrangements shown are of pin mating face (plug or receptacle). Socket mating face is mirror image.

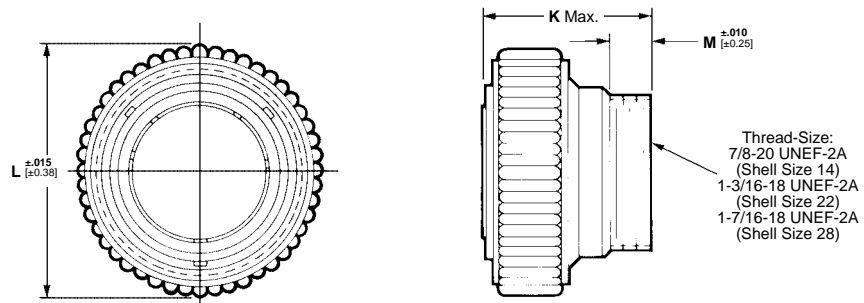
For complete product information, order Catalog 82021

Metal-Shell CPC Connectors Component Dimensions

Square Flange Receptacles



Plugs



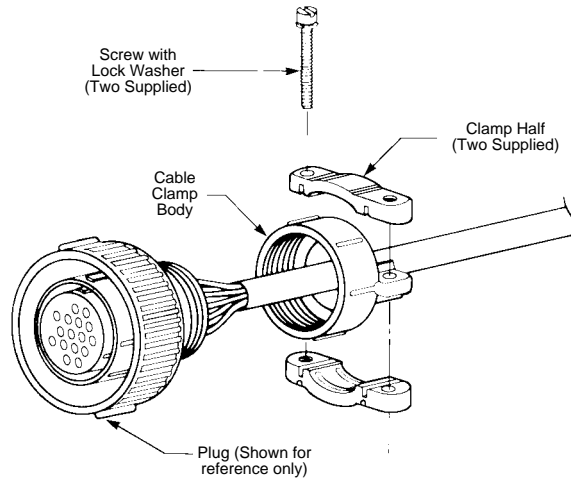
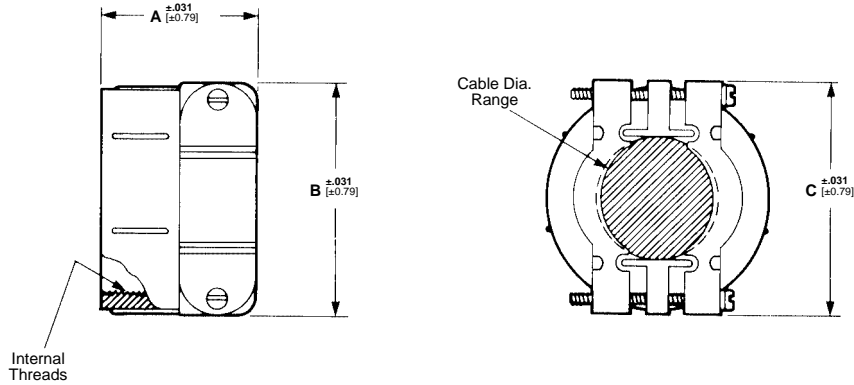
Series	Arrangement No.	Sex	Dimensions											
			A	B	C	D	E	F	G	H	J	K	L	M
1	14-5	Std.	1.415	.745	.100	1.031	.906	1.185	1.070	1.070	.125	1.400	1.225	.380
		Rev.	35.94	18.92	2.54	26.19	23.01	30.1	27.18	27.18	3.18	35.56	31.12	9.65
	14-7	Std.	1.415	.745	.100	1.031	.906	1.185	1.070	1.070	.125	1.400	1.225	.380
		Rev.	35.94	18.92	2.54	26.19	23.01	30.1	27.18	27.18	3.18	35.56	31.12	9.65
	22-14	Rev.	1.190	.790	.103	1.503	1.250	1.534	1.156	1.554	.120	1.560	1.750	.380
	22-16	Std.	1.470	.790	.103	1.503	1.250	1.534	1.156	1.554	.120	1.265	1.750	.380
		Rev.	37.34	20.07	2.62	38.18	31.75	38.96	29.36	39.47	3.05	32.13	44.45	9.65
	28-24	Std.	1.555	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	1.560	2.170	.380
		Rev.	39.5	22.23	3.18	48.26	39.67	49.53	40.89	50.04	3.68	39.62	55.12	9.65
	28-37	Std.	1.540	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	1.560	2.170	.380
Rev.		39.12	22.23	3.18	48.26	39.67	49.53	40.89	50.04	3.68	39.62	55.12	9.65	
	Std.	1.260	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	1.840	2.170	.380	
	Rev.	31.00	22.23	3.18	48.26	39.67	49.53	40.89	50.04	3.68	46.74	55.12	9.65	
2	22-28	Std.	.934	.790	.103	1.503	1.250	1.534	1.156	1.554	.120	1.295	1.750	.380
		Rev.	23.72	20.07	2.62	38.18	31.75	38.96	29.36	39.47	3.05	32.89	44.45	9.65
	28-57	Rev.	1.229	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	1.408	2.170	.380
3	28-63	Std.	1.229	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	1.408	2.170	.380
		Rev.	31.22	22.22	3.18	48.26	39.67	49.53	40.89	50.04	3.68	35.76	55.12	9.65
	22-3	Std.	1.755	.790	.103	1.503	1.250	1.534	1.156	1.554	.120	1.805	1.750	.380
	Std.	44.58	20.07	2.62	38.18	31.75	38.96	29.36	39.47	3.05	45.85	44.45	9.65	
	28-7	Std.	1.825	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	2.125	2.170	.380
	Std.	46.36	22.22	3.18	48.26	39.67	49.53	40.89	50.04	3.68	53.98	55.12	9.65	
	28-13M	Std.	1.825	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	2.125	2.170	.380
4	28-16M	Std.	46.36	22.22	3.18	48.26	39.67	49.53	40.89	50.04	3.68	53.98	55.12	9.65
		Rev.	46.36	22.22	3.18	48.26	39.67	49.53	40.89	50.04	3.68	53.98	55.12	9.65
	28-22M	Std.	1.825	.875	.125	1.900	1.562	1.950	1.610	1.970	.145	2.125	2.170	.380
			46.36	22.22	3.18	48.26	39.67	49.53	40.89	50.04	3.68	53.98	55.12	9.65

For complete product information, order Catalog 82021

Metal-Shell CPC Connector Accessories

Cable Clamps

Material and Finish:
Body and Clamp Halves—Zinc alloy, nickel plated
Screws and Washers—Stainless steel



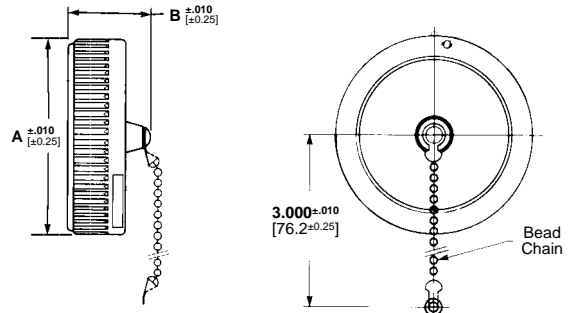
Shell Size	Dimensions			Cable O.D. Range	Thread Size	Part Numbers
	A	B	C			
14	.938	1.175	1.165	.225-.562 5.71-14.27	7/8-20 UNEF-3B	208945-5
	23.83	29.85	29.59			
22	.938	1.432	1.469	.325-.750 8.26-19.05	1-3/16-18 UNEF-3B	208945-7
	23.83	36.37	37.31			
28	1.031	1.593	1.688	.450-.938 11.43-23.83	1-7/16-18 UNEF-3B	208945-8
	26.19	40.46	42.88			

Notes: 1. For Shell Size 22 Receptacle use plastic cable clamp Size 17 (See page 9139), for Shell Size 28 Receptacle use plastic cable clamp Size 23 (See pages 9139, 9140). Use Size 14 metal cable clamp for both plug and receptacle Size 14 connectors.
 2. Metal cable clamps (Sizes 22 and 28) are for use with Metal-Shell CPC plugs ONLY.

Protective Cap Assemblies (for Metal-Shell CPC Receptacles Only)

Material and Finish:
Zinc alloy, nickel plated

Shell Size	Dimensions		Part Numbers
	A	B	
14	1.225	.515	213823-2
	31.11	13.08	
22	1.750	.635	211903-1
	44.45	16.13	
28	2.170	.635	211904-1
	55.12	16.13	



For complete product information, order Catalog 82021

Introduction
High Density Circular Connectors
Product Facts

- High density, lightweight Multi-Pin features a crimp contact retention method, requiring no insertion or removal tools
- Reverse gender available
- Ideal for harsh environment
- Sealed – Silicon rubber grommet/o-ring
- Unsealed – No grommet/o-ring
- Meets Mil Standards (high quality) but is not QPL'd
- Ideally suited to applications where many conductors must be accommodated in a minimum of space with minimum weight



Our high density, lightweight Multi-Pin Circular Connectors are the industry's most advanced and are ideally suited to applications where many conductors must be accommodated in a minimum of space with minimum weight.

All series of connectors feature a crimp contact retention method, requiring no insertion or removal tools.

The MARC 43 connector conforms to all applicable performance requirements of MIL-C-26482 and has seen extensive service on many of the nation's leading aerospace and ground support equipment

programs.

The MARC 53 connector, designed to conform to the USAF high reliability specification, MIL-C-38300, offers the ultimate in high density connector performance. The "Posilock" coupling mechanism, combined with our exclusive floating interfacial seal, "Posiseal", offers outstanding performance under most rigorous service conditions.

The MARC 63 connector, our Bayonet Coupling Series, accommodates all insert patterns and layouts available in the MARC 43 connector, MARC 53 connector, and RMD Series.

All insert assemblies are completely interchangeable. Lighter in weight and smaller in size than any comparable connector on the market, it requires up to 50% less engagement/separation force. Conversion to bayonet coupling shell from MARC 43 connector or MARC 53 connector is done without tools by merely transferring the contacts and insert assemblies into the MARC 63 connector shell.

The newest addition to the Multi-Pin product line is the MARC 73 connector series. The TWIST/CON Circular Connector combines

For complete product information, order Catalog 1308638

Introduction

the lightweight, bayonet coupling feature of the MARC 63 Connector Series with the TWIST/CON high density, center-to-center contact spacing of 0.065 [1.65]. The utilization of the No. 22 TWIST/CON pin and socket contacts provides for 50% greater contact densities than presently offered in the MARC 43,

MARC 53, or MARC 63 Connector Series.

Hermetic connectors—widely accepted in the industry—feature crimp contacts and are available in the MARC 43, MARC 53, and MARC 63 Connector Series. The latest additions to the Hermetic connector product line include the high pressure, bulkhead

feed-through connector ideally suited for nuclear applications and the new MTPH Series designed to withstand environmental pressure differentials exceeding 10,000 psi and an ambient temperature of 260°F. Consult Tyco Electronics for detailed information.



**SHM Receptacle
MARC 43 & MARC 53**



**Mated MARC 53
Connector Series**



**SHM Receptacle
MARC 43 & MARC 53**



**Mated MARC 63
Connector Series**



**Mated MARC 43
Connector Series**

For complete product information, order Catalog 1308638

Engineering Notes

A large grid area for engineering notes, consisting of a uniform grid of small squares covering the majority of the page.

Introduction

Product Facts

- Most connectors intermateable with connectors made to MIL-C-28748 requirements
- Wide range of connector styles and sizes: standard connectors (unloaded), posted connectors (preloaded) and special application connectors (unloaded)
- Complete line of accessory hardware for fastening, protecting, guiding, shielding, strain relief and keying
- A variety of contacts: signal, power, coaxial and posted versions—many are interchangeable and can be intermixed in the same connector housing
- Full complement of application tooling for wire crimp and posted terminations—hand tools, semiautomatic tooling and fully automatic machines provide highly reliable, low cost terminations to meet production requirements

Standard Connectors

Standard connectors are comprised of unloaded housings that accept a variety of crimp, solder and posted contacts. All standard connector housings will accept pins and/or sockets, permitting various combinations of contact loading.

Posted Connectors

Posted connectors are preloaded with post-type contacts that accept TERMI-POINT Clip or wrap-type terminations. Posted connectors are described in Catalog 82003.

Special Application Connectors

- V.35 Connectors are described in this catalog
- Refer to Catalog 82003 for the following Special Application connectors.
- High Current
 - Mixed Contact Connectors
 - High Voltage
 - RFI/EMI Shielded
 - Grounding Blocks

Standard Housings



Posted Connectors



Special Application Connectors



For complete product information, order Catalog 82003

Material Specifications**Contacts**

The material composition and construction of AMP contacts encompass varying price ranges and performance characteristics. Specific materials and available platings and plating thicknesses of each contact type are provided on individual contact pages in the Contact section. A brief description of each contact type is presented in Catalog 82003. Also, typical performance data of M Series connectors and contacts is shown below.

Housings

M Series connector housings are made of either diallyl phthalate (blue), general purpose phenolic (black) or polyester (black).

Diallyl phthalate housings are molded of material per MIL-M-14, Type SDG. These housings are well suited for use where adverse environmental conditions are an important factor. Their advantages include exceptional stability; excellent resistance to acids, alkalies and solvents; low moisture absorption; and good dielectric strength.

Phenolic housings are molded of material per MIL-M-14, Type CFG. The performance characteristics of these housings make them an excellent choice for applications in which exceptional resistance to acids, alkalies or solvents is not of prime concern. Polyester housings are molded from a high temperature thermoplastic material per ASTM D3220. Polyester housings provide the high temperature characteristics of diallyl phthalate and phenolic, but with a higher impact strength.

Hardware

A variety of materials such as plated steel, stainless steel and aluminum, are used in the construction of M Series connector hardware. This provides for the proper operation and durability of each hardware component, while offering a choice of economies to satisfy particular application requirements. The materials of each hardware component are specified on the individual hardware component pages in the Hardware section (pages 9210 through 9220).

Performance Data**Temperature Rating:**

Phenolic Housings,
-55°C to +150°C
Diallyl Phthalate Housings,
-65°C to +125°C
Polyester, -55°C to +130°C

Flammability Ratings: UL94V-0

Dielectric Withstanding**Voltage (at sea level):**

Type II Contacts, 1500 VAC, RMS
Type III+ Contacts, 900 VAC, RMS

Durability (Mating/Unmating):

Types II and III+ Contacts,
Gold Plated: 500 cycles;
Types II and III+ Contacts,
Bright Tin-Lead Plated:
50 cycles; Type I Contacts,
Gold Plated: 100 cycles

Note: For detailed information on the above performance data and further information on other performance data such as Insulation Resistance, Thermal Shock, Moisture Resistance, Vibration and Physical Shock, request AMP Product Specification No. 108-10001.

■ **Recognized under the
Component Program of
Underwriters Laboratories
Inc. for 250 volts,
File No. E28476**



■ **Certified by Canadian
Standards Association,
File No. LR 7189**



For complete product information, order Catalog 82003

How to Choose M Series Connectors

How to choose the appropriate connector/contact/hardware combination

Choosing the appropriate connector/contact/hardware combination is essential to the proper function of any AMP M Series connector. First, a customer must evaluate each individual application with regards to: wire size(s); number of circuits; available space; fastening methods; and needs for protection, shielding, guiding, strain relief and keying. Then, the customer must consider the following factors to make the appropriate selection of M Series connectors and related components.

A—Determine Connector Type—

This decision is based on the selected contact types, circuit density requirements and, if posted connectors are desired, in-plant production capabilities for wiring connectors using hand tools or semiautomatic tooling. Detailed specifications of the various M Series connectors are presented on the following pages: Standard connectors (pages 9192 thru 9199), Special Application connectors (pages 9201 thru 9209).

B—Determine Hardware—

This decision is based on the selected connector types, and the individual application requirements for fastening, protection, shielding, guiding, strain relief and keying. To assist customers in determining the proper hardware to use, hardware selection information has been formulated for each connector type. This information is located on pages 9176 thru 9191. Complete specifications of each hardware component are presented in the Hardware section of the catalog (pages 9210 thru 9220).

C—Determine Contact Type—

This decision is based on wire size(s) and reliability and cost requirements of an application, as well as the customer's in-plant production capabilities. Complete specifications, including accepted wire sizes and available platings of all pin and socket contacts, are presented in the Precision Pin and Socket Contacts section of Catalog 82003. Application tooling for crimp- and post-type contacts is presented in Catalog 82003.

For complete product information, order Catalog 82003

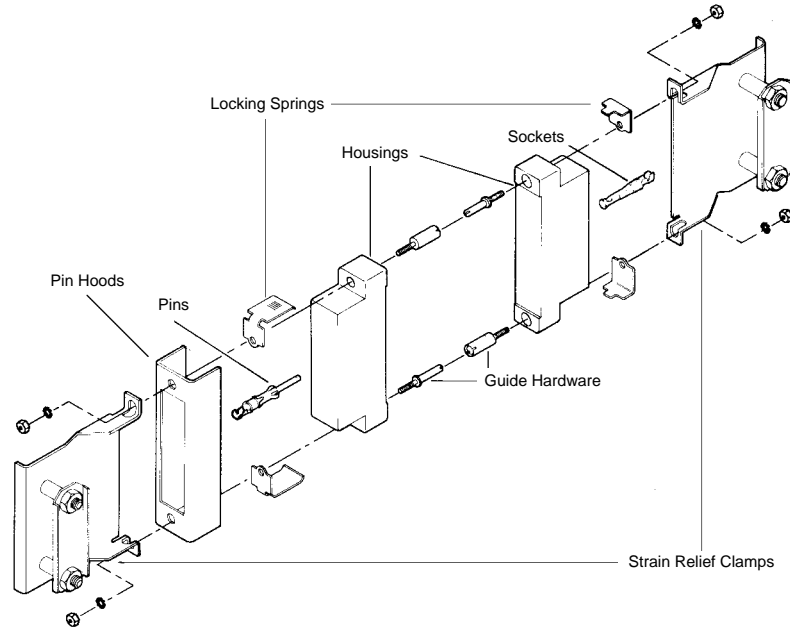
Cable-to-Cable Selection Guide

Application

A

Featured Hardware

- Strain Relief Clamps
- Locking Springs
- Pin Hoods
- Guide Hardware



Component Description		Number of Positions					
		6	14	20	26	34	
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block	Phenolic	202758-1	201355-1	201356-1	201359-1	1-201357-1
			202757-1	201298-1	200346-2	200512-2	200838-2
	Plug Block Receptacle Block	Diallyl Phthalate	202758-3	—	201356-3	201359-3	201357-3
			202757-3	201298-3	200346-4	200512-3	200838-3
Plug Block Receptacle Block	Polyester	—	—	—	—	2013800-1	
		—	—	—	—	200802-1	
STRAIN RELIEF CLAMPS Page 9220	Long Short	Nickel Plated Steel	—	201843-1	—	201845-1	201846-1
			203432-1	200686-1	—	201229-1	—
	Long Short	Stainless Steel	—	—	—	—	—
			—	—	201237-1	—	201224-1
GUIDE HARDWARE Page 9213	Center Male	Stainless Steel	200389-2	200389-2	200389-2	200389-2	200389-2
	Center Female		200390-2	200390-2	200390-2	200390-2	200390-2
	Corner Male		—	—	—	—	200833-2
	Corner Female		—	—	—	—	200835-2
	—		—	—	—	—	—
LOCKING SPRINGS¹ Page 9212	Male—Nickel Plated Spring Steel	—	201921-1	201921-1	201921-1	201923-1	201925-1
	Female—Stainless Steel	—	201922-1	201922-1	201922-1	201918-1 (Single Spring)	201926-1
PIN HOODS Pages 9214 and 9215	Internal Open End	Nickel Plated Steel	204258-6	201363-4	—	201785-4	201786-4
	Internal Closed End	Nickel Plated Steel	—	—	—	—	—
	External Closed End	Al Iridite	—	—	—	—	—
	External Closed End	Nickel Plated Steel	—	—	—	—	—

¹ Each part number contains two locking springs. Order one male and one female for each mated pair of connectors.

For complete product information, order Catalog 82003

Cable-to-Cable Selection Guide

1. Confirm that **Application A** (at left) most closely meets your requirements. (Other applications are shown on pages 9178 thru 9191.)
2. Find the appropriate column for the number of positions required.
3. Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
4. Dimensional information is available on the indicated pages under description column.
5. Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings may be substituted for these standard housings. See Special Application Section.

This cable-to-cable application utilizes locking springs, strain relief clamps, a pin hood for pin protection and guide hardware.

The 34 and 50 position connectors can be used with either center or corner guide hardware. If center guide hardware is used, an additional four 4-40 screws, nuts and lockwashers are required to secure the locking springs. Corner guides require four guide pins and four guide sockets for each mated pair of connectors.

Number of Positions						Component Description		
41	50	75	104	104 CF	160 CF			
202135-2	201358-1	—	—	—	—	Plug Block Receptacle Block	Phenolic	STANDARD HOUSINGS Pages 9192 to 9199
201302-1	200277-2	—	—	—	—			
202135-4	201358-3	—	—	—	—	Plug Block Receptacle Block	Diallyl Phthalate	
201302-3	200277-4	—	—	—	—			
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester	
—	—	—	—	—	—			
—	—	—	—	—	—	Long Short	Nickel Plated Steel	
—	201182-1	—	—	—	—			
201766-1	201847-1	—	—	—	—	Long Short	Stainless Steel	
—	—	—	—	—	—			
200389-2	200389-2	—	—	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel	
200390-2	200390-2	—	—	—	—			
—	200833-2	—	—	—	—			
—	200835-2	—	—	—	—			
201921-1	201925-1	—	—	—	—	Male—Nickel Plated Spring Steel		LOCKING SPRINGS' Page 9212
201922-1	201926-1	—	—	—	—	Female—Stainless Steel		
—	—	—	—	—	—	Internal Open End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215
—	—	—	—	—	—	Internal Closed End	Nickel Plated Steel	
—	—	—	—	—	—	External Closed End	Al Iridite	
—	—	—	—	—	—	External Closed End	Nickel Plated Steel	

For complete product information, order Catalog 82003

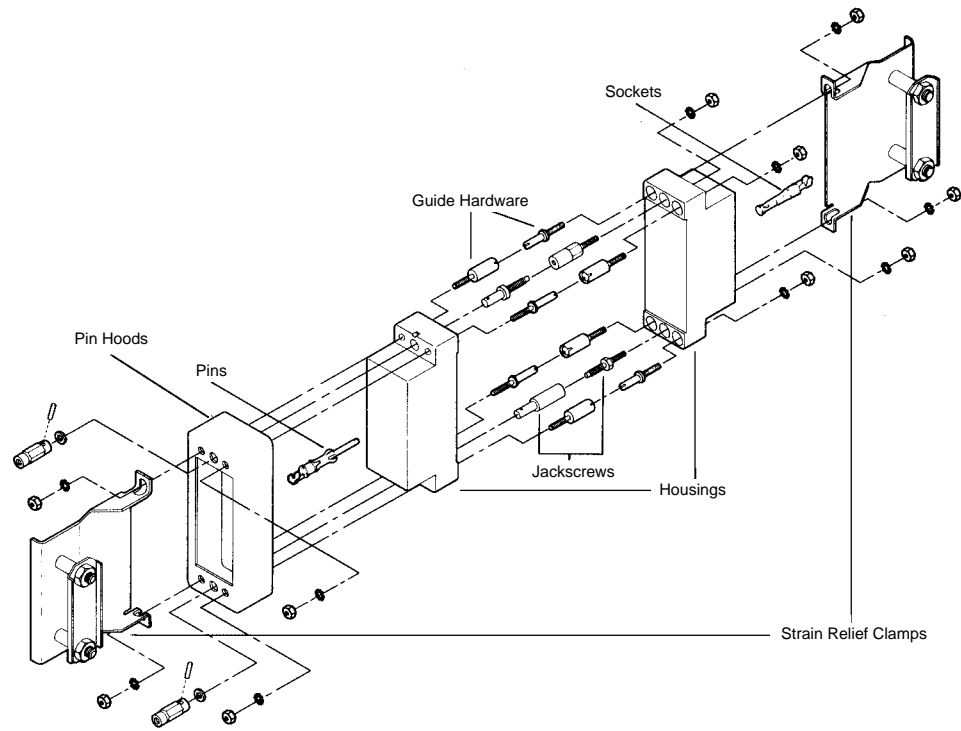
Cable-to-Cable Selection Guide

Application

B

Featured Hardware

- Strain Relief Clamps
- Pin Hoods
- Jackscrews
- Guide Hardware



Component Description		Number of Positions					
		6	14	20	26	34	
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	202758-1	201355-1	201356-1	201359-1	1-201357-1	
		202757-1	201298-1	200346-2	200512-2	200838-2	
	Plug Block Receptacle Block } Diallyl Phthalate	202758-3	—	201356-3	201359-3	201357-3	
		202757-3	201298-3	200346-4	200512-3	200838-3	
Plug Block Receptacle Block } Polyester	—	—	—	—	213800-1		
	—	—	—	—	213802-1		
STRAIN RELIEF CLAMPS Page 9220	Long Short } Nickel Plated Steel	—	201843-1	—	201845-1	201846-1	
		203432-1	200686-1	—	201229-1	—	
	Long Short } Stainless Steel	—	—	—	—	—	
		—	—	201237-1	—	201224-1	
JACKSCREWS¹ Pages 9210 and 9211	Fixed Male Fixed Female } Stainless Steel	201092-1	201092-1	201092-1	201092-1	201092-1	
		201089-1	201089-1	201089-1	201089-1	201089-1	
	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female } Tip: Stainless Steel Body: Die Cast Zinc	—	—	—	—	—	
		—	—	—	—	—	
		—	—	—	—	—	
		201827-1	201827-1	201827-1	201827-1	201827-1	
		201828-1	201828-1	201828-1	201828-1	201828-1	
		—	—	—	—	—	
GUIDE HARDWARE Page 9213	Center Male Center Female Corner Male Corner Female } Stainless Steel	—	—	—	—	—	
		—	—	—	—	—	
		—	—	—	—	200833-2	
		—	—	—	—	200835-2	
PIN HOODS Pages 9214 and 9215	Internal Open End	Nickel Plated Steel	204258-6	201363-4	—	201785-4	201786-4
	Internal Closed End	Nickel Plated Steel	—	—	—	—	202434-4
	External Closed End	Al Iridite	—	—	—	201349-2	201350-2
	External Closed End	Nickel Plated Steel	—	—	—	—	—

¹ Listed Jackscrews have 6-32 single lead threads. For corresponding Jackscrews with 6-32 double lead threads, refer to pages 9210 and 9211.

For complete product information, order Catalog 82003

Cable-to-Cable Selection Guide

1. Confirm that **Application B** (at left) most closely meets your requirements. (Other applications are shown on pages 9176-9177 and 9180 through 9191.)
2. Find the appropriate column for the number of positions required.
3. Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
4. Dimensional information is available on the indicated pages under description column.
5. Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings may be substituted for these standard housings. See Special Application Section.

This cable-to-cable application utilizes jackscrews, strain relief clamps and guide hardware. A pin hood is provided for pin protection. Sizes 6, 14, 20, 26, and 41 **do not** use guide hardware with this application.

Number of Positions						Component Description			
41	50	75	104	104 CF	160 CF				
202135-2	201358-1	201310-1	201345-1	—	—	Plug Block Receptacle Block	} Phenolic	STANDARD HOUSINGS Pages 9192 to 9199	
201302-1	200277-2	201311-1	201037-1	—	—				
202135-4	201358-3	201310-3	201345-2	—	—	Plug Block Receptacle Block	} Diallyl Phthalate		
201302-3	200277-4	201311-3	—	—	—				
—	—	—	—	1-201692-6		Plug Block Receptacle Block	} Polyester		
—	—	—	—	—	—				
—	—	—	201849-1	—	—	Long Short	} Nickel Plated Steel	STRAIN RELIEF CLAMPS Page 9220	
—	201182-1	200730-1	—	—	—				
201766-1	201847-1	201848-1	—	—	—	Long Short	} Stainless Steel		
—	—	—	—	—	—				
201092-1	201092-1	201092-1	201092-1	—	—	Fixed Male Fixed Female	} Stainless Steel	JACKSCREWS¹ Pages 9210 and 9211	
201089-1	201089-1	201089-1	201089-1	—	—				
—	—	—	—	—	—	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female	} Tip: Stainless Steel Body: Die Cast Zinc		
—	—	—	—	—	—				
—	—	—	—	—	—				
201827-1	201827-1	201827-1	201827-1	—	—				
201828-1	201828-1	201828-1	201828-1	—	—	Center Male Center Female Corner Male Corner Female	} Stainless Steel		GUIDE HARDWARE Page 9213
—	—	—	—	—	—				
—	200833-2	201046-2	201046-2	—	—				
—	200835-2	201047-2	201047-2	—	—				
—	—	—	—	—	—	Internal Open End Internal Closed End	} Nickel Plated Steel	PIN HOODS Pages 9214 and 9215	
—	202394-2	201369-4	201364-4	—	—				
—	—	—	—	—	—	External Closed End External Closed End	} Al Iridite Nickel Plated Steel		
—	201390-5	201368-4	201346-4	—	—				

For complete product information, order Catalog 82003

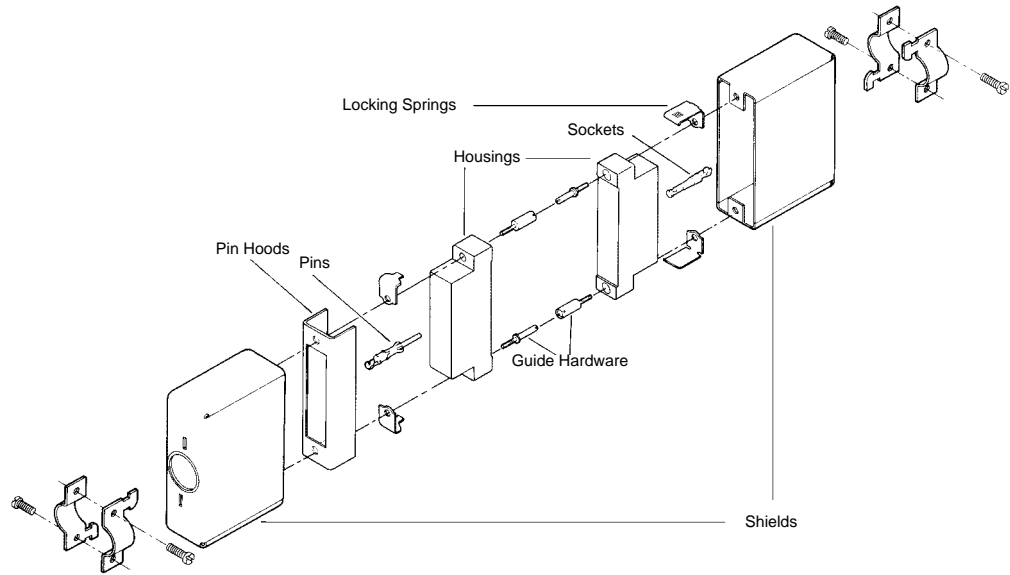
Cable-to-Cable Selection Guide

Application

C

Featured Hardware

- Shields (One-piece)
- Pin Hoods
- Locking Springs
- Guide Hardware



Component Description		Number of Positions					
		6	14	20	26	34	
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block } Phenolic	—	201355-1	201356-1	201359-1	1-201357-1	
	Receptacle Block } Phenolic	—	201298-1	200346-2	200512-2	200838-2	
	Plug Block } Diallyl Phthalate	—	—	201356-3	201359-3	201357-3	
	Receptacle Block } Diallyl Phthalate	—	201298-3	200346-4	200512-3	200838-3	
	Plug Block } Polyester	—	—	—	—	213800-1	
	Receptacle Block } Polyester	—	—	—	—	213802-1	
SHIELDS Pages 9216 to 9219	180° Two-Piece Long } Al Anodized	—	—	—	—	—	
	180° Two-Piece Long } Zinc Plated Steel	—	—	—	—	—	
	180° Two-Piece Short } Nickel Plated Steel	Al Anodized	—	—	—	—	—
		Zinc Plated Steel	—	—	—	—	—
		Zinc Plated Cast Al	—	—	—	—	—
	90° Two-Piece Long } Nickel Plated Steel	—	—	—	—	—	
	90° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—	
	45° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—	
	45° Two-Piece Deep } Nickel Plated Steel	—	—	—	—	—	
	180° One-Piece Long } Nickel Plated Steel	—	201378-2	—	—	201384-2	
180° One-Piece Short } Nickel Plated Steel	—	201360-2	201227-2	201169-2	201165-2		
90° One-Piece Short } Nickel Plated Steel	—	201467-2	201460-2	201468-2	201469-2		
GUIDE HARDWARE Page 9213	Center Male } Stainless Steel	—	200389-2	200389-2	200389-2	200389-2	
	Center Female } Stainless Steel	—	200390-2	200390-2	200390-2	200390-2	
	Corner Male } Stainless Steel	—	—	—	—	200833-2	
	Corner Female } Stainless Steel	—	—	—	—	200835-2	
LOCKING SPRINGS¹ Page 9212	Male—Nickel Plated Spring Steel	—	201921-1	201921-1	201923-1	201925-1	
	Female—Stainless Steel	—	201922-1	201922-1	—	201926-1	
PIN HOODS Pages 9214 and 9215	Internal Open End } Nickel Plated Steel	—	201363-4	—	201785-4	201786-4	
	Internal Closed End } Nickel Plated Steel	—	—	—	—	—	
	External Closed End } Al Iridite	—	—	—	—	—	
	External Closed End } Nickel Plated Steel	—	—	—	—	—	

¹ Each part number contains two locking springs. Order one male and one female for each mated pair of connectors.

For complete product information, order Catalog 82003

Cable-to-Cable Selection Guide

- Confirm that **Application C** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9179 and 9182 thru 9191.)
- Find the appropriate column for the number of positions required.
- Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
- Dimensional information is available on the indicated pages under description column.
- Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings may be substituted for these standard housings. See Special Application Section.

This cable-to-cable application utilizes locking springs, one-piece shields, a pin hood for pin protection and guide hardware. The shields are available with both 180° and 90° cable exits. The 180° shields are available in a long version which provides pin protection in lieu of a pin hood.

A short shield and a pin hood or a long shield can be used on one side only of a mated pair of connectors. The mating connector must use a short shield.

The 34 and 50 position connectors can be used with either center or corner guide hardware. If center guides are used, an additional four 4-40 screws are required to secure the locking springs. If corner guides are used, an additional two 4-40 screws will be required to attach the shield. Corner guides require four guide pins and four guide sockets for each mated pair of connectors.

Number of Positions						Component Description			
41	50	75	104	104 CF	160 CF				
202135-2	201358-1	—	—	—	—	Plug Block Receptacle Block	Phenolic	STANDARD HOUSINGS Pages 9192 to 9199	
201302-1	200277-2	—	—	—	—				
202135-4	201358-3	—	—	—	—	Plug Block Receptacle Block	Diallyl Phthalate		
201302-3	200277-4	—	—	—	—				
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester		
—	—	—	—	—	—				
—	—	—	—	—	—	180° Two- Piece Long	Al Anodized Zinc Plated Steel		
—	—	—	—	—	—				
—	—	—	—	—	—	180° Two- Piece Short	Al Anodized Zinc Plated Steel Zinc Plated Cast Al		
—	—	—	—	—	—				
—	—	—	—	—	—	90° Two-Piece Long 90° Two-Piece Short 45° Two-Piece Short 45° Two-Piece Deep 180° One-Piece Long 180° One-Piece Short 90° One-Piece Short	Nickel Plated Steel	SHIELDS Pages 9216 to 9219	
—	—	—	—	—	—				
—	—	—	—	—	—				
—	—	—	—	—	—				
—	—	—	—	—	—				
201486-2	201470-2	—	—	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel		GUIDE HARDWARE Page 9213
200389-2	200389-2	—	—	—	—				
200390-2	200390-2	—	—	—	—				
—	200833-2	—	—	—	—				
—	200835-2	—	—	—	—	Male—Nickel Plated Spring Steel Female—Stainless Steel			LOCKING SPRINGS¹ Page 9212
201921-1	201925-1	—	—	—	—				
201922-1	201926-1	—	—	—	—	Internal Open End Internal Closed End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215	
—	—	—	—	—	—				
—	—	—	—	—	—	External Closed End External Closed End	Al Iridite Nickel Plated Steel		
—	—	—	—	—	—				

For complete product information, order Catalog 82003

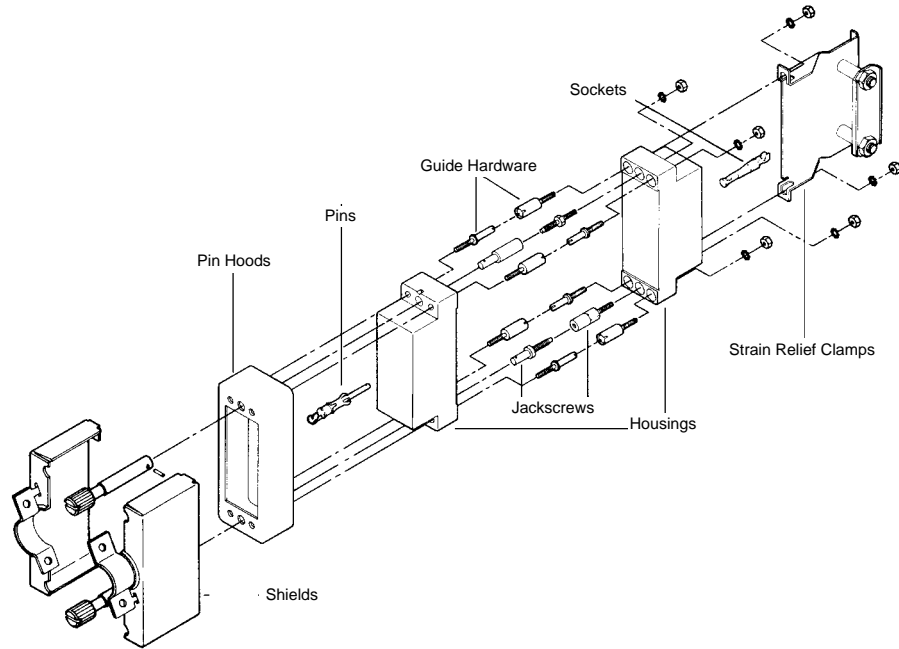
Cable-to-Cable Selection Guide

Application

D

Featured Hardware

- Shields (Two-piece)
- Pin Hoods
- Jackscrews
- Strain Relief Clamps
- Guide Hardware



Component Description	Number of Positions					
	6	14	20	26	34	
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	—	—	201356-1	201359-1	1-201357-1
		—	—	200346-2	200512-2	200838-2
	Plug Block Receptacle Block } Diallyl Phthalate	—	—	201356-3	201359-3	201357-3
		—	—	200346-4	200512-3	200838-3
SHIELDS Pages 9216 to 9219	Plug Block Receptacle Block } Polyester	—	—	—	—	213800-1
		—	—	—	—	213802-1
	180° Two-Piece Long } Al Anodized Nickel Plated Steel	—	—	—	201576-1	201571-1
		—	—	—	201576-2	201571-2
	180° Two-Piece Short } Al Anodized Nickel Plated Steel	—	—	—	—	200517-1
		—	—	204087-1	200514-2	200517-2
	90° Two-Piece Long 90° Two-Piece Short 45° Two-Piece Short 45° Two-Piece Deep 180° One-Piece Long 180° One-Piece Short 90° One-Piece Short } Nickel Plated Steel	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	—
—		—	—	—	—	
—		—	—	—	—	
STRAIN RELIEF CLAMPS Page 9220	Long } Nickel Plated Steel Short }	—	—	—	201845-1	201846-1
		—	—	—	201229-1	—
JACKSCREWS¹ Pages 9210 and 9211	Fixed Male Fixed Female } Stainless Steel	—	—	201092-1	201092-1	201092-1
		—	—	201089-1	201089-1	201089-1
	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female } Tip: Stainless Steel Body: Die Cast Zinc	—	—	—	—	—
		—	—	—	—	—
		—	—	201413-1	201413-1	201413-1
		—	—	201414-1	201414-1	201414-1
		—	—	—	—	—
GUIDE HARDWARE Page 9213	Center Male Center Female Corner Male Corner Female } Stainless Steel	—	—	—	—	—
		—	—	—	—	—
		—	—	—	—	200833-2
		—	—	—	—	200835-2
PIN HOODS Pages 9214 and 9215	Internal Open End Internal Closed End External Closed End External Closed End } Nickel Plated Steel	—	—	—	—	201786-4
		—	—	—	—	202434-4
		—	—	—	—	201350-2
		—	—	—	—	—

¹ Listed Jackscrews have 6-32 single lead threads. For corresponding Jackscrews with 6-32 double lead threads, refer to pages 9210 and 9211.

Cable-to-Cable Selection Guide

- Confirm that **Application D** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9181 and 9184 thru 9191.)
- Find the appropriate column for the number of positions required.
- Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
- Dimensional information is available on the indicated pages under description column.
- Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings may be substituted for these standard housings. See Special Application Section.

This cable-to-cable application utilizes jackscrews, a two-piece short shield, a strain relief clamp, a pin hood for pin protection and guide hardware.

Do not use a pin hood in combination with the shield for sizes 20, 26 and 41. A long shield may be used in lieu of pin hood for pin protection for all sizes except the 20 position. Shields are available with 180° cable exit and for the 50 through 104 position connectors, a 90° cable exit.

Select the appropriate jackscrew length for the type of shield chosen as indicated by symbol (△▲).

Number of Positions						Component Description		
41	50	75	104	104 CF	160 CF			
202135-2	201358-1	201310-1	201345-1	—	—	Plug Block Receptacle Block	Phenolic STANDARD HOUSINGS Pages 9192 to 9199	
201302-1	200277-2	201311-1	201037-1	—	—	Plug Block Receptacle Block		
202135-4	201358-3	201310-3	201345-2	—	—			
201302-3	200277-4	201311-3	—	—	—	Plug Block Receptacle Block	Polyester	
—	—	—	—	1-201692-6	—			
—	201443-1△	—	—	—	—	180° Two-Piece Long	Al Anodized Nickel Plated Steel	
202383-2	201443-2△	202713-2▲	204173-2▲	—	—			
—	200532-1△	—	—	—	—	180° Two-Piece Short	Al Anodized Nickel Plated Steel Nickel Plated Cast Al	
202383-1	200532-2△	202713-1▲	204173-1▲	—	—			
—	—	—	201131-1△	—	—	90° Two-Piece Long 90° Two-Piece Short 45° Two-Piece Short 45° Two-Piece Deep 180° One-Piece Long 180° One-Piece Short 90° One-Piece Short	Nickel Plated Steel SHIELDS Pages 9216 to 9219	
—	203975-2▲	202711-3▲	—	—	—			
—	203975-1▲	202711-1▲	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	201849-1	—	—	Long Short	Nickel Plated Steel	STRAIN RELIEF CLAMPS Page 9220
—	201182-1	200730-1	—	—	—			
201766-1	201847-1	201848-1	—	—	—	Long Short	Stainless Steel	
—	—	—	—	—	—			
201092-1	201092-1	201092-1	201092-1	—	—	Fixed Male Fixed Female	Stainless Steel	
201089-1	201089-1	201089-1	201089-1	—	—			
—	207234-1▲	207234-1▲	207234-1▲	—	—	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female	Tip: Stainless Steel Body: Die Cast Zinc	JACKSCREWS¹ Pages 9210 and 9211
—	207235-1▲	207235-1▲	207235-1▲	—	—			
201413-1	201413-1△	201413-1△	201413-1△	—	—			
201414-1	201414-1△	201414-1△	201414-1△	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel	GUIDE HARDWARE Page 9213
—	200833-2	201046-2	201046-2	—	—			
—	200835-2	201047-2	201047-2	—	—			
—	—	—	—	—	—			
—	202394-2	201369-4	201364-4	—	—	Internal Open End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215
—	—	—	—	—	—	Internal Closed End	Nickel Plated Steel	
—	—	—	—	—	—	External Closed End	Al Iridite	
—	201390-5	201368-4	201346-4	—	—	External Closed End	Nickel Plated Steel	

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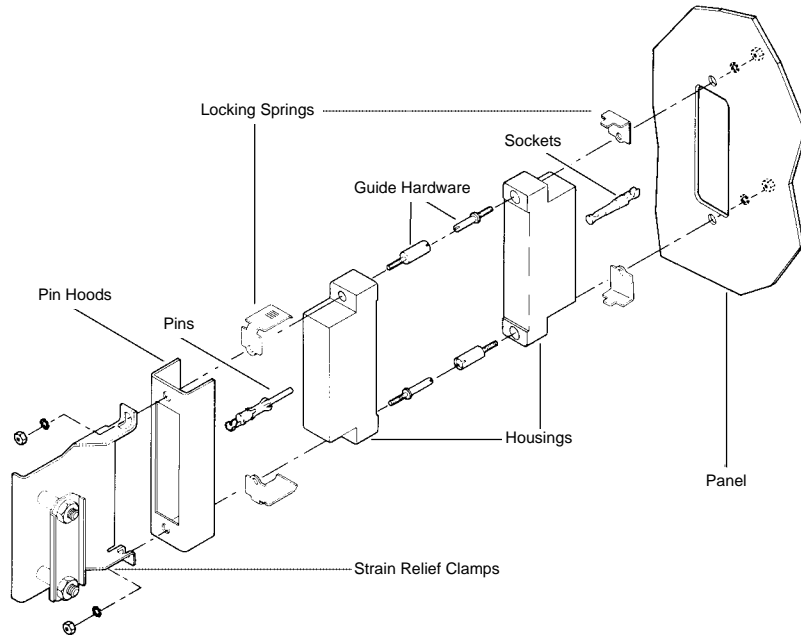
Cable-to-Panel Selection Guide

Application

E

Featured Hardware

- Strain Relief Clamps
- Locking Springs
- Pin Hoods
- Guide Hardware



Component Description		Number of Positions				
		6	14	20	26	34
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	202758-1	201355-1	201356-1	201359-1	1-201357-1
		202757-1	201298-1	200346-2	200512-2	200838-2
	Plug Block Receptacle Block } Diallyl Phthalate	202758-3	—	201356-3	201359-3	201357-3
		202757-3	201298-3	200346-4	200512-3	200838-3
Plug Block Receptacle Block } Polyester	—	—	—	—	213800-1	
	—	—	—	—	213802-1	
STRAIN RELIEF CLAMPS Page 9220	Long } Nickel Plated Steel	—	201843-1	—	201845-1	201846-1
		203432-1	200686-1	—	201229-1	—
	Long } Stainless Steel	—	—	—	—	—
		—	—	201237-1	—	201224-1
GUIDE HARDWARE Page 9213	Center Male } Stainless Steel	200389-2	200389-2	200389-2	200389-2	200389-2
	Center Female } Stainless Steel	200390-2	200390-2	200390-2	200390-2	200390-2
	Corner Male } Stainless Steel	—	—	—	—	200833-2
	Corner Female } Stainless Steel	—	—	—	—	200835-2
LOCKING SPRINGS¹ Page 9212	Male—Nickel Plated Spring Steel	201921-1	201921-1	201921-1	201923-1	201925-1
	Female—Stainless Steel	201922-1	201922-1	201922-1	—	201926-1
PIN HOODS Pages 9214 and 9215	Internal Open End } Nickel Plated Steel	204258-6	201363-4	—	201785-4	201786-4
	Internal Closed End } Nickel Plated Steel	—	—	—	—	—
	External Closed End } Al Iridite	—	—	—	—	—
	External Closed End } Nickel Plated Steel	—	—	—	—	—

¹ Each part number contains two locking springs. Order one male and one female for each mated pair of connectors.

For complete product information, order Catalog 82003

Cable-to-Panel Selection Guide

1. Confirm that **Application E** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9183 and 9186 through 9191.)
2. Find the appropriate column for the number of positions required.
3. Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
4. Dimensional information is available on the indicated pages under description column.
5. Select Contacts: Type II (page 9105), Type III+ (pages 9101 through 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings and posted housings may be substituted for these standard housings. See Special Application and Posted Connectors Sections.

This cable-to-panel application utilizes locking springs, strain relief clamps, a pin hood for pin protection and guide hardware.

The 34 and 50 position connectors can be used with either center or corner guide hardware. If center guide hardware is used, an additional four 4-40 screws, nuts and lockwashers are required to secure the locking springs. Corner guides require four guide pins and four guide sockets for each mated pair of connectors.

Number of Positions						Component Description		
41	50	75	104	104 CF	160 CF			
202135-2	201358-1	—	—	—	—	Plug Block Receptacle Block	Phenolic	STANDARD HOUSINGS Pages 9192 to 9199
201302-1	200277-2	—	—	—	—			
202135-4	201358-3	—	—	—	—	Plug Block Receptacle Block	Diallyl Phthalate	
201302-3	200277-4	—	—	—	—			
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester	
—	—	—	—	—	—			
—	—	—	—	—	—	Long Short	Nickel Plated Steel	
—	201182-1	—	—	—	—			
201766-1	201847-1	—	—	—	—	Long Short	Stainless Steel	
—	—	—	—	—	—			
200389-2	200389-2	—	—	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel	GUIDE HARDWARE Page 9213
200390-2	200390-2	—	—	—	—			
—	200833-2	—	—	—	—			
—	200835-2	—	—	—	—			
201921-1	201925-1	—	—	—	—	Male—Nickel Plated Spring Steel	LOCKING SPRINGS ¹ Page 9212	
201922-1	201926-1	—	—	—	—	Female—Stainless Steel		
—	—	—	—	—	—	Internal Open End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215
—	—	—	—	—	—	Internal Closed End	Nickel Plated Steel	
—	—	—	—	—	—	External Closed End	Al Iridite	
—	—	—	—	—	—	External Closed End	Nickel Plated Steel	

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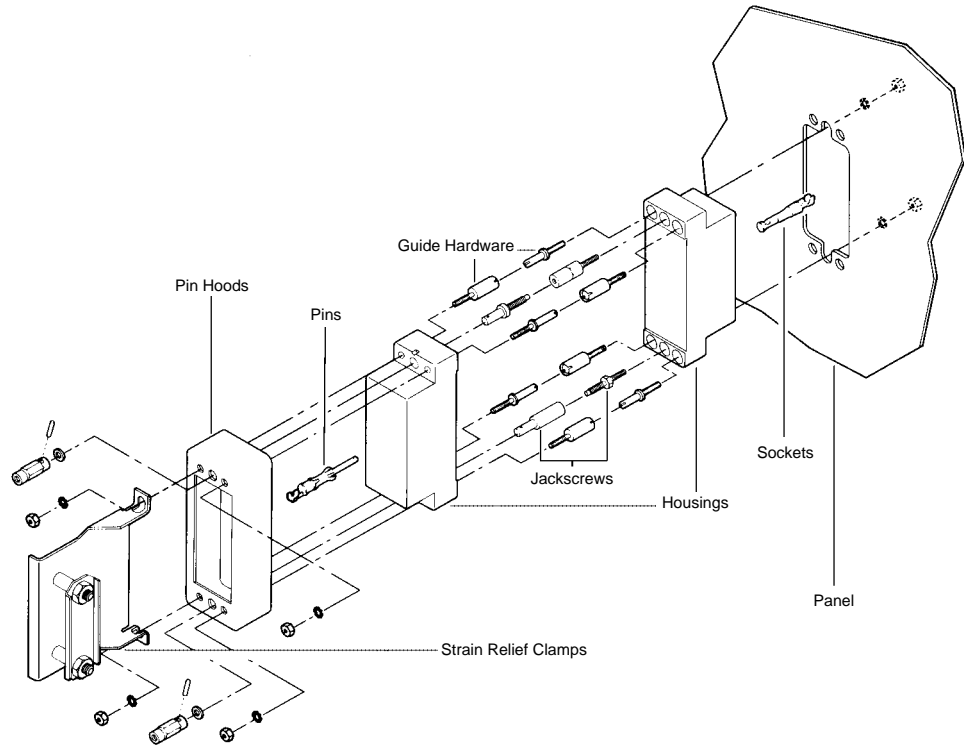
Cable-to-Panel Selection Guide

Application

F

Featured Hardware

- Strain Relief Clamps
- Pin Hoods
- Jackscrews
- Guide Hardware



Component Description		Number of Positions					
		6	14	20	26	34	
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	202758-1	201355-1	201356-1	201359-1	1-201357-1	
		202757-1	201298-1	200346-2	200512-2	200838-2	
	Plug Block Receptacle Block } Diallyl Phthalate	202758-3	—	201356-3	201359-3	201357-3	
		202757-3	201298-3	200346-4	200512-3	200838-3	
Plug Block Receptacle Block } Polyester	—	—	—	—	213800-1		
	—	—	—	—	213802-1		
STRAIN RELIEF CLAMPS Page 9220	Long Short } Nickel Plated Steel	—	201843-1	—	201845-1	201846-1	
		203432-1	200686-1	—	201229-1	—	
	Long Short } Stainless Steel	—	—	—	—	—	
		—	—	201237-1	—	201224-1	
JACKSCREWS¹ Pages 9210 and 9211	Fixed Male Fixed Female } Stainless Steel	201092-1	201092-1	201092-1	201092-1	201092-1	
		201089-1	201089-1	201089-1	201089-1	201089-1	
	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female } Tip: Stainless Steel Body: Die Cast Zinc	—	—	—	—	—	
		—	—	—	—	—	
		—	—	—	—	—	
		201827-1	201827-1	201827-1	201827-1	201827-1	
		201828-1	201828-1	201828-1	201828-1	201828-1	
		—	—	—	—	—	
GUIDE HARDWARE Page 9213	Center Male Center Female Corner Male Corner Female } Stainless Steel	—	—	—	—	—	
		—	—	—	—	—	
		—	—	—	—	200833-2	
		—	—	—	—	200835-2	
PIN HOODS Pages 9214 and 9215	Internal Open End	Nickel Plated Steel	204258-6	201363-4	—	201785-4	201786-4
	Internal Closed End	Nickel Plated Steel	—	—	—	—	202434-4
	External Closed End	Al Iridite	—	—	—	201349-2	201350-2
	External Closed End	Nickel Plated Steel	—	—	—	—	—

¹ Listed Jackscrews have 6-32 single lead threads. For corresponding Jackscrews with 6-32 double lead threads, refer to pages 9210 and 9211.

For complete product information, order Catalog 82003

Cable-to-Panel Selection Guide

1. Confirm that **Application F** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9185 and 9188 through 9191.)
2. Find the appropriate column for the number of positions required.
3. Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
4. Dimensional information is available on the indicated pages under description column.
5. Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings and posted housings may be substituted for these standard housings. See Special Application and Posted Connectors Sections.

This cable-to-panel application utilizes jackscrews, strain relief clamps and guide hardware. A pin hood is provided for pin protection. Sizes 6, 14, 20, 26, and 41 **do not** use guide hardware for this application.

Number of Positions						Component Description		
41	50	75	104	104 CF	160 CF			
202135-2	201358-1	201310-1	201345-1	—	—	Plug Block Receptacle Block	Phenolic	STANDARD HOUSINGS Pages 9192 to 9199
201302-1	200277-2	201311-1	201037-1	—	—			
202135-4	201358-3	201310-3	201345-2	—	—	Plug Block Receptacle Block	Diallyl Phthalate	
201302-3	200277-4	201311-3	—	—	—			
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester	
—	—	—	—	—	—			
—	—	—	201849-1	—	—	Long Short	Nickel Plated Steel	
—	201182-1	200730-1	—	—	—			
201766-1	201847-1	201848-1	—	—	—	Long Short	Stainless Steel	
—	—	—	—	—	—			
201092-1	201092-1	201092-1	201092-1	—	—	Fixed Male Fixed Female	Stainless Steel	
201089-1	201089-1	201089-1	201089-1	—	—			
—	—	—	—	—	—	Long-Long Male Long-Long Female Long Male Long Female Short-Short Male Short-Short Female	Tip: Stainless Steel Body: Die Cast Zinc	JACKSCREWS¹ Pages 9210 and 9211
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
201827-1	201827-1	201827-1	201827-1	—	—			
201828-1	201828-1	201828-1	201828-1	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel	GUIDE HARDWARE Page 9213
—	—	—	—	—	—			
—	200833-2	201046-2	201046-2	—	—			
—	200835-2	201047-2	201047-2	—	—			
—	—	—	—	—	—	Internal Open End Internal Closed End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215
—	202394-2	201369-4	201364-4	—	—			
—	—	—	—	—	—	External Closed End External Closed End	Al Iridite Nickel Plated Steel	
—	201390-5	201368-4	201346-4	—	—			

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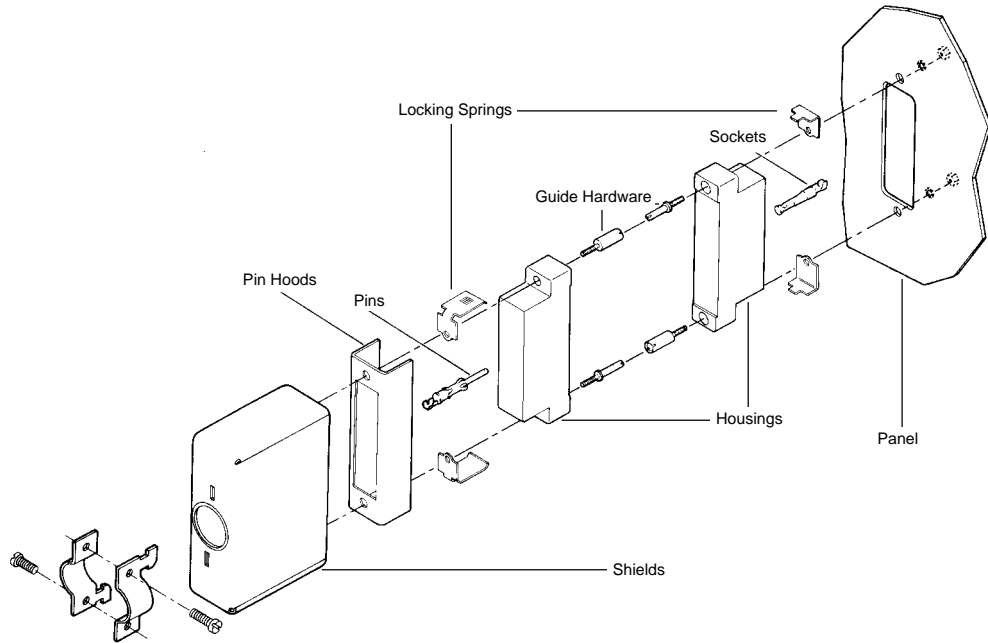
Cable-to-Panel Selection Guide

Application

G

Featured Hardware

- Shields (One-piece)
- Pin Hoods
- Locking Springs
- Guide Hardware



Component Description		Number of Positions				
		6	14	20	26	34
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	—	201355-1	201356-1	201359-1	1-201357-1
	Plug Block Receptacle Block } Diallyl Phthalate	—	201298-1	200346-2	200512-2	200838-2
	Plug Block Receptacle Block } Polyester	—	—	201356-3	201359-3	201357-3
	Plug Block Receptacle Block } Polyester	—	201298-3	200346-4	200512-3	200838-3
SHIELDS Pages 9216 to 9219	180° Two-Piece Long { Al Anodized	—	—	—	—	—
	180° Two-Piece Long { Nickel Plated Steel	—	—	—	—	—
	180° Two-Piece Short { Al Anodized	—	—	—	—	—
	180° Two-Piece Short { Nickel Plated Steel	—	—	—	—	—
	180° Two-Piece Short { Nickel Plated Cast Al	—	—	—	—	—
	90° Two-Piece Long } Nickel Plated Steel	—	—	—	—	—
	90° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—
	45° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—
	45° Two-Piece Deep } Nickel Plated Steel	—	—	—	—	—
	180° One-Piece Long } Nickel Plated Steel	—	201378-2	—	—	201384-2
180° One-Piece Short } Nickel Plated Steel	—	201360-2	201227-2	201169-2	201165-2	
90° One-Piece Short } Nickel Plated Steel	—	201467-2	—	—	201469-2	
GUIDE HARDWARE Page 9213	Center Male } Stainless Steel	—	200389-2	200389-2	200389-2	200389-2
	Center Female } Stainless Steel	—	200390-2	200390-2	200390-2	200390-2
	Corner Male } Stainless Steel	—	—	—	—	200833-2
	Corner Female } Stainless Steel	—	—	—	—	200835-2
	Locking Springs } Stainless Steel	—	—	—	—	—
LOCKING SPRINGS¹ Page 9212	Male—Nickel Plated Spring Steel	—	201921-1	201921-1	201923-1	201925-1
	Female—Stainless Steel	—	201922-1	201922-1	—	201926-1
PIN HOODS Pages 9214 and 9215	Internal Open End } Nickel Plated Steel	—	201363-4	—	201785-4	201786-4
	Internal Closed End } Nickel Plated Steel	—	—	—	—	—
	External Closed End } Al Iridite	—	—	—	—	—
	External Closed End } Nickel Plated Steel	—	—	—	—	—

¹ Each part number contains two locking springs. Order one male and one female for each mated pair of connectors.

For complete product information, order Catalog 82003

Cable-to-Panel Selection Guide

1. Confirm that **Application G** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9187, 9190 and 9191.)
2. Find the appropriate column for the number of positions required.
3. Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
4. Dimensional information is available on the indicated pages under description column.
5. Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings and posted housings may be substituted for these standard housings. See Special Application and Posted Connectors Sections.

This cable-to-panel application utilizes locking springs, one-piece shields, a pin hood for pin protection and guide hardware. The shields are available with both 180° and 90° cable exits. The 180° shields are available in a long version which provides pin protection in lieu of a pin hood.

Do not select a long shield and a pin hood.

The 34 and 50 position connectors can be used with either center or corner guide hardware. If center guides are used, an additional four 4-40 screws are required to secure the locking springs. If corner guides are used, an additional two 4-40 screws will be required to attach the shield. Corner guides require four guide pins and four guide sockets for each mated pair.

Number of Positions						Component Description		
41	50	75	104	104 CF	160 CF			
202135-2	201358-1	—	—	—	—	Plug Block Receptacle Block	Phenolic	STANDARD HOUSINGS Pages 9192 to 9199
201302-1	200277-2	—	—	—	—			
202135-4	201358-3	—	—	—	—	Plug Block Receptacle Block	Diallyl Phthalate	
201302-3	200277-4	—	—	—	—			
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester	
—	—	—	—	—	—			
—	—	—	—	—	—	180° Two- Piece Long	Al Anodized Nickel Plated Steel	
—	—	—	—	—	—			
—	—	—	—	—	—	180° Two- Piece Short	Al Anodized Nickel Plated Steel Nickel Plated Cast Al	
—	—	—	—	—	—			
—	—	—	—	—	—	90° Two-Piece Long 90° Two-Piece Short 45° Two-Piece Short 45° Two-Piece Deep 180° One-Piece Long 180° One-Piece Short 90° One-Piece Short	Nickel Plated Steel	SHIELDS Pages 9216 to 9219
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
—	—	—	—	—	—			
200389-2	200389-2	—	—	—	—	Center Male Center Female Corner Male Corner Female	Stainless Steel	GUIDE HARDWARE Page 9213
200390-2	200390-2	—	—	—	—			
—	200833-2	—	—	—	—			
—	200835-2	—	—	—	—			
201921-1	201925-1	—	—	—	—	Male—Nickel Plated Spring Steel		LOCKING SPRINGS¹ Page 9212
201922-1	201926-1	—	—	—	—	Female—Stainless Steel		
—	—	—	—	—	—	Internal Open End	Nickel Plated Steel	PIN HOODS Pages 9214 and 9215
—	—	—	—	—	—	Internal Closed End	Nickel Plated Steel	
—	—	—	—	—	—	External Closed End	Al Iridite	
—	—	—	—	—	—	External Closed End	Nickel Plated Steel	

For complete product information, order Catalog 82003

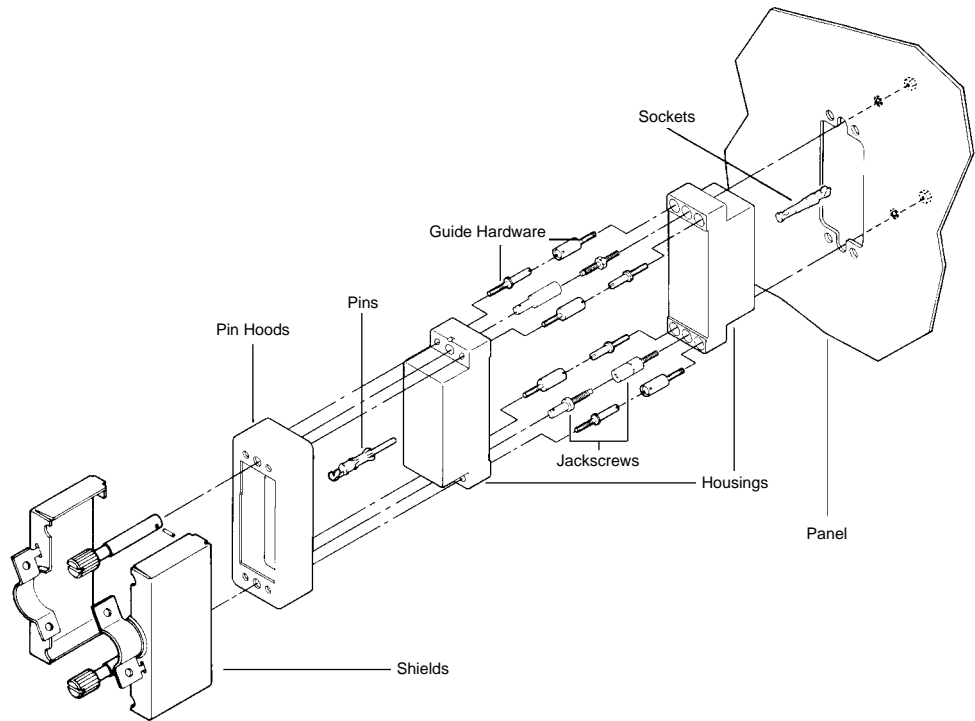
Cable-to-Panel Selection Guide

Application

H

Featured Hardware

- Shields (Two-piece)
- Pin Hoods
- Guide Hardware
- Jackscrews



Component Description		Number of Positions				
		6	14	20	26	34
STANDARD HOUSINGS Pages 9192 to 9199	Plug Block Receptacle Block } Phenolic	—	—	201356-1	201359-1	1-201357-1
	Plug Block Receptacle Block } Diallyl Phthalate	—	—	200346-2	200512-2	200838-2
	Plug Block Receptacle Block } Polyester	—	—	201356-3	201359-3	201357-3
	Plug Block Receptacle Block } Polyester	—	—	200346-4	200512-3	200838-3
SHIELDS Pages 9216 to 9219	180° Two-Piece Long { Al Anodized Nickel Plated Steel	—	—	—	201576-1	201571-1
	180° Two-Piece Long { Nickel Plated Steel	—	—	—	201576-2	201571-2
	180° Two-Piece Short { Al Anodized Nickel Plated Steel	—	—	—	—	200517-1
	180° Two-Piece Short { Nickel Plated Steel	—	—	204087-1	200514-2	200517-2
	180° Two-Piece Short { Nickel Plated Cast Al	—	—	—	—	—
	90° Two-Piece Long } Nickel Plated Steel	—	—	—	—	—
	90° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—
	45° Two-Piece Short } Nickel Plated Steel	—	—	—	—	—
	45° Two-Piece Deep } Nickel Plated Steel	—	—	—	—	—
	180° One-Piece Long } Nickel Plated Steel	—	—	—	—	—
180° One-Piece Short } Nickel Plated Steel	—	—	—	—	—	
90° One-Piece Short } Nickel Plated Steel	—	—	—	—	—	
JACKSCREWS¹ Pages 9210 and 9211	Fixed Male } Stainless Steel	—	—	201092-1	201092-1	201092-1
	Fixed Female } Stainless Steel	—	—	201089-1	201089-1	201089-1
	Long-Long Male } Tip: Stainless Steel	—	—	—	—	—
	Long-Long Female } Tip: Stainless Steel	—	—	—	—	—
	Long Male } Body: Die Cast Zinc	—	—	201413-1	201413-1	201413-1
	Long Female } Body: Die Cast Zinc	—	—	201414-1	201414-1	201414-1
GUIDE HARDWARE Page 9213	Short-Short Male } Stainless Steel	—	—	—	—	—
	Short-Short Female } Stainless Steel	—	—	—	—	—
	Center Male } Stainless Steel	—	—	—	—	—
	Center Female } Stainless Steel	—	—	—	—	—
PIN HOODS Pages 9214 and 9215	Corner Male } Stainless Steel	—	—	—	—	200833-2
	Corner Female } Stainless Steel	—	—	—	—	200835-2
	Internal Open End } Nickel Plated Steel	—	—	—	—	201786-4
	Internal Closed End } Nickel Plated Steel	—	—	—	—	202434-4
	External Closed End } Al Iridite	—	—	—	—	201350-2
External Closed End } Nickel Plated Steel	—	—	—	—	—	

¹ Listed Jackscrews have 6-32 single lead threads. For corresponding Jackscrews with 6-32 double lead threads, refer to pages 9210 and 9211

Cable-to-Panel Selection Guide

- Confirm that **Application H** (at left) most closely meets your requirements. (Other applications are shown on pages 9176 thru 9189.)
- Find the appropriate column for the number of positions required.
- Select part numbers required for the application listed in the column below the number of positions.

If a part number is not listed for a particular item, it is not available.

If more than one part number is listed for a particular hardware item, choose the one which best fits your application.
- Dimensional information is available on the indicated pages under description column.
- Select Contacts: Type II (page 9105), Type III+ (pages 9101 thru 9103) or Subminiature Coaxial (pages 9116 and 9117).

Special application housings and posted housings may be substituted for these standard housings. See Special Application and Posted Connectors Sections.

This cable-to-panel application utilizes jackscrews, a two-piece short shield, a strain relief clamp, a pin hood for pin protection and guide hardware.

Do not use a pin hood in combination with the shield for sizes 20, 26 and 41. A long shield may be used in lieu of pin hood for pin protection for all sizes except the 20 position. Shields are available with 180° cable exit and for the 50 thru 104 position connectors, a 90° cable exit. 104 CF has 90° and 45° cable exits. 160 CF has 45° cable exit.

Select the appropriate jackscrew length for the type of shield chosen as indicated by symbol (△▲).

Number of Positions						Component Description	
41	50	75	104	104 CF	160 CF		
202135-2	201358-1	201310-1	201345-1	201692-4	202799-2	Plug Block Receptacle Block	Phenolic
201302-1	200277-2	201311-1	201037-1	201532-4	202800-2		
202135-4	201358-3	201310-3	201345-2	201692-3	202799-1	Plug Block Receptacle Block	Diallyl Phthalate
201302-3	200277-4	201311-3	—	201532-2	202800-1		
—	—	—	—	1-201692-6	—	Plug Block Receptacle Block	Polyester
—	—	—	—	—	—		
—	201443-1△	—	—	—	—	180° Two-Piece Long	Al Anodized Nickel Plated Steel
202383-2	201443-2△	202713-2▲	204173-2▲	—	—		
—	200532-1△	—	—	—	—	180° Two-Piece Short	Al Anodized Nickel Plated Steel Nickel Plated Cast Al
202383-1	200532-2△	202713-1▲	204173-1▲	—	—		
—	—	—	201131-1△	—	—	90° Two-Piece Long	Nickel Plated Steel
—	203975-2▲	202711-3▲	—	—	—	90° Two-Piece Short	
—	203975-1▲	202711-1▲	—	202395-1	—	45° Two-Piece Short	
—	—	—	—	202110-1	202798-1	45° Two-Piece Deep	
—	—	—	—	202169-1	—	180° One-Piece Long	
—	—	—	—	—	—	180° One-Piece Short	
—	—	—	—	—	—	90° One-Piece Short	
201092-1	201092-1	201092-1	201092-1	—	—	Fixed Male	Stainless Steel
201089-1	201089-1	201089-1	201089-1	—	—	Fixed Female	
—	207234-1▲	207234-1▲	207234-1▲	—	—	Long-Long Male	Tip: Stainless Steel Body: Die Cast Zinc
—	207235-1▲	207235-1▲	207235-1▲	—	—	Long-Long Female	
201413-1	201413-1△	201413-1△	201413-1△	—	—	Long Male	
201414-1	201414-1△	201414-1△	201414-1△	—	—	Long Female	
—	—	—	—	—	—	Short-Short Male	
—	—	—	—	—	—	Short-Short Female	Stainless Steel
—	—	—	—	—	—	Center Male	
—	—	—	—	—	—	Center Female	
—	200833-2	201046-2	201046-2	202173-5	201046-2	Corner Male	
—	200835-2	201047-2	201047-2	202174-1	201047-2	Corner Female	
—	—	—	—	—	—	Internal Open End	Nickel Plated Steel
—	202394-2	201369-4	201364-4	—	203743-4	Internal Closed End	Nickel Plated Steel
—	—	—	—	—	—	External Closed End	Al Iridite
—	201390-5	201368-4	201346-4	202119-2	203744-4	External Closed End	Nickel Plated Steel

STANDARD HOUSINGS
Pages 9192 to 9199

SHIELDS
Pages 9216 to 9219

JACKSCREWS¹
Pages 9210 and 9211

GUIDE HARDWARE
Page 9213

PIN HOODS
Pages 9214 and 9215

For complete product information, order Catalog 82003

Standard Housings

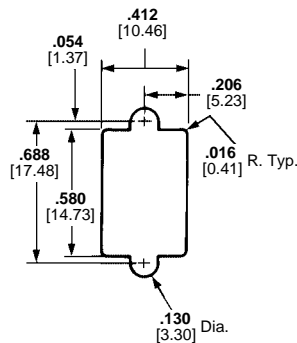
Standard connectors are furnished as unloaded housings that have Multimate contact cavities for accepting Type II, Type III+, and subminiature COAXICON crimp-type contacts, as well as Type III+ solder-type and posted contacts. All Multimate contacts are interchangeable in the same housing cavity.

Standard connector housings are available in sizes ranging from 6 thru 160 positions. They mate with each other, as well as posted connectors of a corresponding size for hand tool and semiautomatic machine wiring. See Posted Connector section.

For complete product information, order Catalog 82003

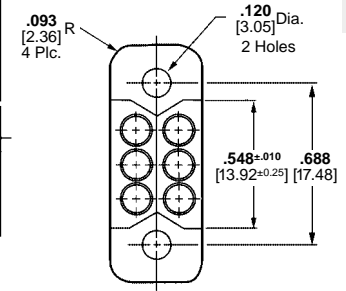
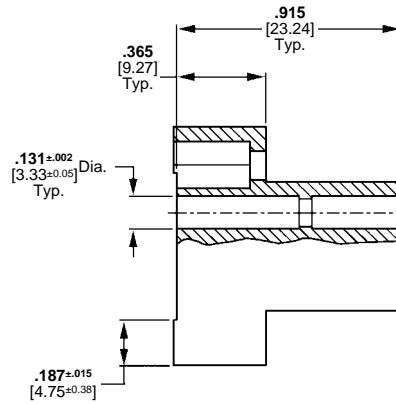
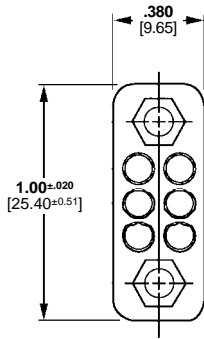
Standard Housings

6 Position



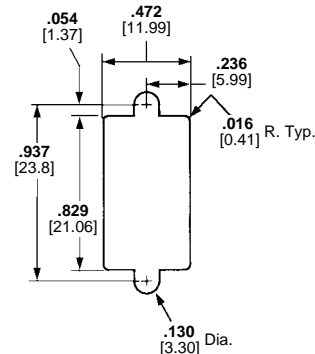
Recommended Panel Cutout

Plug Housing
Phenolic Part No. 202758-1
Diallyl Phthalate Part No. 202758-3



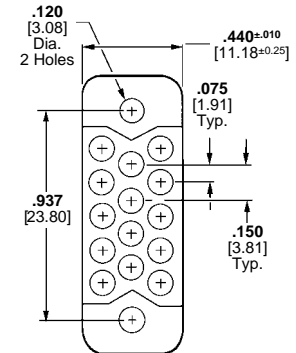
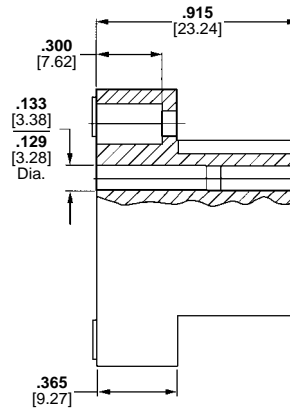
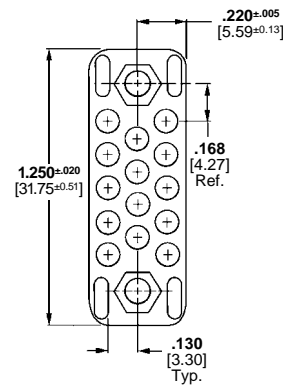
Receptacle Housing
Phenolic Part No. 202757-1
Diallyl Phthalate Part No. 202757-3

14 Position



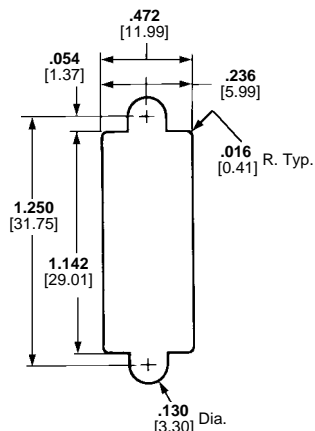
Recommended Panel Cutout

Plug Housing
Phenolic Part No. 201355-1



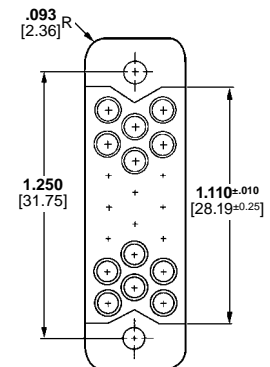
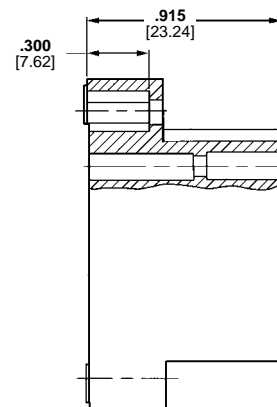
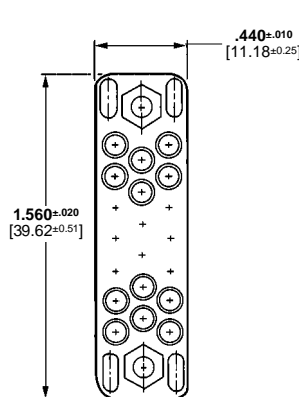
Receptacle Housing
Phenolic Part No. 201298-1
Diallyl Phthalate Part No. 201298-3

20 Position



Recommended Panel Cutout

Plug Housing
Phenolic Part No. 201356-1
Diallyl Phthalate Part No. 201356-3



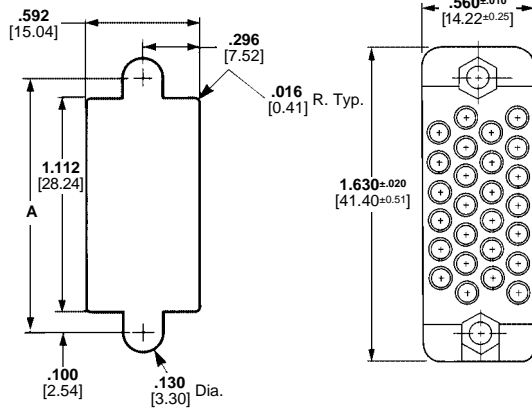
Receptacle Housing
Phenolic Part No. 200346-2
Diallyl Phthalate Part No. 200346-4

- Notes:**
1. All housings accept Type II, Type III+, and Subminiature COAXICON contacts.
 2. Pins and/or sockets may be used in any housing.
 3. Dimensions are ±.005 [0.127].
 4. Housing cavity identification are mirror image.

For complete product information, order Catalog 82003

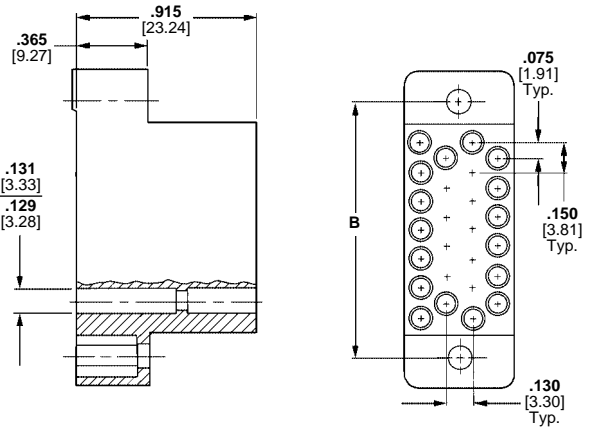
Standard Housings

26 Position

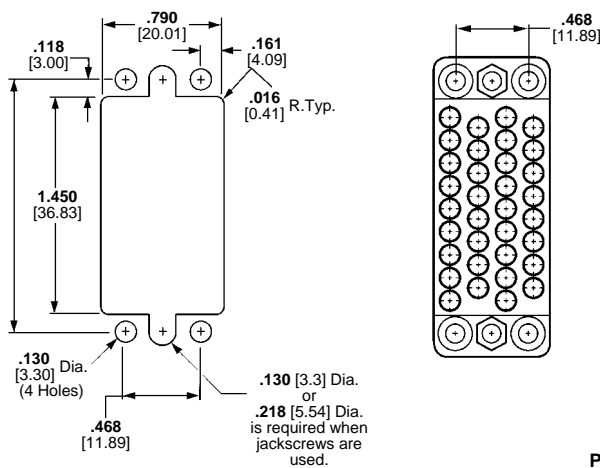


Recommended Panel Cutout

Plug Housing (Shown)

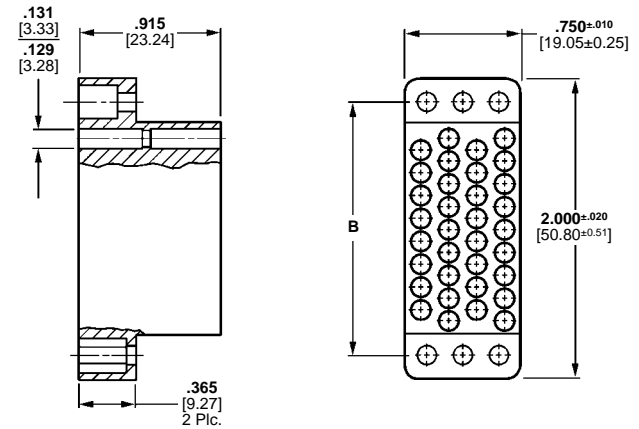


34 Position

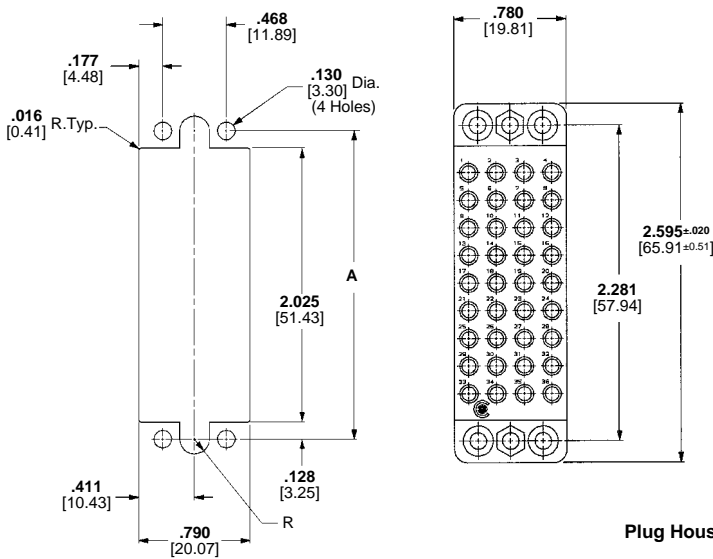


Recommended Panel Cutout

Plug Housing (Shown)

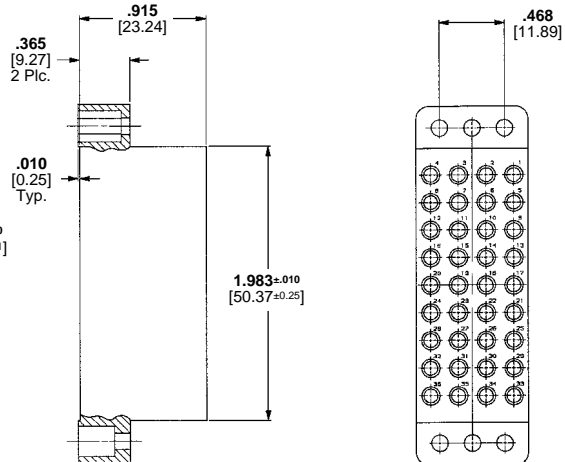


36 Position



Recommended Panel Cutout

Plug Housing (Shown)



For complete product information, order Catalog 82003

26, 34 and 36 Positions (Continued)

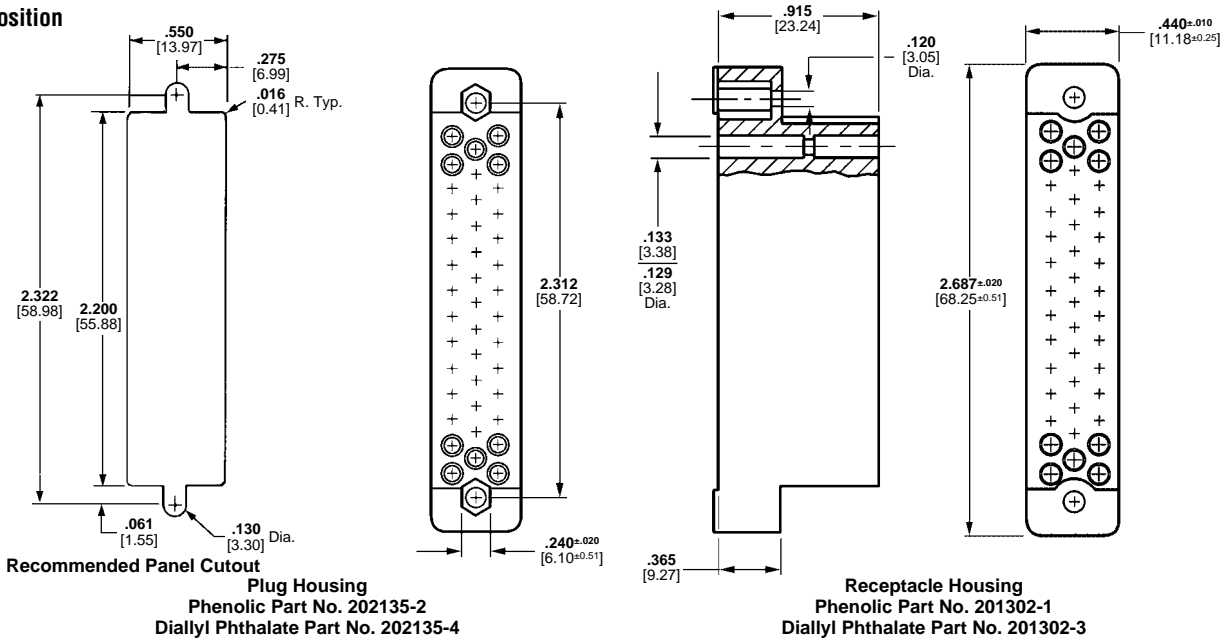
Related Product Data
Dimensions—Page 9194

Standard Housings

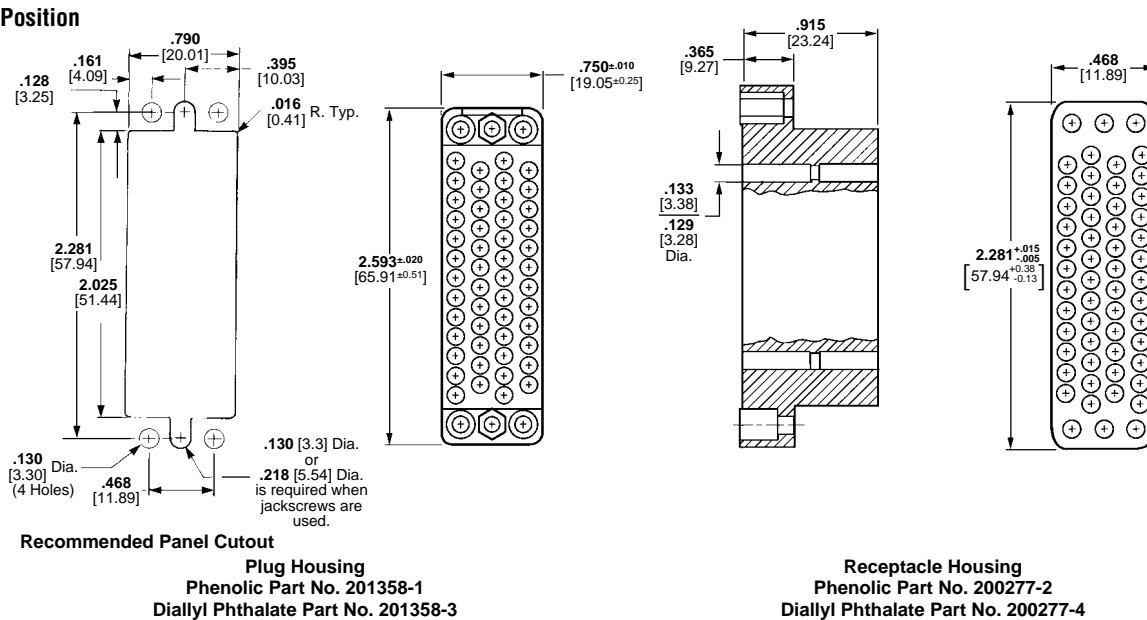
No. of Pos.	Housing Material	Plug Part Number	Dimension A	Receptacle Part Number	Dimension B
26	Phenolic	201359-1	1.312 33.32	200512-2	1.312 33.32
	Diallyl Phthalate	201359-3	1.322 33.58	200512-3	1.322 33.58
	Phenolic	1-201357-1	—	200838-2	—
34	Polyester	213799-1 (Modified)	1.686	213801-1 (Modified)	1.686
		213800-1 213800-2	42.82	213802-1	42.82
	Diallyl Phthalate	201357-3	1.696 43.08	200838-3	1.696 43.08
36	Phenolic	203956-2	2.281 57.94	—	—

- Notes:**
1. All housings accept Type II, Type III+, and Subminiature COAXICON contacts.
 2. Pins and/or sockets may be used in any housing.
 3. Dimensions are ± 0.005 [0.127].
 4. Housing cavity identification are mirror image.
 5. Versions also available with notch for robotic assembly. Consult Tyco Electronics Corporation.

41 Position

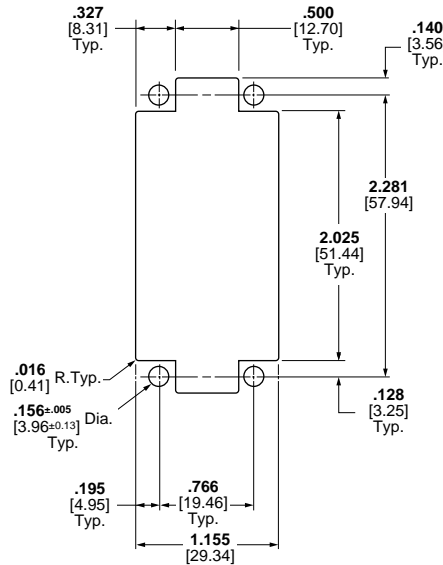


50 Position

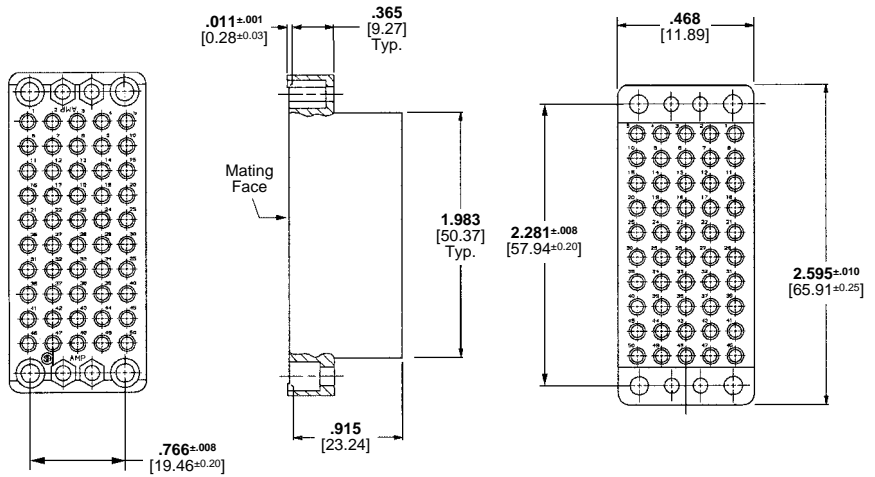


Standard Housings

50 Position



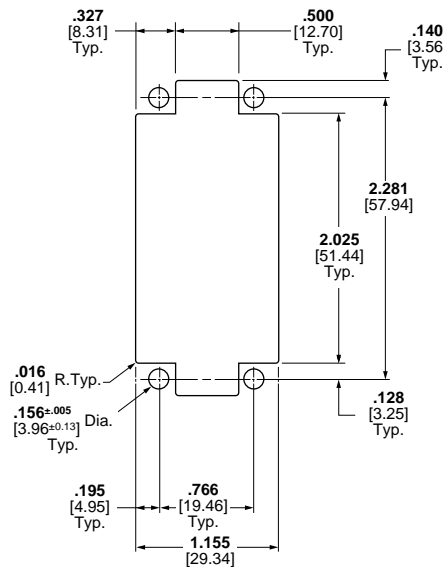
Recommended Panel Cutout



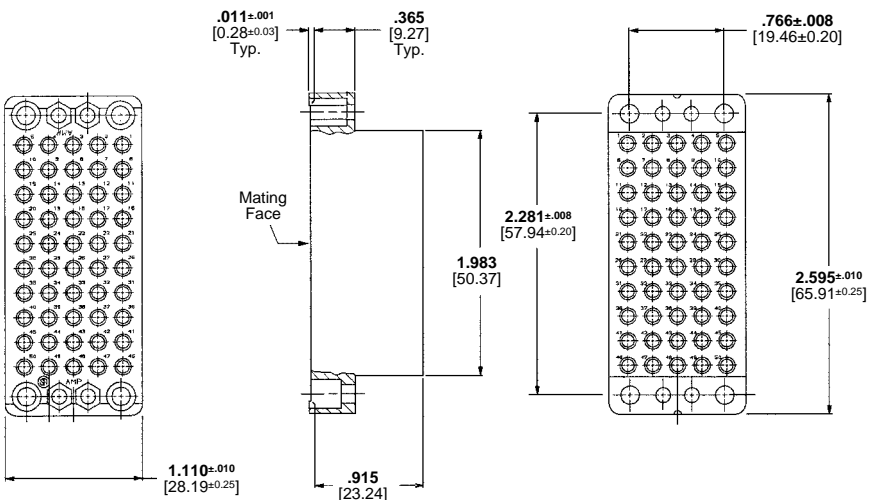
Plug Housing
Phenolic Part No. 203622-2

(Mating face contact cavities numbered left to right.)

50 Position



Recommended Panel Cutout



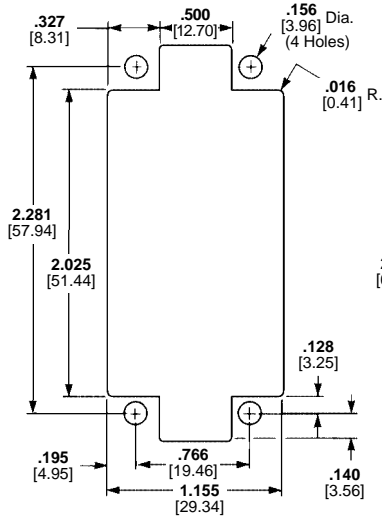
Plug Housing
Phenolic Part No. 205058-2

(Mating face contact cavities numbered right to left.)

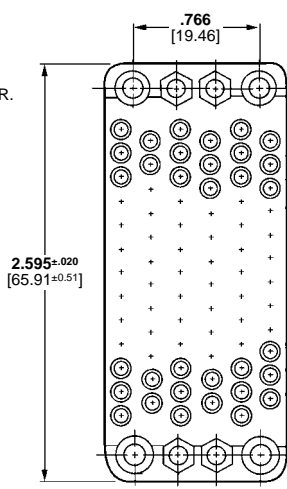
For complete product information, order Catalog 82003

Standard Housings

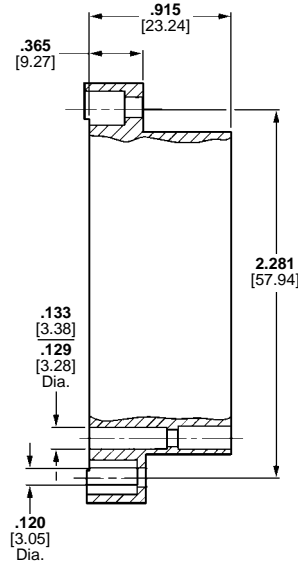
75 Position



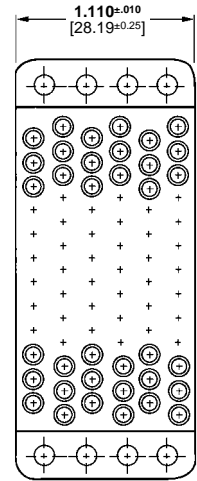
Recommended Panel Cutout



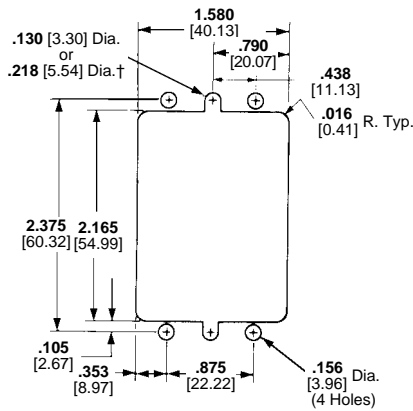
Plug Housing
Phenolic Part No. 201310-1
Diallyl Phthalate Part No. 201310-3



Receptacle Housing
Phenolic Part No. 201311-1
Diallyl Phthalate Part No. 201311-3

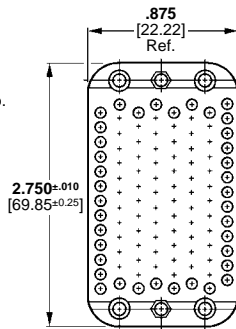


104 Position

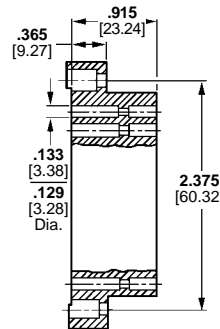


†.218 [5.54] diameter is required when jackscrews are used.

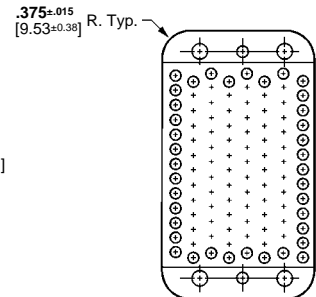
Recommended Panel Cutout



Plug Housing
Phenolic Part No. 201345-1



Receptacle Housing
Phenolic Part No. 201037-1

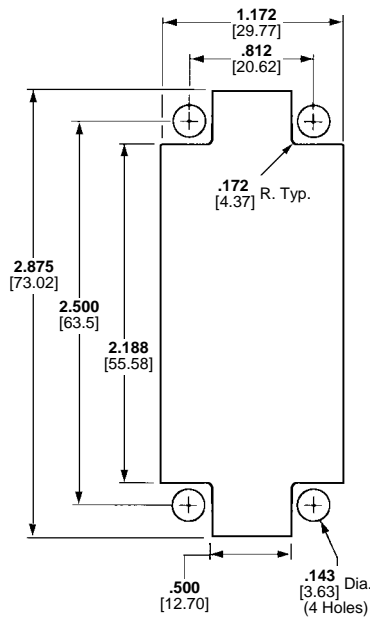


- Notes:**
1. All housings accept Type II, Type III+, and Subminiature COAXICON contacts.
 2. Pins and/or sockets may be used in any housing.
 3. Dimensions are $\pm .005$ [0.127].
 4. Housing cavity identification are mirror image.

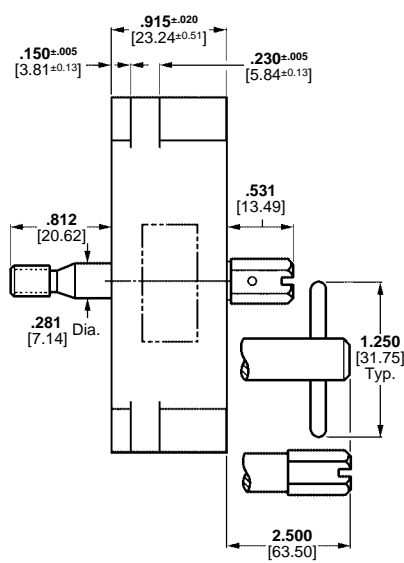
For complete product information, order Catalog 82003

Standard Housings

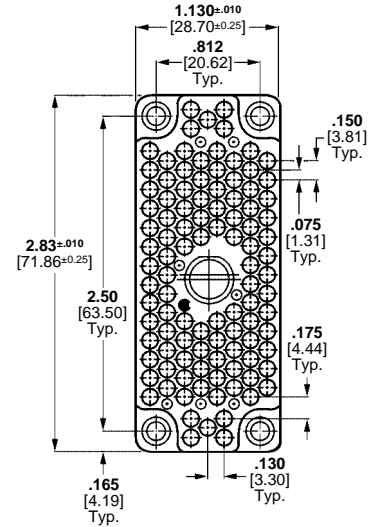
104 CF Position (with Center Fastener)



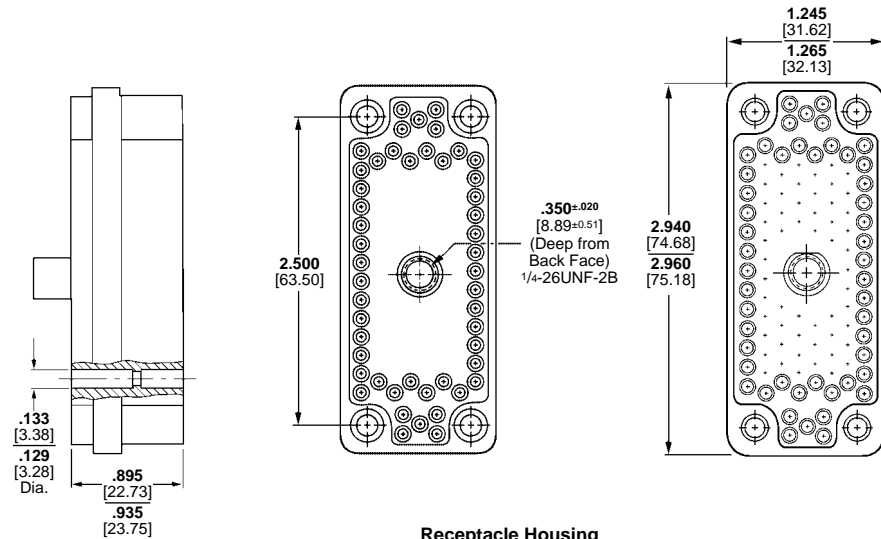
Recommended Panel Cutout



Plug Housing



Receptacle Housing



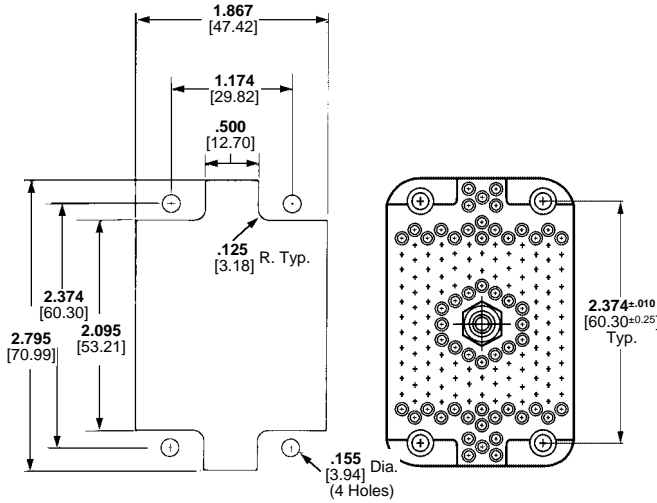
Center Fastener Description	Center Fastener Length	Plug Housing Part No.			Receptacle Housing Part No.		
		Phenolic	Diallyl Phthalate	Polyester	Phenolic	Diallyl Phthalate	Polyester
"T" Handle	2.500 63.50	201692-4	201692-3	1-201692-6			
Slotted Hex	2.500 63.50	201692-6	—	—	201532-4	201532-2	—
Slotted Hex	.531 13.49	201692-2	—	—			

- Notes:**
1. All housings accept Type II, Type III+, and Subminiature COAXICON contacts.
 2. Pins and/or sockets may be used in any housing.
 3. Dimensions are $\pm .005$ [0.127].
 4. Housing cavity identification are mirror image.

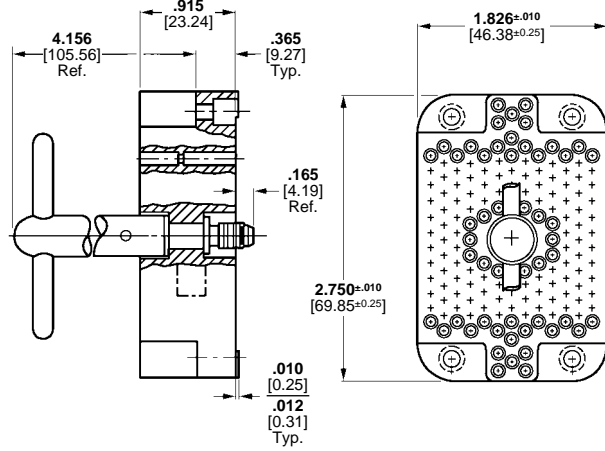
For complete product information, order Catalog 82003

Standard Housings

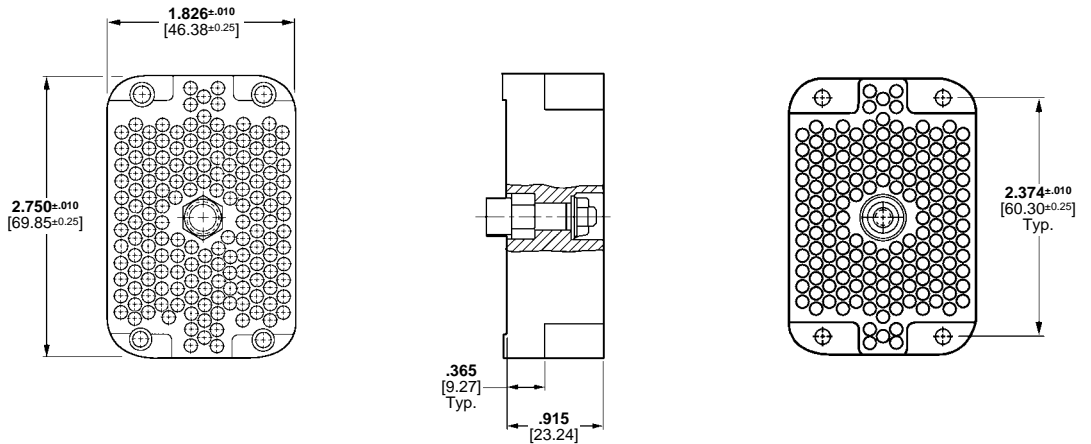
160 CF Position (with Center Fastener)



Recommended Panel Cutout



Plug Housing
Phenolic Part No. 202799-2
Diallyl Phthalate Part No. 202799-1



Receptacle Housing
Phenolic Part No. 202800-2
Diallyl Phthalate Part No. 202800-1

- Notes:**
1. All housings accept Type II, Type III+, and Subminiature COAXICON contacts.
 2. Pins and/or sockets may be used in any housing.
 3. Dimensions are ± 0.005 [0.127].
 4. Housing cavity identification are mirror image.

For complete product information, order Catalog 82003

Posted Connectors

Posted connectors are furnished preloaded with Size 16, posted contacts and are specifically designed to be wired with hand tools and semiautomatic machines. The cavity centerline spacing is too close to accommodate the heads and mandrels of fully automatic machines. Post configurations of the preloaded contacts are available for accepting TERMI-POINT Clip and wrap-type terminations.

Posted connector housings are made of black phenolic or diallyl phthalate and are available in sizes ranging from 6 thru 104 positions. They will mate with correspondingly sized standard connector (except .200 [5.08] grid) housings loaded with Size 16 crimp-type contacts. It is not recommended to mate two posted connectors. Since the preloaded posted contacts are rigid in the housing, mating two posted connectors, particularly of the larger sizes, would be difficult.

Posted connectors can be substituted for standard connectors in the Connector/Hardware Selection Charts, pages 9176 to 9191. Request Catalog 82003 for complete information on posted connectors.

Tyco does not recommend the use of shields or strain relief clamps with posted connectors because of the potential of shorting.

For complete product information, order Catalog 82003

Special Application Connectors



V.35 Connector

The 34 position V.35 Connector is fully assembled and ready for placement on a printed circuit board. They are also available in kit form for cable assembly. These AMP V.35 connectors meet the requirements of 408-2593 for CCITT V.35 interfacing. AMP V.35 connectors are described on the following pages.

The following Special Application Connectors are described in Catalog 82003:

High current connectors are designed for applications requiring up to 25 amperes of current. They are available in 12-position male and female housings which have rectangular contact cavities for accepting Type XII contacts.

Mixed connectors are designed for applications that require intermixing signal, power and/or coaxial circuits in the same connector housing. Housings are available in 15-, 16-,

29 CF (center fastener) and 42-position sizes and, depending upon the specific configuration, will accept Multimate contacts, Type I and Miniature, Standard and Twin Standard COAXICON contacts. The rectangular contact cavities accept Type XII contacts.

High voltage connectors are designed for high voltage applications using Multimate contacts. The cavity centerline spacings and the silo construction of the contact cavities increase the current creepage path for higher voltage ratings. Housing sizes include 20 and 28 positions.


RFI/EMI shielding kits provide shielding capabilities against radio frequency and electromagnetic interferences. Special 104-position housings accept Multimate contacts and are especially designed for use with shielding hardware. These shielding kits cannot be used with the standard 104-position connector housings.

Grounding blocks are ideally suited for aircraft applications, where shielded cable is to be grounded to an airframe. The ground wires of shielded cables are pigtailed off with ferrules and are crimped to Size 16 socket contacts. The contacts are loaded into a standard 14- or 34-position connector housing. This connector then can be mated to the grounding block which is fastened to the aircraft frame. Grounding blocks have Size 16 screw-machined pin contacts which are staked, riveted and soldered into the L-shaped metal bracket. The bracket has fixed jackscrew receptacles that will accept the special turnable jackscrews fastened to the mating socket connector half.

For complete product information, order Catalog 82003

M Series V.35 Special Application Connectors

Product Facts

- Meets requirements of 408-2593 for CCITT V.35 interface
- Pcb connectors fully assembled, right-angle and vertical mount
- Mounting bracket secures pcb connector to board
- Pcb connectors preloaded with Size 16 contacts
- Right-angle connector features true position location wafer
- Intermateable with comparable M Series connectors
- Cable connector kits available with 1-piece stamped and formed shield or new, more durable die cast 2-piece shield
- Cable connectors accept Size 16, Type III+ strip form or loose piece contacts
- Housings made of UL 94V-0 rated flame retardant material
- Recognized under the Component Program of the Underwriters Laboratories Inc. for 250 volts, File No. E28476 
- Certified by Canadian Standards Association, File No. LR7189 



The 34-position V.35 includes both printed circuit board mount and cable mount configurations.

The pcb connectors are fully assembled and ready for placement on printed circuit boards. Available in vertical or right-angle mount versions, they offer dependable, convenient assembly in high-speed data transmission applications. Connectors are preloaded with economical, dependable Size 16 precision stamped and formed contacts. Contact posts feature a chamfered lead-in that eases assembly to the pc boards. A mounting bracket for securing the connector to the pc board is standard equipment. Right-angle pcb connectors feature true position, location wafers that provide for the exact location of each post. Both the right-angle and vertical mount pcb connectors are fully mateable with comparable M Series connectors.

Cable connector assemblies are offered in kit form. Each kit contains: a 34-position housing; one-piece or two-piece shield; two, one-piece turnable jackscrews; strain relief clamp; and necessary mounting screws. Shields are offered in an economical one-piece stamped and formed version or a more durable two-piece die cast version. A choice of die cast zinc, nickel plated or stainless steel turnable jackscrews are available. Cable connectors accept Size 16, Type III+ pin and socket contacts. (Contacts sold separately, see Catalog 82003)

AMP M Series V.35 Special Application Connectors meet the requirements of ISO 2593 for CCITT V.35 interface.

Technical Documents

- Product Specifications**
108-10001 M Series Connectors
108-10042 Type III+ Contacts
- Application Specification**
114-10004 Type III+ Contacts
- Instruction Sheet**
408-9731 M Series V.35 Cable Connector Kits

For complete product information, order Catalog 82003

M Series V.35 Printed Circuit Board Connectors

Right-Angle Receptacle Assembly



Material and Finish

Housing—Flame retardant phenolic or polyester, black

Contacts—Brass, plated:
a) .000030 [0.00076] gold min. in mating area, .000050 [0.00127] nickel min. underplating overall

Contact Spring—Stainless steel

Contact Post—Brass, tin-lead plated

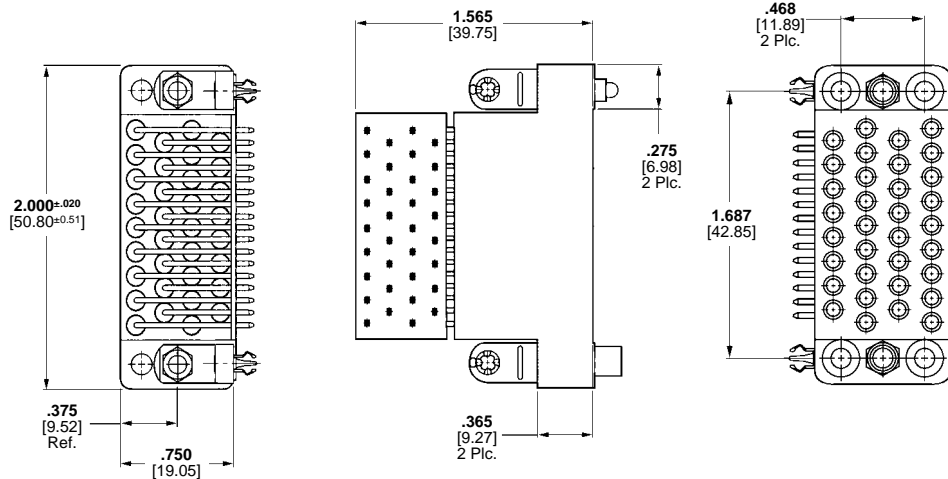
Mounting Bracket—Brass, tin-nickel plated or zinc, nickel plated

Boardlocks—Copper alloy, tin-lead plated

Location Wafer—Phenolic

Nuts and Lockwashers—Steel, zinc plated

Jackscrews—Stainless steel



No. of Pos.	Mounting Bracket	PCB Dimensions		Boardlocks	Housing Material	Select Load Pattern	Part Number
		A	B				
34	Brass, Tin-Nickel Plated	.555	*	No	Phenolic	Fully Loaded	212810-2
14		14.10	*	No	Phenolic	B, C, D, E, F, H, P, R, S, T, V, X, Y, AA	1-212810-1
27		14.10	*	No	Phenolic	A, B, C, D, E, F, H, J, P, R, S, T, U, V, W, X, Y, AA, BB, CC, DD, FF, HH, JJ, KK, LL, NN	1-212810-5
34	Zinc, Nickel Plated	.572	.347	Yes	Phenolic	Fully Loaded	213574-2
17		14.53	8.81	Yes	Phenolic	A, B, C, D, E, F, H, P, R, S, T, U, V, W, X, Y, AA	213574-4
23		.572	.347	Yes	Phenolic	A, B, C, D, E, F, H, J, K, L, N, P, R, S, T, U, V, W, X, Y, AA, BB, NN	213574-6
22		14.53	8.81	Yes	Phenolic	A, B, C, D, E, F, H, K, L, N, P, R, S, T, U, V, W, X, Y, AA, BB, NN	213574-7
22		.555	.330	Yes	Phenolic	A, B, C, D, E, F, H, J, L, N, P, R, S, T, U, V, W, X, Y, AA, HH, NN	213574-8
		14.10	8.38				

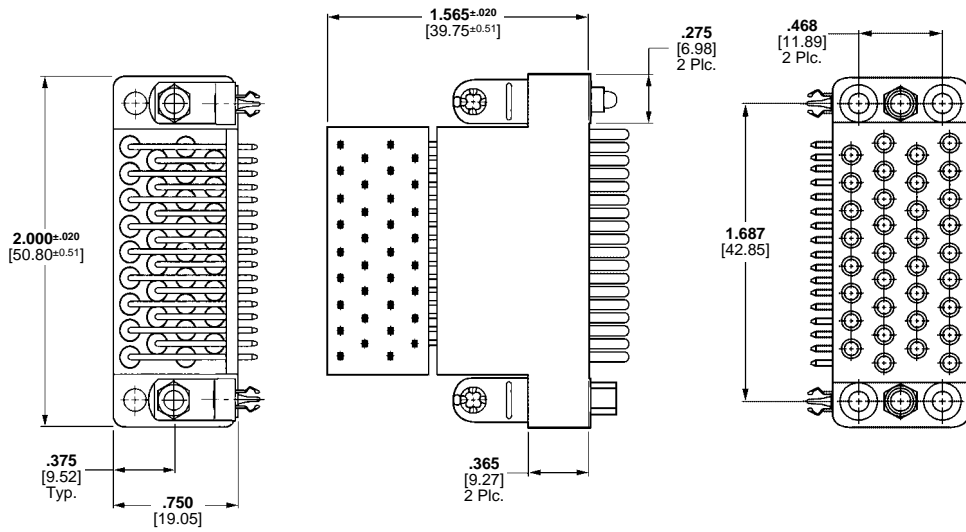
No. of Pos.	Mounting Bracket	PCB Dimensions		Boardlocks	Housing Material	Select Load Pattern	Part Number
		A	B				
34	Brass, Tin-Nickel Plated	.555	*	No	Polyester	Fully Loaded	213806-1
34	None	—	*	No	Polyester	Fully Loaded	213806-4
19	Brass, Tin-Nickel Plated	.555	*	No	Polyester	A, B, C, D, E, F, H, J, L, P, R, S, T, U, V, W, X, Y, AA Hardware Supplied Unassembled	213806-2
18	None	—	*	—	Polyester	A, B, C, D, E, F, H, K, P, R, S, T, U, V, W, X, Y, AA No Hardware Supplied	213806-3
34	Zinc, Nickel Plated	.572	.347	Yes	Polyester	Fully Loaded	213807-1
23	Zinc, Nickel Plated	.572	.347	Yes	Polyester	A, B, C, D, E, F, H, J, K, L, N, P, R, S, T, U, V, W, X, Y, AA, BB, NN	213807-2
23	Zinc, Nickel Plated	.572	.347	Yes	Polyester	A, B, C, D, E, F, H, J, L, N, P, R, S, T, U, V, W, X, Y, AA, HH, KK, NN	213807-3
17	Zinc, Nickel Plated	.572	.347	Yes	Polyester	A, B, C, D, E, F, H, P, R, S, T, U, V, W, X, Y, AA	213807-4
		14.53	8.81				

*The mounting bracket has an elongated slot for a 4-40 screw that will accommodate a .330 [8.38] or .347 [8.81] footprint.

Note: Other select loaded configurations can be made available; consult Tyco Electronics Corporation.

M Series V.35 Printed Circuit Board Connectors

Right-Angle Plug Assembly



Material and Finish

Housing—Flame retardant phenolic or polyester, black

Contacts—Brass, plated:
a) .000030 [0.00076] gold min. in mating area, .000050 [0.00127] nickel min. underplating overall

Contact Spring—Stainless steel

Contact Post—Brass, tin-lead plated

Mounting Bracket—Brass, tin-nickel plated or zinc, nickel plated

Boardlocks—Copper alloy, tin-lead plated

Location Wafer—Phenolic

Nuts and Lockwashers—Steel, zinc plated

Jackscrews—Stainless steel

No. of Pos.	Mounting Bracket	Dimensions		Boardlocks	Housing Material	Select Load Pattern	Part Number
		A	B				
34	Brass, Tin Nickel Plated	.555 14.10	*	No	Phenolic	Fully Loaded	213289-1
34	Zinc, Nickel Plated	.572 14.53	.347 8.81	Yes	Phenolic	Fully Loaded	213513-2

*The mounting bracket has an elongated slot for a 4-40 screw that will accommodate a .330 [8.38] or .347 [8.81] footprint.
Note: Other select loaded configurations can be made available; consult Tyco Electronics Corporation.

No. of Pos.	Mounting Bracket	Dimensions		Boardlocks	Housing Material	Select Load Pattern	Part Number
		A	B				
34	Zinc, Nickel Plated	.572 14.53	.347 8.81	Yes	Polyester	Fully Loaded	213808-1
18	—	No Hardware Supplied			Polyester	A, B, C, D, E, F, H, K, P, R, S, T, U, V, W, X, Y, AA	213808-2

Note: Other select loaded configurations can be made available; consult Tyco Electronics Corporation.

For complete product information, order Catalog 82003

M Series V.35 Printed Circuit Board Connectors

Vertical Receptacle Assembly



Material and Finish

Housing—Flame retardant phenolic or polyester, black

Contacts—Brass, plated:
a) .000030 [0.00076] gold min. in mating area, .000050 [0.00127] nickel min. underplating overall

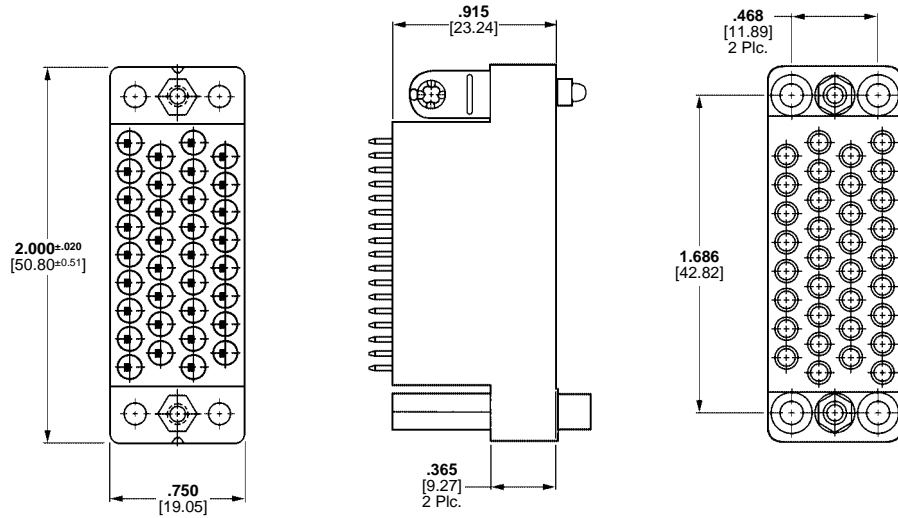
Contact Spring—Stainless steel

Contact Post—Brass, tin-lead plated

Nuts and Lockwashers—Steel, zinc plated

Spacers—Stainless steel

Jackscrews—Stainless steel



No. of Pos.	Mounting Hardware	Housing Material	Select Load Pattern	Part Number
34	None	Phenolic	Fully Loaded	213473-1
	Spacers	Phenolic Polyester	Fully Loaded	213524-1 213809-1
13	Nuts & Lockwashers	Phenolic	B, C, D, E, F, P, R, S, T, V, X, Y, AA	213524-2

Note: Other select loaded configurations can be made available; consult Tyco Electronics Corporation.

Vertical Plug Assembly



Material and Finish

Housing—Flame retardant phenolic, black

Contacts—Brass, plated:
a) .000030 [0.00076] gold min. in mating area, .000050 [0.00127] nickel min. underplating overall

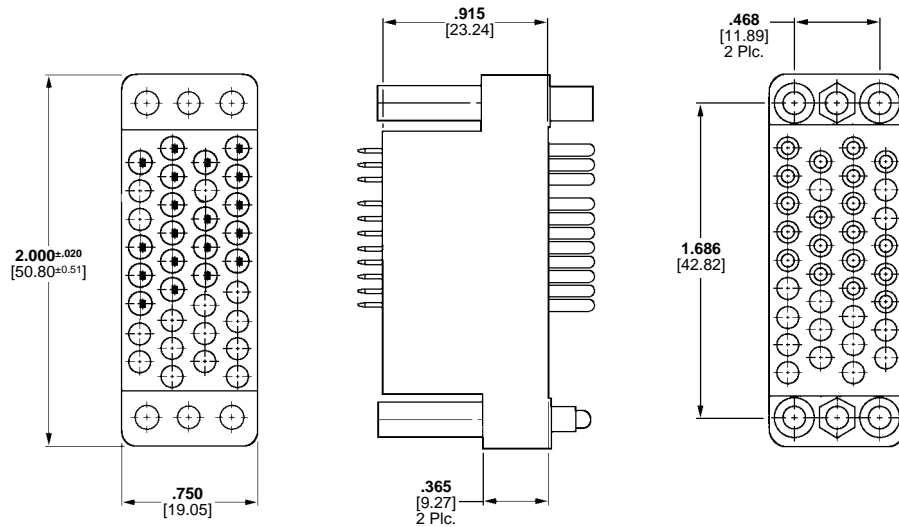
Contact Spring—Stainless steel

Contact Post—Brass, tin-lead plated

Nuts and Lockwashers—Steel, zinc plated

Spacers—Stainless steel

Jackscrews—Stainless steel



No. of Pos.	Mounting Hardware	Select Load Pattern	Part Number
19	Spacers*	A, B, C, D, E, F, K, L, N, P, R, S, T, U, V, W, X, Y, AA	213550-1
17	Nuts & Lockwashers	B, C, D, E, F, H, J, P, R, S, T, U, V, W, X, Y, AA	213550-2

*Jackscrews and spacers are provided unassembled.

Note: Other select loaded configurations can be made available, consult Tyco Electronics Corporation.

For complete product information, order Catalog 82003

M Series V.35 Cable Connectors

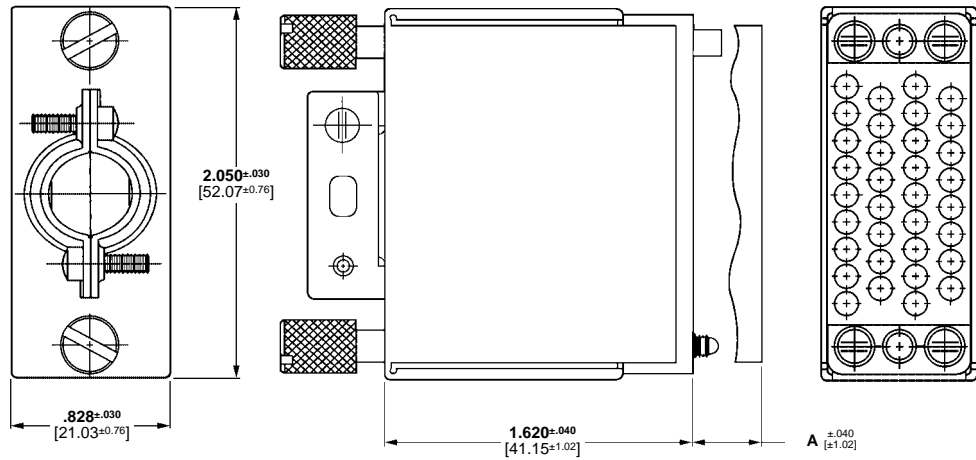
Cable Connector Kits, 34 Position, Phenolic



Plug



Receptacle



Material and Finish

Housing—Flame retardant phenolic, black

Shield—Anodized aluminum

Screws—Steel, zinc plated

Jackscrews—Stainless steel

Cable Clamp—Steel, nickel plated

Kits include:

- Housing
- One-piece shield
- One-piece turnable jackscrews
- Strain relief clamp
- Mounting screws

Notes:

1. Plug and receptacle connector kits come partially assembled.
2. Plug connector kits are available with long and short shields, (long shield provides pin protection) and two different size cable clamps.
3. Housings are keyed to fix the proper location of the male and female jackscrew as defined by 408-2593.
4. Short shield kits, **Part No. 213753-1** available with all accessories listed above except housing block and jackscrews. Part number for blocks are found on page 9195.
5. Pin and socket contacts sold separately. Size 16, Type III+ contacts are listed in Catalog 82003.

Shield Size	Cable Dia. Range	Housing Material	Dimension A	Kit Part Numbers	
				Receptacle	Plug
Short	.435-.545 11.05-13.83	Phenolic	1.53 38.86	—	213300-1
Short	.300-.450 7.62-11.43	Phenolic	1.53 38.86	—	213300-2
Long	.435-.545 11.05-13.83	Phenolic	1.97 50.04	—	213300-3
Long	.300-.450 7.62-11.43	Phenolic	1.97 50.04	—	213300-4
Short	.435-.545 11.05-13.83	Phenolic	1.53 38.86	213522-1	—
Short	.300-.450 7.62-11.43	Phenolic	1.53 38.86	213522-2	—
Short	.200-.300 5.08-7.62	Phenolic	1.53 38.86	213522-4	—
Short	.200-.300 5.08-7.62	Phenolic	1.53 38.86	—	213300-7

For complete product information, order Catalog 82003

M Series V.35 Cable Connectors

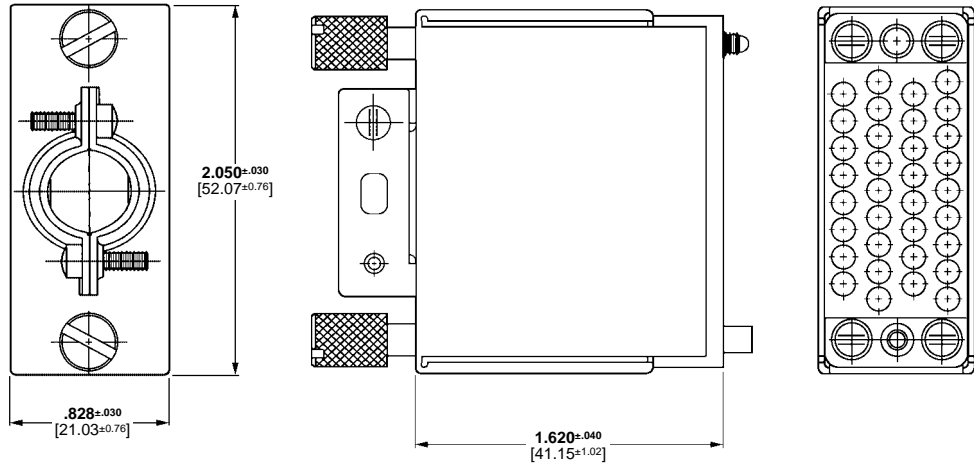
Cable Connector Kits, 34 Position, Polyester (Continued)



Plug



Receptacle



Material and Finish

Housing—Flame retardant polyester, black

Shield—Anodized aluminum

Screws—Steel, zinc plated

Jackscrews—Stainless steel or zinc, nickel plated

Cable Clamp—Steel, nickel plated

Kits include:

- Housing
- One-piece shield
- One-piece turnable jackscrews
- Strain relief clamp
- Mounting screws

Notes:

1. Plug and receptacle connector kits come partially assembled.
2. Two different size cable clamps.
3. Housings are keyed to fix the proper location of the male and female jackscrew as defined by 408-2593.
4. Pin and socket contacts sold separately. Size 16, Type III+ contacts are listed in Catalog 82003.

Packaging	Cable Dia. Range	Housing Material	Jackscrew Type	Kit Part Numbers	
				Receptacle	Plug
Bulk	.435-.545 11.05-13.83	Polyester	Stainless Steel	213931-1	—
Individual	.300-.450 7.62-11.43	Polyester	Stainless Steel	213931-2	—
Individual	.435-.545 11.05-13.83	Polyester	Zinc	213931-3	—
Individual	.435-.545 11.05-13.83	*	Zinc	213931-4	—
Individual	.300-.450 7.64-11.43	Polyester	Zinc	213931-5	—
Bulk	.435-.545 11.05-13.83	Polyester	Stainless Steel	—	213932-1
Individual	.300-.450 7.62-11.43	Polyester	Stainless Steel	—	213932-2
Individual	.435-.545 11.05-13.83	Polyester	Zinc	—	213932-3
Individual	.300-.450 7.62-11.43	Polyester	Zinc	—	213932-4
Individual	.300-.450 7.62-11.43	Polyester	Zinc	—	213932-5**

*Housing not included in Kit No. 213931-4

**Long Shield, Assembled Length – 1.620±.040 [41.15±1.20]

For complete product information, order Catalog 82003

M Series V.35 Cable Connectors

Cable Connector Kits, 34 Position, Phenolic (Continued)

Material and Finish

Housing—Flame retardant phenolic, black

Shield—Zinc, nickel plated

Screws—Steel, zinc plated

Jackscrews—Stainless steel or zinc, nickel plated

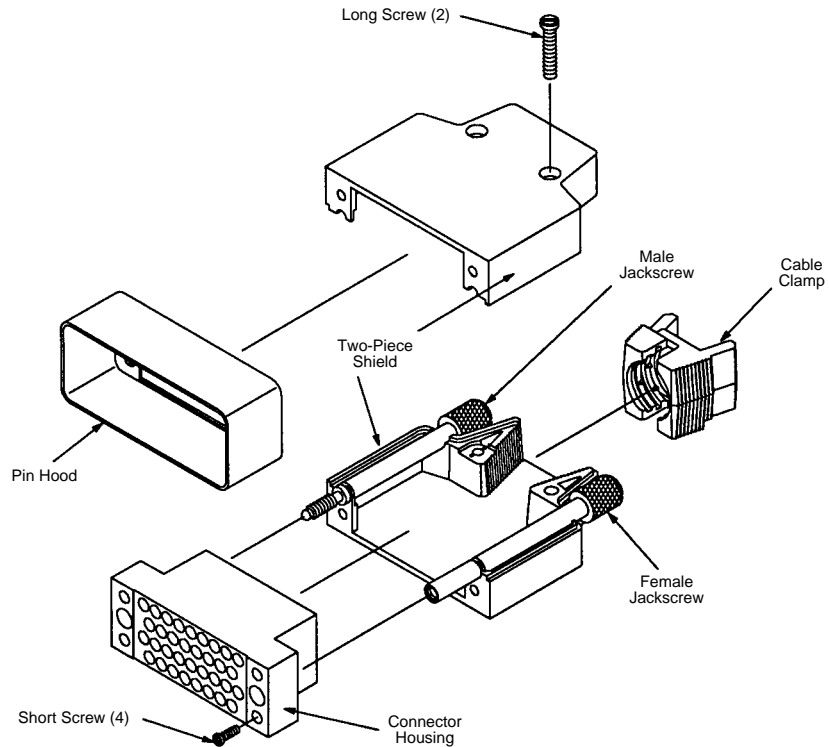
Cable Clamp—Steel, nickel plated

Kits include:

- Housing
- Two-piece shield
- One-piece turnable jackscrews
- Two cable clamp inserts
- Mounting screws

Notes:

1. Plug and receptacle connector kits come partially assembled.
2. Plug connector kits are available with or without pin hoods.
3. Housings are keyed to fix the proper location of the male and female jackscrew as defined by 408-2593.
4. Choice of stainless steel or zinc die cast one-piece jackscrews.
5. Pin and socket contacts sold separately. Size 16, Type III+ contacts are listed in Catalog 82003.



Pin Hood	Cable Dia. Range	Jackscrew Type	Kit Part Numbers	
			Receptacle	Plug
No	.400-.600 10.16-15.24	Zinc	—	213684-1
No	.250-.400 6.35-10.16	Zinc	—	213684-2
Yes	.400-.600 10.16-15.24	Zinc	—	213684-3
Yes	.250-.400 6.35-10.16	Zinc	—	213684-4
No	.400-.600 10.16-15.24	Stainless Steel	—	213684-7
No	.400-.600 10.16-15.24	Zinc	213685-1	—
No	.250-.400 6.35-10.16	Zinc	213685-2	—
No	.400-.600 10.16-15.24	Stainless Steel	213685-3	—
No	.150-.300 3.81-7.62	Zinc	213685-5	—
Yes	.150-.300 3.81-7.62	Zinc	—	213684-9
No	.150-.300 3.81-7.62	Zinc	—	1-213684-0

For complete product information, order Catalog 82003

M Series V.35 Cable Connectors

Cable Connector Kits, 34 Position, Polyester (Continued)

Material and Finish

Housing—Flame retardant polyester, black

Shield—Zinc, nickel plated

Screws—Steel, zinc plated

Jackscrews—Zinc, nickel plated

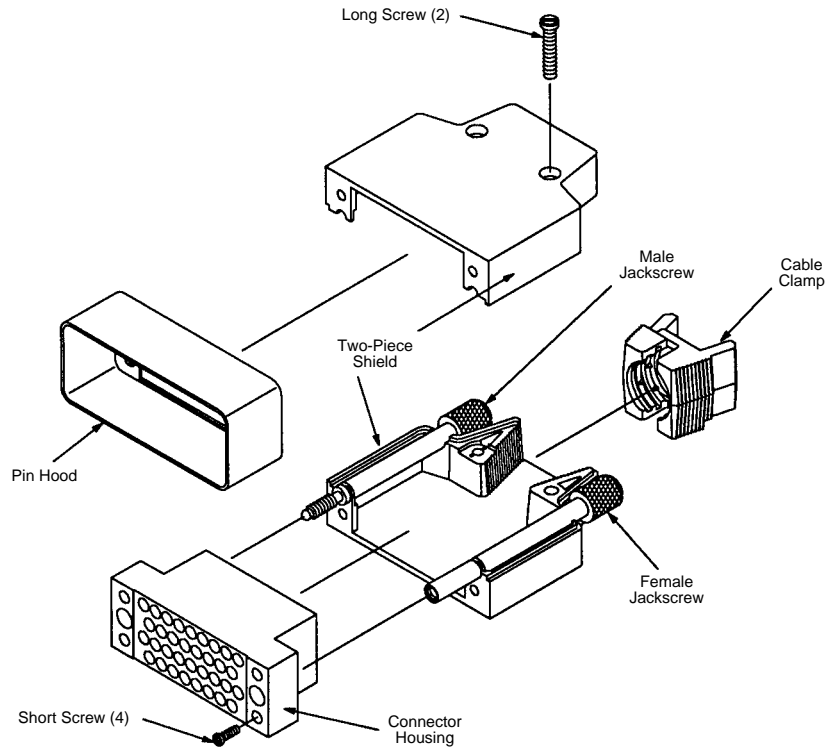
Cable Clamp—Steel, nickel plated

Kits include:

- Housing
- Two-piece shield
- One-piece turnable jackscrews
- Two cable clamp inserts
- Mounting screws

Notes:

1. Plug and receptacle connector kits come partially assembled.
2. Plug connector kits are available with or without pin hoods.
3. Housings are keyed to fix the proper location of the male and female jackscrew as defined by 408-2593.
4. Pin and socket contacts sold separately. Size 16, Type III+ contacts are listed in Catalog 82003.



Pin Hood	Cable Dia. Range	Kit Part Numbers	
		Receptacle	Plug
No	.150-.300 3.81-7.62	—	213803-1
No	.250-.400 6.35-10.16	—	213803-2
Yes	.150-.300 3.81-7.62	—	213804-1
Yes	.250-.400 6.35-10.16	—	213804-2
No	.150-.300 3.81-7.62	213805-1	—
No	.250-.400 6.35-10.16	213805-2	—
No	.400-.600 10.16-15.24	—	213803-3
Yes	.400-.600 10.16-15.24	—	213804-3
No	.400-.600 10.16-15.24	213805-3	—

For complete product information, order Catalog 82003

Fastening Hardware

Jackscrows

Material and Finish

Turnable Jackscrew Body—Die cast zinc, chromate conversion coating

Turnable Jackscrew Tip—Stainless steel

Roll Pin—Stainless steel

For Fixed Jackscrows

Lockwasher—Steel

Hex Nut—Steel, zinc plated

Jackscrows are used as an aid in mating and unmating connectors and for holding mated connectors together, mostly larger sizes (34-position and up). They can also be used for polarization.

Turnable jackscrews are free to rotate in a connector housing and are always used opposite mating fixed jackscrews. Where provided, roll pins are used to hold a male or female tip onto the turnable jackscrew body. AMP Assembly Tool No. 91016-2 (shown below) is available for properly assembling the turnable jackscrews on a connector housing.

Fixed jackscrews can be readily assembled to a connector housing with the Nut Driver Tool (also shown below).

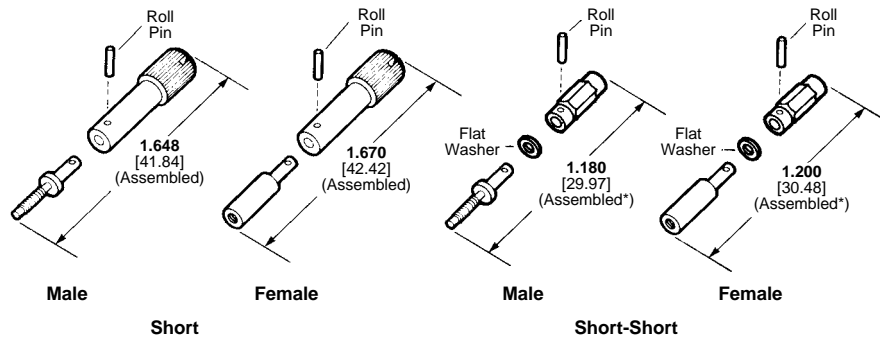
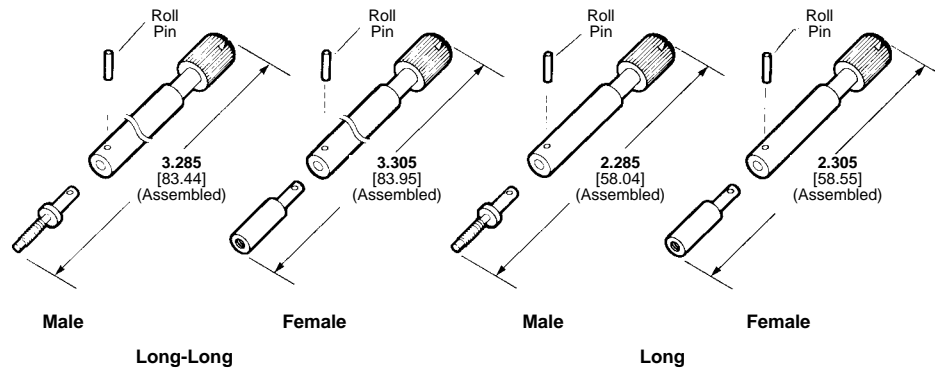


AMP Assembly Tool
Part Number 91016-2
(for Roll Pins)



Nut Driver
Part Number 811262-1 (4-40)

Turnable Jackscrows



*Assembled dimension includes metal thickness of Pin Hood or Strain Relief Clamp. Remove washer when both Pin Hood and Strain Relief Clamp are used.

Turnable Jackscrows

Style	Jackscrew Part No.		Connectors Used on (No. of Positions)				
	6-32 [M3.5 x 0.6] Double Lead Thread	6-32 [M3.5 x 0.6] Single Lead Thread	Standard	Posted	Special Application		
					High Current	Mixed	High Voltage
Long-Long Male ¹	201911-1	207234-1	50 (90° shield only), 75 and 104	—	12	42	28
Long-Long Female ¹	201910-1	207235-1					
Long Male	200871-1	201413-1	20, 26, 34, 41, and 50	20, 26, 34, 41, and 50	12	15, 16 and 42	20 and 28
Long Female	200867-1	201414-1					
Short Male	200868-1	201087-1	6, 14, 20, 26, 34, 41, 50, 75 and 104	6, 14, 20, 26, 34, 34, 41, 50, 75 and 104	12	15, 16 and 42	20 and 28
Short Female	200870-1	201088-1					
Short-Short Male	201388-1	201827-1	6, 14, 20, 26, 34, 41, 50, 75 and 104	6, 14, 20, 26, 34, 34, 41, 50, 75 and 104	12	15, 16 and 42	20 and 28
Short-Short Female	201389-1	201828-1					

¹Long-Long Turnable Jackscrows are used only with Two-Piece Shields on the connector sizes listed.

Notes: 1. Turnable Jackscrows mate with any Fixed Jackscrew listed below having the same thread size.

2. Special Turnable Jackscrows for use in connector housings to mate with Grounding Blocks are presented in Catalog 82003.

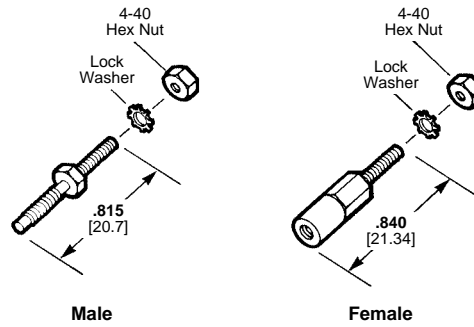
3. Single-lead versions are designed to mate with competitive Jackscrows.

Roll pins for turnable jackscrews, Long-Long, Long, Short Part No. 201501-1, Short-Short Part No. 201501-2.

For complete product information, order Catalog 82003

Fastening Hardware

Fixed Jackscrews



Fixed Jackscrews

Type	Jackscrew Part No.	
	6-32 [M3.5 x 0.6] Double Lead Thread	6-32 [M3.5 x 0.6] Single Lead Thread
Male	200874-1	201092-1
Female	200875-1	201089-1

- Notes:**
1. Fixed Jackscrews mate with any Turnable Jackscrew listed above having the same thread size.
 2. Single-lead versions are designed to mate with competitive Jackscrews.
 3. Double-Lead Thread and Single-Lead Thread Jackscrews can NOT be mixed; i.e., Double-Lead must mate with Double, Single-Lead with Single.
 4. Double-Lead Thread has two leads in the same revolution versus one lead for Single-Lead Thread. Therefore, Double-Lead Thread will pick up twice as fast.

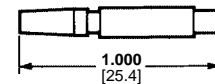
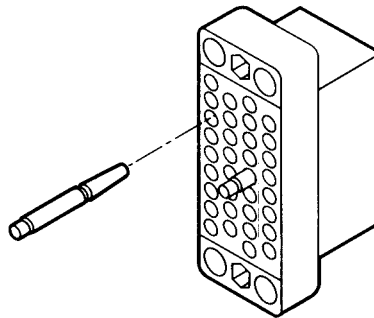
Keying Hardware

Keying Plug (for Multimate Contact Cavities)

Material

Natural color nylon

This cylindrical keying plug is used in Multimate contact cavities that accept Type II, Type III+ and Subminiature COAXICON socket contacts. The plug protrudes from the mating face of a connector and will prevent connector halves from being mated by butting against the pin contact. The mating pin contact must be removed to provide for proper mating.



Part No. 200821-1

For complete product information, order Catalog 82003

Fastening Hardware

Locking Springs

Material and Finish

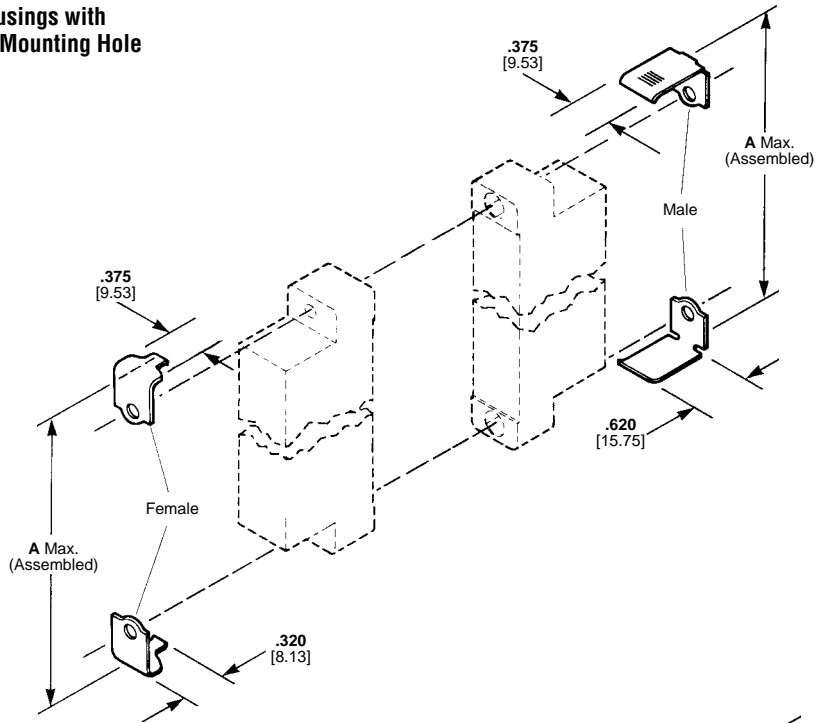
Male (Spring Member)—Spring steel, nickel plated

Female (Latching Member)—Stainless steel

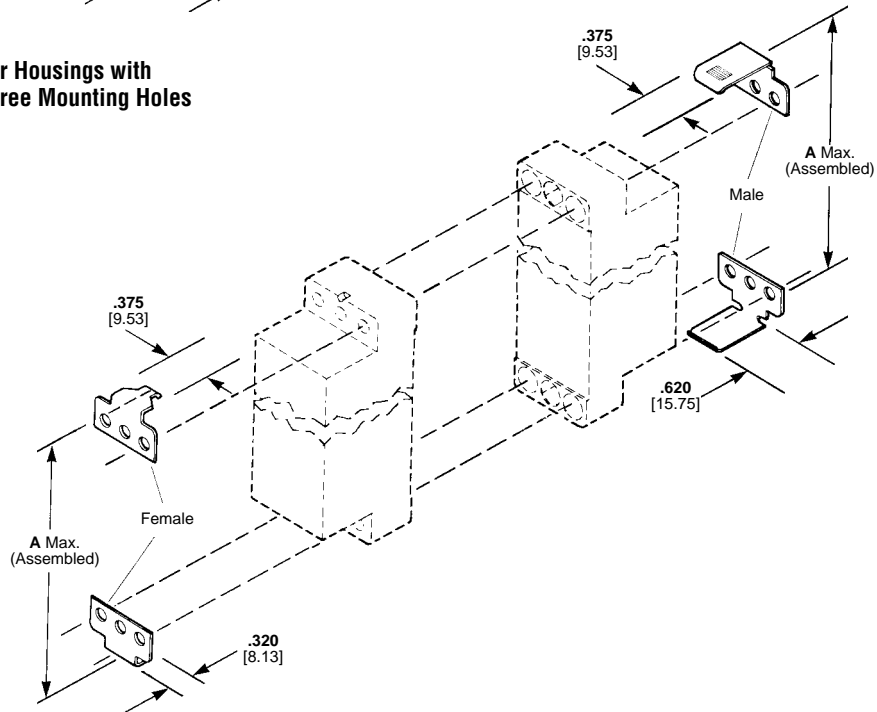
Locking Springs are used to hold mated connectors together. Although Locking Springs can be used on connectors up to 50 positions, they are primarily used on smaller size connectors (less than 34 positions).

In all applications, a Male (Spring Member) is used opposite a Female (Latching Member). They can be secured to a connector housing using Guide Pins and Sockets or 4-40 x .250 [6.35] fillister head screws and nuts. Locking Springs can be used with all hardware, except Closed-End Pin Hoods.

For Housings with Single Mounting Hole



For Housings with Three Mounting Holes



Standard Connector Size*	A Max.
6	1.413 35.89
14	1.662 42.21
20	1.975 50.17
26	2.037 51.74
34	2.412 61.26
41	3.047 77.39
50	3.006 76.35

*A dimension also applies to other comparably sized connector types listed in the chart at the right.

Locking Spring Part No. Male (Spring Member)	Locking Spring Part No. Female (Latching Member)	Connectors Used On (No. of Positions)				
		Standard	Posted	Special Application		
				High Current	Mixed	High Voltage
201921-1	201922-1	6, 14, 20 and 41	6, 14, 20 and 41	—	—	—
201923-1	201918-1*	26	26	—	15	—
201925-1	201926-1	34 and 50	34 and 50	—	16 and 42	20

*Single female latch, two must be ordered per assembly.

Guiding Hardware

Guide Pins and Sockets

Material and Finish

Guide Pins and Sockets—Stainless steel

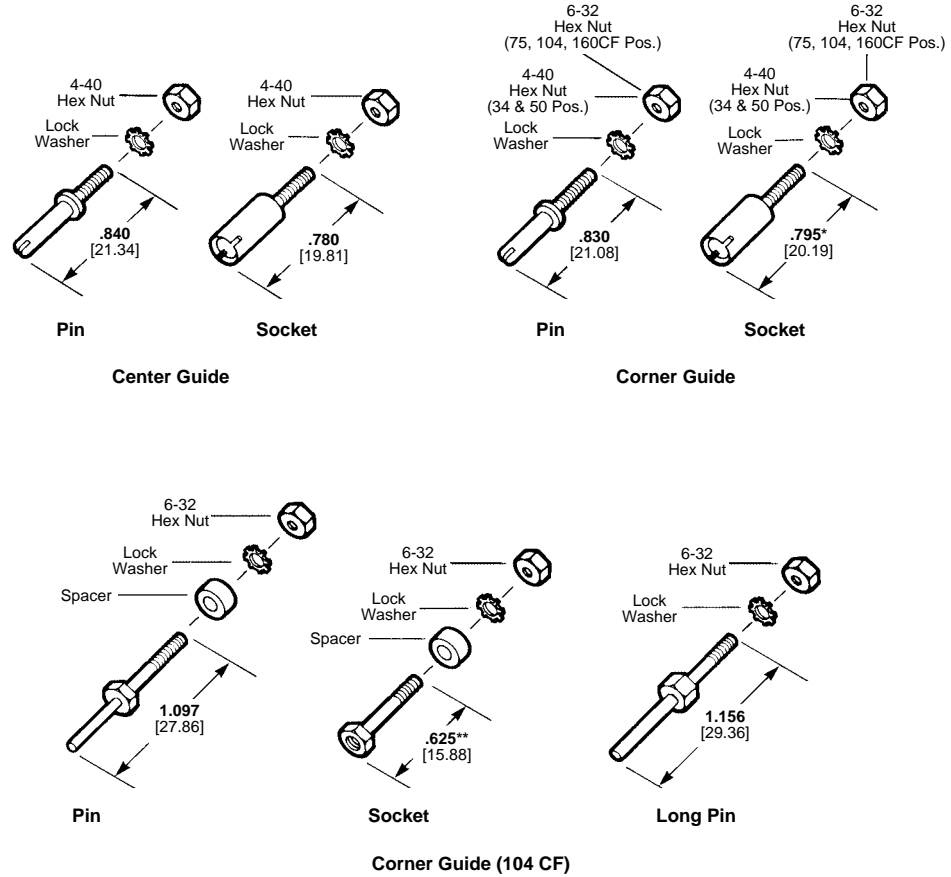
Lockwashers—Stainless steel

Hex Nuts—Steel, zinc plated

Guiding hardware is used to align connector halves during mating. This hardware can also be used for keying connectors to provide for proper mating. Guiding hardware can be readily secured to connector housings using the Nut Driver shown below.

Center Guide Pins and Sockets are used primarily in housings having a single mounting hole, but can also be used in the centermost hole of housings having 3 or 4 mounting holes.

Corner Guide Pins and Sockets are used in the corner holes of housings having 2, 3 or 4 mounting holes. They cannot be used in center mounting holes which are slightly deeper than corner mounting holes to accept Jackscrews.



Nut Driver
Part Number 811262-1 (4-40)
Part Number 811262-2 (6-32)

Guide Pins and Sockets Type	Part No.	Connectors Used On (No. of Positions)				
		Standard	Posted	Special Application		
				High Current	Mixed	High Voltage
Center Pin	200389-2	6, 14, 20, 26, 34, 41, 50, 75 and 104	6, 14, 20, 26, 34, 41, 50, 75 and 104	12	15, 16 and 42	20 and 28
Center Socket	200390-2 207619-1*2					
Corner Pin	200833-2	34 and 50	34 and 50	—	16 and 42	20
Corner Socket	200835-2 203964-1*					
Corner Pin	201046-2	75, 104 and 160 CF	75, 104 and 160 CF	12	29	28
Corner Socket	201047-2 203966-1*					
Corner Pin	202173-5 202173-13	104 CF	104 CF	—	—	—
Corner Socket	202174-1 202174-43 204099-2**					
Long Pin ¹	201540-1					

¹ Two Long Pins are to be installed in diagonal corners. Use without Guide Sockets.

² Hex Nut Stainless Steel.

³ Without Spacer.

*These Corner or Center Guide Sockets (.880 [22.35] long) are to be used when housings are loaded with Subminiature COAXICON contacts.

**Corner Socket, Part No. 204099-2 (.838 [21.29] long), is to be used when housings are loaded with Subminiature COAXICON contacts.

For complete product information, order Catalog 82003

Protective Hardware

Pin Hoods, Internal Open-End and Closed-End

Material and Finish

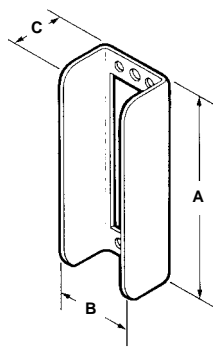
See charts

Pin Hoods are used to protect pin contacts that protrude from a connector housing.

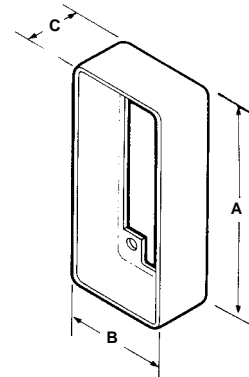
When contacts are mixed (pins and sockets in both housings), an Internal Pin Hood is used on one housing and an External Pin Hood (page 9215) is used on the other housing. Or a Long Shield is used on one housing and an External Pin Hood must be used on the other housing. When a housing is loaded with all pin contacts, an Internal or External Pin Hood may be used—no Pin Hood is required on the mating half.

External Open-End Pin Hoods with flanges (page 9215) are used primarily for mounting a connector with pin contacts to a panel.

All Pin Hoods may be secured to connector housings using other appropriate hardware, such as Jackscrews and Guide Pins and Sockets.



Internal Open-End



Internal Closed-End

Note: Typical Internal Open-End and Closed-End Pin Hoods are illustrated. Slight differences in configuration exist for various sizes. The mounting holes and/or slots in each Pin Hood match the mounting hole pattern of the connector housing on which the Pin Hood is used.

Pin Hoods, Internal Open-End

Dimensions			Material	Pin Hood Part No.	Connectors Used On (No. of Positions)				
A	B	C			Standard	Posted	Special Application		
						High Current	Mixed	High Voltage	
1.000 25.4	.500 12.7	.718 18.24	Nickel Plated Steel	204258-6	6	6	—	—	—
1.250 31.75	.550 13.97	.718 18.24	Nickel Plated Steel	201363-4	14	14	—	—	—
1.632 41.45	.725 18.42	.718 18.24	Nickel Plated Steel	201785-4	26	26	—	15	—
2.000 50.8	.880 22.35	.718 18.24	Nickel Plated Steel	201786-4	34	34	—	16	20

Pin Hoods, Internal Closed-End

Dimensions			Material	Pin Hood Part No.	Connectors Used On (No. of Positions)				
A	B	C			Standard	Posted	Special Application		
						High Current	Mixed	High Voltage	
2.130 54.1	.880 22.35	.687 17.45	Nickel Plated Steel	202434-4	34	34	—	16	20
2.875 73.02	.952 24.18	.687 17.45	Nickel Plated Steel	202394-2	50	50	—	42	—
2.765 70.23	1.310 33.27	.687 17.45	Nickel Plated Steel	201369-4	75	75	12	—	28
2.975 75.57	1.740 44.2	.687 17.45	Nickel Plated Steel	201364-4	104	104	—	—	—
2.975 75.57	2.040 51.82	.687 17.45	Nickel Plated Steel	203743-4	160 CF	160 CF	—	—	—

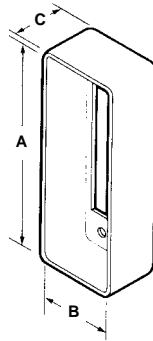
For complete product information, order Catalog 82003

Protective Hardware

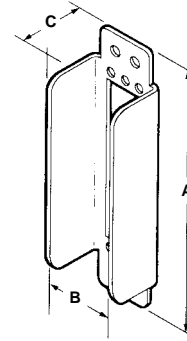
Pin Hoods, External Closed-End and Open-End (with Flanges)

Material and Finish

See charts



External Closed-End



External Open-End with Flanges

Note: Typical External Closed-End and Open-End (with Flanges) Pin Hoods are illustrated. Slight differences in configuration exist for various sizes. The mounting holes and/or slots in each Pin Hood match the mounting hole pattern of the connector housing on which the Pin Hood is used.

Pin Hoods, External Closed-End

Dimensions			Material	Pin Hood Part No.	Connectors Used On (No. of Positions)				
A	B	C			Standard	Posted	Special Application		
						High Current	Mixed	High Voltage	
1.880 47.75	.812 20.62	.687 17.45	Aluminum Iridite	201349-2	26	26	—	15	—
2.250 57.15	1.000 25.4	.687 17.45	Aluminum Iridite	201350-2	34	34	—	16	20
2.845 72.26	1.000 25.4	.687 17.45	Nickel Plated Steel	201390-5	50	50	—	42	—
2.845 72.26	1.360 34.54	.687 17.45	Nickel Plated Steel	201368-4	75	75	12	29	28
3.025 76.84	1.800 45.72	.687 17.45	Nickel Plated Steel	201346-4	104	104	—	—	—
3.040 77.22	1.340 34.04	.718 18.24	Nickel Plated Steel	202119-2	104 CF	104 CF	—	—	—
3.025 76.84	2.100 53.34	.687 17.45	Nickel Plated Steel	203744-4	160 CF	160 CF	—	—	—

Pin Hoods, External Open-End with Flanges

Dimensions			Material	Pin Hood Part No.	Connectors Used On (No. of Positions)				
A	B	C			Standard	Posted	Special Application		
						High Current	Mixed	High Voltage	
2.875 73.02	.891 22.63	.687 17.45	Nickel Plated Steel	202095-5	34	34	—	16	20
3.375 85.73	.565 14.35	.687 17.45	Nickel Plated Steel	202165-5	41	41	—	—	—
3.468 88.09	.891 22.63	.687 17.45	Nickel Plated Steel	202096-5	50	50	—	42	—

For complete product information, order Catalog 82003

Protective Hardware

Shields, Two-Piece, 180° and 90° Cable Exit

Material and Finish

Shields—See charts

Cable Clamp—Steel, nickel plated

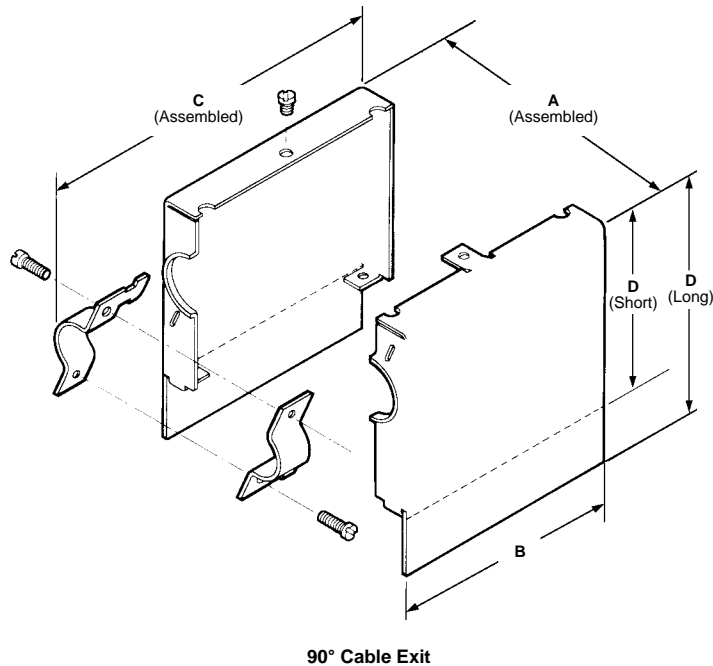
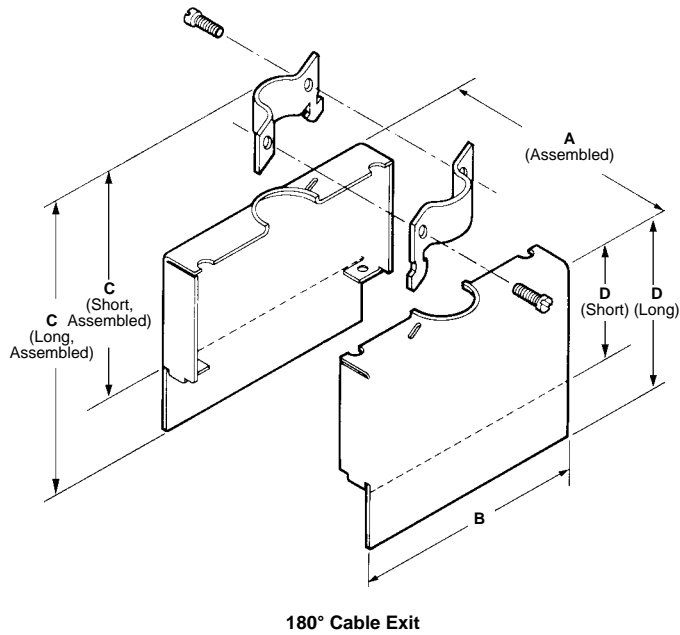
Screws—Steel, zinc plated

These Two-Piece Shields are used to protect connectors from dust, dirt and physical damage and to provide strain relief for the contacts. They feature integral cable clamps formed at 180° and 90° and are available in long and short versions. Long versions offer pin protection as well as connector protection and strain relief. Short versions may be used in combination with Pin Hoods to provide pin protection.

For shielding and fastening applications, Two-Piece Shields are used with Jackscrews. They may be secured to a connector housing using other appropriate hardware such as Guide Pins and Sockets.

Two-Piece Shields with cable clamps formed at 45° are available, see page 9219.

Tyco Electronics does **NOT** recommend the use of shields with posted connectors because of the potential of shorting.



Note: Typical 180° and 90° Cable Exit Shields are illustrated. Slight differences in configuration exist for various sizes.

For complete product information, order Catalog 82003

Protective Hardware

Two-Piece Shields, 180° Cable Exit (Long and Short)

Dimensions				Material	Shield Part No.		Max. Cable Dia.	Connectors Used On (No. of Positions)			
A	B	C	D		Long	Short		Standard	Special Application		
									High Current	Mixed	High Voltage
.520 13.21	1.562 39.67	1.815 46.10	1.300 33.02	Nickel Plated Steel	—	204087-1	.375 9.53	20	—	—	—
.640 16.26	1.625 41.28	2.453 62.31	1.970 50.04	Anodized Aluminum	201576-1	—	.415 10.54	26	—	15	—
		1.781 45.24	1.300 33.02	Nickel Plated Steel	—	200514-2					
.828 21.03	2.000 50.8	2.453 62.31	1.937 49.2	Anodized Aluminum	201571-1	—	.500 12.7	34	—	16	20
		1.765 44.83	1.250 31.75	Nickel Plated Steel	201571-2	—					
		1.765 44.83	1.250 31.75	Anodized Aluminum	—	200517-1					
.515 13.08	2.687 68.25	2.453 62.31	1.968 49.99	Nickel Plated Steel	202383-2	—	.435 11.05	41	—	—	—
		1.781 45.24	1.290 32.77	Nickel Plated Steel	—	202383-1					
.828 21.03	2.593 65.86	2.468 62.69	1.970 50.04	Anodized Aluminum	201443-1	—	.550 13.97	50	—	42	—
		1.796 45.62	1.290 32.77	Nickel Plated Steel	201443-2	—					
		1.796 45.62	1.290 32.77	Anodized Aluminum	—	200532-1					
1.195 30.35	2.727 69.27	3.327 84.51	2.797 71.04	Nickel Plated Steel	202713-2	—	1.000 25.4	75	12	—	28
		2.655 67.44	2.125 53.98	Nickel Plated Steel	—	202713-1					
1.620 41.15	2.835 72.01	3.327 84.51	2.797 71.04	Nickel Plated Steel	204173-2	—	1.100 27.94	104	—	—	—
		2.655 67.44	2.125 53.98	Nickel Plated Steel	—	204173-1					
1.703 43.26	2.765 70.23	1.843 46.81	1.290 32.77	Nickel Plated Cast Aluminum	—	201131-1	.800 20.32				

Two-Piece Shields, 90° Cable Exit (Long and Short)

Dimensions				Shield Part No.	Max. Cable Dia.	Connectors Used On (No. of Positions)					
A	B	C	D			Long	Short	Standard	Special Application		
									High Current	Mixed	High Voltage
.900 22.86	2.592 65.84	3.098 78.69	2.797 71.04	203975-2	—	.550 13.97	50	—	42	—	
			2.125 53.98	—	203975-1						
1.195 30.35	2.730 69.34	3.260 82.80	2.797 71.04	202711-3	—	1.000 25.4	75	12	—	28	
			2.125 53.98	—	202711-1						
1.145 29.08	2.845 72.26	3.375 85.73	2.375 60.33	—	202395-1	1.000 25.4	104 CF	—	—	—	

- Notes:** 1. All parts are packaged unassembled.
2. Material: nickel plated steel.

For complete product information, order Catalog 82003

Protective Hardware

Shields, One-Piece, 180° and 90° Cable Exit

Material and Finish

Shields and Cable Clamps—Steel, nickel plated

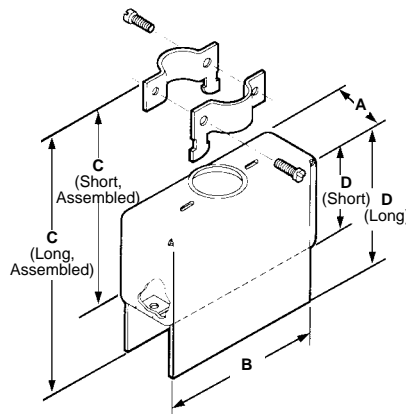
Screws—Steel, zinc plated

One-Piece Shields are used to protect connectors from dust, dirt and physical damage and to provide strain relief for the contacts. They feature integral cable clamps formed at 180° and 90° and are available in long and short versions. Long versions offer pin protection as well as connector protection and strain relief. Short versions may be used in combination with Pin Hoods to provide pin protection.

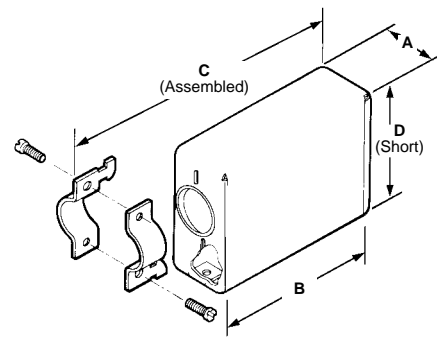
For shielding and fastening applications, One-Piece Shields are used with Locking Springs. They cannot be used with Jackscrews.

One-Piece Shields may be secured to a connector housing using other appropriate hardware such as Guide Pins and Sockets.

Tyco Electronics does **NOT** recommend the use of shields with posted connectors because of the potential of shorting.



180° Cable Exit



90° Cable Exit

Note: Typical 180° and 90° Cable Exit Shields are illustrated. Slight differences in configuration exist for various sizes.

One-Piece Shields, 180° Cable Exit (Long and Short)

Dimensions				Shield Part No.		Max. Cable Dia.	Connectors Used On (No. of Positions)		
A	B	C	D	Long	Short		Standard	Special Application Mixed	High Voltage
.531 13.49	1.312 33.32	2.468 62.69	1.969 50.01	201378-2	—	.375 9.53	14	—	—
		1.796 45.62	1.300 33.02	—	201360-2				
.515 13.08	1.640 41.66	1.796 45.62	1.300 33.02	—	201227-2	.350 8.89	20	—	—
		1.687 42.85	1.296 32.92	—	201169-2				
.828 21.03	2.062 52.37	2.468 62.69	1.969 50.01	201384-2	—	.500 12.7	34	16	20
		1.781 45.24	1.281 32.54	—	201165-2				

One-Piece Shields, 90° Cable Exit (Short)

Dimensions				Shield Part No.	Max. Cable Dia.	Connectors Used On (No. of Positions)		
A	B	C	D	Short		Standard	Special Application Mixed	High Voltage
.531 13.49	1.312 33.32	1.796 45.62	1.750 44.45	201467-2	.375 9.53	14	—	—
		2.562 65.07	1.812 46.02	201469-2				
.828 21.03	2.062 52.37	2.562 65.07	1.812 46.02	201469-2	.500 12.7	34	16	20
		2.562 65.07	1.812 46.02	201469-2				

Note: All parts are packaged unassembled.

For complete product information, order Catalog 82003

Protective Hardware

Shields, Two-Piece, 45° and 30° Cable Exit

Material and Finish

Shields and Cable Clamps—Steel, nickel plated

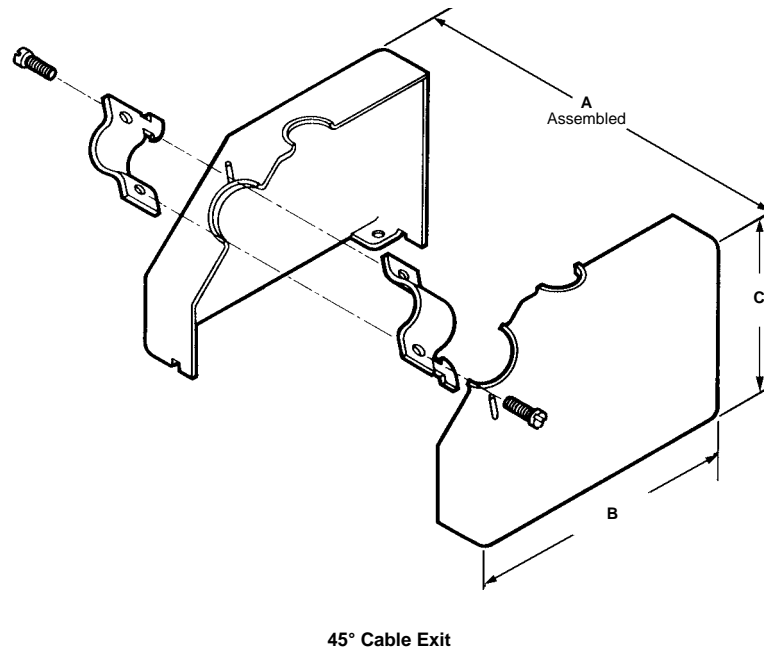
Screws—Steel, zinc plated

These Two-Piece Shields are used to protect connectors from dust, dirt and physical damage and to provide strain relief for the contacts. They feature integral cable clamps formed at 45° and are specifically designed for use with 104 CF and 160 CF position standard connectors; 30° exit shield is available for 29 CF position connectors.

These Shields may be used with Pin Hoods to provide pin protection.

These Two-Piece Shields may be secured to a connector housing using other appropriate hardware such as Guide Pins and Sockets.

Tyco Electronics does **NOT** recommend the use of shields with posted connectors because of the potential of shorting.



45° Cable Exit

Note: A typical 45° Cable Exit Shield is illustrated. Slight differences in configuration exist between sizes.

Two-Piece Shields, 45° Cable Exit

Dimensions			Shield Part No.	Max. Cable Dia.	Connectors Used On (No. of Positions) Standard
A	B	C			
1.145 29.08	2.845 72.26	2.375 60.33	202169-1	1.000 25.4	104 CF
		1.875 47.63	202110-1	.650 16.51	
1.845 46.86	2.770 70.36	2.750 69.85	202798-1	1.200 30.48	160 CF

Note: All parts are packaged unassembled.

Two-Piece Shield, 30° Cable Exit

Dimensions			Shield Part No.	Max. Cable Dia.	Connectors Used On (No. of Positions) Standard
A	B	C			
1.375 34.93	2.685 68.19	3.440 87.38	202483-1	1.250 31.75	29 CF

For complete product information, order Catalog 82003

Strain Relief Hardware

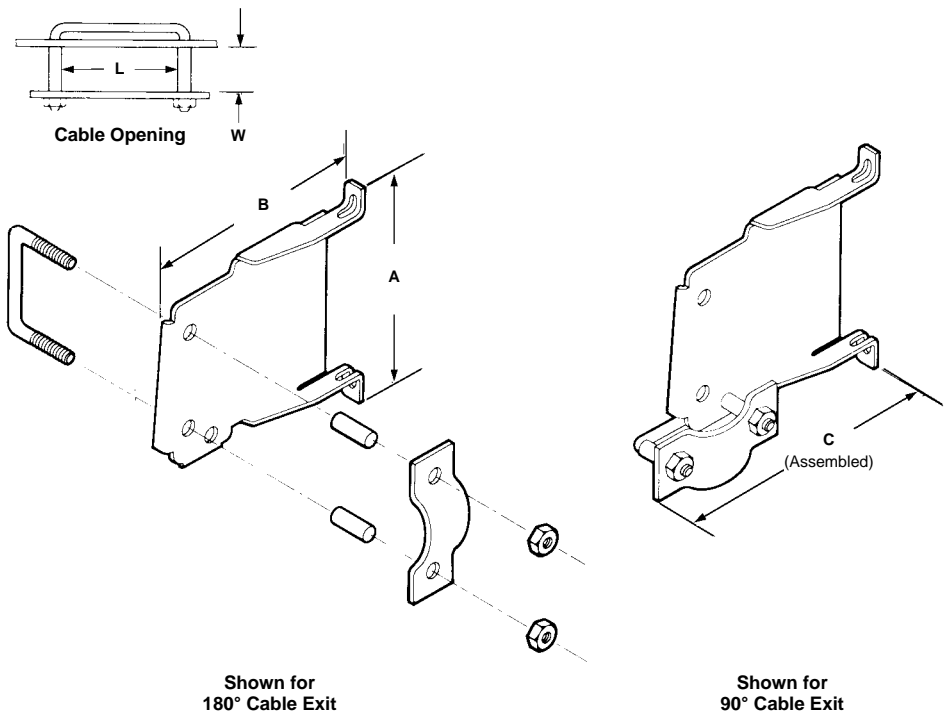
Strain Relief Clamps

Material and Finish

- Clamp**—Steel, nickel plated
- Hex Nuts**—Steel, zinc plated
- “U” Bolt**—Stainless steel
- Sleeves**—Black plastic (neoprene)
- Bracket**—See chart

Strain Relief Clamps are used to relieve the stress of the wires on the contacts and to group the wires where they enter a connector. Both long and short versions are available. The long versions are normally used for all applications and provide a greater distance between the wire bundle and the connector for operating Jackscrews without interference. The short versions are ideally suited for applications where space is limited.

Tyco Electronics does **NOT** recommend the use of Strain Relief Clamps with posted connectors because of the potential of shorting.



Note: A typical Strain Relief Clamp is illustrated. Slight differences in configuration exist for various sizes.

Cable Clamps (Long and Short)

Bracket Material	Dimensions			Cable Opening L x W	Strain Relief Clamp Part No.		Connectors Used On (No. of Positions)			
	A	B	C		Long	Short	Standard	High Current	Mixed	High Voltage
Steel, Nickel Plated	1.000 25.4	1.125 25.58	—	.305 x .155 7.75 x 3.94	—	203432-1	6	—	—	—
	1.250 31.75	2.125 53.98	2.687 68.25	.530 x .335 13.46 x 8.51	201843-1	—	14	—	—	—
1.125 28.58		1.687 42.85	—		200686-1	—	—	—	—	
Stainless Steel	1.562 39.67	1.187 30.15	2.000 50.8	.780 x .335 19.81 x 8.51	—	201237-1	20	—	—	—
Steel, Nickel Plated	1.625 41.28	2.125 53.98	2.937 74.6	.780 x .505 19.81 x 12.83	201845-1	—	26	—	15	—
		1.250 31.75	2.062 52.37	.780 x .430 19.81 x 10.92	—	201229-1				
—	2.000 50.8	2.281 57.94	2.851 72.42	.780 x .500 19.81 x 12.7	201846-1	—	34	—	16	20
		1.500 38.1	2.265 57.33	.780 x .425 19.81 x 10.8	—	201224-1				
Stainless Steel	2.625 66.68	2.000 50.8	3.343 84.91	1.500 x .360 38.1 x 9.14	201766-1	—	41	—	—	—
Steel, Nickel Plated	2.593 65.86	2.406 61.11	3.296 83.72	1.125 x .675 28.58 x 17.15	201847-1	—	50	—	42	—
				1.125 x .550 28.58 x 13.97	—	201182-1				
Stainless Steel	2.594 65.89	2.531 64.29	3.717 94.41	1.125 x .925 28.58 x 23.5	201848-1	—	75	12	—	28
Steel, Nickel Plated	2.625 66.68	1.734 44.04	2.874 73.0	1.125 x .800 28.58 x 20.32	—	200730-1				
—	2.750 69.85	2.531 64.29	3.389 86.08	1.125 x 1.235 28.58 x 31.37	201849-1	—	104	—	—	—

Notes: All parts are packaged unassembled.

For complete product information, order Catalog 82003

Technical Documents

The following is a list of technical documents that provide specifications, application and performance data for M Series connectors, contacts, tooling and hardware.

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

108-10001	M Series Connectors
108-10024	CPC Connectors
108-10037	Contacts, Type XII
108-10039	Type II Contacts
108-10040	Metal-Shell CPC Connectors
108-10042	Type III+ Contacts
108-10108	Type I Contacts
108-12011	Subminiature COAXICON Contacts
108-12021	Miniature COAXICON Contacts

Application Specifications describe requirements for using the product in its intended application and/or crimping information. They are intended for the Packaging and Design Engineer and the Machine Setup Person.

114-10000	Contacts, Size 20 DF
114-10004	Type III+ Contacts, Application of
114-10005	Type XII Contacts, Application of
114-10026	Type II Contacts
114-10038	CPC Connectors

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-1379	Selection Charts for Multimate Pin and Socket Contacts
408-7053	Selection Chart for Type I Pin and Socket Contacts
408-1770	Selection Chart for Miniature COAXICON Contacts
408-7170	6, 14, 20 and 41 Position M Series Connectors
408-7177	21 and 26 Position M Series Connectors
408-7161	34 and 50 Position and 20 Position (High Voltage) M Series Connectors
408-7164	75 and 104 Position M Series Connectors
408-7005	104 CF Position M Series Connectors
408-7293	160 CF Position M Series Connectors
408-7105	14, 20, 26 and 41 Position M Series Connector Kits
408-7107	34 and 50 Position M Series Connector Kits
408-7730	34, 50, 75 and 104 Position M Series Connector Kits
408-7108	75 and 104 Position M Series Connector Kits
408-7048	15 Position (Mixed) M Series Connectors
408-7455	29 Position (Mixed) M Series Connectors
408-6800	Shield Kit 208783-1 for 104 Position M Series Connector
408-7485	Press-Fit Jackscrews for M Series Connectors
408-7066	Locking Springs for 14, 20, 21, 26 and 41 Position M Series Connectors
408-7067	Locking Springs for 34 and 50 Position M Series Connectors
408-7055	Corner Guide Pins and Sockets for 34 and 50 Position M Series Connectors
408-7056	Corner Guide Pins and Sockets for 75 and 104 Position M Series Connectors
408-7121	Guide Pins and Sockets for 104 CF Position M Series Connectors
408-7013	Pin Hoods for M Series Connectors
408-7094	Pin Hoods w/Mounting Flange for 34 and 50 Position M Series Connectors
408-7103	Pin Hoods w/Mounting Flange for 41 Position M Series Connectors
408-7095	Pin Hoods w/Mounting Flange for 75 Position M Series Connectors

For complete product information,
order Catalog 82003

Technical Documents





Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator. (Continued)

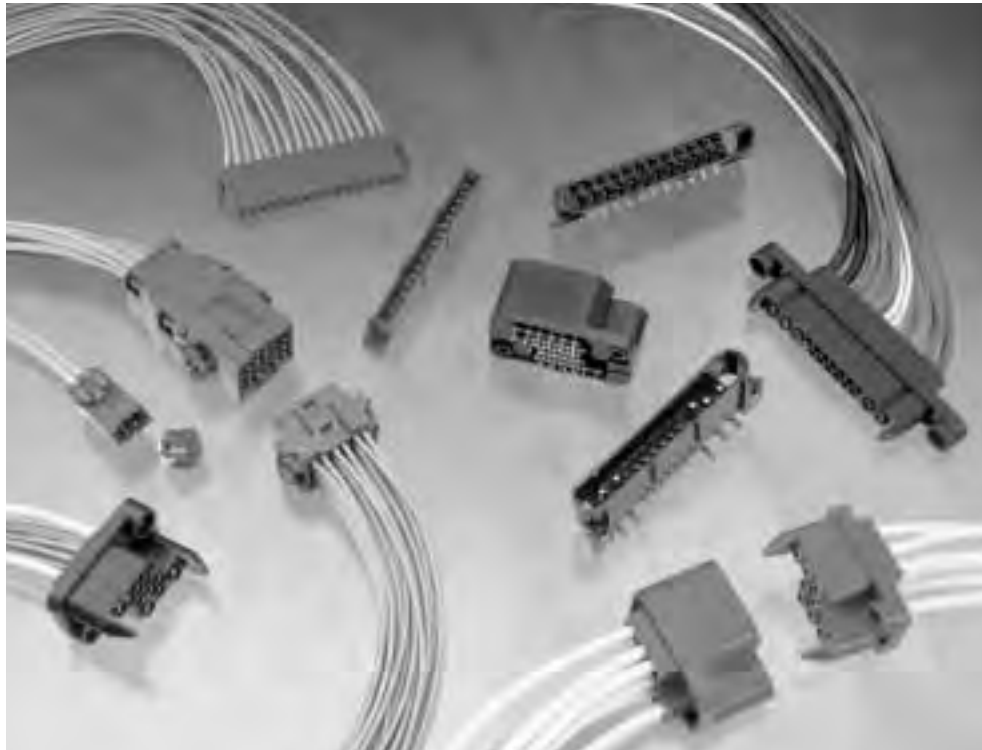
408-9731	M Series V.35 Cable Connector Kits
408-7089	Pin Hoods, Closed-End, for 104 CF Position M Series Connectors
408-1238	Shields (Long) for 34 and 50 Position M Series Connectors
408-1197	Shields (Short) for 34 and 50 Position M Series Connectors
408-1298	Shields, 180° (Long) for 14, 20, 26, 34 and 50 Position M Series Connectors
408-1312	Shields, 180° (Short) for 14, 20, 26, 34 and 50 Position M Series Connectors
408-1296	Shields, 90° (Long) for 14, 20, 26, 34 and 50 Position M Series Connectors
408-1297	Shields, 90° (Short) for 14, 20, 26, 34 and 50 Position M Series Connectors
408-7026	Shields, 90° (Short) for 21 and 41 Position M Series Connectors
408-1192	Shields, 180° (Long and Short) for 26 and 41 Position M Series Connectors
408-7220	Shields, 180° and 90° (Long and Short) for 75 Position M Series Connectors
408-1321	Shields, 90° (Short) for 104 Position M Series Connectors
408-7148	Shields, 90° and 45° (Long) for 104 CF Position M Series Connectors
408-7088	Shields, 45° (Short) for 104 CF Position M Series Connectors
408-7423	Shields, 45° (Short) for 160 CF Position M Series Connectors
408-7017	Strain Relief Clamps (Long) for 14 and 20 Position M Series Connectors
408-7018	Strain Relief Clamps (Long) for 26 Position M Series Connectors
408-1313	Strain Relief Clamps (Short) for 14, 20 and 26 Position M Series Connectors
408-7012	Strain Relief Clamps (Long and Short) for 21 and 41 Position M Series Connectors
408-7019	Strain Relief Clamps (Long) for 34 Position M Series Connectors
408-1317	Strain Relief Clamps (Short) for 34 and 50 Position M Series Connectors
408-7216	Strain Relief Clamps (Long) for 75 Position M Series Connectors
408-1368	Strain Relief Clamps (Short) for 75 Position M Series Connectors
408-7020	Strain Relief Clamps (Long) for 50 and 104 Position M Series Connectors
408-1322	Strain Relief Clamps (Short) for 104 Position M Series Connectors
408-1340	Keying Plug (Cylindrical) for Multimate Contact Cavities
408-6613	Application and Maintenance of AMP Hand Crimping Tool 90067
408-7414	Application and Maintenance of AMP Hand Crimping Tool 90225-2
408-7942	Application and Maintenance of AMP Hand Crimping Tool 90310-2
408-7773	Application and Maintenance of AMP Hand Crimping Tool 90331-1
408-7126	AMP Assembly Tool 91016 for Turnable Jackscrews

For complete product information, order Catalog 82003

Introduction

Product Facts

- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR7189
- Tested to VDE requirements outlined in VDE Test Report No. 4751-1431-1029/A11 
- Produced under a Quality Management System certified to ISO 9001 
A copy of the certificate is available upon request.
- Designed to meet IEC (440 V) requirements
- True metric dimensions—contacts on 5 [.197] centers (drawer connectors and special in-line connectors and pin headers have contacts on 5.08 [.200] centers)
- Panel mount versions require no hardware for mounting
- Polarized housings
- 4- thru 36-position square grid configurations can be mounted to and removed from either front or rear of panel
- Housings made of UL rated 94V-0 thermoplastic
- Strain reliefs available for 6- thru 36-position square grid, panel mount housings
- Drawer connectors available in 4- thru 30-position sizes, standard and low profile versions



AMP Metrimate connectors are true metric specification connectors designed for panel, free-hanging or pc board application. These connectors offer improvements in durability, density and electrical performance over competitive soft-shell pin and socket connectors. They are ideally suited for equipment manufacturers engaged in both national and international markets. This versatile pin and socket connector line is designed to meet the general requirements of various testing and approval agencies, including UL, CSA, VDE and IEC.

Presently, connectors are available in various design configurations and the most popular sizes to satisfy a variety of application requirements. Such designs include: square grid connectors for free-hanging

and/or panel mounting; free-hanging in-line connectors; square grid and in-line pin and socket headers for pc board mounting; and drawer connectors for rack and panel mounting with radial float.

For high electrical performance and maximum economy, all connectors employ housings made of UL rated 94V-0 thermoplastic.

Electrical Characteristics:

Voltage Rating: UL (600 VAC and VDC), CSA (600 VAC and VDC), VDE (380 VAC, 450 VDC), IEC (440 V)

Dielectric Strength: 2000 Volts, RMS (at sea level)

Current Rating: See contact current carrying capability data on page 9095, 9096

Insulation Resistance: 5000 Megohms (Min.)

Termination Resistance: Dependent upon individual contact type. Refer to applicable Product Specification.

Environmental Characteristics:

Temperature Range: -55°C to +130°C

Mechanical Characteristics:

Air Gap: Exceeds 3.2 [.125]

Creep Distance: Exceeds 4 [.157]

Mounting Distance (Live Contact-to-Panel): Exceeds 6 [.237]

Acceptable Panel Thicknesses: 0.8-2.3 [.030-.090]

For complete product information, order Catalog 82045

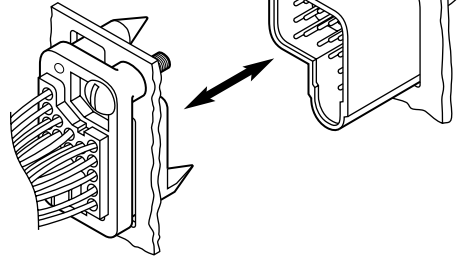
Metrimate Connector Application

Drawer Connectors

Standard Drawer Connectors, Rack and Panel Applications

Plug

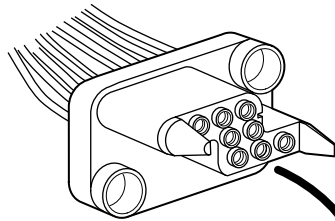
4, 12, 19 and 25 Position
Connectors; 8 and 15 Position
Power Connectors
(Pages 9226 and 9227)



Receptacle

4, 12, 19 and 25 Position
Connectors; 8 and 15 Position
Power Connectors
(Pages 9226 and 9227)

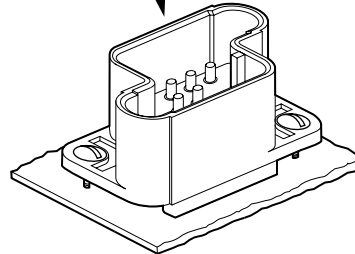
Standard Drawer Connectors, Wire-To-Board



PC Pin Header (shown)

12, 19 and 25 Position Pin Headers
(Solder); 25 Position Pin Header
(ACTION PIN); 8 and 15 Position
Power Drawer Pin Headers (Pages
9226 and 9227)

Plug (for Sockets)—Mates with PC
Pin Header

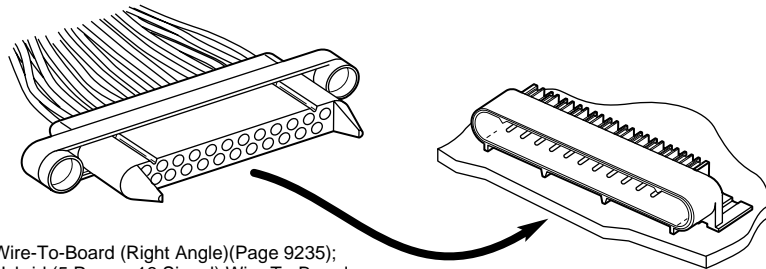


Receptacle (for Pins)—Mates with
PC Socket Header

PC Socket Header

19 and 25 Position Socket
Headers (Solder); 8 and
15 Position Power Drawer
Socket Headers
(Pages 9226 and 9227)

Low Profile Drawer Connectors, Wire-To-Board, and Wire-To-Wire

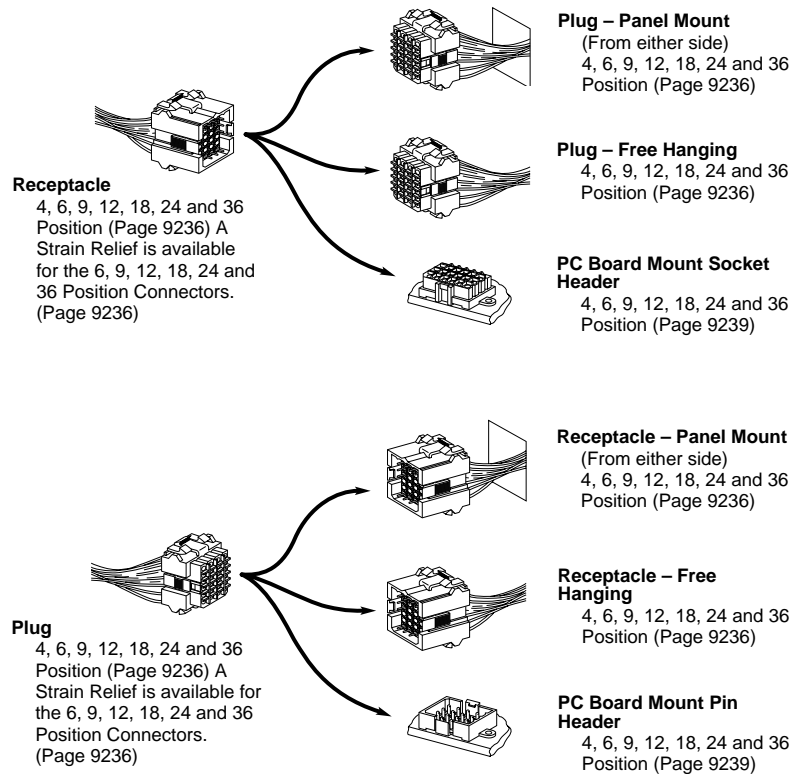


23 Position Wire-To-Board (Right Angle)(Page 9235);
18 Position Hybrid (5 Power, 13 Signal) Wire-To-Board
(Right Angle); 30 Position Wire-To-Wire

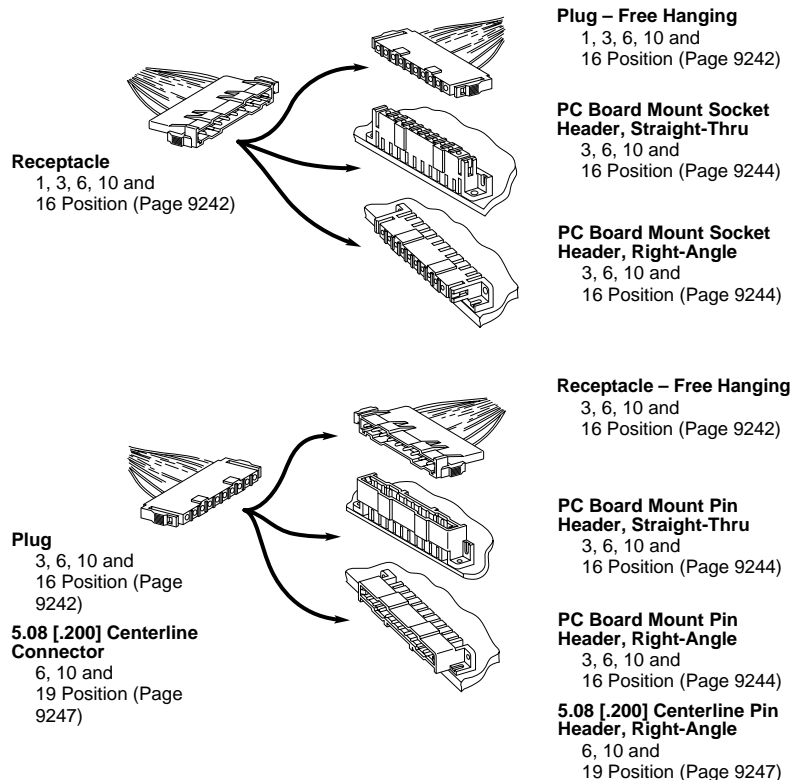
For complete product information, order Catalog 82045

Metrimate Connector Application

Square Grid Connectors



In-Line Connectors



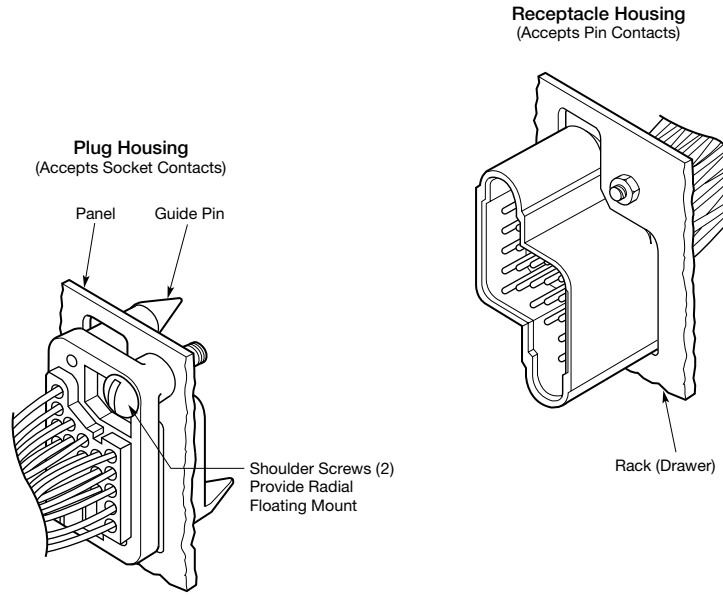
For complete product information, order Catalog 82045

Drawer Connectors

Standard Drawer Connector Panel Mount

Product Facts

- 4-, 12-, 19- and 25-position connectors for Size 16 contacts
- 8-position connector for Size 8 power contacts, and a 15-position connector for 3 Size 8 power contacts and 12 Size 16 contacts
- Provides “blind” mating with up to 2.3 [.090] misalignment in any direction
- Guide pins molded into plug half
- Plug and receptacle can be front- or rear-panel mounted



Material:

Black glass-filled thermoplastic, 94V-0 rated

Related Product Data:

Contacts—pages 9101-9103, 9109, 9112, 9113, 9116, 9117

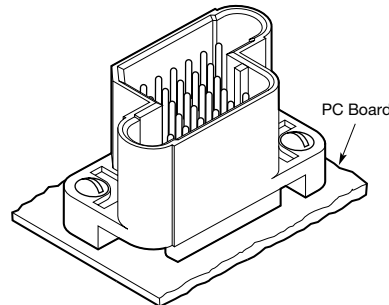
Mounting Screw—page 9227

Keying Plug—page 9247

Dimensional Specifications—pages 9228-9232

Performance Characteristics—page 9223

PC Header
(Pin Header shown mates with Plug Housing)



Technical Documents:

Product Specifications

108-10033, 108-10045

Application Specifications

114-10039, 114-10014

Standard Drawer Connectors

No. of Positions	Connector Housing Part Numbers*			PC Header Part Numbers			Grounding Pins should not be used in these receptacle cavities
	Plug	Receptacle	Receptacle With 8/32 Inserts	Pin Headers		Socket Headers Solder Tails	
				Solder Tails	ACTION PIN Tails		
4	212608-1	212609-1	213749-1	—	—	—	1 and 4
12	211758-1	211759-1	213748-1	213824-1 ^A	—	—	1 and 12
19	208210-2	208209-2	—	213738-1 ^A	—	—	1 and 19
				213738-3 ^{A**}	—	—	
25	211150-1	211149-1	—	213672-1 ^A	213558-1 ^B	213881-1 ^A	1 and 25
					213558-2 ^C	213784-1 ^D	
					213779-3 ^{C***}	—	

*Housings only, order contacts separately. See pages 9095, 9096 for contact current carrying capabilities.

**Select loaded with posted Size 16 contacts: Pins (1, 4-8, 12-16, 19) and Ground Pins (2-3, 9-11, 17-18).

***Select loaded with 12 Ground Pins (0.76 [.030] Dia.): 2, 6, 10-16, 20-21 and 24.

PC Header Plating Code:

^A Contact brass plated 0.00076 [.000030] min. gold on mating end, gold flash remainder, both over 0.00127 [.000050] min. nickel underplating. Post end brass plated 0.00254 [.000100] min. tin-lead over 0.00254 [.000100] min. copper. Spring—Stainless steel.

^B Contact phosphor bronze plated 0.00254 [.000100] min. tin-lead over 0.00127 [.000050] min. nickel.

^C Contact phosphor bronze plated 0.00076 [.000030] min. gold on the mating area, 0.00038 [.000150] min. tin-lead on the ACTION PIN tail end, all over 0.00127 [.000050] min. nickel.

^D Contact brass plated 0.00127 [0.000050] min. tin-lead over 0.00127 [0.000050] min. nickel on mating end. Post end brass plated 0.00254 [0.000100] min. tin-lead over 0.00127 [0.000050] min. nickel. Spring—Stainless steel.

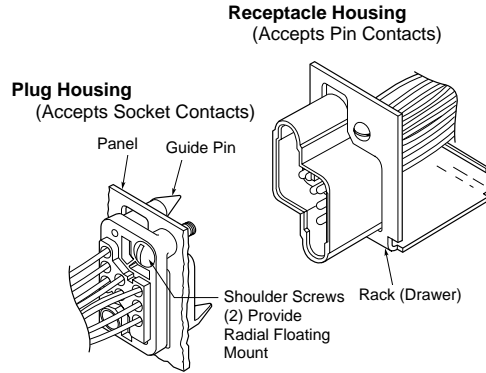
Drawer Connectors

Power Drawer Connectors, Size 8

For use with Size 8 contacts on pages 9112, 9113 and Size 16 contacts on pages 9101-9103, 9109, 9116, 9117.

Related Product Data:

Dimensional Specifications— pages 9233 and 9234



Blindmate Power Connectors

No. of Positions	Housing Part Numbers*			PCB Headers	
	Plug	Receptacle	Receptacle with 8/32 Insert	Pin	Socket
8 (8 Size 8)	213499-1	213500-1	213752-1	213882-1	213883-1
15 (3 Size 8, 12 Size 16)	213426-1	213427-1	—	213713-1 ¹	213908-2 ¹

¹ Loaded with Size 16 contacts only.

*Housing only, order contacts separately.

Drawer Hardware

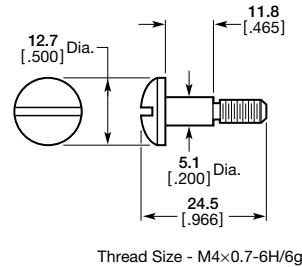
Mounting Screw

Material:

Stainless steel

Thread Size	Part Number
M4x0.7-6H/6g	208211-1

Note: These shoulder screws are used for mounting the plug housing and they provide float for positioning of misaligned connectors. Two are required for each plug. Mounting screws are to be ordered separately. Nuts are to be supplied by the customer.

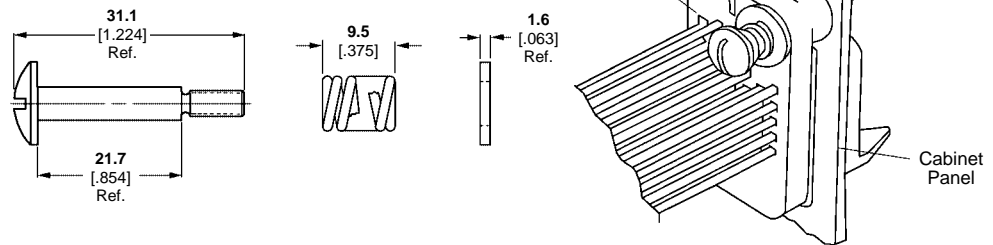


Screw Kits

Part Number 213283-2

Kit Includes: 2—M4 screws, 2—Springs, 2—Washers

Screw Kits are recommended in order to compensate for misaligned connector halves and to provide float in X, Y, and Z directions.



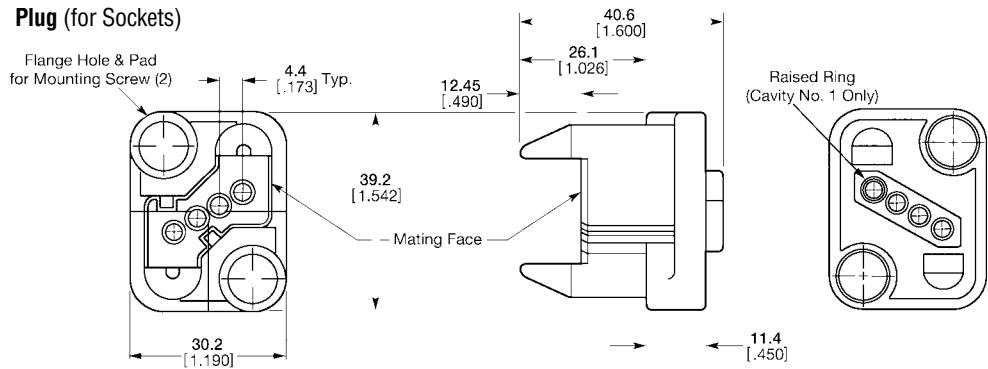
For complete product information, order Catalog 82045

For complete product information, order Catalog 82045

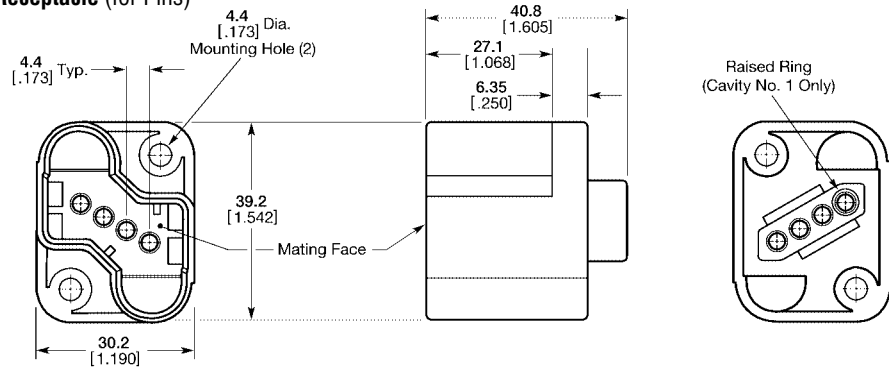
Drawer Connector Specifications

4 Position Housings

Plug (for Sockets)

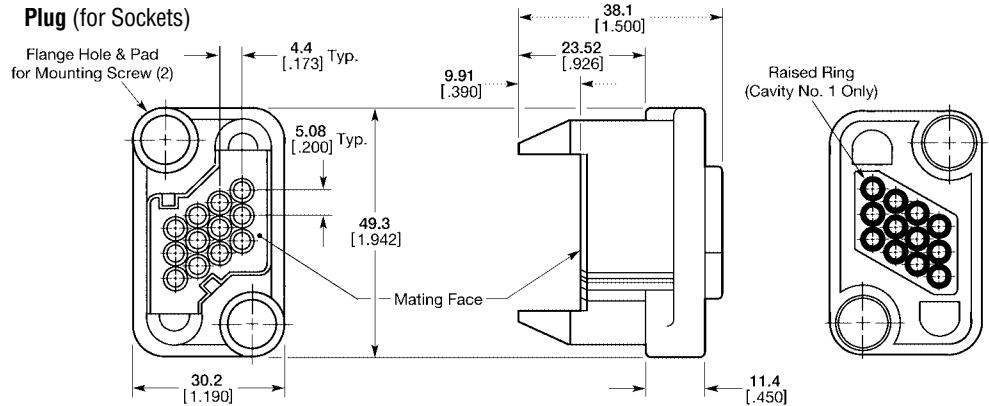


Receptacle (for Pins)

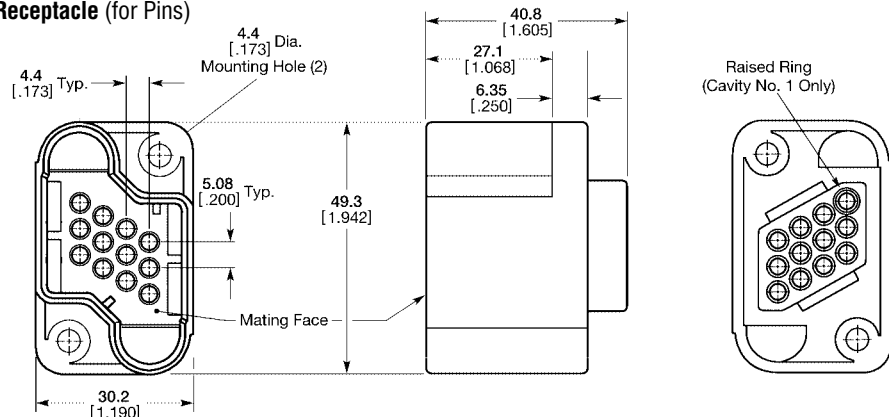


12 Position Housings

Plug (for Sockets)



Receptacle (for Pins)

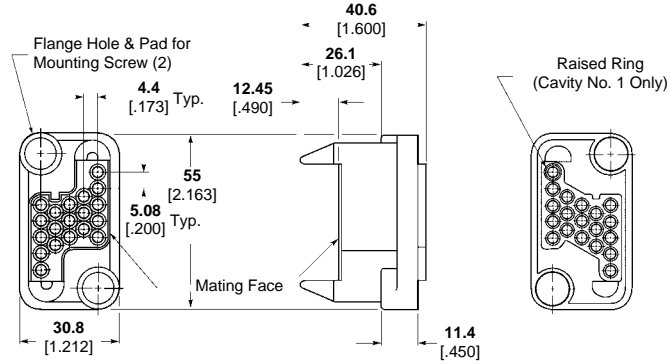


For complete product information,
order Catalog 82045

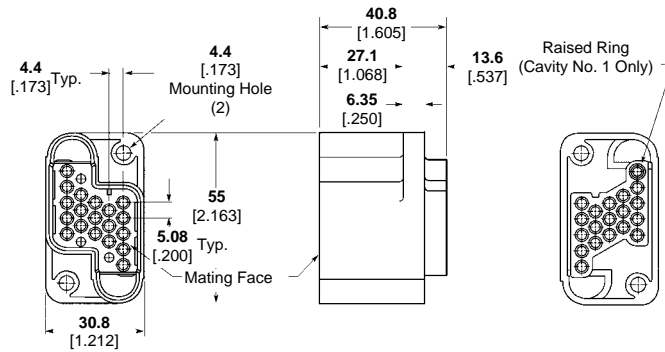
Drawer Connector Specifications

19 Position Housings

Plug (for Sockets)

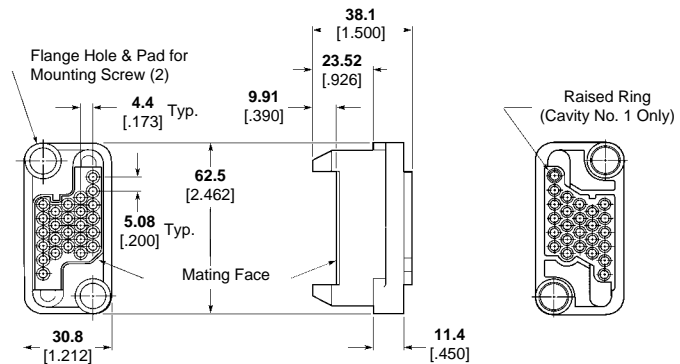


Receptacle (for Pins)

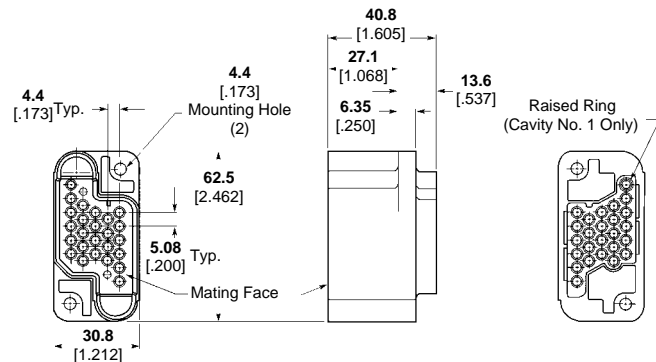


25 Position Housings

Plug (for Sockets)



Receptacle (for Pins)

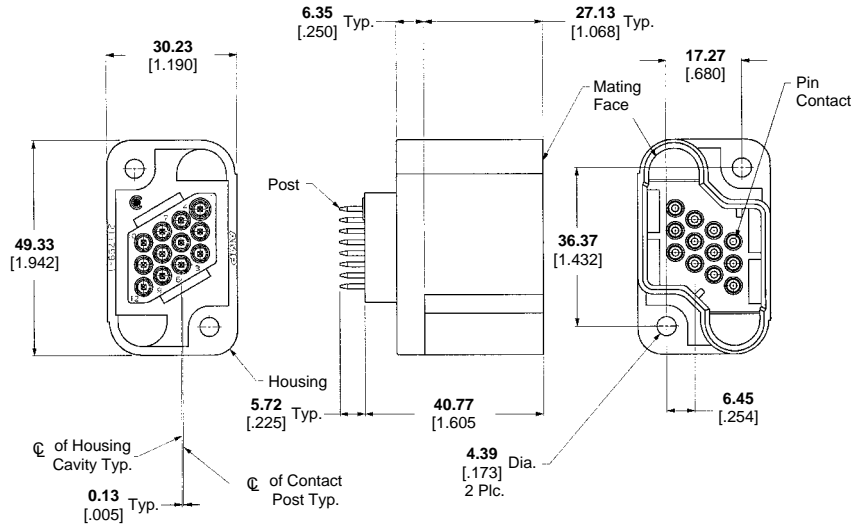


For complete product information, order Catalog 82045

Drawer Connector Specifications—PC Pin Headers

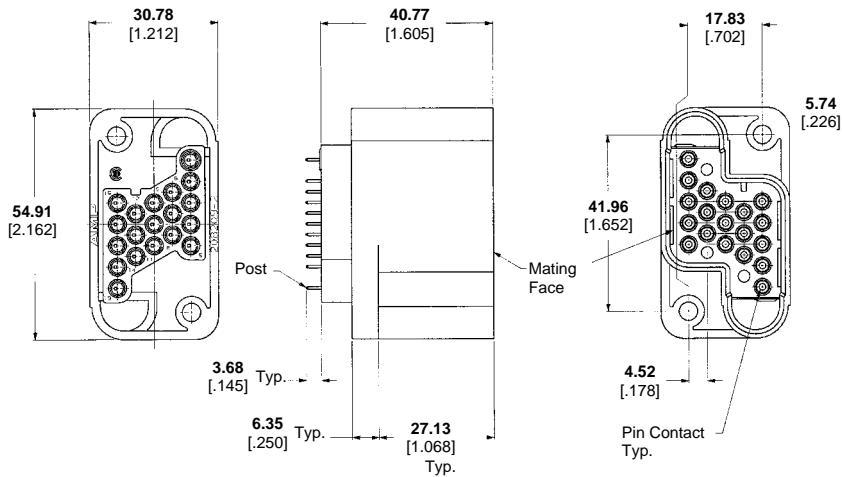
12 Position Header

PC Pin Header (Solder Tails)



19 Position Header

PC Pin Header (Solder Tails)

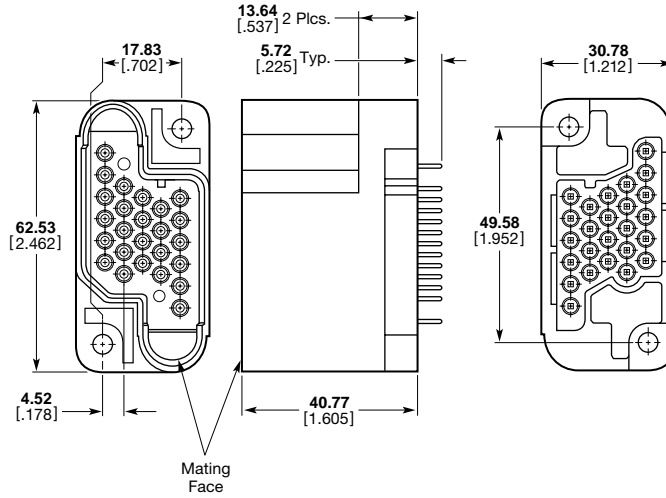


For complete product information, order Catalog 82045

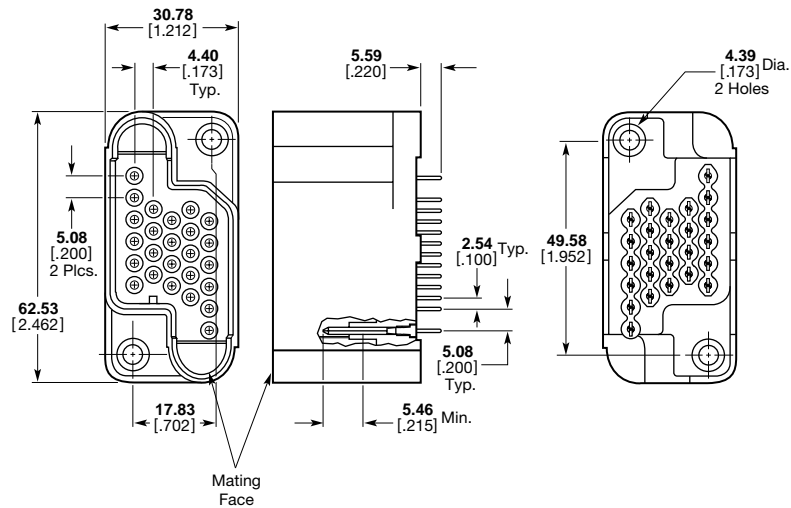
Drawer Connector Specifications—PC Pin Headers

25 Position Headers
(mate with Plug Connector Part
Number 211150-1)

PC Pin Header (Solder Tails)



PC Pin Header (ACTION PIN Contacts)

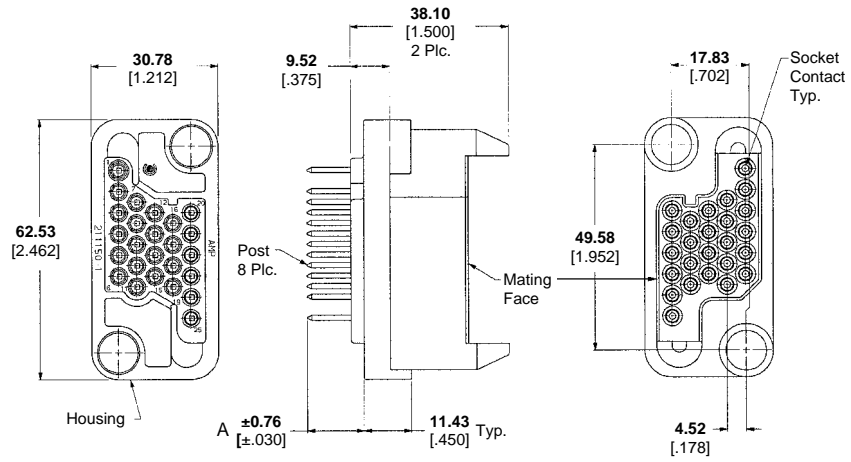


For complete product information, order Catalog 82045

Drawer Connector Specifications—PC Socket Headers

25 Position Headers

PC Socket Header (Solder Tails)



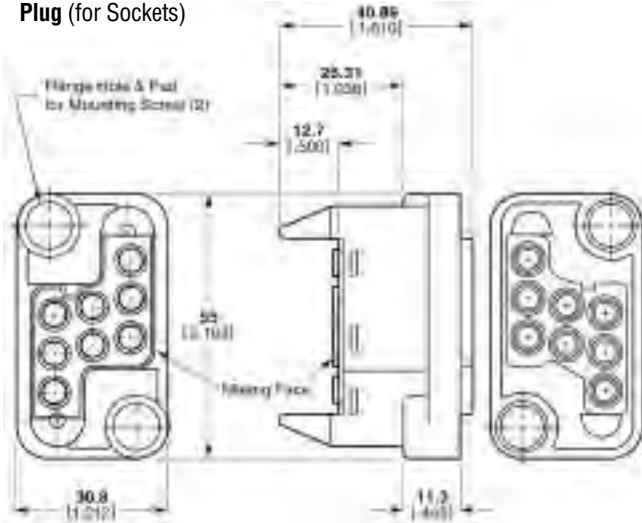
For complete product information, order Catalog 82045

Power Drawer Connector Specifications

8 Position Housings

(Size 8)

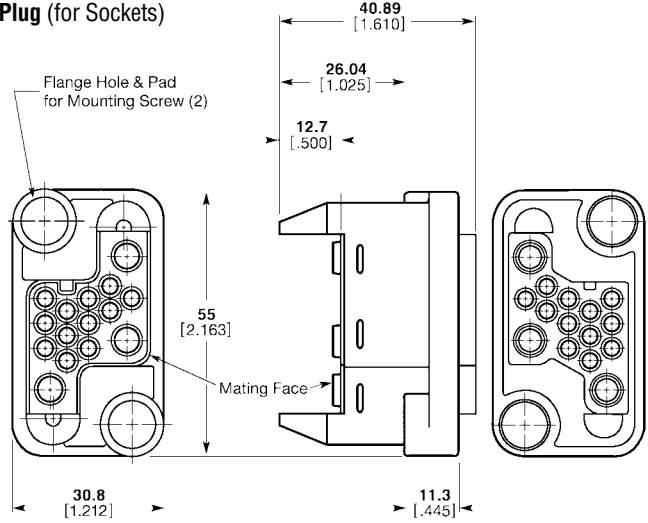
Plug (for Sockets)



15 Position Housings

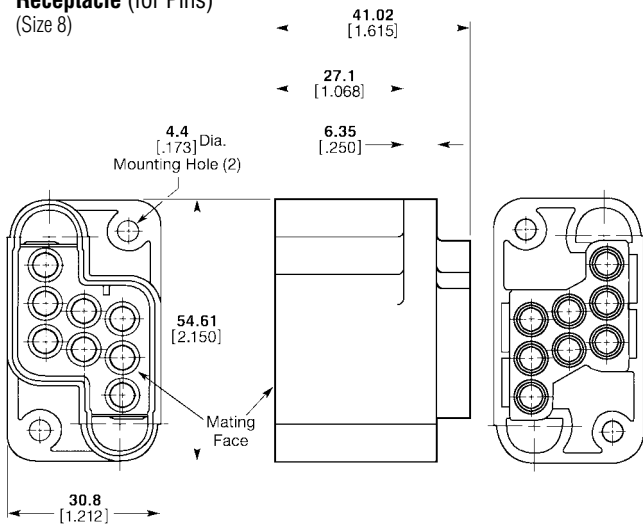
(Accept 3 Size 8 Contacts and 12 Size 16 Contacts)

Plug (for Sockets)



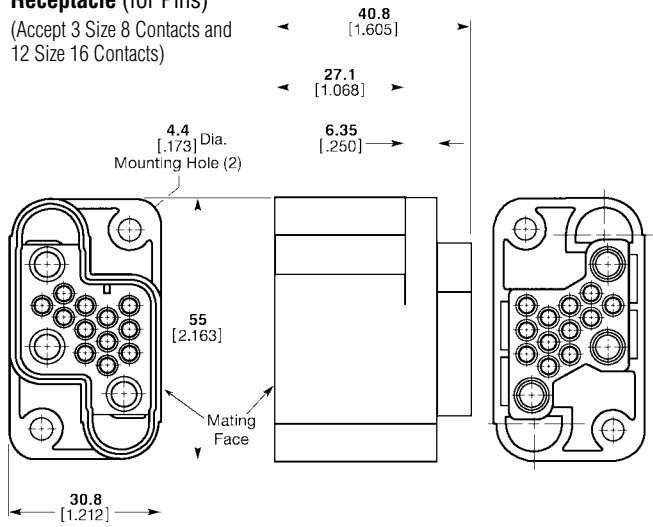
Receptacle (for Pins)

(Size 8)



Receptacle (for Pins)

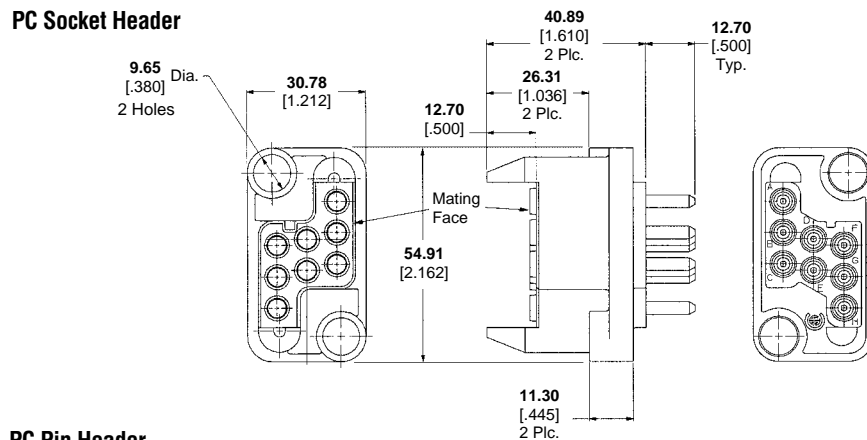
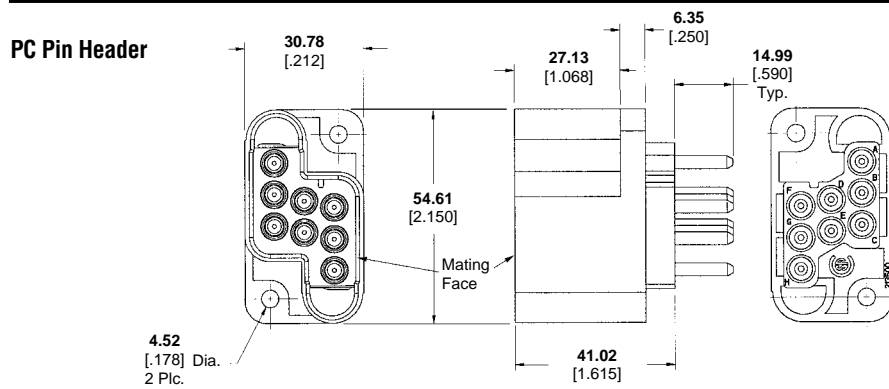
(Accept 3 Size 8 Contacts and 12 Size 16 Contacts)



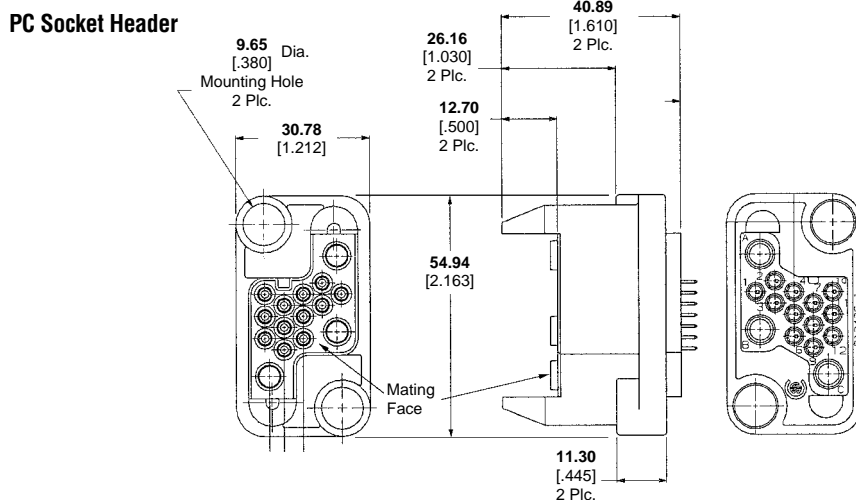
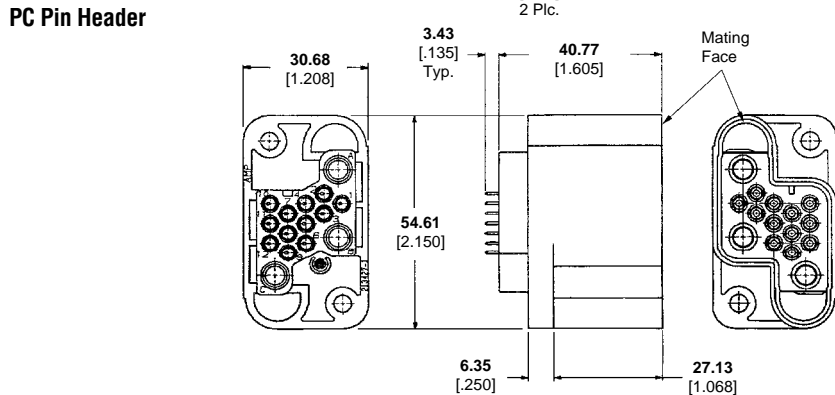
For complete product information, order Catalog 82045

Power Drawer Connector Specifications—PCB Headers

8 Position Headers



15 Position Headers



For complete product information,
order Catalog 82045

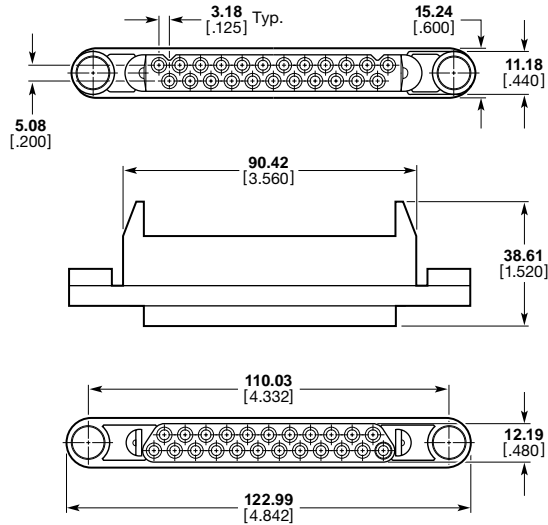
Low Profile Drawer Connectors

**23 Position Plug Housing
(for Sockets)**

Part Number 213766-1

Material and Finish:

Housing—Black glass-filled thermoplastic, 94V-0 rated



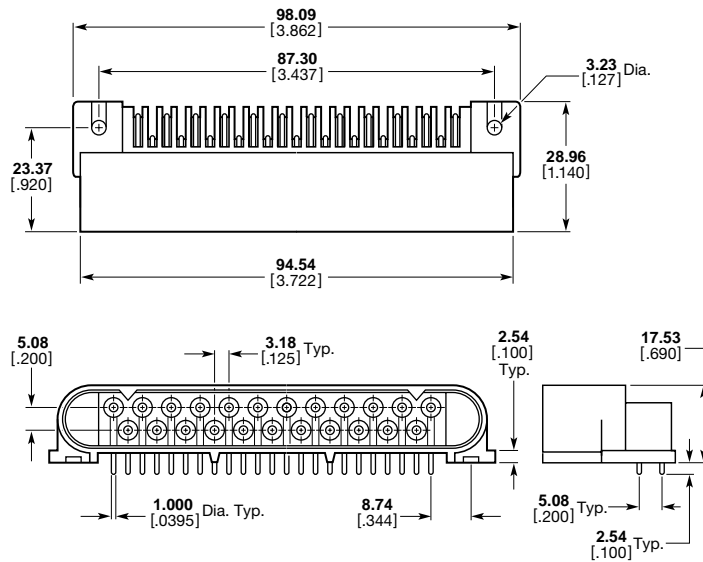
**23 Position Right-Angle
Receptacle Header**

Part Number 213768-1

Material and Finish:

Housing—Black glass-filled thermoplastic, 94V-0 rated

Contacts—Copper alloy duplex plated 0.00076 [.000030] min. gold on mating end, tin-lead on termination end, with entire contact nickel underplated



For complete product information, order Catalog 82045

Square Grid Connectors

Free-Hanging and Panel Mount Connectors

Material:

Red thermoplastic, 94V-0 rated

Related Product Data:

Mateable Connectors:

PC Board Headers—page 9239

Contacts—pages 9101-9103, 9109, 9116, 9117

Keying Plug—page 9247

Strain Relief Kits—See below

Dimensional Specifications — pages 9237 and 9238

Performance Characteristics— page 9223

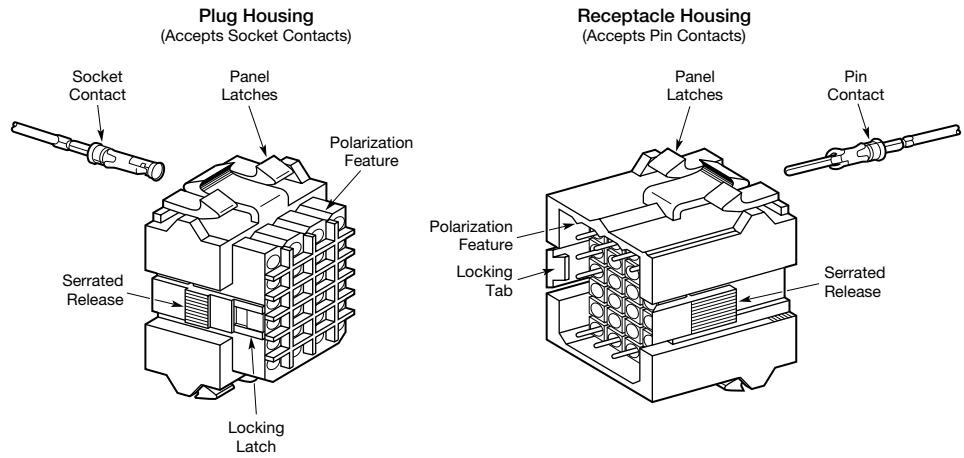
Technical Documents:

Product Specification

108-10033

Application Specification

114-10040



No. of Positions	Housing Part Numbers*	
	Plug	Receptacle
4	207015-1	207016-1
6	207152-1	207153-1
9	207439-1	207440-1
12	207017-1	207018-1
18	207442-1	207443-1
24	207304-1	207305-1
36	207019-1	207020-1

*Housing only, order contacts separately.

Strain Relief Kits

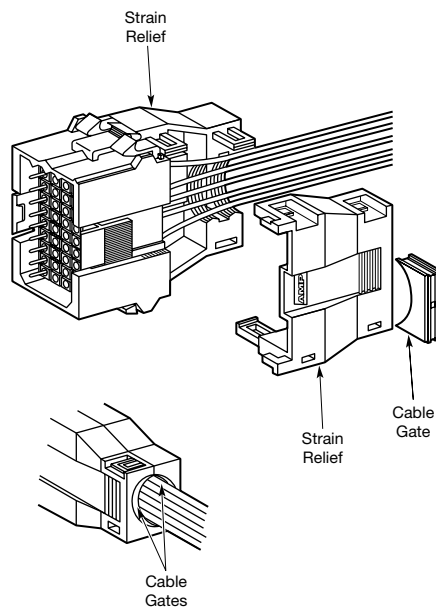
(For use with plugs and/or receptacles)

Material:

Red thermoplastic, 94V-0 rated

Related Product Data:

Dimensional Specifications— page 9238



No. of Positions (Connector)	Cable O.D. (Max.)	Strain Relief Kit Part Numbers	
		Individual Packs	Bulk Packaging
6	9.5 .375	207600-1	213792-1
9	11.7 .460	207601-1	213793-1
12	13.45 .530	207602-1	213794-1
18	16.5 .650	207603-1	213795-1
24	19.05 .750	207088-1	213796-1
36	23.3 .918	207604-1	213797-1

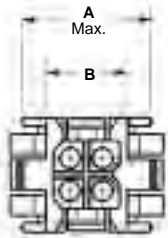
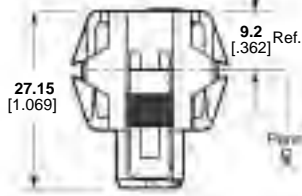
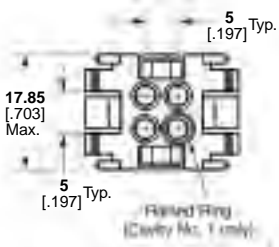
Notes: ¹ Cable gates are supplied with each strain relief kit to accommodate various cable diameters up to the maximum specified.
² Components for all strain relief kits are packaged unassembled.

For complete product information, order Catalog 82045

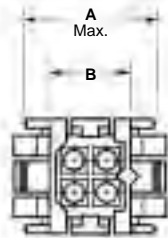
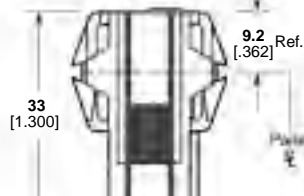
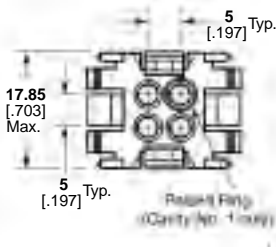
Square Grid Connector Specifications

4 and 6 Position Housings

Plug (for Sockets)

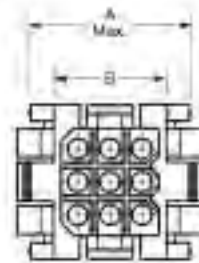
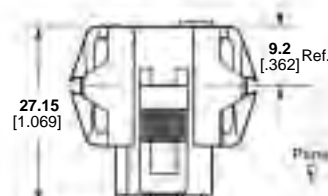
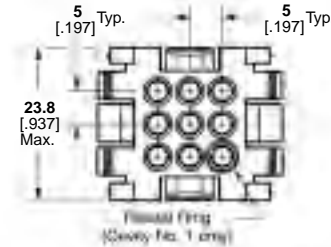


Receptacle (for Pins)

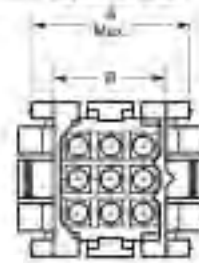
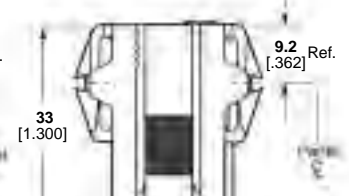
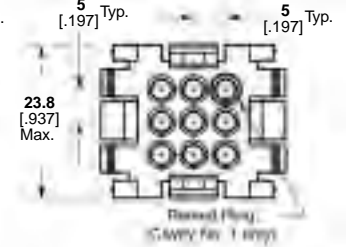


9, 12 and 18 Position Housings

Plug (for Sockets)



Receptacle (for Pins)



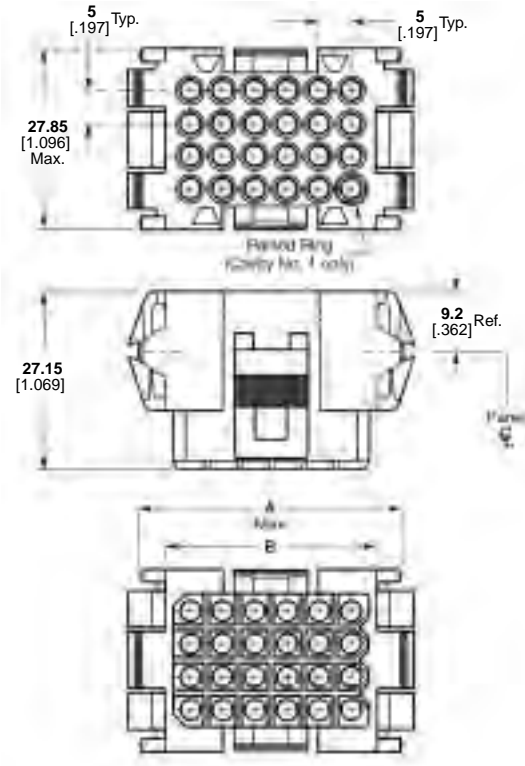
No. of Positions	Connector Dimensions	
	A	B
4	20.1 .791	12.6 .496
6	25.04 .986	17.5 .689
9	24.8 .976	17.5 .689
12	29.8 1.173	22.5 .886
18	40.45 1.592	32.85 1.293

For complete product information, order Catalog 82045

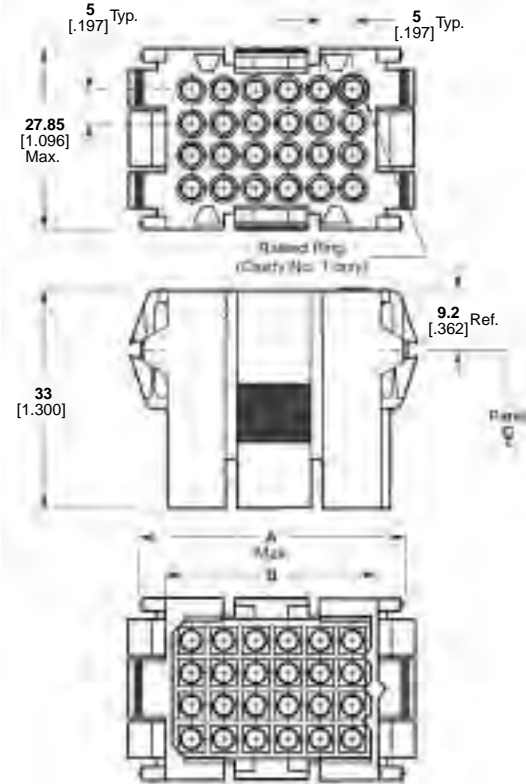
Square Grid Connector Specifications

24 and 36 Position Housings

Plug (for Sockets)

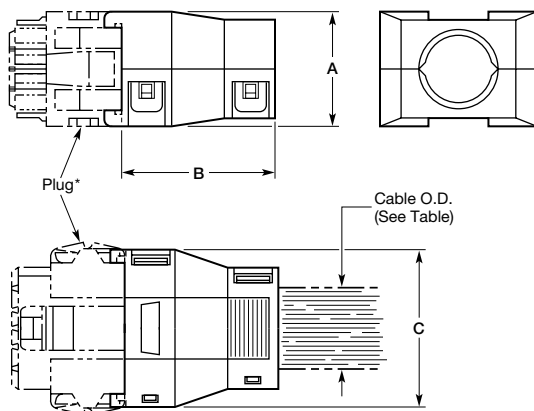


Receptacle (for Pins)



No. of Positions	Connector Dimensions	
	A	B
24	40.45 1.592	32.85 1.293
36	55.45 2.183	47.85 1.885

Strain Relief Kits (for 6, 9, 12, 18, 24 and 36 Position Connectors)



No. of Positions	Dimensions			Cable O.D. (Max.)
	A	B	C	
6	17.75 .700	25.53 1.005	22.75 .896	9.5 .375
9	23.9 .940	32.4 1.275	22.75 .896	11.7 .460
12	23.9 .940	32.4 1.275	27.58 1.086	13.45 .530
18	23.9 .940	38.1 1.500	38.1 1.500	16.5 .650
24	27.94 1.100	38.1 1.500	38.1 1.500	19.05 .750
36	27.94 1.100	38.1 1.500	53.1 2.090	23.3 .918

*Plug shown for illustration purposes only. Strain Relief Kits can be used on either plug or receptacle.

For complete product information, order Catalog 82045

Square Grid Connectors

PC Board Mount Headers

Material and Finish:

Housing—Red thermoplastic, 94V-0 rated

Pin Contacts—Copper alloy, plated tin or gold duplex

Socket Contacts—Phosphor bronze, plated tin or gold duplex

Related Product Data:

Mateable Connectors:

Free-Hanging Connectors—page 9236 (Pin and Socket Headers do not mate.)

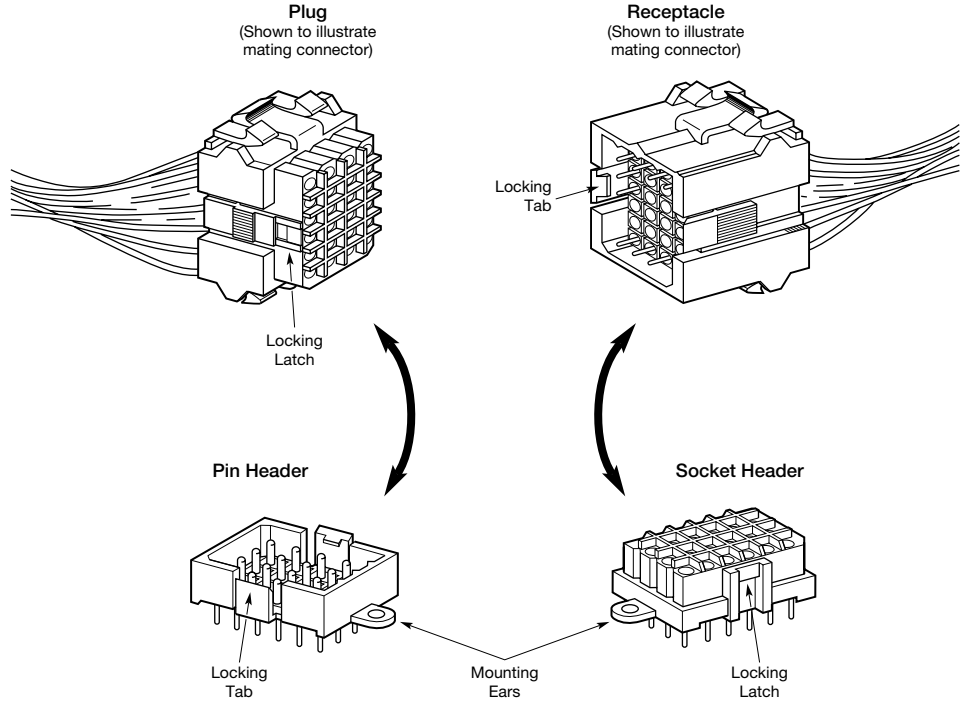
Dimensional Specifications—pages 9240 thru 9242

Performance Characteristics—page 9223

Technical Documents:

Product Specification
108-10033

Application Specification
114-10040



No. of Positions	Contact Plating	Pin Header Part Numbers		Mates with Plug Part Numbers (Page 9236)	Socket Header Part Numbers		Mates with Receptacle Part Numbers (Page 9236)
		With Mounting Ears	Without Mounting Ears		With Mounting Ears	Without Mounting Ears	
4	Tin	207119-1	207119-2	207015-1	207496-1	207496-2	207016-1
	Gold*	207119-3	207119-4		207496-3	207496-4	
6	Tin	207158-1	207158-2	207152-1	207524-1	207524-2	207153-1
	Gold*	207158-3	207158-4		207524-3	207524-4	
9	Tin	207441-1	207441-2	207439-1	207526-1	207526-2	207440-1
	Gold*	207441-3	207441-4		207526-3	207526-4	
12	Tin	207120-1	207120-2	207017-1	207528-1	207528-2	207018-1
	Gold*	207120-3	207120-4		207528-3	207528-4	
18	Tin	207444-1	207444-2	207442-1	207530-1	207530-2	207443-1
	Gold*	207444-3	207444-4		207530-3	207530-4	
24	Tin	206763-1	206763-2	207304-1	207532-1	207532-2	207305-1
	Gold*	206763-3	206763-4		207532-3	207532-4	
36	Tin	207121-1	—	207019-1	207534-1	207534-2	207020-1
	Gold*	207121-3	207121-4		207534-3	207534-4	

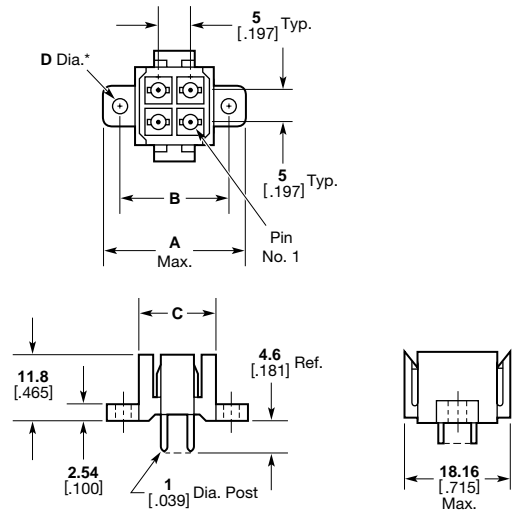
*Duplex plated 0.00076 [.000030] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

Note: Pin and Socket Headers do not mate.

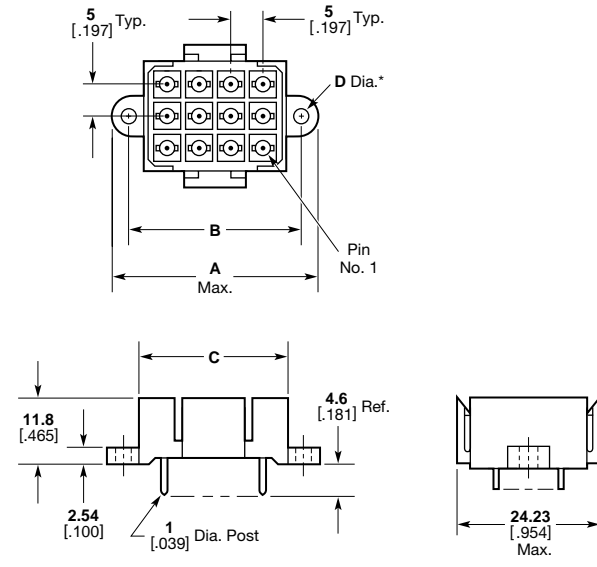
For complete product information, order Catalog 82045

Square Grid Pin Header Specifications

4 and 6 Position Headers



9, 12 and 18 Position Headers

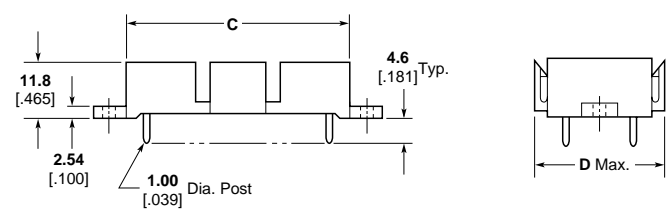
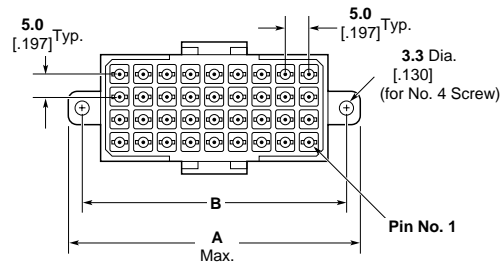


No. of Positions	Header Dimensions			
	A	B	C	D*
4	22.61 .890	17.4 .685	12.7 .500	2.65 .104
6	27.69 1.090	22.4 .882	17.6 .693	2.65 .104
9	27.69 1.090	22.4 .882	17.78 .700	2.65 .104
12	32.5 1.280	27.3 1.075	22.61 .890	2.65 .104
18	47.32 1.863	40.6 1.598	32.85 1.293	3.3 .130

*D Dia.—2.65 [.104] for No. 2 screw; 3.3 [.130] for No. 4 screw.

For complete product information, order Catalog 82045

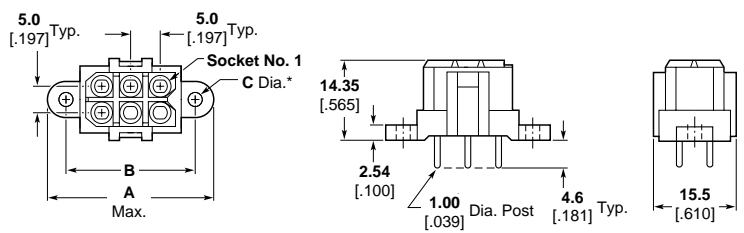
24 and 36 Position Headers



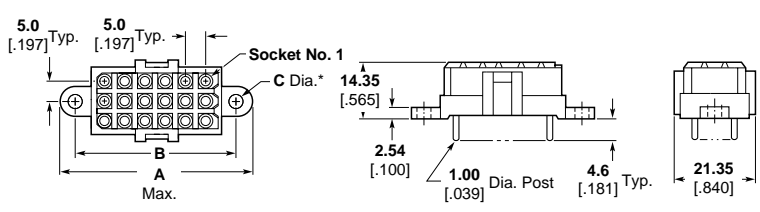
No. of Positions	Header Dimensions			
	A	B	C	D
24	47.32	40.6	32.85	29.36
	1.863	1.598	1.293	1.156
36	62.31	55.58	48.01	29.87
	2.453	2.188	1.890	1.176

Square Grid Socket Header Specifications

4 and 6 Position Headers



9, 12 and 18 Position Headers



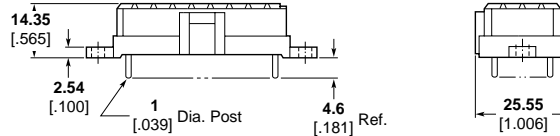
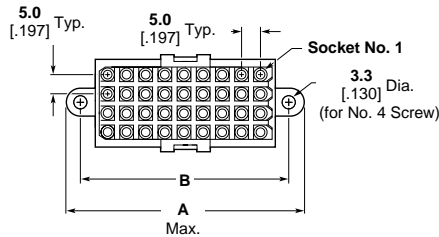
No. of Positions	Header Dimensions		
	A	B	C*
4	22.61	17.4	2.65
	.890	.685	.104
6	27.69	22.4	2.65
	1.090	.882	.104
9	27.69	22.4	2.65
	1.090	.882	.104
12	32.5	27.3	2.65
	1.280	1.075	.104
18	47.32	40.6	3.3
	1.863	1.598	.130

For complete product information, order Catalog 82045

*C Dia.—2.65 [.104] for No. 2 screw; 3.3 [.130] for No. 4 screw.

Square Grid Socket Header Specifications

24 and 36 Position Headers



No. of Positions	Header Dimensions	
	A	B
24	47.32 1.863	40.6 1.598
36	62.31 2.453	55.58 2.188

In-Line Connectors, 5 [.197] Centerline

Free-Hanging Connectors

Material:

Red thermoplastic, 94V-0 rated

Related Product Data:

Mateable Connectors:
PC Board Mount Headers—page 9244

Contacts—pages 9101-9103, 9109, 9116, 9117

Keying Plug—page 9247

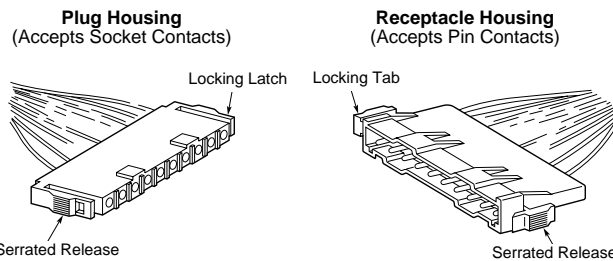
Dimensional Specifications—page 9243

Performance Characteristics—page 9223

Technical Documents:

Product Specification
108-10033

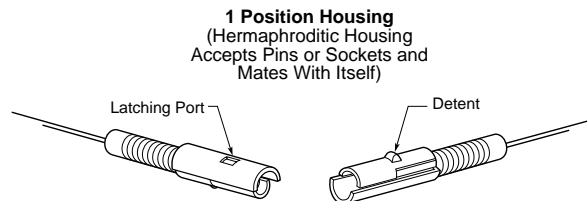
Application Specification
114-10040



No. of Positions	Housing Part Numbers*	
	Plug	Receptacle
1 (Positive Latch)	207535-1**	207535-1**
1 (Breakaway Latch)	211076-1**	211076-1**
3	207360-1	207359-1
6	207377-1	207376-1
10	207396-1	207397-1
16	207542-1	207543-1

*Housing only, order contacts separately.

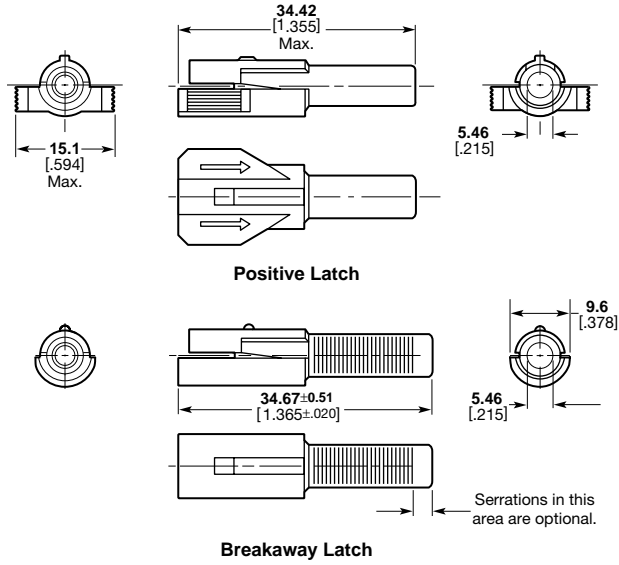
**Hermaphroditic housing accepts pins or sockets and mates with itself.



For complete product information, order Catalog 82045

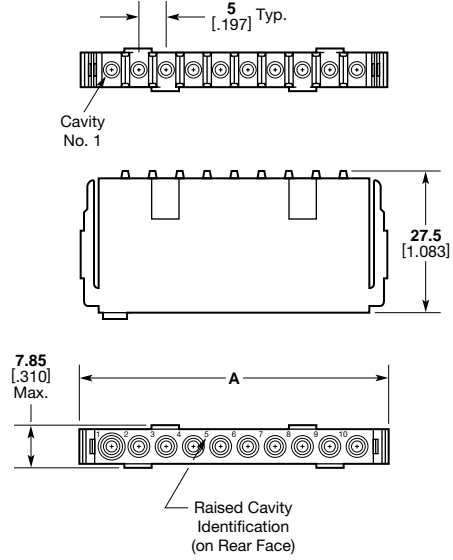
In-Line Connector Specifications, 5 [.197] Centerline

Single Position Hermaphroditic Housings



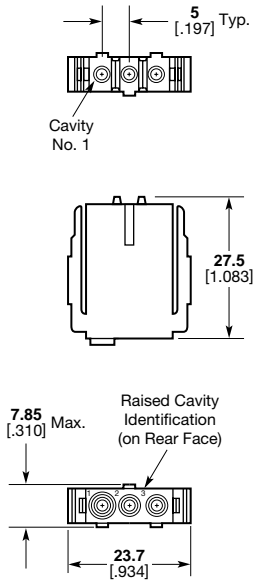
6, 10 and 16 Position Housings

Plug (for Sockets)

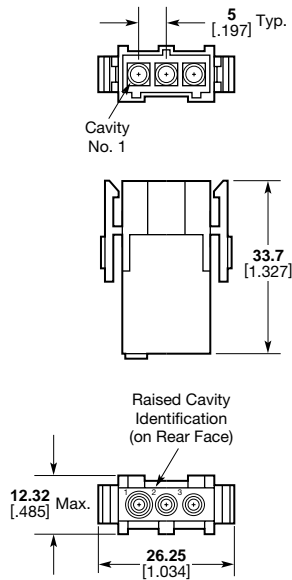


3 Position Housings

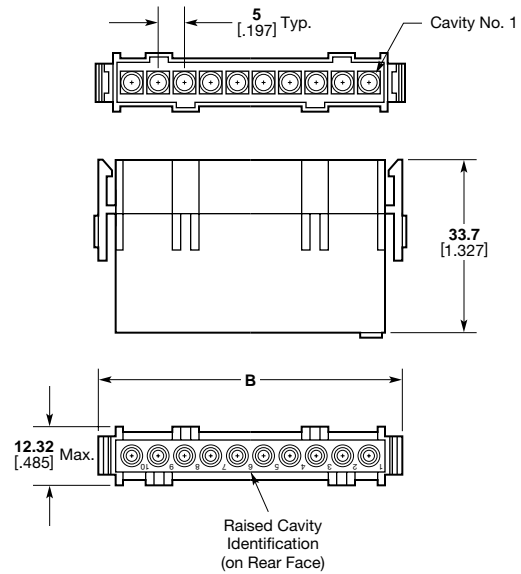
Plug (for Sockets)



Receptacle (for Pins)



Receptacle (for Pins)



No. of Positions	Dimensions	
	A	B
6	38.7	41.3
	1.524	1.625
10	58.7	61.3
	2.312	2.413
16	89.79*	91.19
	3.535	3.59

For complete product information, order Catalog 82045

*A Dim. is Max. for 16-position housing.

In-Line Connectors

PC Board Mount Headers

Material and Finish:

Housing—Red thermoplastic, 94V-0 rated

Pin Contacts—Copper alloy, plated tin or gold duplex

Socket Contacts—Phosphor bronze, plated tin or gold duplex

Related Product Data:

Mateable Connectors:

Free-Hanging Connectors—page 9242 (Pin and Socket Headers do not mate.)

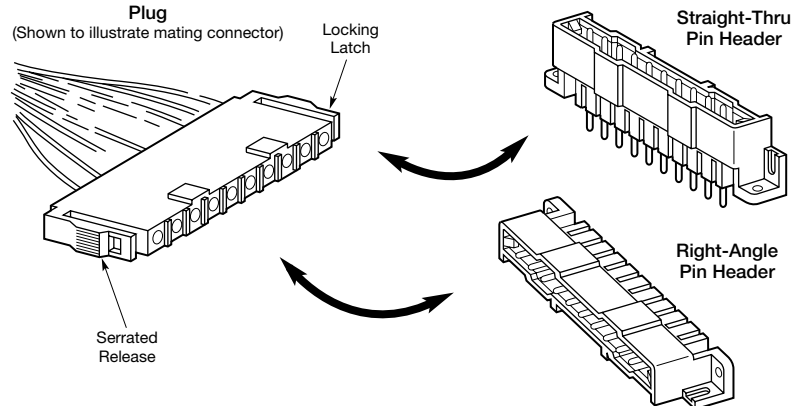
Dimensional Specifications—pages 9245 and 9246

Performance Characteristics—page 9223

Technical Documents:

Product Specification
108-10033

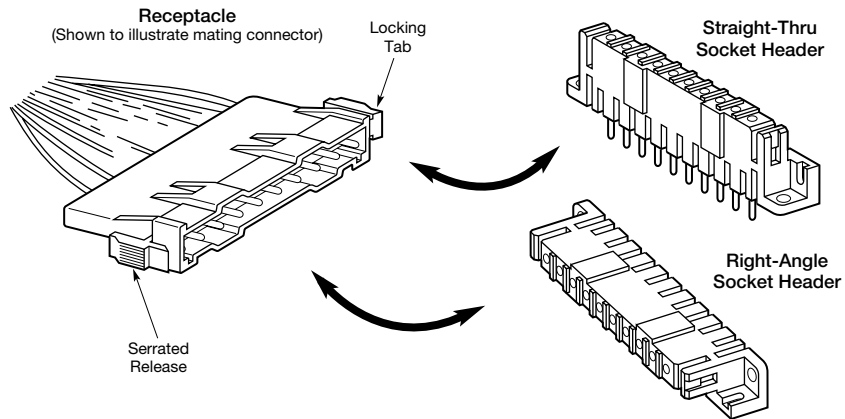
Application Specification
114-10040



No. of Positions	Contact Plating	Pin Header Part Numbers		Mates with Plug Part Numbers (Page 9242)
		Straight-Thru	Right-Angle	
3	Tin	207365-1	207541-1	207360-1
	Gold*	207365-3	207541-3	
6	Tin	207583-1	207378-1	207377-1
	Gold*	207583-3	207378-3	
10	Tin	207584-1	207398-1	207396-1
	Gold*	207584-3	207398-3	
16	Tin	207599-1	207544-1	207542-1
	Gold*	207599-3	207544-3	

*Duplex plated 0.00076 [.000030] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

Note: Pin and Socket Headers do not mate.



No. of Positions	Contact Plating	Socket Header Part No.		Mates with Receptacle Part Numbers (Page 9242)
		Straight-Thru	Right-Angle	
3	Tin	207609-1	207608-1	207359-1
	Gold*	207609-3	207608-3	
6	Tin	207611-1	207610-1	207376-1
	Gold*	207611-3	207610-3	
10	Tin	207613-1	207612-1	207397-1
	Gold*	207613-3	207612-3	
16	Tin	207615-1	207614-1	207543-1
	Gold*	207615-3	207614-3	

*Duplex plated 0.00076 [.000030] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

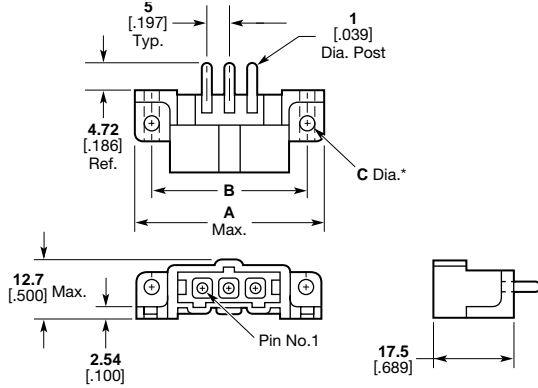
Note: Pin and Socket Headers do not mate.

For complete product information, order Catalog 82045

In-Line Pin Header Specifications, 5 [.197] Centerline

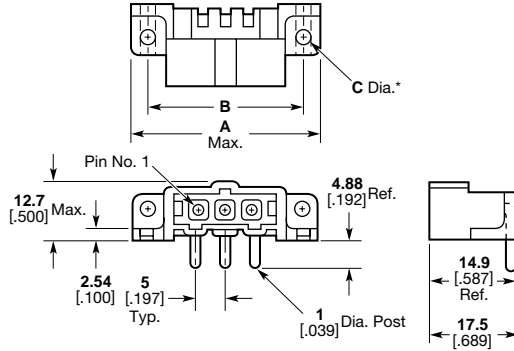
Straight-Thru

3 Position Header

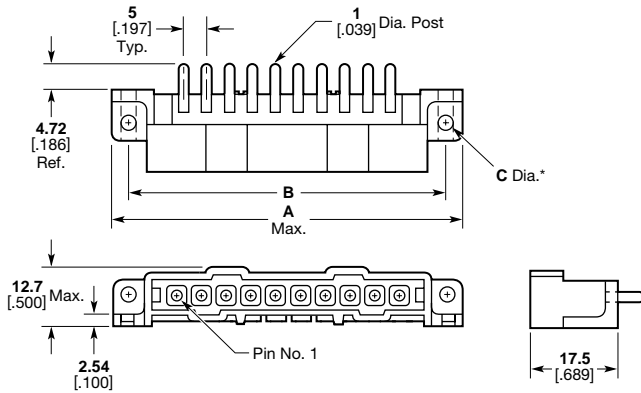


Right-Angle

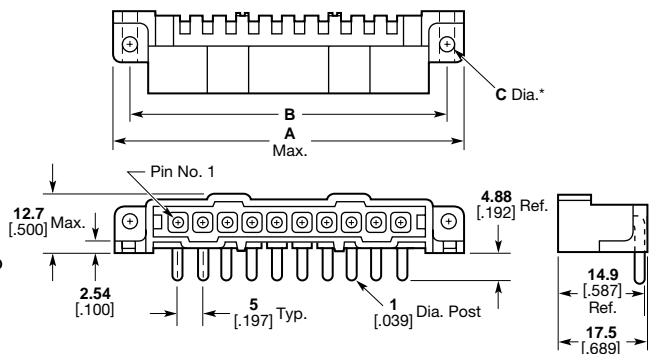
3 Position Header



6, 10 and 16 Position Headers



6, 10 and 16 Position Headers



No. of Positions	Header Dimensions		
	A	B	C*
3	36.86	31.6	2.65
	1.451	1.244	.104
6	51.87	46.6	2.65
	2.042	1.834	.104
10	71.86	66.6	2.85
	2.829	2.622	.112
16	102.64	96.6	2.85
	4.041	3.803	.112

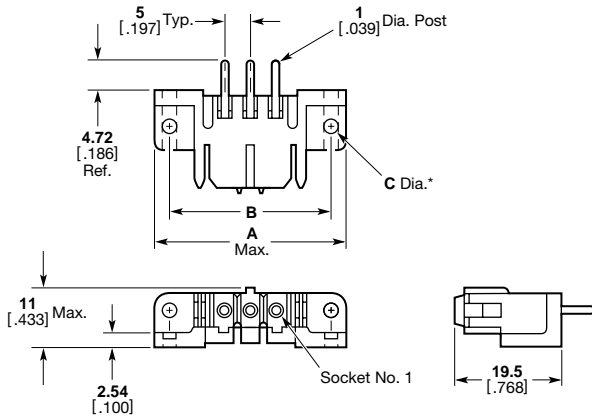
*C Dia.—2.65 [.104] for No. 2 screw; 2.85 [.112] for No. 3 screw.

For complete product information, order Catalog 82045

In-Line Socket Header Specifications, 5 [.197] Centerline

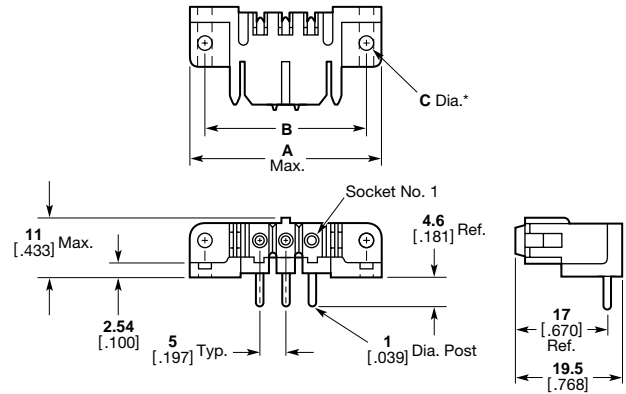
Straight-Thru

3 Position Header

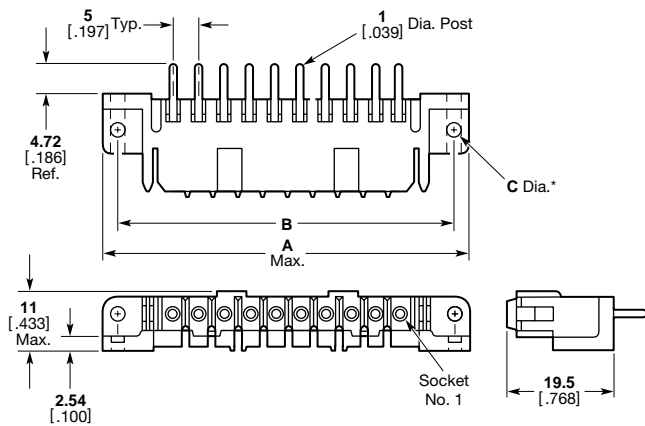


Right-Angle

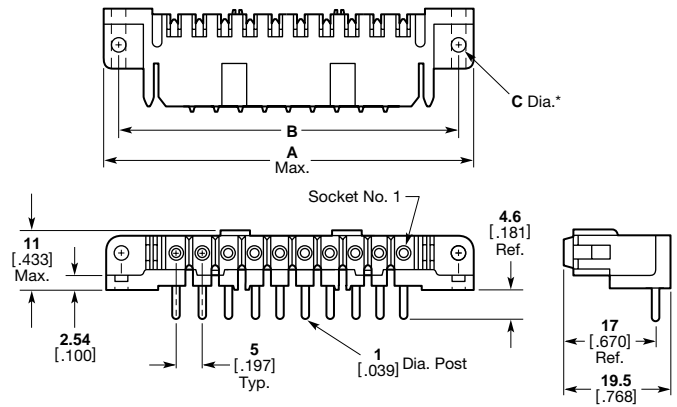
3 Position Header



6, 10 and 16 Position Headers



6, 10 and 16 Position Headers



No. of Positions	Header Dimensions		
	A	B	C*
3	36.55 1.439	31.6 1.244	2.65 .104
6	51.59 2.031	46.6 1.834	2.65 .104
10	71.6 2.819	66.6 2.622	2.85 .112
16	101.78 4.007	96.6 3.803	2.85 .112

*C Dia.—2.65 [.104] for No. 2 screw; 2.85 [.112] for No. 3 screw.

For complete product information, order Catalog 82045

In-Line Connectors, 5.08 [.200] Centerline

Free-Hanging Connectors and PC Board Mount Headers

Material and Finish:

Connector:

Red thermoplastic, 94V-0 rated

Header:

Housing—Red thermoplastic, 94V-0 rated

Contact—Copper alloy, plated tin or gold duplex

Related Product Data:

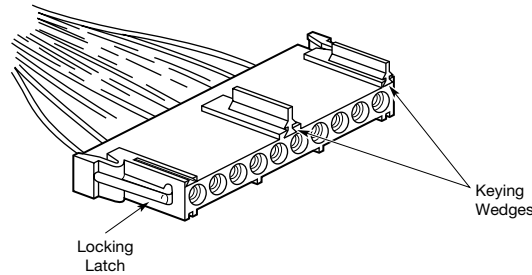
Contacts—pages 9101-9103, 9109, 9116, 9117

Keying Plug—See Below

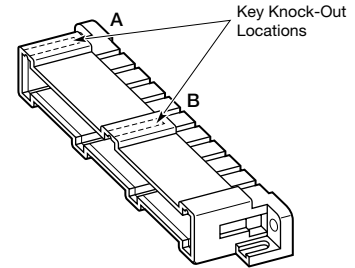
Dimensional Specifications—pages 9248 and 9249

Performance Characteristics—page 9223

Plug Housing
(Accepts Socket Contacts)



Right-Angle Pin Header



No. of Positions	In-Line Connector Plug Part No.*	Right-Angle Pin Header		
		Contact Plating	Standard Part Numbers	Keyed Part Numbers
6	208117-1	Tin	208116-1***	—
10	208404-1	Tin	208403-1	1-208403-1 ¹ 2-208403-1 ²
19	208100-1	Tin	208099-1	—
		Gold**	212630-1	—

*Housing only, **order contacts separately.**

**Duplex plated 0.00076 [.000030] gold on mating end, tin-lead on termination end, with entire contact nickel underplated.

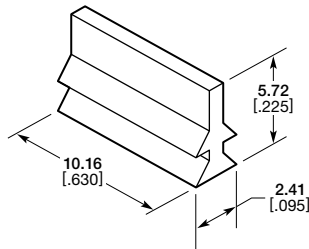
***Longer tail version also available.

¹Location A knocked out.

²Location B knocked out.

Keying Wedge

Part Number 208400-1



Keying Plugs

Keying Plugs

(for use with all types)

Material:

Nylon

Related Product Data:

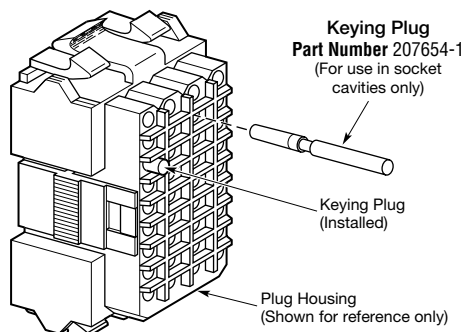
Used with:

Square Grid Connectors—pages 9236 and 9239

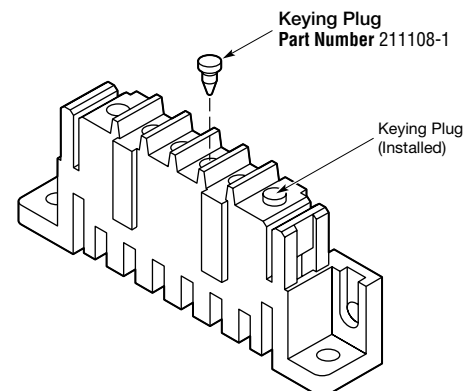
In-Line Connectors—pages 9242 and 9244

Drawer Connectors—pages 9226 and 9227

For Plug Housings



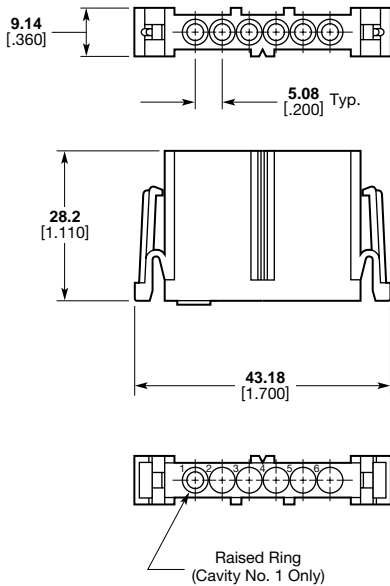
For Socket Headers



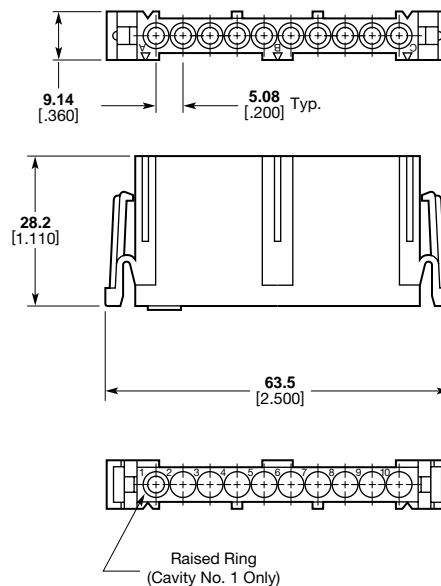
For complete product information, order Catalog 82045

In-Line Connectors, 5.08 [.200] Centerline Specifications

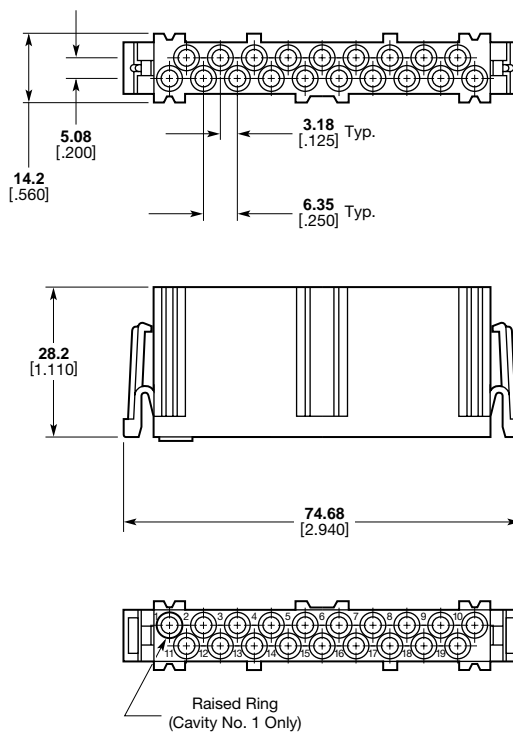
6 Position Plug Housing (for Sockets)



10 Position Plug Housing (for Sockets)



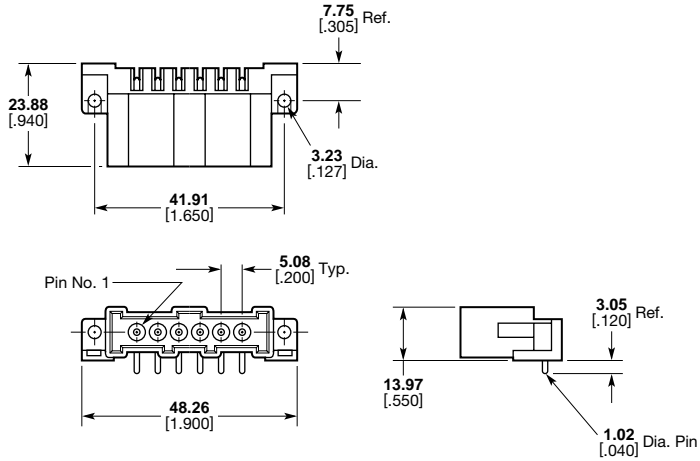
19 Position Plug Housing (for Sockets)



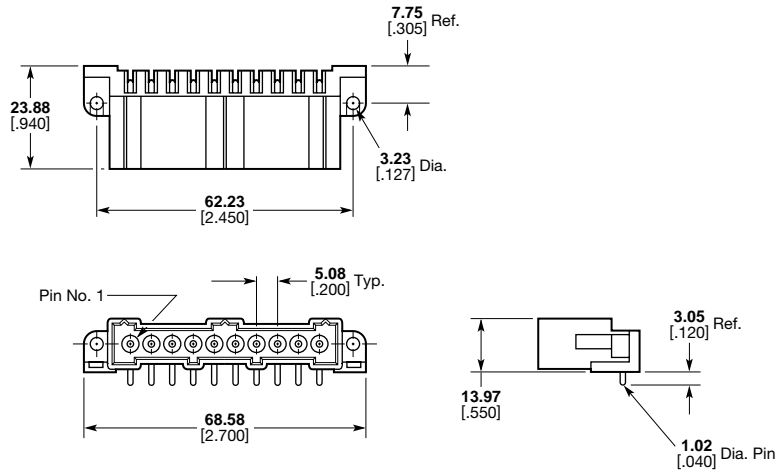
For complete product information, order Catalog 82045

In-Line Right-Angle Pin Headers, 5.08 [.200] Centerline Specifications

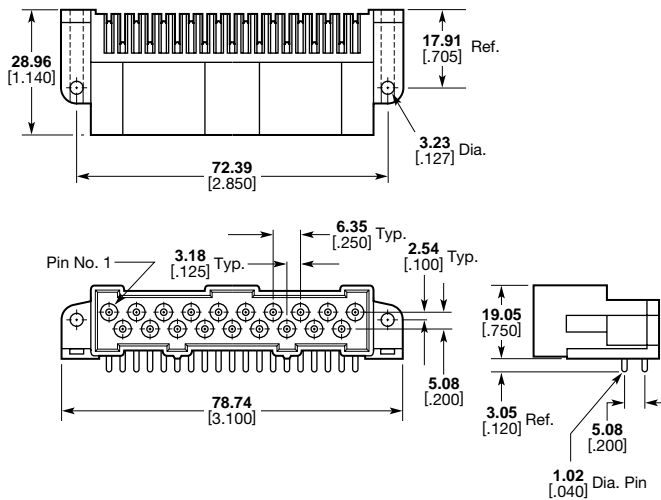
6 Position Header



10 Position Header



19 Position Header



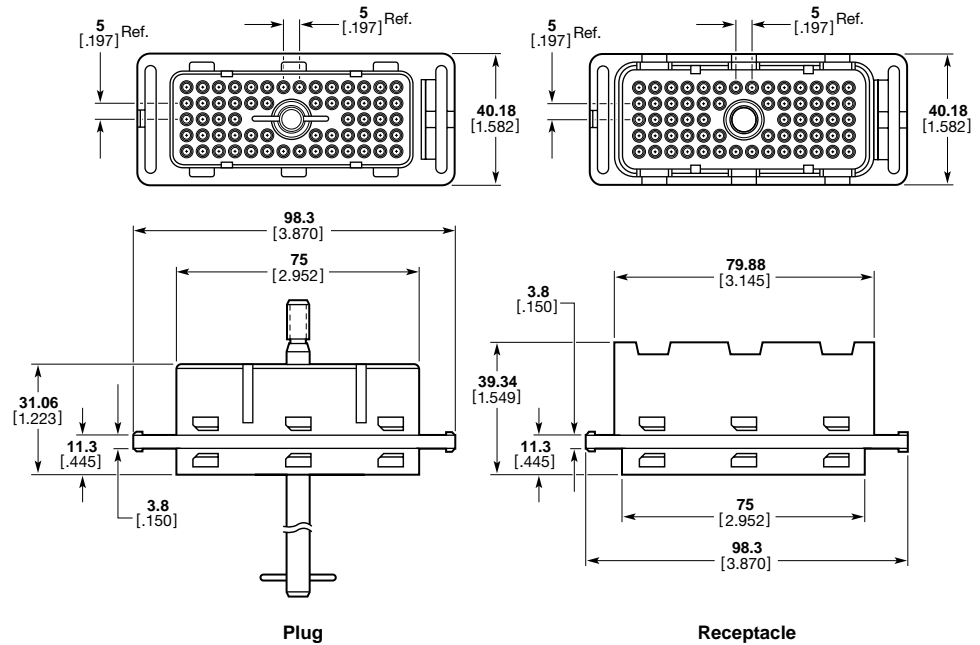
For complete product information, order Catalog 82045

Rectangular Connectors

62-Position Rectangular Connector (Panel Mount)

Material:

Black thermoplastic, 94V-0 rated



Rectangular Connectors

Mating Half	With Male Jackscrew	With Female Jackscrew Threads	Header
Plug	208334-4 ¹	208627-1 ²	211580-2
Receptacle	208628-1	208333-1	211580-2 211580-3

¹ Mates with Part Number 211580-2 or 211580-3.

² Mates with Part Number 208628-1.

Note: Housings shown with jackscrew in plug and female jackscrew threads in receptacle. Either half can be equipped with female jackscrew threads or jackscrew as necessary.

For complete product information, order Catalog 82045

Rectangular Connectors

Strain Relief Kit (for Rectangular Connectors, 62 Position)

Material:

Red thermoplastic, 94V-0 rated

Related Product Data:

Mateable Connectors—page 9250

Keying Plug—page 9247

Performance Characteristics—
page 9223

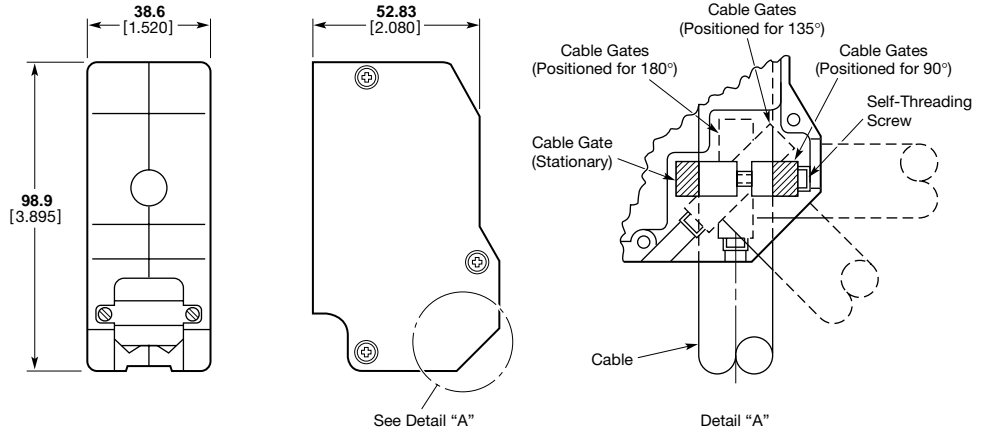
Technical Documents:

Product Specification

108-10033

Application Specification

114-10040



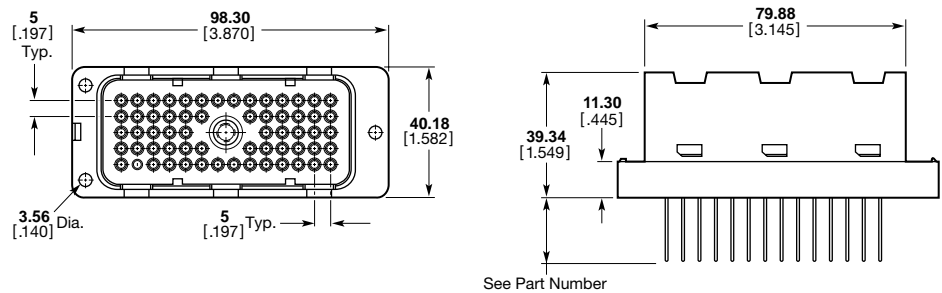
Part Number 208335-1
(for Plug or Receptacle)

62 Position PC Pin Headers (Mate with Plug Part Number 208334-4)

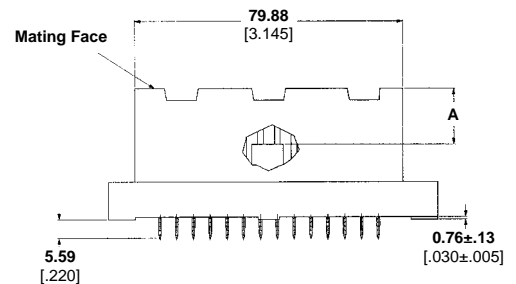
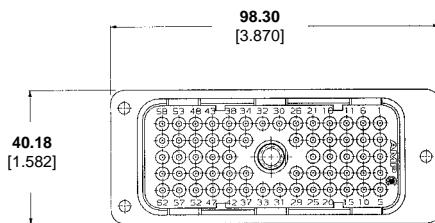
Material:

Housing—Polyester, black

Contacts—Brass (211580) or
phosphor bronze (213788)



Part Number 211580-2 with 19.76 [.778] Posts
Part Number 211580-3 with 3.56 [.140] Posts



Part Number 213788-2
with ACTION PIN Posts

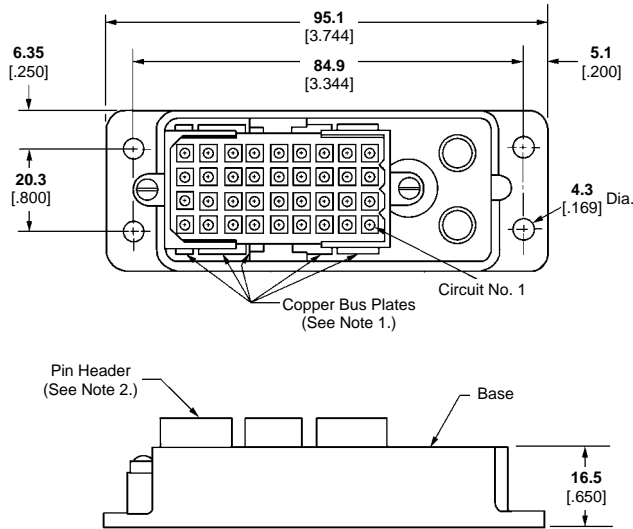
For complete product information, order Catalog 82045

Commoning Connectors

Product Facts

- 36-circuit commoning system
- Choice of bussing configurations: full bus and split bus of 8-8-8-8-4. Other arrangements are available, consult Tyco Electronics
- Compact design: 95.1 [3.744] x 33 [1.300]
- Mounts onto machine frame and other panel areas

Material and Finish:
Contacts—Copper alloy, tin plated



- Notes:** 1. See chart below for bus configurations.
2. These connectors mate with 36-circuit rectangular plug **Part Number** 207019-1 (page 9236).
3. Dimensional tolerances are not illustrated. This information is available on engineering drawings; use product part number when ordering drawings.

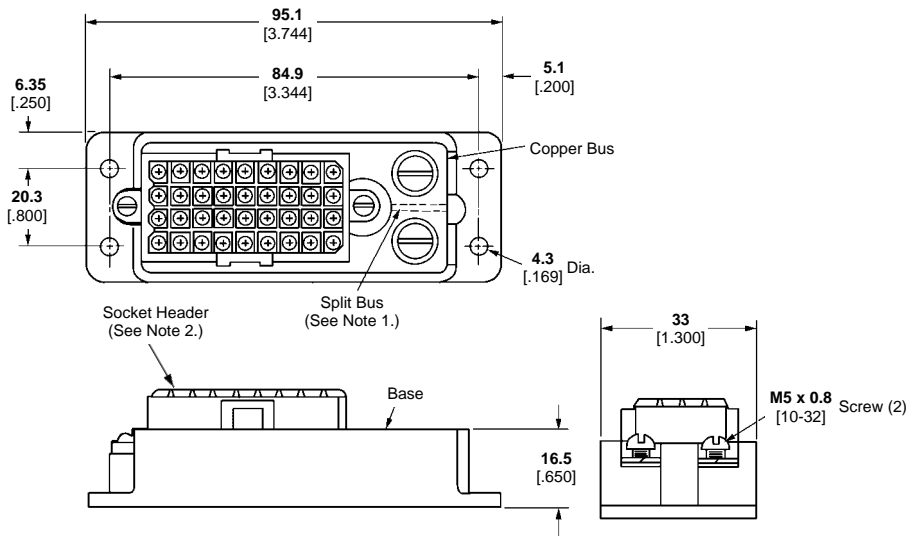
Bus Configuration	Commoning Arrangements	Part Numbers
Split 8-8-8-8-4	1 thru 8	208062-1
	9 thru 16	
	17 thru 24	
	25 thru 32	
	33 thru 36	
Full	All Circuits Common	208062-3

Power Distribution Connector

Product Facts

- 36-circuit power distribution system
- High current capability
- Compact design: 95.1 [3.744] x 33 [1.300]
- Accommodates one or two voltages (with split bus)

Bus Configuration	Contact Plating	Connector Part Number
Full Bus	Tin	208063-1



- Notes:** 1. Other bussing configurations can be made available, consult Tyco Electronics.
2. These connectors mate with 36-circuit rectangular receptacle **Part Number** 207020-1 (page 9236).
3. Dimensional tolerances are not illustrated. This information is available on engineering drawings; use product part number when ordering drawings.

For complete product information, order Catalog 82045

For complete product information, order Catalog 82045

Product Facts

- Low cost
- Available in popular 1-through 9-position sizes; in free-hanging and panel-mount versions
- Accepts all AMP Multimate contacts with .062 [1.57] pin diameter; Type III+ and subminiature coaxial contacts
- No mating hardware required
- Housings provide positive latching and polarization
- Discrete wire seals are factory installed, but replaceable
- Square flange design permits bulkhead mounting
- Easy contact insertion and extraction; no special fixturing required
- Rigid thermoplastic material is resistant to most hydrocarbons and will not flex or overstress contacts, UL 94V-2 rated
- Accommodates 18-14 AWG [0.8-2 mm²] wires; .080 to .135 [2.03 to 3.43] insulation diameters
- Machine applied terminations provide for highest production rates at lowest applied costs
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Produced under a Quality Management System certified to ISO 9001



A copy of the certificate is available upon request



AMP Econoseal Connectors fill a growing need for small, inexpensive sealed circular connectors, especially for the automotive, trucking, RV (recreational vehicle) and off-road equipment industries. They eliminate many problems inherent to soft rubber sealed connectors, such as difficulty in assembly, electrical failures due to flexing, and difficulty in mating and unmating.

For optimum versatility, Econoseal Connectors employ Multimate contact cavities, offering a choice of reliable AMP Multimate Type III+ contacts for single-conductor wire and

AMP subminiature COAXICON contacts for coaxial terminations.

Connectors are available in a wide range of popular sizes, from 1 to 9 positions, and with housing styles for free-hanging and panel-mount applications. Both the front and back of the housing have numbered contact cavities. Plug housings feature a retention ring with gripping ribs, a shallow mating face, conductor seals, as well as a sealing rim. Receptacle housings have two locking tabs, polarizing slots, a deep mating face, conductor seals and a peripheral sealing ring.

Performance Characteristics:

- Raintightness** — 75 megohms min. insulation resistance per UL 514
- Insulation Resistance** — 75 meoghms (min.)
- Dielectric Withstanding Voltage (High Potential)** — 1200 volts, rms
- Operating Temperature Range** — -55°C to +105°C
- Contact Retention** — 10 lb [44 N] min.
- Contact Durability** — 500 cycles*, mating and unmating
- Housing Durability** — 50 cycles, mating and unmating
- Maintenance Aging** — Contacts and wire seals removed and reinserted 5 times
- Vibration** — 10 to 500 Hz
- Mechanical Shock** — 50 Gs
- Thermal Shock** — 10 cycles, -55°C to +105°C
- Temperature Life** — 200 hr. @ 105°C
- Fluid Resistance** — Gasoline, diesel fuel, motor oil, antifreeze coolant, brake fluid and transmission fluid.

*500 cycles with gold plated contacts; 250 cycles with tin plated contacts.

Technical Documents:

Product Specifications

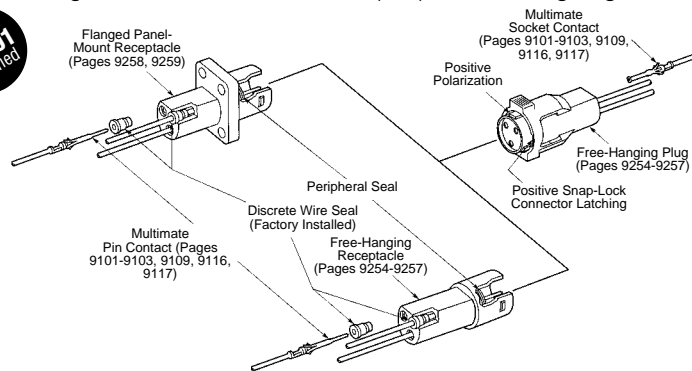
- 108-10030—Connectors
- 108-10028—Contacts

Technical Report

P207-78—Versatility in a Sealed Connector

Instruction Sheet

408-7900—Econoseal Connectors



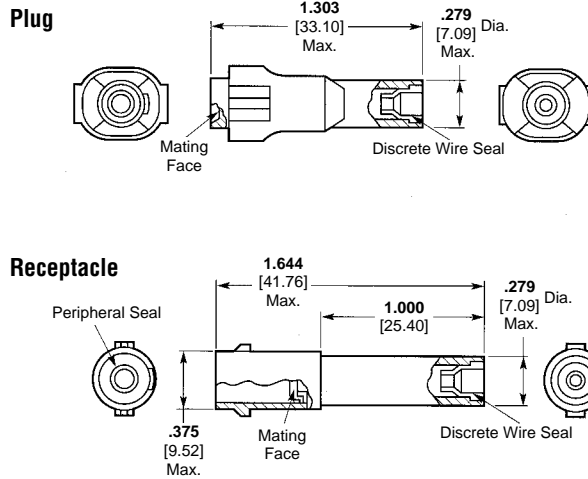
For complete product information, order Catalog 82057

Material Specifications:

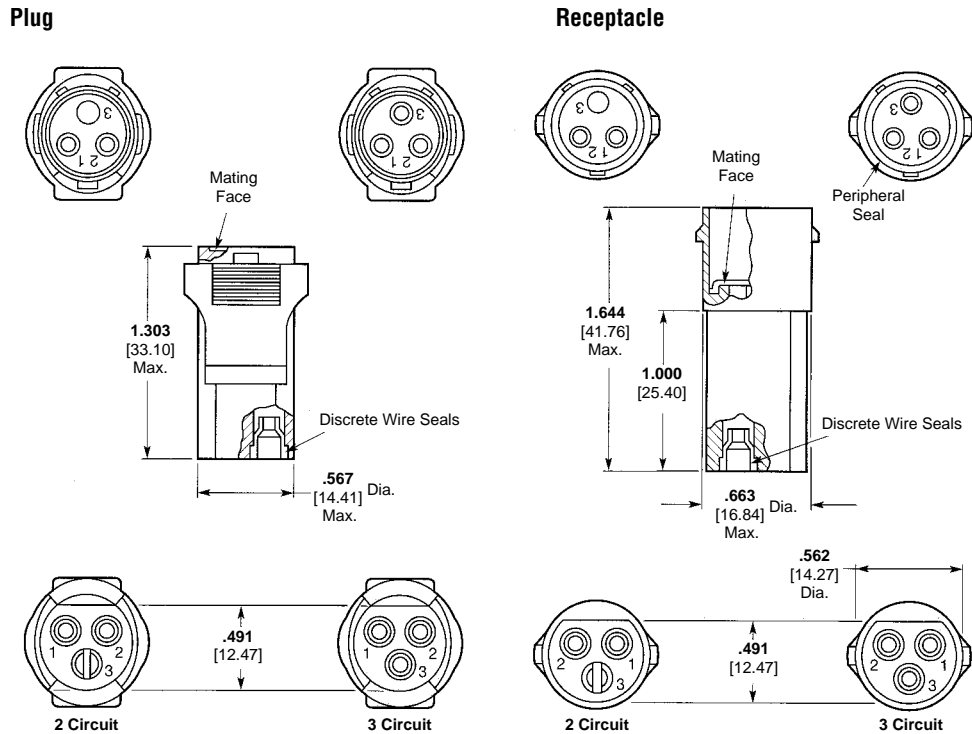
- Housings** — Thermoplastic, black
- Discrete Wire Seals and Peripheral Seals** — Elastomer, black

Free-Hanging Connectors

Single Circuit Housings



2- and 3-Circuit Housings



Notes:

- Housing material is black thermoplastic.
- Plugs accept socket contacts; receptacles accept pin contacts. **All contacts must be purchased separately: Multimate Contacts**
Type III+ (18-14 AWG)—pages 9101-9103, 9109
Subminiature Coaxial—pages 9116, 9117
- Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.

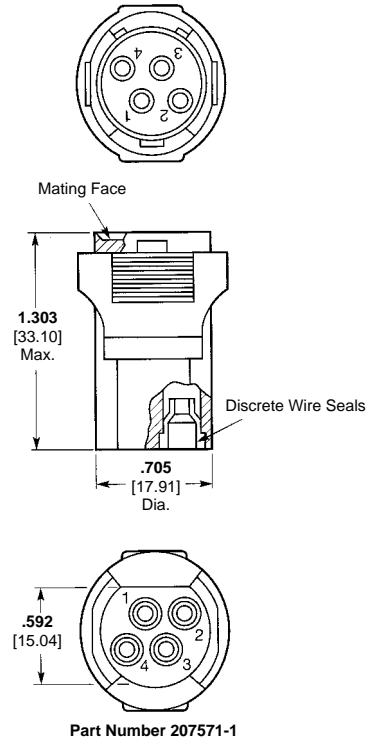
No. of Positions	Plug Part Numbers	Receptacle Part Numbers	Plug also Mates with Flanged Receptacle Part Numbers
1	207901-1	207902-1	207982-1 (page 9258)
2	207845-1	207846-1	207853-1 (page 9258)
3	207567-1	207563-1	207807-1 (page 9258)

For complete product information, order Catalog 82057

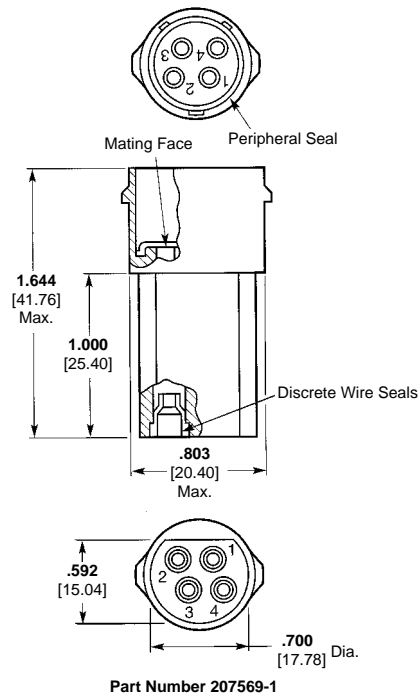
Free-Hanging Connectors

4-Circuit Housings

Plug



Receptacle



Notes:

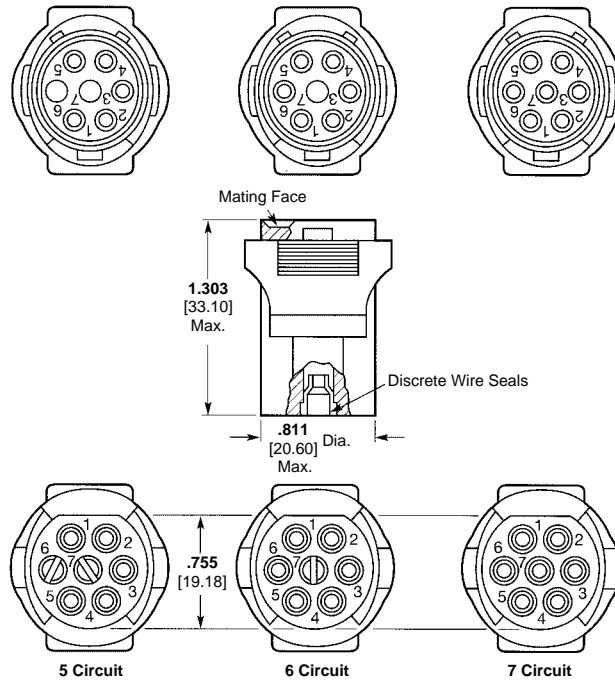
1. Housing material is black thermoplastic.
2. Plugs accept socket contacts; receptacles accept pin contacts.
All contacts must be purchased separately:
Multimate Contacts
Type III+ (18-14 AWG)—pages 9101-9103, 9109
Subminiature Coaxial—pages 9116, 9117
3. Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.
4. Plug shown above also mates with flanged panel mount receptacle, Part Number 207808-1 (page 9258).

For complete product information, order Catalog 82057

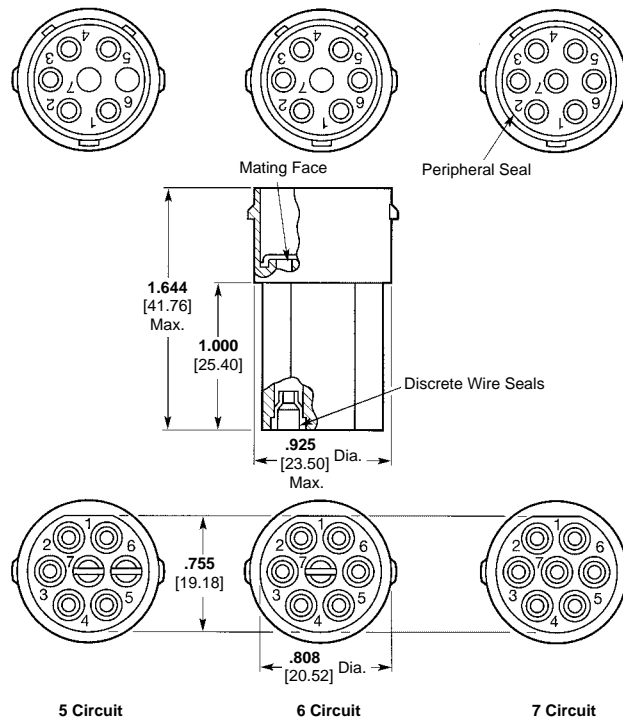
Free-Hanging Connectors

5-, 6- and 7-Circuit Housings

Plug



Receptacle



Notes:

- Housing material is black thermoplastic.
- Plugs accept socket contacts; receptacles accept pin contacts. **All contacts must be purchased separately: Multimate Contacts**
Type III+ (18-14 AWG)—pages 9101-9103, 9109
Subminiature Coaxial—pages 9116, 9117
- Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.

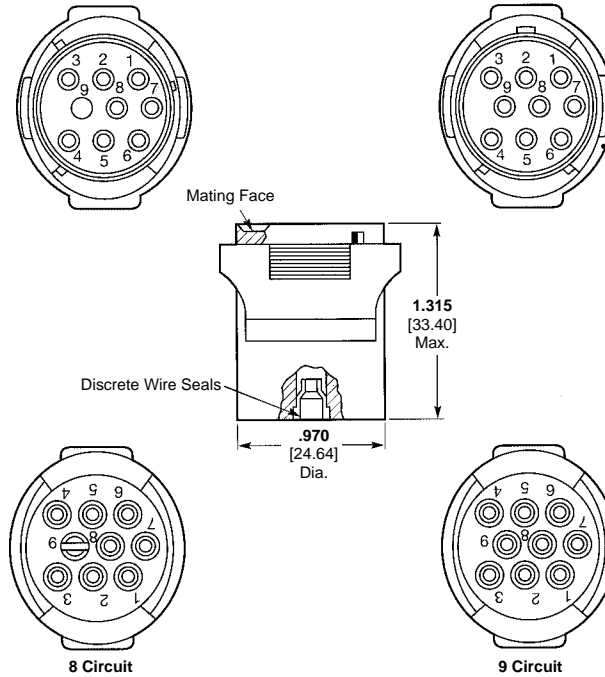
No. of Positions	Plug Part Number	Receptacle Part Number
7	207575-1	207573-1

For complete product information, order Catalog 82057

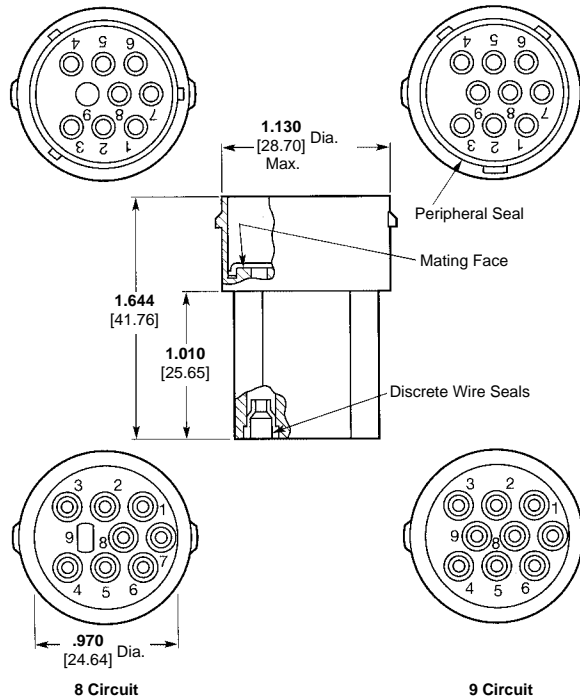
8- and 9-Circuit Housings

Free-Hanging Connectors

Plug



Receptacle



Notes:

1. Housing material is black thermoplastic.
2. Plugs accept socket contacts; receptacles accept pin contacts.

All contacts must be purchased separately:
Multimate Contacts

Type III+ (18-14 AWG)—pages 9101-9103, 9109
 Subminiature Coaxial—pages 9116, 9117

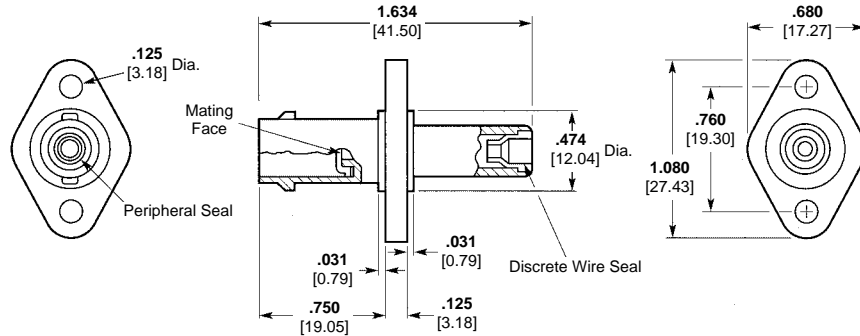
3. Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.

No. of Positions	Plug Part Numbers	Receptacle Part Numbers	Plug also Mates with Flanged Receptacle Part Numbers
8	208678-1	211068-1	208677-1 (page 9259)
9	208530-1	208538-1	208546-1 (page 9259)

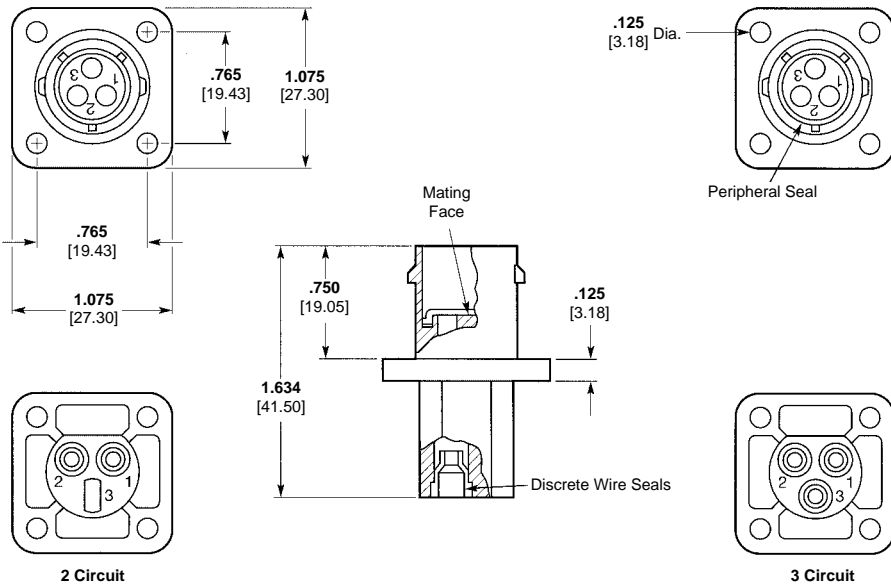
For complete product information, order Catalog 82057

Flanged Connectors — Panel Mount

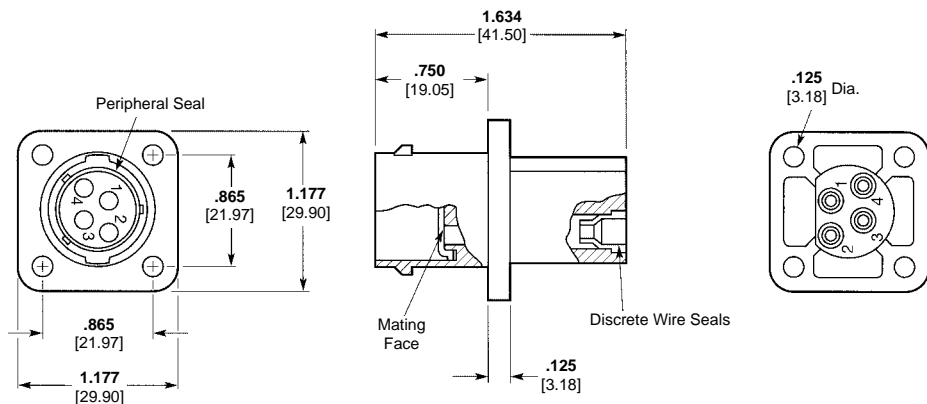
Single Circuit Receptacle Housing



2- and 3-Circuit Receptacle Housings



4-Circuit Receptacle Housing



Notes:

- Housing material is black thermoplastic.
- Housings shown above accept pin contacts. **All contacts may be purchased separately:**

Multimate Contacts

Type III+ (18-14 AWG)—pages 9101-9103, 9109
 Subminiature Coaxial—pages 9116, 9117

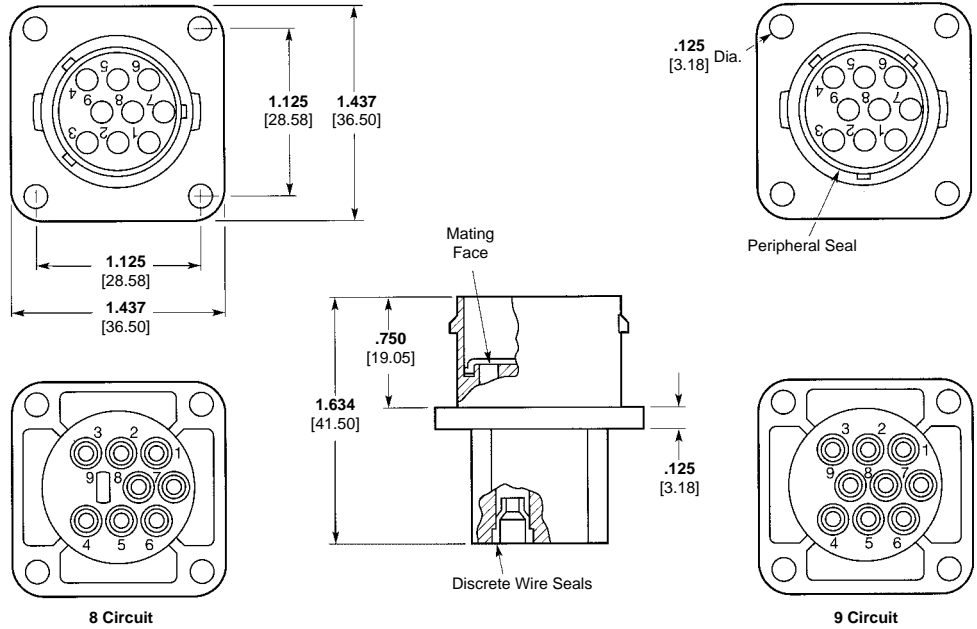
- Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.

No. of Positions	Flanged Receptacle Part Numbers	Flanged Receptacle Mates with Plug Part Numbers
1	207982-1	207901-1 (page 9254)
2	207853-1	207845-1 (page 9254)
3	207807-1	207567-1 (page 9254)
4	207808-1	207571-1 (page 9255)

For complete product information, order Catalog 82057

Flanged Connectors — Panel Mount

8- and 9-Circuit Receptacle Housings



Notes:

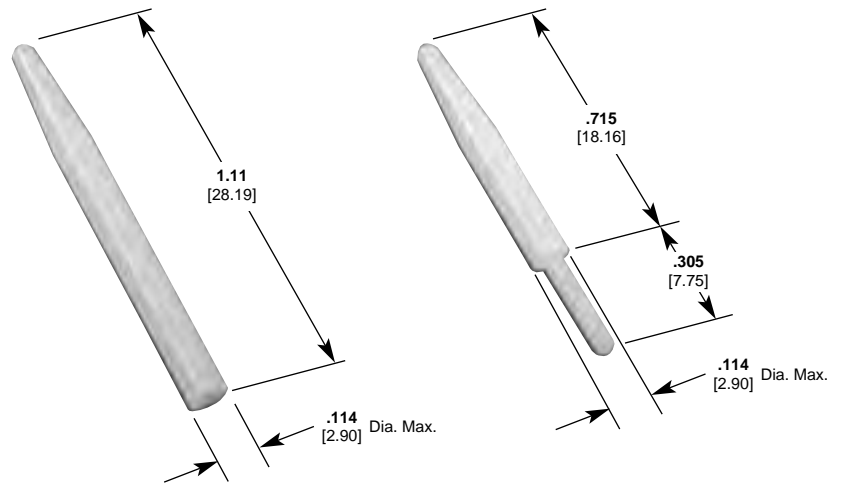
1. Housing material is black thermoplastic.
2. Plugs accept socket contacts; receptacles accept pin contacts. **All contacts may be purchased separately:**
Multimate Contacts
 Type III+ (18-14 AWG)—pages 9101-9103, 9109
 Subminiature Coaxial—pages 9116, 9117
3. Discrete wire seals are factory installed, but can be replaced. Use **Part Number 207565-2** when ordering individual discrete wire seals.

No. of Positions	Flanged Receptacle Part Numbers	Flanged Receptacle Mates with Plug Part Numbers
8	208677-1	208678-1 (page 9257)
9	208546-1	208530-1 (page 9257)

Assembly Accessories

Seal Protectors

Recommended to aid contact insertion through the wire entry seal. They are reusable.



Part Number 208337-1
Insert Pins

Part Number 208338-1
Insert Sockets

For complete product information, order Catalog 82057

Engineering Notes




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BNC connectors offer easy engagement and disengagement using bayonet couplings and overlapping dielectrics. They are most useful for frequently coupled and uncoupled RF connections with frequencies below 4 GHz. BNC connectors find applications in flexible networks, instrumentation, and computer peripheral interconnections.

TNC connectors have an interface similar to BNC except for a threaded coupling nut. The tighter fit provided by this screw-on connection improves interface control allowing connectors to operate up to 11 GHz. TNC connectors are excellent for mobile units or aircraft where top-notch performance is required under vibration.

F & G Series connectors offer enhanced performance beyond 1 GHz. Designed to meet the rigorous requirements of Bellcore TA-NWT-001503 and SCTE specifications, the F & G series provides high current carrying capabilities in both sealed and un-sealed configurations. Plugs, jacks and adapters are available in threaded and push-on versions. These connectors meet the evolving needs of the communications industry for increased reliability and performance.

SMB connectors feature a snap coupling for fast connection. A self centering outer spring and overlapping dielectric allows easy snap-on and excellent performance even in moderate vibration. The SMB is smaller in size than the SMA and excellent where engineers are concerned about circuit miniaturization. Typical application is inter- or intra-board connection of RF or digital signals. Commercial 50 ohm versions operate to 4 GHz, and 75 ohm versions reach 2 GHz.

SMA threaded connectors are widely used in avionics, radar and microwave communications and instrumentation. Connectors operate to at least 12.4 GHz on flexible coax cables, and up to 26.5 GHz on semi-rigid coax cables. Crimp-on SMA connectors that operate to 26.5 GHz are available.

MCX connectors offer a high reliability, space saving sub-miniature coaxial cable to cable and cable to board interconnection system. The MCX connectors impedance types are applicable up to 6 GHz.

Blind Mate connectors operate to 22 GHz for OSP, 26.5 GHz for 3.5 mm, 28 GHz for OSSP, and 40 GHz for 2.8 mm and OSMP styles. These connectors offer easy slide-on connection and require less alignment between the cable and the equipment than other connectors with comparable band width. Blind Mate connectors are widely used as coaxial interconnects between plug-in modules and motherboards when axial and radial misalignments are necessary.

N Series threaded connectors have an air dielectric interface, are low cost and are available in 50 and 75 ohm impedance types. These connectors operate to 11 GHz and are commonly used in cable-based local-area networks (LAN's) medium power transmitters, test equipment, and base station antenna applications.

Surface Mount (SMT) connectors. The RF solution to the communication and information age. These connectors (OSMT,SSMT and SMT Quick Grip) are designed to meet the growing demand for surface mount RF connector technology. These connectors operate up to 6 GHz utilizing cable assembly design to terminate to SMT connectors. Surface mount connectors contribute to high density packaging and high volume manufacturing requirements.

For complete product information, order Catalog 1307191

Product	Nominal Impedance Ohms	Maximum Frequency GHz	Temperature Rating C	Cable Retention		Coupling Mechanism	Maximum Peak Voltage	Durability Cycles	Connector Body Finish	Page No.
				lb	[N]					
BNC Single Crimp	50	2.5	-65° to +165°	60 (RG-58C/U)	266.9	Bayonet	500	500	Silver or Nickel	10004
BNC Dual Crimp	50	4	-65° to +165°	60 (RG-58C/U)	266.9	Bayonet	500	500	Silver or Nickel	10004
BNC Dual Crimp Commercial	50	4	-55° to +85°	60 (RG-58C/U)	266.9	Bayonet	500	500	Nickel	10004
BNC Hex Crimp	50	4	-55° to +85°	60 (RG-58C/U)	266.9	Bayonet	500	500	Nickel	10004
BNC Field Serviceable	50	4	-65° to +165°	40 (RG-142B/U)	177.9	Bayonet	500	500	Nickel	10004
BNC 75 Ohm	75	2	-65° to +85°	60 (RG-59B/U)	266.9	Bayonet	500	500	Nickel	10004
TNC Single Crimp	50	7	-65° to +165°	60 (RG-58C/U)	266.9	Threaded	500	500	Silver	10019
TNC Dual Crimp	50	11	-65° to +165°	60 (RG-58C/U)	266.9	Threaded	500	500	Silver or Nickel	10019
TNC Commercial	50	7	-55° to +85°	60 (RG-58C/U)	266.9	Threaded	500	500	Nickel	10019
TNC 75 Ohm	75	2	-55° to +85°	60 (RG-59B/U)	266.9	Threaded	500	500	Nickel	10019
N Series Mil Type	50	11	-65° to +165°	90 (RG-214/U)	400.3	Threaded	1000	500	Silver or Nickel	10020
N Series Commercial	50	11	-65° to +85°	90 (RG-214/U)	400.3	Threaded	1000	500	Nickel	10020
F Series	75	—	-55° to +85°	40 (Series 59, 6, 7 Single Braid)	—	Threaded (F)	500	200	Nickel	10035
G Series	75	—	-55° to +85°	40 (Series 59, 6, 7 Single Braid)	—	Push-On (G)	500	200	Nickel	10035
SMA Semi-Rigid	50	26.5	-65° to +105°	60 (RG-402/U)	266.9	Threaded	500	500	Gold or Passivated Stainless Steel	10036
SMA Flexible	50	12.4	-65° to +165°	40 (RG-58C/U)	177.9	Threaded	500	500	Gold or Passivated Stainless Steel	10036
Blind Mate 3.5 mm	50	26.5	-65° to +105°	60 (RG-402/U)	266.9	Slide-On	335	500	Passivated Stainless Steel	10062
Blind Mate 2.8 mm	50	26.5	-65° to +105°	30 (RG-405/U)	133.4	Slide-On	—	500	Gold	10062
OSP Semi-Rigid	50	22	-65° to +125°	60 (RG-402/U)	267.02	Push-On	500	5000	Gold or Passivated Stainless Steel	10063
OSP Flexible	50	12.4	-65° to +125°	40 (RG-58/U)	178	Push-On	335	5000	Gold or Passivated Stainless Steel	10063
OSSP Semi-Rigid	50	28	-65° to +125°	20 (RG-405/U)	89	Push-On	335	5000	Gold or Passivated Stainless Steel	10064
OSSP Flexible	50	—	-65° to +125°	20 (RG-316/U)	89	Push-On	250	5000	Gold or Passivated Stainless Steel	10064
SMB	50	4	-65° to +85°	20 (RG-316/U)	89	Snap-On	335	500	Nickel	10050
MCX Connectors	50	6	-65° to +165°	20 (RG-316/U)	32	Snap-On	500	500	Nickel	10062
	75	6	-65° to +165°	20 (RG-187/U)	32	Snap-On	500	500	Nickel	10062
Twin BNC	Non-constant	—	-55° to +85°	25 (RG-108/U)	111.2	Bayonet	500	200	Silver or Nickel	10029
OSMT	50	6	-40° to +105°	Omni-Flex	—	Snap-On	250	100	Gold	10067
SMT Quick Grip	50	3	-40° to +125°	Omni-Flex	—	Snap-On	250	5	Gold	10068
MMCX	50	6	-55° to +155°	10 (RG-178/U)	44.5	Snap-On	500	500	Gold	10069
OSMP	50	40	-65° to +165°	20 (RG-405/U)	89	Snap-On	500	100	Gold	10066

10 RF Coax Connectors

For complete product information, order Catalog 1307191

Product Facts

- Bayonet lock coupling for quick connect/disconnect
- Various connectors available in 50 and 75 ohm versions
- Fully intermateable with comparable BNC UG/U connectors
- Full range of Hex Crimp and O Crimp Products for common coaxial cables.
- Low VSWR
- Single crimp connectors offer one crimping operation for fast application
- Twist-on connectors require no special tooling for application to the cable
- Field serviceable (Category A) connectors qualified to MIL-C-39012
- Field replaceable (Category C) plugs with captivated center contact
- Field replaceable plugs can be terminated with industry standard tooling
- Tarnish resistant Nickel finish available
- Choice of different dielectrics
- Listed under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- PC Board soldered connectors are recognized under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association File No. LR 7189 



The AMP BNC RF connector family with bayonet locking coupling provides highly reliable, quick connect / disconnect coaxial connections. Exclusive single and O crimp terminations allow positive insulation grip and require no soldering, providing terminations at a very low overall applied cost.

Available in both 50 and 75 ohm versions, these connectors feature

numerous styles including cable plugs and jacks, adapters and printed circuit board connectors. In addition to a variety of crimp type terminations, connectors are furnished in field replaceable and twist-on styles. These connectors accept a wide range of coaxial cables and are intermateable with industry standard connectors designed to MIL-C-39012 specifications.

Tyco Electronics can also supply low cost alternatives with an extensive commercial type product line. A lower cost consumer series product offers the capability to supply center contacts in strip form and allow for automated center contact crimp technology. All connectors are designed around the mil-specifications, but utilize low-cost materials, offering comparable mechanical and electrical performance.

Related Product Data:

Product Specifications

- 108-1275 — BNC Ohm Terminators
- 108-12020 — BNC O Crimp Connectors
- 108-12044 — BNC Commercial Hex Crimp
- 108-12047 — BNC Commercial and Hex Crimp Connectors
- 108-12074 — BNC Solder Jacks
- 108-12075 — BNC Connectors (Category A)
- 108-12078 — BNC Commercial PCB Panel-Mount Jacks

- 108-12002 — BNC Commercial T Adapter
- 108-12095 — BNC Commercial 75 Ohm Connectors
- 108-12096 — BNC Commercial Feed-Thru and Bulkhead Adapters
- 108-12079 — BNC Commercial 50 Ohm Solder Jacks
- 108-12103 — BNC Commercial PCB Press Fit Jacks

Application Specifications

- 114-12001 — BNC Commercial PCB Jack Press Fit

Performance Specifications

Page 10005

Material Specifications

Page 10006

Tooling — Pages 10076,10077

Military Category — All mil type O crimp connectors are Category B Type (AMP Crimp Tooling), unless otherwise noted.

Packaging — All Mil Type connectors are packaged individually, all O crimp connectors are bulk packaged and all Hex crimp connectors are individually packaged unless otherwise noted.

For complete product information, order Catalog 1307191

Performance Specifications

Characteristics	Single Crimp (Mil Type)	Category B O Crimp (Mil Type)	Straight Solder Clamp	Right Angle Solder Clamp	Commercial O Crimp & Hex Crimp 50 Ohms	Commercial O Crimp & Hex Crimp 75 Ohms	Commercial PC Board 50 & 75 Ohms	Commercial Solder 50 Ohm Jacks
Electrical								
Impedance, Nom. (Ohms)	50	50	50	50	50	75	50 & 75	50 & 75
Working Voltage (Volts RMS)	500	500	500	500	500	500	500	500
Contact Resistance (Milliohms)	Inner: 1.5 Outer: 0.3	Inner: 1.5 Outer: 0.2	Inner: 1.5 Outer: .20	Inner: 1.5 Outer: .20	Inner: 2.0 Outer: 1.0	Inner: 2.0 Outer: 2.0	Inner: 6/1.5 Outer: 3/0.2	Inner: 2.75 Outer: 1.0
Initial Insulation Resistance (Megohms)	5000	5000	5000	5000	5000	5000	5000	5000
Dielectric Withstanding Voltage (VAC)	1500	1500	1500	1500	1500	1500	1500	1500
Corona Level at 70,000 ft. (Volts, RMS)	375	375	375	375	375	375	—	375
RF Leakage, Max. (dB)	—	-55 at 2-3 GHz	-55 at 2-3 GHz	-55 at 2-3 GHz	-55 at 2-3 GHz	-55 at 1-2 GHz	—	—
RF Insertion Loss, Max. (dB)	—	0.2 at 3 GHz	0.2 at 3 GHz	0.3 at 3 GHz	0.2 at 3 GHz	0.15 at 2 GHz	—	—
Frequency Range (GHz)	0-2.5	0-4	0-4	0-4	0-4	0-2	0-4 and	0-4
VSWR in Frequency Range Max.	1.35	1.30	1.30	1.35	1.30	1.30	—	—
Mechanical								
Force to Engage (lbs. [N])/couple, (in-lbs. [N•m]) max.	13.3/11.12 [3/2.5]	13.3/11.12 [3/2.5]	13.3/.028 [3/2.5]	13.3/.028 [3/2.5]	26.7/26.69 [6/6.0]	26.7/26.69 [6/6.0]	—	—
Coupling Nut Retention, Min. N [lbs.]	444.8 [100]	444.8 [100]	444.8 [100]	444.8 [100]	266.9 [60]	266.9 [60]	—	—
Cable Retention, N [lbs.]	266.9 [60] (RG58C/U)	266.9 [60] (RG58C/U)	177.9 [40] (RG58C/U)	177.9 [40] (RG58C/U)	266.9 [60] (RG58C/U)	266.9 [60] (RG58C/U)	266.9 [60] (PCB Ret)	—
Durability (Cycles)	500	500	500	500	500	500	500	500
Jam Nut Mounting Torque, Max. [N•m] (in. lbs.)	25 [2.8]	25 [2.8]	25 [2.8]	—	25 [2.8]	25 [2.8]	25 ³ /12 ⁴ [2.8/1.4]	25 [2.8]
Environmental								
Temperature Range, Operating (C°)	-65 to +85	-65 to +165 ¹ -55 to +85 ²	-65 to +165	-65 to +165	-55 to +85	-55 to +85	-55 to +85	-65 to +165
Vibration	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 204 Cond. B	MIL-STD-1344 Method 2005 Cond. III	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 201A	MIL-STD-202 Method 204 Cond. B
Physical Shock	MIL-STD-202 Method 213 Cond. G, 50 G's	MIL-STD-202 Method 213 Cond. G, 50 G's	MIL-STD-202 Method 213 Cond. G	MIL-STD-202 Method 213 Cond. G	MIL-STD-1344 Method 2004 Cond. G, 100 G's	MIL-STD-202 Method 213 Cond. I, 100 G's	MIL-STD-202 Method 213 Cond. I or A, 50 G's	MIL-STD-202 Method 213 Cond. I, 100 G's
Thermal Shock	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-1344 Method 1003 Cond. A	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-202 Method 107
Moisture Resistance	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-1344 Method 1002 Type II	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106
Salt Spray	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-1344 Method 1001 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B
Product Specification	108-12002	108-12020	—	—	108-12044 108-12047	108-12095	108-12078	108-12079

¹ Assembled to cable with polytetrafluorethylene dielectric.

² Assembled to cable with polyethylene dielectric.

³ For Metal Threads

⁴ For Polyester Threads

For complete product information, order Catalog 1307191

Performance Specifications

Connector Component	Single Crimp (Mil Type)	Category B & C O Crimp (Mil Type)	Straight Solder Clamp	Right Angle Solder Clamp	Commercial O Crimp Hex Crimp & Terminators	Commercial PCB Solder	Commercial PCB Press Fit	Commercial Solder Ohm Jacks	Adapters
Connector Material									
Collar	Brass QQ-B-626	Brass QQ-B-626	Brass	Brass	Brass QQ-B-626 Zinc QQ-Z-363	—	—	—	Brass QQ-B-626
Outer Contact (Plug)	Brass QQ-B-626 Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-750	Brass	Brass	Brass MIL-C-21768	—	—	—	Brass QQ-B-626 Beryl. Copper QQ-C-530
Shell (Jack)	Brass QQ-B-626	Brass QQ-B-626	Brass	—	Zinc QQ-Z-363	Zinc QQ-Z-363	Zinc Zinc QQ-Z-363	QQ-Z-363 Brass QQ-B-626	Brass QQ-B-626
Dielectric	TEFLON MIL-P-19468 Polypropylene Gen. Purpose	TEFLON MIL-P-19468	TEFLON	TEFLON	Polyethylene Polypropylene Polymethylpentene Gen. Purpose	Polymethylpentene Gen. Purpose ¹	TEFLON MIL-P-19468	TEFLON MIL-P-19468 Polyester PBT MIL-P-24519	TEFLON MIL-P-19468 Polypropylene, Gen. Purpose
Center Contact (Plug)	Brass QQ-B-626	Brass QQ-B-626	Brass	Brass	Brass QQ-B-626	—	—	—	Brass QQ-B-626 Beryl. Copper QQ-C-530
Center Contact (Jack)	Beryl. Copper ASTM-B-643 QQ-C-530	Beryl. Copper ASTM-B-643 QQ-C-530	Beryl. Copper	Beryl. Copper	Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-750	Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-570 Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-570 Beryl. Copper QQ-C-530
Gasket	Silicon Rubber QQ-R-765	Silicon Rubber QQ-R-765	Silicon Rubber	Silicon Rubber	Silicon Rubber QQ-R-765	—	—	—	Silicon Rubber QQ-R-765
Ferrule	Copper QQ-C-576	Copper QQ-C-576	—	—	Copper QQ-C-576	—	—	—	—
Connector Primary Finishes²									
Collar	Silver QQ-S-365 Bright Nickel QQ-N-290	Silver QQ-S-365 Bright Nickel QQ-N-290	Silver/ Bright Nickel	Silver/ Bright Nickel	Bright Nickel QQ-N-290	—	—	—	Silver QQ-S-365 Bright Nickel QQ-N-290
Outer Contacts (Plug & Jack)	QQ-S-365 Gold	Silver QQ-S-365 Bright Nickel QQ-N-290	Silver/ Bright Nickel	Silver/ Bright Nickel	Bright or Matte Nickel QQ-N-290	Bright Nickel QQ-N-290	Bright Nickel QQ-N-290	Bright Nickel QQ-N-290	Silver QQ-S-365 Bright Nickel QQ-N-290
Center Contacts (Plug & Jack)	MIL-G-45204 Silver	Gold MIL-G-45204	Gold	Gold	Tin Lead ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Tin Lead ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Gold MIL-B-45204	Tin Lead ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Silver QQ-S-365 Gold MIL-G-45204
Ferrule ³	QQ-S-365	Silver QQ-S-365 Tin Lead ASTM-B-545	—	—	Tin Lead ASTM-B-545	—	—	—	—

¹ Several pc board connectors have an outer polyester PBT insulator per MIL-P-24519.

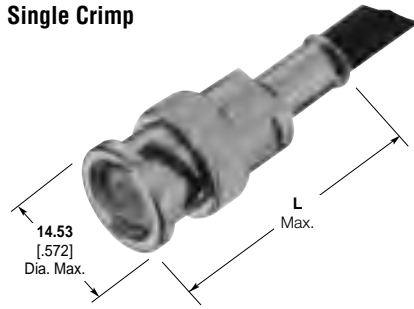
² If more than one finish is listed, refer to individual catalog page(s) or customer drawings for exact specification.

³ Ferrules with tin-lead finish are used with nickel plated outer contacts.

For complete product information, order Catalog 1307191

Plugs, Crimp

Single Crimp



Hex and O Crimp



RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
178, 178A, 178B, 196, 196A	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69245-4	—	69471	330876
	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-3	—	2-221128-1
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220009-5	318450-2	220217-3	1-227079-6
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	58559-1	—	414852-3
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	—	—	414915-3 ⁵
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	220009-1	—	220026-1	225395-7
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.18 1.188	220009-1	—	220026-1	2-331350-4
174, 188, 188A, 316	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69245-2	—	69422	2-330061-1
	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-3	—	2-221128-3
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220009-5	318450-2	220217-3	2-227079-2
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	220009-1	—	220026-1	225395-8
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.18 1.188	220009-1	—	220026-1	2-331350-5
179, 179A, 179B, 161, 187, 187A, Belden 9221	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69245-1	—	69408	2-329446-1
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	69477-4	58539-1	—	8-227079-2
	O Crimp	Gold	Nickel	TEFLON	Mil Type	38.10 1.500	69477-2	—	69669-2	5-225395-7
	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.44 1.395	69477-2	—	69669-2	225395-9
RD 316, 188, Double Braid	O Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-3	—	2-221128-5
	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.44 1.395	69477-2	—	69669-2	225395-9
Belden 8219	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	2-221128-7
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-1	58435-1 ¹	220217-1	6-227079-7 ³
Belden 9907, 89907 Comm/Scope 2104	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-1	318452-2	220217-1	6-227079-8 ⁴
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	69477-4	58539-1	58376-1	1-227079-9
Belden 8218	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	69477-2	—	69669-2	1-225395-0

¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.

² Order AMP PRO-CRIMPER Coaxial Hex Crimp Hand Tool assembly 58433-2, which includes dies 58436-1.

³ For use with Belden 9907, Comm/Scope 3104, Belden 8219 only.

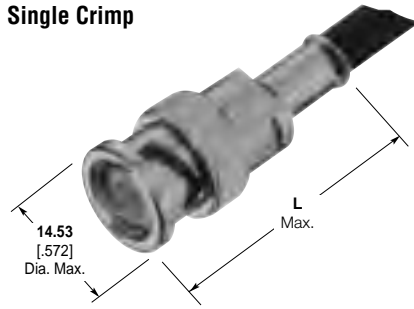
⁴ For use with Belden 89907, Comm/Scope 2104 only.

⁵ Kit includes connector subassembly and ferrule only, center contact **Part Number** 1-414724-0 supplied separately on strip. Terminate with AMP-O-LECTRIC terminating machine 220152-1 with applicator.

For complete product information, order Catalog 1307191

Plugs, Crimp

Single Crimp



Hex and O Crimp



RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
58, 58A, 58B, 58C	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	221128-1 ³
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-1	58435-1 ¹	220217-1	227079-5
	O Crimp	Silver	Nickel	Polyethylene	Commercial	27.69 1.090	220187-1	58435-1 ¹	220217-1	227079-9
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	58558-1	—	414852-1
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	—	—	414915-1 ^{4,5}
	O Crimp	Gold	Nickel	TEFLON	Mil Type	33.74 1.328	69478-1	220189-3	69727	225395-1
	O Crimp	Gold	Silver	TEFLON	Mil Type	33.74 1.328	69478-1	220189-3	69727	2-331350-1
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69140-1	—	69223-1	2-329444-1
141, 141A, 303	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	69478-1	220189-3	69727	225395-5
Belden 88240, Berk-Tek BTDC-58, Comm/Scope 2135	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	1-221128-0
	O Crimp	Gold	Nickel	Polyethylene	Commercial	33.33 1.312	220187-1	58435-1 ¹	220217-1	4-227079-3
	O Crimp	Gold	Nickel	TEFLON	Mil Type	33.33 1.312	69478-1	220189-3	69727	4-225395-2
223, 55, 55A, 55B	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.280	220187-1	58435-1 ¹	220217-1	227079-6
	O Crimp	Gold	Nickel	TEFLON	Mil Type	43.64 1.718	69478-1	220189-3	69727	225395-3
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69140-2	—	69424	2-329444-2
142, 142A, 142B, 400	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-1	58435-1 ¹	220217-1	6-227079-1
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	69478-1	220189-3	69727	225395-6
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.18 1.188	69478-1	220189-3	69727	2-331350-9
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69331-1	—	69429-1	2-330358-2

Consult Tyco Electronics for recommended crimp tooling.

¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.

² Order AMP PRO-CRIMPER Coaxial Hex Crimp Hand Tool assembly 58433-2, which includes dies 58436-1.

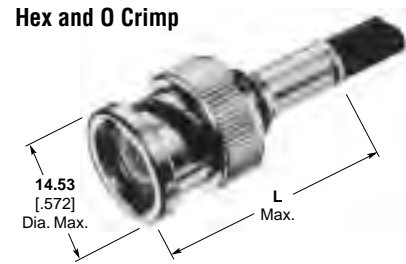
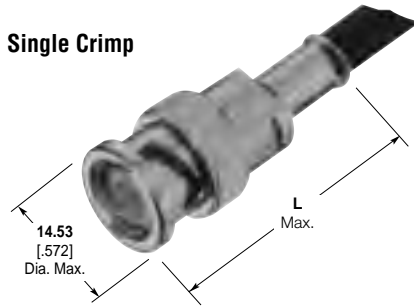
³ Bulk packaged.

⁴ Kit includes connector subassembly and ferrule only, center contact **Part Number** 414724-2 supplied separately on strip.

⁵ Terminate with AMP-O-LECTRIC terminating machine 220152-1 with applicator.

For complete product information, order Catalog 1307191

Plugs, Crimp



RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	1-221128-1
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-2	58435-1 ¹	220217-2	227079-7
	O Crimp	Silver	Nickel	Polyethylene	Commercial	27.69 1.090	220187-2	58435-1 ¹	220217-2	1-227079-1
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	58558-1	—	414852-2
	O Crimp	Gold	Nickel	Polyethylene	Economy	27.69 1.090	—	—	—	414915-2 ^{3,4}
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.18 1.188	69477-1	58537-1	—	225395-2
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.18 1.188	69477-1	—	69669-1	331350
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69141-1	—	—	2-329445-1
302, Belden 88241, 89269, Hi-Temp 62A, Times PL62, Berk-Tek, BTDC-59, BTDC-62	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	1-221128-1
	O Crimp	Gold	Nickel	Polyethylene	Commercial	33.33 1.312	220187-2	58435-1 ¹	220217-2	4-227079-9
	O Crimp	Gold	Nickel	TEFLON	Mil Type	34.14 1.344	69477-1	58537-1	69669-1	4-225395-1
Hi-Temp 59, Times PL59, PLF59 (20 AWG C.C.)	O Crimp	Gold	Nickel	Polyethylene	Commercial	33.33 1.312	—	58537-1	—	5-227079-3
Belden 9104, 9240, 9112, 9167, 9259, 9266, Times FM-59	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-1 ²	—	1-221128-7
	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220187-2	58537-1	—	1-227079-3
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.94 1.218	69477-1	58537-1	69669-1	2-225395-0
Belden 9248, 9114	O Crimp	Gold	Nickel	Polyethylene	Commercial	27.69 1.090	220247-1	58539-1	—	3-227079-0
Belden 8281, 9141, 9231, Western Electric 724, 728, 3049	Hex Crimp	Gold	Nickel	Polyethylene	Commercial	33.53 1.320	—	58436-2	—	1-221128-2
	O Crimp	Gold	Nickel	Polyethylene	Commercial	31.75 1.250	220043-1	58538-1	220088-1	5-227079-8
	O Crimp	Gold	Silver	TEFLON	Mil Type	38.10 1.500	220043-1	58538-1	220088-1	4-331350-0
	Single Crimp	Gold	Silver	Polypropylene	Mil Type	41.50 1.634	69652	—	220000	330878
8, 8A, 213	O Crimp	Gold	Silver	TEFLON	Mil Type	27.31 1.075	220015-1	—	—	225886-1
11, 11A	O Crimp	Gold	Silver	TEFLON	Mil Type	47.63 1.875	220015-1	—	—	225886-4
Belden 9914, Times FM-8	O Crimp	Gold	Silver	TEFLON	Mil Type	47.63 1.875	220015-1	—	—	225886-7
Alpha 9847, Belden 8213, 9292	O Crimp	Gold	Silver	TEFLON	Mil Type	47.63 1.875	220015-1	—	—	225886-5
9, 9A, 9B, 214	O Crimp	Gold	Silver	TEFLON	Mil Type	52.38 2.062	220015-1	—	—	225886-1

¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.

² Order AMP PRO-CRIMPER Coaxial Hex Crimp Hand Tool assembly 58433-2, which includes dies 58436-1. AMP PRO-CRIMPER II Hand Tool Frame without dies **Part Number** 354940-1

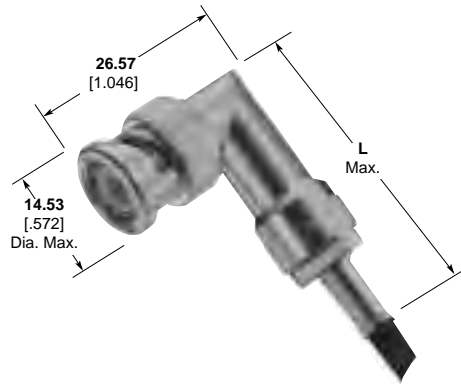
³ Kit includes connector sub assembly and ferrule only, center contact **Part Number** 414724-4 supplied separately on strip.

⁴ Terminate with AMP-O-LECTRIC terminating machine 220152-1 with applicator.

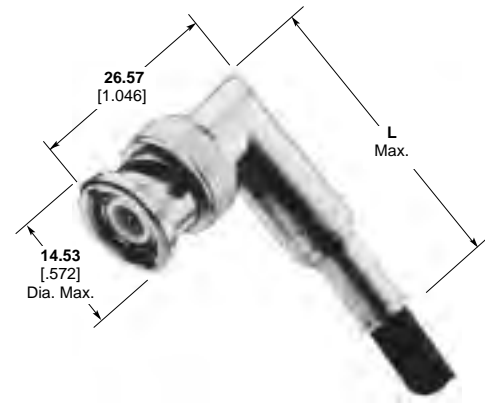
For complete product information, order Catalog 1307191

Right Angle Plugs, Crimp

Single Crimp



Hex and O Crimp

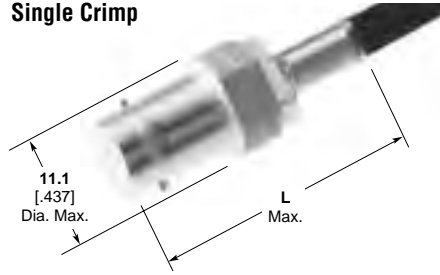


RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
174, 188, 188A, 316	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-3	—	413959-3
	Single Crimp	Gold	Silver	TEFLON	Mil Type	44.45 1.750	269245-1	—	269422	331178
179, 179A, 179B, 161, 187, 187A, Belden 9221	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-3	—	413959-4
RD 316	Hex Crimp	Gold	Nickel	—	—	39.45 1.553	—	—	220026-1	413959-7
180, 180A, 180B, 195, 195A	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-3	—	413959-5
Belden 9907, 89907, 8219, Comm/Scope 2104, 3104	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-1	—	413959-6
58, 58A, 58B, 58C	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-1	—	413959-1
	O Crimp	Gold	Nickel	TEFLON	Mil Type	37.29 1.468	269478-1	220189-3	269727-1	225974-1
55, 55A, 55B, 223	Single Crimp	Gold	Silver	TEFLON	Mil Type	44.45 1.750	269140-1	—	269223-1	331175
	O Crimp	Gold	Nickel	TEFLON	Mil Type	37.29 1.468	269478-1	220189-3	269727-1	225974-2
	Single Crimp	Gold	Silver	TEFLON	Mil Type	44.45 1.750	269140-2	—	269429-1	331182
142, 142A, 142B, 400	O Crimp	Gold	Silver	TEFLON	Mil Type	37.29 1.468	269478-1	220189-3	269727-1	225973-4
	Single Crimp	Gold	Silver	TEFLON	Mil Type	44.45 1.750	269331-1	—	269429-1	331182
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	39.45 1.553	—	258436-1	—	413959-2
	O Crimp	Gold	Nickel	TEFLON	Mil Type	37.29 1.468	269477-1	258537-1	269669-1	225974-5

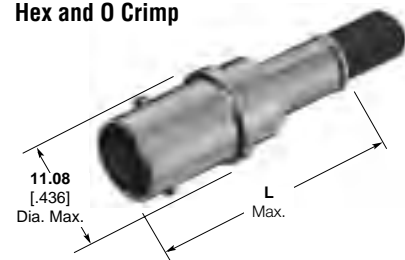
For complete product information, order Catalog 1307191

Jacks, Crimp

Single Crimp



Hex and O Crimp



RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
174, 188, 188A, 316	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-3	—	413779-3
	O Crimp	Gold	Nickel	Polypropylene	Commercial	30.48 1.200	220009-5	—	220217-3	228979-7
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.48 1.200	220009-1	—	220026-1	225396-7
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69245-2	—	69422	2-330062-1
179, 179A, 179B, 161, 187, 187A, Belden 9221	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-3	—	413779-4
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.48 1.200	220009-1	—	220026-1	225396-8
180, 180A, 180B, 195, 195A	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-3	—	413779-5
Belden 89907, 9907, 8219, Comm/Scope 3104, 2104	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-1	—	413779-6
58, 58A, 58B, 58C	O Crimp	Gold	Nickel	Polypropylene	Commercial	30.48 1.200	220187-1	58435-1 ¹	220217-1	228979-5
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.48 1.200	69478-1	220189-3	69727	225396-1
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.48 1.200	69478-1	220189-3	69727	2-331351-1
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69140-1	—	69223-1	2-329545-1
58, 58A, 58B, 58C Belden 88240, Berk-Tek BTDC-58 Comm/Scope 2135	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-1	—	413779-1
223, 55, 55A, 55B	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69140-2	—	69424	2-329452-2
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	33.02 1.300	—	58436-1	—	413779-2
	O Crimp	Gold	Nickel	Polypropylene	Commercial	30.48 1.200	220187-2	58435-1 ¹	220217-2	228979-6
	O Crimp	Gold	Nickel	TEFLON	Mil Type	30.48 1.200	69477-1	58537-1	69669-1	225396-2
	O Crimp	Gold	Silver	TEFLON	Mil Type	30.48 1.200	69477-1	—	69669-1	331351
	Single Crimp	Gold	Silver	TEFLON	Mil Type	33.33 1.312	69141-1	—	69224-1	2-329549-1

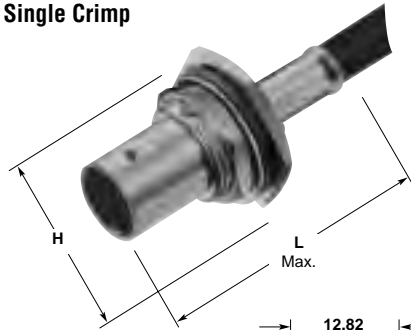
¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.

For complete product information, order Catalog 1307191

Bulkhead Jacks, Crimp

Note: Panel Insulating Bushings—Page 10013

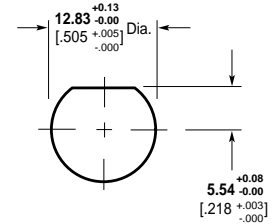
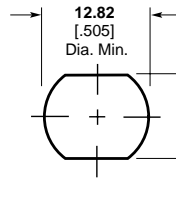
Single Crimp



Hex and O Crimp



Recommended Panel Cutouts
Maximum Panel Thickness 3.18 [.125]



H = 11/16" across flats, 20.32 [.800] Max. across points

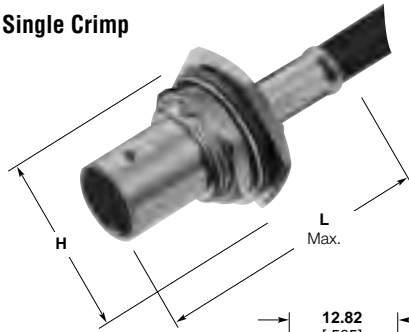
RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
178, 178A, 178B, 196, 196A	Single Crimp	Gold	Silver	TEFLON	Mil Type	32.13 1.265	69245-4	—	69471	331974
174, 188, 188A, 316	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-3	—	413771-3
	O Crimp	Gold	Nickel	Polypropylene	Commercial	34.93 1.375	220009-5	—	220217-3	228980-7
	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.71 1.406	220009-1	—	220026-1	225398-7
	O Crimp	Gold	Silver	TEFLON	Mil Type	35.71 1.406	220009-1	—	220026-1	1-331693-2
	Single Crimp	Gold	Silver	TEFLON	Mil Type	32.13 1.265	69245-2	—	69422	2-330063-1
179, 179A, 179B, 161, 187, 187A, Belden 9221	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-3	—	413771-4
	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.71 1.406	220009-1	—	220026-1	225398-8
	Single Crimp	Gold	Silver	TEFLON	Mil Type	32.13 1.265	69245-1	—	69408	2-329458-1
Times RD316	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.71 1.406	69477-2	—	69669-2	1-225398-5
180, 180A, 180B, 195, 195A	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-3	—	413771-5
Belden 9907, 89907, 8219, Comm/Scope 2104, 3104	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-1	—	413771-6

For complete product information, order Catalog 1307191

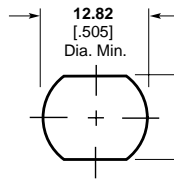
Bulkhead Jacks, Crimp

Note: Panel Insulating Bushings — See below

Single Crimp

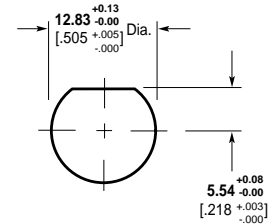


Recommended Panel Cutouts
Maximum Panel Thickness 3.18 [.125]



H = 11/16" across flats, 20.32 [.800] Max. across points

Hex and O Crimp



RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
58, 58A, 58B, 58C, Belden 88240, Berk-Tek BTDC-58, Comm/Scope 2135	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-1	—	413771-1
58, 58A, 58B, 58C	O Crimp	Gold	Nickel	Polypropylene	Commercial	34.93 1.375	220187-1	58435-1 ¹	220217-1	228980-5
	O Crimp	Gold	Nickel	TEFLON	Mil Type	41.28 1.625	69478-1	220189-3	69727	225398-1
	Single Crimp	Gold	Silver	TEFLON	Mil Type	32.13 1.265	69140-1	—	69223-1	2-329456-1
223, 55, 55A, 55B	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.71 1.406	69478-1	220189-3	69727	225398-3
142, 142A, 142B, 400	O Crimp	Gold	Nickel	TEFLON	Mil Type	35.71 1.406	—	220189-3	69727	225398-6
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	Hex Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	36.83 1.450	—	58436-1	—	413771-2
	O Crimp	Gold	Nickel	Polypropylene	Commercial	34.93 1.375	220187-2	58435-1 ¹	220217-2	228980-6
	O Crimp	Gold	Nickel	TEFLON	Mil Type	41.28 1.625	69477-1	58537-1	69669-1	225398-2

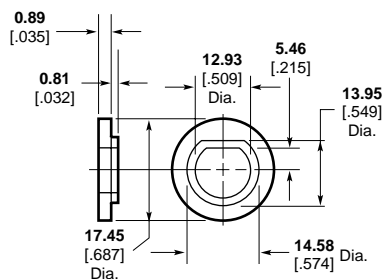
¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.

Panel Insulating Bushings for Bulkhead Jacks

Material :

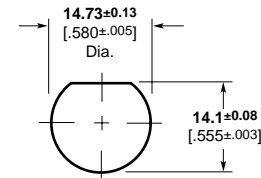
Nylon

Note: Can not be used with single crimp bulkhead jacks.



Part No. 330620 (2 Required)

Recommended Panel Cutout



For complete product information, order Catalog 1307191

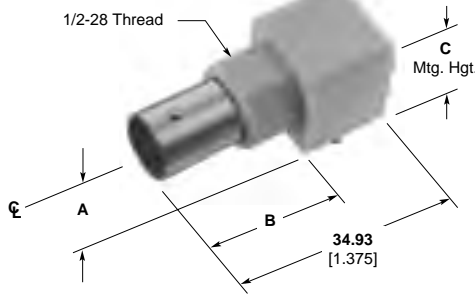
Right-Angle Jacks, PC Board/Panel Mount

Material:

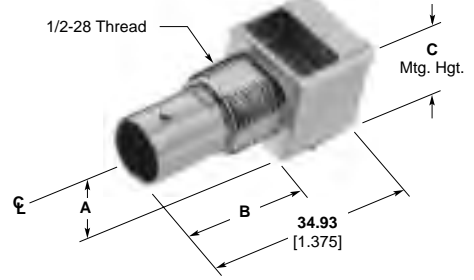
Body — Nickel

Dielectric — Polymethylpentene

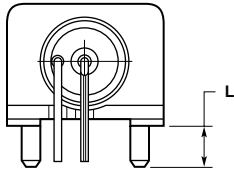
VALOX Body



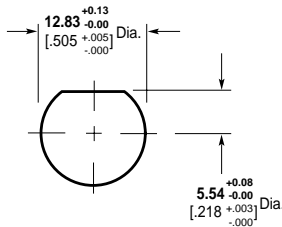
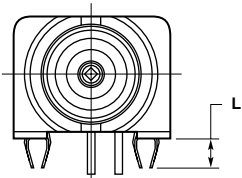
Metal Body



Mounting Post Style



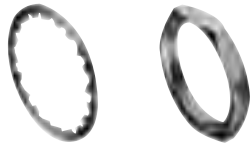
Compliant Post



Maximum Panel Thickness 6.1 [0.240]

Recommended Panel Cutout

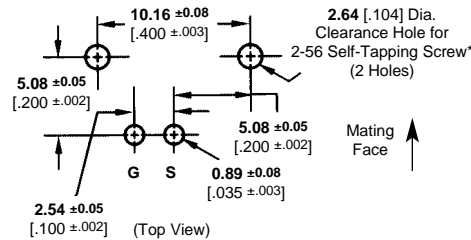
Lockwasher and Jam Nut



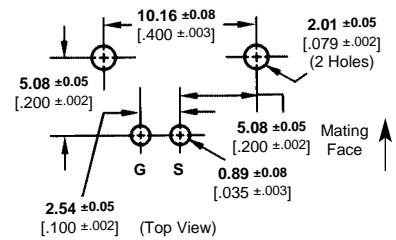
Part Number
1-329632-2

Part Number
1-329631-2

Without Mounting Posts



With Mounting Posts



Recommended PC Board Layouts

* Screw for panel thickness of 2.38 [3/32] or greater **Part Number** 221108-2.
Screw for panel thickness of less than 2.38 [3/32] **Part Number** 221108-4.

For complete product information, order Catalog 1307191

Body Material	Center Contact Plating	Dimensions			Part Numbers				
		A	B	C	Without Mounting Posts	With Mounting Posts	L	With Compliant Posts	L
VALOX, White	Tin-Lead	8.59 .338	21.21 .835	15.88 .625	226990-1	227161-1	3.48 .137	—	—
	Gold1	8.59 .338	21.21 .835	15.88 .625	226990-3	227161-3	3.48 .137	—	—
	Gold2	8.59 .338	21.21 .835	15.88 .625	—	1-227161-4	—	—	—
	Tin-Lead	6.91 .272	21.21 .835	13.18 .519	226990-7	—	—	—	—
VALOX, Black	Gold1	6.91 .272	21.21 .835	13.18 .519	—	227161-7	3.48 .137	414684-1	4.70 1.85
	Tin-Lead	8.59 .338	21.21 .835	15.88 .625	226990-2	227161-2	3.48 .137	—	—
	Gold1	8.59 .338	21.21 .835	15.88 .625	226990-6	227161-6	3.48 .137	—	—
	Gold1	6.91 .272	21.21 .835	13.18 .519	—	227161-9	3.48 .137	415218-1	2.79 .110
Metal	Gold1	6.17 .243	21.21 .835	11.68 .460	—	415046-1	—	415046-2	—
	Tin-Lead	8.26 .325	20.83 .820	15.88 .625	227433-1	227661-1	3.48 .137	—	—
	Gold1	8.26 .325	20.83 .820	15.88 .625	227676-1	227677-1 227677-2*	3.48 .137	222785-1	3.89 .153
	Gold1	6.91 .272	20.83 .820	12.70 .500	—	413879-1	3.48 .137	—	—
High Temp. Housing	Gold1	6.91 .272	20.83 .820	12.70 .500	—	413879-2	3.48 .137	—	—
	Gold1	6.91 .272	21.21 .835	13.18 .519	—	—	—	415218-5	—

*IR reflow compatible

Plating:

Gold1 — 0.00076 [0.000030] thick

Gold2 — 0.00127 [0.000050] thick

Note: If an Insulating Bushing is required see **Part Number** 330620 and Panel Cutout on page 10013.

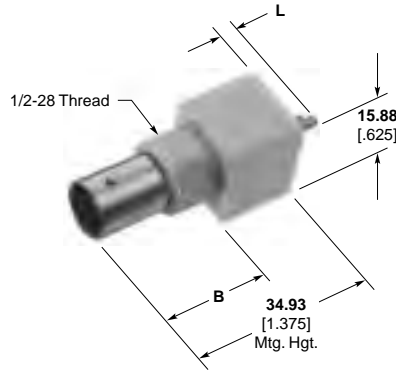
Vertical Jacks, PC Board/Panel Mount

Plating:

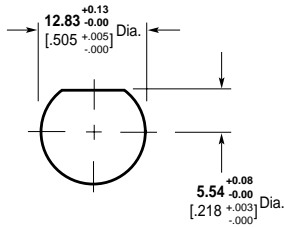
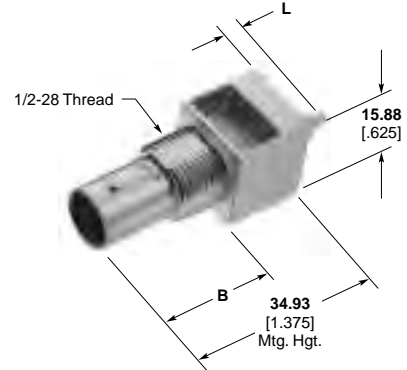
Body — Nickel

Dielectric — Polymethylpentene

VALOX Body



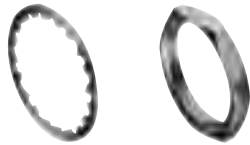
Metal Body



Maximum Panel Thickness 6.1 [0.240]

Recommended Panel Cutout

Lockwasher and Jam Nut



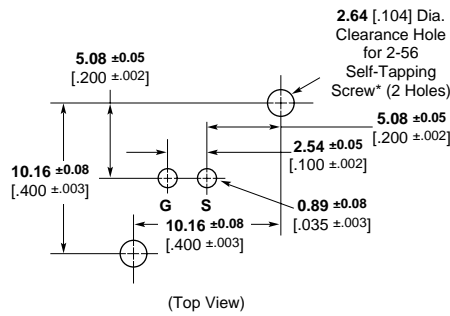
Part Number
1-329632-2

Part Number
1-329631-2

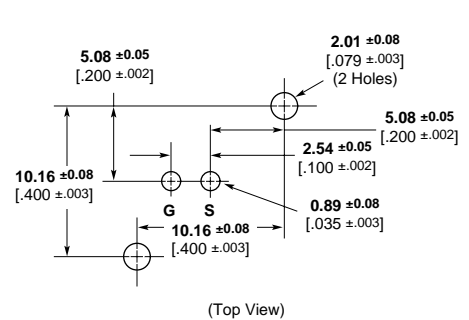
Body Material	Center Contact Plating	Dimensions		Part Numbers	
		B	L	Without Mounting Posts	With Mounting Posts
VALOX, White	Tin-Lead	21.21 .835	3.48 .137	226993-1	227222-1
	Gold	21.21 .835	3.48 .137	226993-3	227222-3
VALOX, Black	Tin-Lead	21.21 .835	3.48 .137	226993-2	227222-2
	Gold	21.21 .835	3.48 .137	226993-6	227222-6
Metal	Tin-Lead	20.83 .820	3.48 .137	227670-1	227671-1
	Gold	20.83 .820	3.48 .137	227672-1	227673-1

Note: If an Insulating Bushing is required see **Part Number** 330620 and Panel Cutout on page 10013.

Without Mounting Posts



With Mounting Posts



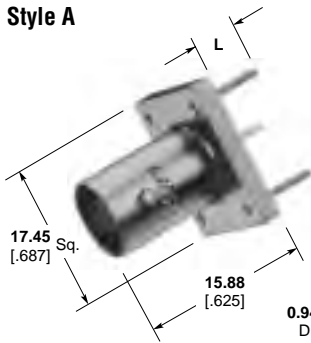
Recommended PC Board Layouts

* Screw for board thickness of 2.38 [0.093] or greater **Part Number** 221108-2.
Screw for thickness of less than 2.38 [0.093] **Part Number** 221108-4.

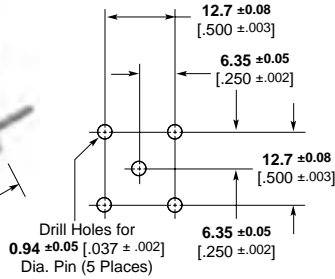
For complete product information, order Catalog 1307191

Vertical Metalized Jacks, PC Board Mount

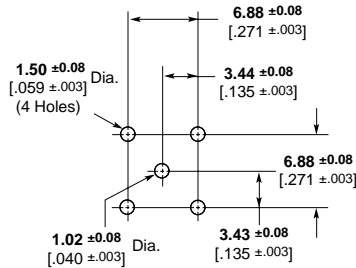
Style A



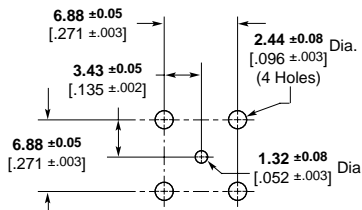
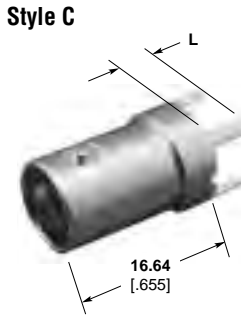
Recommended PC Board Layouts



Style B



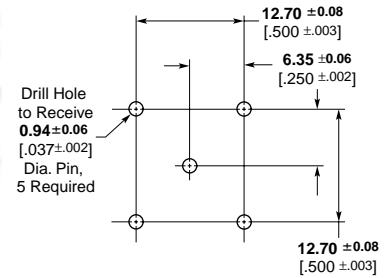
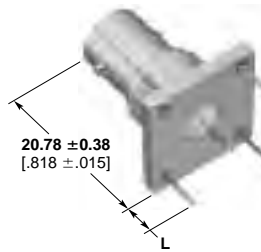
Style C



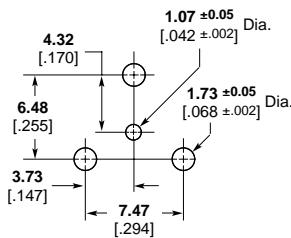
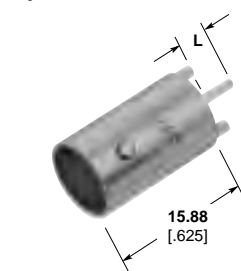
Body Plating	Center Contact Plating	Dielectric	Style	Leg Length L	Part Numbers
	Silver	VALOX	A	6.35 .250	227699-1
	Gold	VALOX	A	6.35 .250	227699-2
	Tin	VALOX	A	6.35 .250	227699-3
Nickel	Gold	VALOX	A	3.81 .150	414460-1 ¹
	Silver	TEFLON	B	3.30 .130	413969-1
	Silver	VALOX	C	4.45 .175	222420-1
	Gold	VALOX	E	6.35 .250	415189-1
	Gold	TEFLON	F	2.54 .100	1274360-1
	Gold	TEFLON	B	3.30 .130	413969-2
	Silver	VALOX	C	3.18 .125	414305-1
Tin-Lead	Silver	VALOX	C	4.45 .175	414305-2
	Gold	VALOX	C	3.18 .125	414305-3
	Gold	VALOX	C	4.45 .175	414305-4
	Gold	VALOX	D	3.43 .135	221123-2
	Tin	VALOX	D	3.43 .135	221123-3

¹ With .76 [.030] standoffs on top of legs.

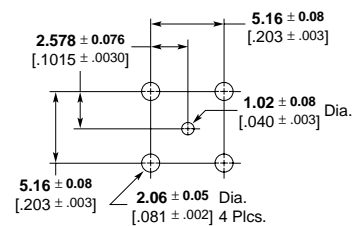
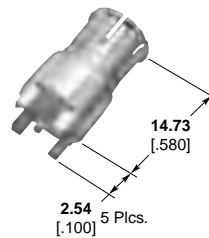
Style E (Panel Mount)



Style D

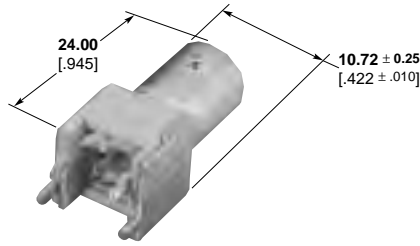


Style F (Push-On)

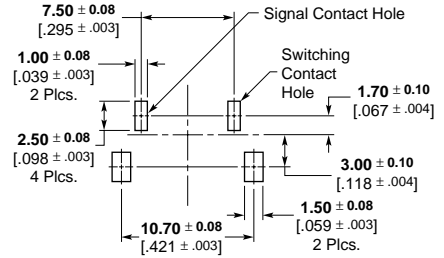


For complete product information, order Catalog 1307191

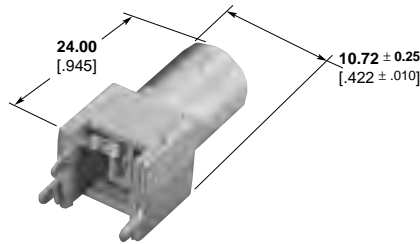
Vertical Metalized Jacks, PC Board Mount



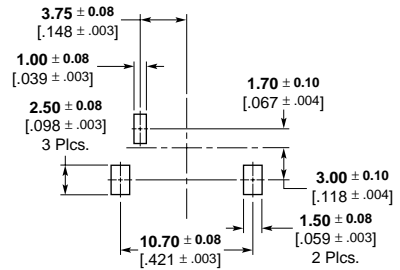
Part Number 1274314-1
(Switching)



Recommended
PC Board Layout



Part Number 1274315-1



Recommended
PC Board Layout

Body Plating	Contact Plating	Dielectric	Part Numbers
Tin-Lead	Silver	Polyphenylene	1274314-1
Tin-Lead	Silver	Polyphenylene	1274315-1

Press Fit Vertical Metalized Jack, PC Board Mount

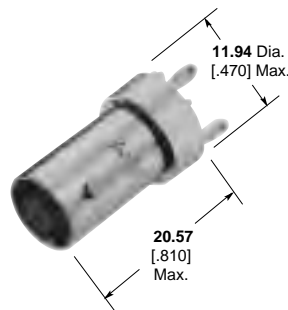
Insulating Bushing

Material :

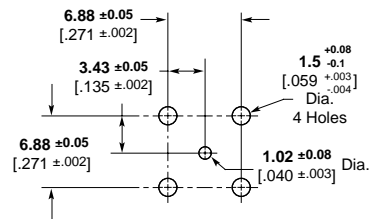
Polypropylene

Part Number 222163-1

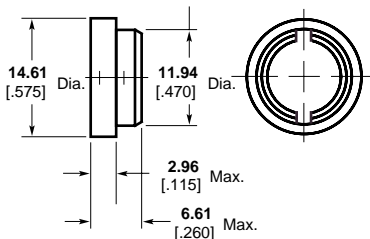
Only to be used on Part Numbers
222006-1 & 222462-1



Part Number 222006-1

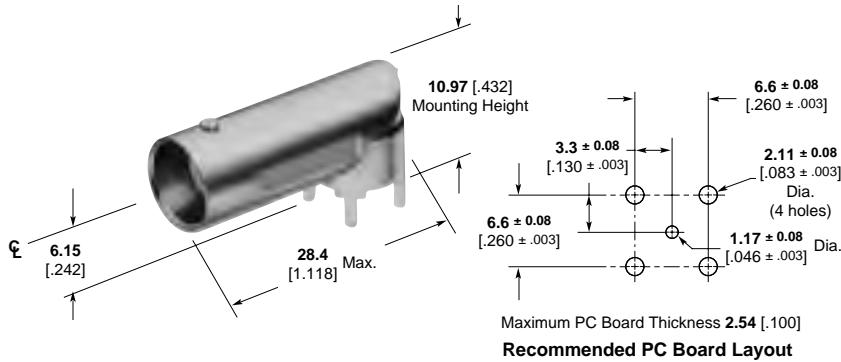


Recommended PC Board Layout
PC Board Thickness Not Less Than 0.99 [.093]

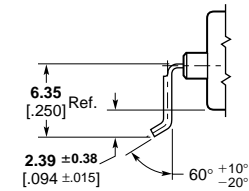
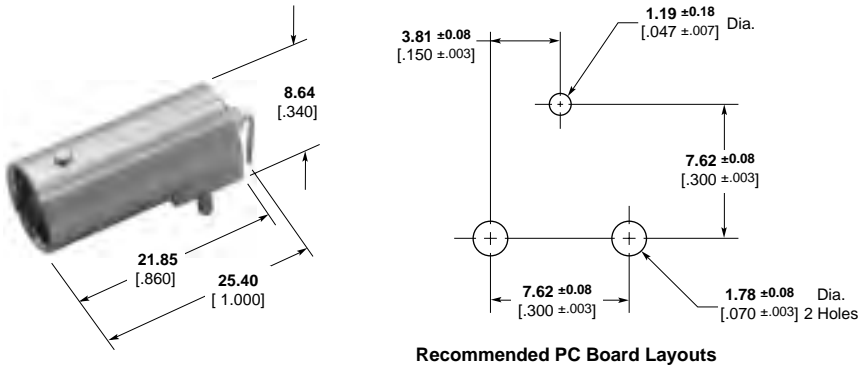


For complete product information, order Catalog 1307191

Right-Angle Metalized Jacks, PC Board Mount



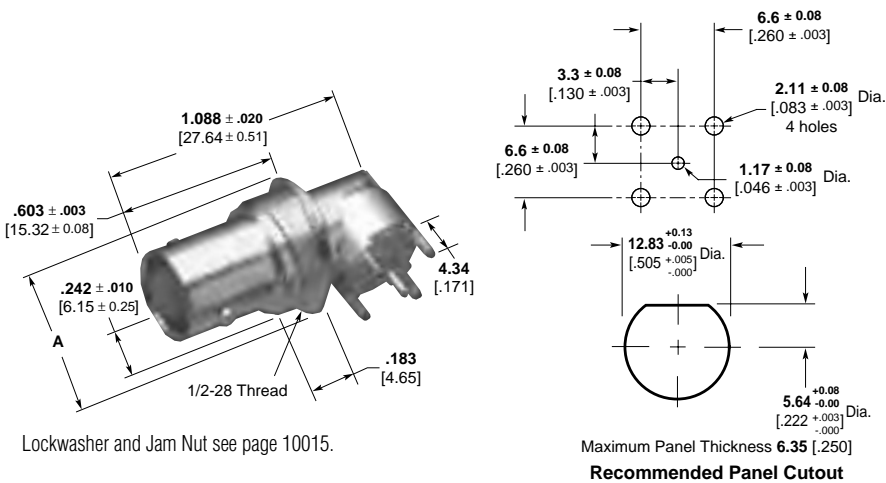
Body Plating	Dielectric	Center Contact Length	Part Numbers
Nickel	Polymethyl-pentene	4.34 .171	413631-1
Tin-Lead	TEFLON	4.34 .171	413631-2



Body	Dielectric	Contact	Part Numbers
Nickel	TPX	Gold	414373-1
Nickel	TPX	Gold	414373-3**
Tin-Lead	TPX	Gold	414373-4**

**Board retention leg prevents connector from tipping during wave solder. For 414373-3 and 414373-4 only.

Right-Angle Metalized Jacks, PC Board/Panel Mount



Body Plating	Dielectric	Dim. A	Part Numbers
Tin-Lead	TPX	11.66 .459	415025-2
Tin-Lead	TPX	16.26 .640	415372-1

For complete product information, order Catalog 1307191

Product Facts

Hex Crimp and O Crimp Connectors

- 50 and 75 ohm commercial versions available
- Provides excellent performance at frequencies up to 7 GHz
- Low cost commercial type available
- Commercial type is smaller and lighter weight
- Tarnish resistant nickel finish
- Choice of dielectric materials
- Standard and weatherproof versions available
- Plugs available for high temperature cable

Single Crimp Connectors

- Fast application—one crimping operation terminates inner conductor, outer braid and cable support
- Low application cost

Connectors for Semi-Rigid Cable

- Crimp and solder versions available
- Standard cable stripping dimensions
- Universal cable termination common to all configurations

Listed under the Component Program of Underwriters Laboratories Inc., 
 File No. E81956

PC Board connectors are recognized under the Component Program of Underwriters Laboratories Inc., 
 File No. E81956

Certified by Canadian Standards Association 
 File No. LR 7189

The AMP TNC RF connector family, with 7/16-28 threaded couplings, provides low noise levels and optimum stability, and can withstand the shock and vibration often present in hostile environments.

Available in both 50 and 75 ohm versions, these connectors feature numerous styles including cable plugs and jacks, adapters and printed circuit board connectors. These connectors accept a wide range of coaxial cables and are interchangeable with industry standard connectors designed to MIL-C-39012 specifications.

Single crimp connectors provide reduced application time and lower applied costs. This is accomplished by using AMP one-crimp operation tooling which simultaneously terminates the inner conductor, outer braid and cable support with one controlled stroke.

Tyco Electronics can also supply low-cost alternatives with a commercial type product line. These connectors are designed around the mil-specifications, offering comparable mechanical and electrical performance.



10

RF Coax Connectors

Related Product Data:

Military Category — All crimp connectors are Category B Type (AMP Crimp Tooling), unless otherwise noted.

Packaging — All Mil-Type connectors are packaged individually and all Commercial connectors are bulk packaged unless otherwise noted.

For complete product information, order Catalog 1307191

Specifications

Characteristics	Single Crimp (Mil Type)	Category B O Crimp (Mil Type)	Commercial O Crimp & Hex Crimp 50 & 75 Ohm	Commercial PCB	Commercial Solder Jacks	Semi-Rigid	Solder Clamp
Electrical							
Impedance, Nom. (Ohms)	50	50	50	50	50	50	50
Working Voltage (Volts RMS)	500	500	500	500	500	335	500
Contact Resistance (Milliohms)	Inner: 1.5 Outer: 3	Inner: 1.5 Outer: 0.2	Inner: 2.0 Outer: 0.3	Inner: 6.0 Outer: 3.0	Inner: 2.75 Outer: 1.0	Inner: 1.5 Outer: 0.2	Inner: 1.5 Outer: 0.2
Initial Insulation Resistance (Megohms)	5000	5000	5000	5000	5000	5000	5000
Dielectric Withstanding Voltage (VAC)	1500	1500	1500	1500	1500	1500	1500
Corona Level at 70,000 ft. (Picocoulombs)	5 max. @ 375 VRMS	5 max. @ 375 VRMS	5 max. @ 375 VRMS	—	—	5 max. @ 375 VRMS	5 max. @ 375 VRMS
RF Leakage, Max. (dB)	—	60 @ 2-3 GHz	55 @ 2-3 GHz	—	—	60 @ 2-3 GHz	55 @ 2-3 GHz
RF Insertion Loss, Max. (dB)	—	0.18 @ 9 GHz	0.2 @ 3 GHz	—	—	0.06 @ 3-6 GHz	0.2 @ 3 GHz
Frequency Range (GHz)	0-4	0-11	0-7	0-4	0-4	0-15	0-11
VSWR in Frequency Range Max.	1.35	1.3	1.40	—	—	1.35	1.30 @ 4 GHz
Mechanical							
Force to Engage/Couple, lbs. [N]	10/2 [44.5/8.9]	2/2 [8.9/8.9]	6/6 [26.7/26.7]	—	—	2 [.023]	2 [.023]
Coupling Nut Retention, Min. lbs. [N]	100 [444.8]	100 [444.8]	60 [266.9]	—	—	100 [444.8]	100 [444.8]
Cable Retention, lbs. [N]	60 [266.9] RG58C/U	60 [266.9] RG58C/U	60 [266.9] RG58C/U	60 [266.9] (PCB Ret)	—	60 [266.9]	40 [178.0]
Durability (Cycles)	500	500	500	500	500	500	500
Jam Nut Mounting Torque, Max. lbs. [N•m]	25 [2.8]	25 [2.8]	25 [2.8]	25 [2.8]	25 [2.8]	25 [2.8]	25 [2.8]
Environmental							
Temperature Range, Operating (C°)	-65 to +85	-65 to +165 ¹ -55 to +85 ²	-55 to +85	-55 to +85	-65 to +165	-65 to +105	-65 to +165
Vibration	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 201A Cond. A	MIL-STD-202 Method 204 Cond. B	MIL-STD-202 Method 202 Cond. B	MIL-STD-202 Method 202 Cond. B
Physical Shock	MIL-STD-202 Method 213 Cond. G, (50 G's)	MIL-STD-202 Method 213 Cond. I, (100 G's)	MIL-STD-202 Method 213 Cond. I, (100 G's)	MIL-STD-202 Method 213 Cond. I, (100 G's)	MIL-STD-202 Method 213 Cond. I, (100 G's)	MIL-STD-202 Method 213 Cond. I	MIL-STD-202 Method 213 Cond. I
Thermal Shock	MIL-STD-202 Method 107	MIL-STD-202 Method 107 Cond. B	MIL-STD-202 Method 107 Cond. A	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-202 Method 107	MIL-STD-202 Method 107
Moisture Resistance	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106 Type II	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106	MIL-STD-202 Method 106
Salt Spray	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B	MIL-STD-202 Method 101 Cond. B
Product Specification	—	108-12001	108-12046	—	—	108-12032	—

¹ Assembled to cable with polytetrafluorethylene dielectric.

² Assembled to cable with polyethylene dielectric.

For complete product information, order Catalog 1307191

Specifications

Characteristics	Single Crimp (Mil Type)	Category B O Crimp (Mil Type)	Commercial O Crimp & Hex Crimp 50 & 75 Ohm	Commercial PCB	Commercial Solder Jacks	Semi-Rigid	Solder Clamp
Connector Material							
Collar	Brass QQ-B-626	Brass QQ-B-626	Brass QQ-B-626	—	—	Brass QQ-B-626	Brass QQ-B-626
Outer Contact (Plug)	Phos. Bronze QQ-B-750 Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-750 Beryl. Copper QQ-C-530	Brass MIL-C-21768	—	—	Brass QQ-B-626	Brass QQ-B-626
Outer Contact (Jack)	Brass QQ-B-626	Brass QQ-B-626	Zinc QQ-Z-363	Zinc QQ-Z-363	Zinc QQ-Z-363	Brass QQ-B-626	Brass QQ-B-626
Dielectric	TEFLON MIL-P-19468	TEFLON MIL-P-19468	Polyethylene Polypropylene Gen. Purpose	Polypropylene Gen. Purpose ¹	TEFLON MIL-P-19468 Polyester PBT MIL-P-24519	TEFLON MIL-P-19468	TEFLON MIL-P-19468
Center Contact (Plug)	Brass QQ-B-626	Brass QQ-B-626	Brass QQ-B-626	—	—	Brass QQ-B-626	Brass QQ-B-626
Center Contact (Jack)	Beryl. Copper ASTM-B-643, QQ-C-530	Beryl. Copper ASTM-B-643, QQ-C-530	Beryl. Copper QQ-C-530	Phos. Bronze QQ-B-570	Phos. Bronze QQ-B-570	Beryl. Copper QQ-C-530	Beryl. Copper QQ-C-530
Gasket	Silicon Rubber QQ-R-765	Silicon Rubber QQ-R-765	Silicon Rubber QQ-R-765	—	—	Silicone Rubber QQ-R-765	Silicone Rubber QQ-R-765
Ferrule	Copper QQ-C-576	Copper QQ-C-576	Copper QQ-C-576	—	—	—	—
Connector Primary Finishes²							
Collar	Silver QQ-S-365	Silver QQ-S-365	Bright Nickel QQ-N-290	—	—	Nickel QQ-N-290	Nickel QQ-N-290
Outer Contact (Plug & Jack)	Silver QQ-S-365	Bright Nickel QQ-N-290	Bright or Matte Nickel QQ-N-290	Bright Nickel QQ-N-290	Bright Nickel QQ-N-290	Nickel QQ-N-290	Nickel QQ-N-290
Center Contact (Plug & Jack)	Gold MIL-G-45204	Silver QQ-S-365	Tin Lead, ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Tin Lead, ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Tin Lead, ASTM-B-545 Silver, QQ-S-365 Gold, MIL-G-45204	Gold MIL-G-45204	Gold MIL-G-45204
Ferrule	Silver QQ-S-365	Gold MIL-G-45204	Tin Lead ASTM-B-5	—	—	—	—

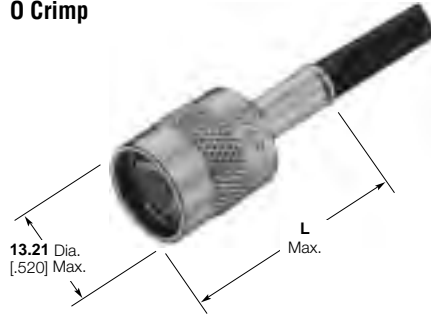
¹ Several pc board connectors have an outer polyester PBT insulator per MIL-P-24519.

² If several finishes are listed, refer to individual catalog page(s) or customer drawings for exact specifications.

For complete product information, order Catalog 1307191

Plugs, Crimp

**Hex Crimp and
O Crimp**



**Mil Type
O Crimp
Weatherproof**



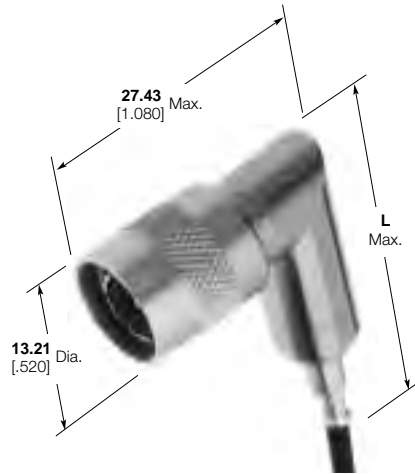
RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	Comments	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Interchangeable Dies for Hand Tool 69710-1 & 626 Pneu. Head 318161-1	Part Numbers
174, 188, 188A, 316	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-3	—	222506-5
179, 179A, 179B 161, 187, 187A Belden 9221	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-3	—	222506-6
RD316 188 Double Braid	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-3	—	222506-9
180, 180A, 180B 195, 195A	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-3	—	222506-7
58, 58A, 58B, 58C	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.25 1.230	—	58436-1 ²	—	222506-1
	O Crimp	Gold	Silver	TEFLON	Mil Type	—	34.93 1.375	220045-2	—	—	225550-2
58, 58A, 58B, 58C 141, 141A, 303	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	34.93 1.375	220045-2	—	—	225555-2
	O Crimp	Gold	Nickel	Polypropylene	Commercial	—	26.8 1.055	220187-1	58435-1 ¹	220217-1	227000-5
223, 55, 55A, 55B	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-1	—	1-222506-1
	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	31.24 1.230	—	58436-1	—	222506-4
142, 142A 142B, 400	O Crimp	Gold	Silver	TEFLON	Mil Type	—	34.29 1.350	220045-2	—	—	225345-6
	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	34.93 1.375	220045-2	—	—	225550-6
	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	34.93 1.375	220045-2	—	—	225555-6
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B Belden 9291, 9209, 9269	Hex Crimp	Gold	Nickel	Polypropylene	Commercial	—	29.72 1.170	—	58436-1 ²	—	222506-2
	O Crimp	Gold	Nickel	Polypropylene	Commercial	—	26.8 1.055	—	58435-1 ¹	—	227000-7
8, 8A, 213	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	50.8 2.000	220015-1	—	—	225555-7
Alpha 9847, Belden 8213, 9292	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	50.68 1.995	220015-1	—	—	1-225550-3
225, 393	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	50.8 2.000	220015-1	—	—	1-225550-2
	O Crimp	Gold	Silver	TEFLON	Mil Type	—	50.8 2.000	220015-1	—	—	225345-8
9, 9A, 9B, 214	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	50.8 2.000	220015-1	—	—	225550-8
	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	50.8 2.000	220015-1	—	—	225555-8

¹ Order AMP PRO-CRIMPER Coaxial "O" Crimp Hand Tool assembly 58433-1, which includes dies 58435-1.
² Order AMP PRO-CRIMPER Coaxial Hex Crimp Hand Tool assembly 58433-2, which includes dies 58436-1.

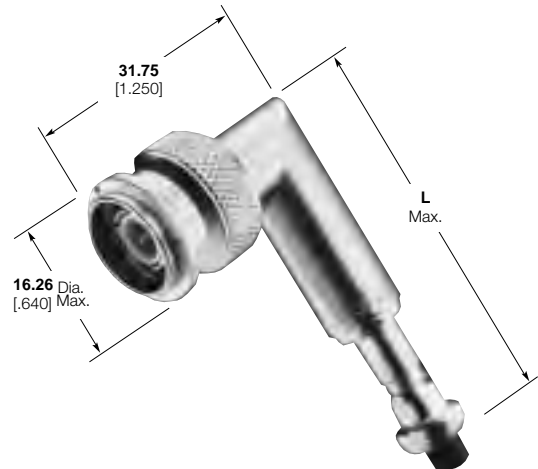
For complete product information, order Catalog 1307191

Right-Angle Plugs, Crimp

O Crimp



Mil Type O Crimp Weatherproof

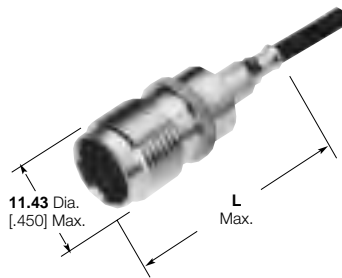


RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	Comments	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Part Numbers
174, 174A, 188 188A, 316	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	318450-2	414173-3
RD 188, 316 Double Braid	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	58539-1	414173-4
58, 58A, 58B 58C	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	47.63 1.875	220045-2	—	225559-2
58, 58A, 58B, 58C 141, 141A, 303	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	220189-1	414173-1
55, 55A, 55B 223	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	220189-1	414173-6
142, 142A, 142B 400	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	220189-1	414173-5
	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	47.63 1.875	220045-2	—	225554-6
124, 140, 210, 62 62A, 62B, 59, 59A 59B, Belden 9291 9209, 9269	O Crimp	Gold	Nickel	Polymethyl- pentene	Commercial	—	38.23 1.505	—	220189-2	414173-2
8, 8A, 213	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	63.5 2.500	220015-1	—	225559-8
393, 225	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	63.5 2.500	220015-1	—	1-225554-1
9, 9A, 9B, 214	O Crimp	Gold	Silver	TEFLON	Mil Type	—	59.52 2.343	220015-1	—	225349-9

For complete product information, order Catalog 1307191

Jacks, Crimp

O Crimp



Mil Type O Crimp Weatherproof



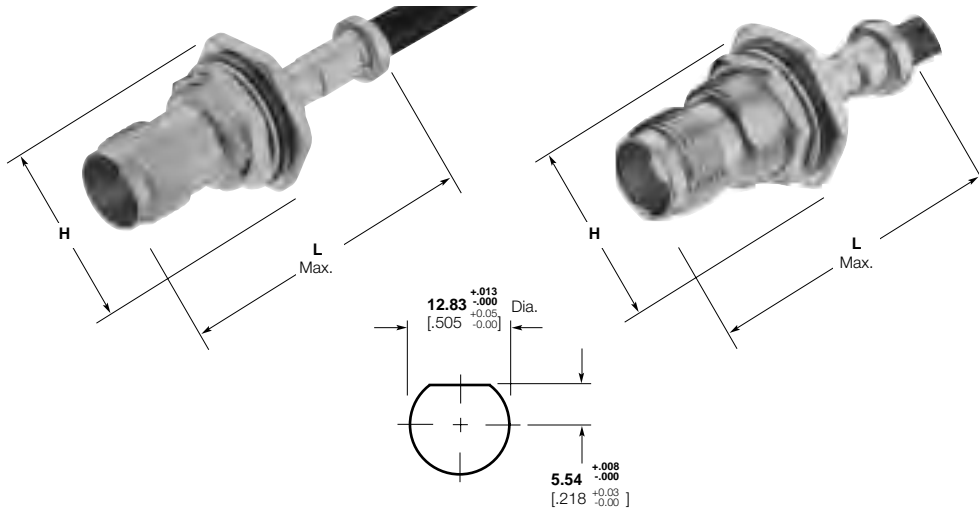
RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	Comments	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Part Numbers
174, 174A, 188, 188A, 316	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	30.48 1.200	—	318450-2	414171-3
RD 188, 316 Double Braid	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	30.48 1.200	—	58539-1	414171-4
58, 58A, 58B, 58C	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	35.72 1.406	220045-2	—	225551-2
58, 58A, 58B, 58C, 141, 141A, 303	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	29.85 1.175	—	220189-1	414171-1
141, 141A, 303	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	35.72 1.406	220045-2	—	225551-5
55, 55A, 55B, 223	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	29.85 1.175	—	220189-1	414171-6
	O Crimp	Gold	Silver	TEFLON	Mil Type	—	35.72 1.406	220045-2	—	225551-1
142, 142A, 142B, 400	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.29 1.350	—	220189-1	414171-5
	O Crimp	Gold	Silver	TEFLON	Mil Type	Weatherproof	35.72 1.406	220045-2	—	225551-6
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	29.85 1.175	—	220189-2	414171-2

For complete product information, order Catalog 1307191

Bulkhead Jacks, Crimp

Single Crimp

O Crimp



Maximum Panel Thickness Single Crimp **3.18** [.125];
Dual Crimp **6.35** [.250]

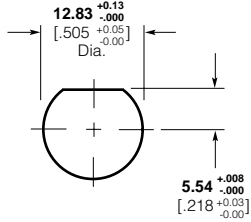
**Recommended
Panel Cutout**

H = **11/16** [.6875] max. across flats, **20.32** [.800] max. across points.

RG/U Cable	Termination Type	Center Contact Plating	Body Plating	Dielectric	Style	Comments	L Dim.	CERTI-CRIMP Hand Tool with Integral Die	Interchangeable Dies for PRO-CRIMPER Hand Tool 354940-1 or PRO-CRIMPER Adapter 679304-1	Part Numbers
174, 174A, 316 188, 188A	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	318450-2	414168-3
179, 179A, 179B 161, 187, 187A Belden 9221	Single Crimp	Gold	Nickel	TEFLON	Mil Type	—	38.1 1.500	69245-1	—	331238
RD 188, 316 Double Braid	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	58539-1	414168-4
58, 58A, 58B, 58C	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	38.1 1.500	220045-2	—	225557-2
58, 58A, 58B, 58C 141, 141A, 303	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	220189-1	414168-1
223 55, 55A, 55B	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	220189-1	414168-6
142, 142A 142B, 400	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	220189-1	414168-5
	O Crimp	Gold	Nickel	TEFLON	Mil Type	Weatherproof	38.1 1.500	220045-2	—	225557-6
120, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269	O Crimp	Gold	Nickel	Polymethyl-pentene	Commercial	—	34.93 1.375	—	220189-2	414168-2

For complete product information, order Catalog 1307191

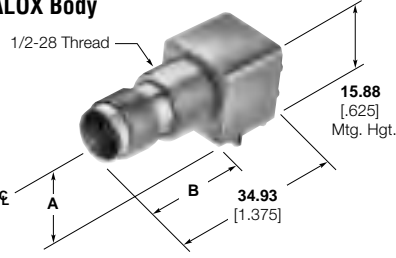
Right-Angle PC Board/Panel Mount Jacks



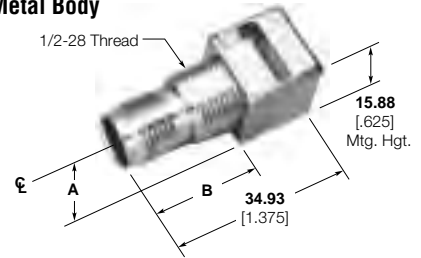
Maximum Panel Thickness 6.1 [0.240]

Recommended Panel Cutout

VALOX Body

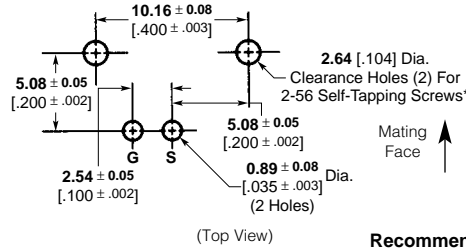


Metal Body

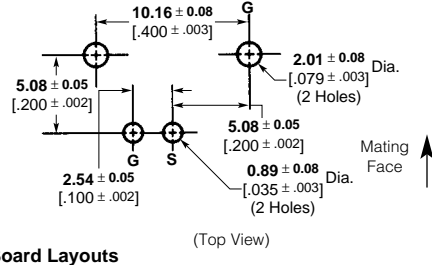


Body Material	Ω	Center Contact Plating	Dimensions		Part Numbers	
			A	B	Without Mounting Posts	With Mounting Posts
VALOX, White	50	Gold	8.56 .337	21.21 .835	227812-1	227818-1
Metal	50	Gold	8.26 .325	20.83 .820	227838-1	227839-1

Without Mounting Posts



With Mounting Posts



Recommended PC Board Layouts

Vertical PC Board/Panel Mount Jacks

*2-56 Self-Tapping Screws:
For 1.57 [3/32] or greater panel thickness
Part Number 221108-2
For less than 1.57 [3/32] panel thickness
Part Number 221108-4

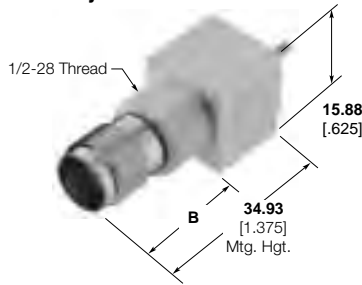
Lockwasher and Jam Nut



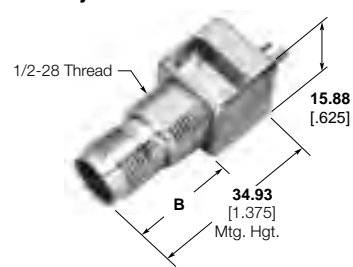
Part Number
1-329632-2

Part Number
1-329631-2

VALOX Body

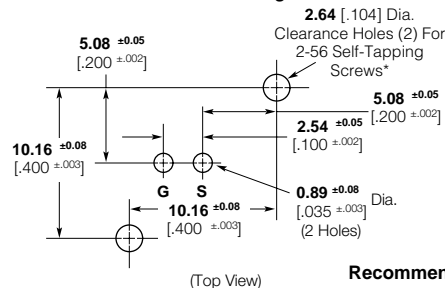


Metal Body

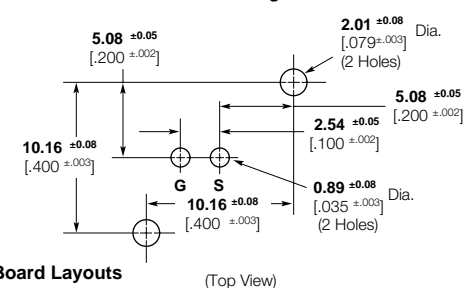


Body Material	Center Contact Plating	Dimension B	Part Numbers	
			Without Mounting Posts	With Mounting Posts
VALOX, White	Gold	21.21 .835	227816-1	227820-1
Metal	Gold	20.83 .820	—	227835-1

Without Mounting Posts



With Mounting Posts



Recommended PC Board Layouts

For complete product information, order Catalog 1307191

Product Facts

- Built-in chip capacitors filter high-frequency noise to panel ground
- PC board mounting with vertical and standard or low-profile right angle configurations
- Cable mount bulkhead BNC version available
- Drop-in replacement for AMP standard BNC printed circuit board connectors
- One-piece design and robotic capacity to reduce assembly time



AMP Capacitively Decoupled connectors provide the fast, better way to reduce noise and reduce ground loops on coaxial interconnections. The high-frequency noise generated by fast rise times can cause both false triggering of circuits as well as emissions that can be radiated or conducted outside the equipment. Such emissions can interfere with nearby equipment. Ground loops are also a problem for networked systems. Ground loops are caused when two interconnected units are at different voltage potentials.

The typical way to handle such EMI and ground loop problems is to decouple the cable shield from the ground panel by soldering a ceramic disk capacitor between the cable shield and the panel. The capacitor shunts high-frequency noise to ground. While effective, this approach is time consuming and expensive.

The Capacitively Decoupled connector has built-in chip capacitors. These capacitors establish the electrical contact between the outer shield and a clip. This clip

provides a short electrical path between the capacitors and panel. As a result, high-frequency noise is effectively shunted to ground, while the DC path is blocked.

The connectors offer compatibility in design and manufacture. The same footprint and dimensional envelope make them a drop-in replacement for AMP standard BNC or TNC printed circuit board connectors. In addition, they can be robotically picked and placed for high-speed automated assembly to pc boards.

Product Specification

108-1263 — BNC Decoupled PCB Press-Fit Connection
 108-1269 — BNC Decoupled PCB Connectors

For complete product information, order Catalog 1307191

Product Facts

- Built-in chip resistor terminates the signal line to the proper characteristic impedance when in the unmated state
- Can be ordered with standard resistance values (50, 75 and 100 Ohms)
- Fits into printed circuit board footprint of standard BNC PCB connectors
- One-piece design is compatible with robotic insertion and wave soldering

AMP Self-Terminating printed circuit board BNC connectors provide the capability to automatically terminate an input-output port to the system characteristic impedance. This feature eliminates the need for external terminators when an I/O port is not being used. The Self-Terminating BNC jack contains a chip resistor which bridges the signal and ground paths when the connector is not mated to a BNC plug. When mated, the resistor is switched out of the circuit for direct signal transmission to the board.

The footprint of this connector is compatible with standard BNC connectors, allowing it to be easily installed into existing circuit board designs and suitable for robotic insertion for high speed automated assembly onto the PC board.

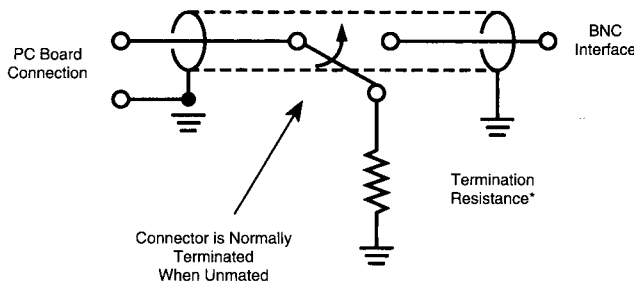
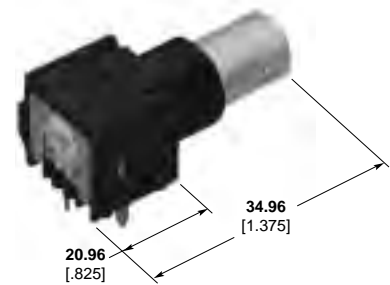
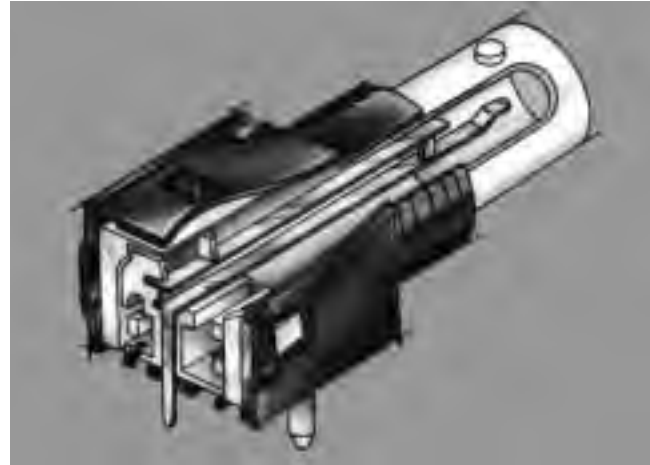
The Self-Terminating BNC is available in standard resistance values for use in networking and video systems. Contact Tyco Electronics for new designs that include switching and capacitively decoupled versions.

Material:

Body — Polyester, PBT, black
Dielectric — Polyester, PBT, natural

Plating:




Shell — Tin Lead
Center Contact — Gold on mating end and Tin Lead on solder tails



Product	Termination Resistance	Part Numbers
Self-Terminating BNC PCB	50Ω	414367-1
	75Ω	414367-2

For complete product information, order Catalog 1307191

Product Facts

- Crimp connectors require only one-stroke crimping of both conductors, plus braid and cable support
- Lower installed cost with one-stroke crimp
- Reduced noise levels because of AMP solderless crimping techniques
- Captive inner contact stability
- No danger of heat damage to coaxial cable
- Ease of inspection
- Listed under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- PC Board soldered connectors are recognized under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association File No. LR 7189 

The Twin BNC Connector is a quick connect/disconnect, weatherproof connector designed in accordance with MIL-C-39012 to meet the stringent requirements of MIL-STD-1553 Multiplex Data Bus.

These twin coaxial cable connectors are a unique development by Tyco Electronics which has resulted in the production of high level RF components. Termination of these connectors to twin conductor cable is made with Tyco Electronics exclusive one crimp method which simultaneously terminates inner conductors, outer braid and cable support with one stroke of the matching AMP tool.

These rugged connectors accommodate today's most commonly used twin conductor cable sizes.

Material:

- Brass** — QQ-B-626
- Beryllium Copper** — QQ-C-530
- TEFLON** — MIL-P-19468
- Polypropylene** — General purpose
- Copper, Annealed** — QQ-C-576
- Phosphor Bronze** — QQ-B-750
- Silicone Rubber** — ZZ-R-765

Plating:

- Silver** — QQ-S-365
- Nickel** — QQ-N-290
- Tin Lead** — ASTM-B-545



Electrical Characteristics:

- Nominal Impedance** — Non-constant
- Working Voltage** — 500 volts rms sea level
- Insulation Resistance** — 5000 megohms min.
- Dielectric Withstanding Voltage** — 1500 volts rms sea level

Mechanical Characteristics:

- Mating/Unmating** — Bayonet lock-quick connect/ disconnect
- Cable Attachment** — Crimp type - Simultaneous center and braid
- Coupling Nut Retention** — 100 lbs. [444 N] min.
- Cable Retention** — 25 lbs. [111 N] min., RG-108A/U cable
- Durability** — 200 cycles per MIL-C-39012


Environmental Characteristics:

- Temperature Range** — -55°C to +85°C
- Vibration** — MIL-STD-202, Method 204, Condition B
- Shock** — MIL-STD-202, Method 213, Condition I, 100 G's
- Salt Spray** — MIL-STD-202, Method 101, Condition B
- Temperature Cycling** — MIL-STD-202, Method 102, Condition C

Packaging — All connectors are packaged individually unless otherwise noted.

For complete product information, order Catalog 1307191

Product Facts

- Designated connectors are MIL-C-39012, Class II, Category B qualified
- Captive center contacts
- Completely crimpable application – one hand tool crimps all cables with single or double braided shields of a given size
- Impedance matching crimps
- Broad band performance – low VSWR
- Superior cable retention
- TEFLON dielectric
- Silver or nickel finish
- Fully intermateable with MIL-C-39012 connectors
- Listed under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E81956 
- Certified by Canadian Standards Association File No. LR 7189 

The AMP N Connector, featuring a 15.88 [5/8] - 24 threaded coupling for optimum stability, is highly suited for critical applications and environments. This medium sized connector can withstand shock and vibration to assure a low noise level and has a constant impedance of 50 ohms. It also features a captive center contact and provides excellent performance at frequencies up to 11 GHz, with voltages to 1000 volts rms.

This Tyco Electronics connector offers the added benefits of low overall applied cost with a labor-saving two-crimp assembly. The contact is simply crimped to the cable's center conductor, then both braid and cable support are simultaneously crimped to complete the termination.

N Series Connectors are available in standard plug, jack, panel jack, bulkhead jack and right-angle plug configurations. Those connectors with a military designation (M39012) are furnished in accordance with all requirements of specification MIL-C-39012, Class II, Category B.

Material:

- Brass** — QQ-B-626
- Beryllium Copper** — QQ-C-530
- Dielectric** — TEFLON
- TEFLON** — MIL-P-19468
- Copper, Annealed** — QQ-C-576
- Phosphor Bronze** — QQ-B-750
- Silicone Rubber** — ZZ-R-765

Plating:

- Body** —
Silver per QQ-S-365
Nickel per QQ-N-290
- Center Contact** —
Gold per MIL-B-45204



Electrical Characteristics:

- Nominal Impedance** — 50 ohms
- Working Voltage** — 1000 volts, rms at sea level
- Frequency Range** — 0 to 11 GHz
- Voltage Standing Wave Ratio (VSWR)** —
Straight Plug or Jack — 1.3:1 max.
Right-Angle Plug —
1.35 max. at 0 to 9.0 GHz
1.50 max. at 9.0 to 11.0 GHz
- Contact Resistance** —
Outer Contact — 0.2 milliohms
Center Contact — 1.0 milliohms
Right-Angle — 2.5 milliohms
- Insulation Resistance** — 5000 megohms min.
- Dielectric Withstanding Voltage** — 2500 Volts, rms at sea level
- RF Leakage** — Mil Type, -90 dB min. at 2 to 3 GHz
- RF Insertion Loss** — Mil Type, 0.15 dB max. at 10 GHz
Right-Angle Plug, 0.3 dB max. at 10 GHz
- Corona Level** — Mil Type, 500 volts min. at 21 336 m [70,000 ft.]
- Terminator** —
Resistance — 50 ohms ±1%
Power Rating — 1.0 watt max.

Mechanical Characteristics:

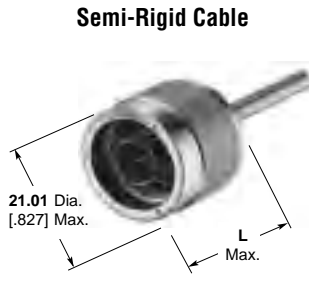
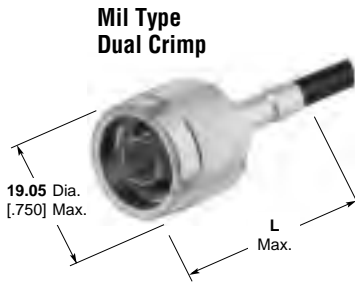
- Mating/Unmating** — Threaded coupling
- Cable Attachment** — Crimp type - center contact and braid
- Coupling Nut Retention** — 445 N [100 lbs.] min.
- Cable Retention** — 400 N [90 lbs.] min. RG 214/U Cable
- Durability** — 500 cycles per MIL-C-39012
- Captive Contact** — 27 N [6 lbs.] min. axial retention, either direction

Environmental Characteristics:

- Temperature Range** —
Mil Type, -65°C to +165°C
Commercial, -55°C to +85°C
- Vibration** — MIL-STD-202, Method 204, Test Cond. B
- Shock** — MIL-STD-202, Method 213, Test Cond. I
- Moisture Resistance** — MIL-STD-202 Method 106
- Salt Spray** — MIL-STD-202, Method 101, Test Cond B
- Temperature Cycling** — MIL-STD-202, Method 107, Test Cond. B (except high temperature is +85°C)
- Note:** All data pertains to use with MIL-C-39012 specified cables only.

For complete product information, order Catalog 1307191

Plugs



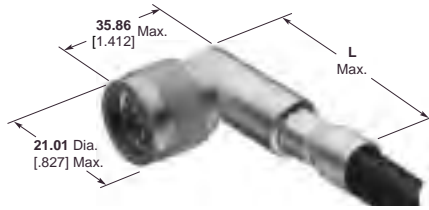
RG/U Cable	Termination Type	Body Plating	M39012/ Military No. and/ or Comments	L Dim.	Integral Die Hand Tool	Hex Across Flats		Part Numbers
						Center	Braid	
58, 58A, 58B, 58C	O Crimp	Nickel	Knurl Collar	42.85 1.687	220045-2	—	—	1-225661-2*
	O Crimp	Silver	Knurl Collar	42.85 1.687	220045-2	—	—	225361-1*
58A, 58C	Hex Crimp	Nickel	Knurl Collar	39.40 1.550	58436-1**	1.73 .068	5.41 .213	415232-2
223, 55, 55A, 55B	O Crimp	Nickel	Knurl Collar	42.85 1.687	220045-2	—	—	1-225661-3*
	O Crimp	Silver	Knurl Collar	42.85 1.687	220045-2	—	—	225361-2*
142, 142A, 142B, 400	O Crimp	Nickel	Knurl Collar	42.85 1.687	220045-2	—	—	1-225661-5*
	O Crimp	Silver	Knurl Collar	42.85 1.687	220045-2	—	—	225361-4*
142, 142A, 142B	Hex Crimp	Nickel	Hex Collar	39.40 1.550	58436-1**	1.73 .068	5.41 .213	415232-3
			Knurl Collar	39.40 1.550	58436-1**	1.73 .068	5.41 .213	415232-4
115A, Belden 89880, 9880	O Crimp	Nickel	Knurl Collar	42.85 1.687	220015-1	—	—	225092-8
Belden 9880	Hex Crimp	Nickel	Hex Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	415232-9
			Knurl Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	1-415232-0
402 Semi Rigid (.141)	Solder	Nickel	Knurl Collar	24.6 .970	—	—	—	1057088-1
405 Semi Rigid (.085)	Solder	Nickel	Knurl Collar	24.6 .970	—	—	—	1057094-1
8, 8A, 213	O Crimp	Nickel	Knurl Collar	42.85 1.687	220015-1	—	—	1-227086-0
			Knurl Collar	42.85 1.687	220015-1	—	—	225661-2
			01B0007 Knurl Collar	42.85 1.687	220015-1	—	—	51692-2
8, 213	Hex Crimp	Nickel	Hex Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	415232-5
			Knurl Collar	39.40 1.550	58436-1**	2.54 .100	10.90 .429	415232-6
11, 11A, 216	O Crimp	Silver	01B0013 Knurl Collar	42.85 1.687	220015-1	—	—	51692-4
Belden 9292	O Crimp	Nickel	—	47.22 1.859	220015-1	—	—	1-225662-8
393	Hex Crimp	Nickel	Hex Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	1-415232-1
Belden 8214	O Crimp	Nickel	Knurl Collar	42.85 1.687	220015-1	—	—	1-225661-6
9, 9A, 9B, 214	O Crimp	Nickel	Knurl Collar	42.85 1.687	220015-1	—	—	225661-1
			Knurl Collar	42.85 1.687	220015-1	—	—	51692-1
			01B0008 Knurl Collar	42.85 1.687	220015-1	—	—	51692-1
9, 214	Hex Crimp	Nickel	Knurl Collar	42.85 1.687	220015-1	—	—	1-227086-1
			Hex Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	415232-7
			Knurl Collar	39.40 1.550	58485-1**	2.54 .100	10.90 .429	415232-8

*Hand Tool 69710-1, with Die Insert 220062-1, is available to terminate these connectors. The 626 Pneumatic tool system can also be used.

**Die Set Crimp Tool — PRO-CRIMPER II Hand Tool, P/N 354940-1 or 626 Series Pneumatic Tool with 679304-1.

For complete product information, order Catalog 1307191

Right-Angle Plugs, Crimp



RG/U Cable	Termination Type	Body Plating	M39012/ Military No. and/ or Comments	L Dim.	Integral Die Hand Tool	Hex Across Flats		Part Numbers
						Center	Braid	
58A, 58C	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58436-1*	1.73 .068	5.41 .213	415255-1
142, 142A, 142B	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58436-1*	1.73 .068	5.41 .213	415255-2
8, 8A, 213	O Crimp	Nickel	Knurl Collar	57.79 2.275	220015-1	—	—	225669-2
	O Crimp	Silver	05B0002 Knurl Collar	57.79 2.275	220015-1	—	—	225014-2
8, 213	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58485-1*	2.54 .100	10.90 .429	415255-3
393	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58485-1*	2.54 .100	10.90 .429	415255-6
9, 9A, 9B, 214	O Crimp	Nickel	Knurl Collar	57.79 2.275	220015-1	—	—	225669-1
	O Crimp	Silver	05B0003 Knurl Collar	57.79 2.275	220015-1	—	—	225014-3
9, 214	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58485-1*	2.54 .100	10.90 .429	415255-4
Belden 9880	Hex Crimp	Nickel	Hex Collar	57.79 2.275	58485-1*	2.54 .100	10.90 .429	415255-5

*Crimp Tool — PRO-CRIMPER II Hand Tool, P/N 354940-1 or 626 Series Pneumatic Tool with 679304-1.

Jacks, Crimp



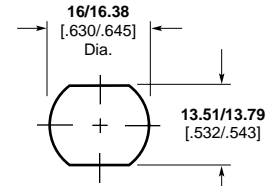
RG/U Cable	Termination Type	Body Plating	M39012/ Military No. and/ or Comments	L Dim.	Integral Die Hand Tool	Hex Across Flats		Part Numbers
						Center	Braid	
58A, 58C	Hex Crimp	Nickel	—	41.28 1.625	58436-1**	1.73 .068	5.41 .213	415242-1
142, 142A, 142B, 400	O Crimp	Nickel	—	44.84 1.765	220045-2**	—	—	1-225663-5*
142, 142A, 142B	Hex Crimp	Nickel	—	41.28 1.625	58436-1**	1.73 .068	5.41 .213	415242-2
8, 8A, 213	O Crimp	Silver	02B0008	49.2 1.937	220015-1	—	—	225093-2
8, 213	Hex Crimp	Nickel	—	41.28 1.625	58485-1**	2.54 .100	10.90 .429	415242-3
9, 9A, 9B, 214	O Crimp	Silver	02B0009	49.2 1.937	220015-1	—	—	225093-1
9, 214	Hex Crimp	Nickel	—	41.28 1.625	58485-1**	2.54 .100	10.90 .429	415242-4
Belden 9880	Hex Crimp	Nickel	—	41.28 1.625	58485-1**	2.54 .100	10.90 .429	415242-5
393	Hex Crimp	Nickel	—	41.28 1.05	58485-1**	2.54 .100	10.90 .429	415242-6
402 Semi Rigid (.141)	Solder	Nickel	—	26.7 1.05	—	—	—	1057116-1
405 Semi Rigid (.085)	Solder	Nickel	—	26.7 1.05	—	—	—	1057119-1

*Hand Tool 69710-1, with Die Insert 220062-1, is available to terminate these connectors. The 626 Pneumatic tool system can also be used.

**Die Set Crimp Tool — PRO-CRIMPER II Hand Tool, P/N 354940-1 or 626 Series Pneumatic Tool with 679304-1.

For complete product information, order Catalog 1307191

Bulkhead Jacks, Crimp

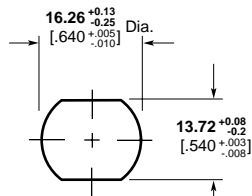


Maximum Panel Thickness 6.35 [.250]
Recommended Panel Cutout

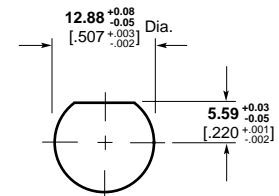
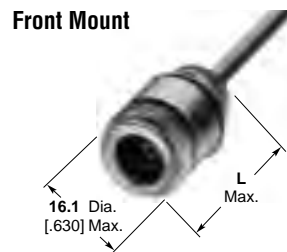
RG/U Cable	Termination Type	Body Plating	L Dim.	Integral Die Hand Tool	Hex Across Flats		Part Numbers
					Center	Braid	
58, 58A, 58B, 58C	O Crimp	Silver	49.6 1.953	220045-2	—	—	225363-1*
58A, 58C	Hex Crimp	Nickel	45.72 1.800	58436-1**	1.73 .068	5.41 .213	415248-1
223, 55, 55A, 55B	O Crimp	Silver	49.6 1.953	220045-2	—	—	225363-2*
142, 142A, 142B, 400	O Crimp	Silver	49.6 1.953	220045-2	—	—	225363-4*
142, 142A, 142B	Hex Crimp	Nickel	45.72 1.800	58436-1**	1.73 .068	5.41 .213	415248-2
124, 140, 210, 62, 62A, 62B, 59, 59A, 59B, Belden 9291, 9209, 9269, 89269	O Crimp	Silver	45.21 1.780	220045-3	—	—	225363-6
	O Crimp	Nickel	49.61 1.953	220045-3	—	—	1-225667-6
Belden 9880	Hex Crimp	Nickel	45.72 1.800	58485-1**	2.54 .100	10.90 .429	415248-5
8, 213	Hex Crimp	Nickel	45.72 1.800	58485-1**	2.54 .100	10.90 .429	415248-3
393	Hex Crimp	Nickel	45.72 1.800	58485-1**	2.54 .100	10.90 .429	415248-6
9, 214	Hex Crimp	Nickel	45.72 1.800	58485-1**	2.54 .100	10.90 .429	415248-4
9, 9A, 9B, 214	O Crimp	Nickel	49.61 1.953	220015-1	—	—	225667-1

*Hand Tool 69710-1, with Die Insert 220062-1, is available to terminate these connectors. The 626 Pneumatic tool system can also be used.
**Crimp Tool — PRO-CRIMPER II Hand Tool, P/N 354940-1 or 626 Series Pneumatic Tool with 679304-1.

Bulkhead Jacks for Semi-Rigid Cable



Maximum Panel Thickness 6.35 [.250]
Recommended Panel Cutout



Maximum Panel Thickness 6.35 [.250]
Recommended Panel Cutout

RG/U Cable	Termination Type	Body Plating	M39012/ Military No. and/or Comments	L Dim.	Integral Die Hand Tool	Part Numbers
402 Semi-Rigid/.141	Crimp	Nickel	Rear Mount	29.37 1.156	*	228658-1
	Crimp	Nickel	Front Mount	29.37 1.156	*	228448-1
	Solder	Nickel	Rear Mount	25.4 1.00	—	1057176-1
405 Semi-Rigid/.085	Solder	Nickel	Rear Mount	33.9 1.335	—	1057165-1

*Tooling—Hand Tool No. 59980-1, Requires (2) Crimping Dies No. 312253-1 and (1) Locator No. 220220-2.

For complete product information, order Catalog 1307191

Jack, Panel Mount



RG/U Cable	Termination Type	Body Plating	L Dim.	Die Set	Hex Across Flats		Part Numbers
					Center	Braid	
58A, 58C	Hex Crimp	Nickel	41.28 1.625	58436-1	1.73 .068	5.41 .213	415252-1
142, 142A, 142B	Hex Crimp	Nickel	41.28 1.625	58436-1	1.73 .068	5.41 .213	415252-2
8, 213	Hex Crimp	Nickel	41.28 1.625	58485-1	2.54 .100	10.90 .429	415252-3
9, 214	Hex Crimp	Nickel	41.28 1.625	58485-1	2.54 .100	10.90 .429	415252-4
Belden 9880	Hex Crimp	Nickel	41.28 1.625	58485-1	2.54 .100	10.90 .429	415252-5

*Crimp Tool— PRO-CRIMPER II Hand Tool, P/N 354940-1 or 626 Series Pneumatic Tool with 679304-1.

Feed-Thru Jack Adapter

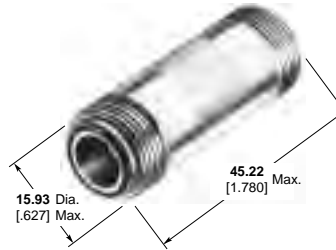
Plating:

Body— Nickel

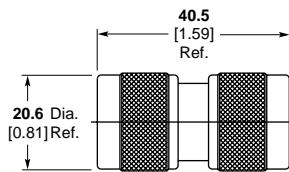
Dielectric— General purpose polypropylene

Contact— Gold plated

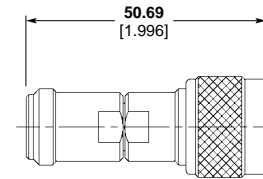
Part Number 227945-2



Inter-Series Adapters



Part Number 1311318-1
M/A-COM Model No. N15P10E999X



Part Number 1057374-1
M/A-COM Model No. 3082-0000-10

Body Plating	Contact	Dielectric	M/A-COM Model No.	Part Numbers
White bronze	Gold	Teflon	N15P10E999X	1311318-1
Stainless steel/passivate	Gold	Teflon	3082-0000-10	1057374-1

For complete product information, order Catalog 1307191

Product Facts

- Designs meet SCTE requirements where applicable
- Plugs, jacks and adapters available
- Board mount and cable mount available
- Surface mount connectors available
- Sealed product available
- High current carrying capabilities



10
RF Coax Connectors

AMP F Series connectors offer performance, which is driven by evolving OEM requirements and expectations. Improved VSWR beyond 1 GHz, high current carrying capability, and pressure sealed products are now part of the standard product offering. Designs compliant with SCTE, Bellcore, UL/CSA, and various other industry and agency standards are also available.

Both cable applied and PCB terminated products are offered in a variety of styles. The cable connectors are designed for fast, accurate termination with tools common to the industry. Application cost reductions can be achieved using AMP PCB terminated products; press-fit designs eliminate the need for soldering.

Center of gravity control and PCB retention designs prevent tipping and eliminate fixturing during soldering. Integral mechanical keys and "D flats" prevent rotation in panels.

These products provide the highly reliable, cost-effective solutions demanded by today's evolving marketplace.

Technical Documents:

Product Specifications

- 108-1518 — Connector Coaxial, F Series, RF, Single Crimp Plug
- 108-1643 — Connector Coaxial, F Series, RF, PCB Mounted
- 108-1755 — Connector Economy, F Series, RF Coaxial, PCB
- 108-1757 — Connector, 15 amp, G Series Jack, PCB
- 108-1758 — Connector, F Series Jack, PCB, Surface Mount
- 108-1629 — Feedthrough, Sealed F Port Jack

Instruction Sheets

- 408-9221 — Coaxial Series F Plug Connectors
- 408-4402 — Series F & G Coaxial Cable Bulkhead Jack Connector
- 408-4291 — Pro-Crimper II Hand Tool Assembly 58622-1 and 58622-2

For complete product information, order Catalog 1307191

Product Facts

- Performance to 12.4 GHz
- Available in various base metal options, including stainless steel, brass and zinc diecast
- Uses industry standard crimp tools and processes
- Available with corrosion resistant, non-magnetic White Bronze plating
- Meets all performance requirements for MIL-C-39012.



Tyco Electronics offers a complete line of SMA connectors designed for performance to 18 GHz. The SMA product line offers stainless steel bodies, as well as non-ferrous metals. Various plating options are available, including Gold and White Bronze. The SMA interface is fully compatible with Mil-C-39012.

The SMA series meets the performance, quality and application requirements of the commercial marketplace. This includes White Bronze plating, a unique finish developed by Tyco Electronics to address applications requiring a non-magnetic plating. This plating is highly resistant to wear, and contains no ferrous metals, thus displaying

excellent intermodulation characteristics.

To satisfy the broad range of commercial applications, SMA connectors are available in a broad range of standard configurations including; straight and right angle cable applied plugs, bulkhead cable jacks, two and four hole flange mount panel jacks, straight and right angle pcb mount jacks and various between and in series adapters. Numerous packaging and testing options are also available to meet specific system criteria as well.

Additionally, standard military approved (QPL) interfaces are offered as well. Including connectors for semi-rigid cable and micro strip applications.

The 3 Piece SMA offering is designed especially for applications in cellular infrastructure where Inter-Modulation Products (IMP) must be minimized. By limiting non-linearities within the connectors, IMP is reduced and increased channel capacity can be offered.

For complete product information, order Catalog 1307191

Electrical

Connector Type	Cable	Frequency Max. (GHz)	VSWR x (fGHz)	Contact Resistance (milliohms max.)		Insulation Resistance (megohms min.)	Dielectric Withstanding Voltage (Volts RMS)	Corona Extinction Voltage at 70,000 Ft. (V RMS min.)	RF Transmission Loss	RF High Potential at 5 MHz (V RMS)	RF Leakage (dB min.)
				Center Contact	Outer Contact						
Straight Cable Plug without Contact	RG-402 (3.58 [.141])	Note 1	1.02 + .005	N/A	2.0	10,000	N/A	250	N/A	670	-(90-fGHz)
	RG-405 (2.16 [.085])	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(90-fGHz)
Straight Cable Plugs & Jacks Solder Attachment	RG-402 (3.58 [.141])	18.0	1.05 + .005	2.0	2.0	10,000	1500	375	.03 √f(GHz)	1000	-(90-fGHz)
	3.58 [.141] Microporous	18.0	1.05 + .005	2.0	2.0	10,000	1500	375	.03 √f(GHz)	1000	-(90-fGHz)
	RG-401 (6.35 [.250])	18.0	1.07 + .007	2.0	2.0	10,000	1500	375	.03 √f(GHz)	1000	-(90-fGHz)
	RG-174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 √f(GHz)	500	-(60-fGHz)
	RG-55, 58, 141, 142, 223, 303, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 √f(GHz)	670	-(60-fGHz)
Straight Cable Plugs & Jacks Solder Clamp Attachment	RG-405 (2.16 [.085])	12.4	1.10 + .015	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(90-fGHz)
	RG-402 (3.58 [.141])	12.4	1.07 + .01	2.0	2.0	10,000	1500	375	.03 √f(GHz)	1000	-(90-fGHz)
Straight Cable Plugs & Jacks Clamp Attachment	RG-55, 58, 141, 142, 223, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 √f(GHz)	670	-(60-fGHz)
	RG-174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 √f(GHz)	500	-(60-fGHz)
	RG-180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
Straight Cable Plugs & Jacks Crimp Attachment	RG-55, 142, 223, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 √f(GHz)	670	-(60-fGHz)
	RG-58, 141, 303	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 √f(GHz)	670	-(60-fGHz)
	RG-174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 √f(GHz)	500	-(60-fGHz)
	RG-180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	RG-178, 196	Note 1	1.2 + .02	2.0	2.0	10,000	500	125	.06 √f(GHz)	335	-(60-fGHz)
Straight Cable Plugs & Jacks Compression Clamp Attachment	RG-401 (6.35 [.250])	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 √f(GHz)	1000	-70 dB min.
	6.35 [.250] Microporous	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 √f(GHz)	1000	-70 dB min.
	6.35 [.250] 3 Spline	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 √f(GHz)	1000	-70 dB min.
	6.35 [.250] 5 Spline	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 √f(GHz)	1000	-70 dB min.
	RG-405 (2.16 [.085])	12.4	1.18 + .015	2.0	2.0	10,000	1000	250	.04 √f(GHz)	670	-(90-fGHz)
Right Angle Cable Plugs Solder Attachment	RG-405 (2.16 [.085])	18.0	1.18 + .015	2.0	2.0	10,000	1000	250	.04 √f(GHz)	670	-(90-fGHz)
	RG-402 (3.58 [.141])	12.4	1.15 + .015	2.0	2.0	10,000	1500	325	.04 √f(GHz)	1000	-(90-fGHz)
	RG-402 (3.58 [.141])	18.0	1.10 + .010	2.0	2.0	10,000	1500	250	.05 √f(GHz)	1000	-(90-fGHz)
	RG-55, 58, 141, 142, 223, 303, 400	Note 1	1.15 + .01	2.0	2.0	10,000	1000	250	.07 √f(GHz)	670	-(60-fGHz)
	RG-174, 188, 316	Note 1	1.15 + .02	2.0	2.0	10,000	750	190	.07 √f(GHz)	500	-(60-fGHz)
	RG-55, 142, 223, 400	Note 1	1.15 + .02	2.0	2.0	10,000	1000	250	.07 √f(GHz)	670	-(60-fGHz)
Right Angle Cable Plugs Crimp Attachment	RG-58, 141, 303	Note 1	1.15 + .02	2.0	2.0	10,000	1000	250	.07 √f(GHz)	670	-(60-fGHz)
	RG-174, 188, 316	Note 1	1.18 + .02	2.0	2.0	10,000	750	190	.07 √f(GHz)	500	-(60-fGHz)
	RG-180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	RG-178, 196	Note 1	1.25 + .025	2.0	2.0	10,000	500	125	.07 √f(GHz)	335	-(60-fGHz)
	RG-55, 58, 141, 142, 223, 303	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.08 √f(GHz)	670	-(60-fGHz)
Right Angle Cable Plugs Clamp Attachment	RG-174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.08 √f(GHz)	500	-(60-fGHz)
	RG-180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	Non-Captured	18.0	1.03 + .004	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(100-fGHz)
Flange Mount Plugs & Jacks Panel or Bulkhead Mount	Epoxy Captured	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(60-fGHz)
	Mechanical Capture	18.0	1.04 + .004	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(100-fGHz)
	Field Replaceable Hermetic Launchers	18.0	1.04 + .006	2.0	2.0	10,000	1000	250	.04 √f(GHz)	670	-(100-fGHz)
Bulkhead Feedthrough Jacks	Epoxy Captured	18.0	1.07 + .010	2.0	2.0	10,000	1000	250	.04 √f(GHz)	670	-(60-fGHz)
	Mechanical Capture	18.0	1.07 + .010	2.0	2.0	10,000	1000	250	.04 √f(GHz)	670	-(100-fGHz)
Right Angle Flange Mount Jacks	N/A	18.0	1.07 + .015	2.0	2.0	10,000	1000	250	.08 √f(GHz)	670	-(90-fGHz)
	N/A	12.4	1.15 + .015	2.0	2.0	10,000	1000	250	.08 √f(GHz)	670	-(90-fGHz)
Printed Circuit Board Mount Straight Terminal	N/A	18.0	N/A	2.0	2.0	10,000	1000	250	N/A	670	N/A
Right Angle Printed Circuit	N/A	12.4	N/A	2.0	2.0	10,000	1000	250	N/A	670	N/A
End Launch Stripline Circuit	N/A	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(60-fGHz)
Surface Launch Stripline Circuit	N/A	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 √f(GHz)	670	-(60-fGHz)
Right Angle Surface Launch Stripline Circuit	N/A	12.4	1.15 + .015	2.0	2.0	10,000	1000	250	.08 √f(GHz)	670	-(60-fGHz)
	N/A	18.0	1.07 + .015	2.0	2.0	10,000	1000	250	.08 √f(GHz)	670	-(60-fGHz)

¹ Maximum operating frequency of cable per MIL-C-17.

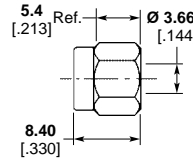
² Specifications do not apply to hermetic or compression crimp connectors.

³ For Brass SMA: Frequency Range DC-6GHz, Impedance 50 Ohms, Insulation Resistance.

For complete product information, order Catalog 1307191

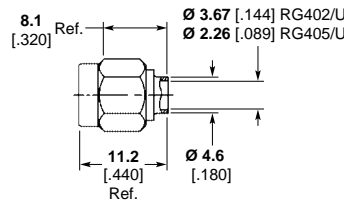
Direct Solder Attachment, Semi-Rigid Cable Connectors

Straight Cable Plug



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Pass.	No Center Contact	No Center Contact	1055420-1	408-4761	2001-7941-02	1050757-1

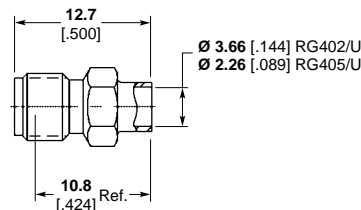
Straight Cable Plug



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Gold ¹	No	Solder	1055420-1	408-4764	2001-5003-02	1050525-1
405 (2.16 [.085])	Stainless, Gold ¹	No	Solder	1055420-1	408-4765	2001-7985-02	1050770-1
405 (2.16 [.085])	Brass, Gold	No	Solder	1055420-1	408-4765	2201-7985-09	1091921-1
402 (3.58 [.141])	Stainless, Gold ¹	No Center Contact	No Center Contact	N/A	—	2001-5031-02	1050542-1
405 (2.16 [.085])	Stainless, Gold ¹	No	Solder	1055420-1	—	2001-5032-02	1050548-1

¹ Coupling nut is passivated stainless steel.

Straight Cable Jack

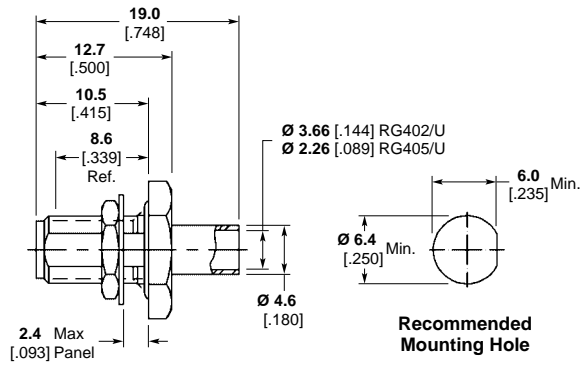


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	2002-5015-00	1050854-1
405 (2.16 [.085])	Stainless, Gold	No	Solder	1055420-1	408-4833	2002-5016-00	1050859-1

For complete product information, order Catalog 1307191

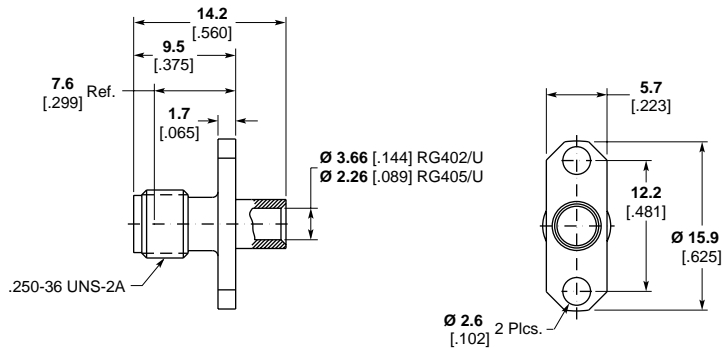
Direct Solder Attachment, Semi-Rigid Cable Connectors

Bulkhead Cable Jack



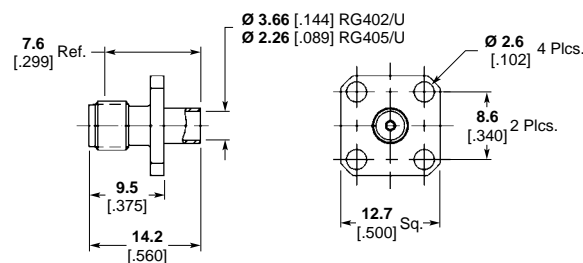
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Number
402 (3.58 [0.141])	Brass, Gold	No	Solder	1055420-1	408-4768	2204-7941-09	1082029-1

2 Hole Flange Mount Cable Jack



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [0.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	2006-5013-00	1051052-1
405 (2.16 [0.085])	Stainless, Gold	No	Solder	1055420-1	408-4883	2006-5010-00	1051046-1

4 Hole Flange Mount Cable Jack

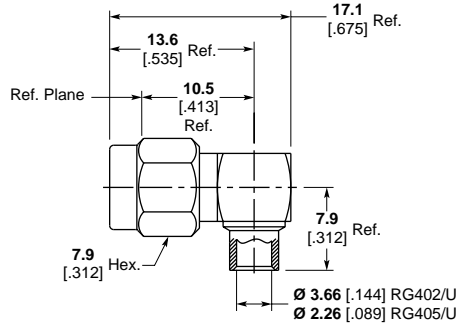


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [0.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	2006-7941-00	1051081-1
405 (2.16 [0.085])	Stainless, Gold	No	Solder	1055420-1	408-4883	2006-7985-00	1051085-1

For complete product information, order Catalog 1307191

Semi-Rigid Cable Connectors

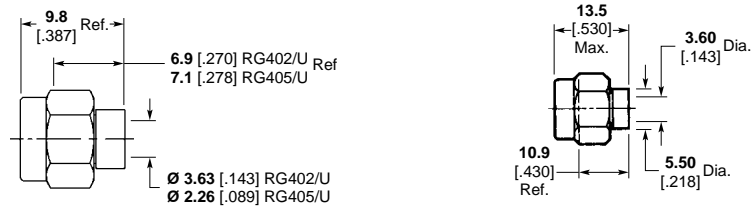
Right Angle Cable Plug, Direct Solder Attachment



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [0.141])	Stainless, Gold ¹	Epoxy	Solder	1055420-1	408-4831	2007-7941-02	1051151-1
405 (2.16 [0.085])	Stainless, Gold ¹	Epoxy	Solder	1055420-1	408-4831	2007-7985-02	1051157-1
402 (3.58 [0.141])	Brass, Gold	Mechanical	Solder	1055420-1	408-4831	2207-7941-09	1082030-1
405 (2.16 [0.085])	Brass, Gold	Mechanical	Solder	1055420-1	408-4831	2207-7985-09	1088312-1

¹Coupling nut is passivated stainless steel.

Straight Cable Plug, Crimp

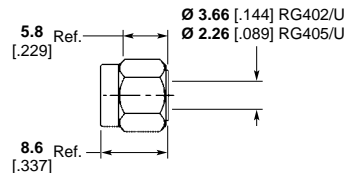


Part Number 1050598-1 and 1050740-1

Part Number 1050742-1

Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
405 (2.16 [0.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4695	2001-5385-02	1050598-1
402 (3.58 [0.141])	Stainless, Pass.	No Center Contact	Solderless	1055835-1	408-4690	2001-7641-02	1050740-1
405 (2.16 [0.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4690	2001-7642-02	1050742-1

Straight Cable Plug — Low Profile, Crimp

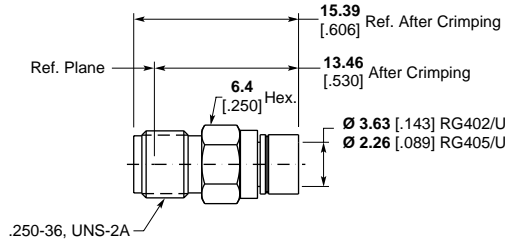


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [0.141])	Stainless, Pass.	No Center Contact	No Center Contact	1055835-1	408-4693	2001-5363-02	1050591-1
402 (3.58 [0.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4696	2001-5395-02	1050602-1
405 (2.16 [0.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4697	2001-5443-02	1050611-1

For complete product information, order Catalog 1307191

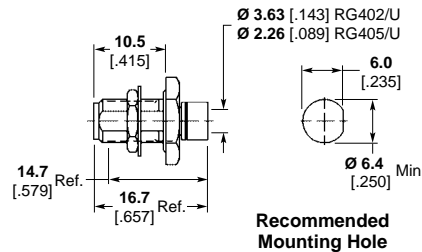
Semi-Rigid Cable Connectors

Straight Cable Jack, Crimp



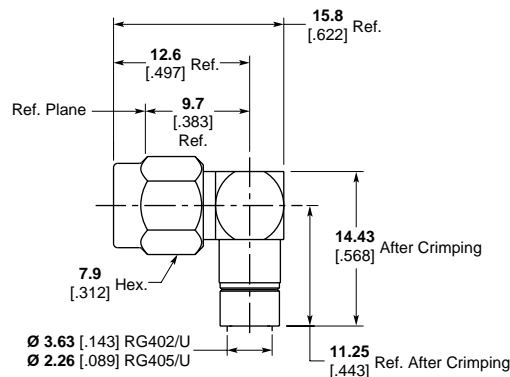
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4687	2002-7641-02	1050909-1
405 (2.16 [.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4688	2002-7685-02	1050911-1

Bulkhead Cable Jack, Crimp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4954	2004-7641-02	1051005-1
405 (2.16 [.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4689	2004-7685-02	1051007-1

Right Angle Cable Plug, Crimp

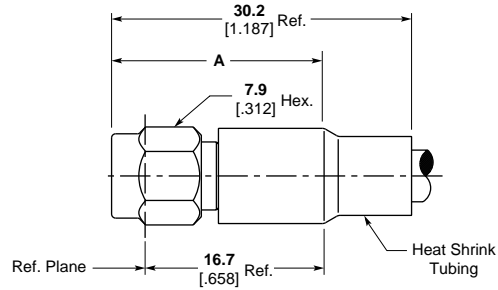


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
402 (3.58 [.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4691	2007-7641-02	1051145-1
405 (2.16 [.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4692	2007-7685-02	1051147-1

For complete product information, order Catalog 1307191

Flexible Cable Connectors

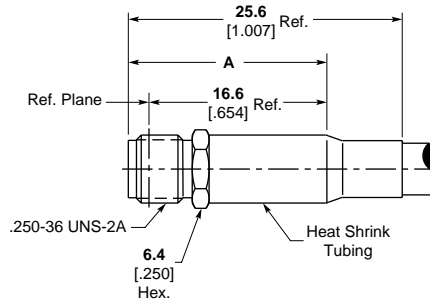
Straight Cable Plug, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	A Dim.	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
55, 58, 141, 142, 223, 303, 400	Stainless, Gold ¹	No	Solder	19.7 .775	408-4821	2031-5002-02	1051638-1
174, 188, 316	Stainless, Gold ¹	No	Solder	17.5 .690	408-4756	2031-5003-02	1051644-1

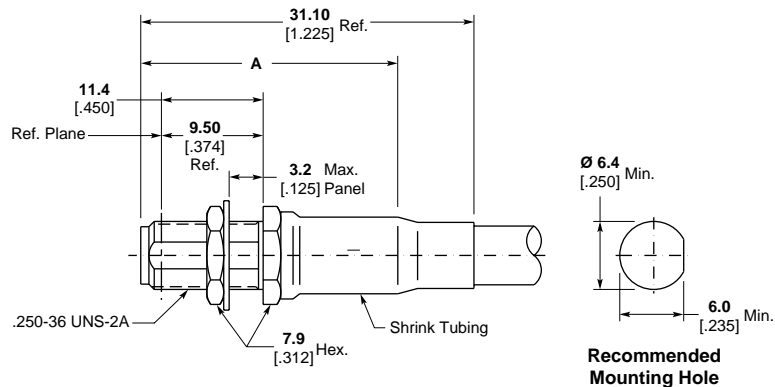
¹ Coupling nut is passivated stainless steel.

Straight Cable Jack, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	A Dim.	Instruction Sheet	M/A-COM Model Numbers	Part Number
55, 58, 141, 142, 223, 303, 400	Stainless, Gold	No	Solder	18.5 .730	408-4820	2032-5002-00	1051852-1

Bulkhead Cable Jack, Solder

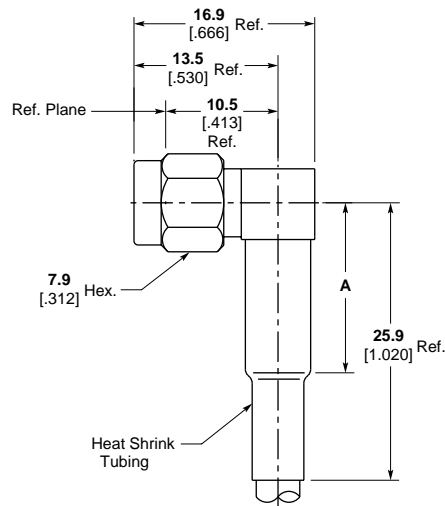


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	A Dim.	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
RG 55, 58, 141, 142, 300	Stainless, Gold	No	Solder	24.0 .945	408-4817	2034-5007-00	1051861-1
174, 188, 316	Stainless, Gold	No	Solder	21.0 .825	408-4817	2034-5008-00	1051942-1

For complete product information, order Catalog 1307191

Flexible Cable Connectors

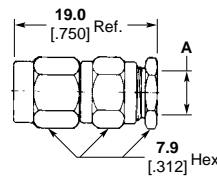
Right Angle Cable Plug, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	A Dim.	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
55, 58, 141, 142, 223, 303, 400	Stainless, Gold ¹	Yes	Solder	16.0 .630	408-4816	2037-5005-02	1052063-1
174, 188, 316	Stainless, Gold ¹	Yes	Solder	11.2 .440	408-4815	2037-5006-02	1052067-1

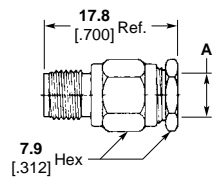
¹Coupling nut is passivated stainless steel.

Straight Cable Plug, Clamp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	A Dim.	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
55, 58, 141, 142, 223, 303, 400	Stainless, Pass.	Yes	Solder	5.6 .220	408-4906	2001-7141-02	1050718-1
174, 188, 316	Stainless, Pass.	Yes	Solder	2.9 .116	408-4906	2001-7188-02	1050721-1

Straight Cable Jack, Clamp

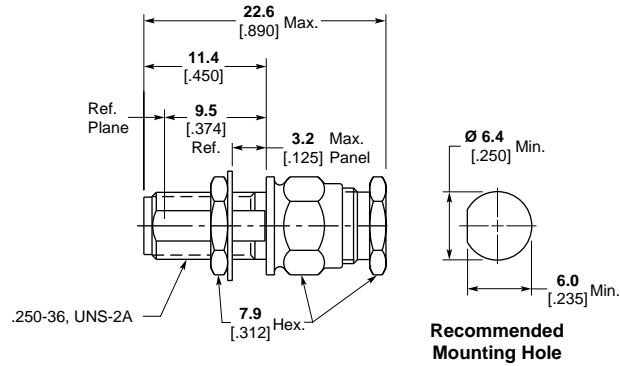


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
RG 55, 58, 141, 303	Stainless, Gold	Yes	Solder	5.6 .220	408-4906	2002-7141-00	1050900-1
174, 188, 316	Stainless, Pass.	Yes	Solder	2.9 .116	408-4906	2002-7188-02	1050903-1

For complete product information, order Catalog 1307191

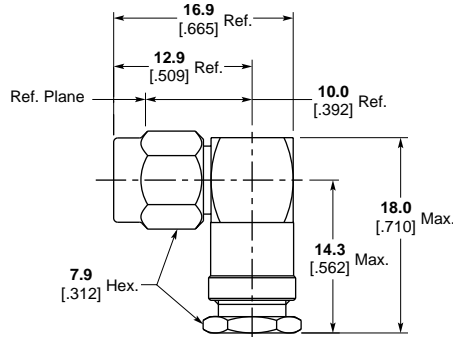
Flexible Cable Connectors

Bulkhead Feedthrough Cable Jack, Clamp



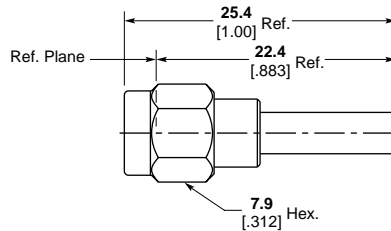
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Instruction Sheet	M/A-COM Model Numbers	Part Number
174, 188, 316	Stainless, Pass.	Yes	Solder	408-4704	2004-7188-02	1050996-1

Right Angle Cable Plug, Clamp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
RG 55, 58, 141, 300	Stainless, Gold	Mechanical	Solder	408-4965	2007-7141-00	1051136-1
174, 188, 316	Stainless, Pass.	Mechanical	Solder	408-4965	2007-7188-02	1051140-1

Straight Cable Plug, Crimp



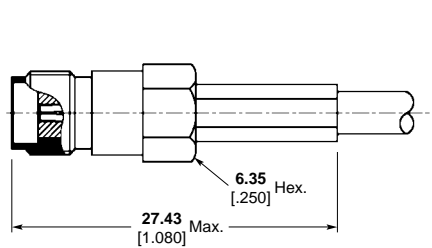
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2831-7388-02	1056443-1
RD316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1 ¹	408-4661	2831-7316-02	1056436-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2831-7358-02	1056441-1
55, 142, 223, 400	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2831-7341-02	1056438-1
174, 179, 187, 188, 316	Brass, White Bronze	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2231-7388-36	1082034-1

¹ Use die 1055270-1 to crimp RD316 ferrule.
² Use die 1055880-1 to crimp center contact.

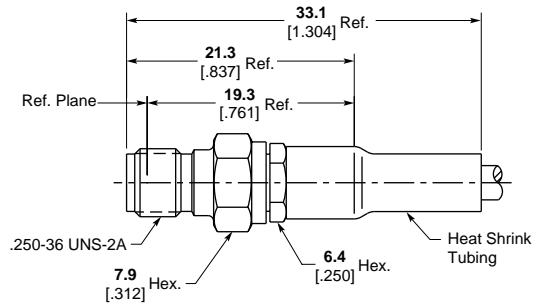
For complete product information, order Catalog 1307191

Flexible Cable Connectors

Straight Cable Jack, Crimp



Style A

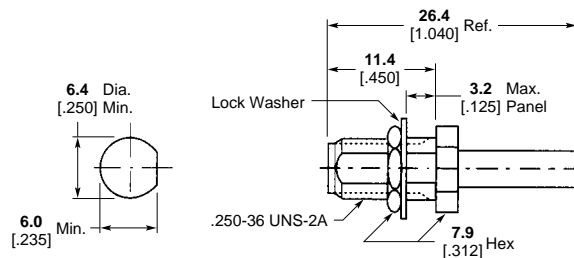


Style B

Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	Style	M/A-COM Model Numbers	Part Numbers
58	Brass, Nickel	Mechanical	Solder	1	408-4032	A	—	447648-1
142	Brass, Nickel	Mechanical	Solder	1	408-4032	A	—	447648-2
174, 316	Brass, Nickel	Mechanical	Solder	1	408-4032	A	—	447648-3
55, 142, 223, 400	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4703	B	2032-5007-02	1051862-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4704	B	2032-5021-02	1051867-1
174, 188, 316	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4708	B	2032-5003-02	1051855-1
178, 196	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4806	B	2032-5026-02	1051869-1

¹ Refer to Tyco Customer Print for tooling requirement. Daniels/Mil Tooling used for contact and ferrule crimp.

Bulkhead Feedthrough Cable Jack, Crimp



Recommended
Mounting Hole

Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2834-7388-02	1056452-1
RD316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1 ³	408-4661	2834-7316-02	1056445-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2834-7358-02	1056450-1
55, 142, 223, 400	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	2834-7341-02	1056447-1
142	Brass, Nickel	Mechanical	Crimp	1	408-4032	—	448103-1
174, 188, 316	Brass, Nickel	Mechanical	Crimp	1	408-4032	—	448103-2

¹ Refer to Tyco Customer Print for tooling requirement. Daniels/Mil Tooling used for contact and ferrule crimp.

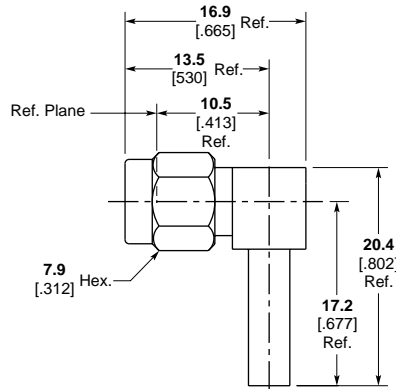
² Use die 1055880-1 to crimp center contact.

³ Use die 1055270-1 to crimp RD316 ferrule.

For complete product information, order Catalog 1307191

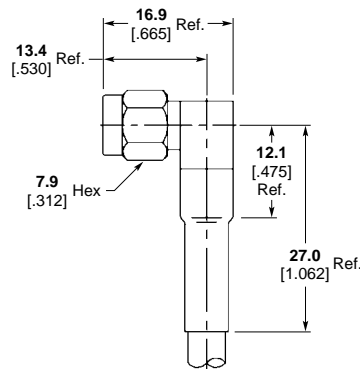
Flexible Cable Connectors

Right Angle Cable Plug, Crimp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	2837-7388-02	1056462-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	2837-7316-02	1056456-1
174, 188, 316	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	2837-7358-02	1056460-1
178, 196	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	2837-7341-02	1056458-1

Right Angle Cable Plug, Crimp

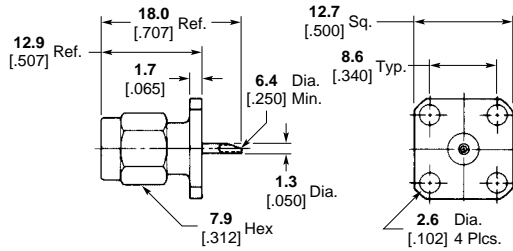


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part Numbers	Instruction Sheet	M/A-COM Model Numbers	Part Numbers
55, 142, 223, 400	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4681	2037-5007-02	1052072-1
58, 141, 303	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4682	2037-5056-02	1052093-1
174, 188, 316	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4683	2037-5008-02	1052076-1
178, 196	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4801	2037-5100-02	1052098-1

For complete product information, order Catalog 1307191

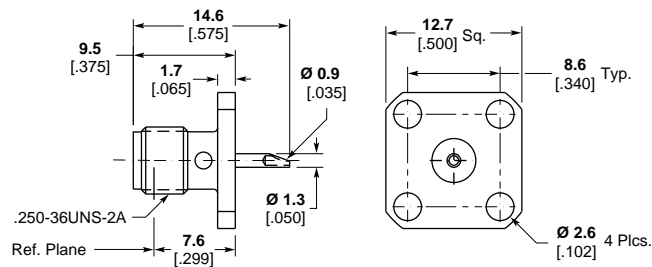
Panel Mount, Solder Pot Terminal

4 Hole Flange Mount Plug Receptacle



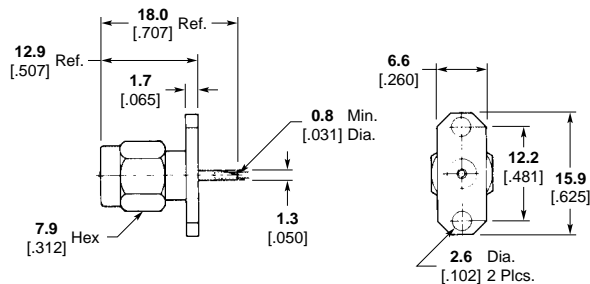
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	M/A-COM Model Number	Part Number
Stainless, Passivated	Epoxy	N/A	-65 to 125° C	2051-0000-02	1052324-1

4 Hole Flange Mount Jack Receptacle



Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	M/A-COM Model Number	Part Number
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	2052-0000-02	1052422-1

2 Hole Flange Mount Plug Receptacle



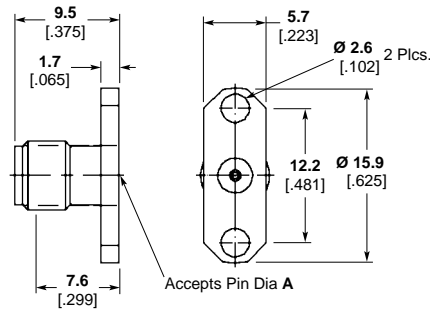
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	M/A-COM Model Number	Part Number
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	2051-1350-02	1052343-1

10
RF Coax Connectors

For complete product information, order Catalog 1307191

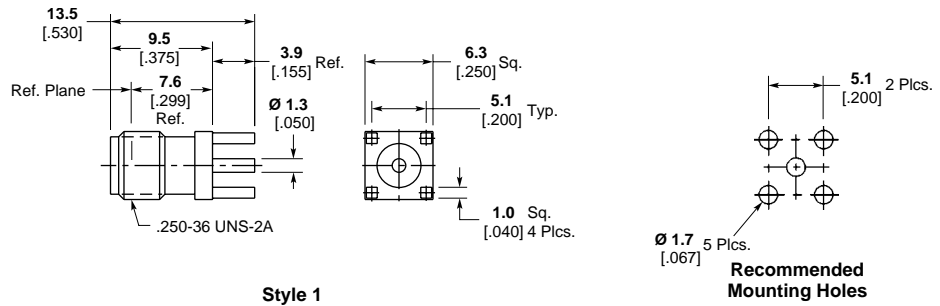
Jacks

2 Hole Flange Mount Jack Receptacle without EMI/RFI Gasket, Field Replaceable Hermetic Launchers

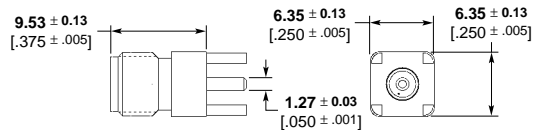


Material & Finish	Captivation	Pin Diameter A	M/A-COM Model Numbers	Part Numbers
Stainless, Passivated	Mechanical	.51 [0.020]	2052-3363-02	1052652-1
Stainless, Passivated	Mechanical	.91 [0.036]	2052-3359-02	1052646-1

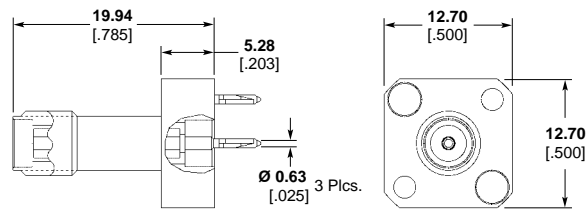
PC Board Mount Vertical Jack



Style 1



Style 2



Style 3

Material & Finish	Style Numbers	M/A-COM Model Numbers	Part Numbers
Stainless, Gold	1	2062-0000-00	1053354-1
Brass, Gold	1	2262-0000-09	1223104-1
Brass, Gold	2	—	221789-1
Brass, Gold	2	—	221789-3
Brass, Nickel Plate	3	—	1274096-1

For complete product information, order Catalog 1307191

Tooling

Solder Assembly Kit Brass SMA Connectors

Kit Part Number 1055420-1

(M/A-COM Model Number
2098-5066-54)



Item Description	M/A-COM Model Numbers	Part Numbers
Center Contact Holder	2098-5221-10	1055454-1
Dielectric Insert Tool	2098-5215-02	1055448-1
	2098-5214-02	1055447-1
Dielectric Recess Tool	2098-5217-54	1055450-1
Fixture Sub-Assembly	2098-5206-54	1055439-1
Inserts — 2.16 [.085] (2)	2098-5208-54	1055441-1
Inserts — 3.58 [.141] (2)	2098-5207-54	1055440-1
Locator Tool	2098-5209-02	1055442-1
	2098-5210-02	1055443-1
	2098-5213-02	1055446-1
	2098-5218-02	1055451-1
Retainer Ring Pliers	2098-5216-54	1055449-1
Solder Gauge 0.25 [.010]	2098-5516-02	1055500-1
Solder Gauge 0.38 [.015]	2098-5212-02	1055445-1
Solder Gauge 0.46 [.018]	2098-5211-02	1055444-1

Universal Compression Crimp Tool

Kit Part Number 1055835-1

(Kit M/A-COM Model Number
2598-5200-54)

AMP Universal Compression Crimp Tool offers the ability to rapidly produce cable assemblies using solderless compression crimp connectors with semi-rigid cables. This universal assembly tool kit will attach SMA, OSP, N and TNC series connectors to 3.58 [.141], 2.16 [.085] and 6.35 [.250] cable quickly and consistently with excellent mechanical and electrical results.

The tool kit permits single hand assembly. Anvils and cable supports can be quickly changed. Crimp lengths can be adjusted from .025 [.001] to 25.4 [1.000] in increments of .025 [.001]. Sharp radius bends in cables are easily accommodated. The kit contains:






Description	M/A-COM Model Numbers	Part Numbers
Crimp Frame	2598-5196-54	1055831-1
Calibration Gauge	2598-5197-54	1055832-1
3.58 [.141] Cable Support	2598-5198-54	1055833-1
2.16 [.085] Cable Support	2598-5199-54	1055834-1
SMA Plug Anvil	2598-5201-54	1055836-1
SMA Jack Anvil	2598-5202-54	1055837-1
Type N Plug Anvil	2598-5203-54	1055838-1
Type N Jack Anvil	2598-5204-54	1055839-1
TNC Plug Anvil	2598-5205-54	1055840-1
TNC Jack Anvil	2598-5206-54	1055841-1
OSP Plug Anvil	2598-5207-54	1055842-1
OSP Jack Anvil	2598-5208-54	1055843-1

All tools may be purchased separately.

For complete product information, order Catalog 1307191

Product Facts

- **SMB offers snap-fit coupling for quick connect/disconnect**
- **Choice of Commercial or High Rel Connectors**
- **50 and 75 Ω MIL-Type connectors available**
- **Straight plugs and jacks are completely crimp terminated**
- **Fast easy cable assembly**
- **Low VSWR**
- **Standard military, commercial or AMP tooling**
- **Listed under the Component Program of Underwriters Laboratories Inc., File No. E81956** 
- **PC Board soldered connectors are recognized under the Component Program of Underwriters Laboratories Inc., File No. E81956** 
- **Certified by Canadian Standards Association File No. LR 7189** 

SMB Connectors are available in commercial and high rel versions. They are ideally suited for circuit miniaturization and are offered in a wide range of configurations including plugs, right angle plugs, jacks, bulkhead jacks and adapters, as well as printed circuit board and solder jacks.

Termination costs are kept to a minimum using plugs and jacks with a crimp center contact and hex crimp outer braid. Both hand held tooling and pneumatic bench-mounted tooling is available. Easily assembled right-angle plugs have a hex crimp on the outer braid ferrule and bifurcated solder center contacts.

AMP 75 Ohm BT 43 SMB Connectors feature unique spring mating with snap-fit couplings for quick connect/disconnect. These connectors are designed to be intermateable with 75 Ohm SMB MIL-C-39012 connectors. They also feature reliable dual crimp cable terminations.



Packaging — All connectors are packaged individually unless otherwise noted under the "Military No. and/or Comments" column in the connector specifications chart.

For complete product information, order Catalog 1307191

SMB Connector Specifications

Electrical Characteristics:

Impedance — 50 ohms and 75 ohms, nominal

Frequency Range — 0 to 4.0 GHz

Voltage Rating (VRMS)—

	Sea Level	70,000 Feet
50 ohm connectors for RG-178/U series cable	300	75
50 ohm connectors for RG-316/U series cable	400	100
75 ohm connectors for RG-179/U series cable	300	75
75 ohm connectors for RG-195/U series cable	500	125

Insulations Resistance — 1000 megohms min.

Contact Resistance — (milliohms max.)

	Initial	After Environment
Center contact	6.0	8.0
Outer contact	1.0	1.5
Braid to body	1.0	N/A

Contact Current Rating — 1.5 amps DC max.

Voltage Standing Wave Ratio (VSWR) —

to 4.0 GHz or 80% of upper cutoff frequency of the cable, whichever is lower.

Cable	Mating Engagement	
	Straight	Rt. Angle
RG-178/U Series	1.30 + .04F	1.45 + .06F
RG-316/U Series	1.25 + .04F	1.35 + .04F

F=GHz, does not apply to 75 ohm connectors.

RF High Potential Withstanding Voltage

Frequency—5 MHz

Leakage Current—N/A

50 ohm connectors for RG-178/U series cable	675 VRMS
50 ohm connectors for RG-316/U series cable	950 VRMS
75 ohm connectors for RG-179/U series cable	950 VRMS
75 ohm connectors for RG-195/U series cable	1225 VRMS

RF Leakage —

-55 dB min. at 2-3 GHz

Insertion Loss —

.30dB max. at 3 GHz

Mechanical Characteristics

Engagement Forces —

14 lbs. [62.3 N] maximum engagement initially. After 500 matings, 14 lbs. [62.3 N] maximum engagement and 2 lbs. [8.8 N] minimum disengagement for all of SMBs.

Cable Attachment —

Straight Connectors—Crimp, both center contact and braid

Right-Angle Connectors—Crimp on braid and bifurcated solder center contact.

Durability — 500 cycles per MIL-C-39012

Contact Captivation — When captivated, the contacts will withstand 4.0 lbs. minimum axial force.

Cable Retention — When properly assembled to the compatible braided coaxial cable, the retention is equal to the breaking strength of the cable.

Marking — Per MIL-STD-130

Environmental Characteristics

Temperature Rating — -65°C to +165°C

Corrosion (salt spray) — MIL-STD-202, Method 101, test condition B, 5% salt solution

Vibration High Frequency — MIL-STD-202, Method 204, test condition B (15 G's)

Shock — MIL-STD-202, Method 213, test condition B, 75 G's at 6 milliseconds, 1/2 sine

Thermal Shock — MIL-STD-202, Method 107, test condition B, except high temperature shall be +85°C. High temperature shall be +200°C for connectors using 200°C cables.

Moisture Resistance — MIL-STD-202, Method 106, when interface gasket is used. No measurements of high humidity. Insulation resistance shall be 200 megohms minimum within five minutes after removal from humidity.

Durability Test — Conducted per MIL-C-39012 Reg. Para. 3.15, Method Para. 4.6.12

Materials

Body, Body Components and Male Contacts — Brass, half hard, per QQ-B-626, Alloy 360, Zinc per QQ-Z-363

Female Contacts — Beryllium copper per QQ-C-530, heat treated per MIL-H-7199.

Insulators — TFE fluorocarbon per ASTM D 1710, Type 1, Grade 1.

Lockwashers — Phosphor bronze per QQ-B-750.

Crimp Ferrule — Annealed copper alloy per WW-T-799.

Gaskets — Silicone rubber per ZZ-R-765, Class 11B, Grade 65-75.

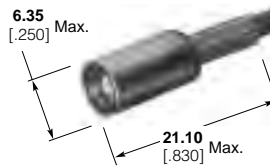
Plating

Center Contacts — 0.00127 [.000050] min. Gold per MIL-G-452048 Type 1, Grade C, Class 1, over 0.00254 [.000100] min. nickel per QQ-N-290

Other Metal Parts — Gold, Nickel or Solder plated to meet the Finish and Corrosion requirements of MIL-C-39012.

For complete product information, order Catalog 1307191

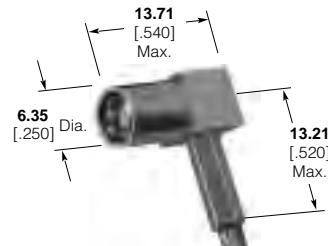
Straight Plugs



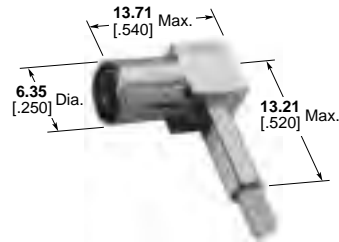
RG/U Cable	Center Contact Plating	Outer Contact Plating	Other Metal Parts Plating	Dielectric	Style	Part Numbers
178, 178A, 178B, 196, 196A	Gold	Gold	Gold	TEFLON	Mil Type	413985-5
	Gold	Gold	Nickel	TEFLON	Mil Type	413985-6
174, 316, 188, 188A	Gold	Gold	Gold	TEFLON	Mil Type	413985-1
	Gold	Gold	Nickel	TEFLON	Mil Type	413985-3
	Gold	Nickel	Nickel	TEFLON	Mil Type	413985-7
	Gold	Gold	Nickel	TEFLON	Die Cast	414946-1
	Gold	Nickel	Nickel	TEFLON	Die Cast	414946-2
	Gold	Nickel	Black Nickel	TEFLON	Die Cast	1-414946-2
179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Gold	Gold	TEFLON	Mil Type	1-413985-0
	Gold	Gold	Nickel	TEFLON	Mil Type	1-413985-1
	Gold	Gold	Nickel	TEFLON	Die Cast	414946-5
	Gold	Nickel	Nickel	TEFLON	Die Cast	414946-6
RD 316, 188 Double Braid	Gold	Gold	Gold	TEFLON	Mil Type	413985-2
	Gold	Gold	Nickel	TEFLON	Mil Type	413985-4
	Gold	Gold	Nickel	TEFLON	Die Cast	414946-3
	Gold	Nickel	Nickel	TEFLON	Mil Type	413985-8
	Gold	Nickel	Nickel	TEFLON	Die Cast	414946-4

Right-Angle Plugs

Mil Type



Die Cast

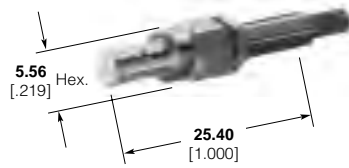


RG/U Cable	Center Contact Plating	Outer Contact Plating	Other Metal Parts Plating	Dielectric	Style	Part Numbers
178, 178A, 178B, 196, 196A	Gold	Gold	Gold	TEFLON	Mil Type	414002-7
	Gold	Gold	Nickel	TEFLON	Mil Type	414002-8
	Gold	Gold	Nickel	TEFLON	Die Cast	414363-8
	Gold	Nickel	Nickel	TEFLON	Die Cast	414363-9
174, 316, 188, 188A, 179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Gold	Gold	TEFLON	Mil Type	414002-1
	Gold	Gold	Nickel	TEFLON	Mil Type	414002-3
	Gold	Nickel	Nickel	TEFLON	Mil Type	414002-5
	Gold	Gold	Nickel	TEFLON	Die Cast	414363-3
RD 316, 188 Double Braid	Gold	Nickel	Nickel	TEFLON	Die Cast	414363-5
	Gold	Gold	Gold	TEFLON	Mil Type	414002-2
	Gold	Gold	Nickel	TEFLON	Mil Type	414002-4
	Gold	Gold	Nickel	TEFLON	Die Cast	414363-4
	Gold	Nickel	Nickel	TEFLON	Die Cast	414363-6

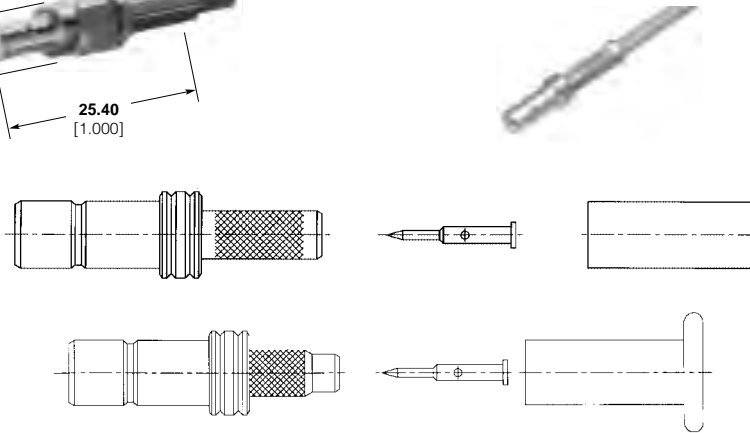
For complete product information, order Catalog 1307191

Straight Jacks

Commercial Jack



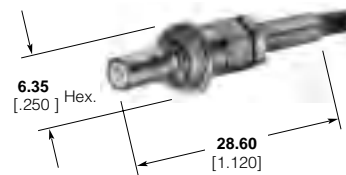
Mil Type Jack



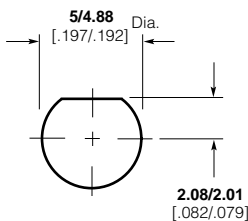
RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Jack Part Numbers
178, 178A, 178B, 196, 196A	Gold	Nickel	TEFLON	Mil Type	414170-2
	Gold	Nickel	TEFLON	Mil Type	414170-1
174, 316, 188, 188A	Gold	Nickel	TEFLON	Commercial	414948-1
	Gold	Nickel	TEFLON	Die Cast	1274035-1
RD 316, 188 Double Braid	Gold	Nickel	TEFLON	Commercial	414948-3
179, 187	Gold	Nickel	TEFLON	Die Cast	414948-2

Bulkhead Jacks

Bulkhead Jack

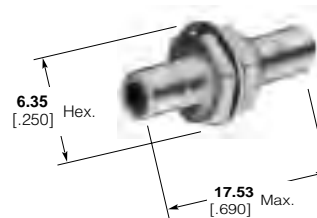


RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Bulkhead Jack. Part Numbers
178, 178A, 178B, 196, 196A	Gold	Nickel	TEFLON	Commercial	415006-3
174, 316, 188, 188A	Gold	Nickel	TEFLON	Commercial	415006-1
RD 316, 188 Double Braid	Gold	Nickel	TEFLON	Commercial	415006-2



Maximum Panel Thickness **2.36** [0.093]
Recommended Panel Cutout for Bulkhead Jack and Adapter

Bulkhead Jack Adapter (Jack-Jack)

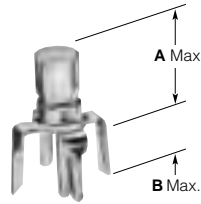


Type	Center Contact Plating	Body Plating	Dielectric	Style	Part Numbers
Jack-To-Jack	Gold	Nickel	TEFLON	Mil Type	228553-1
	Gold	Gold	TEFLON	Mil Type	228553-2

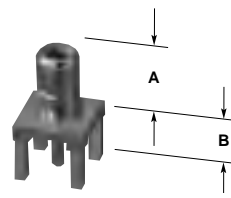
For complete product information, order Catalog 1307191

PC Board Jacks and Plugs, Vertical

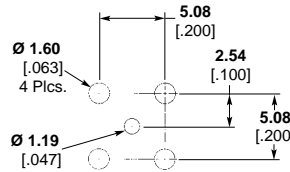
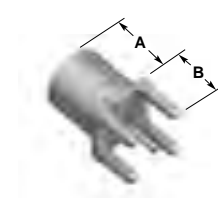
Commercial



Mil Type



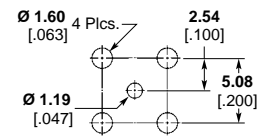
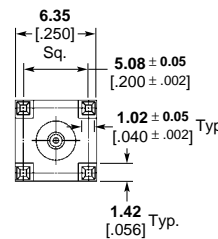
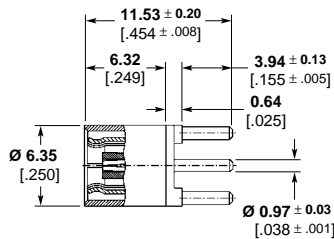
Die Cast



Recommended
PC Board Layout

Jacks

Type	Center Contact Plating	Body Plating	Dim. A	Dim. B	Dielectric	Style	Part Numbers
—	Gold	Gold	7.62 .300	3.94 .155	TEFLON	Mil Type	413990-1
—	Gold	Nickel	7.62 .300	3.94 .155	TEFLON	Mil Type	413990-2
—	Gold	Nickel	7.62 .300	3.94 .155	TEFLON	Die Cast	415590-1
—	Gold	Nickel	10.16 .400	2.54 .100	TEFLON	Mil Type	414612-2
Low Profile (Jack) Mated Pair	Gold	Gold	3.94 .155	5.84 .230	TEFLON	Mil Type	415773-1



Recommended
PC Board Layout

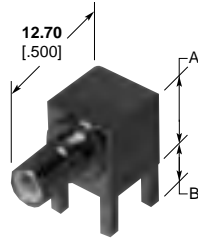
Plugs

Type	Center Contact Plating	Body Plating	Dim. A	Dim. B	Dielectric	Recommended PC Board Layout	Style	Part Number
Low Profile (Plug) Mated Pair	Gold	Nickel	3.94 .155	7.62 .300	TEFLON	B	Mil Type	415774-1

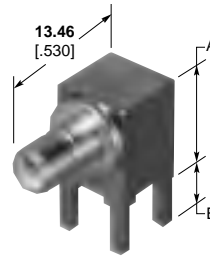
For complete product information, order Catalog 1307191

PC Board Jacks and Plugs, Right-Angle

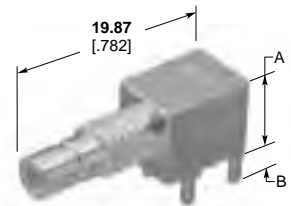
Jack Low Profile



Jack with Standoff Pads



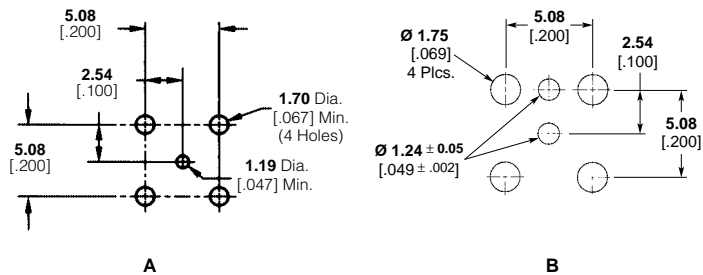
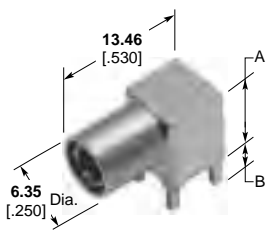
Bulkhead Jack



Jacks

Type	Center Contact Plating	Interface Body Plating	PCB Leg Plating	Dielectric	Dim. A	Dim. B	Style	Recommended PC Board Layout	Part Numbers
Low Profile	Gold	Gold	Gold	TEFLON	7.11 .280	3.94 .155	Mil Type	B	413996-2
	Gold	Nickel	Nickel	TEFLON	7.11 .280	3.94 .155	Mil Type	B	413996-4
	Gold	Gold	Gold	TEFLON	7.11 .280	2.79 .110	Die Cast	B	415340-1
	Gold	Gold	Gold	TEFLON	8.76 .345	2.79 .110	Die Cast	B	415672-1
With Standoff Pads	Gold	Gold	Gold	TEFLON	8.51 .335	3.94 .155	Mil Type	B	414026-2
	Gold	Nickel	Nickel	TEFLON	8.76 .345	3.94 .155	Mil Type	B	414026-3
	Gold	Gold	Nickel	TEFLON	8.51 .335	3.94 .155	Mil Type	B	414026-4
	Gold	Nickel	Tin-Lead	TEFLON	8.76 .345	3.94 .155	Die Cast	B	414337-1
	Gold	Nickel	Nickel	TEFLON	8.76 .345	2.79 .110	Die Cast	C	414379-1*
	Gold	Nickel	Nickel	TEFLON	8.51 .335	3.94 .155	Die Cast	B	415381-1
Bulkhead	Gold	Gold	Gold	TEFLON	7.67 .302	2.79 .110	Die Cast	B	414963-1

* 5 leg design



Recommended
PC Board Layouts

Plugs

Center Contact Plating	Interface Body Plating	PCB Leg Plating	Dielectric	Dim. A	Dim. B	Style	Recommended PC Board Layout	Part Numbers
Gold	Gold	Nickel	TEFLON	8.76 .345	3.94 .155	Die Cast	A	415382-1
Gold	Nickel	Nickel	TEFLON	8.76 .345	2.79 .110	Die Cast	B	415380-1*

* 5 leg design

For complete product information, order Catalog 1307191

10

RF Coax Connectors

Product Facts

- **Industry standard for miniature 75 ohm SMB**
- **SMB offers snap-fit coupling for quick connect/disconnect**
- **Suitable for high density applications**
- **Fast easy cable assembly**
- **Low VSWR**
- **Connectors offer consistent mating and unmating forces**
- **Straight plugs and jacks are completely crimp terminated**
- **Low cost**

Mini 75 ohm SMB connectors are ideally suited for circuit miniaturization in communication, broadband and switching equipment as well as a variety of other applications.

They offer the same low consistent mating/unmating force as AMP standard SMB products and therefore, outer contact resistance values are maintained from connector to connector.

Standard military, commercial or AMP tooling can be used to terminate these products. Cost effective assembly of the straight plugs is completed with a crimp center contact and hex crimp on the outer braid. Right angle plugs have a hex crimp on the outer braid ferrule and bifurcated solder center contacts.

**Electrical Characteristics:**

Impedance — 75 ohms

Frequency Range — 0 to 4.0 GHz

Insulation Resistance —
1000 megohms

Contact Current Rating — 1.5 amps
DC max.

Mechanical Characteristics:

Engagement Forces — Initial — 14.0
lbs. [62.3 N] maximum engagement.
After 500 matings, 14.0 lbs. [62.3 N]
maximum engagement.

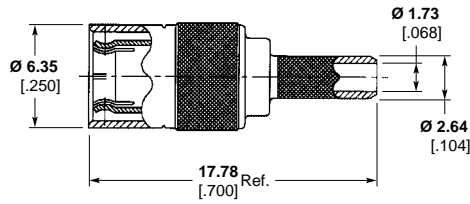
Durability — 500 cycles

Environmental Characteristics:

Temperature Rating —
-65°C to +165°C

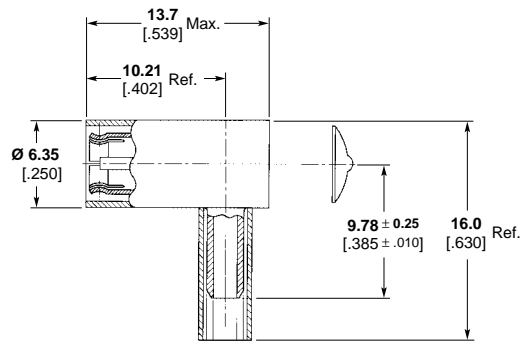
For complete product information, order Catalog 1307191

Straight Plug



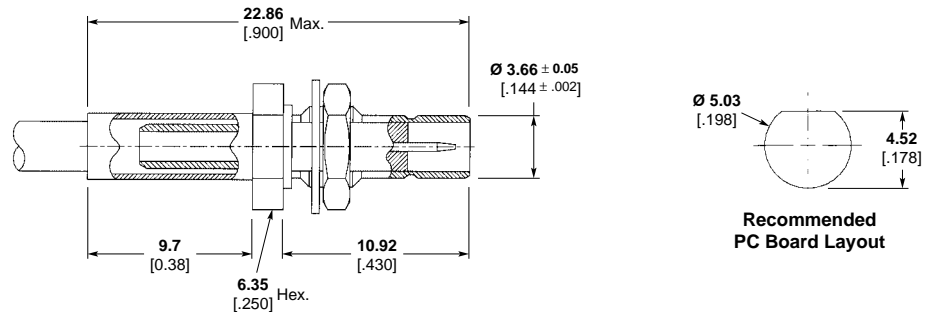
RG Cable	Center Contact Plating	Outer Contact Plating	Body Plating	Part Numbers
179, 187	Gold	Gold	Nickel	415487-1
179, 187	Gold	Nickel	Nickel	415487-2
RD 179	Gold	Nickel	Nickel	415487-3

Right-Angle Plug



RG Cable	Center Contact Plating	Outer Contact Plating	Body Plating	Part Numbers
179, 187	Gold	Nickel	Nickel	415484-1
179, 187	Gold	Gold	Nickel	415484-2
RD 179	Gold	Gold	Nickel	415484-3

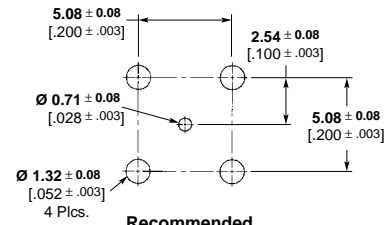
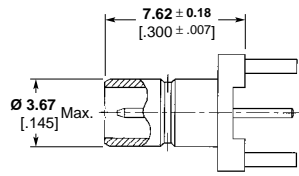
Bulkhead Jack



RG Cable	Center Contact Plating	Body Plating	Part Number
179, 187	Gold	Nickel	415500-1

For complete product information, order Catalog 1307191

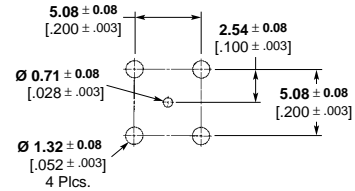
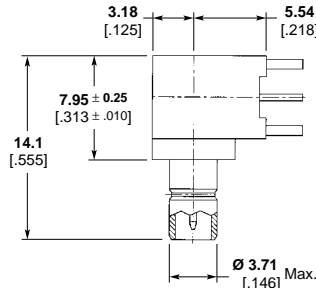
Vertical PC Board Jacks



**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part Numbers
2.11 .083	Gold	Gold	415504-1
2.11 .083	Gold	Gold Flash	415504-2
3.05 .120	Gold	Gold	415504-3
3.05 .120	Gold	Gold Flash	415504-4

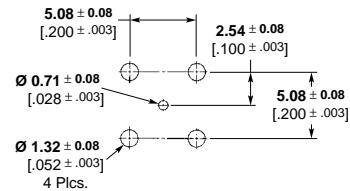
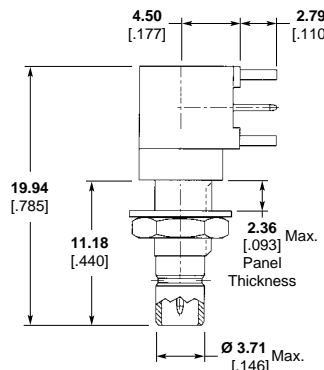
Right-Angle PC Board Jacks



**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part Numbers
2.79 .110	Gold	Gold	415490-1
2.79 .110	Gold	Nickel	415490-2
2.11 .083	Gold	Gold	415490-3
2.11 .083	Gold	Nickel	415490-4

Right-Angle PC Board Bulkhead Jacks

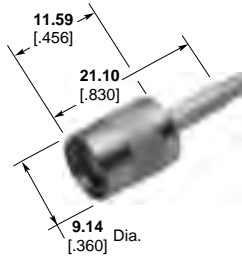


**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part Numbers
2.79 .110	Gold	Nickel	415377-1
2.79 .110	Gold	Gold	415377-2

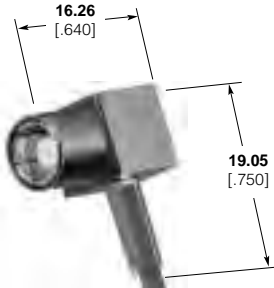
For complete product information, order Catalog 1307191

Straight Plugs



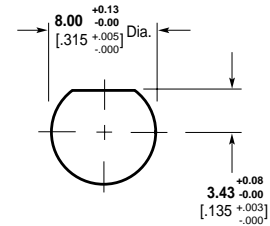
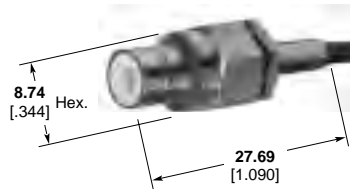
RG/U Cable	Center Contact Plating	Outer Body Plating	Outer Contact Plating	Dielectric	Style	Part Numbers
179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Gold	Nickel	TEFLON	Mil Type	414618-1
	Gold	Nickel	Nickel	TEFLON	Mil Type	414618-2

Right-Angle Plugs



RG/U Cable	Center Contact Plating	Outer Body Plating	Outer Contact Plating	Dielectric	Style	Part Numbers
179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Gold	Nickel	TEFLON	Mil Type	414048-6
	Gold	Gold	Nickel	TEFLON	Commercial	415462-1*
	Gold	Nickel	Nickel	TEFLON	Mil Type	1-414048-3
	Gold	Nickel	Nickel	TEFLON	Commercial	415462-2*

Straight Jacks

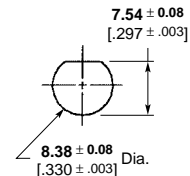
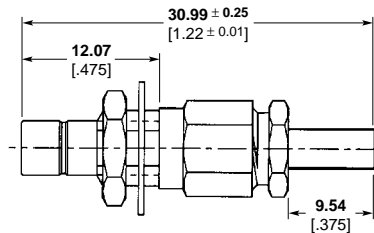


Maximum Panel Thickness 2.36 [.093]

Recommended Panel Cutout

RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Part Number
179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Nickel	TEFLON	Mil Type	414767-1

Bulkhead Jacks



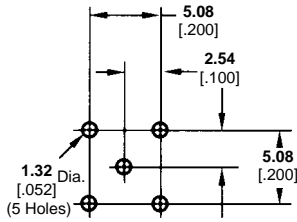
Recommended Panel Cutout

RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Part Numbers
179, 179A, 179B, 161, 187, 187A, Belden 9221	Gold	Front-Gold Rear-Nickel	TEFLON	Mil Type	414075-2
	Gold	Nickel	TEFLON	Mil Type	414075-6

For complete product information, order Catalog 1307191

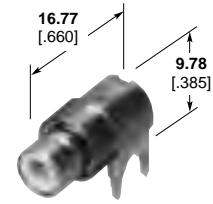
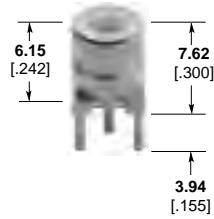
PC Board Jacks

Vertical



Recommended PC Board Layout

Right-Angle

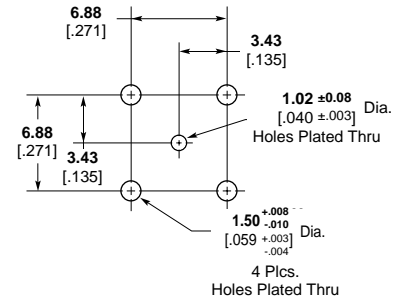
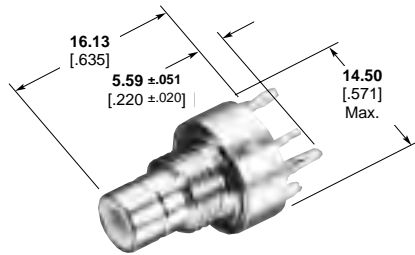


Type	Center Contact Plating	Body Plating	Dielectric	Style	Part Numbers
Vertical	Gold	Gold	TEFLON	Mil Type	414244-1
	Gold	Tin-Lead	TEFLON	Mil Type	414244-4
Right Angle	Gold	Front-Nickel Rear-Tin-Lead	TEFLON	Commercial	221014-1

Plating: 0.00076 [0.00030] thick

Bulkhead PCB Jack Kit

Kit includes Lockwasher and Jam Nut



Recommended PC Board Layout

Lockwasher and Jam Nut



Part Number
221486-2

Part Number
221461-2

Type	Center Contact Plating	Body Plating	Dielectric	Kit Part Number
Press Fit	Gold	Nickel	TEFLON	415577-2

For complete product information, order Catalog 1307191

Crimp Tooling

50 Ω/75 Ω

RG/U Cable	Commercial Connector Tooling						Mil Type Connector Tooling						Hex Die Across Flats
	Center Contact Crimp Tooling			Braid Crimp Tooling			Center Contact Crimp Tooling			Braid Crimp Tooling			
	Dies for AMP PRO-CRIMPER Hand Tool Number	MIL-C-22520/2-01 Tool Daniels* Positioner	Position	Dies for AMP PRO-CRIMPER Hand Tool Number	Position	MIL-C-22520/5-01 Tool Daniels* Hex Crimp Die	Daniels* Hand Tool	Daniels* Positioner Number	Selector Position	Dies for AMP PRO-CRIMPER Hand Tool Number	Position	Daniels Hand Tool	
178, 178A, 178B, 196, 196A	58489-1	Female-K699 Male-K727	4	58489-1	A&B	Y624	AFM8	Female-K699 Male-K727	4	58483-1	A	HX4-1637	2.67 .105
Double Braid 178, 196	—	—	—	—	—	—	AFM8	Female-K699 Male-K727	4	58483-1	B	HX4-1637	3.25 .128
174, 316 188, 188A	58489-1	Female-K699 Male-K727	4	58489-1	A	Y444	AFM8	Female-K699 Male-K727	4	58483-1	B	HX4-1637	3.25 .128
Double Braid 174, 316, 188	58489-1	Female-K699	4	58489-1	C	Y196 Location A	AFM8	Female-K699	4	58483-1	C	HX4-1637	3.84 .151
Double Braid 174, 316, 188	58489-1	Male-K727	4	58489-1	C	Y196 Location A	AFM8	Solder	—	58483-1	B	HX4-1637	3.25 .128
179, 179A 179B, 161, 187, 187A, Belden 9221	58489-1	Female-K699	4	58489-1	A	Y444	AFM8	Female-K699	4	58483-1	B	HX4-1637	3.25 .128
179, 179A 179B, 161, 187, 187A, Belden 9221	58489-1	Male-K727	4	58489-1	A	Y444	—	Solder	—	58483-1	B	HX4-1637	3.25 .128
180, 180A 180B	—	—	—	—	—	—	—	Solder	—	58483-1	C	HX4-1637	3.84 .151
Mini SMB 75 ohm													
179, 187	—	Female-K699	—	58483-1	B	HX4-1637	—	—	—	—	—	—	—
179, 187	—	Solder Center Contact	—	58483-1	B	HX4-1637	—	—	—	—	—	—	—

Note: 1. All 75 ohm SMB connectors have a solder center contact.

2. Equivalent military tool part numbers—M22520/5-01 – Daniels Hand Tool HX4, M22520/5-33 – Daniels Die Set Y136, M22520/5-37 – Daniels Die Set Y138, M22520/5-41 – Daniels Die Set Y140, M22520/5-03 – Daniels Die Set Y196, and M22520/2-01 – Daniels Hand Tool AFM8

* Daniels Manufacturing Corporation Telephone: 407-855-6161
 6103 Anno Avenue FAX: 407-855-6884
 Orlando, Florida 32809

For complete product information, order Catalog 1307191

Features

- Snap-on interface facilitates assembly
- Conforms to CECC interface specifications for MCX
- 30% smaller than SMB connectors
- Surface mount tape and reel for high volume






AMP MCX microminiature snap-on connectors offer an excellent blend of size, durability and performance for emerging applications in GPS, automotive and wireless communications. MCX connectors are 30% smaller than traditional snap-on SMB connectors, offering greater packaging density and weight reduction. MCX connectors are mechanically robust with beryllium copper spring fingers rated at a minimum of 500 mating cycles. The snap-on interface facilitates assembly, eliminating the need for a threaded

connection, and ensuring full engagement. The forces to engage and disengage have been optimized to ensure ease of mating as well as to prevent damage to PCB solder connections. MCX connectors are designed for broad band performance, DC-6 GHz, and can be utilized for future system upgrades without concerns for performance degradation. AMP MCX connectors are fully mateable with standard MCX connectors and conform to the CECC interface specifications. MCX connectors are available in a broad range

of standard configurations for commercial applications. Tape and reel packaging for MCX surface mount straight and right angle PCB receptacles is available to facilitate high volume pick and place manufacturing. MCX surface mount connectors are designed to withstand infrared reflow, convection and vapor phase soldering and provide a .254 [.010] standoff for optimal board cleaning. MCX plug and jack PCB receptacles also offer a direct board to board solution providing a nominal 7.11 [0.28] separation.

For complete product information, order Catalog 1307191

Features

- 26.5 or 40 GHz performance
- Superior performance of air dielectric interface
- Solid telescoping alignment; no interface damage
- Shielded outer contact; low RF leakage
- Configurations include bulkhead jacks and plugs for panel and bulkhead applications
- 3.5 mm Blind Mate has interchangeable mounting/panel spacing with other blind mate designs per DESC specification
- Crimped with standard military SMA hand tool and special locator inserts
- Listed under the Component Program of Underwriters Laboratories Inc.,  File No. E81956
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E81956
- Certified by Canadian Standards Association  File No. LR 7189



Material:

Center Contacts — Beryllium Copper or Brass per QQ-B-626, per QQ-C-530, gold plated

Outer Contacts — Beryllium copper per QQ-C-530, gold plated

Plugs — Beryllium copper per QQ-C-530, gold plated

Jack — Stainless steel per ASTM-A-582, gold plated

Shells — Stainless steel per ASTM-A-582, passivated

Panel Shells — Brass per QQ-B-626, nickel plated

Dielectrics — TEFLON per ASTM-D-1457

Grip Rings — Brass per MIL-C-50 or Beryllium Copper per QQ-C-530, nickel plated

Springs — Steel wire per QQ-W-470

Bushings — Stainless steel per ASTM-A-582, passivated

Retention Springs — Beryllium Copper per QQ-C-530, Tin-Lead Plated

Finish:

Passivate per QQ-P-35

Gold per MIL-G-45204

Nickel per QQ-N-290

Tin-Lead per ASTM-B-545

Electrical Characteristics:

Nominal Impedance — 50 ohms

Frequency Range —

3.5 mm: 0 to 26.5 GHz

2.8 mm: 0 to 26.5 GHz

2.8 mm for size 8 cavities: 0 to 40 GHz

Operating Voltage —

RG-402/U Cable (3.58 [.141] O.D.)

500 volts rms at 60 Hz (sea level)

125 volts rms at 60 Hz

(21 336 m [70,000 ft])

RG-405/U Cable (2.18 [.086] O.D.)

335 volts rms at 60 Hz (sea level)

85 volts rms at 60 Hz

(21 336 m [70,000 ft])

Mechanical Characteristics:

Cable Retention —

RG-402/U Cable (3.58 [.141] O.D.)—

60 lb [266.9 N], min.

RG-405/U Cable (2.18 [.086] O.D.)—

30 lb [133.4 N], min.

Connector Mating Force —

3.5 mm: 6 lbs Max.

2.8 mm: 3 lbs Max.

Environmental Characteristics:

Temperature Range —

-65°C to +105°C

Packaging — All connectors are packaged individually unless otherwise noted.

For complete product information, order Catalog 1307191

Features

- Interface designed for multiple interconnects
- For high performance microwave system requirements
- Bulkhead or panel mount
- For semi-rigid cable



OSP miniature connectors for semi-rigid cable meet high performance requirements for microwave multiple interconnects. Standard units are available in bulkhead or panel mount designs for either direct solder or OSCC solderless compression crimp attachment. Complete tooling for both versions is located in the Tool Section of this catalog.

Jack connectors are available in either float or rigid mount. Rigid mount units will function to specifications up to $\pm .10$ [.004] radial misalignment with the mating plug connector. Applications requiring greater than $\pm .10$ [.004] radial misalignment can use either the float design or floating connector plates with guide pins. The OSCC Solderless Compression Crimp

attachment meets high performance requirements for microwave system applications. The cable attachment is permanent and highly reliable.

Ease of assembly permits users unskilled in soldering techniques to rapidly produce cable assemblies with consistently excellent mechanical and electrical performance.

For complete product information, order Catalog 1307191

Features

- Subminiature version of OSP Blind Mate Connectors
- For space savings
- Family of connectors and adapters



OSSP connectors are a subminiature version of the OSP blind mate series. Connectors in this series incorporate the design elements of the OSP interface including the float and mismatch features. OSSP blind mates are about 40% smaller than OSPs and are designed to

be used in applications where space is at a premium.

A complete family of OSSP connectors and adapters is available including cable connectors, fixed and float mount panel connectors and hermetic connectors. Rigid mount units will function to specifications up

to $\pm .064$ [$\pm .0025$] radial misalignment with the mating plug connector. Applications requiring greater than $\pm .064$ [$\pm .0025$] radial misalignment can use either the float design or floating connector plates with guide pins.

For complete product information, order Catalog 1307191

Features

- Intermateable with Gilbert GPO™ Series
- DESC approved
- Enhanced performance features
- Simplified Assembly



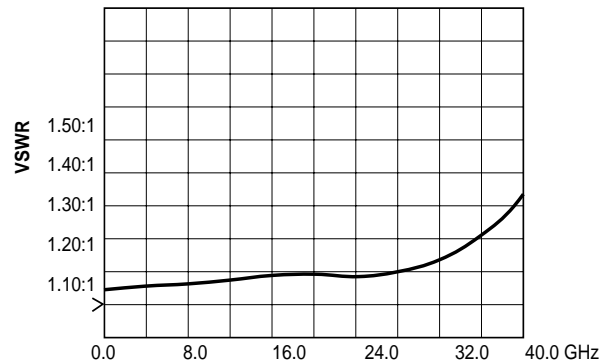
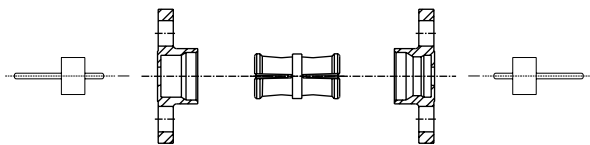
OSMP microminiature push-on coaxial connectors provide solutions for today's modular designs with denser packaging requirements. The extremely small size of the OSMP offers a versatile solution for high density packaging allowing connector center-to-center spacing of 4.32 [0.17]. The push-on interface facilitates easier assembly and test with a positive snap-in feature to indicate a fully mated connection. The rugged OSMP interface can withstand harsh environments of mechanical shock and vibration, typically found in military or aerospace related applications. This OSMP connector interface is the standard used by Defense Electronics Supply Center (DESC) to generate the SMP push-on connector series.

OSMP connectors can be your design solution for mechanical packaging and frequency response. The OSMP interface provides 0.020" of radial misalignment for critical blindmate applications. Mating forces are strictly controlled to ensure reliable connections per mated pair or when simultaneously mating multiple connectors. Cable jacks include an anti-rocking ring to ensure reliable mechanical performance regardless of the operating environment. OSMP connectors offer enhanced broadband VSWR performance of

1.15:1 max thru 26GHz and 1.40:1 max thru 40GHz.

Standard design OSMP configurations include cable connectors, straight and right angle, for 0.047 and 0.085 semi-rigid cable, full detent, limited detent and smooth bore mating shrouds that can be bulkhead or flange mounted and glass feedthroughs for coax to circuit launchers. In-series adapters for module intermating and between series adapters for integrating or testing systems or components parameters.

OSMP Shroud and Jack to Jack Adapter Assembly



Typical VSWR for OSMP Jack to Jack Adapter
Part Numbers 1059829-1 and 1056721-1

For complete product information, order Catalog 1307191

Features

- Occupies less (PCB) real-estate than conventional through hole connectors
- 4.2 [.165] fully mated height off PCB
- Performance through 6GHz
- Tape & reel packaging available

Applications

- Telecommunications
- GPS
- Consumer & automotive electronics



The OSMT Interconnect System is designed to meet the growing demand for surface mount RF connector technology. The OSMT occupies less printed circuit board (PCB) real estate than conventional through hole coaxial connectors. An innovative microstrip mounting pattern and plug receptacle design ensure reliable grounding and PCB retention characteristics. The OSMT Interconnect System also allows closer PCB pitch/spacing, standing a mere 4.2 [.165] (fully mated height) off the board. A new higher cable

retention plug receptacle has been added to the OSMT product family. This new design addresses applications where force is applied to the mated connector interface as a result of cable flexure between boards or around other PCB components.

The OSMT Interconnect System consistently achieves broad band electrical performance through 6 GHz with a maximum VSWR of 1.20:1 at 2 GHz and 1.40:1 at 6 GHz. This broad band performance establishes a reliable interface that can be utilized for future system

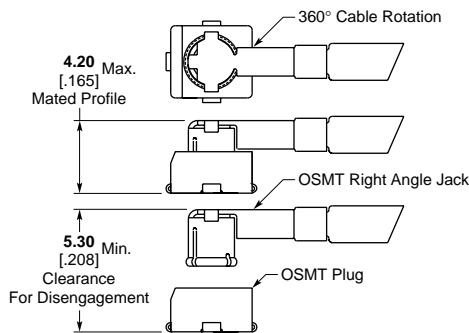
upgrades without concerns for performance degradation.

The OSMT plug receptacle is designed for high volume assembly using surface mount technology and is available in tape and reel packaging for automated pick and place board assembly. The mating cable jack is available terminated to a specially designed coax cable as either a pigtail, jumper or standard interseries connector assembly.

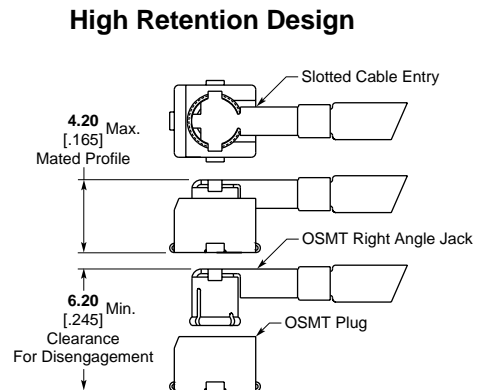
Specially designed engage/disengage tooling is available to ensure proper alignment of the OSMT

interface during assembly. The higher retention plug receptacle can be hand engaged as a result of a unique lead-in chamfer design which also aligns the contacts prior to mating to ensure mechanical integrity. Interface durability is rated at 100 mating cycles.

The OSMT Interconnect System is ideal for surface mount applications in telecommunications, GPS, consumer and automotive electronics. The OSMT provides versatile RF solutions for next generation interconnect needs.



M/A-COM Model Number	Part Number
2367-0000-54	1251802-1



M/A-COM Model Number	Part Number
2367-5006-54	1055690-1

For complete product information, order Catalog 1307191

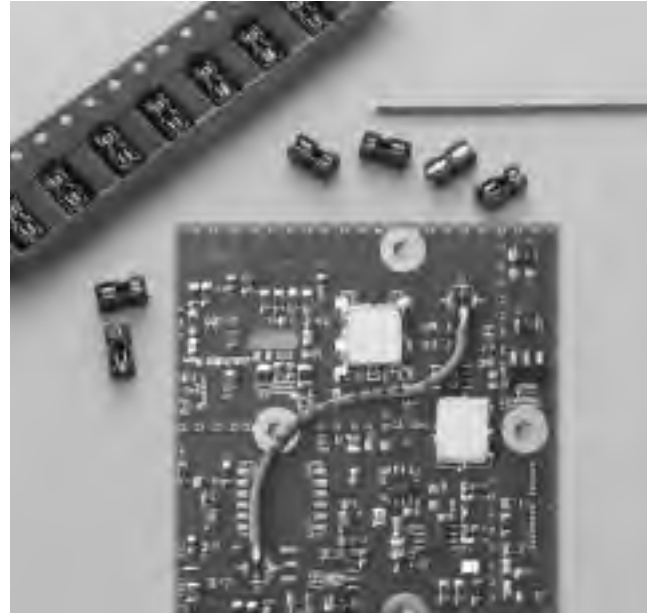
Features

- Solderless Cable Termination
- 3.0 [.118] Mated Height
- Excellent Cable Retention
- Usable With Flexible and Semi-Rigid Micro-Coaxial Cables
- Tape and Reel Packaging

AMP revolutionary SMT | QuickGrip product line is designed to meet the growing demand for a reliable, low cost system for direct termination of coax to a printed circuit board (PCB). SMT | QuickGrip technology eliminates the requirement to connectorize the coaxial cable, reducing assembly times and, therefore, cost. The SMT | QuickGrip surface mount device occupies less PCB area than conventional through hole coaxial connectors. An innovative microstrip mounting pattern and cable receptacle design ensures excellent grounding and PCB retention. The SMT | QuickGrip cable termination system stands a mere 3.0 [.118] off the board when mated, allowing for closer pitch/spacing when

designing a system. The SMT | QuickGrip provides optimal cable retention for applications where shock, vibration, and/or cable flexure may be encountered. This unique RF design accepts both flexible and semi-rigid micro-coaxial cables while delivering exceptional RF performance up to 3GHz.

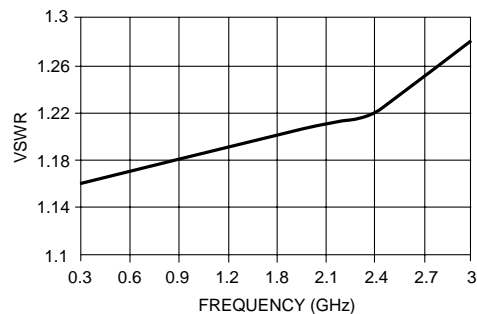
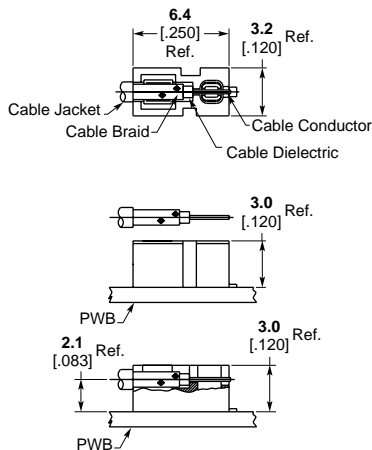
These features make this system extremely versatile for design engineers and offer a reliable, cost effective alternative to direct soldering of cable to the PCB. The cable is inserted into the device by means of a simple self-aligning hand tool, eliminating the requirement for skilled personnel. This system removes the possibility of damaged PCBs and cables which are common quality issues associated with direct solder, while providing superior RF performance. The SMT | QuickGrip accommodates multiple cable insertions allowing easy replacement of cables for repairs. This receptacle is designed for high volume assembly using surface mount technology and is available in tape and reel packaging for pick and place board assembly. Pre-



stripped cables and inter-series cable pigtails are available as turnkey solutions for your application needs (i.e.: for use in multi-board applications, for connecting antennas to the PCB, or point to point transmission on the same PCB).

The SMT | QuickGrip cable termination system is ideal for wireless surface mount applications in handsets, pagers and personal digital assistants (PDA).

The SMT | QuickGrip mechanical and electrical performance, coupled with its ease of use, ensure it to be a high quality, reliable solution for current and future interconnect needs. AMP is an ISO9001 certified manufacturer and maintains an SPC controlled manufacturing environment. Please call your local Sales or Distribution office for additional information and qualification samples today.



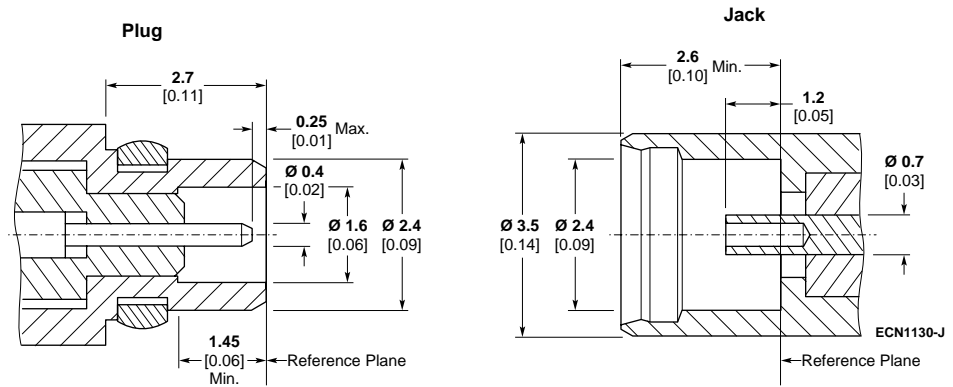
Typical VSWR using SMT | QuickGrip with Omni-Flex 200 Cable

For complete product information, order Catalog 1307191

Micro miniature connectors series MMCX (size 0.7/1.6; CECC 22340) are primarily intended for applications where minimum dimensions and space-saving design are required. The

connectors are suitable for use up to 6 GHz and are provided with a reliable snap-on coupling. Series MMCX connectors are easy and fast to assemble.

This connector family contains straight and right angled variants for cable or solder connection and SMD connectors for surface mounting technology onto PC boards.



Interface Dimensions

For complete product information, order Catalog 1307191

Coaxial Connectors
Product Facts

- Designed to accept 50, 70 and 93 ohm miniature coaxial cables
- Three types of connectors, Screw-on Series, Slide-on Series and Quick Connect Series
- Temperature range —
 -65°C to +125°C (with neoprene gasket or bend relief cap)
 -62°C to +200°C (with silicone gasket or bend relief cap)
- Dielectric Withstanding Voltage — 1000 volts RMS at sea level
- Contact Resistance — 3 milliohms max., D.C.
- Captive Contacts — Terminated connector contacts captivated from movement in both directions



MICRODOT Standard Coaxial Connectors are designed to accept 50, 70, and 93 Ohm miniature coaxial cables. These connectors are available as Screw-On Series, Slide-On Series, or Quick-Connect Series. The Screw-On Series is interchangeable with the Gold Plated Crimp Style

Coaxial Connector Series and offers the dependability of threaded coupling. For enhanced safety, choose connectors with wire holes. Choose Slide-On Series for the fastest, most convenient mating, unmating. The Quick-Connect Series offers the convenience of

Slide-On coupling with added retention provided by a snap ring located on the jack/receptacle side. Consult Tyco Electronics for special cable accommodations and mounting features.

For complete product information, order Catalog 1308638

SMA RF Connectors
Product Facts

- **Connector Type** — In-line plug/jack, solderable pin
- **Contact Material and Finish** — BeCu/gold plated
- **Body Material and Finish** — BeCu/gold plated, StSt/passivated, StSt/gold plated
- **Connector Durability** — 500 mates
- **Impedance** — 50 ohm
- **Dielectric Withstanding Voltage** — 1000 Volts RMS



MICRODOT Connector products have a fifty-year heritage of leadership in precision design and manufacturing of innovative and cost-effective interconnects. These innovative and cost-effective products offer interconnect solutions for a broad range of applications in the Aerospace, Military, Medical, Instrumentation,

Communications and Computer markets. MICRODOT RF and coaxial connectors have demonstrated reliable and cost-effective performance in the military and instrumentation markets for over 40 years.

Our line of coaxial connectors includes the SMA styles. These include the products on the

following pages along with right angle and crimp-style versions. Currently, products are undergoing qualification testing for listing to MIL-PRF-39012 slash 55 and 59. Future products will include other MIL-PRF-39012 for slash sheets along with SSMA and MCX, and MMCX styles.

For complete product information, order Catalog 1308638

Between Series Coaxial Transmission Line Adapters provide convenient transitions between popular series coaxial connectors. The adapter design provides a minimum length consistent with good electrical performance. The small size, low VSWR, and broad frequency coverage permits a wide range of applications in both measurement and systems use.

Design and Construction

The standard units are constructed of stainless steel with passivated finish, nickel plated brass, and gold plated brass. The material and plating is to be consistent with the basic connector series. All dielectrics are TFE fluorocarbon. The center contacts are made of beryllium copper, gold plated.

Types

The straight in-line adapters are available in many combinations of plug and jack (male and female) configurations. Also, popular panel mount versions are cataloged. For special modifications and hermetic seal version, consult Tyco Electronics.

Application

The major application is the requirement for a low VSWR,

compact transition in both test system and operating systems. Many panel mount and bulkhead mount versions are available so the designer can use small size connectors for internal design, but adapt to a larger rugged version for external connection.

The following charts identify the types of adapters we offer.

Plug-Plug

	N Series	OSP	OSP Bulkhead	BNC	TNC	7-16	SMB	SMA	OSMP	SSMT	OSMT	Series 1.0/2.3
MCX								✓				
N Series						✓						
BNC							✓					
TNC				✓								
Series 1.6/5.6				✓								✓
SMA 18 GHz	✓	✓	✓	✓	✓		✓		✓	✓	✓	

Jack-Jack

	MCX	N Series N Series Flange Mount N Series Bulkhead	OSP OSP Bulkhead OSP Floating Rear Mount	BNC Bulkhead	TNC TNC Flange Mount TNC Bulkhead	7-16	SMB SMB 75 Ohm SMB	OSMP	SSMT	OSMT	Series 1.0/2.3	Series 1.6/5.6
N Series						✓						
BNC							✓					✓
TNC		✓		✓								
SMA SMA Bulkhead SMA 18 GHz	✓	✓	✓	✓	✓		✓	✓	✓	✓		
Series 1.0/2.3												✓

For complete product information, order Catalog 1307191

Jack-Plug

	7 mm	7 mm best VSWR	MCX	N Series N Series Flange Mount	OSP OSP Bulkhead	BNC	TNC	7-16	SMB	SMA SMA Flange Mount SMA 18 GHz	OSMP	SSMT + OSMT	DIN-Series 1.0/2.3	DIN-Series 1.6/5.6
7 mm				✓	✓		✓			✓				
7 mm best VSWR				✓			✓							
MCX										✓				
N Series N Series Flange Mount	✓	✓				✓	✓	✓		✓				
OSP OSP Bulkhead	✓									✓				
BNC				✓			✓		✓	✓				✓
TNC TNC Flange Mount	✓	✓		✓		✓				✓				
7-16				✓										
SMB 75 OHM SMB				✓		✓				✓				
SMA SMA Flange Mount SMA 18 GHz	✓		✓	✓	✓	✓	✓		✓		✓	✓		
OSMP										✓				
SSMT + OSMT										✓				
DIN-Series 1.0/2.3														✓
DIN-Series 1.6/5.6						✓							✓	

For complete product information, order Catalog 1307191

Hand Tools

AMP PRO-CRIMPER II Hand Tools are economy versions of our AMP CERTI-CRIMP Hand Tools, featuring ratcheted crimp control to provide full die closure and help eliminate partial crimps. With an all new design, the PRO-CRIMPER II requires dramatically less hand force to produce the same connection as comparable tools. Dies are interchangeable. It's the most versatile and reliable crimping tool in the mid-price class. Recommended for networking installations, and commercial, industrial and institutional maintenance work. See Catalog 82276 for further information.

Typical PRO-CRIMPER II Hand Tool



Part Number 58433-1
for 50 Ohm BNC Dual
"O" Crimp Commercial
Connectors

AMP CERTI-CRIMP Hand Tools are our top-of-the-line crimping tools featuring the original ratcheted crimp control. All tools are designed to exacting specifications, and manufactured using the highest quality materials to provide long service life. Recommended for low production runs, repairs and prototype work, and applications requiring consistent, highly-reliable terminations. See Catalog 65780 for further information.



**Typical CERTI-CRIMP
Hand Tools with Integral
(Non-Interchangeable)
Dies**

Part Number 69140-1
for 50 Ohm BNC
Single Crimp Mil Type
Connectors

Part Number 69477-1
for 50 Ohm BNC
Dual Crimp Mil Type
Connectors

Part Number 220015-1
for 50 Ohm N
Connectors



**CERTI-CRIMP Hand
Tool with
Interchangeable Dies**

Part Number 69710

Pneumatic Tools

The 626 Pneumatic Tool System, as the name implies, will apply a broad range of products in the 6-26 AWG [13-0.12 mm²] wire range. A basic 626 Pneumatic Tool System requires a power unit, a tool holder, a crimp head assembly and a die set when applicable. This premium system is well suited for low- to medium- volume production and harness assembly operations. Since the crimp head can be rotated to any angle, the operator can also work on more difficult terminations in confined equipment cabinets or enclosures.

Interchangeable tool holder assemblies and crimping heads are available to crimp a variety of products. Crimping heads for the earlier Model 2614 pneumatic power unit can be used with the 626 Pneumatic Tool System. If you are already using AMP hand tools, many crimp heads and die sets can be removed, attached to an adapter with quick pins and used with the 626 Pneumatic Tool System. An adapter is even available to accept lower cost die sets of the PRO-CRIMPER II hand tool. For more information, order catalog 124208.



Part Number 189721-1

Bench Mount Assembly for Pneumatic Tool System (Optional)

Fully adjustable stand allows operator free use of both hands — recommended for maximum productivity.

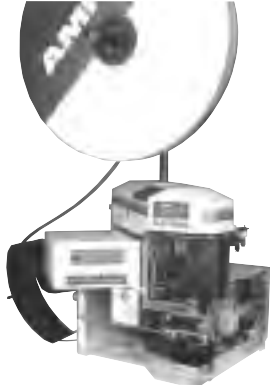


Part Number 856402-1

For complete product information, order Catalog 1307191

Bench-Mounted Machines

AMP-O-LECTRIC bench-mounted, semi-automatic terminating machines may be used to apply RF products such as Commercial BNC and TNC Connectors, Miniature and Standard UHF Connectors, and Braid-Pic Contacts and Terminals. The Model G unit features interchangeable applicators, and is used to apply strip-form contacts. The "Coax" unit is used to apply loose-piece contacts and ferrules with dies that are mounted onto the machine. See Catalog 65828 and Customer Manual 409-2627 for further information.



**AMP-O-LECTRIC Model G,
Part Number 354500 Series with
AMP Crimp Quality Monitor**

Stripping Tools

The hand-operated AMP Coaxial Cable Stripper features interchangeable, color-coded blade cassettes and V-blocks to accommodate 2- or 3-step stripping for cable diameters ranging from 2.54 [.10] through 7.62 [.30]. You strip cable by simply clamping and rotating the tool around the cable. See Instruction Sheet IS 2766 for further information.

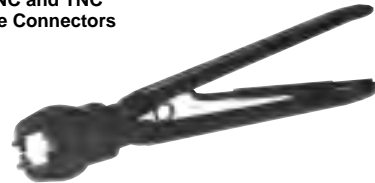


For Use With Connector Type	Tool Numbers
BNC Single Crimp	603995-1
BNC Commercial and UHF Miniature	603995-2
UHF Standard	603995-3
BNC Mil Type Dual Crimp	603995-5
BNC Commercial Dual Crimp	603995-6

Semi-Rigid Cable Tooling

The tools listed here are designed specifically to strip and terminate semi-rigid cable. These tools operate basically the same as the flexible cable tools, in that they produce uniform terminations time after time, without heat damage from soldering.

Hand Tool for BNC and TNC Semi-Rigid Cable Connectors



**Part Number 59980-1 Frame only—
does not include dies and locator**

For complete product information, order Catalog 1307191

Hand Tool Kit for SMA and Blind Mate Connectors

Part Number 59981-1



Pneumatic Tool for Terminating BNC, TNC, SMA and Blind Mate Connectors

(for RG-402/U and RG-405/U Cable)

Part Number 58318-1*



This pneumatic tool is a bench-mounted, semi-automatic power tool designed for easy operation. The operator needs only to depress the trigger to complete a termination. It is used with the cable preparation machine to produce finished terminations.

*Includes Locators 220241-1 and 308075-2. Dies are not included.

Item Description	Part Numbers	
	AMP	Military (M22520)
Hand Tool	59980-1	36-01
Plug Locator (without Center Contact)	220220-2	36-06
Plug Locator (with Center Contact)	220221-2	36-04
Jack Locator	220222-2	36-05
Die Set for RG-402/U Cable (3.58 [.141] O.D.)	312253-1	36-03
Die Set for RG-405/U Cable (2.18 [.086] O.D.)	312253-2	36-02
Cutoff Fixture	311395-1	36-09
Cable Dressing Fixture	311396-1	36-07
Trimmer Tool	312317-1	36-08
Cable Bend Fixture Assembly Includes following 6 items:	220224-1	36-10
Bend Segment, RG-402/U (3.18 [.125] Radius)	311386-1	36-11
Bend Segment, RG-402/U (6.35 [.250] Radius)	311386-2	36-12
Bend Segment, RG-405/U	311386-3	36-13
Tool Holder	311392-1	—
Limiting Pin	307581-1	—
Conforming Block	312067-1	—
Hex Wrench	21027-6	—
Carrying Case	13126-1	—
Insert, Case	13127-1	—

For complete product information, order Catalog 1307191

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Actives

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Tooling and Accessories	11024-11029
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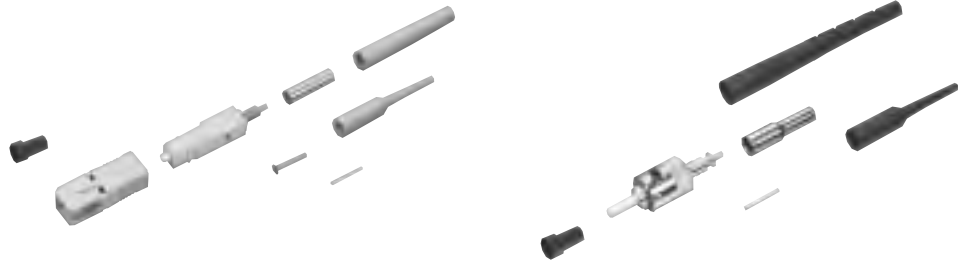


No Polish ST and AMP SC Connectors

LightCrimp Plus Connectors

Product Facts

- Easy and quick fiber termination
- No polishing needed — just strip, cleave and crimp
- No curing
- Complies with TIA/EIA, IEC, CECC and EM standards
- LightCrimp Plus meets TIA/EIA, IEC, CECC and EN specifications and operates in temperatures ranging from -10°C to +60°C



Style	Fiber Type	Ferrule	Part Numbers
ST-Style suitable for 62.5/125µm fiber	Multimode	Ceramic	492642-1
ST-Style suitable for 50/125µm fiber	Multimode	Ceramic	1278082-1
Simplex SC suitable for 62.5/125µm fiber	Multimode	Ceramic	492643-1
Simplex SC suitable for 50/125µm fiber	Multimode	Ceramic	1278079-1
Duplex SC suitable for 62.5/125µm fiber	Multimode	Ceramic	1278009-1
Duplex SC suitable for 50/125µm fiber	Multimode	Ceramic	1278080-1

LightCrimp Plus Termination Kits and Upgrade Kits



LightCrimp Plus Termination Kits

Description	Part Numbers
Universal ST and SC type termination kit includes crimp tool, ST and SC die set, stripper tools, kevlar shears, ST and SC cable holder and cleave tool	1278118-1
ST-Style termination kit includes crimp tool, ST die set, stripper tools, kevlar shears, cable holder and cleave tool	492697-1
SC type termination kit includes crimp tool, SC die set, stripper tools, kevlar shears, cable holder and cleave tool	1278022-1

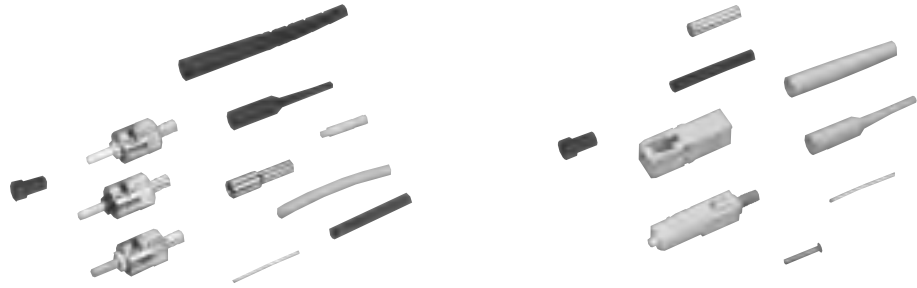
LightCrimp Plus Individual Tools

Description	Part Numbers
Crimper with Die -Set, ST-Style	492623-1
Crimper with Die -Set, SC-Style	492782-1
Die Set only, ST-Style	492622-1
Die Set only, SC-Style	492783-1
Cleaver, ST and SC-Style	492674-1
Cable Holder/Template, ST-Style	492703-1
Cable Holder/Template, SC-Style	1278023-1

For complete product information, order Catalog 1307895

Epoxyless ST and AMP SC Connectors

LightCrimp Epoxyless Connectors



Product Facts

- Singlemode or multimode ST-Style
- Just crimp it on the fiber and polish
- No epoxy
- 2-minute termination
- Innovative crimp design
- Compliant with TIA/EIA-568-A
- No epoxy or adhesives

- Shorter assembly time
 - Reduced polishing time
 - Lower installed cost
 - Secure, repeatable matings
 - No need for curing oven or power supply
- Instruction Sheet**
 408-4066 (SC Type)
Instruction Sheet
 408-9860 (ST-Type)

Style	Fiber Type	Ferrule	Part Numbers
ST-Style	Multimode	Polymer	492168-1
ST-Style	Multimode	Stainless Steel	504034-1
ST-Style	Multimode	Ceramic	504001-1
ST-Style	Singlemode	Ceramic	504000-1
SC Simplex	Multimode	Ceramic	503692-1
SC Duplex	Multimode	Ceramic	503693-3

11
Fiber Optic Products

LightCrimp Termination Kits - Epoxyless

ST-Style Kits



Description	Part Numbers	
Termination Kit	No Microscope	503330-1
	with Premium Microscope	503330-2
	with Pocket Microscope	503330-3
Mini Tool Kit	492322-1	

AMP SC Kits

Description	Part Numbers	
Termination Kit	No Microscope	503706-1
	Premium Microscope	503706-2

Combo ST-Style and AMP SC Kits

Description	Part Numbers	
Termination Kit	No Microscope	503957-1
	with Premium Microscope	503957-2
	with Pocket Microscope	503957-3
Mini-Combo Termination Kit	492543-1	
Universal LightCrimp Cleave Tool	503705-1	

For complete product information, order Catalog 1307895

Singlemode

Ceramic

Performance Characteristics:

Insertion Loss — 0.3 dB typical

Back Reflection — <-40 dB typical

Operating Temp Range —
-20°C to +75°C

Durability — 200 cycles

Material:

Ferrule Material — Ceramic

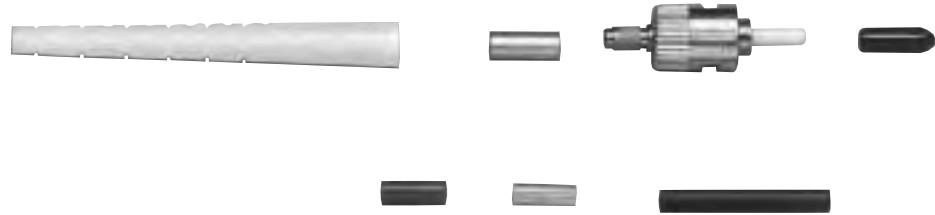
Body Material — Nickel Plated Brass

Coupling Nut Material —
Plated Die Cast

Nominal Fiber Size — 126

Features

- Pre-radiused ferrule finish
- Available in bulk packages



Part Numbers Hole Size (µm)		Boot Type & Color
127	126	
502579-3	502579-2	Bend Limiting/Yellow
502580-3	502580-2	Short/Yellow
—	503613-2	Bare Buffer/Yellow

Bulk packaged epoxy style components and kits are available with other strain relief colors.

ST-Style Application Tooling

Termination Kit: Includes all tools and accessories except Epoxy

Description	Part Number
Termination Kit for all ST-Style Connectors	503746-1

Crimp Tool

Cable Jacket Dia.	Hand-Tool w/Die Set	Hand Tool Only	Die Set Only
3.0	58433-4	58532-1	58424-1

Adhesive

Description	Part Numbers
Epoxy - 25 Bipax pkgs. (2 grams/each)	501195-4
Epoxy - 1 Tube	502418-1
Epoxy Applicator	501473-3

Polishing Films: Package of (10) 8.5 x 11 in. sheets

Description	Part Numbers
5 µm	228433-8
0.3 µm	228433-5
Final Polish Film	502748-2

Miscellaneous Tools

Description	Part Numbers
Polishing Bushing	503337-1
Curing Sleeve	502259-1 (12 pcs.)
Strip Card	501818-1

ST-Style Coupling Receptacles

Features

- Free-hanging or panel mount design



Alignment Sleeve Material	Packaging	Part Numbers
Metal	Single	504021-1
	Bulk (50)	504021-2
Zirconia Ceramic	Single	502750-1
	Bulk (50)	502750-2

For complete product information, order Catalog 1307895

Multimode

Ceramic

Performance Characteristics:

Insertion Loss — 0.3dB typical

Operating Temp. Range —
-20°C to +75°C

Durability — 500 cycles

Features

- Epoxy Type Connector
- AMP Quick Cure Adhesive Available for use. See page 11010 for information.
- Pre-Radiused Ferrule Finish



Fiber Size	Conn. Type†	Boot Type & Color	Max. Cable Dia.	Part Numbers
125	1	Short/Black	3.0	503569-2*
125	1	Short/Black/Bare Buffer	3.0	503571-3
140	2	Bend Limiting/BL/Bare Buffer	3.0	501380-6
125	2	Bulk Pk. No Boot	3.0	492458-3*
125	2	Short/BL/Bare Buffer	3.0	492458-1
125	2	Short/Black	3.0	492458-2*

† Connector Type 1 – Zirconia Ceramic Ferrule, Polymer Body, Polymer Coupling Nut

Connector Type 2 – Zirconia Ceramic Ferrule, Nickel Plated Brass Body, Nickel Plated Die Cast Coupling Nut

* Bulk packages are 1000 piece quantities.

Stainless Steel

Performance Characteristics:

Insertion Loss — 0.3dB Typical

Operating Temp. Range —
-30°C to +70°C

Durability — 500 cycles

Material:

Ferrule — Stainless Steel

Body — Nickel Plated Brass

Coupling Nut — Nickel Plated
Die Cast



Fiber Size	Boot Type & Color	Max. Cable Dia.	Part Numbers
125	Bend Limiting/Black	3.0	504008-3
140	Bend Limiting/Black	3.0	504008-7
125	Bulk Pk. No Boot	3.0	5-504008-4

Features

- Epoxy Type Connector
- AMP Quick Cure Adhesive Available for use. See page 11010 for information.
- Pre-Radiused Ferrule Finish

For complete product information, order Catalog 1307895

Multimode

Polymer Composite

Performance Characteristics:

Insertion Loss — 0.3dB Typical

Operating Temperature Range —
-20°C to +75°C

Durability — 500 Cycles

Material:

Ferrule — Composite Polymer

Body — Polymer

Coupling Nut — Polymer



Features

- Epoxy Type Connector
- AMP Quick Cure Adhesive Available for use. See page 11010 for information.
- Pre-radiused Ferrule Finish

Fiber Size	Connector Type	Boot Type & Color	Max. Cable Dia.	Part Numbers
125	1	Short/Black/Bare Buffer/900 μm	3.0	503415-1
125	1	Short/Black	3.0	503424-3*
125	1	Bulk Pk. No Boot	3.0	503424-1*
125	1	Bare Buffer/Black	.9	503424-5*

* Bulk packages are 1000 piece quantities.

ST-Style Coupling Receptacles

Features

- Free-hanging or panel mount design



Alignment Sleeve Material	Packaging	Part Numbers
Polymer Composite	Single	501381-1
	Bulk (1000)	501381-2
Metal	Single	504021-1
	Bulk (50)	504021-2
Zirconia Ceramic	Single	502750-1
	Bulk (50)	502750-2

For complete product information, order Catalog 1307895

Multimode

Active Device Mounts

Features

- Designed to accept multimode TO-18, TO-46 and TO-52 active devices
- Nickel plated, die cast zinc
- Mount to PCB or through panel
- Includes positioning ring



Description	Packaging	Style	Height	Part Numbers
Standard height	Single	A	.410	501474-1
Low profile	Single	B	.280	502585-2
Low profile	Single	C	.314	504022-2
Low profile	Bulk (50)	C	.314	504022-3

ST-Style Tooling and Accessories

Termination Kit: Includes all tools and accessories except adhesives

Description	Part Number
Termination kit for all ST-Style connectors.	503746-1

Crimp Tools

Description	Hand Tool with Die Set	Hand Tool Only	Die Set Only
Ceramic/Polymer Ferrules	58433-4	58532-1	58424-1
Stainless Steel Ferrules	58551-1	58532-1	58552-1

Adhesives

Description	Approx. No. of Connectors	Part Numbers
AMP Quick Cure Adhesive Tube (3 grams)	100	492508-1
AMP Quick Cure Adhesive Tube (9 grams)	300	492508-2
Epoxy - (25) Bipax Pkgs	250	501195-4
Epoxy - (1) Tube	400	502418-1
Epoxy Applicator	N/A	501473-3

Polishing Films: Package of (10) 8.5 x 11 in. Sheets
Each package will polish between 60 and 80 connectors

Description	Part Numbers
5 µm	228433-8
1 µm	228433-7
0.3 µm	228433-5

Miscellaneous Tools

Polishing Bushing	Part Numbers
Metal Bushing, Ceramic & Stainless Steel Ferrules	503337-1
Polymer Bushing-Black, Ceramic & Stainless Steel Ferrules	503304-1
Polymer Bushing-Beige, Polymer Ferrule	503304-2
Curing Sleeve/Pieces	502259-1
Strip Card Kit	501818-1

Strain Relief Bulk packages (100 pcs./package)

Color	Bend Limiting Boot	Short Boot	Right Angle	Bare Buffer
Black	502128-9	501457-8	502667-6	503628-2
Red	1-502128-1	1-501457-0	502667-9	2-503628-4
Blue	1-502128-3	1-501457-2	502667-7	503628-9

Build up tubes

Size	Pcs Per Pack	Part Numbers
.900 mm to 3.0 mm	100	502179-9
2.4 mm to 3.0 mm	100	501275-4



Bend Limiting Boot



Short Boot



Right Angle Boot



Bare Buffer Boot

For complete product information, order Catalog 1307895

Epoxy Type

Features

- One-piece connector body:
 - Fastest assembly
 - Field installable
- Multi-Piece tunable SM available
 - Use on polish machines that only accept ferrules
- Compliant with
 - JIS C-5973
 - Fibre Channel
 - TIA 568
 - TIA FOCIS-3
- Pre-radiused ferrules
- For 125 µm cladding diameter



Simplex Connector



Duplex Connector

Multimode SC-Style Connector Kits

Performance Characteristics:

Insertion Loss — <0.2 dB Typical

Operating Temp. Range — -40°C to +85°C

Durability — 500 Cycles

Ferrule Type	Mode	Jacket Size	Simplex/Duplex	Part Numbers					
				Indiv. Pack w/ Boot	Bulk Pack No Boots	Bulk Pack w/ Boots	Termination Kit	Inspection Microscope	Instruction Sheet
Ceramic	Multi	3.0 mm	Simplex	503948-1	503948-3	503948-2	503746-7	502970-1	408-4159
Ceramic	Multi	3.0 mm	Duplex	504657-1	504657-3	504657-2	503746-7	502970-1	408-4211
Ceramic	Multi	2.4 mm	Simplex	504930-1	NA	504930-2	503746-7	502970-1	408-4159
Ceramic	Multi	2.4 mm	Duplex	504927-1	NA	504927-2	503746-7	502970-1	408-4211
Ceramic	Multi	2.0 mm	Simplex	504931-1	NA	504931-2	503746-7	502970-1	408-4159
Ceramic	Multi	2.0 mm	Duplex	504928-1	NA	504928-2	503746-7	502970-1	408-4211
Ceramic	Multi	900 µm	Simplex	504932-1	504932-3	504932-2	503746-7	502970-1	408-4159
Ceramic	Multi	900 µm	Duplex	504929-1	NA	504929-2	503746-7	502970-1	408-4211

Singlemode SC-Style Connector Kits

Performance Characteristics:

Insertion Loss — <0.2 dB Typical

Return Loss — <-59 dB Typical

Operating Temp. Range — -40°C to +85°C

Durability — 200 Cycles

Ferrule Type	Mode	Jacket Size	Simplex/Duplex	Part Numbers					
				Indiv. Pack w/ Boot	Bulk Pack No Boots	Bulk Pack w/ Boots	Termination Kit	Inspection Microscope	Instruction Sheet
Ceramic	Single	3.0 mm	Simplex	504646-2	504646-6	504646-4	503746-7	502970-3	408-4208
Ceramic	Single	3.0 mm	Duplex	504655-1	504655-3	504655-2	503746-7	502970-3	408-4212
Ceramic	Single	2.4 mm	Simplex	504933-2	NA	504933-4	503746-7	502970-3	408-4208
Ceramic	Single	2.4 mm	Duplex	504935-2	NA	504935-4	503746-7	502970-3	408-4212
Ceramic	Single	2.0 mm	Simplex	504934-2	NA	504934-4	503746-7	502970-3	408-4208
Ceramic	Single	2.0 mm	Duplex	504936-2	NA	504936-4	503746-7	502970-3	408-4212
Ceramic	Single	900 µm	Simplex	492123-3	492123-7	492123-4	503746-7	502970-3	408-4208
Ceramic	Single	900 µm	Duplex	NA	NA	504655-4	503746-7	502970-3	408-4212

Tunable Singlemode SC-Style Connector Kits

Performance Characteristics:

Insertion Loss — <0.2 dB Typical

Return Loss — <-59 dB Typical

Operating Temp. Range — -40°C to +85°C

Durability — 200 Cycles

Ferrule Type	Mode	Jacket Size	Simplex/Duplex	Part Numbers					
				Indiv. Pack w/ Boot	Bulk Pack No Boots	Bulk Pack w/ Boots	Termination Kit	Inspection Microscope	Instruction Sheet
Ceramic	Single	3.0 mm	Simplex	504647-2	NA	504647-4	503746-7	502970-3	408-4284
Ceramic	Single	3.0 mm	Duplex	504656-1	NA	504656-2	503746-7	502970-3	NA
Ceramic	Single	2.4 mm	Simplex	504937-2	NA	504937-4	503746-7	502970-3	408-4284
Ceramic	Single	2.4 mm	Duplex	504939-2	NA	504939-4	503746-7	502970-3	NA
Ceramic	Single	2.0 mm	Simplex	504938-2	NA	504938-4	503746-7	502970-3	408-4284
Ceramic	Single	2.0 mm	Duplex	504940-2	NA	504940-4	503746-7	502970-3	NA

For complete product information, order Catalog 1307895

Epoxy Type



3.0mm Boot



3.0mm Right Angle Boot



900µm Short Boot



900µm Boot

SC Strain Reliefs — Jacketed Cable

Description	Part Numbers					
	Jacket Color					
	Black	Yellow	Red	Beige	Blue	Green
3.0 mm Boots	1-503971-0	503971-7	1-503971-1	503971-1	503971-2	1-503971-8
2.4 mm Boots	1-503971-2	503971-8	1-503971-3	503971-3	503971-4	NA
2.0 mm Boots	NA	503971-9	NA	503971-5	503971-6	NA

SC Strain Reliefs — Right Angle

Description	Simplex/ Duplex	Part Numbers					
		Jacket Color					
		Black	Yellow	Red	Beige	Blue	Green
3.0 mm Boots	Simplex	1-1278705-5	NA	1-1278705-6	1-1278705-4	1-1278705-3	1-1278705-8
	Duplex	2-1278705-1	NA	2-1278705-2	2-1278705-0	1-1278705-9	2-1278705-3

SC Strain Reliefs — 900 micron

Description	Part Numbers					
	Jacket Color					
	Black	Yellow	Red	Beige	Blue	Green
900 µm Boots	503628-2	503628-5	2-503628-4	2-503628-0	503628-9	503628-7
Short (10 mm) 900 µm Boots	1278309-1	NA	1278309-3	NA	1278309-2	NA

SC-FC Univeral Adapter

- Singlemode
- 0.3 dB typical insertion loss
- 0.5 maximum insertion loss
- Less than -45 dB back reflection
- Converts SC receptacle into FC receptacle
- Converts FC plug into SC plug
- Small size



FC-SC Adapter

Description	Part Numbers
Ceramic Sleeve	1374370-1
Phosphor Bronze Sleeve	1374370-2

AMP SC Low Loss Loopback Connector

Part Number 503141-1 Product Facts

- 62.5/125 Multimode
- Use for Equipment Testing
- 0.6 dB Insertion Loss
- 0.5" Ferrule Centerline

Part Number 503141-2 Product Facts

- 50/125 Multimode
- Use for Equipment Testing
- 0.8 dB Insertion Loss
- 0.5" Ferrule Centerline

Part Number 504883-1 Product Facts

- Singlemode
- Use for Equipment Testing
- 1.5 dB Insertion Loss
- 0.5" Ferrule Centerline



For complete product information, order Catalog 1307895

Multimode

Other Tooling Accessories

Polishing Films: Package of (10) 8.5 x 11 in. sheets

Description	Part Numbers
5 µm	228433-8
0.3 µm	228433-5
Final Polish Film	502748-2

Miscellaneous Tools

Description	Part Numbers
Polishing Bushing	502631-1
Curing Sleeve	502656-1 (12 pcs.)
Strip Card	501818-1

Adhesive

Description	Part Numbers
Epoxy - 1 Bipack (4 grams)	504035-1
Epoxy - 1 Tube	502418-1
Epoxy Applicator	501473-3

AMP SC Tooling and Accessories

Termination Kit: Includes all tools and accessories except adhesives.

Description	Part Number
Termination kit for all SC connectors	503746-7

Crimp Tools

Cable Jacket diameter (mm)	Handtool w/die set	Handtool Only	Die Set Only
3.0	503911-1	58588-1	503910-1
2.0 & 2.4/2.5 & 3.0	492026-1	58588-1	492025-1

Adhesives

Description	Approx. No. of Connectors	Part Numbers
AMP Quick Cure (3 grams) Adhesive Tube	100	492508-1
AMP Quick Cure (9 grams) Adhesive Tube	300	492508-2
Epoxy - (25) Bipax Pkgs	250	501195-4
Epoxy - (1) Tube	400	502418-1
Epoxy Applicator	N/A	501473-3

Polishing Films: Package of (10) 8.5 x 11 in. Sheets. Each package will polish between 60 and 80 connectors.

Description	Part Numbers
5 µm	228433-8
0.3 µm	228433-5

Miscellaneous Tools:

Polishing Bushing	Curing Sleeve/Pieces	Strip Card Kit
502631-1 (Polymer)	502656-1	501818-1
503787-1 (Metal)		

For complete product information, order Catalog 1307895

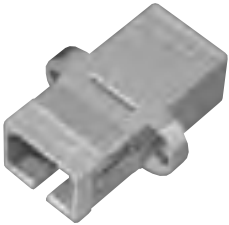
Simplex and Duplex Adapters



SC Simplex Adapter - Plastic



Flange-less SC Simplex Adapter - Plastic



SC Simplex Adapter - Metal



Flange-less SC Simplex Adapter - Metal



SC Duplex Adapter - Plastic

Adapters

Features

- Suitable for Any SC Connector
- Available with Metal or Ceramic Alignment Sleeves
- Choice of Housing Colors
- Duplex Adapters Accept Two Simplex Connectors or One Duplex Connector
- Assortment of Hybrid Configurations Available
- Mounting Screws Available

SC Simplex Adapter - Plastic

Alignment Sleeve Material/Application	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM only	Beige	504614-1	504614-2
Metal	MM/SM	Black	502632-7	1-502632-4
Metal	MM/SM	Blue	502632-8	1-502632-5
Metal	MM/SM	Beige	502632-9	1-502632-6
Ceramic	SM/MM	Black	1-502632-0	1-502632-7
Ceramic	SM/MM	Blue	1-502632-1	1-502632-8
Ceramic	SM/MM	Beige	1-502632-2	1-502632-9
Ceramic/APC SM	SM APC	Green	2-106901-6	—

Flange-less SC Simplex Adapter - Plastic

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Black	504632-1	—
Ceramic	SM/MM	Black	504632-2	—
Metal	MM/SM	Blue	504632-3	—
Ceramic	SM/MM	Blue	504632-4	—

SC Simplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278348-1	1278348-2
Ceramic	SM/MM	Electroless Nickel	1278348-3	1278348-4

Flange-less SC Simplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278348-5	1278348-6
Ceramic	SM/MM	Electroless Nickel	1278348-7	1278348-8

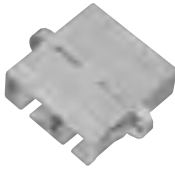
SC Duplex Adapter - Plastic

Alignment Sleeve Material/Application	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM only	Black	504640-4	—
Metal	MM only	Beige	504640-1	504640-2
Metal	MM/SM	Black	502776-7	1-502776-3
Metal	MM/SM	Blue	502776-8	1-502776-4
Metal	MM/SM	Beige	502776-9	1-502776-5
Ceramic	SM/MM	Black	1-502776-0	1-502776-6
Ceramic	SM/MM	Blue	1-502776-1	1-502776-7
Ceramic	SM/MM	Beige	1-502776-2	1-502776-8
Ceramic	SM/MM	Black No Logo	—	2-502776-5
Ceramic	SM APC	Green	2-502776-3	—

For complete product information, order Catalog 1307895

Adapters

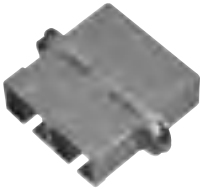
Duplex Adapters



SC Duplex Adapter

SC Duplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278049-1	1278049-2
Ceramic	SM/MM	Electroless Nickel	1278049-3	1278049-4



SC Duplex Metal Adapter w/ EMI Shielding

Shielded SC Duplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1374223-1	1374223-2
Ceramic	SM/MM	Electroless Nickel	1374223-3	1374223-4

- Designed to prevent EMI leak
- Ideal for OC-48 applications

SC to ST Hybrid Adapters



SC to ST Simplex Adapter - Plastic

SC to ST Simplex Adapter - Plastic

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Black	502780-1	502780-7
Metal	MM/SM	Blue	502780-2	502780-8
Metal	MM/SM	Beige	502780-3	502780-9
Ceramic	SM/MM	Black	502780-4	1-502780-0
Ceramic	SM/MM	Blue	502780-5	1-502780-1
Ceramic	SM/MM	Beige	502780-6	1-502780-2



Flange-less SC to ST Simplex Adapter - Plastic

Flange-less SC to ST Simplex Adapter - Plastic

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Black	504634-1	—
Ceramic	SM/MM	Black	504634-2	—



SC to ST Simplex Adapter - Metal

SC to ST Simplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278350-1	1278350-2
Ceramic	SM/MM	Electroless Nickel	1278350-3	1278350-4

For complete product information, order Catalog 1307895

Adapters

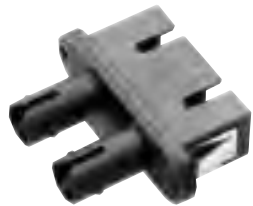
SC to ST Hybrid Adapters



Flange-less SC to ST Simplex Adapter - Metal

Flange-less SC to ST Simplex Adapter - Metal

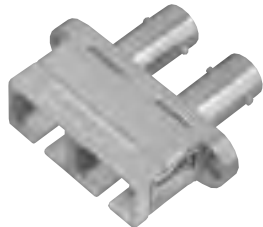
Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278350-5	1278350-6
Ceramic	SM/MM	Electroless Nickel	1278350-7	1278350-8



SC to ST Duplex Adapter - Plastic

SC to ST Duplex Adapter - Plastic

Alignment Sleeve Material	Housing Color	Part Numbers	
		Single Pkg.	50 pc. Bulk Pkg.
Metal (MM Only)	Black	504663-5	—
Metal (MM Only)	Beige	504663-4	—
Metal	Black	503137-1	503137-7
Metal	Blue	503137-2	503137-8
Metal	Beige	503137-3	503137-9
Ceramic	Black	503137-4	1-503137-0
Ceramic	Blue	503137-5	1-503137-1
Ceramic	Beige	503137-6	1-503137-2



SC to ST Duplex Adapter - Metal

SC to ST Duplex Adapter - Metal

Alignment Sleeve Material	Singlemode (SM)/ Multimode (MM)	Housing Color	Part Numbers	
			Single Pkg.	50 pc. Bulk Pkg.
Metal	MM/SM	Electroless Nickel	1278051-1	1278051-2
Ceramic	SM/MM	Electroless Nickel	1278051-3	1278051-4

For complete product information, order Catalog 1307895

Multimode

FSMA Connectors

Performance Characteristics:

Insertion Loss — 1.5 dB Typical

Temperature Range —
-55°C to +105°C

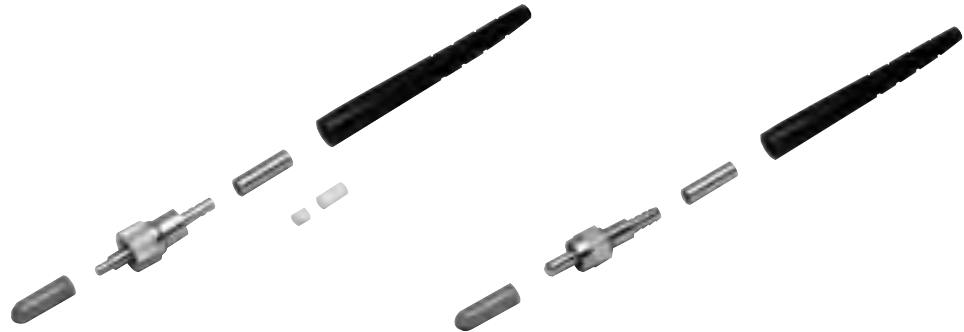
Durability — 200 cycles

Features

- Industry compatible with 905 (FSMA-I) and 906 (FSMA-II) style connectors
- Terminates fiber sizes from 125 through 1000 microns in diameter
- Design parameters conform to NATO and IEC interface standards

Instruction Sheet

FSMA 905 & 906 —
408-9863



Ferrule Material	Connector Body Material	Fiber Diameter (µm)	Nominal Jacket O.D.				
			3.1mm		4.3mm		5.3mm
			905	906	905	906	905
Stainless Steel	Nickel-Plated Brass	125	504566-1	504014-1	504567-1	—	504568-1
		140	504566-2	1-504014-0	504567-2	—	504568-2
		231	504566-7	2-504014-6	—	4-504014-1	—
		1000	3-504566-0	—	—	—	2-504568-8
Ceramic	Nickel-Plated Brass	125	—	504015-1	—	504015-2	—

FSMA Adapters

Adapter Features

- Precision mating adapter for all FSMA connectors
- In-line splice or panel mount design

Active Device Mount Features

- Designed to house TO-18, TO-46, and TO-52 devices
- Constructed of nickel-plated die cast zinc alloy or stainless steel
- Mounts to PC board or through panel



Description	Part Numbers
FSMA Adapters	
Hex Flange, Stainless Steel	501049-1
Hex Flange, Stainless Steel, Counterbore, Sealed	501050-1
Fixed Flange, Nickel-Plated Brass	504026-1
In-Line, Stainless Steel	504028-1
In-Line, Nickel-Plated Brass, Counterbore	504030-1
In-Line, Stainless Steel, Counterbore, Short	504031-1
FSMA Active Device Mounts	
PC Mount Receptacle, Die Cast	502136-1
PC Mount Receptacle, Die Cast, Bulk Packaged	502136-2
PC Mount Receptacle, Stainless Steel	501055-1

FSMA Tooling and Accessories

Termination Kit

Description	Part Number
Termination kit for all FSMA connectors	503746-2

Crimp Tools

Description	Cable Jacket diameter (mm)	Handtool w/die set	Handtool Only	Die Set Only
All FSMA	3.0	58551-1	58532-1	58552-1 (hex die)

Adhesives

Description	Approx. No. of Connectors	Part Numbers
Epoxy - (25) Bipax Pkgs	250	501195-4
Epoxy - (1) Tube	400	502418-1
Epoxy Applicator	N/A	501473-3

Polishing Films

Package of (10) 8.5 x 11 in. Sheets.

Each Package will polish between 60 and 80 connectors.

Description	Part Numbers
5 µm	228433-8
1 µm	228433-7
0.3 µm	228433-5

Miscellaneous Tools

Description	Part Numbers
Curing Sleeves/Pieces (12)	502249-1
Strip Card Kit	501818-1
Polishing Bushing	228025-1
FSMA Polishing Length Gage (not included with termination kit)	501301-1

For complete product information, order Catalog 1307895

9 Pin SC Duplex Molded-Optronic Transceiver

Features

- Design utilizing advanced molded optical lens technology
- Data rates of 100 Mb/s (Fast Ethernet), 125 Mb/s (FDDI), 125 Mb/s (LCF), 156 Mb/s (ATM), and 270 Mb/s (FC)
- Multi-sourced 9 pin single row footprint
- Process compatible (i.e. wave soldering)
- Compatible with standard FDDI and ATM chip sets
- Single +5 volts power supply
- ECL compatible
- SC style optical interface
- Wide 25 to 75% duty cycle operation

Applications

Standards

- Fast Ethernet
- FDDI
- ATM
- Fiber Channel

Equipment

- FDDI Networks
 - Concentrator
 - Routers
 - Bridges
 - Adapter Cards
- Point-to-Point Links
- Network Interface Cards



Photo 111124

Technological advancements in the areas of optical polycarbonate precision molding and resin circuit board manufacturing have enabled Tyco Electronics to introduce a line of low cost fiber optic transceivers. Tyco Electronics has incorporated these design breakthroughs into their new 9 pin SC Duplex transceiver products. High quality polycarbonate camera lens technology has been configured for 1300 nm fiber optics thus providing high performance at an economical price. Precision chip and wire processes used with advanced resin circuit boards make it

possible for mass production of low cost modules. AMP Molded-Optronic 9 pin SC Duplex Transceivers are standard compliant and multisourced high density footprint products that utilize SC connector interfaces capable of delivering the power budget requirements needed for 100 Base FX, FDDI PMD, FDDI LCF PMD, ATM and Fiber Channel applications.

Tyco Electronics' patented wide duty cycle compensation featured in the receiver section eliminates concern of excessive data dependent jitter in Fast Ethernet

application where 4B 5B encoding schemes require 40 to 60% operability.

These products incorporate internally produced 1300 nm surface emitting LEDs and photodiodes.

Transceivers are supplied with process plugs to protect optical ports during soldering and cleaning processes.

Tyco Electronics also offers versions of the above transceivers in dual ST connectorized packages.

Units are supplied with process plugs which seal the optical connector interface during soldering and cleaning processes.

Data Rate	Part Numbers
100/125 Mb/s	269142-1
125 Mb/s	269142-2 Tallboy
156 Mb/s	269143-1
156 Mb/s	269143-2 Tallboy

For complete product information, order Catalog 1307895

9 Pin SC Duplex Molded-Optronic Transceiver

Description	Part Numbers
100/125 Mb/s	269142-1
125 Mb/s Tallboy	269142-2
156 Mb/s	269143-1
156 Mb/s Tallboy	269143-2

Transmitter Performance Specifications:

 (TA = 0 to 70°C, VCC-V_{EE} = 4.75 to 5.25V DC)

Parameter	Symbol	125 Mb/s			156 Mb/s			Units
		Min.	Typical	Max.	Min.	Typical	Max.	
Data rate (NRZ)	B	0	—	125	0	—	156	Mb/s
Optical output (avg.) ⁵	P _{OH}	-19	—	-14	-19	—	-14	dBm
Extinction ratio (P _{OL} /P _{OH}) x 100%		—	—	10	—	—	10	%
Optical wavelength ²	λ _{out}	1270	1330	1380	1270	1330	1380	nm
Spectral width ²	Δλ	—	130	—	—	130	200	nm
Duty cycle	—	0	—	100	0	—	100	%
Output risetime ²	t _{TLH}	.6	1.5	3.5	.6	1.2	2.5	ns
Output falltime ²	t _{THL}	.6	1.5	3.5	.6	1.2	2.5	ns
Pulse width distortion ¹	—	—	—	0.6	—	—	0.5	ns
Data dependent jitter ¹	t _{DDJ}	—	—	0.6	—	—	0.3	ns
Random jitter ¹	t _{RAN}	—	—	0.6	—	—	0.5	ns
Data ^{3, 4}	V _{IL} V _{IH}	V _{CC} -1.81 V _{CC} -1.165	— —	V _{CC} -1.475 V _{CC} -.88	V _{CC} -1.81 V _{CC} -1.165	— —	V _{CC} -1.475V V _{CC} -.88	V
Inputs	I _{IL}	-2	—	—	-2	—	—	μA
	I _{IH}	—	—	400	—	—	400	μA
Reference voltage (output)	V _{BB}	V _{CC} -1.396	—	V _{CC} -1.24	V _{CC} -1.396	—	V _{CC} -1.24	V
Power supply voltage	V _{CC} -V _{EE}	4.75	5.0	5.25	4.75	5.0	5.25	V
Supply current	I _{CC} or I _{EE}	—	—	140	—	—	140	mA
Operating temperature	T _A	0	—	70	0	—	70	°C

¹ Driven with a differential signal.

² Limits on optical wavelength, spectral width, output risetime, and output falltime are controlled by figures below for 125 Mb/s.

³ When V_{BB} is used as the reference voltage.

⁴ Voltage levels listed are compatible with 100K Series ECL logic levels. The parts are 100% compatible with 10K and 10KH Series logic when driven with differential signals.

⁵ .275 NA 62.5/125 μm Fiber.

Note: LED emitters comply with IEC 825-1 and -2 requirements for eye safety.

Absolute Maximum Ratings: All Modules

Parameter	Symbol	Min.	Typical	Max.	Units
Storage temperature	—	-40	—	85	°C
Lead soldering limits	—	—	—	240/10	°C/s
Supply voltage	V _{CC} -V _{EE}	-2	—	7.00	V

For complete product information, order Catalog 1307895

9 Pin SC Duplex Molded-Optronic Transceiver

Description	Part Numbers
100/125 Mb/s	269142-1
125 Mb/s Tallboy	269142-2
156 Mb/s	269143-1
156 Mb/s Tallboy	269143-2

Receiver Performance Specifications:

(TA = 0 to 70°C, V_{CC}-V_{EE} = 4.75 to 5.25V DC) 125 Mb/s
156 Mb/s LCF

Parameter	Symbol	Min.	Typical	Max.	Min.	Typical	Max.	Units
Data rate (NRZ)	B	10	—	125	10	—	156	Mb/s
Optical input (avg.) ^{3, 5} sensitivity	P _{IN}	-33.5	—	-14.0	-32.5	—	-14.0	dBm
Optical wavelength	λ _{in}	1270	—	1380	1270	—	1380	nm
Duty cycle	—	25	50	75	25	50	75	%
Output risetime	t _{TLH}	.5	—	2.5	.5	—	2.5	ns
Output falltime	t _{THL}	.6	—	2.5	.5	1.8	2.5	ns
Pulse width distortion ¹	—	—	—	0.4	—	—	0.4	ns
Data dependent jitter	t _{DDJ}	—	—	0.8	—	—	0.8	ns
Data output ⁴	V _{OH} V _{OL}	V _{CC} -1.025 V _{CC} -1.81	—	V _{CC} -.88 V _{CC} -1.62	V _{CC} -1.025 V _{CC} -1.81	—	V _{CC} -.88 V _{CC} -1.62	V
Signal detect (output)	V _A V _D	V _{CC} -1.025 V _{CC} -1.81	—	V _{CC} -.88 V _{CC} -1.62	V _{CC} -1.025 V _{CC} -1.81	—	V _{CC} -.88 V _{CC} -1.62	V
P _N power levels (avg.):								
Deassert ²	P _D	-41.0 or P _B	—	-32.5	-39.0 or P _B	—	-32.5	dBm
Assert	P _A	-39.5	—	-31	-38	—	-31.0	dBm
Hysteresis	—	1.5	2.0	—	1.5	2.0	—	dB
Signal detect delay time:								
Deassert	—	—	—	350	—	—	50	μs
Assert	—	—	—	100	—	—	50	μs
Power supply voltage	V _{CC} -V _{EE}	4.75	5.0	5.25	4.75	5.0	5.25	V
Supply current	I _{CC} or I _{EE}	—	—	150	—	—	150	mA
Operating temperature	T _A	0	—	70	0	—	70	°C

¹ Measured using FDDI test signaling format, ANSI X3.166-1989.

² P_B = Power at which BER = .01, whichever is greater.

³ On Eye opening, V_{CC} = 5V, 25°C, 2¹⁵-1 PRBS, 0.275 NA 62.5/125 μm Fiber, BER = 2.5 x 10⁻¹⁰ for 125 Mb/s.

⁴ Voltage levels listed are compatible with 100K Series ECL logic levels. The parts are 100% compatible with 10K and 10KH Series when driven with differential signals.

⁵ Onsec Eye opening, V_{CC} = 5V, 25°C, 2²³-1 PRBS, 0.275 NA 62.5/125 μm Fiber, BER = 1.0 x 10⁻¹⁰ for 156 Mb/s.

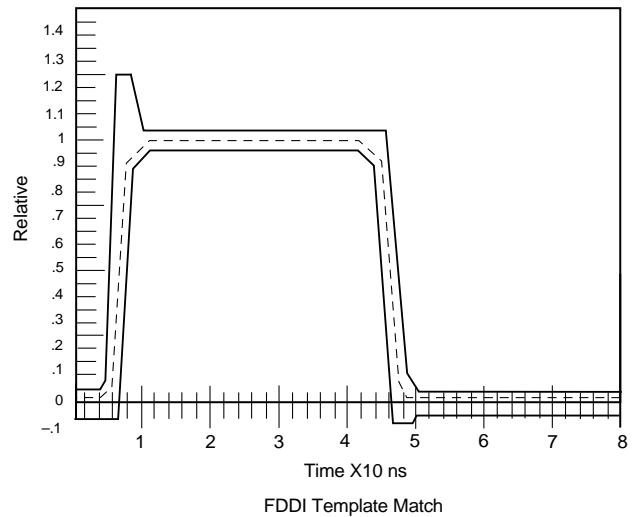
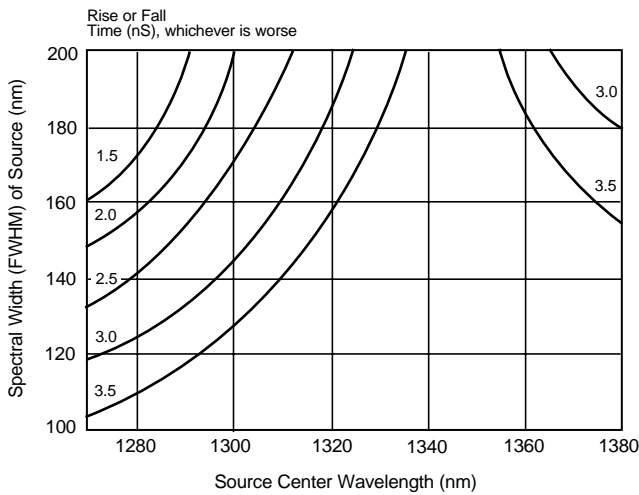
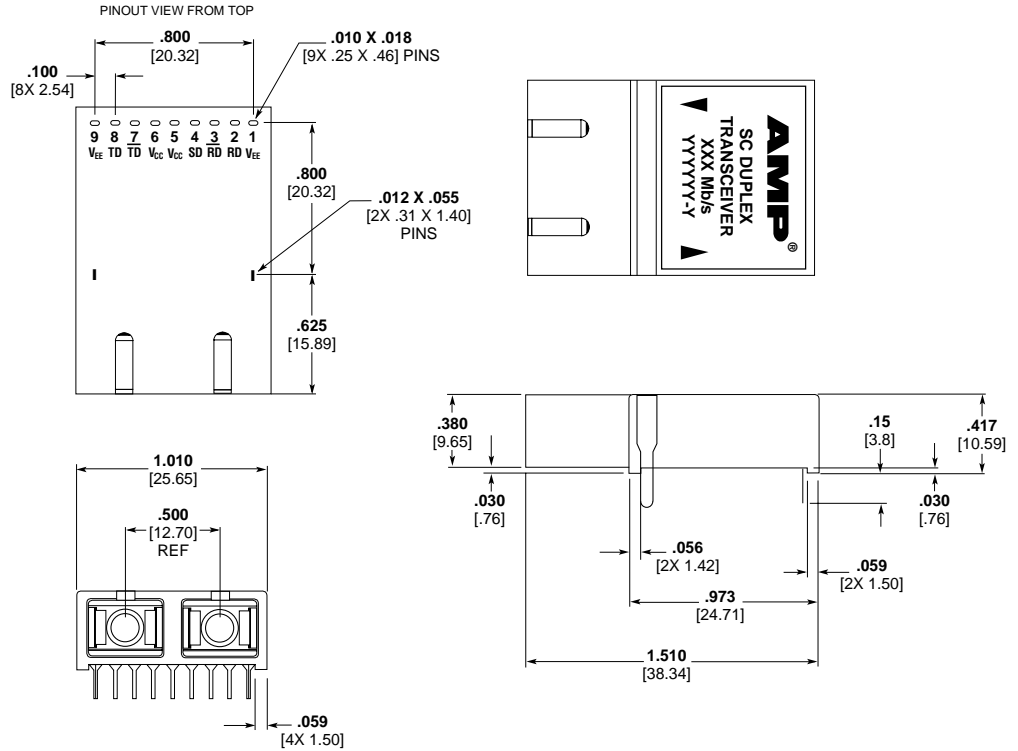
Note: Pin plating: 150 microinches minimum Sn93 Pb7 over 50/150 microinches Ni. Case material: Polyethersulfone UL 94 V-O rated.

Note: Mates with optical connectors meeting JIS C 5973.

For complete product information, order Catalog 1307895

9 Pin SC Duplex Molded-Optronic Transceiver

Description	Part Numbers
100/125 Mb/s	269142-1
125 Mb/s Tallboy	269142-2
156 Mb/s	269143-1
156 Mb/s Tallboy	269143-2



For complete product information, order Catalog 1307895

1.3 μm LED

Features

- High coupled power, typically 75 μW into 62.5 μm fiber
- High reliability MTTW 2.3 x 10⁸ hours
- Wavelength centered at 1320 nm
- Hermetically sealed TO-18 style package installed in industry standard ADMs
- Functional over -40°C to 85°C operating temperature range



TO



ST Style



Low Profile ST

The AMP InGaAsP SLED products offer high coupled powers for digital fiber optic transmission applications.

Compatible with industry standards, the AMP LED ADMs consist of hermetically sealed TO-18 style SLEDs which have been actively aligned for maximum coupled power. The devices are permanently fixed in place

to promote stable performance over all operating conditions.

The ST connectors are suitable for both panel/bulk-head and PC board mounting.

Each unit is burned-in. Coupled power, capacitance, leakage current and spectral characteristics are measured on each unit.

No data is supplied with the unit. A lot code is used for traceability.

For additional information on product qualification, reference Product Specification 108-55008.

For additional information on product performance, reference Application Note 82924.

11 Fiber Optic Products

Specifications: 100mA Forward Current, 25°C

Parameter	Part No. Suffix	Test Conditions	Units	Min.	Typ.	Max.
Coupled power 50 μm fiber	-1	—	μW dBm	10 -20	20 -17	—
62.5 μm fiber	-1	—	μW dBm	30 -15	45 -13	—
50 μm fiber	-2	—	μW dBm	20 -17	30 -15	—
62.5 μm fiber	-2	—	μW dBm	50 -13	75 -11	—
Wavelength	—	—	nm	1290	—	1350
Spectral FWHM	—	—	nm	—	—	170
Forward voltage	—	f=1MHz, 0V	V	—	1.4	1.7
Capacitance	—	-2V	pF	—	15	50
Leakage current	—	—	μA	—	—	2
Rise/fall time	—	100mA 50% duty cycle 12.5 MHz	ns	—	2.5	4
Bandwidth	—	—	MHz	—	115	—
Δλ/ΔT	—	-40 to +85°C	nm/°C	—	.38	—
ΔP _{out} /ΔT	—	—	dB/°C	—	-.03	—
Reliability MTTW	—	-1.5dB EOL	hrs	—	2.3 x 10 ⁸	—

Note: dBm is rounded to nearest integer value.

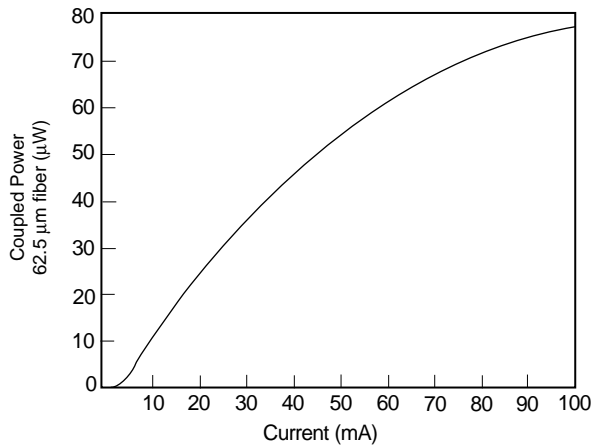
	Connector Interface Part Numbers	
	TO	ST Style
Standard	259006-1	259012-1
Premium	259006-2	259012-2

Note: Coupled power in specifications.

For complete product information, order Catalog 1307895

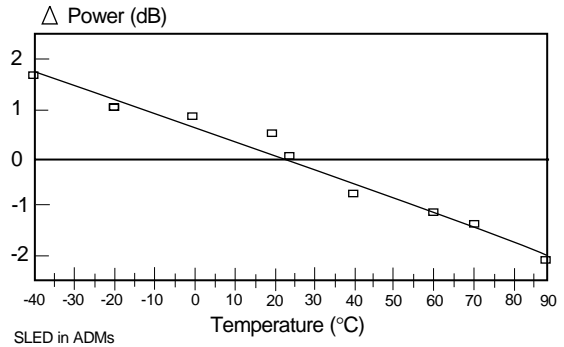
1.3 μm LED

Coupled Power vs. Drive Current



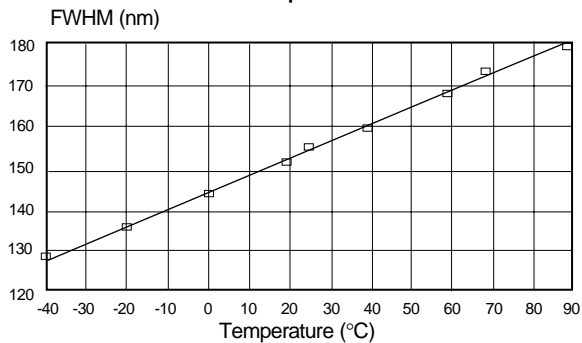
Test Conditions: 25°C

Coupled Power into 62.5 μm Fiber vs. Temperature



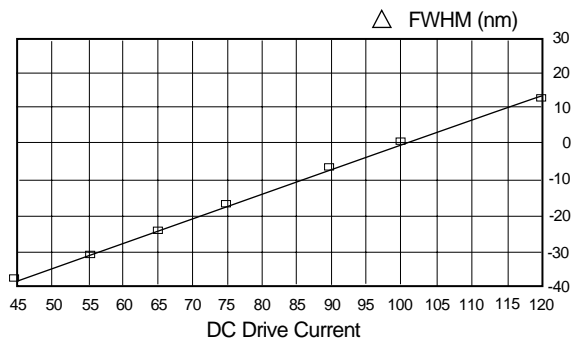
SLED in ADMs

SLED FWHM in ADM over Temperature



Test Conditions: 100 mA DC

SLED FWHM vs. Drive Current normalized to 100 mA DC



Test Conditions: 25°C, units in ADM

Absolute Maximum Rating

	Units	Min.	Max.
Operating temperature	C	-40	85
Storage temperature	C	-40	125
Reverse voltage	V	—	2
Forward current	mA	—	150

Mechanical Dimension Reference

Figure #	1	2	3
Page No.	11023	11023	11023

For complete product information, order Catalog 1307895

Multimode

Features

- High reliability passivated planar structure
- High responsivity
- Low dark current
- Low capacitance
- Hermetically sealed TO-18 style package installed in industry standard ADMs
- -40° to +85°C operating temperature range



TO



ST Style



SC



FC



Low Profile ST

The AMP multimode design using InGaAs PIN photodetectors offer high responsivity for nearly all digital and analog fiber optic applications. The unique design balances high-speed performance with noise-free linear output. Spectral response has been optimized for the long wavelength region of 1150 nm to 1600 nm. Every component delivered has

passed extensive high-temperature screening for long-term reliability.

Compatible with industry standards, AMP Active Device Mount components incorporate hermetically sealed TO-18 style PIN packages which have been actively aligned for optimal performance. SC and ST modules are suitable for both panel/bulkhead and

PC board mounting. Each unit is burned-in.

Responsivity, dark current and capacitance are measured on each unit. No data is supplied with the unit. A lot code is used for traceability.

For additional information on product qualification, reference Product Specification 108-55009.

Specifications: 25°C, -5 Volts

Parameter	P/N	Test Conditions	Units	Min.	Typ.	Max.
Responsivity						
50 μm	-1	LED source	A/W	.60	.71	—
62.5 μm	-1	of 10 μW	A/W	.50	.61	—
50 μm	-2	LED source	A/W	.75	.83	—
62.5 μm	-2	of 10 μW	A/W	.65	.80	—
Spectral Response	-1, 2	—	nm	1150	—	1600
Capacitance	-1, 2	f=1MHz	pF	—	1.5	1.7
Dark current	-1, 2	—	nA	—	1.5	5
Rise/fall	-1, 2	—	ns	—	—	1
Bandwidth	-1, 2	—	GHz	—	1.5	—
Reliability	-1, 2	I _D >5nA	hrs	—	2.0 x 10 ⁸	—

Connector Interface Part Numbers

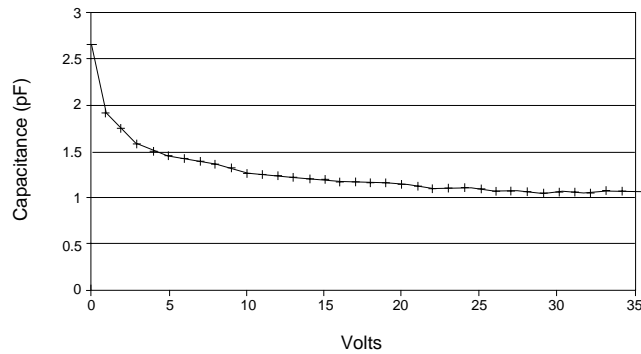
	TO	FC	SC	ST Style	Low Profile ST	w/ Process Cap
Standard	259007-1	259015-1	269027-1	259013-1	259013-6	259013-8
Premium	259007-2	—	—	259013-2	—	—

For complete product information, order Catalog 1307895

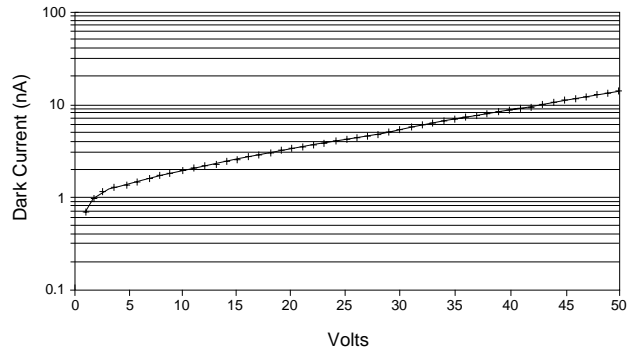
11
Fiber Optic Products

Multimode

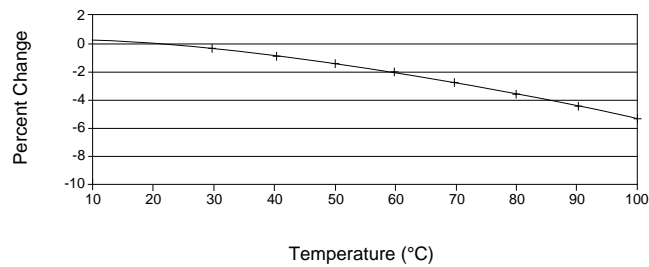
Capacitance



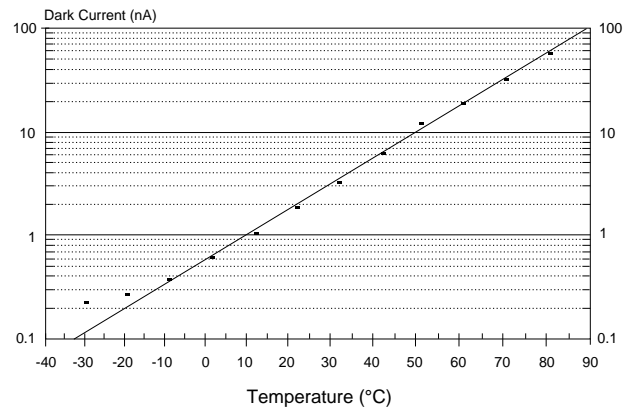
Dark Current



Responsivity vs. Temperature



Dark Current vs. Temperature



Absolute Maximum Rating

	Units	Min.	Max.
Operating temperature	C	-40	85
Storage temperature	C	-40	125
Reverse current	mA	—	1

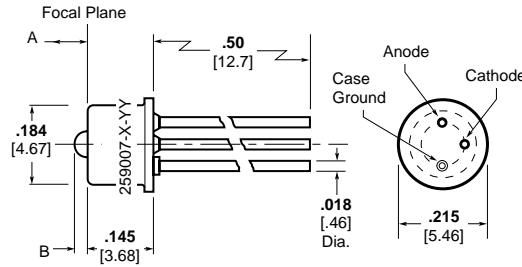
Mechanical Dimension Reference

Figure #	1	2	3	4
Page No.	11023	11023	11023	11023

For complete product information, order Catalog 1307895

Mechanical Dimensions

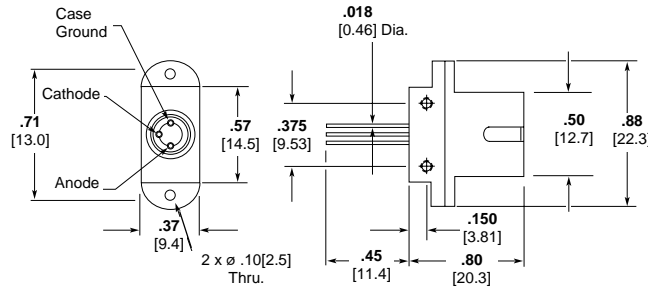
TO Package PIN + LED



Dimension	Type	Part Numbers
A	B	
.081	.026	LED 259006-1
2.05	.660	PIN 259007-1
.060	.020	LED 259006-2
1.52	.510	PIN 259007-2

Figure 1

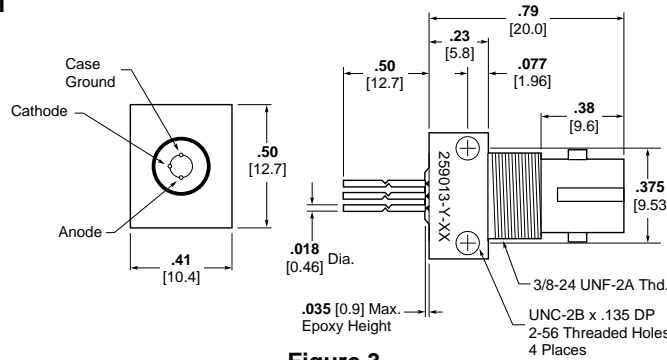
SC Type Board Mount/Panel Mount PIN



Description	Part Number
120μm	269027-1

Figure 2

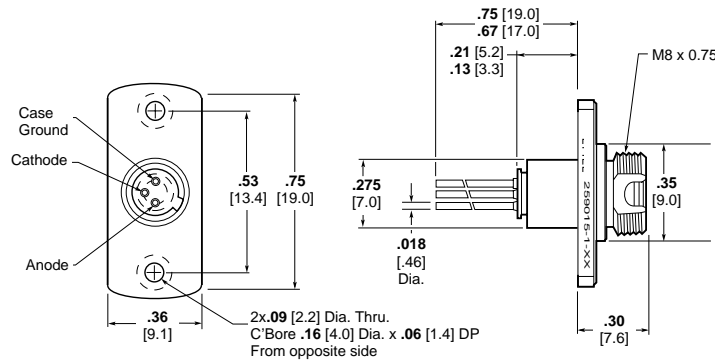
ST Style Board Mount/Panel Mount PIN + LED



Description	Type	Part Numbers
Standard	LED	259012-1
	PIN	259013-1
Premium	LED	259012-2
	PIN	259013-2

Figure 3

FC Type Panel Mount PIN



Part Number
259015-1

Figure 4

For complete product information, order Catalog 1307895

Kits

Professional Installer Kits Epoxy Type Connectors

The Professional Installer Kits from Tyco Electronics provide the professional installer with all the necessary tools required to perform terminations on the complete line of AMP epoxy type fiber optic connector products. Included in the kit is a crimp tool, with a set of interchangeable dies. In addition, an Inspection Microscope and Epoxy Curing Oven are included with specific kits.

Part Numbers 501258-7

For: FSD Connectors, ST-Style, FC, FSMA, AMP SC

Includes all tools necessary to terminate the connectors listed above. This is a complete kit which includes:

- Crimp tool and crimping dies
- Polishing bushings

- Polishing film
- Cable and fiber strippers
- Microscope with tripod and power source (see page 11027 for details)
- Epoxy curing oven (see page 11027 for details)

Part Number 501258-8

The same as 501258-7 except the epoxy oven operates at 220 VAC.

Part Number 501258-9

The same as 501258-7 except kit does not contain microscope or epoxy curing oven.

Note: Epoxy not included in kit. It must be purchased separately. See specific product page for part numbers.



Termination Kits Epoxy Type Connectors

Termination kits provide all the materials and tools (except epoxy, curing oven, and microscope) required to terminate a particular type of fiber optic connector. Tools are conveniently packaged in a handy carrying case. The kits contain polishing materials for approximately 60 connectors. The consumable items in the kit can be purchased separately.

For: AMP SC, FSMA, FC, ST-Style, FSD, RSD

Termination Kit

Connector Type	Part Numbers
ST-Style	503746-1
FSMA	503746-2
FSD	503746-6
Next Generation FC and SC	503746-7

Cyclops Cable Stripper Part Number 91300-1

Ideal for stripping twisted-pair (UTP & STP) and fiber optic cables up to 0.43" diameter.



Termination Tool Kits No Epoxy Type

For LightCrimp Plus Termination Tool Kits, see page 11002.

For LightCrimp Termination Tool Kits, see page 11003.

For Additional Tooling Information, Request Global Application Tooling Catalog 296240.

For complete product information, order Catalog 1307895

Adhesives and Epoxies

AMP QC Quick Cure Adhesive

Product Facts

- One-part adhesive eliminates the hassle and mess of mixing
- Applies easily and cures in minutes without heat or UV light
- Works with all standard multimode epoxy-style connectors without performance penalty
- Faster procedure for time-saving productivity and lower installed costs



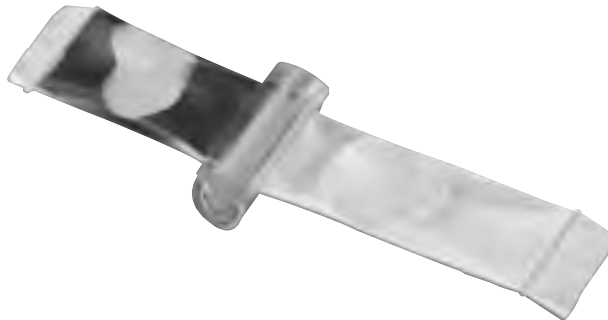
Tube Size	Typical Connector Terminations Per Tube*	Part Numbers
3 grams	100	492508-1

*Your individual termination techniques will affect the number of terminations per tube.

Epoxies

EPO-TEK Epoxies

Tyco Electronics offers EPO-TEK epoxies formulated for fiber optic applications. Each epoxy is a pre-measured, two-part material packaged in a bi-pack. Simply remove the bi-pack's center divider and work the epoxy together.



Product Facts

- EPO-TEK Epoxy
- Pre-measured bi-packs for consistent results
- Ideal for bonding fibers
- Long relative pot life
- High service temperature

Description	Part Numbers
Adhesive Applicator	5014473-3

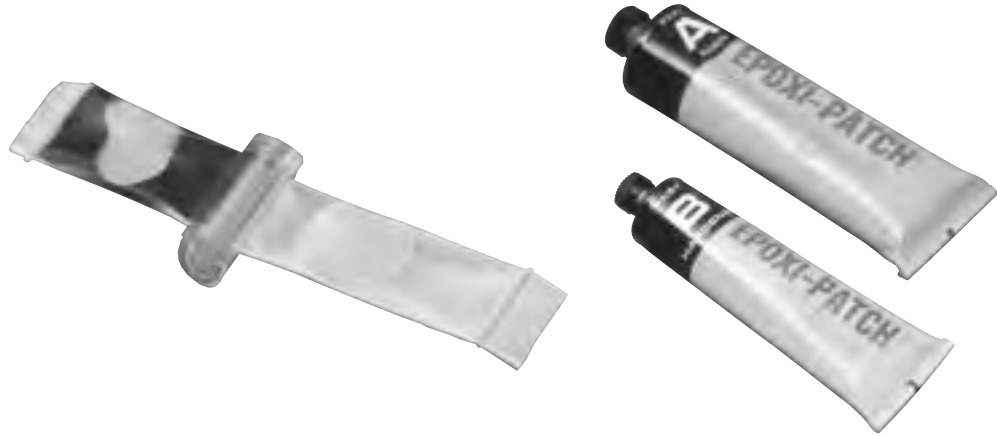
Description	Part Numbers
Individual Epoxies	
4-gram pack EPO-TEK 353ND	504035-1
Recommended Accessories	
Syringe manual use (3ccs)	501473-3

Epoxy Specifications 600-4EPO	Part Numbers
	504035-1
Cure Time Room Temp.	15 min @ 115°C
Pot Life	4 hr.
Color Before Curing	Amber
Color After Curing	Red
Viscosity (cps)	2000
Maximum Temperature	200°C
Glass Transition Temp.	124°C

For complete product information, order Catalog 1307895

11
Fiber Optic Products

Epoxies



TRA-CON Epoxy-Bipax

Properties	Use With	Number of Packs/ Size (gr)	Approx. Number of Conn.	Part Numbers
General Purpose Use:				
Low Viscosity High Impact Blue for Easy Polish 30 min. Pot Life Operating Temperature: -60 to 100°C Ambient Cure: 24 hr. @ 25°C Oven Cure: 2 hr. @ 65°C or 10 min. at 110°C	FSD ST-Style FC AMP SC FSMA	25/2	250	501195-4

Hysol Epoxy-Tubes

Properties	Use With	Number of Packs/ Size (gr)	Approx. Number of Conn.	Part Numbers
General Purpose Use:				
Medium Viscosity Blue Color for Easy Polish 30 min. Pot Life Oven Cure: 30 min. @ 100°C	FSD ST-Style FC AMP SC FSMA	1 set of tubes	400	502418-1

Description	Part Numbers						
	FSMA	Multimode ST-Style	Singlemode ST-Style	FC	FSD/RSD	AMP SC	LightCrimp XTC
Hand Polishing Film: (Pack of 10 sheets)							
15µm	—	—	—	—	—	—	228433-9
5µm	228433-8	228433-8	228433-8	228433-8	228433-8	228433-8	228433-8
1µm	228433-7	228433-7	—	—	228433-7	—	228433-7
0.3µm	228433-5	228433-5	228433-5	228433-5	228433-5	228433-5	228433-5
Final Polish Film*	—	—	502748-2	502748-2	—	502748-2	—
Consumables Kit**	502306-1	502306-1	502306-2	502306-2	502306-1	502306-2	—
Polish Length Gauge	501301-1	—	—	—	—	—	—

*Pack of 5.

**Contains all consumable supplies for at least 100 connectors.

For complete product information, order Catalog 1307895

Tools

Epoxy Curing Oven

The Epoxy Curing Oven reduces the time required to cure epoxy in fiber optic connectors. The oven provides a uniform, controlled curing environment which increases productivity and consistency of terminations. The unit accepts all AMP connectors. The unit comes equipped to cure up to four duplex connectors and 12 single connectors at once. Optional adapter blocks are available to cure 8 duplex or 24 single connectors. It features a variable temperature control from 60°C to 125°C and includes a thermometer and cable support bracket. 110 and 220 VAC units are available.



IS 804-9460

Description	Part Numbers
110 VAC	502134-1
220 VAC	503134-2
Adapter Block for 8 Duplex Connectors	502222-1
Adapter Block for 24 Single Connectors	502129-1

Inspection Microscope Kits

The Inspection Microscope is designed specifically for visual examination of terminated or cleaved ends of singlemode and multimode fibers in both field and laboratory applications. This portable, hand-held unit provides magnification for optimum detection of flaws. It operates on AC or battery power. The complete microscope kit includes a handy carrying case, tripod stand, AC adapter and all adapters needed to inspect the following connectors: FSMA, FSD, ST-Style, FC, F07 and SC.

Product Facts

- **Pre-centered adapter mount provides quick, easy focusing, and changing of connectors**
- **Kg-3 infrared filter to protect the user**
- **Durable, lightweight A.B.S. plastic microscope body**
- **Lockable, high-density polyethylene, double-well carrying case with antistatic foam cutouts**



For complete product information, order Catalog 1307895

Tools

Microscope with 10x Objective Kits

Components Description	Part Numbers	Qty.	Adapter Markings	Microscope Kit			
				502970-1	502970-2	502970-3	502970-4
100x Microscope (10x Eyepiece)	502978-1	1	—	yes	yes	—	—
200x Microscope (20x Eyepiece)	502978-2	1	—	—	—	yes	yes
FSMA	502971-1	1	FSMA	yes	yes	yes	yes
D4	502975-1	1	D4	yes	yes	yes	yes
Universal 2.5 mm**	502977-1	1	—	yes	yes	yes	yes
FC/APC adapter (not included with kit)	504617-1	1	—	—	—	—	—
SC/APC adapter (not included with kit)	504618-1	1	—	—	—	—	—
Power Supply Adapter							
110V Power Supply	502967-1	1	—	yes	—	yes	—
240V Power Supply	502968-1	1	—	—	yes	—	yes
IEC Pigtail Cord	502966-1	1	—	—	yes	—	yes
Batteries							
"AA" Alkaline	N/A	2	—	yes	yes	yes	yes
Bulb, 2.8V Lamp Red on/off Switch	502964-1	1	—	yes	yes	yes	yes
Bulb, 2.5V Lamp Green on/off Switch	1278471-1	1	—	—	—	—	—
Tripod	502965-1	1	—	yes	yes	yes	yes
Carrying Case	N/A	1	—	yes	yes	yes	yes
Accessories							
20x Eyepiece	502969-2	—	—	—	—	Included	Included
10-20x Zoom Eyepiece	502969-3	—	—	—	—	—	—
10x Eyepiece	502969-1	—	—	Included	Included	—	—
Adapters 100x Microscope Version							
F07	492547-1	—	—	—	—	—	—
MT-RJ	492749-1	—	—	—	—	—	—
MPO	492414-1	—	—	—	—	—	—
MPO APC	492415-1	—	—	—	—	—	—
LIGHTRAY MPX	492526-1	—	—	—	—	—	—
LIGHTRAY MPX APC	492527-1	—	—	—	—	—	—
ESCON	492477-1	—	—	—	—	—	—

** Inspects ST-Style, SC, FC, FSD and RSD connectors.

Inspection Microscope Pocket Model

Product Facts

- 100 power magnification
- Compact hand-held size
- Range of adapters available for fiber optic connectors
- Built-in illumination
- Battery operated



Description	Part Number
Microscope	1278132-1
SMA Adapter	1278133-1
2.5 mm Universal Adapter (SC or ST)	1278134-1

Danger: Active fibers should never be viewed through a microscope.

IS 408-4497

Scribe Tool

Sapphire-Tipped Scribe Tool

Part Number 504064-1

Replacement Blades
Part Number 504290-1

Product Facts

- Long-lasting sapphire blade
- Pen-type case



IS 408-4293

For complete product information, order Catalog 1307895

For complete product information, order Catalog 1307895

Hand Tools



PRO-CRIMPER II

Instruction Sheet 408-4020

PRO-CRIMPER II Hand Tool

Connector	Cable Jacket Diameter (mm)	Part Numbers		
		Hand Tool w/ Die Set	Hand Tool Only	Die Set Only
FSMA	3.0	58551-1	58532-1	58552-1 (hex die)
ST-Style Ceramic	3.0	58433-4	58532-1	58424-1
ST-Style Stainless Steel	3.0	58433-4	58532-1	58424-1
ST-Style Polymer Composite	3.0	58433-4	58532-1	58424-1
ST-Style Ceramic Used with Loose Tube	3.8	—	58532-1	503890-1
ST-Style Stainless Steel (504xxx series only)	3.0	58551-1	58532-1	58552-1
Next Generation FC	3.0	503911-1	58588-1	503910-1
	2.0 & 2.4/2.5 & 3.0	492026-1	58588-1	492025-1
Next Generation AMP SC	3.0	503911-1	58588-1	503910-1
	2.0 & 2.4/2.5 & 3.0	492026-1	58588-1	492025-1
FSD - Ceramic	DUALAN & LDD	58519-1	58532-1	58510-1
FSD - Polymer	DUALAN & LDD	58519-1	58532-1	58510-1
FSD/MC - Ceramic	DUALAN & LDD	58519-1	58532-1	58510-1
FSD Breakout Kit	DUALAN & Protection Kit	58519-1	58532-1	58510-1
LightCrimp ST-Style	3.0	503568-1	58532-2	503567-1
LightCrimp SC	3.0	503699-1	58532-2	503698-1
LightCrimp Plus and LightCrimp ST-Style	3.0	492623-1	58532-2	492622-1
LightCrimp Plus and LightCrimp SC	3.0	492782-1	58532-2	492783-1

Polishing Bushing, Curing Sleeves and Strip Card Kits

Connector	Cable Jacket Diameter (mm)	Part Numbers		
		Polishing Bushing	Curing Sleeves/Pieces	Strip Card Kit
FSMA	3.0	228025-1	502249-1 (12 pcs.)	501818-1
ST-Style				
Ceramic, Stainless Steel	3.0	503337-1 (Metal) 503304-1 (Black Polymer)	502259-1 (12 pcs.)	501818-1
Polymer Composite	3.0	503304-1 (Beige Polymer)	502259-1 (12 pcs.)	501818-1
FC	3.0	504862-1	504862-2 (6 pcs.)	501818-1
AMP SC	3.0	502631-1 (Black Polymer)	502656-1 (1 pc.)	501818-1
FSD - Ceramic & Polymer	DUALAN & LDD	501795-1*	502023-1**	501818-1
FSD/MC - Ceramic	DUALAN & LDD	503366-1*	503366-1**	501818-1
FSD Breakout Kit	DUALAN & Protection Kit	—	—	501818-1

* Curing Assembly Kit with polishing bushing.
 ** Curing Assembly Kit without polishing bushing.

Technicians Guide to Fiber Optics

Part Number 228838-1



An excellent introductory and intermediate level fiber optic text, this informative book covers the fundamentals of data transmission, fiber theory, fiber characteristics, sources and detectors, connectors and splice products, and other fiber optic components.

For complete product information, order Catalog 1307895

Engineering Notes

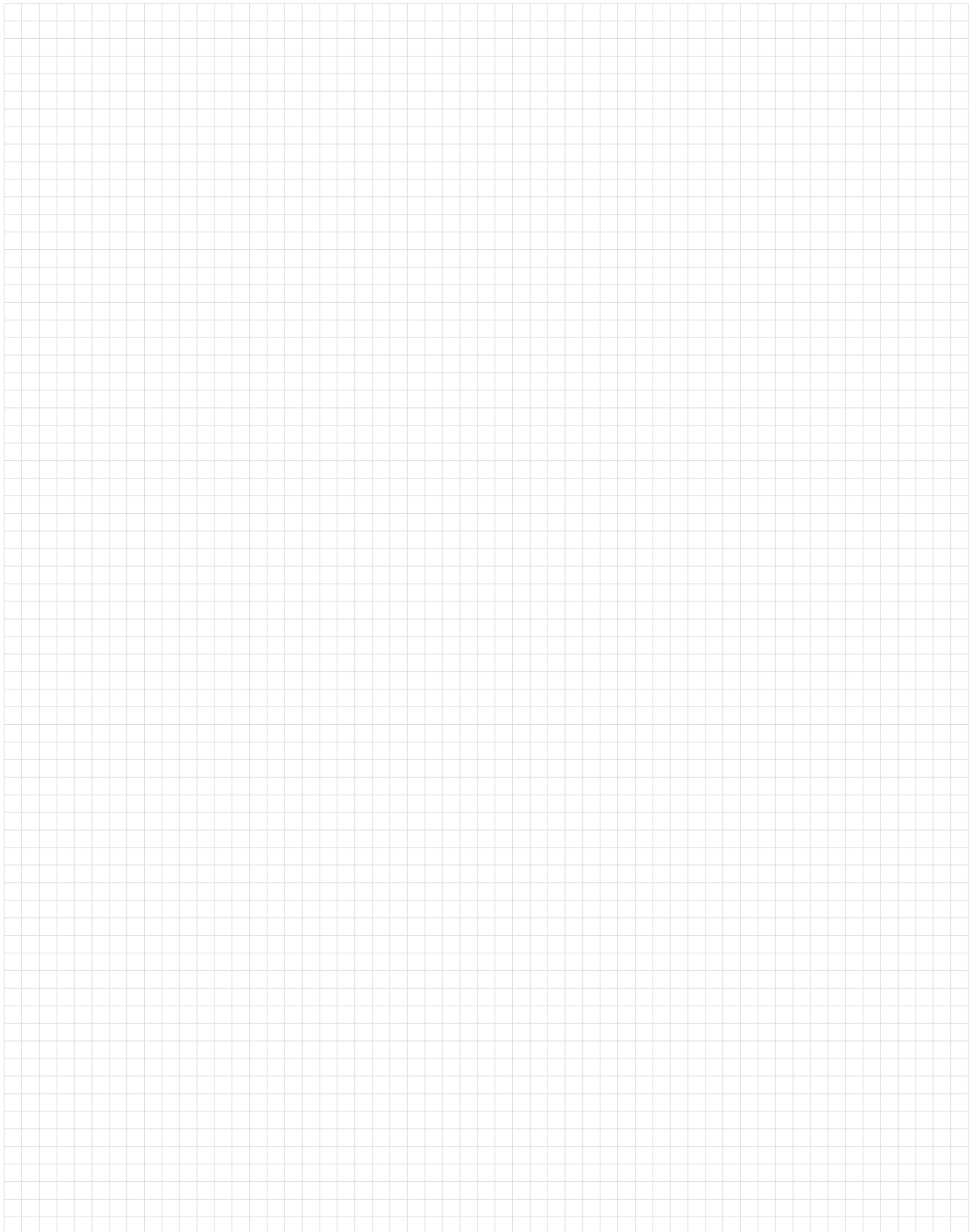


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 Specialty Products &
 Relays and Circuit Breakers

Product Facts

- For cables that require better protection
- Fittings that allow more reliable connections to be made
- Fittings that enhance their reliability under extreme conditions of use in the manufacture of machinery and construction
- High quality complete systems which combine innovative technology with rapid ex-stock availability
- In conformity with the latest industry standards
- Recognized under the Component Program of Underwriters Laboratories Inc.  on applied products as marked
- Certified by Canadian Standards Association on applied products as marked 
- Certified by VDE on applied products as marked 

Related Product Data

Catalog 124132
Products for Insulating and Bundling

Product Specifications

108-1696 *Flexa* *graff*
108-1696-1 *Rohr* *flex*
108-1696-2 *Air* *flex*

Application Specifications

114-18274 *Flexa* *graff*-AS, -PU-AS, -ME-ASF
114-18275 *Flexa* *graff*-CU
114-18276 *Air* *flex*-Kuw-PU
114-18277 *Rohr* *flex*-PA 6, *Rohr* *flex*-PA 12






CPC/Flexa Selection Aid

CPC Shell Size	Flexa Connector Female	PA6 Flexa Tubing	Flexa Connector Male	Flexa R/A Connector Female	Flexa Counter Nut	Flat Sealing Washer
11	1-969807-2	969789-2	969803-2	969817-2	796260-2	796257-2
13	1-969809-3	969789-3	969803-3	969817-3	796260-3	796255-2
17	1-969811-4	969789-4	969803-4	969817-4	796260-5	796255-3
23	2-969813-5	969789-5	969803-5	969817-5	796260-6	796255-4

For complete product information, order Catalog 1307244

Product Facts

- Rated 257°F [125°C] maximum
- Fully grounded
- UL Listed for use on 3/8" [9.53mm] flexible conduit, File No. E60108 
- Recognized under the Component Program of Underwriters Laboratories, Inc. for use on 1/2" [12.70mm] flexible conduit, File No. E60108
- Designed to UL Performance Std. 514B 
- Certified by Canadian Standards Association, Report Nos. LR42374-X, and LR38656-1 



Flexible Conduit Connectors are designed for connecting 3/8" [9.53mm] and 1/2" [12.70mm] trade size flexible conduit—"Greenfield" types—to electrical panels or boxes. They provide fast, reliable connectors in a variety of applications.

Connecting flexible conduit using AMP straight-thru or right-angle connectors is easy. A connector is simply screwed onto the conduit until it stops, then the connector is snapped into the knockout hole of a panel or box. No screw clamps are needed to hold

the conduit in the connector, and no locknut is needed to retain the connector in the panel or box.

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Specialty Products &
Relays and Circuit Breakers

Straight-Thru Connectors

Description For Flexible Conduit	Part Number
.375 9.53	207370-1
.500 12.70	207373-1*

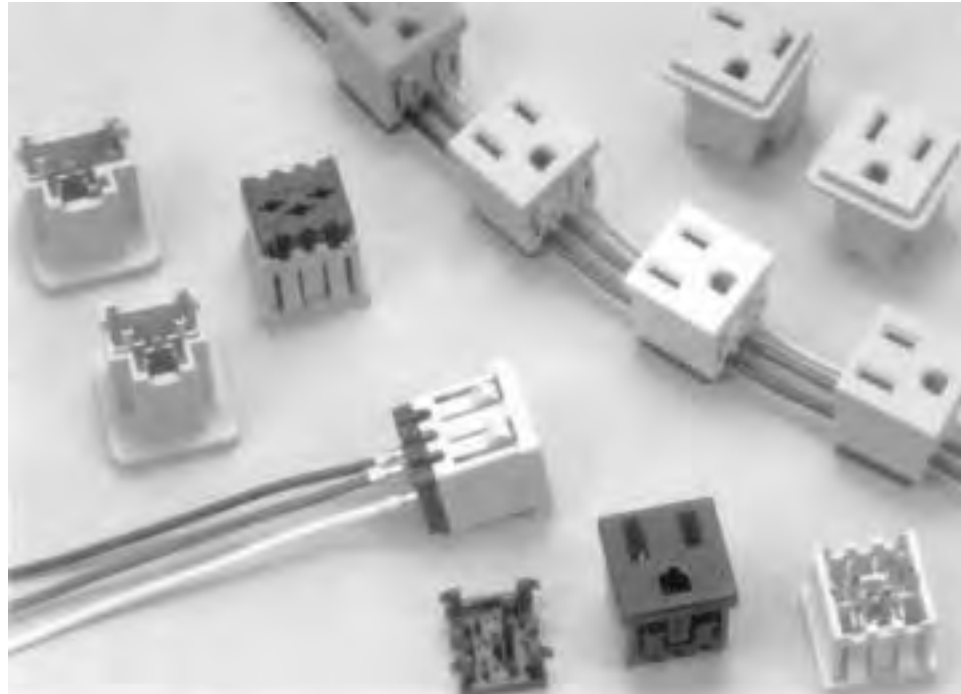
Right-Angle Connectors

Description For Flexible Conduit	Part Number
.375 9.53	207508-1
.500 12.70	207507-1*

*Not UL Listed

Product Facts

- Panel mount connector snaps in without the use of tools and holds securely without retention hardware
 - Terminates solid copper wire using strippless insulation displacement terminals
 - Terminates wire end or allows wire to feed thru
 - Alternate connection uses FASTON 205 Series tabs (see Catalog 82004)
 - Panel mount connectors available in two sizes:
14-12 AWG [2-3 mm²]
18-16 AWG [0.8-1.4 mm²]
 - Panel mount connectors available in multiple colors
 - Printed circuit connectors feature tin-lead plated contacts, compatible with standard wave soldering processes
 - PC board versions available in 15- or 20- amp configurations
 - PC board versions available in choice of black or gray housings (other colors can be made available; consult Tyco Electronics)
 - All connectors are rated for 125 VAC
 - Recognized under the Component Program of Underwriters Laboratories Inc., File No. E146448, except for 213727-1
 - Designed to UL Performance Std. 498
 - Certified by Canadian Standards Association, File No. LR-7189A
15 A, 12-14 AWG [3-2 mm²]
13 A, 16 AWG [1.4 mm²]
10 A, 18 AWG [0.8 mm²]
- File No. LTR-7189A (213727-1 only)



The AMP Convenience Outlet is available in two configurations, the 15 amperes, 125 VAC, panel mount version, and the printed circuit board version, offered in a choice of 15 or 20 amperes, 125 VAC.

The panel mount version is a quick, snap-in configuration that offers insulation displacement termination that eliminates the need for special termination tooling. In addition to insulation displacement application, the terminals accept FASTON 205 Series Tabs. To terminate the wires in the panel mount Convenience Outlet, simply place the wires in the proper position in the connector body, seat the connector cover and latch in place. The termination is complete with conductors fully enclosed. FASTON tab terminations are made after the cover is affixed.

Crimping barrels will extend .375 [8.89] max. outside the latched cover. Panel mount connectors are available in two wire ranges:

- 14-12 AWG [2-3 mm²] – UL and CSA rated 15 amps
- 18-16 AWG [0.8-1.4 mm²] – UL rated and CSA rated 13 amps for 16 AWG [1.4 mm²] and 10 amps for 18 AWG [0.8 mm²]

Printed circuit board connectors mount directly to the board and feature tin-lead plated solder contacts that are compatible with standard wave solder processes. Two configurations are available:

- 15 amps, 125 VAC, UL and CSA rated
- 20 amps, 125 VAC, UL and CSA rated

Convenience Outlets are designed for such uses as surge protectors, temporary power outlets, drafting table outlets, and for a wide range of computer and peripheral equipment applications.

Technical Documents:

Instruction Sheets

408-6669 – 14-12 AWG [2-3 mm²] IDC version
408-6698 – 18-16 AWG [0.8-1.4 mm²] IDC version

For complete product information, order Catalog 82067

Panel Mount

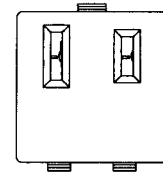
Current Rating:

14-12 AWG — 15 A
 16 AWG — 13 A
 18 AWG — 10 A

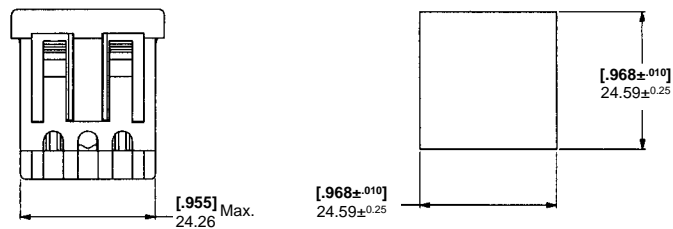
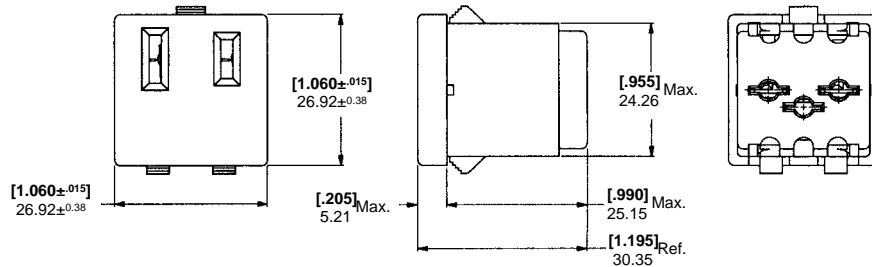
Material:

Housing — Thermoplastic
Contacts — Copper alloy

No. of Contacts	Part Numbers		Panel Plug	Housing Color
	14-12 AWG [2-3 mm ²]	18-16 AWG [0.8-1.4 mm ²]		
2 Plus Ground	208979-2	208697-2	—	Black
	208979-4	208697-4	—	Almond
	1-208979-0	—	—	Platinum
	1-208979-1	—	—	Gray
2 (No Ground)	1-208979-2	—	—	Orange
	1-208979-4	—	—	Putty White
2 (No Ground)	213878-1	—	—	Black
0 (Blank)	—	—	796285-1	Black



Part Number 213878-1



Recommended Panel Cutout
 Panel Thickness — [.030-.070]0.76-1.78

205 Series FASTON Tab

Part Number 62531-1*

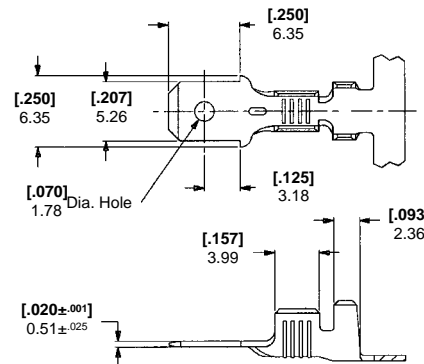
Specifications:

Wire Range — 18-14 AWG
 [0.8-2 mm²]

Insulation Diameter — .120-.150
 [3.05-3.81]

Material and Finish:

Brass, tin plated



*Reverse reeled for use in Model "K" Terminating Machine
Part Number 565435-5 using Heavy Duty Miniature (HDM) Applicator
Part Number 567069-2 or in Leadmakers using HDM Applicator
Part Number 567069-1.

For complete product information, order Catalog 82067

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 Specialty Products &
 Relays and Circuit Breakers

PC Board-Mount

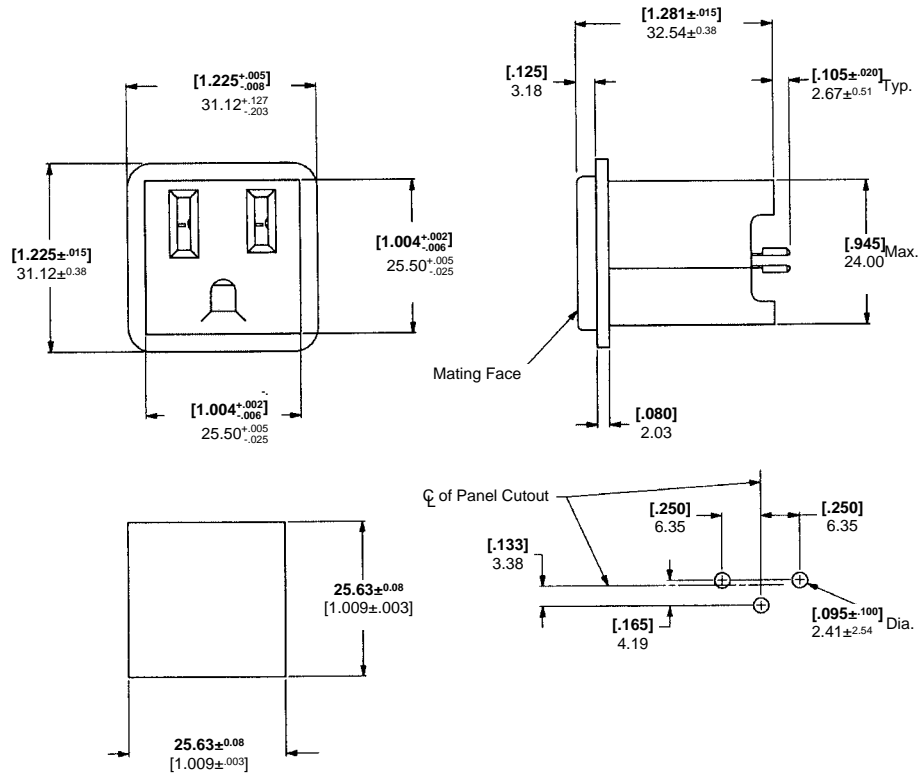
15 Amperes

Part Number 213598-2

Material and Finish:

Housing — Nylon, Black

Contacts — Brass plated .0001000 [0.00254] min. tin-lead for a minimum length of .195 [4.95] on end opposite mating face, over .000050 [0.00127] min. nickel on entire contact



Recommended Panel Cutout

Recommended Hole Pattern

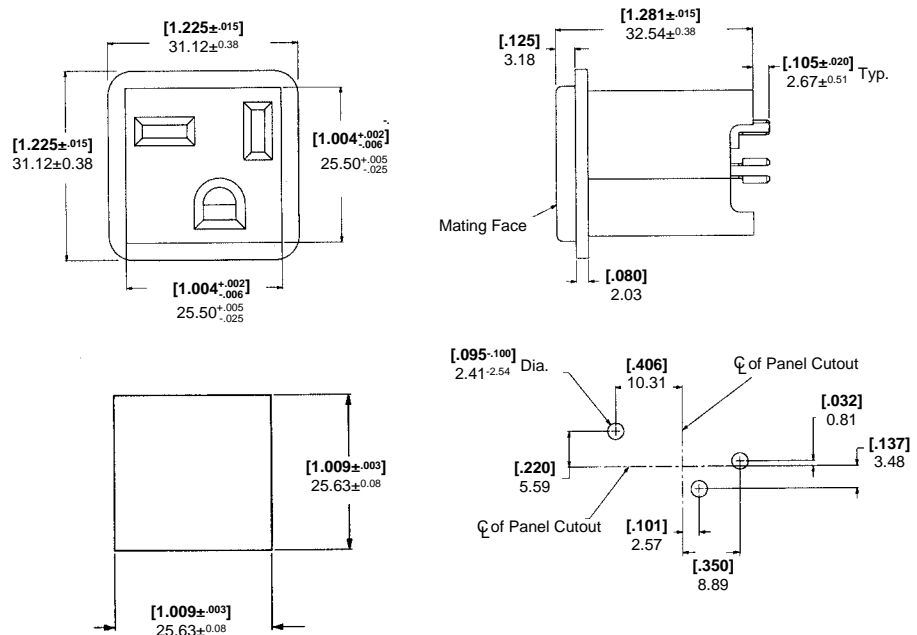
20 Amperes

Part Number 213727-1

Material and Finish:

Housing — Nylon, Gray

Contacts — Brass plated .0001000 [0.00254] min. tin-lead for a minimum length of .195 [4.95] on end opposite mating face, over .000050 [0.00127] min. nickel on entire contact



Recommended Panel Cutout

Recommended Hole Pattern

For complete product information, order Catalog 82067

Assemblies

Material and Finish:

Lead Insulation — Silicone rubber, durometer reading 60 to 70, white

Conductors — Per MIL-W-16878: LGH 1/2, LGH 1/2L, LGH 1 and LGH 1L lead assemblies contain 41 strands minimum of 32 AWG [0.03 mm²] wire, silver plated to compose a 16 AWG [1.25 mm²] stranded conductor .06 nom. O.D. [1.5]; LGH 4 lead assemblies contain 19 strands minimum of 29 AWG [0.07 mm²] wire, silver plated to compose a 16 AWG [1.25 mm²] stranded conductor .06 nom. O.D. [1.5]. Silver plating is per ASTM-B298-58T.

Pigtail — Solder dipped

Socket — Bronze per ASTM-140, alloy B, gold plated per MIL-G-45204, Type II, (.000030 [0.00076] gold over .000030 [0.00076] nickel per QQ-N-290). Socket is crimped to lead wire.

Cap Materials — Type A polycarbonate per LP393; Type B glass-filled polyester per MIL-M-24519; Type C molded glass epoxy per MIL-M-24325 (ships) GEI-5.

Molded End — Silicone rubber per ZZ-R-765, Class IIa and IIb, grade 60.

Positive Stop Ferrule — Glass-filled polyester per MIL-M-24519.

Washer — TFE, electrical grade per MIL-P-19468

Marking — Per MIL-STD-130

LGH Lead Assemblies are manufactured with a silicone rubber end having a specified mating length (see table below) molded onto a 16 AWG white silicone rubber wire. These assemblies provide extreme reliability and safety for high voltage applications in severe environments



Single End Lead Assembly



Single End Lead Assembly with Positive Stop Ferrule

LGH leads and receptacles find wide application where high voltage is used in hostile environments. LGH leads and receptacles are lightweight, miniature, extremely reliable and they maintain peak performance under high temperature, high altitude applications. They are equally applicable to low temperature, low altitude devices. **For custom-made assemblies, contact Tyco Electronics.**

LGH Series	Mating Length/Depth		Normal Capacitance		Operating Voltage* Kilovolts DC	3 Min. Hipot** Kilovolts DC
	in.	mm	pF/ft.	pF/m		
LGH ¼	.25	[6.35]	—	—	5	7.5
LGH ½	.53	[13.46]	55	180	10	15
LGH ½L	.89	[22.61]	55	180	15	23
LGH 1	.88	[22.35]	35	115	20	30
LGH 1L	1.69	[42.93]	35	115	25	38
LGH 2	1.44	[36.58]	28	144	30	45
LGH 3	1.81	[45.97]	35	115	40	55
LGH 4	2.00	[50.80]	28	144	50	60

*Sea level to 70,000 ft. [21,336 m], -55°C to +125°C [-67°F to +257°F].

**Sea level at 25°C (77°F).

Voltage Ratings (10 A load)

The voltage ratings tabulated here and noted elsewhere apply to LGH molded-end lead assemblies properly mated with appropriate LGH receptacles, which are properly potted or otherwise protected on the back end.

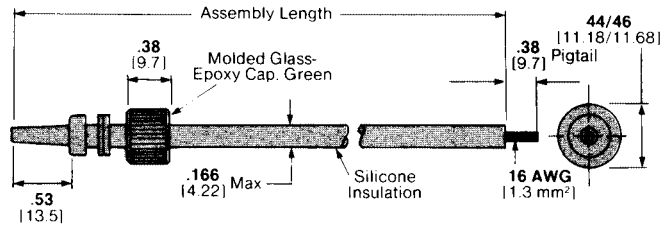
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Specialty Products &
Relays and Circuit Breakers

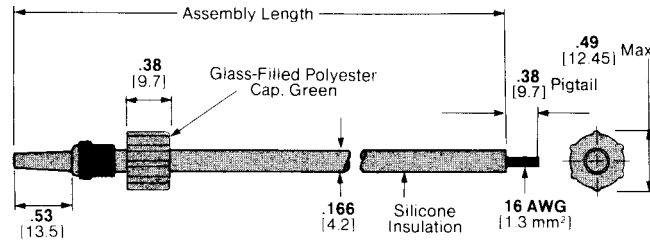
Lead Assemblies and Receptacles

Lead Assemblies, 10 KVDC, LGH 1/2 — Single End

Length 24 in. [609.6 mm]
Part Number 830611-1



Lead Assemblies, 10 KVDC, LGH 1/2 — Single End with Positive Stop Ferrules



Assembly Length	Part Numbers
6	862545-1
18	862545-6

LGH Receptacles are manufactured in molded glass epoxy having a specified mating depth (see page 12007). When used with LGH lead assemblies they offer the ultimate in dependability, even under most hostile environmental conditions.



Glass-epoxy receptacle for encapsulated units



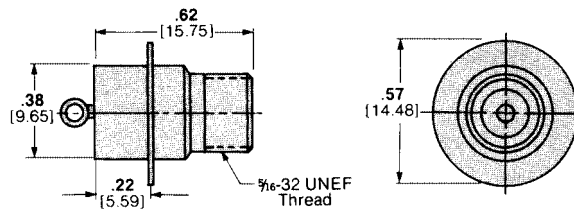
Glass-epoxy, flanged receptacle for bulkhead applications



Hermetically sealed, glass-epoxy receptacle for canned units

Receptacles, 10 KVDC, LGH 1/2, Glass Epoxy with .53 [13.46] Barrel Depth — Flanged for Hermetic Seal

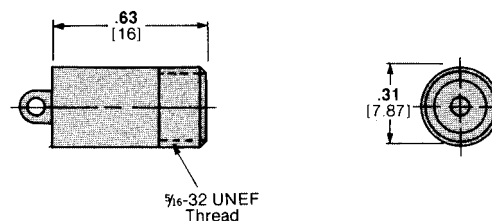
Part Number 861252-1



For use with RFI shielded leads.

Receptacles, 10 KVDC, LGH 1/2, Glass Epoxy with .53 [13.46] Barrel Depth — For Encapsulated Units

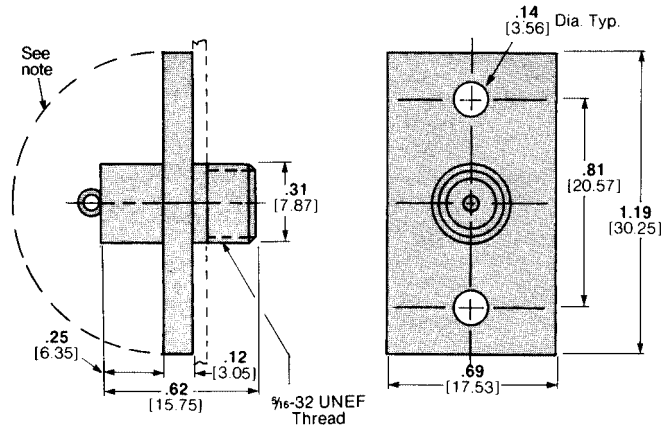
Part Number 830178-1



Receptacles

**Receptacles, 10 KVDC, LGH
1/2, Glass Epoxy with .53
[13.46] Barrel Depth —
Flanged Bolt Mount**

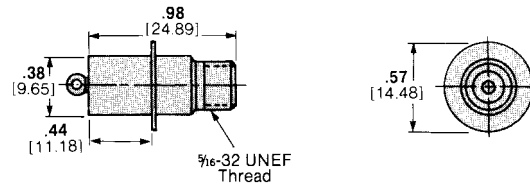
Part Number 830395-1



If the panel or mounting hardware is at ground potential, guard against arc-over and breakdown within the area defined by this line,

**Receptacles, 15 KVDC, LGH
1/2L, Glass Epoxy with .89
[22.61] Barrel Depth —
Flanged for Hermetic Seal**

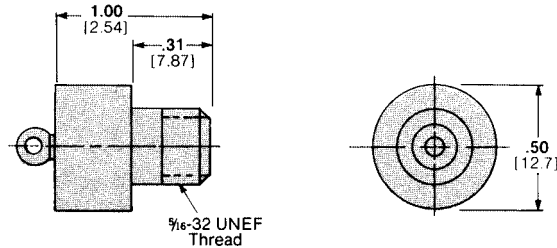
Part Number 861253-1



For use with RFI shielded leads.

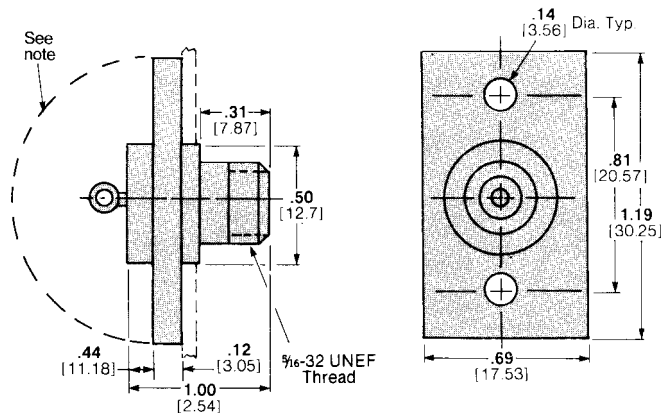
**Receptacles, 15 KVDC, LGH
1/2L, Glass Epoxy with .89
[22.61] Barrel Depth — For
Encapsulated Units**

Part Number 858855-1



**Receptacles, 15 KVDC, LGH
1/2L, Glass Epoxy with .89
[22.61] Barrel Depth — Bolt
Mount**

Part Number 858857-1



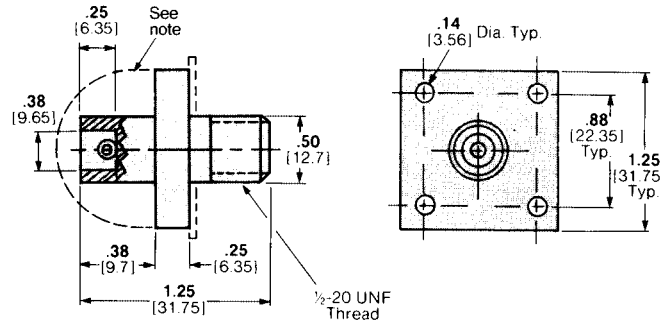
If the panel or mounting hardware is at ground potential, guard against arc-over and breakdown within the area defined by this line,

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Specialty Products &
Relays and Circuit Breakers

Receptacles

Receptacles, 20 KVDC, LGH 1, Glass Epoxy with .88 [22.35] Barrel Depth — Flanged Bolt Mount

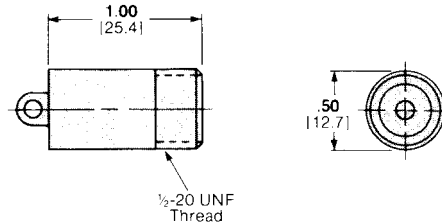
Part Number 858827-1



If the panel or mounting hardware is at ground potential, guard against arc-over and breakdown within the area defined by this line,

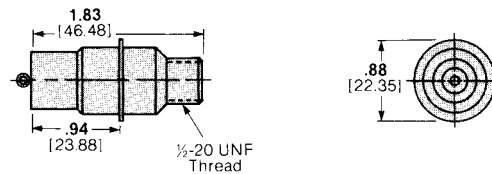
Receptacles, 20 KVDC, LGH 1, Glass Epoxy with .88 [22.35] Barrel Depth — For Encapsulated Units

Part Number 834333-2



Receptacles, 25 KVDC, LGH 1L, Glass Epoxy with 1.69 [42.93] Barrel Depth — Flanged for Hermetic Seal

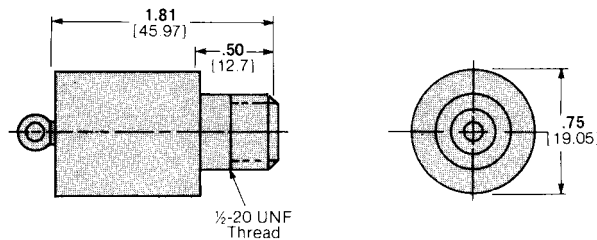
Part Number 861255-1



For use with RFI shielded leads.

Receptacles, 25 KVDC, LGH 1L, Glass Epoxy with 1.69 [42.93] Barrel Depth — For Encapsulated Units

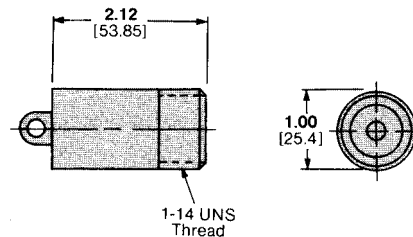
Part Number 858868-1



If the panel or mounting hardware is at ground potential, guard against arc-over and breakdown within the area defined by this line,

Receptacles, 50 KVDC, LGH 4, Glass Epoxy with 2.00 [50.8] Barrel Depth — For Encapsulated Units

Part Number 836567-1



Commercial Single Line Connectors

Product Facts

- All parts made of UL Recognized, 94V-0 rated, plastic material
- Designed to exceed minimum creepage and clearance for specified voltages per applicable international specifications
- Available with or without leads
- Maximum flexibility of application through elimination of predetermined lead lengths
- Machine applied terminations provide for lowest applied cost



10 KVDC Connectors

Voltage: 10 KVDC

Current: 5 amperes, continuous, rms

20 KVDC Connectors

Voltage: 8 KVAC, rms, 60 Hz; 20 KVDC

Current: 7.5 amperes, continuous, rms

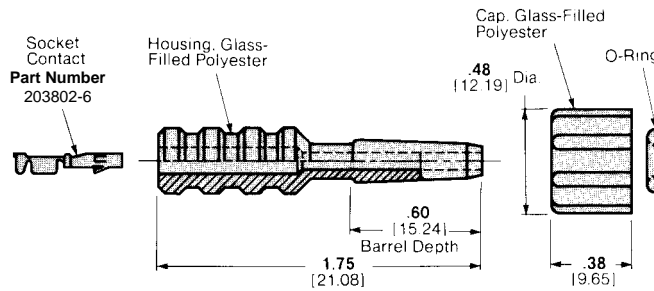
30 KVDC Connectors

Voltage: 12 KVAC, rms, 60 Hz;
30 KVDC

Current: 25 amperes, continuous, rms

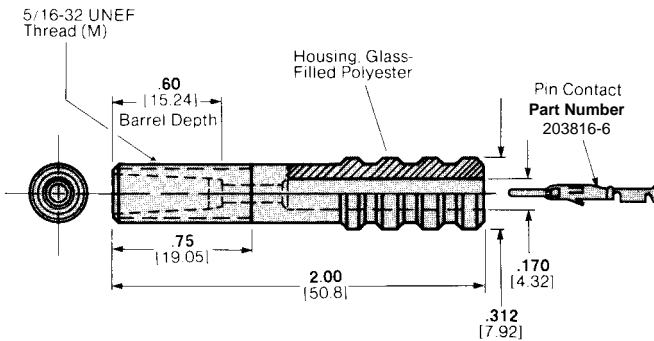
Commercial Single Line, 10 KVDC Connectors — Plug Kit 20-24 AWG [0.2-0.6 mm²] for .105 [2.66] Max. Insulation Diameter

Part Number 867157-2



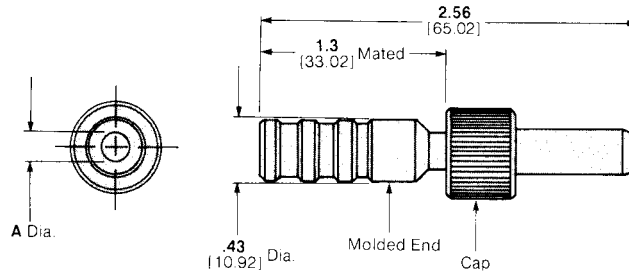
Commercial Single Line, 10 KVDC Connectors — Receptacle Kit 20-24 AWG [0.2-0.6 mm²] for .160 [4.06] Max. Insulation Diameter

Part Number 867156-1



Commercial Single Line Connectors

Commercial Single Line, 20 KVDC Connectors — Plug Kit

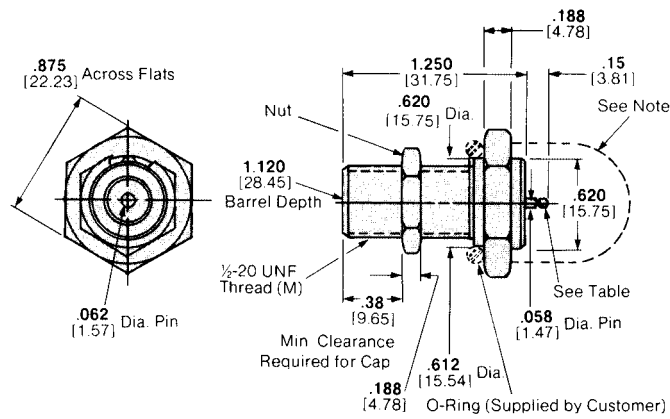


Dimension A	Wire Size		Contact Part Number	Plug Kit Part Numbers
	AWG	mm ²		
.185 4.7	18-16	0.8-1.4	66101-2	861610-3
.302 7.67	18-16	0.8-1.4	—	861610-2

Commercial Single Line, 20 KVDC Connectors — Bulkhead-Mounted Receptacle Kit

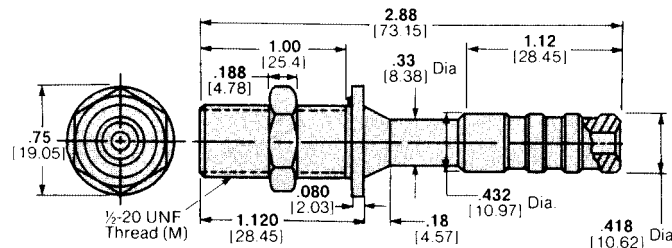
Part Number 861611-1

If the bulkhead and mounting hardware are metal at ground potential, the back end of the receptacle must be protected against arc-over and breakdown.



Commercial Single Line, 20 KVDC Connectors — Receptacle Kit 18-16 AWG [0.8-1.4 mm²] for .302 [7.67] Max. Insulation Diameter

Part Number 862197-2



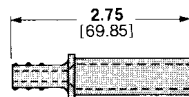
Two-Position Connectors, 10 KVDC

Product Facts

- UL Recognized 94V-0 rated glass-filled polyester housing
- Standard housing color is black—other colors available
- Operates up to 10 KVDC
- Will withstand a 15 KVDC hipot 3-minute test
- Safe handling of high voltage—deeply recessed contacts and staggered pins
- Lightweight, compact design
- Preassembled connectors furnished with attached leads of virtually any color/length combination
- Connector kits for shielded and unshielded applications include plug, receptacle and contacts
- Crimp, snap-in contacts; pin diameter .062 [1.57]
- Snap-in panel mount receptacle housings—no mounting hardware required
- Temperature range: -15°C to +85°C [5°F to 190°F]



Two-Position, 10 KVDC Connector — Plug Kit 18-16 AWG [0.8-1.4 mm²] for .090 [2.29] Bulkhead Thickness



Part Number 862383-2
(Unshielded)

7-Pin, Metal-Shell Circular Connector, Military-Type

Product Facts

- 15 KVDC operating voltage, up to 70,000 feet [21,336 m]
- Current carrying capacity—7.5 A continuous per line for 20 AWG wire
- Metal shell available for complete shielding and rugged operation
- Molded-in Size 20 contacts are fully shrouded
- Molded glass epoxy and silicone rubber interface for positive sealing
- Polarized plug and receptacle housings help prevent mismatching
- Designed to meet applicable specifications
- Hermetically sealed receptacles available
- Operating temperature range from -55°C to +125°C [-67°F to +257°F]
- Moisture resistant
- Corona resistant



Material and Finish:

Interface — Glass epoxy and silicone rubber

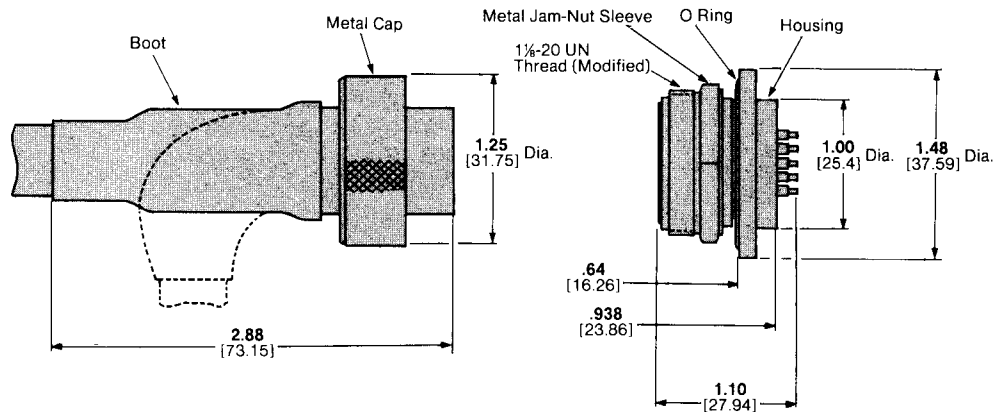
Contacts — Size 20, gold plated

Plug Kit, Straight Boot

Part Number 865656-1

Receptacle, Non-Hermetic

Part Number 862004-1



Multi-Pin Circular Commercial Connectors, 27 KVDC

Product Facts

- Housing made of UL Recognized, 94V-0 rated, self-extinguishing polyester materials
- Standard housing color is black—other colors available
- Operating and storage temperature range: -55°C to +125°C [-67°F to +257°F]
- Operates up to 27 KVDC
- Will withstand a 35 KVDC hipot test
- Safe handling of high-voltage—no exposed contacts
- Lightweight, compact design
- Threaded coupling provides positive, quick connect/disconnect
- Resilient silicone rubber “O” rings provide positive sealing for mated connectors
- Can be panel or bulkhead mounted or used in free-hanging applications
- Size 16 gold-plated contacts with 13 ampere rating accommodate wide range of wire sizes—24-20 AWG and 18-16-14 AWG—may be hand tool or machine crimped or soldered
- Two shell sizes available: smaller size offers 2-, 3- and 4-contact configurations; larger diameter shell contains 6 or 7 contacts



Number of Contacts	Wire Range		Part Numbers		
	AWG	mm ²	Receptacle Kit	Plug Kit with Strain Relief	Plug with Strain Relief & Receptacle Kit
4	24-20	0.2-0.6	859526-4	863022-1	—
	18-16	0.8-1.4	859526-5	—	—
7	24-20	0.2-0.6	861647-7	863024-1	863019-1
	18-16	0.8-1.4	861647-8	863024-2	—

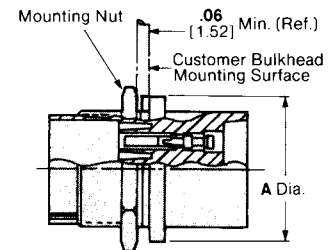
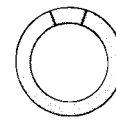
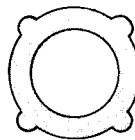
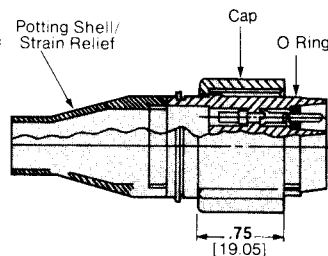
Material and Finish:

Housing, Cap, Nut & Strain Relief

— Glass reinforced polyester

O-ring — Silicone rubber

Contacts — AMP Type II, gold plated per MIL-G-45204



Hand Tools

24-20 AWG [0.2-0.6 mm²]—

Part Number 58305-1

18-16 AWG [0.8-1.4 mm²]—

Part Number 45098

14 AWG [2 mm²]—

Part Number 45098

Extraction Tool

Part Number 861751-1

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Specialty Products &
Relays and Circuit Breakers

6-Position Subminiature Commercial Receptacle Assembly

Product Facts

- Extremely lightweight—total weight of mated pair is less than 14 grams
- Compact design—requires less than .6 square inch [387 mm²] of mounting surface; occupies less than .750 cubic inch [.229 mm³] of volume per mated pair
- Resilient silicone rubber insert in plug half provides positive interfacial seal for mated connector
- Withstands 10 KVDC hipot test
- Housing styles for potting, chassis slot (channel) mounting, panel mounting and free-hanging applications
- Size 22, gold plated socket contacts with 5 ampere rating on 22 AWG [0.4 mm²] silicone insulated wire leads



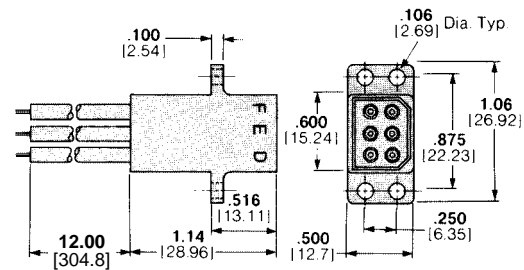
Material and Finish

Housing and Potting Shells—

Glass-filled thermoplastic polyester, flame retardant, black

Mounting Brackets — Carbon steel, nickel plated

Contacts — Beryllium copper, plated .000030 [0.00076] min. gold per MIL-G-45204 over .000030 [0.00076] min. nickel per QQ-N-290



Part Number 867473-1

Product Facts

- A series of miniature high voltage connectors for applications where space is limited
- HV Performance in a small lightweight connector
- Operating Voltages up to 12 KVDC
- Operation to 100,000 ft. altitude
- Lead wire remains flexible to -55°C
- Color coded for easy identification



Technical Documents:

Product Specification

- 135 Series (.135 Dia.)
108-1788
- 170 Series (.179 Dia.)
108-1802
- 240 Series (.240 Dia.)
108-1853
- Surface Mount/Plug Assembly
108-1880
- 1, 2, and 3 Position
108-1812

LGH Micro-Miniature connectors and cable assemblies are designed to transmit high voltages in limited-space applications. In addition, these lightweight products are designed to operate at altitudes of up to 100,000 feet.

Applications for LGH Micro-Miniature connectors and cable assemblies include small high-voltage power supplies, back lighting for LCD flat panel displays, flat panel FED (field emissive displays), small CRT's

(cathode ray tubes), and commercial and military avionics.

Cable assemblies are manufactured from silicon coated FEP or corona-resistant Teflon. The ends are molded from silicon rubber. Durable, gold-plated, screw-machined, size 22 (.030) pin and socket contacts ensure a reliable connection interface. Push-pull couplings provide quick connect/disconnect mating.

Series 135 cable assemblies are designed to operate at voltages up to 6 KVDC at altitudes up to 10,000 feet. Maximum voltages of 6 KVDC and 12 KVDC can be attained by Series 170 and Series 240 cable assemblies, respectively. Two- and three-position assemblies are available for multi-wire interconnections. Wire-to-board connections are accomplished through a pcb surface mount (SMT) receptacle and right-angle plug cable assembly.

Series/Type	Operating Voltage, Kilovolts DC	Test Voltage
135 Series	6	10 KVDC at 10,000 ft. and -25°C and at +85°C
170 Series	6	10 KVDC at 100,000 ft. and -55°C to +125°C
240 Series	12	18 KVDC at Sea Level 70,000 ft. and -55°C to +125°C
Surface Mount Receptacle/Right-Angle Cable Plug Assembly	7	13 KVDC at 20,000 ft. and -25°C to +75°C and 3 KVDC at 70,000 ft. at -55°C and +125°C
1, 2, 3 Position Assemblies	7.5	12 KVDC at 10,000 ft. and -15°C to +85°C

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Specialty Products & Relays and Circuit Breakers

135 Series Cable Assemblies

Material and Finish:

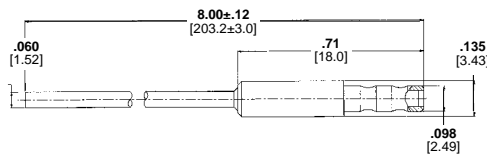
Conductors—24 AWG (19/36); copper; silver plated

Lead Insulation—Teflon (FEP); silicone coated; red

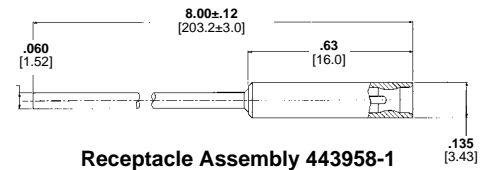
Molded End—Silicone rubber

Pin Contact—Size 22; bronze; plated .000030 [0.00076] min. gold with entire contact underplated .000050 [0.00127] min. nickel

Socket Contact—Size 22; copper alloy; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel; stainless steel sleeve



Plug Assembly 443957-1



Receptacle Assembly 443958-1

170 Series Cable Assemblies

Material and Finish:

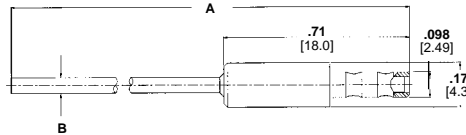
Conductors—24 AWG (19/36); copper; silver plated

Lead Insulation—Teflon (FEP); silicone coated; red, or corona-resistant Teflon; yellow

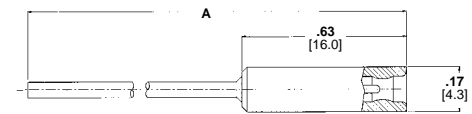
Molded End—Silicone rubber

Pin Contact—Size 22; bronze; plated .000030 [0.00076] min. gold with entire contact underplated .000050 [0.00127] min. nickel

Socket Contact—Size 22; copper alloy; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel; stainless steel sleeve



Plug



Receptacle

Dimensions		Lead Insulation Type	Part Numbers	
A	B		Plug	Receptacle
12.00 ± .12 304.8 ± 3.0	.060 1.52	Silicone Coated Teflon	—	1218148-1
12.50 ± .12 317.5 ± 3.0	.060 1.52	Silicone Coated Teflon	1218147-1	—
18.50 ± .12 469.9 ± 3.0	.065 1.65	Corona Resistant Teflon	1218149-1	1218150-1
48.00 ± .48 1219.2 ± 12.2	.060 1.52	Silicone Coated Teflon	—	1218148-2

240 Series Cable Assemblies

Material and Finish:

Conductors—24 AWG (19/36); copper; silver plated

Lead Insulation—Teflon (FEP); silicone coated; red

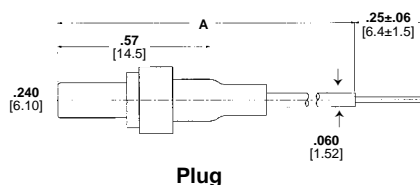
Molded End—Silicone rubber

Plug & Receptacle Housings—Glass filled polyetherimide resin

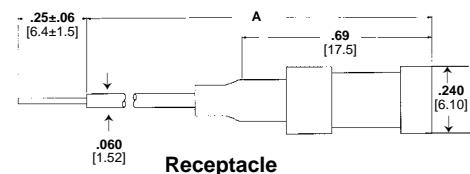
Pin Contact—Size 22; brass; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel

Socket Contact—Size 22; copper alloy; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel; stainless steel sleeve

Pigtail—Solder dipped



Plug



Receptacle

Dimension	Part Numbers	
	Plug	Receptacle
7.00 ± .25 177.8 ± 6.4	448660-1	—
72.00 ± 1.00 1828.8 ± 25.4	448460-2	448658-1

Right-Angle Plug Cable Assembly

Material and Finish:

Right-Angle Plug Cable Assembly:

Conductors—22 AWG (19/34); copper; silver plated

Lead Insulation—Silicone

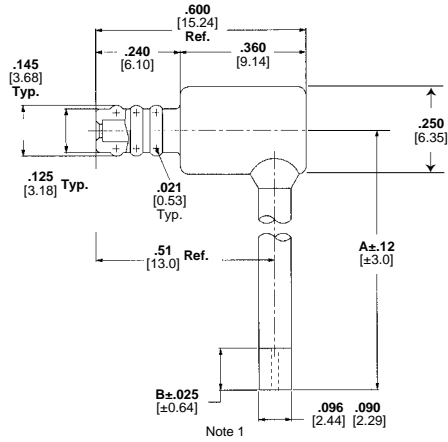
Molded End—Silicone rubber

Socket Contact —Size 22; leaded copper; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel; stainless steel sleeve

Surface Mount Receptacle:

Housing—Glass filled epoxy; black, or polyphenylene sulfide (PPS); brown

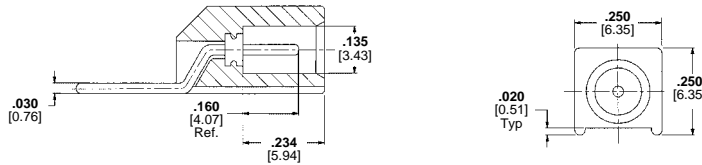
Pin Contact —Size 22; brass; plated .000100 [.00254] min. tin/lead with entire contact underplated .000050 [.00127] min. nickel



A Dim.	B Dim.	Part Numbers
4.00 101.6	—	1218134-4
6.63 168.4	.250 6.35	1218134-2
8.00 203.2	—	1218134-3
10.00 254.0	—	1218134-1

Note: 1. Insulation cut but not removed.

Surface Mount Receptacle



Housing Material	Part Numbers
Black glass filled epoxy	1218055-1
Brown polyphenylene sulfide (PPS)	1218055-2

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 Specialty Products &
 Relays and Circuit Breakers

1, 2 and 3 Position Cable Assemblies

Material and Finish:

Conductors—22 AWG (19/34); copper; silver plated

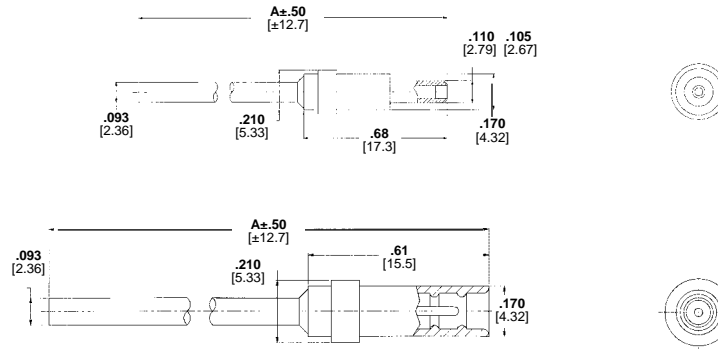
Lead Insulation—Silicone

Housing—Silicone rubber

Pin Contact — Size 22; bronze; plated .000030 [0.00076] min. gold with entire contact underplated .000050 [0.00127] min. nickel

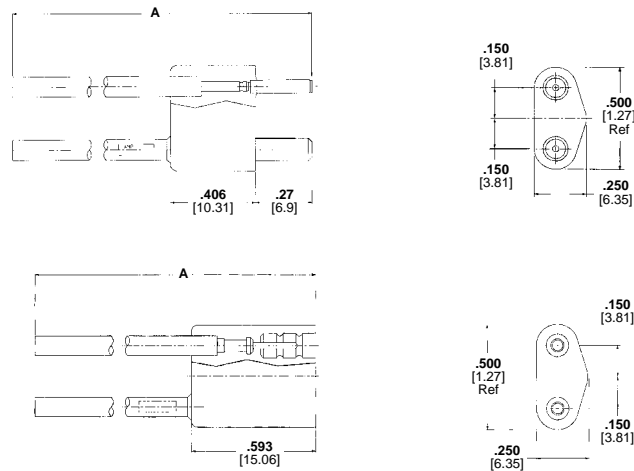
Socket Contact —Size 22; copper alloy; plated .000050 [0.00127] min. gold with entire contact underplated .000050 [0.00127] min. nickel; stainless steel sleeve

1-Position Cable Assembly



Dim. A	Wire Color	Plug Assembly	Receptacle Assembly
6.00 152.4	White	867823-5	867824-3
24.00 609.6	White	—	867824-1
24.00 609.6	Green	—	867824-2
15.00 381.0	White	867823-1	—
30.00 762.0	White	867823-2	—
36.00 914.4	Green	867823-3	—
36.00 914.4	White	867823-4	—

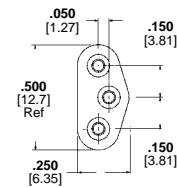
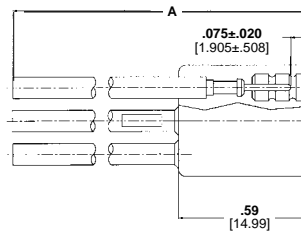
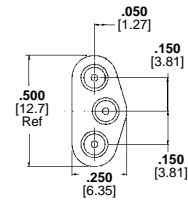
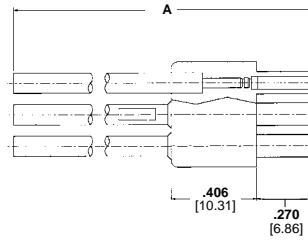
2-Position Cable Assembly



Dim. A	Wire Color	Plug Assembly	Receptacle Assembly
12.00 304.8	Brown	866559-1	866196-1
16.00 406.4	Brown	866559-5	866196-5
18.00 457.2	Brown	866559-2	866196-2
24.00 609.6	Brown	866559-3	866196-3
48.00 1219.2	Brown	866559-4	866196-4

1, 2 and 3 Position Cable Assemblies

3-Position Cable Assembly





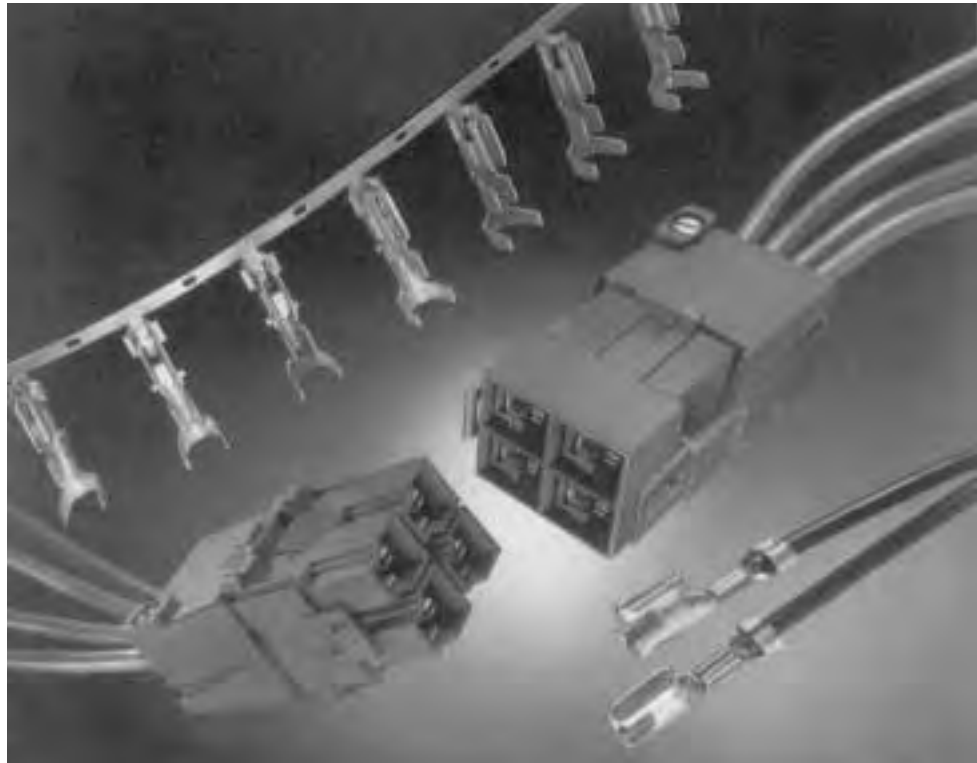
Dim. A	Wire Color	Plug Assembly	Receptacle Assembly
12.00 304.8	Lead 1 – Green Lead 2 – Yellow Lead 3 – Blue	862424-1	862425-1
18.00 457.2	Lead 1 – Green Lead 2 – Yellow Lead 3 – Blue	862424-2	862425-2
24.00 609.6	Lead 1 – Green Lead 2 – Yellow Lead 3 – Blue	—	862425-3
48.00 1219.2	Lead 1 – Green Lead 2 – Yellow Lead 3 – Blue	862424-4	862425-4
12.00 304.8	Brown	863743-1	—
16.00 406.4	Brown	863743-2	—

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Specialty Products &
Relays and Circuit Breakers

Product Facts

- **Current Ratings:**
 8 AWG [8 mm²]
 35 amperes
 10 AWG [6 mm²]
 30 amperes
 12 AWG [3 mm²]
 23 amperes
 30°C T-Rise – 4 circuit
 housing fully loaded; single
 circuit energized
- **Designed to meet the
 following UL requirements:**
 - Housing rating for 600 VAC
 - + 105°C material
- **Positive locking housings**
- **Housings used in free-
 hanging or panel mounted
 applications**
- **Hermaphroditic contacts
 used in both plug and cap
 halves – inventories
 minimized**
- **Contacts can be terminated
 by automatic machine for
 lowest applied cost**
- **Recognized under the
 Component Program of
 Underwriters
 Laboratories Inc.,** 
File No. E28476
- **Certified by Canadian
 Standards Association, File
 No. LR 7189-115** 



This connector offers high reliability and cost savings for high current commercial connector applications. It can handle 12-8 AWG [3-8 mm²] solid or stranded wire with insulation wall thicknesses to .094 [2.38]. It is suited for use where harness wiring is not routed through costly conduit.

The connector housings are made of 94V-0 nylon in brick red color. They feature positive lock latches to prevent accidental disengagement. The housings are also polarized by silo construction and can be used in free hanging form or panel mounted form with the plug half being mounted to panels .040-.093 [1.02-2.36] thick.

The contacts, made of .025 [0.64] thick pretinned phosphor bronze are hermaphroditic and can be used in either connector half. They are available in

two wire ranges accommodating 12-8 AWG [3-8 mm²].

Contact to wire application for 12-8 AWG [3-8 mm²] is by means of machine powered applicators or by means of a hand tool with appropriate die sets.

This connector is furnished in a 4 position (2 x 2 circuit) size only.

Technical Documents:

Product Specification
108-1036

Application Specification
114-1004

Instruction Sheets

408-2095 Hand Tool 69710-1

408-7918 Die Sets 90347-1, 90349-1, 90349-2

408-9520 Extraction Tool 58413-1

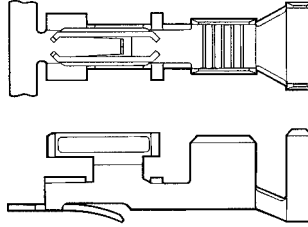
For complete product information, order Catalog 82054

4-Circuit High Current Connectors

Hermaphroditic Contacts

Material and Finish:

Phosphor bronze, tinned



Wire Size Range		Ins. Dia. (Max.)	Contact Part Numbers		Applicator Part Numbers	Die Set Part Numbers ¹
AWG	[mm ²]		Strip	Loose Piece		
12-10	3-6	.360 9.14	350650-1	350821-1	466173-3 ²	90349-2
8	7-8	.360 9.14	350650-1	350821-1	466173-3 ²	90348-2

¹ Use with Hand Tool Part Number 69710-1

² Use with Model G Terminating Machine Part Number 354500-1
Contact Extraction/Lance Reset Tool Part Number 58413-1

Cap

Part Number 643267-1 (marked)*

643267-3 (marked)*

Part Number 643267-2 (unmarked)

*Characters 3 and 4 marked on near surface, as shown; characters 1 and 2 marked on opposite side.

Material:

94V-0 nylon, brick red (643267-1, -2)

94V-2 nylon, black (643267-3)

Plug

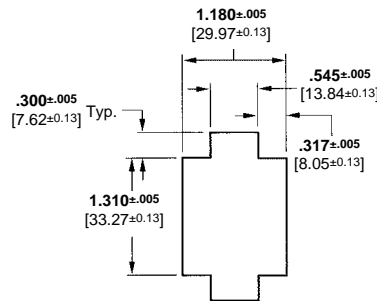
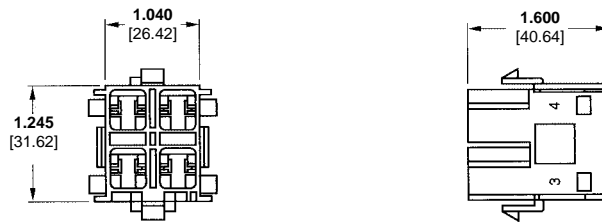
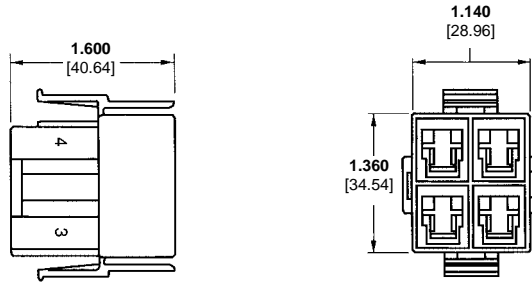
Part Number 641685-1 (unmarked)

Part Number 641685-2 (marked)*

*Characters 3 and 4 marked on near surface, as shown; characters 1 and 2 marked on opposite side.

Material:

94V-0 nylon, brick red



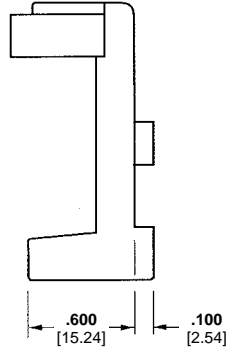
Recommended Panel Cutout

For complete product information, order Catalog 82054

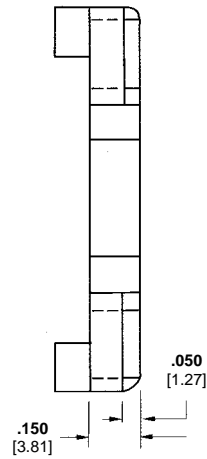
12
 Specialty Products &
 Relays and Circuit Breakers

4-Circuit High Current Connectors — Accessories**Strain Relief – 2 Required
(Used with plug or cap)****Part Number** 643266-1**Material:**

94V-0 nylon, brick red

**Strain Relief Adapter –
2 Required (Used with plug
housing only)**(attached to plug housing,
providing feature to attach strain
relief)**Part Number** 643268-1**Material:**

94V-0 nylon, brick red



For complete product information, order Catalog 82054

Product Facts

- High current handling capability: 31 or 53 amperes maximum depending on application (reference product specs)
- Modular housings for multiple connector applications
- Assortment of mounting accessories available
- Interlock between adjacent housings to assist assembly
- Precision formed contacts available in strip form for high-speed automatic machine application or loose piece for hand tool application
- Integral stainless steel locking spring in housing for contact retention and reliable contact performance
- Choice of silver or gold plated copper contacts
- Housing of impact resistant thermoplastic
- Accepts wire size range 18–6 AWG [0.8-15 mm²]
- Positive electrical continuity provided by self-cleaning wiping action of mated contacts
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E-28476 
- Certified by Canadian Standards Association, File No. LR 7189 



AMP Power Lock Connectors have hermaphroditic housing and contact designs. The hermaphroditic housings are also modular in design and permit the clustering of connectors of the same series. Housings are made of impact resistant thermoplastic with stainless steel locking springs for contact stability. Terminals are available in strip and loose piece form with a material choice of silver, or gold plated copper. Contacts for Series I Connectors accept a wire size range of 18–12 AWG [0.8-3 mm²] and contacts for Series II Connectors accept a wire size range of 10–6 AWG [6-15 mm²].

Both insert easily into housings where integral locking springs provide positive retention.

AMP Power Lock Connectors can be adapted to most high current applications and may be used as free-hanging, surface mounted and thru-panel mounted connectors, or when posted contacts are used, they can be used on printed circuits.

Precision formed contacts are available in strip form for automatic machine application, providing maximum production and minimum assembly time.

Technical Documents:

Product Specifications

108-11026 Series I
108-11043 Series II

Instruction Sheets

408-2624 Series I Housings
408-2928 Series I Contacts
408-2597 Series II Housings
408-3196 Series II Contacts

Application Specification

114-6032 Series II

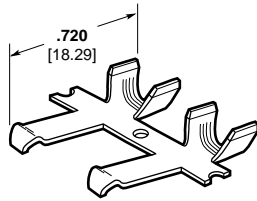
For complete product information, order Catalog 65864

Series I Connectors

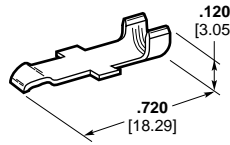
Contacts

Material:

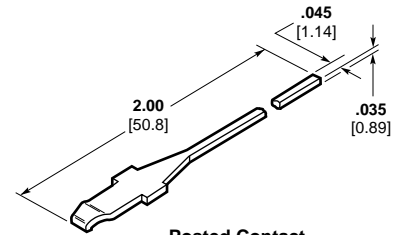
Contact — Copper



Crimp Contact



Solder Contact



Posted Contact

Type	Wire Range		Plating	Part Numbers	
	AWG	mm ²		Strip Form	Loose Piece
Crimp Contact	18-12	0.8-3	Silver	53892-2	53892-4
			Gold*	53892-8	53892-7
Solder Contact	12 Max.	3	Silver	—	54329-1
Posted Contact	—	—	Silver	—	54326-2
			Gold*	—	54326-1

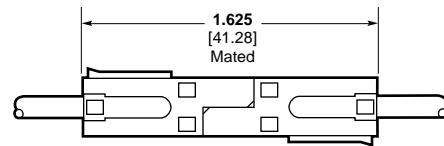
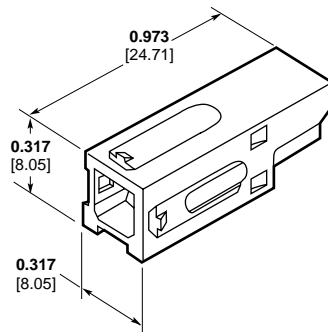
*.000030 [0.00076] gold over .000050 [0.0013] nickel

Single-Circuit Housing Assemblies

Material:

Housing — Polycarbonate

Color	Part Number
White	53894-1
Black	53894-2
Green	53894-3
Red	53894-4
Yellow	53894-5
Blue	53894-6

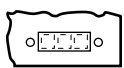
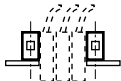


Adapters

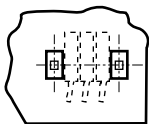
Material:

Housing — Polycarbonate, red

Typical Mounting Configuration

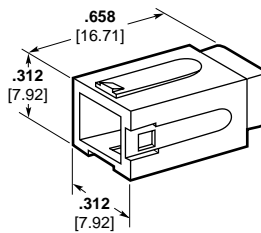


Thru-Panel Mount Vertical Mount



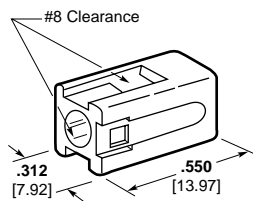
Surface Mount

Spacer



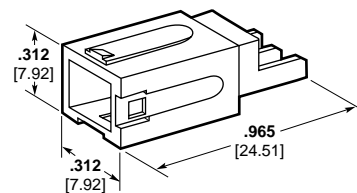
Part Number 53899-2

Mounting Adapter



Part Number 54315-1

Key



Part Number 53899-1

For complete product information, order Catalog 65864

Series I Connectors

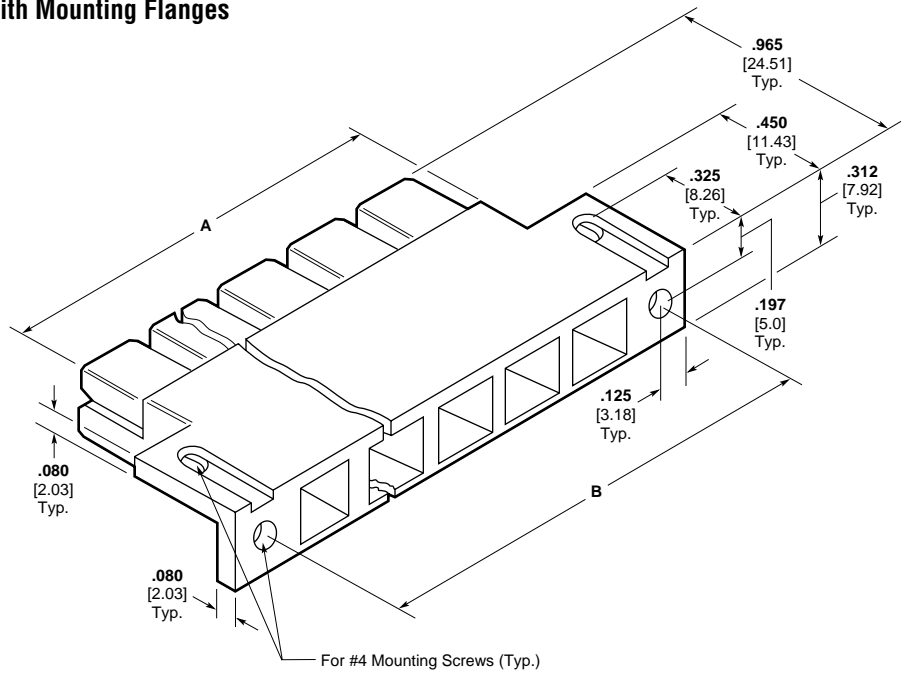
2 to 6 Position In-Line Housings

Material:

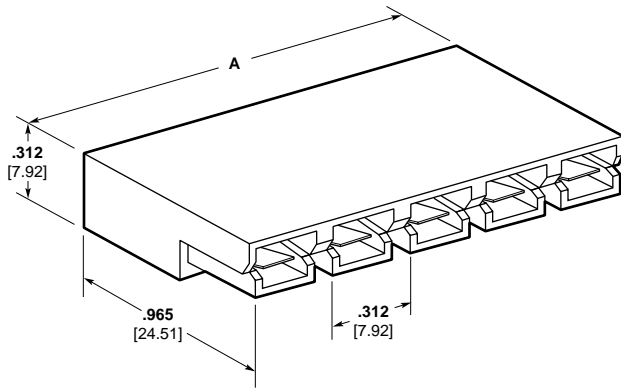
Housing — Nylon, natural color

Note: In-Line Housings with and without mounting flanges can be mated with suitably arranged clusters of single-circuit housings found on page 12026.

With Mounting Flanges



Without Mounting Flanges



No. of Positions	Dimensions		Part Numbers	
	A	B*	With Flanges	Without Flanges
2	.624 15.85	.874 22.2	54489-2	54483-2
3	.936 23.77	1.186 30.12	54489-3	—
4	1.248 31.7	1.498 38.05	54489-4	54483-4
6	1.872 47.55	2.122 53.9	54489-6	—

*Dimension required only for housing with mounting flanges.

For complete product information, order Catalog 65864

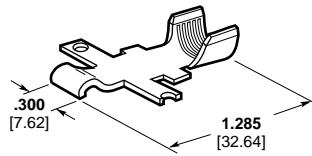
12
Specialty Products &
Relays and Circuit Breakers

Series II Connectors

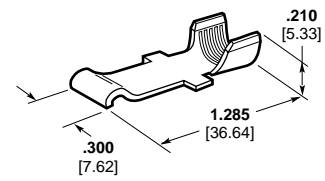
Contacts

Material:

Contact — Copper



Crimp Contact



Solder Contact

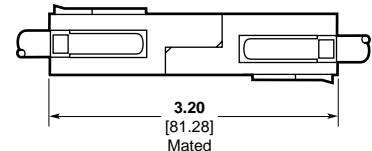
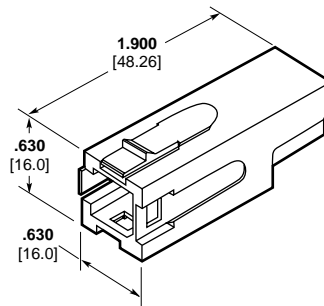
Type	Wire Range		Plating	Part Numbers
	AWG	mm ²		Loose Piece
Crimp Contact	10-6	6-15	Silver	53880-4
Solder Contact	6 Max.	15 Max.	Silver	54330-1

Connector Housing Assembly

Part Numbers 53884-1 blue
53884-3 black
53884-4 red

Material:

Housing — Polycarbonate



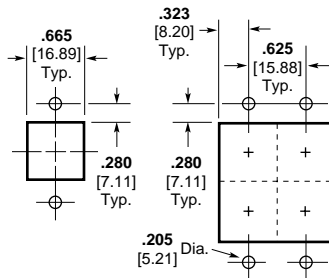
Panel Mounting Adapters

Part Numbers 53886-1 female
53887-1 male

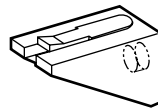
Material:

Housing — Polycarbonate, blue

Mounting Dimensions

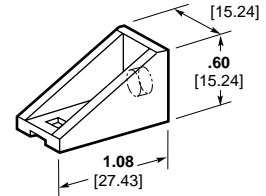


Male Adapter



Part Number 53887-1

Female Adapter



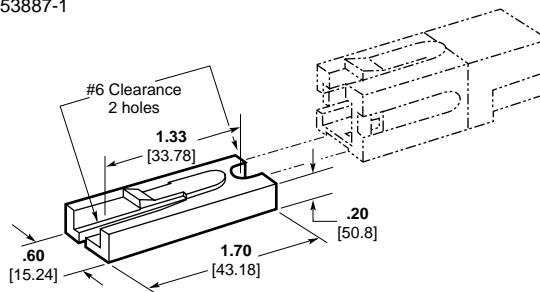
Part Number 53886-1

Surface Mounting Adapter

Part Number 53885-1

Material:

Housing — Polycarbonate, blue



For complete product information, order Catalog 65864

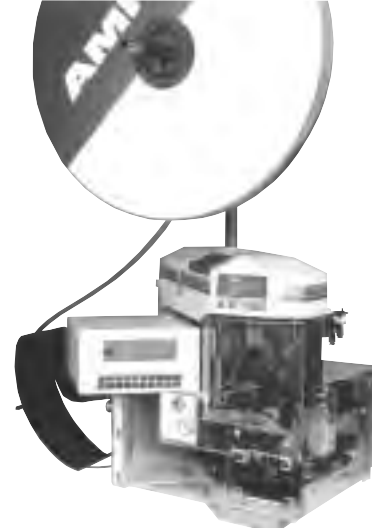
Application Tooling

Series I Connector Tooling

The Series I AMP Power Lock Contact can be terminated in the industry accepted AMP-O-LECTRIC Semiautomatic Terminating Machine. This machine accepts a special side-feed mini-applicator which permits you to "dial-in" the proper crimp height and provides a reliable crimp. The Heavy Head Hand Tool is also available for limited production requirements using loose piece contacts.



Heavy Head Hand Tool
Part Number 68347-1 (Instruction Sheet 408-2734)



Model G Terminator

Note: Contact Extraction Tool
Part Number 68265-1
May be ordered, if desired.

AMP-O-LECTRIC Model "G" Terminating Machine
Part Number 354500-1 (Customer Manual 409-5842)

AMPOMATOR CLS IV+ Lead-Making Machine
Part Number 356500-1, -2

Heavy-Duty, Side Feed Miniature Applicators
Part Number 466516-7 for Model "K" Terminating Machine (Applicator Instruction 408-8074)
Part Number 466516-6 for CLS IV+ Lead-Making Machine (Applicator Instruction 408-8074)

Series II Connector Tooling

The Semiautomatic Power Applicator is designed to produce a carefully controlled uniform pressure crimp while providing a high rate of production. The applicator features matching dies that fully bottom at the completion of the crimp to provide proper crimp height. The one die set is fully adjustable to provide the full range of crimp heights for all wire sizes.

For limited applications the BANTAM ROTA-CRIMP Hand Tool produces the same uniform crimp.



BANTAM ROTA-CRIMP Hand Tool
Part Number 68321-1 (Instruction Sheet 408-2681)





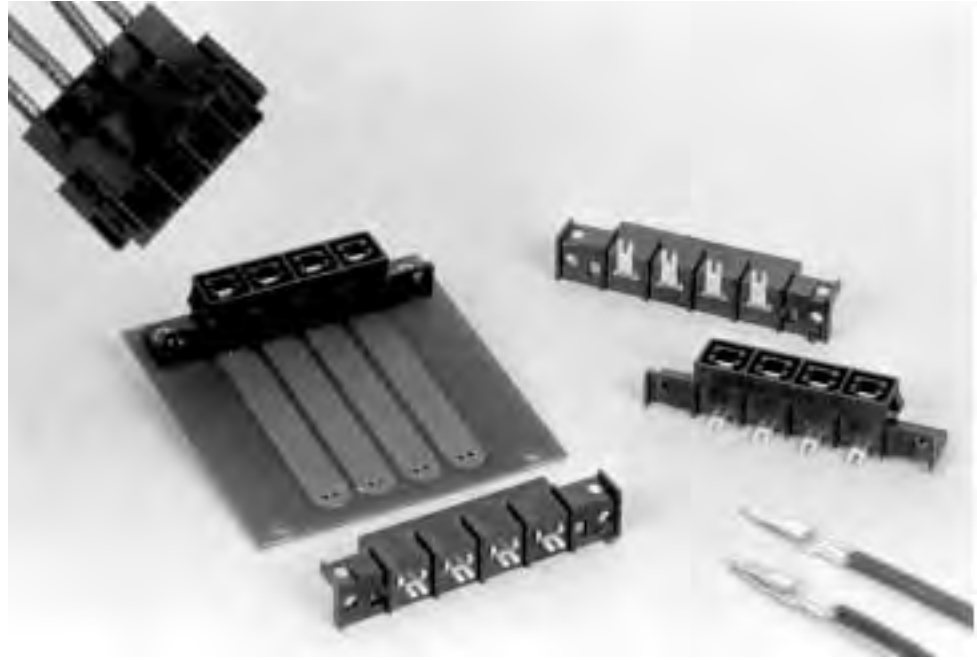
Power Applicator
Part Number 68296-1 (Customer Manual 409-2661)

For complete product information, order Catalog 65864

12
Specialty Products &
Relays and Circuit Breakers

Product Facts

- **Ratings: 600 VAC (RMS), current ratings range from 12-35 amps**
- **Receptacles polarized to plug**
- **Receptacles and plugs available in contact configurations of 2 through 8 positions**
- **Vertical receptacle polarized to PCB**
- **Receptacle contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength**
- **Receptacles may be mounted on PCBs .062 [1.57] to .125 [3.17] thick**
- **Plugs have positive latching to receptacles**
- **Removable crimp contacts latch firmly in plug**
- **Plugs are one piece design**
- **Two ranges of crimped contacts accommodate either 10-12 AWG or 14-16-18 AWG conductors**
- **UL Recognized, File No. E28476** 
- **CSA Certified, File No. LR7189-239** 



AMPINNERGY Wire-To-Board (WTB) Connectors

Connectors provide a convenient and efficient means of delivering up to 600 VAC to component printed circuit boards and other power distribution devices in computers and peripherals, telephone systems and appliances. The WTB connectors also have automotive and industrial applications.

Receptacles

The AMPINNERGY WTB connector receptacles can be installed on pc boards varying in thickness from .062 [1.57] to .125 [3.17]. A polarizing pin is provided on the vertical receptacle assembly to aid in proper positioning on the pc board. Both the vertical and right-angle assemblies are polarized for virtually error-free mating to the plug assemblies. The receptacle

assemblies are available in contact configurations ranging from two to eight positions.

Plugs

The single piece plug housings are available in contact configurations to mate with the receptacles. The plug is equipped with positive latches to allow full and secure mating to the respective receptacle.

A make-first/break-last feature is designed into position 1 of the plug assemblies to provide grounding protection.

Contacts

The crimp contacts will accommodate 10-12 AWG or 14-16-18 AWG conductors. The contacts latch firmly within the plug housing.

Product Specification

108-1349
AMPINNERGY WTB Connectors

Application Specification

114-6044 AMPINNERGY WTB Connectors

Instruction Sheets

408-3236 Installation of AMPINNERGY WTB Connectors
408-3198 Inspection of AMPINNERGY Contacts

For complete product information, order Catalog 82832

Vertical Receptacle

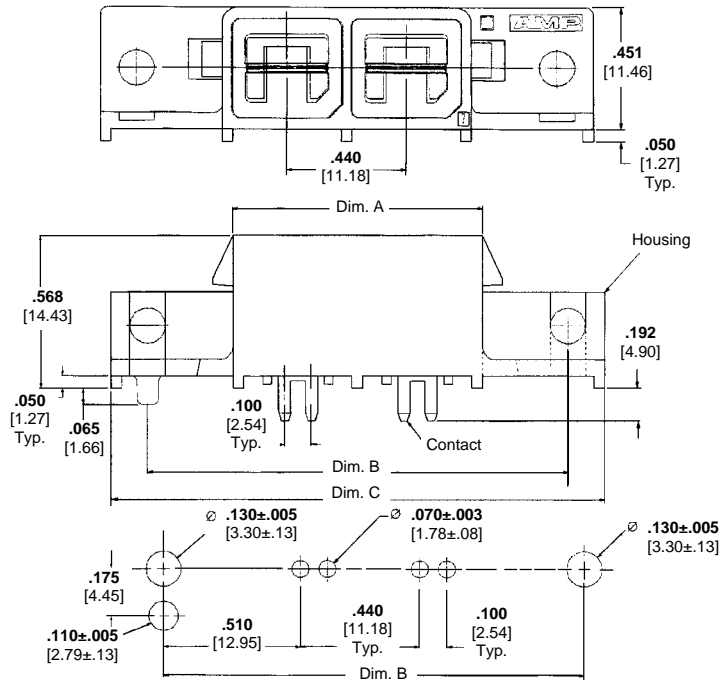
Product Facts

- Withstands vapor phase, infrared and wave soldering processes
- .040 [1.01] minimum standoff to PCB
- Polarized to PCB; to plug
- Contact centerline spacing: .440 [11.17]
- Overall height on PCB: .600 [15.24]
- Fits PCB thickness .062 [1.57] through .125 [3.17]
- Contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength
- Positive latching to mating plug

Material and Finish:

Housing — Polyphenylene Sulfide, Black, 94V-0

Contacts — Tin Plated Copper Alloy



PCB Thickness — .062 [1.57] thru .125 [3.17]

No. of Positions	Dimensions			Receptacle Part Numbers
	A	B	C	
2	.93 23.50	1.56 39.62	1.84 46.61	556881-2
3	1.37 34.68	2.00 50.80	2.28 57.79	556881-3
4	1.81 45.85	2.44 61.98	2.72 68.97	556881-4
5	2.25 57.03	2.88 73.15	3.16 80.14	556881-5
6	2.69 68.20	3.32 84.33	3.60 91.32	556881-6
7	3.13 79.38	3.76 95.50	4.04 102.49	556881-7
8	3.57 90.56	4.20 106.68	4.48 113.67	556881-8

PCB Thickness — .250 [6.35]

No. of Positions	Receptacle Part Numbers
4	558574-1
6	558084-1

For complete product information, order Catalog 82832

Right-Angle Receptacle

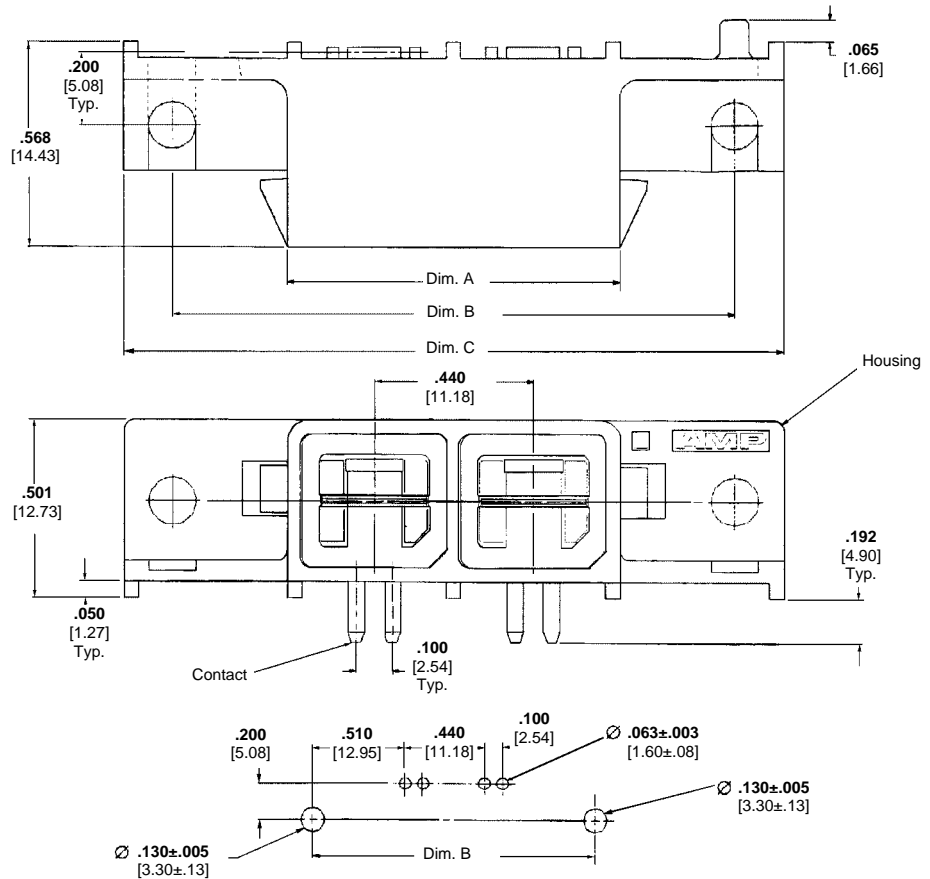
Product Facts

- Withstands vapor phase, infrared and wave soldering processes
- .040 [1.01] minimum standoff to PCB
- Receptacles polarized to plug
- Contact centerline spacing: .440 [11.17]
- Overall height on PCB: .600 [15.24]
- Fits PCB thickness .062 [1.57] through .125 [3.17]
- Contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength
- Positive latching to mating plug

Material and Finish:

Housing — Polyphenylene Sulfide, Black, 94V-0

Contacts — Tin Plated Copper Alloy



PCB Thickness — .062 [1.57] thru .125 [3.17]

No. of Positions	Dimensions			Receptacle Part Numbers
	A	B	C	
2	.93 23.50	1.56 39.62	1.84 46.61	556882-2
3	1.37 34.68	2.00 50.80	2.28 57.79	556882-3
4	1.81 45.85	2.44 61.98	2.72 68.97	556882-4
5	2.25 57.03	2.88 73.15	3.16 80.14	556882-5
6	2.69 68.20	3.32 84.33	3.60 91.32	556882-6
7	3.13 79.38	3.76 95.50	4.04 102.49	556882-7
8	3.57 90.56	4.20 106.68	4.48 113.67	556882-8

For complete product information, order Catalog 82832

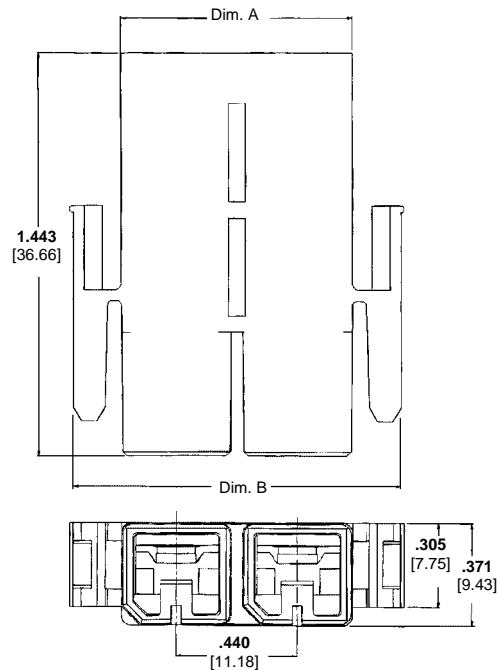
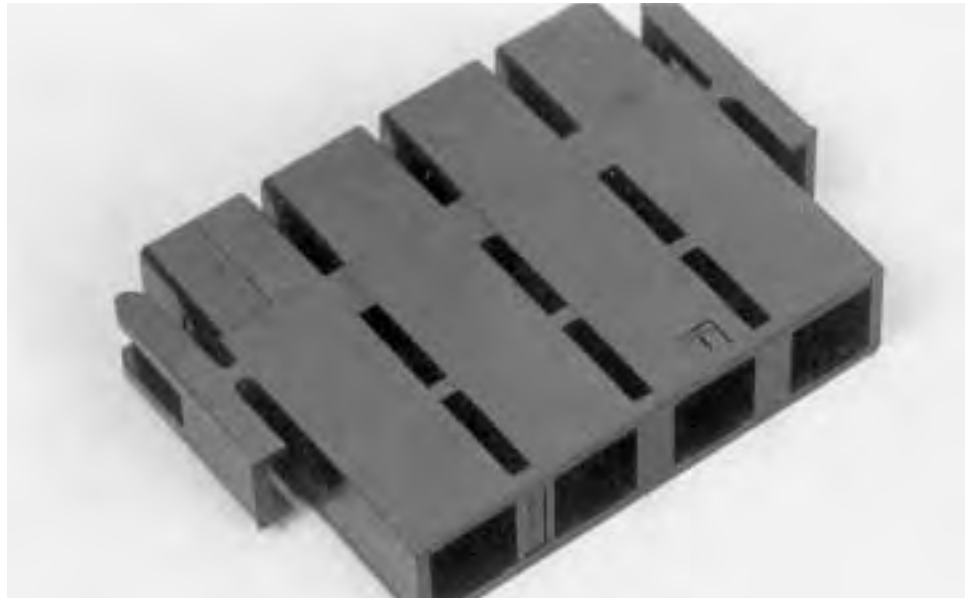
Plug Housing

Product Facts

- One-piece housing
- Polarized to mating receptacles
- Positive latching to mating receptacles
- Accepts crimp contacts P/N 556880-2 and 556883-1
- Internal latching of crimp contact

Material and Finish:

Housing — Polycarbonate, Black, 94V-0



No. of Positions	Dimensions		Plug Part Numbers
	A	B	
2	.85 21.42	1.20 30.31	556879-2
3	1.29 32.59	1.64 41.48	556879-3
4	1.73 43.77	2.08 52.66	556879-4
5	2.17 54.94	2.52 63.83	556879-5
6	2.61 77.30	2.96 75.01	556879-6
7	3.05 77.30	3.40 86.19	556879-7
8	3.49 88.47	3.84 97.36	556879-8

For complete product information, order Catalog 82832

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Specialty Products &
Relays and Circuit Breakers

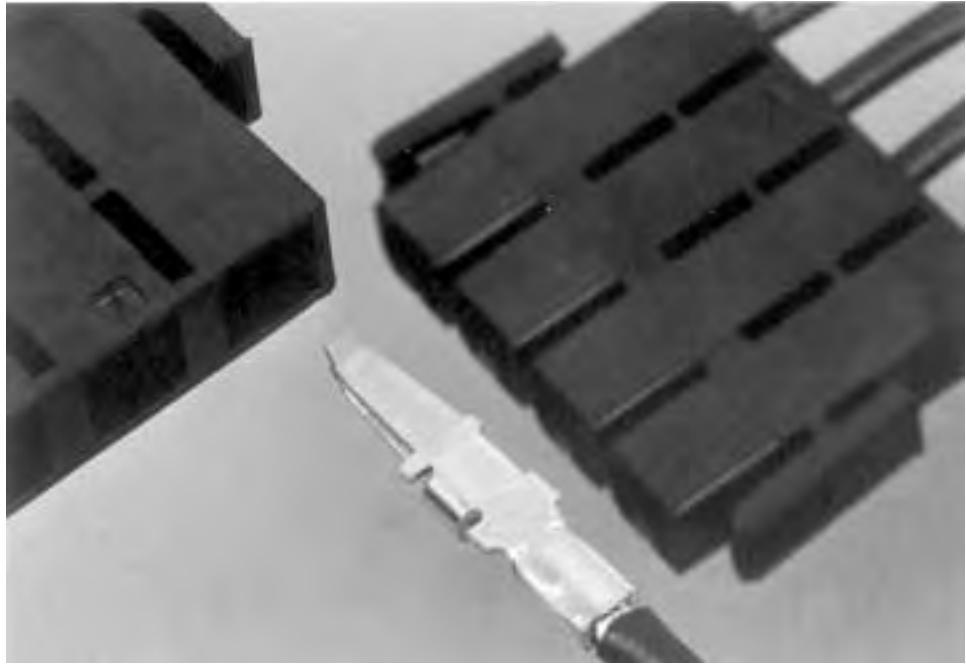
Crimp Contacts

Product Facts

- Contacts are dual beam design

Material and Finish:

Tin Plated Copper Alloy



Wire barrel accepts one 10 or 12 AWG stranded copper conductor

Part Number 556880-2 Strip

Part Number 556880-1 Loose Piece

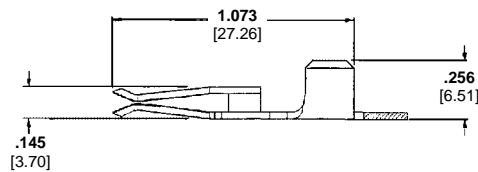
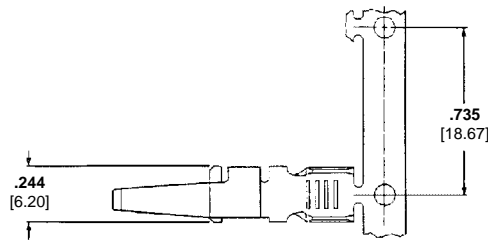
Application Tooling

Applicator Part Numbers

567256-3 (for Lead Makers)

567256-4 (for Model K Machine)

567256-6 (for Model G Machine)



Wire barrel accepts one 14 or 16 or 18 AWG stranded copper conductor

Part Number 556883-1 Loose Piece

Part Number 556883-2 Strip

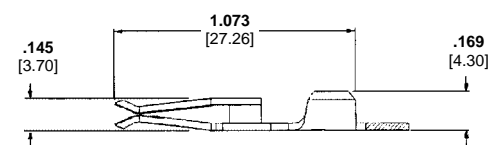
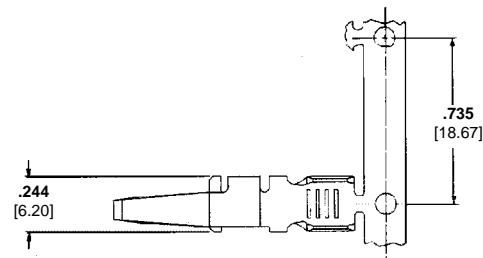
Application Tooling Part Numbers

69710-1 Hand Tool

58492-1 Die Set (14 AWG)



58493-1 Die Set (18-16 AWG)

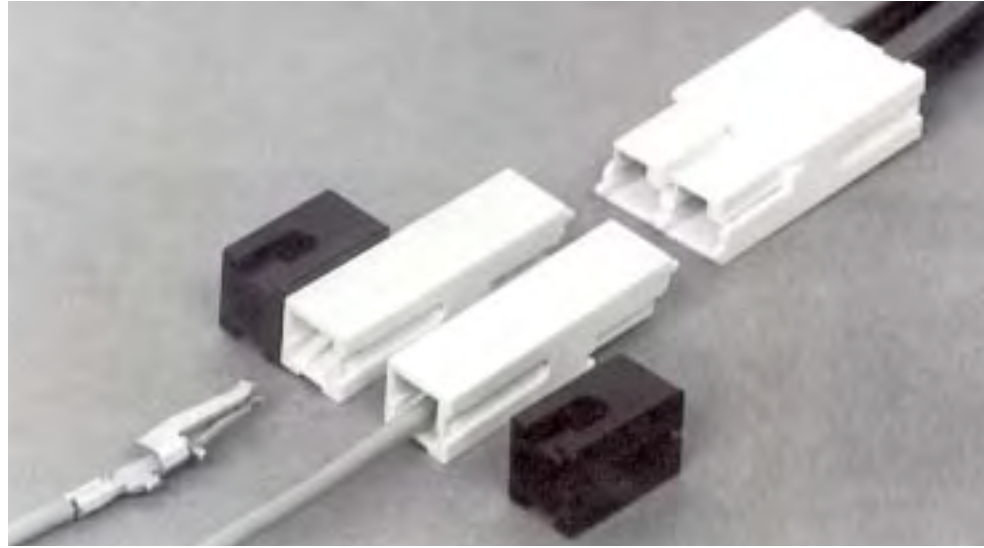
91308-1 Extraction Tool



For complete product information, order Catalog 82832

Product Facts

- Rated to 600 VAC (RMS)
- Flame retardant housings 94V-0
- Housings, adapters, and power terminals keyed for proper assembly
- Stackable housings provide easy wire routing and neat wire dressing
- Built-in interlocking features resist shock and vibration
- Usable as in-line connector, or as panel and surface mount connector
- Available in six different colors for circuit coding and identification
- Choice of two power terminals accommodates 10-12 AWG and 14-16-18 AWG conductors
- UL Component Recognition, File No. E28476 
- CSA Certified, File No. LR7189 
- Meets appropriate portions of UL 1977
- VDE Registered #5133



AMPINERGY Wire-To-Wire (WTW) Connectors provide a reliable and efficient means of interconnecting conductors employed to carry up to 600 VAC in power circuits or networks.

The WTW Connectors consist of mating hermaphroditic, flame retardant polycarbonate housings into which customer terminated power contacts are inserted. Stackable in four directions through the use of molded interlocking keyways, the connectors make wire routing and dressing orderly and easy to accomplish. More importantly, the built-in interlocking features on the connectors and the accessory mounting adapters provide resistance to the effects of shock and vibration, keeping the interconnect stable and secure.

The design features of the WTW Connector make it easily applicable to free hanging, surface mounted or panel mounted applications. By simply sliding the accessory mounting

adapters into the molded keyways of the connector housing, a free hanging connector can be transformed into a surface mount connector or a panel mount connector. Customer supplied 8-32 screws and nuts may be used to secure the connectors configured with the mounting adapters to printed circuit boards or distribution panels. The same hardware may be used to secure the connectors to pre-cut openings in the panels.

Furthermore, WTW Connector housings, mounting adapters and power terminals are all provided with alignment or keying features that make it nearly impossible to improperly assemble and apply the connector. Alignment slots and tabs on the plastic connector housings provide for easy mating of the housings, even in the dark! Mounting adapters have a keyway on one side and a key on the other side providing for easy assembly to the connector by touch alone if necessary. And the power terminals have a side tab

that prevents the incorrect insertion of the terminated conductor into the housing. Once inserted, the contacts firmly latch within the connector housing.

The WTW Connector system is available in six different and distinctive colors which makes circuit differentiation and identification possible. The crimped power terminals will accommodate either 10-12 AWG or 14-16-18 AWG stranded conductors. Depending upon the conductor size and the number of conductors in the connector configuration, the current rating ranges from 10 amperes to 55 amperes.

Technical Documents:

Product Specification
108-1373 AMPINERGY WTW Connectors

Application Specification
114-6051

Instruction Sheets
408-3277 AMPINERGY Wire-To-Wire Stackable Connectors
408-3198 Inspection of AMPINERGY System Power Contacts

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Specialty Products &
Relays and Circuit Breakers

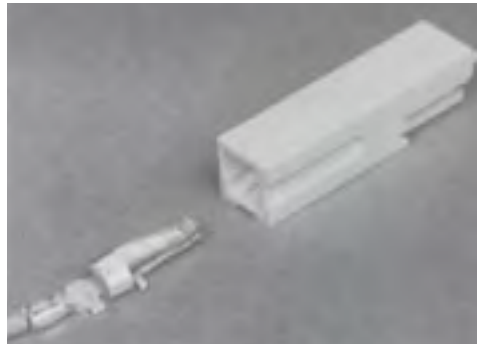
For complete product information, order Catalog 65211

Housings

Material and Finish:

Housing — Polycarbonate, 94V-0

For surface mounting and panel mounting information, see Instruction Sheet 408-3277, AMPINERGY Wire-To-Wire Stackable Connectors.

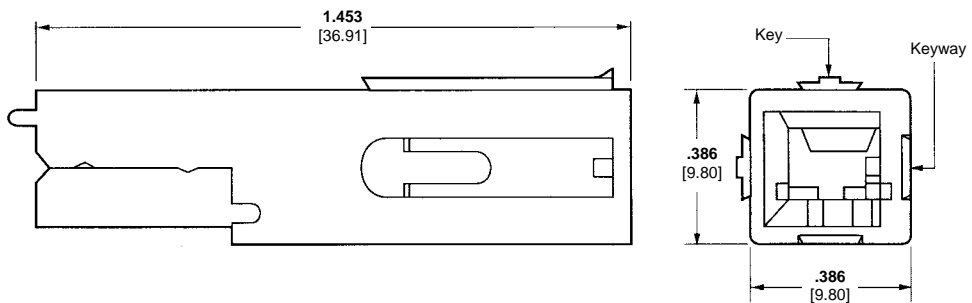


Customer terminated power contacts are inserted into housings



Free Hanging Interconnections

Color	Housing Part Numbers
White	556137-1
Green	556137-3
Blue	556137-6
Gray	556137-8



Wire-To-Wire Connector Housing

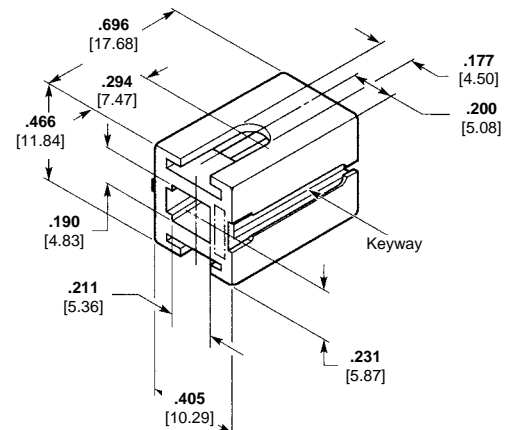
Mounting Adapters

Part Number 557313-1

Material and Finish:

Housing — Polycarbonate, Black

Two mounting adapters can be used with one or more connector housings to provide thru-panel or horizontal surface mounting capability of the completed assembly.



External Locking Latch Clip

Part Number 557640-1

AMPINERGY Wire-To-Wire Connector Housings have an integral locking feature designed to keep housings mated in most applications. However, the External Locking Latch Clip may be used as needed in applications where severe vibration or tension may pull mated housings apart.



AMPINERGY Wire-To-Wire Clips
Part Number 557640-1



AMPINERGY Wire-To-Wire Clips (Installed)
Part Number 557640-1

For complete product information, order Catalog 65211

Power Terminals

Material and Finish:

Contacts — Copper alloy plated with .000100 [0.00254] minimum tin

The Wire-To-Wire Connector Power Contacts are available in either strip form or in loose piece form.

Contacts in strip form are terminated on continuous feed type terminators and the loose piece contacts are terminated with the hand tool or pneumatic tool.

For wire preparation and crimped contact inspection information, refer to Instruction Sheet 408-3198, Inspection of AMPINNERGY System Power Contacts.

Loose Piece

Part Number 556136-2

Part Number 556135-2

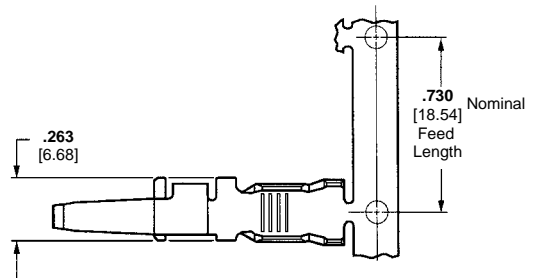
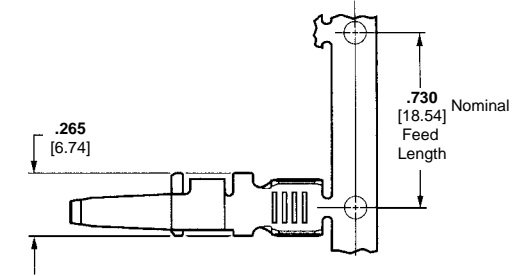
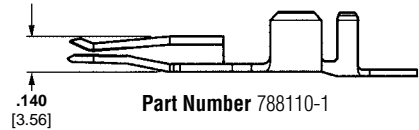
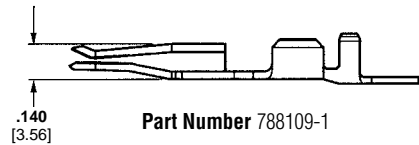
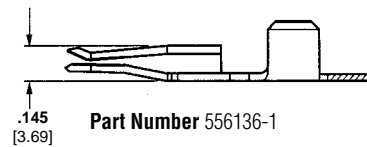
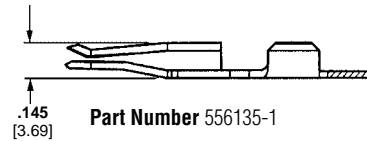


Contact Part Numbers	Wire Size (AWG)	Hand Tool Part Number	Pneumatic Tool Part Numbers	Die Set Part Numbers
556135-2 (loose piece)	18-16	69710-1	189721-2*	58493-1
	14			58492-1
556136-2 (loose piece)	12			58490-1
	10			58491-1

*Requires "C" Head Adapter Part No. 318161-1 and Adapter Holder Part No. 189928-1. See Catalog 124208 for more information.

Note: The same Hand Tool or Pneumatic Tool and Die Sets may be used to apply the Wire-To-Board Connector Terminals.

Strip Form



Contact Part Numbers	Wire Size (AWG)	Model G Terminating Machine	Applicator Part Numbers
556135-1 (strip)	18-16-14	354500-1	567403-3
556136-1 (strip)	10-12	354500-1	567256-6
788109-1 (strip)	18-14	354500-1	680447-3
788110-1 (strip)	10-12	354500-1	680449-3

For complete product information, order Catalog 65211

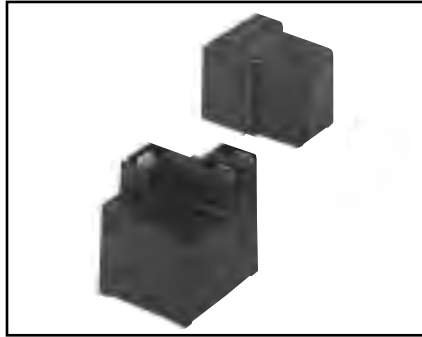
12
 Specialty Products &
 Relays and Circuit Breakers

Relays and circuit breakers from Agastat, OEG, P&B and Schrack meet the exacting requirements of demanding applications.



Low- to mid-range PC board relays

- Dry circuit to 15 amp ratings
- SPST-NO through DPDT
- Sealed or flux-tight units



Power PC board relays

- Contact ratings to 30 amps
- SPST-NO through DPDT
- Open, enclosed and sealed



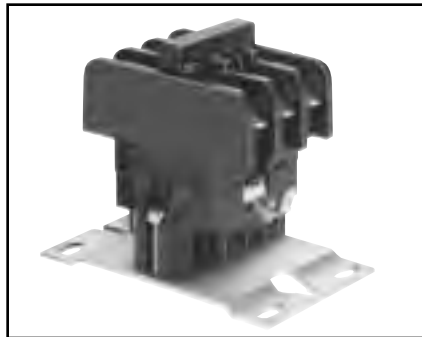
General purpose relays

- Ratings to 15 amps
- Various contact arrangements
- Many mounting, enclosure, coil and termination options



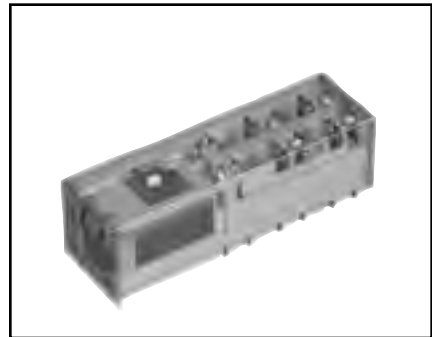
Panel-mount power relays

- Ratings to 50 amps
- SPST-NO through 4PDT
- Many mounting, enclosure and termination options



Definite purpose contactors

- Ratings to 50 amps
- 3 and 4 pole models
- AC and DC coil versions



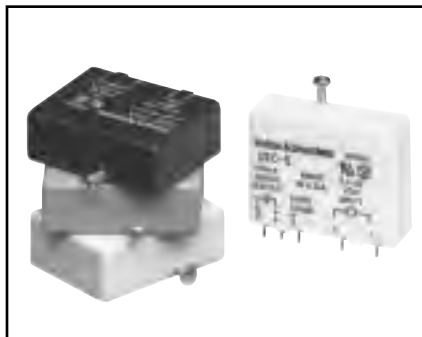
Forcibly-guided contact relays

- Two, four and six pole models
- Make and break contacts can not be closed simultaneously
- Mounting boards available



Solid state relays

- Ratings to 125 amps/480VAC
- Single, dual and quad output
- AC and DC input models



Input/output modules

- Output ratings to 5A AC/3A DC
- Standard and slim line packages
- Mounting boards available



Time delay relays

- All solid state, solid state/EMR and electropneumatic types
- Various timing functions, ranges and package styles

Relays and circuit breakers from Agastat, OEG, P&B and Schrack meet the exacting requirements of demanding applications.



Sensors and monitors

- Various types sense/monitor current, voltage and phase
- Plug-in and panel mount types



Thermal circuit breakers

- Contact ratings to 50 amps
- Numerous mounting and termination options available



Magnetic circuit breakers

- Contact ratings to 50 amps
- One through four poles
- Various trip curves offered

Want more information?

For more information on our extensive line of relays and circuit breakers, visit our website at <http://relays.tycoelectronics.com>. Or call 800-522-6752 and request catalogs. Agastat Timers and Relays are described in Catalog 1308392, while Relay and Circuit Breaker Technical Databook 1308242 covers a broad range of P&B and Schrack industrial products. Catalog 1308961 describes OEG PC Board and General Purpose Relays.

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Specialty Products & Relays and Circuit Breakers



Catalog 1308392



Catalog 1308961



Catalog 1308242

Engineering Notes

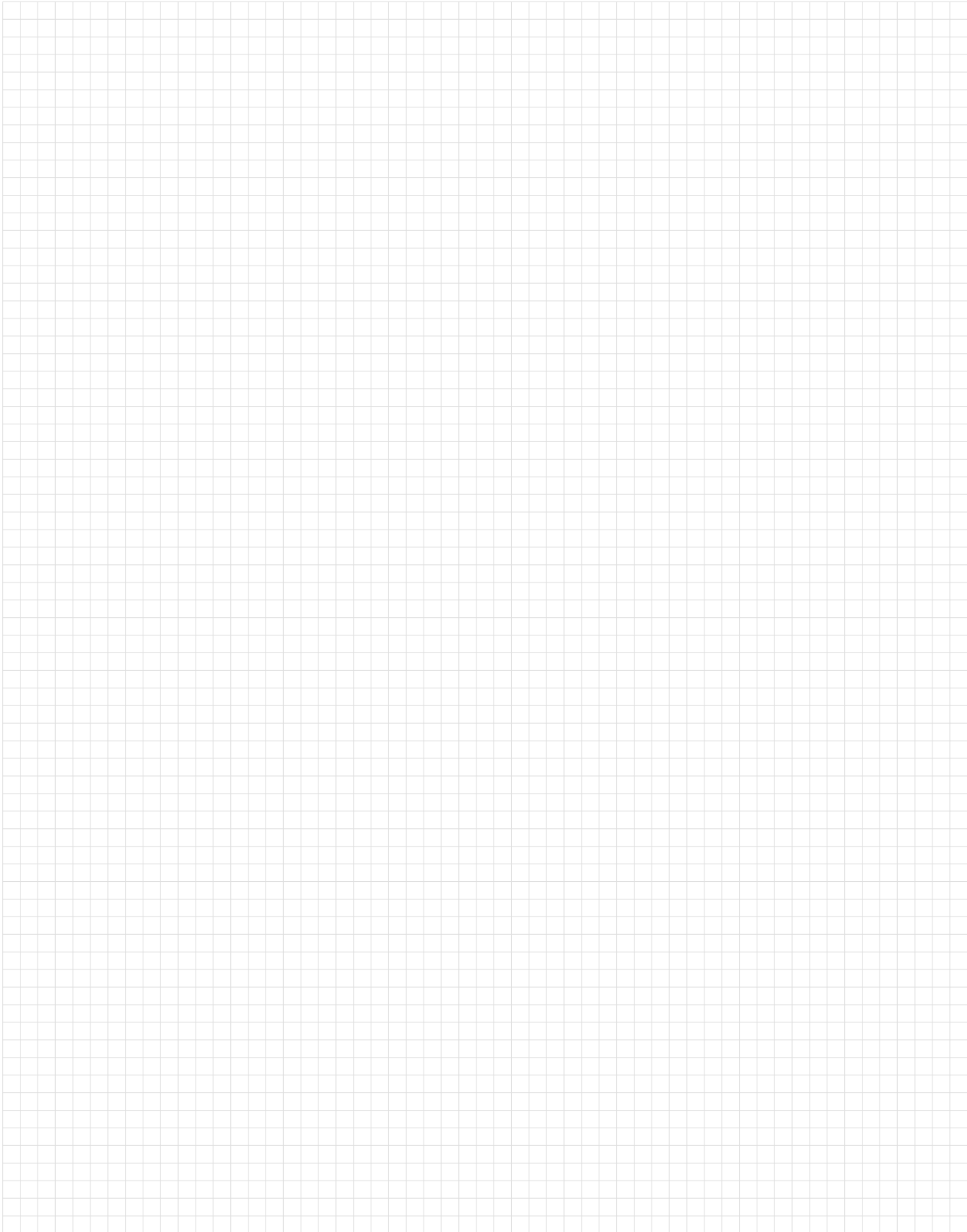


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Mechanical Hand Tools for Interchangeable Die Sets

CERTI-CRIMP "C" Head Straight Action Hand Tool (SAHT), 69710-1

For more information, request Catalog 65780, Instruction Sheet 408-2095.



82936-8

Premium grade hand tool. Features ratchet control to provide complete crimp cycle. The interchangeable die sets close in a straight line to minimize contact or terminal rotation during crimping. When applicable, user-assist features, such as a contact or terminal locator and a wire stop, are built into the die set. Approximate weight 1.9 lb [0.86 kg].

CERTI-CRIMP Platform Die Hand Tool, 58078-3

For more information, request Catalog 65780, Instruction Sheet 408-6976.

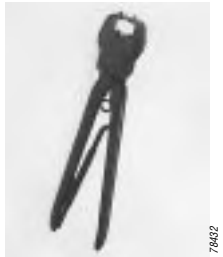


108044

Premium grade hand tool for crimping Ultra-Fast and Ultra-Fast Plus FASTON terminals. Features ratchet control to provide complete crimp cycle. Same frame configuration as the TETRA-CRIMP hand tool. Includes an adjustable terminal locator. Approximate weight 1.4 lb [0.64 kg].

CERTI-CRIMP Semi-Rigid Cable Hand Tool, 59980-1 (Military M22520/36-01)

For more information, request Instruction Sheet 408-6788.



7842

Premium grade hand tool for crimping Blindmate, N, SMA, and TNC connectors onto semi-rigid coaxial cable. Features ratchet control to provide complete crimp cycle. The tool is included in the SMA Tool and Cable Preparation Kit, 59981-1. Locators must be ordered separately, if not included in the kit. Approximate weight 2.0 lb [0.91 kg].

CERTI-LOK Hand Tool, 169400

For more information, request Instruction Sheet 408-6764.



98845

Premium grade hand tool. Features similar to those of the CERTI-CRIMP "C" Head SAHT. Die sets available to crimp PIDG and PLASTI-GRIP terminals, PIDG "window" splices, SOLISTRAND terminals and splices, and Multimate Type III+ and XII contacts. Approximate weight 1.4 lb [0.49 kg].

Mechanical Hand Tools for Interchangeable Die Sets

PRO-CRIMPER II Hand Tool, 354940-1

For more information, request Catalog 82276, Instruction Sheet 408-9930.



Commercial grade hand tool for crimping various products. Features ratchet control to provide complete crimp cycle. Accepts both pinned- and shouldered-style die sets. Locators are provided with pinned-style die sets for proper contact

and wire positioning, and to help minimize contact rotation and bending during crimping. Approximate weight 1.3 lb [0.60 kg].

Pneumatic Hand Tools for Interchangeable Die Sets

626 Pneumatic Tool System

Specifications:

Outside Diameter—1.83 [46.5]

Length—11.6-12.9 [295-327]

Grip Span—2.19 [55.6] over button/handle

Weight—2.3-3.3 lb [1.0-1.5 kg]

Air—90-100 psi [6.21-6.89 bar], 11.14 in³ [0.00018 m³]

Cycle Time—0.7-0.8 sec (16-14 AWG [1.3-2 mm²] PIDG Terminals)

For more information, request Catalog 124208.



Lightweight, air-operated modular tooling system. Accepts a wide variety of interchangeable heads for crimping various types of contacts, terminals and splices onto wires ranging 6-26 AWG [13-0.12 mm²], plus coaxial and fiber optic cable. Available with either hand- or foot-actuation switch. Optional ratchet control available to provide complete crimp cycle.

Electrical Hand Tools for Interchangeable Die Sets

Cordless Electric Power Tool, 933150-1 (Kit, 933592-1)

Specifications:

Width—2.7 [69]

Depth—17 [432]

Height—10 [254]

Weight—12 lb [5.4 kg]

Battery Pack Life—approx. 200 crimps on a full charge

For more information, request Catalog 82205 (COPALUM Connectors and Heat Shrink Tubing System), Instruction Sheet 408-9425.



Battery-operated hand tool for crimping 6 and 8 AWG [13 and 8 mm²] COPALUM splices. This tool is used exclusively for reconnecting aluminum-wired homes, and is provided only to AMP certified installers. The two sizes are crimped in a single, two-cavity, color-coded die set. The battery pack can be removed and recharged.

Hydraulic Hand Tools for Interchangeable Die Sets

DYNA-CRIMP Electric-Hydraulic Power Units, 69120-1, -2, plus Heads

Specifications:

Width—9.5 [240]

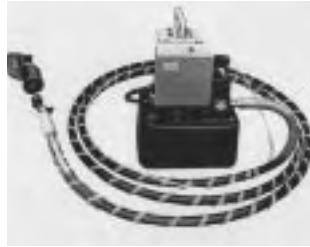
Depth—11.5 [292]

Height—18.2 [464]

Weight—65 lb [29 kg]

Electrical—120 VAC, 60 Hz (69120-1); 220 VAC, 50 or 60 Hz (69120-2); 3 240 VA max.

For more information, request Instruction Sheet **408-1965**.



26508-A

Power units for crimping large terminals and splices, including AMPPOWER and SOLISTRAND terminals, onto wires ranging from 8 AWG [8 mm²] through 1 000 kcmil [507 mm²]. Heads and die sets are interchangeable. Available with either hand- or foot-actuation switch, and hose/coupling assemblies up to 28 ft [8.5 m] in length.

Hand-Operated Hydraulic Pump, 314979-1, plus Heads

Specifications:

Width—9.5 [241]

Depth—24 [610]

Height—11.4 [290]

Weight—58 lb [26 kg]

For more information, request Instruction Sheet **408-1965**.



101270

Power unit for crimping large terminals and splices, including AMPPOWER and SOLISTRAND terminals, onto wires ranging from 8 AWG [8 mm²] through 1 000 kcmil [507 mm²]. It uses the same crimping heads and die sets as DYNA-CRIMP Electric-Hydraulic Power Units. Used primarily for low-volume production or at locations where electrical power is not available.

Hydraulic Hand Crimping Tools, 59973-1, 59974-1, 59975-1

Specifications:

Height—22.5 [572] (59973-1); 18 [457] (59974-1, 59975-1)

Weight—12.5 lb [5.7 kg] (59973-1); 8 lb [3.6 kg] (59974-1, 59975-1)

For more information, request Instruction Sheet **408-1965**.



65402

Levered hand tools for crimping large terminals and splices onto 8-4/0 AWG [8-100 mm²] wires for 59973-1 and 8-2 AWG [8-34 mm²] for 59974-1 and 59975-1. 59975-1 includes a rotating die set for crimping SOLISTRAND terminals and splices only. Bench mount 312324-1 is available for 59973-1.

Crimp Machines

5-Ton Machine, 565433-4

Specifications:

Width—29 [737]

Depth—25.4 [645]

Height—35.5 [902] without reel

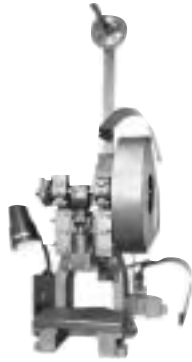
Weight—250 lb [113 kg]

Electrical—120 VAC, 60 Hz, 6 A

Air—90-110 psi [6.21-7.59 bar] when required for use with air-feed applicators

For more information, request Catalog

82221 (Magnet Wire Terminals—AMPLIVAR and MAG-MATE).



This machine is used with special standard-style applicators to apply terminals and splices requiring crimping forces greater than the maximum output of AMP-O-LECTRIC Termination Machines. The machine is a modification of a fixed-bed, mechanical clutch press manufactured by Benchmaster Products, Inc.

AMPLIVAR Product Terminators (APT)

Specifications:

Width—38 [965] with CQM and product reel

Depth—35 [889]

Height—14 [356]

Weight—156 lb [71 kg]

Electrical—120 VAC, 60 Hz, or 220 VAC, 50 Hz; 360 VA

Air—90-100 psi [6.21-6.89 bar], 22 scfm [0.01038 m³/s]

For more information, request Catalog

82221 (Magnet Wire Terminals—AMPLIVAR and MAG-MATE), Catalog 82275 [Crimp Quality Monitor (CQM)].



Semiautomatic bench machines for crimping reeled AMPLIVAR pigtail-type splices and direct connect contacts. All models are equipped with either manual or automatic precision adjustment of crimp height. Options include Crimp Quality Monitor, programmable sequencing of different crimp height settings and a wire stuffer, which automatically inserts additional wire into the splice to meet its minimum specified CMA range.

AMP-O-LECTRIC Model "G" Terminating Machines, 354500-1, -9, -11

Specifications:

Width—18.7-25.3 [475-643] depending on applicator type

Depth—21.5-28.1 [546-713] depending on applicator type

Height—20 [508]

Weight—240 lb [110 kg]

Electrical—120 or 220 VAC, 50 or 60 Hz; 310 VA

Air—90-110 psi [6.21-7.59 bar], 6 scfm [0.00282 m³/s] when required with air-feed applicators

Wire Range—26-10 AWG [0.12-6 mm²] solid or stranded, depending on product applied

For more information, request Catalog

65828, Video 198116, Catalog 82275 [Crimp Quality Monitor (CQM)], Video 198094.



Semiautomatic bench machines for crimping reeled terminals and contacts, featuring a quiet and reliable direct motor drive, microprocessor controls for ease of setup and operation, and guarding and lighting designed for operator convenience. All models are equipped with either manual or automatic precision adjustment of crimp height. Machine-mounted sensors are available for crimp quality monitoring using conventional miniature-style applicators.

Crimp Machines

Model G Splice Terminating Machine & Applicator

Specifications:

AMP-O-LECTRIC Model "G" Thru Splice Terminator

Capacity — 5 000 lb [2 224 N] max. crimp force

Deflection — .003 [0.076] max. per 1000 lb [445 N] crimp force

Noise — 76 dB max. at 5 000 lb [2 224 N] full capacity

Weight — Approx. 240 lb [109 kg]

Height — 20 [508]

Electrical — 120/220 VAC, 50/60 Hz; Avg. 2.6 A at 120 VAC when used as a bench-top unit at 2 000 cycles per hour operating rate

Air — 90-110 psi [6.21-7.58 bar], 6 scfm [0.00283 m³/s] (when required for use with air-feed applicators)

For more information, order Catalog 889021.

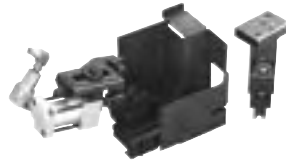


AMP-O-LECTRIC Model "G" Splice Terminating Machine

Semiautomatic bench machine for crimping reeled splice product. Accepts Standard G Splice Applicators to maximize access to both sides of the splice product. Features a quiet and reliable motor drive, microprocessor controls for ease of setup and operation and guarding and lighting designed for operator convenience. The terminators are provided with manual precision crimp height adjust as standard and machine-mounted sensors are available for crimp quality monitoring. Will not accept Heavy Duty Mini style applicators

Standard G Splice Applicator

Two-piece applicator for crimping end- or side-feed reeled splice products. Applicator provides access to both sides of splice for increased ease of use and productivity. Applicators use an air feed mechanism and are available for the AMP-O-LECTRIC Model G splice terminator only.



Entry Level Terminator (ELT), 1338600-1, -2, -3, -4, -5, -6

Specifications:

Width—16.8 [427]

Depth—20.6 [523]

Height—20 [510] without reel support

Weight—approx. 150 lb [68 kg]

Electrical—100-240 VAC, 50/60 Hz, 6A (Note: Avg <1 A at 120 VAC when used as a bench-top unit at 2,000 cycles per hour operating rate)

Air—90-100 psi [6.21-6.90 bar], 6 scfm [0.00282 m³/s] when required for use with air-feed applicators (Note: Optional Air Feed Valve Assembly Required)

Wire Range—Up to 14 AWG [2.5 mm²]

For more information, request catalog **1308382**.



Semiautomatic Bench Terminator for side- and end-feed reeled terminals and contacts. The ELT uses a DC motor with gear box drive. The result is a small-footprint design that is fast and quiet. Cycle time is less than 0.400 seconds with an operation sound level of 76dBA. With a crimp force capacity of 3,000 pounds, the ELT is available for all but the highest crimp force applications. A wide range of optional equipment is also available to meet your specific application requirements.

Crimp Machines

AMP-O-LECTRIC Model "K" Terminating Machine, 1-471273-3

Specifications:

Width—21 [533]

Depth—20 [508]

Height—24 [610] without reel

Weight—230 lb [104 kg]

Electrical—120 VAC, 60 Hz, 6 A

Air—90-110 psi [6.21-7.59 bar], 6 scfm [0.00282 m³/s] when required with air-feed applicators

Wire Range—26-10 AWG [0.12-6 mm²] solid or stranded, depending on product applied

For more information, contact Tyco Electronics.



21189

Semiautomatic bench machine for use with standard-style applicators. It is an electrically-powered, clutched, flywheel-energy-style machine, equipped with a mechanical strip feed mechanism. Products commonly applied with this machine include AMP splices, AMPLIVAR splices, and FASTON flag receptacles.

AMP-TAPETRONIC Machines, 68250-1, 69875

Specifications:

Width—16 [406]

Depth—20 [508]

Height—24 [610] without reel

Weight—250 lb [113 kg]

Electrical—120 VAC, 60 Hz

Wire Range—12-4 AWG [3-21 mm²] (68250-1), 26-10 AWG [0.12-6 mm²] (69875), solid or stranded, depending on product applied

For more information, contact Tyco Electronics.



103300

AMP-O-LECTRIC Model "K" Terminating Machines with a permanently-mounted applicator that accepts interchangeable die sets to apply a variety of tape-mounted terminals and splices. Many of the die sets can also be used in AMP-O-LECTRIC Terminating Machines with a tape applicator.

Carbon Brush Machine, 459248-2

Specifications:

Width—27 [686]

Depth—27 [686]

Height—28 [711] without reel

Weight—250 lb [113 kg]

Electrical—120 VAC, 60 Hz, 6 A

Air—80-100 psi [5.51-6.89 bar]

For more information, request Catalog 82227 (Machine Applied Terminations, Open Barrel).



213600

Modified AMP-O-LECTRIC Model "K" Machine for crimping various terminals to spring and brush assemblies used in motors. It is equipped with a mechanism that compresses the spring, and pulls the shunt wire through the spring and over the terminal. The machine is capable of producing in the range of 400 assemblies per hour, depending on brush dimensions and operator dexterity.

Crimp Machines

Pneumatic Tool for Semi-Rigid Cable Terminations, 58318-1

Specifications:

- Width**—4.12 [105]
- Depth**—6.25 [159]
- Height**—5.12 [130]
- Weight**—8 lb [3.6 kg]
- Air**—80-100 psi [5.51-6.89 bar]



For more information, request Instruction Sheet **408-9351**.

37316

Compact, air-powered, semiautomatic bench tool for crimping N, SMA, and TNC connectors onto semi-rigid coaxial cable. Interchangeable locators are included; interchangeable die sets are purchased separately. The tool is operated with a trigger

switch mounted on the front of the tool.

Lead Makers

AMPOMATOR CLS IV+ Lead-Making Machines, 356500-1, -2, 1213400-1, -2

Specifications:

- Width**—159 [4 040]
- Depth**—68 [1 730]
- Height**—86 [2 185] with 24 [610] dia. reel
- Weight**—2 000 lb [907 kg]
- Electrical**—220 VAC, 50 or 60 Hz, single phase, 25 A, with neutral and ground
- Air**—90 psi [6.21 bar], 15 scfm [0.0071 m³/s] sustained
- Wire Range**—26-10 AWG [0.12-6 mm²] stranded, 26-16 AWG [0.12-1.4 mm²] solid
- Lead Lengths**—3-90 [76.2-2 285], 90-1 000 [2 285-25 400] with long lead conveyors



For more information, request Catalog **124324**, Video **198142** (NTSC), **199609** (PAL).

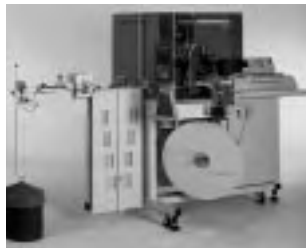
110234-3

Fully-automatic machines that measure, cut, strip and terminate single leads. Microprocessor-controlled, and programmed and operated using an easy-to-follow, menu-driven touchscreen. Features include direct-drive terminating units with precision crimp height adjustment, fully programmable setups, wire runout and splice detection, and motorized pre-feed with wire straightener. Crimp quality monitoring is also available.

Gamma 311 Lead-Making Machine, 2-528324-0

Specifications:

- Length**—839 [2131]
- Width**—340 [869]
- Height**—693 [1760]
- Length Range**—2.36 in.-32.8 ft. [60mm-10m] Optionally from 0.79 in. [20 mm]
- Wire Cross-Sections**—30 - 13 AWG [0.05 mm² - 2.5 mm²], (Optionally AWG 32)
- Noise Level**—<76 dB (excluding pressing)
- Electrical**—100 - 270 V, 50-60 Hz single phase, 2.5kVA
- Pneumatic Connection**—5-6 bar
- Air Consumption**—6 m³/h
- Weight**—900 lb [410 kg] with two crimping presses



For more information, request Catalog **1307780**.

The Gamma 311 is a compact, robust fully-automatic crimping machine of the highest quality. Its accessibility and user-friendliness are just as noteworthy as its excellent price to performance ratio. The Gamma 311 is extremely flexible. It handles a variety of applications from cutting, stripping and crimping, to twisting, fluxing, tinning and doubling.

Lead Makers

Gamma 333 PC Lead-Making Machine, Three Stations, 2-528324-0
Specifications:

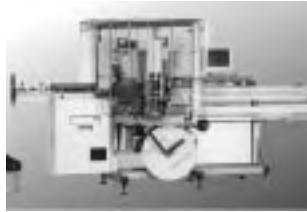
Length—125 [3137]
Width—54.2 [1377]
Height—70.5 [1790]
Length Range— 2.36 in.-32.8 ft [60-10,000] (optional 30mm)
Cross-Section Range — AWG 26-AWG 10 [0.125mm²-5mm²]
Noise Level—<76dB (without crimping modules)
Electrical—3x208 - 480V, 50-60Hz; 6kVA
Compressed Air—5-6 bar
Air Consumption—6.5m³/h
Weight—1850 lbs [840 kg] with two crimping modules
 For more information, request Catalog **1307901**.



With its capacity to accommodate an additional processing station on side 1, the Gamma 333 PC can perform a number of new processes. It can produce two-ended crimp leads, process double crimp connections with three different terminals or apply seals on one end of the wire. Tinning and ink jet marking are two further options. Process monitoring is integrated into the system, ensuring perfect trimming and stripping of the wires.

Alpha 433-S Lead-Making Machine, 3-528317-1
Specifications:

Length—125 [3823]
Width—54.2 [1698]
Height—78.8 [2000]
Length Range—2.36 in.-32.8 ft [60mm-10m] Optionally from 0.79 in. [20 mm]
Stripping Lengths—0.1-15mm
Wire cross sections— AWG 24-AWG 10[0.20mm²-6mm²]
Noise Level—<75dB (without crimping module)
Electrical—3x208-480 V/50-60Hz, 10kVA
Compressed Air—5-6 bar
Air Consumption—9m³/h
Weight—2380 lb [1080 kg] (with two MCI 711s and two MCI 761s)
 For more information, request Catalog **1307801**



The Alpha 433 offers the highest degree of flexibility. One or two sided seal application, different contacts plus double-crimp connections of varied lengths and with the same wire can all be processed with ease. When used in combination with the MCI peripherals, the Alpha 433 becomes a very compact total system with optimum accessibility.

Applicators for End-Feed Products

End-Feed Heavy-Duty Miniature Applicators (coded HDM)

For more information, request Instruction Sheet **408-8039**.



88039

Interchangeable applicators for crimping products reeled end-to-end (primarily open-barrel terminals). Used in bench and lead-making machines; most designs can be used, or adapted for use with minor tooling changes, dial-in settings for different wire

sizes and insulation diameters. Mechanical or air-powered feed systems, depending on the product applied.

End-Feed Standard Applicators (coded STD)

For more information, request Instruction Sheets **408-8014**, **408-8011 (Hinge Bar)**.



106197

Applicators for use with AMP-O-LECTRIC Model "K" Terminating Machine, 1-471273-3. Consist of separate ram and lower tooling assemblies. Lower tooling is bolted to the machine, and can be adjusted to vary the wire crimp height. Mechanical or

air-powered feed systems, depending on the product. To crimp Tab-Lok FASTON Flag terminals, the base plate is spring loaded (hinge bar).

Applicators for Side-Feed Products

Side-Feed Heavy-Duty Miniature Applicators (coded HDM)

For more information, request Instruction Sheet **408-8040**.



88028

Interchangeable applicators for crimping products reeled side-by-side on single or dual carrier strips (primarily closed-barrel terminals and open-barrel contacts). Similar design as the end-feed version. All side-feed applicators

include a wire stop to help correctly position the wire end in the crimping target area.

Side-Feed Standard Applicators (coded STD)

For more information, request Instruction Sheet **408-8012**.



88028

Applicators for use with AMP-O-LECTRIC Model "K" Terminating Machine, 1-471273-3. Similar design as the end-feed version. All side-feed applicators include a wire stop to help correctly position the wire end in the crimping target area.

Stripper-Crimper Applicators (coded SCA)

For more information, request Catalog **65004 (AMP-O-MATIC Stripper-Crimper Machines)**, Catalog **82275 [Crimp Quality Monitor (CQM)]**.



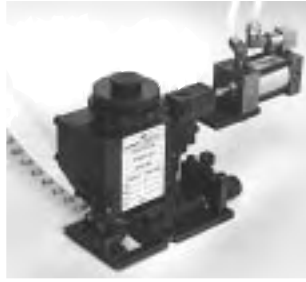
88027

Interchangeable applicators for crimping products in AMP-O-MATIC Stripper-Crimper Machines. Consist of separate ram and lower tooling assemblies. Similar dial-in settings for different wire sizes and insulation diameters as HDM applicators. Available with sensors for use with the Crimp Quality Monitor.

Applicators for Side-Feed Products

Tape Applicators, 567200-2, -3, -4

For more information, request Instruction Sheet **408-8082**.



Miniature-style applicators that accept interchangeable die sets for crimping a variety of tape-mounted terminals and splices, including PIDG, PLASTI-GRIP and SOLISTRAND. The same die sets can also be used in the AMP-TAPETRONIC Machine. The feed mechanism is air powered.

Stripper-Crimper Machines

AMP-O-MATIC Stripper-Crimper Machines, 1320895-1, -2

Specifications:

Width—14 [355]

Depth—18 [457]

Height—33 [838] without reel

Weight—150 lb [68 kg]

Electrical—120 VAC, 50 or 60 Hz, .5 A

Air—80-100 psi [5.52-6.90 bar], 3.5 scfm [0.00165 m³/s]

Wire Range—32-14 AWG [0.03-2 mm²]

For more information, request Catalog **65004**, Video **198075**, Catalog **82275** [Crimp Quality Monitor (CQM)], Video **198094**.



Semiautomatic bench crimping machines that also strip the wire, and are therefore used for terminating jacketed cable. Feature manual precision adjustment of crimp height, keyed strip blades for faster, more accurate setups, and an efficient scrap removal system. All adjustments can be made from the front of the machines without special tools. Available with crimp quality monitoring.

AMP-TAPEMATIC 4/8 Indent Stripper-Crimper Machine, 599406-7

Specifications:

Width—12.5 [317]

Depth—12.5 [317]

Height—10 [254] without reel

Weight—45 lb [20 kg]

Electrical—120 VAC, 60 Hz, 1.3 A

Wire Range—28-20 AWG [0.08-0.5 mm²]

For more information, contact Tyco Electronics



Portable bench machine that strips wire and crimps tape-mounted, closed-barrel pin and socket contacts for AMPLIMITE Military, ARINC and CPC connectors. The stripping and crimping heads are accessible through separate openings in the front of the machine. Wire strip length and crimp height are adjustable. The stripping head is pre-set to the proper cutting depth of four standard wire sizes.

Dedicated Hand Tools**CERTI-CRIMP Double Action Hand Tools (DAHT)**

For more information, request Catalog 65780.



92306-1

Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in an arc-like path. When applicable, user assist features, such as a contact or terminal locator and a wire stop are included. Approximate weight 1.2 lb [0.54 kg]

CERTI-CRIMP Heavy Head Hand Tools (HHHT)

For more information, request Catalog 65780.



92306-5

Premium grade hand tools for crimping large coaxial connectors and various types of terminals and splices on wires ranging 6-24 AWG [13-0.2 mm²]. Feature ratchet control to provide complete crimp cycle, and insulation crimp adjustment on tools for

AMPLI-BOND, PIDG, DIAMOND GRIP, and PLASTI-GRIP terminals and splices. Die sets close in a straight line. Approximate weight 2.1 lb [0.95 kg]

CERTI-CRIMP Straight Action, Double Action Hand Tools (SADAHT)

For more information, request Catalog 65780.



92306-3

Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in a straight line. Include a contact locator and support. Same handle and ratchet design as DAHT. Approximate weight 1.5 lb [0.68 kg]

CERTI-CRIMP Straight Action Hand Tools (SAHT)

For more information, request Catalog 65780.



92306-2

Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in a straight line. Include a contact locator and wire stop, plus an insulation crimp adjustment lever, when applicable. Approximate weight 1.3 lb [0.59 kg]

CERTI-CRIMP T-HEAD Hand Tools

For more information, request Catalog 65780.



92306-7

Premium grade hand tools for crimping PIDG and PLASTI-GRIP terminals and splices, plus spare wire caps. Feature ratchet control to provide complete crimp cycle. Die sets close in a straight line. Include a locator and a quick take-up for holding the terminal or splice in place.

Approximate weight 1.3 lb [0.59 kg]

Dedicated Hand Tools

ROTA-CRIMP Hand Tools, 600850-1, 601075-1

Specifications:

600850:

Length—25 [635]

Weight—7.4 lb [3.4 kg]

Wire Range—8-4/0 AWG
[7-100 mm²]

601075:

Length—15 [381]

Weight—4.6 lb [2.1 kg]

Wire Range—8-1/0 AWG
[7-60 mm²]

For more information, request Catalog
1242066.



Premium grade hand tools for crimping large SOLISTRAND and tubular terminals and splices, and CABLE MAKER battery terminals. The die sets rotate to provide multiple crimping configurations for the different terminal and splice sizes. 600850-1 and BANTAM ROTA-CRIMP tool, 601075-1 are equipped with ratchet control to provide complete crimp cycle.

TETRA-CRIMP Hand Tool, 59824-1

For more information, request Catalog
65780, Instruction Sheet **408-2823**.



Premium grade hand tool for crimping PIDG, PLASTI-BOND, and PLASTI-GRIP terminals, PIDG butt splices, and PIDG FASTON terminals onto wires ranging 22-10 AWG [0.3-6 mm²]. Features ratchet control to provide complete crimp cycle, quick ratchet release, and terminal locator and wire stop. Die set has three color-coded crimping chambers. Approximate weight 1.4 lb [0.64 kg]

Special Tool Sets

End- and Side-Feed Heavy-Duty Miniature Applicators for Ultra-Pod FASTON Receptacles

For more information, request Instruction Sheets **408-8095 (Side Feed)**, **408-8099 (End Feed)**.



Air-feed applicators for crimping uninsulated receptacles, and assembling them into insulating housing. The receptacles and housings are provided partially assembled, with the crimp barrels extending outside the housings. The receptacles are crimped on the downward stroke of the machine, and assembled on the upward stroke. Straight receptacles are side fed; flag receptacles are end fed.

Hand Tools for IDC Products

AMP-BARREL Terminal Wire Insertion Tools, 552714-1 thru -5

For more information, request Catalog 82159 (Printed Circuit Board Terminals and Disconnects), Instruction Sheet 408-6553.



Service grade hand tools for inserting one or two unstripped wires into pc board-mounted AMP-BARREL terminals. The tips of the tools are slotted to a depth to prevent wire overinsertion. The

shanks of the tools are color coded. For improved comfort, a slip-on cushion grip, 231279-1, is available.

AMP-LATCH Hand Tool Kit, 768340-1

For more information, request Instruction Sheet 408-9828.



Terminating kit for .050 [1.27] centerline ribbon cable with 28 or 26 AWG [0.08 or 0.15 mm²] stranded or solid, or 30 AWG [0.05 mm²] solid conductors. Includes commercial grade hand tool with ratchet control for complete termination cycle, base assembly, bench-

mount, tooling sets for standard and novo receptacles, card edge connectors and D-Sub HDF low-profile connectors, and a carrying case.

CHAMP MI-1 "Butterfly" Hand Tools, 229378-1, -3, -20, -23

For more information, request Catalog 82008 (Miniature Ribbon Connector System), Instruction Sheet 408-7559.



Portable tool for applying 14-, 24-, 36-, and 50-position CHAMP connectors, including Category 5. Mass terminates and shears all wires in a single operation. Wires can be laced in the tool or in a separate lacing fixture, 230328-1, using color bar guides. Lacing

fixture allows 180° as well as 90° wire dress. Approximate weight (including carrying case) 8.3 lb [3.8 kg]

CHAMP Palm Grip Inserter and Index Slide Kit, 229764-2

For more information, request Catalog 82008 (Miniature Ribbon Connector System).



Kit includes index slides for 14-, 24-, 36-, 50-, and 64-position connectors, cable clamp, hex wrench for ratchet release, contact insertion/extraction tool and carrying case. Palm grip inserter features ratchet

control that will not release the pusher until it is bottomed, and an excess wire trimmer. Connectors are mounted in the slides, and indexed by hand in the inserter.

"Chordal" Modular Plug Hand Tools, 231648-1, 231649-1

For more information, request Catalog 82066 (Modular Interconnection System).



Molded plastic service grade hand tools. Feature preset, non-replaceable cable jacket stripper and color-coded die set. Dies close in a straight line. 231648-1 applies 2-, 4-, and 6-position line plugs; 231649-1 applies 4-position handset plugs.

Hand Tools for IDC Products

Professional Modular Plug Hand Tools, 231652 Series

For more information, request Catalog 82066 (Modular Interconnection System).



88726

Premium grade hand tools. Feature ratchet control to provide complete termination cycle, and quick ratchet release. Include interchangeable die set, with color dot code on nest and indenter, that closes in a straight line. Also has a

flat-oval cable cutter and stripper. Approximate weight .75 lb [0.3 kg].

Pistol Grip Hand Tool System

For more information, request Catalog 296176.



Lightweight and easy-to-use hand tool for IDC connectors, featuring ratchet control that will not release the trigger until wire reaches proper insertion depth. Accepts interchangeable terminating heads that may also be used with bench-mounted

power units, 58338-1 and 931800-1. Most heads automatically index to the next contact position, or the connector may be advanced by hand to any position.

T-Handle Hand Tools, 59803-1, 59804-1, 59839-1, 91287-1, 229384-1

For more information, request Instruction Sheets 408-7558 (CHAMP), 408-7907 (MTA), 408-9481 (HDE).



38344

Service grade hand tools for inserting individual wires into various IDC connectors when making repairs: MTA-100, 59803-1; MTA-156, 59804-1; MTA-156 Card Edge, 59839-1; AMPLIMITE HDE, 91287-1; CHAMP, 229384-1.

Bench Machines for IDC Products

2 700-lb Pneumatic Power Units, 312522-1, -2, -3, -4

Specifications:

Width—8 [203]

Depth—13.7 [349]

Height—23.5 [596]

Weight—50 lb [22.7 kg]

Air—80-100 psi [5.51-6.89 bar]

For more information, contact Tyco Electronics.



86788-5

Bench machines for notching and terminating ribbon cable with MTA connectors, applying SDL plugs, and crimping shielding ferrules. Tooling is mounted to the ram and base plate of the frame. 312522-1 and -4 are foot actuated; -2 is pushbutton actuated, -3 is bleed-sensor actuated for use with slide

tooling. Stroke distance can be adjusted on -1, -2, and -3 machines.

Manual Arbor Frame Assembly, 91085-2

Specifications:

Width—7.6 [194]

Depth—14.2 [362]

Height—10 [254]

Weight—13 lb [5.9 kg]

For more information, request Instruction Sheet 408-7777.



29082

Bench frame for applying a variety of IDC connectors, including AMPMODU MT, AMP-LATCH, and CHAMP. Features adjustable ram and handle, and a slide base. Tooling is mounted to the ram and into the tracks of the base plate.

Bench Machines for IDC Products

Modular Plug Dual Terminators, 1320840-1

Specifications:

Width—8 [203]

Depth—16.7 [425]

Height—20.5 [521]

Weight—62 lb [28 kg] (Terminator and Module)

Electrical—120 VAC, 60 Hz (856195-1); 220 VAC, 50 Hz (856195-6)

Air—80-100 psi [5.51-6.89 bar]

For more information, request Instruction Sheet **408-9743**.



Air-powered bench machines for simultaneously terminating both ends of flat-oval and round telephone cable with modular plugs. Also tests the assemblies when terminated for opens and shorts. Accepts interchangeable modules, 856196 series, for different size or style plugs. Tester can be set to test specific plug sizes and contact configurations.

Modular Plug Single Terminators, 354711 Series

Specifications:

Width—3.5 [89]

Depth—8.7 [221]

Height—12.5 [317]

Weight—7.2 lb [3.3 kg]

Air—80-100 psi [5.51-6.89 bar]

For more information, request Instruction Sheet **408-9919**.



Compact, lightweight, air-powered bench machines for applying modular plugs. Accepts interchangeable tooling kits, 354714 series, for different size or style plugs. Tooling kits may be ordered separately, or included with the machines. Contact insertion height is easily adjustable. Actuated by a foot valve.

Pneumatic Auto-Cycle Unit, 91112-3

Specifications:

Width—7 [179]

Depth—19 [483]

Height—13 [330]

Weight—34 lb [15.4 kg]

Air—80-100 psi [5.51-6.89 bar]

For more information, request Instruction Sheet **408-6732**.



Basically an air-powered version of Manual Arbor Frame Assembly, 91085-2. Features adjustable ram and cycle time, and automatic cycling when the lower assembly is slid into the frame to the rear of the base plate. Includes a guard around the frame opening.

Harness Board Tools

MTA Harness Board Manual Pistol Grip Hand Tools, 58645-1, 58647-1

For more information, request Catalog **296501**.



Lightweight hand tools for terminating wire harnesses with MTA-100 and -156 feed-through connectors. Tools mass terminate discrete wires or notched ribbon cable in small connectors (2 to 12 contacts for MTA-100, and 2 to 8 contacts for MTA-156). Termination

heads offer threaded mounting holes in their base for fastening to harness boards. Heads are mounted in the Manual Pistol Grip Handle Assembly, 58074-1, or Pneumatic Handle Assembly, 58075-1.

Harness Board Tools

MTA Harness Board Pneumatic Hand Tools, 58575-1, 58576-1

Specifications:

Weight—2.8 lb [1.3 kg] (58575-1)

Air—75-95 psi [5.17-6.55 bar]

For more information, request Catalog 296501.



102708

Lightweight hand tools for terminating wire harnesses with MTA connectors: 58575-1 for MTA-100; 58576-1 for MTA-156. Used with board-mounted fixtures for holding the connectors and lacing the wires. Feature an applicator that

rotates 360° to easily align with the fixtures, and engages and disengages the fixtures automatically. Insertion depth is adjustable.

Semiautomatic Machines for Discrete Wire

Electric Discrete Wire Machines, 58020-1, -2, -4, -5

Specifications:

Width—5 [128]

Depth—13.5 [343]

Height—10 [254]

Weight—22 lb [10 kg]

Electrical—120 VAC, 60 Hz (58020-1); 220 VAC, 50 Hz (58020-4)

For more information, contact Tyco Electronics.



102866

Bench machines for terminating wires one-at-a-time with AMPLIMITE HDE D-Sub and AMPMODU MT connectors with insulation displacement contacts. Feature a feed mechanism that automatically indexes the connector to the next position after each termination. The connector may also be advanced without cycling the

machine. Insertion depth is adjustable. Actuated by a foot switch.

Electric Power Unit, 931800-1

Specifications:

Width—7 [178]

Depth—14 [356]

Height—10 [254]

Weight—12 lb [5.4 kg]

Electrical—120 VAC, 60 Hz, 2 A

For more information, request Catalog 296176 (Pistol Grip Hand Tool System).



280338

Lightweight bench machine for use with the same interchangeable terminating heads used with Pistol Grip Hand Tool, 58074-1. Also accepts heads with either loose-piece or tape feed tracks for applying MTA connectors, and a head with a tube feed track and seating station for applying

AMPMODU MTE connectors. Actuated by a foot switch.

Semiautomatic Machines for Ribbon Cable

MTE Ribbon Cable Terminator, 856002-1

Specifications:

Width—43 [1 092]

Depth—10 [254]

Height—21 [533]

Weight—60 lb [27.2 kg]

Air—80 psi [5.51 bar] min., .5 scfm [0.00024 m³/s]

Cable Range—30-22 AWG [0.05-0.4 mm²], .100 [25.4] centerlines

For more information, contact Tyco Electronics.



856071

Air-operated bench machine for mass terminating notched ribbon cable with AMPMODU MTE connectors. Connectors are fed through their packaging tube into the terminating station by a spring-loaded pusher tape. Contacts are inserted into the connector housing in a manually-operated seating station alongside the terminating

station. Insertion depth is adjustable. Actuated by a foot valve.

Semiautomatic Machines for Jacketed Cable

**CHAMPOMATOR 2.5
Terminating Machines,
354786 Series, plus
Controllers, 852423-1, -3****Specifications:****Machines:****Width**—24 [610]**Depth**—24 [610]**Height**—12 [305]**Weight**—75 lb [34 kg]**Air**—80 psi [5.52 bar] min.,
.75 scfm [0.00035 m³/s]**Controllers:****Width**—11 [286]**Depth**—17 [438]**Height**—6 [152]**Weight**—21 lb [9.5 kg]**Electrical**—120 VAC, 60 Hz (852423-1);
220 VAC, 50 Hz (852423-3); 480 VAFor more information, request Catalog
82247, Video **198043**.

930312-2

Compact bench machines for terminating multi-conductor, jacketed cable with a variety of IDC connectors. Microprocessor controlled, and programmed using a membrane-switch keyboard. Automatically index the connector through the programmed termination pattern. Terminate either a pair of wires simultaneously in opposite contacts, or just one wire at a time.

**CHAMPOMATOR 2.6
Terminating Machine,
662300-1, plus Controllers,
852423-4, -5****Specifications:****Machine:****Width**—16 [400]**Depth**—21 [530]**Height**—10 [250]**Weight**—75 lb [35 kg]**Electrical**—120 VAC, 60 Hz, 4 A**Air**—80 psi [5.52 bar] at 1.13 scfm
[0.000533 m³/s]**Controllers:****Width**—11 [285]**Depth**—17 [440]**Height**—6 [150]**Weight**—21 lb [9 kg]**Electrical**—120 VAC, 60 Hz (852423-4);
230 VAC, 50 Hz (852423-5); 480 VAFor more information, request Catalog
82247.

706206-1

Terminates 30 AWG [0.06 mm²], .024 [0.61] maximum insulation diameter wires in the IDC contacts of 68-position 0.8 mm Offset CHAMP plugs. It uses a process similar to the Model 2.5 machine for wire handling. The Model 2.6 bench machine comes complete with a mandrel assembly, connector nest, and inserter package. A 180° cable clamp is provided with the machine.

Automatic Machines for Ribbon Cable

R-CAM 2A Ribbon Cable Assembly Machine, 760700-6, -7

Specifications:

Width—102 [2 591]
Depth—58 [1 473]
Height—60 [1 524]
Weight—960 lb [435 kg]
Electrical—120 VAC, 50 or 60 Hz (760700-6); 220 VAC, 50 or 60 Hz (760700-7); 1 800 VA



77009-2

Air—80 psi [5.52 bar] min., 8 scfm [0.00378 m³/s] min.
 For more information, request Catalog **296060**.

Fully-automatic machines for producing and testing .050 [1.27]-centerline ribbon cable assemblies up to 48 [1 219] long with up to four connectors in any orientation. Supplied with tooling to apply AMP-LATCH 20-64 position card-edge connectors and novo receptacles. Other tooling may be ordered separately. Microprocessor controlled,

and programmed and operated using an interactive touchscreen.

R-CAM 3A Ribbon Cable Assembly Machines, 761900-1, -2

Specifications:

Width—48 [1 219]
Depth—48 [1 219]
Height—62 [1 575]
Weight—630 lb [286 kg]
Electrical—120 VAC, 50 or 60 Hz (761900-1); 220 VAC, 50 or 60 Hz (761900-2); 1 800 VA
Air—80 psi [5.52 bar] min., 8 scfm [0.00378 m³/s] min.



31535

Production Rate—1 075 assemblies/hr (2 connectors, 4 [102] length
 For more information, request Catalog **296060**, Video **198056**.

High-speed models for producing and testing .050 [1.27]-centerline jumpers up to 105 [2 667] long with one or two connectors. It can also produce two-connector assemblies with up to 50 [1 270] long unterminated tails. Controlled, programmed and operated similar to the R-CAM 2A machines.

R-CAM 4 Ribbon Cable Assembly Machines, 318800 Series

Specifications:

Width—68 [1 727]
Depth—58 [1 473]
Height—72 [1 829]
Weight—590 lb [300 kg]
Electrical—120 or 220 VAC, 50 or 60 Hz; 1 800 VA



98763-2

Air—80 psi [5.52 bar] min., 12 scfm [0.00566 m³/s] min.
 For more information, request Catalog **296060**.

Top-of-the-line models for producing and testing daisy-chained assemblies up to 100 [2 540] long with up to 10 connectors in any orientation. Longer lengths are possible with limitations. Can be converted to run either .050 [1.27]- or .025 [0.63]-centerline cable. Can also process slit-and-twist cable. Controlled,

programmed and operated using either an interactive touchscreen or a keyboard.

CHAMPOMATOR 3A Terminating Machines, 662600 Series

Specifications:

Width—60 [1 524]
Depth—24 [610]
Height—48 [1 219]
Weight—250 lb [113 kg]
Electrical—120 VAC, 50 or 60 Hz, single phase, 1A
Air—80 psi [5.52 bar] min., 10 scfm [0.00472 m³/s] min.



80720

For more information, request Catalog **82247**, Video **198026**.

Automatic Machines for Jacketed Cable

Automatic terminating machines for AMPLIMITE HDE, AMPMODU Level V and CHAMP connectors. Microprocessor controlled, and programmed and operated using an interactive touchscreen.

Terminate wires at random or selectively by identifying each wire by checking continuity with the terminated opposite end. Also test for shorts. Cable clamps available for 90° and 180° wire dress.

Connector Insertion Devices

SM-3, 814700-2

Specifications:

Width—35.5 [902]

Depth—23 [584]

Height—26.5 [673]

Weight—290 lb [132 kg]

Capacity—6 000 lb [26 700 N]

Air—80 psi [5.52 bar] min.,
1.5 scfm [0.00071 m³/s] min.

For more information, contact Tyco Electronics.



Compact, air-powered bench machine for seating preassembled ACTION PIN connectors with up to a total of 150 contacts. Seating tools may be required depending on connector styles. It can accommodate pc boards up to 20 [508] wide. Machine cycling is operator controlled in conjunction with either

pressure or board sensing to compensate for board thickness variations. Cycling time is 4 seconds.

Connector Seating Machine BMEP-3T, 1399400-1, BMEP-5T, 1399401-1

For more information, contact Tyco Electronics.



This cost effective bench mounted machine is used for semi-automatic pressing of ACTION PIN (Compliant Pin, Pressfit) connectors into printed circuit boards. A PC controls the machine, and the pressing force is delivered by an all-electric servomotor, providing precise control of force, speed, and seating height. The touch screen monitor provides a user-friendly

interface. The bar code scanner provides PCB serial number input for product tracking. The pressing process is data driven, and setup is fully-automatic. Press quality monitoring includes minimum force, maximum force, and seated height. The automatic setup and quality monitor virtually eliminates human error and product related defects.

Connector Seating Machine MEP-6T, 1399500-1, MEP-12T, 1299501-1

For more information, contact Tyco Electronics.



Machine is used for semi-automatic pressing of ACTION PIN (Compliant Pin, Pressfit) connectors into printed circuit boards. It is mounted on wheels for portability, but can be locked in place. It functions in the same fashion as the BMEP presses, but provides more pressing

force and larger PCB working area. While the BMEP accommodates PCBs up to 450mm x 600mm, the MEP can process up to 900mm x 1200mm.

Connector Seating Machine AEP-12T, 1399600-1

For more information, contact Tyco Electronics.



PC controlled four-axis all electric servo press is used for fully-automatic pressing of ACTION PIN Connectors into printed circuit boards. The PC controls the functions required for pressing a large variety of connectors of a PCB without human intervention. The touch screen provides a user-friendly interface, and a barcode scanner provides PCB serial number input for

product tracking. The pressing process is data driven, and setup is automatic. The AEP-12T press can be interfaced with the ACP-3648 pick and place cell for a fully-automatic assembly line.

Connector Insertion Devices

Connector Seating Machine ACP-3648, 1399700-1, Large Area Pick and Place with Vision Inspection

For more information, contact Tyco Electronics.



PC controlled machine used to automatically pick, inspect, and place a variety of connectors and odd form components onto PCBs (up to 900mm x 1200mm). It utilizes adjust-able width pass-through conveyor. Components are presented to the 5-axis Cartesian robot by feeders. Each component is inspected,

positioned, and lightly pressed to hold position before the PCB is transferred to the AEP-12T or other machine for pressing. Functions include machine vision PCB locating, machine vision inspection of pin tips, X Y & Theta positioning, and force verified inspection.

Single Contact Insertion Devices

Comp-U-Sertor II Machines, 122300-1, -2

Specifications:

Width—58 [1 473]

Depth—66 [1 676] with reel

Height—63 [1 600]

Weight—500 lb [227 kg]

Electrical—120 VAC, 50 or 60 Hz (122300-1); 220 VAC, 50 or 60 Hz (122300-2); 1 800 VA

Air—80 psi [5.52 bar] min., 15 scfm [0.00708 m³/s] min.

Insertable Area—12 x 18 [305 x 457] max.

For more information, request Catalog 296059.



Microprocessor-controlled X-Y positioning table for inserting a variety of products into pc boards, including .025² stamped or banded posts, mini-spring sockets, and FASTON tabs. Insertion heads for the different products are interchangeable, and may also be used with bench machines. Controlled, programmed and operated using an interactive touchscreen. Options include double-action

clinch tooling, powered dereeler, splice run-out detector, take-up winder for paper tape, and scrap chopper.

P300 Automatic Insertion Machine

Specifications:

Width—57.5 [1 460]

Depth—64.5 [1 640]

Height—60 [1 520]

Weight—Depending on configuration

Electrical—110 V, 60 Hz

Air—87 psi [6 bar]

Insertable Area—24 x 16 [600 x 400]

For more information, contact Tyco Electronics.



Automatic machine for inserting a variety of contacts into pc boards (PCBs). Equipped with an insertion tool (comprised of a product-specific insertion head, an anvil, and a product feed mechanism). Stepper-motor driven X-Y table positions PCBs under insertion head. Surface Mount Equipment Manufacturers Association (SMEMA) compatible inline PCB Insertion Station for

posts, tabs, receptacles or sockets. Stand-alone unit is field upgradeable to Pass Through. Mounts up to four AMP pneumatic insertion heads. Modem diagnostics standard, vision system optional. Control panel used to program and monitor entire insertion process.

Single Contact Insertion Devices

Modular Insertion System (MIS) Bench Machines, 217600 Series, 662820 Series (shown)

Specifications:

Width—18 [457]

Depth—24 [610]

Height—18 [457]

Weight—250 lb [113 kg]

Electrical—120 to 220 VAC, 50 or 60 Hz (217600); 120 or 240 VAC, 60 Hz, single phase, 120 VA (662820)

Air—80 psi [5.52 bar] min., 15 scfm [0.00708 m³/s] min.

Insertable Area—18 x 22 [457 x 559] max.

For more information, request Catalog **296059**.



104884-1

Bench machines for inserting a variety of products into pc boards. Uses the same interchangeable insertion heads as the Comp-U-Sertor II Machines. Series 217600 machines feature a manually-operated X-Y positioning fixture, plus a locator spotlight. The machine cycles when the board hole is placed on the anvil and both triggers on the dual handles attached to the X-Y fixture are depressed. Series 662820 machines, without board fixturing, cycle automatically

when the hole is properly located. A stabilizing disk over the anvil helps keep the board level.

MAG-MATE Products

MAG-MATE Product Terminator (MPT-5)

Specifications:

Width—73 [1 855] max. (with two 24 [610] dia. terminal reels)

Depth—29 [740]

Height—42 [1 070]

Weight—190 lb [86 kg]

Electrical—120 VAC, 60 Hz, or 220 VAC, 50 Hz; 1A

Air—80 psi [5.52 bar] min., 3 scfm [0.00142 m³/s] min.

For more information, request Catalog **296501**, page 50.



Dual-direction feed capable, microprocessor-controlled, semiautomatic bench machine for inserting Standard, Mini, or Slim Line MAG-MATE products. Easy-to-use push button controls for programming, with LCD display. Accepts one or two reels of different strip form products. Can also accept two reels of similar products with varying IDC wire slots. Fixturing is custom designed.

Machine inserts one or two terminals at a time and trims off excess magnet wire. Also available as a module for use in automatic equipment.

Single Contact Devices for Flexible Circuits

Flexible Film Termination Machines, 224910-1, -2, -3, -4, -6

Specifications:

Width—20.5 [520]

Depth—27.5 [700]

Height—18 [460]

Weight—100 lb [45 kg]

Electrical—120 VAC, 60 Hz, (224910-1, -3, -4); 240 VAC, 50 Hz (224910-2, -6)

For more information, contact Tyco Electronics.



100852

Semiautomatic bench machines for terminating .050 [1.27]-, .100 [2.54]-, .200 [5.08]-, and .300 [7.62]-centerline cable, circuitry and printed wiring. All positions are terminated automatically one after another. To skip positions, an optional Programmer Kit, 356484-1, is available. Crimp height is adjustable.

Strippers

Cable Stripper/Slitter, Model CS-1, 606700-1

For more information, request Instruction Sheet **408-9688**.



100305

Hand tool for stripping round cable up to 1.0 [25] outside diameter (approximately 350 kcmil [175 mm²] conductor). Uses a "V" clamp that slides in and out for cable positioning. Blade can be

rotated 90° for circular or lengthwise cuts. Blade depth is also adjustable. Edge of clamp can be used to help separate cable jacket. Supplied with a spare blade.

Coaxial Cable Stripper Kits, 603995-1, -2, -3, -5, -6

For more information, request Instruction Sheet **408-2766**.



47008

Hand tool for stripping the more popular sizes of coaxial cable. Features interchangeable, color-coded blade cassettes for different strip lengths. Kits include a specific blade cassette plus a set of four interchangeable, color-coded blocks for

accommodating different cable diameters ranging from .10 [2.5] to .30 [7.6]. Blade depth is adjustable.

Semi-Rigid Cable Preparation Machine, 220211-2

Specifications:

Width—11.6 [295]

Depth—8.2 [210]

Height—6 [152]

Weight—45 lb [21 kg]

Electrical—120 VAC, 60 Hz, 2 A

For more information, contact Tyco Electronics.



365504

Compact, semiautomatic machine for cutting and stripping the outer conductor and dielectric, and chamfering the center conductor. Interchangeable tooling, 813599-1, -2, available for preparing 402 and 405 RG/U cables, respectively, for termination with Blindmate, N, SMA, and TNC connectors.

Features a carriage for securing the cable for cutting and stripping. Cutting speed and depth is adjustable.

Automatic Cut and Strip Machine, 1214316-1

Specifications:

Width—14.6 [370]

Depth—16.1 [410]

Height—10.8 [275]

Weight—48.6 lb [23 kg]

Electrical—120 or 220 VAC, 50 or 60 Hz, 160 VA

Wire Range—32-10 AWG [0.05-6 mm²] stranded, 32-16 AWG [0.05-1.5 mm²] solid

Wire Lengths—.04 [1.0]-3 280 ft [1 000 m]

Strip Lengths—up to 1.77 [45]

For more information, request Catalog **1307238**.



100508-7

Fully electric, microprocessor-controlled bench machine for processing wire and round and flat cable. Features LED display prompts for easy-to-follow setups and operation, automatic wire loading and unloading, and universal V-type blades. Pre-feeder and wire stacker, available for unattended operation. Process 5 200 wires per hour (22 AWG [0.3 mm²], 4 [100] length, partial strip both ends).

Strippers

Semiautomatic Pneumatic Wire Stripper Machine, 1214315-1

Specifications:

Width—2.75 [70]

Depth—10.4 [265]

Height—5.32 [135]

Weight—4.4 lb [2 kg]

Air—75-105 psi [5.17-7.24 bar], .01 ft³ [.00028 m³]/operation

Wire Range—32-14 AWG [0.05-1.65 mm²]

Strip Lengths—.06-.79 [1.5-20]

For more information, request Catalog 1307238.



Compact, lightweight, air-powered bench machine for stripping wires up to 14 AWG [1.65mm²], and cable up to .13 [3.2] OD. Features automatic sensor activation and universal V-type blades for processing varying wire sizes without changing blades. Full or partial stripping. Approx. .3 second machine cycle time for longest strip length.

Semiautomatic Electric Wire Stripper Machine, 1338083-1

Specifications:

Width—2.75 [70]

Depth—12.5 [318]

Height—5.32 [135]

Weight—5.7 lb [2.6 kg]

Electrical—100-240 VAC, 47-63 Hz

Wire Range—10-32 AWG [0.03-5.26 mm²]

Strip Lengths—.06-1.00 [1.5-25]

For more information, request Catalog 1307238.



Bench machine for stripping wires up to 10 AWG [5.26mm²], and cable up to .28 [7] OD. Features automatic sensor activation and universal V-type blades for processing varying wire sizes without changing blades. Full or partial stripping. Approximately .3 second machine cycle time for longest strip length.

Floor-Standing Wire Prefeeder, 1214317-1

Specifications:

Wire Insulation OD — .35 [9] Max.

Reel Width — 12 [305] max. standard; 16 [405] max. with 20 [510] shaft; 18 [455] max. with 22 [560] shaft, extension kit and braking system

Reel Diameter — 20 [510] max. standard; 48 [1 220] max. with extension kit and braking system

Reel Core Diameter — .75-2.5 [19-65]

Reel Weight — 100 lb [45 kg] Max.

Feed Rates — .13-4.7 ft/s [0.04-1.44 m/s]; .20-5.6 ft/s [0.06-1.72 m/s]; .40-6.9 ft/s [0.12-2.10 m/s]

Speed Rate — 0-6.9 ft/sec (0-2 m/sec)



Width — 24 [610] standard; 36 [915] with frame extension

Depth — 21 [535]

Height — 46 [1 170] with guide arm fully extended

Weight — 125 lb [57 kg]

Electrical — 120 VAC, 60 Hz, 300 VA

Prefeeder for use with the AMPOMATOR CLS IV+ Lead-Making Machine, as well as the Automatic Cut and Strip Machine. It can feed wire from either reels or barrels. Three different ranges of feed rates can be easily selected to match the speed of the equipment being fed. For larger reels, optional reel mounting shafts, a reel holder frame extension kit, and a reel-braking system are available.

Strippers

**Electric Bench Prefeeder,
1424100-1****Specifications:**

Outer Cable Diameter — max. OD: .236 [6.0] (Guide tube clearance: .280 [7])

Outer Cable Reel Diameter — 18 [475]

Max. Cable Reel Width — 12 [305]

Max. Cable Reel Weight — 44 lbs. [20 kg]

Shaft Length — 16 [406]

Diameter Reel Center — .750-2.50 [19-65]

Speed Rate — 0-5.9 ft/sec [0-1.8 m/sec]

Depth — 16.5 [419]

Width — 18 [457]



Height — 11.8 [300]

Dancer Height — 22 [559]

Motor — 1/8 HP DC

Electrical Requirements — 100, 120, 220, 240, VAC 50-60 Hz/120 VA

Net Weight — 38 lbs [17 kg] without optional rack

The Bench Prefeeder is a perfect companion to the Automatic Cut and Strip Machine, P/N 1214316-1. This prefeeder uses a traditional dancer slide and an electronically controlled belt drive transport system. The price/performance ratio of this economical prefeeder makes it a good choice for feeding small to medium sized spools.

**Kappa 225, Automatic Cut
and Strip, 3-547178-0****Specifications:**

Width — 22 [560]

Depth — 15.4 [390]

Height — 13.4 [340]

Weight — 79.4 lb [36 kg]

Wire Cross-Sections — Stranded wire: 30-8 AWG [0.05 - 10mm²]; Solid wire: max. 14 AWG [2.5 mm²]

Outer Diameter — 0.41 [10.5] max.

Flat Ribbon Cables — 0.47 [12]



Length Range — 0.04"-328.05ft [1mm - 99.99m] (+/- 0.2% or 1mm, depending on wire length)

Electrical — 110 / 230V - 50/60Hz, switches automatically

For more information, request Catalog **1307774**.

The Kappa 225 is a universally, versatile machine for cutting and stripping single and multi-conductor wires. With its high cutting and pull-off power, the Kappa 225 is able to process stranded wires up to 8 AWG with an outside diameter of 0.41 inch.

**Kappa 230, Automatic Cut
and Strip, 3-547178-1****Specifications:**

Width — 25 [630]

Depth — 16 [400]

Height — 13.4 [340]

Weight — 95 lb [43 kg]

Wire Cross-Sections — 24-5 AWG [0.22 - 16mm²]

Flat Ribbon Cables — width up to 40mm

Length Range — 0.04"-328ft [1mm - 99.99m] (+/- 0.2%)

Electrical — 110 / 230V - 50/60Hz, switches automatically

For more information, request Catalog **1307776**.



The Kappa 230 has all the features of the Kappa 225 plus the capability of processing wires with a cross section up to 6 AWG.

Strippers

Kappa 240, Automatic Cut and Strip, 3-547178-4 & Kappa 240 PCH, 5-547178-1

Specifications:

Width — 40.5 [103cm]

Depth — 31 [79cm]

Height — 22 [57cm]

Weight — 435 lb [198kg]

Wire Cross-Sections —
14-3/0 AWG [2.5 - 33mm²]

Length Range — 9" - 328 ft
[233mm - 99.99m]

Electrical — 115 / 230V - 50/60Hz,
switchable

For more information, request
Catalog **1307902**.



The top of the line Kappa 240 has a programmable swiveling and stripping head with the capability of processing 3/0 AWG wire. In addition it can do slitting and intermediate slitting of the wire jacket.

Wire Stripper Hand Tool, Model WS-2, 601827-2

For more information, request
Instruction Sheet **408-9686**.



Hand tool for cutting and stripping stranded or solid 20-12 AWG [0.3-3 mm²] wire sizes. Wires are stripped at the front of the tool, thereby allowing access to short wires in confined areas. Also features a 3-position stripping depth adjustment, and an adjustable wire stop. Stripping jaws can be replaced with assembly 1-601827-2.

Cable Cutters

Ratcheted Cable Cutter Hand Tool, 607453-2

Specifications:

Height—16 [406]

Handle Opening—19.5 [495] max.

Weight—3.3 lb [1.5 kg]

For more information, request
Instruction Sheet **408-4089**.



Lightweight hand tool for cutting up to 600 kcmil [300 mm²] copper or 800 kcmil [400 mm²] aluminum conductors. Features a highly-leveraged, circular cutting motion using a ratcheted moving blade. The blade can also be quickly advanced using a take-up button conveniently located just beyond the handle grip.

Cutting Tool

Cutting Tool Kit, 314818-1

Specifications:

Width—5.1 [130]

Depth—9.0 [230]

Height—5.5 [140]

Weight—14.7 oz [417 g]

For more information, request Catalog 296501, page 45, Instruction Sheet 408-9707.



107302

Tool cuts AMPMODU Mod. II Breakaway Headers (Single- or Double-Row, Vertical or Right-Angle) with .025 [.64] square posts on .100 [2.54] centers. The Kit includes a Pistol Grip Ratchet Handle, a Locator, a Cutting Head (includes blades and a stored set of 2 extra blades), a Hex Wrench, and a Carrying Case.

Crimp Quality Monitor (CQM)

Crimp Quality Monitor (CQM), 1320420-1, -2

Specifications:

Width—8.8 [220]

Depth—8.1 [205]

Height—4.6 [115]

Weight—5 lb [2.3 kg]

Electrical—100-240 VAC, 50/60 Hz, 3.2 A

For more information, request Catalog 82275.



110602-1

This unique system provides 100% on-the-fly crimp inspection. It measures the crimp height of each termination, and evaluates the quality of each crimp. If a crimp is questionable, the monitor alerts the operator with both visual and audible alarms. It also provides ports for printing and networking. When used with AMP-O-LECTRIC Model "G" Termination Machines, the monitor is mounted to the machine. When used with AMPOMATOR CLS IV Lead-Making Machines, it is integrated into the machine's operating system.

Engineering Notes

A large grid area for writing engineering notes, consisting of a uniform grid of small squares.

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- Tyco Electronics base part numbers and associated page numbers
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322-HCS5P2-316	5045	503Si 2DS	8095	514-AG7D	5054	532-AG12D	5009	609-1627XX	4022
322-HCS5P2-318	5045	503Si 3	8095	514PS	8117	532-AG12D-ES	5009	609-1630	4010
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322-HCS5P2-424	5045	503Si 4	8095	516-AG10D-ES	5009	536-AG11D	5009	609-1657	4014
322-HCS5P2-600	5045	503Si 4DS	8095	516-AG10D-ESL	5009	536-AG11D-ES	5009	609-2000M	4010
322-HCS5P2-624	5045	503Si 4E	8095	516-AG11D	5009	536-AG11D-ESL	5009	609-2001M	4010
322-HCS5P2-628	5045	503Si 4EDS	8095	516-AG11D-ES	5009	536-AG12D	5009	609-2007	4016
322-HCS5P2-632	5045	503Si 5	8095	516-AG11D-ESL	5009	536-AG12D-ES	5009	609-2007XX	4019
322-HCS5P2-636	5045	503Si 5DS	8095	516-AG12D	5009	540-AG10D	5009	609-2017XX	4019
322-HCS5P2-640	5045	503Si 5E	8095	516-AG12D-ES	5009	540-AG100-ES	5009	609-2027	4014
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Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Dimensions are shown for reference purposes only.

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TSB1000 03US	8098	TT11EGPC9T1/4	6032	USB3B11S	8075
TSB1000 04DS	8096	TT11EGRA7T1/4	6033	USB3B12S	8075
TSB1000 04DS HT	8097	TT11EGVRA1	6032	USB3B13S	8075
TSB1000 04DSUS	8098	TT11EGVRA3T	6032	USB3B14S	8075
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TSB1000 07DS	8096	TT13D9T1/4	6035		
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The Acquired Products Part Number Cross Reference provides a cross reference between Thomas & Betts part numbers identifying ALCOSWITCH, ANSLEY, AUGAT, and BUCHANAN products acquired from Thomas & Betts Corporation, and Tyco Electronics part numbers.

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Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Acquired Products to Tyco Electronics

Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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Products for Industrial & Commercial Applications

Dimensions are shown for reference purposes only.

Dimensions are in inches and millimeters unless otherwise specified. Values in brackets are metric equivalents.

Specifications subject to change.

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