

Our free solutions guide features our connectivity solutions built to withstand harsh environments.

You'll get

1. Relays, Contactors, Solenoids, and Power Distribution Product Guide
2. Industrial & Commercial Transportation Terminals & Connectors Catalog
3. Embedded Computing Board-Level Interconnects Product Guide
4. Shield Termination Catalog
5. AMPLIMITE Subminiature D Connectors Catalog
6. Wire & Cable Catalog
7. AMPMODU Interconnection System Catalog

HARSH, RUGGED RELIABILITY

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HARSH, RUGGED RELIABILITY

RELAYS, CONTACTORS, SOLENOIDS, AND POWER DISTRIBUTION PRODUCT GUIDE

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>



RELAYS, CONTACTORS, SOLENOIDS, AND POWER DISTRIBUTION

High-Performance Power Management
Designed for Reliable Operation In Extremes of
Temperature, Shock, Vibration and Altitude

SOLUTIONS FOR HIGH-PERFORMANCE SWITCHING

Relays, Contactors, Solenoids, and Power Distribution

TE Connectivity (TE) high-performance relays, contactors and switches are designed specifically to operate in extremely rigorous environments in military and aerospace applications. Our relay products include COTS (commercial off-the-shelf), Mil-Spec, plus highly specialized, and custom-designed products. These high-performance products are designed to withstand extreme shock, vibration, temperature and altitude.

Brands You Trust

Among our portfolio are some of the more respected brands in the high performance switching industry:

- **CII** military and aerospace relays, sensors and custom solenoids
- **HARTMAN** aerospace power relays, contactors, sensors and power distribution units
- **KILOVAC** high voltage relays, contactors, protective relays and power distribution units

This brochure provides an overview of our product line. It includes products with switching capabilities from dry circuit up through 1000 A. Some relays are capable of switching up to 6 GHz signals, while others can handle voltages up to 70 kV. Other types combine solid-state circuits with electromechanical or solid state outputs to create timers, sensors, monitors and controllers. And they are specifically designed for operation in extremes of temperature, shock, vibration and altitude.

Relays

TE's high-performance relays are designed to perform reliably in extremely rigorous environments in military and aerospace applications. Our balanced force design provides the benefits of consistently high contact pressure, reduced bounce and less arching, helping to lead to extended contact life.

Contactors

TE delivers the switching performance demanded by aerospace and defense applications with our lightweight contactors, which offer continuous current ratings up to 1000 A and voltages up to 1800 VDC in very compact, sealed packages.

Solenoids

Our solenoids are also designed and manufactured on a custom basis to precisely meet your demanding high-performance actuation requirements. We offer a broad range of coil, termination and plunger options, and push, pull and combination motion is available.

Power Distribution

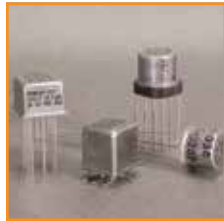
HARTMAN AC and DC power distribution units (PDUs) and KILOVAC HVDC PDUs are designed, built and qualified to meet your specific requirements, serving the commercial and military industries.

TE Components . . . TE Technology . . . TE Know-how . . .
AMP | Agastat | CII | Hartman | Kilovac | Microdot | Nanonics | Polamco | Raychem | Rochester | DEUTSCH
SEACON Phoenix | L.L. Rowe | Phoenix Optix | AFP | SEACON

Get your product to market faster with a smarter, better solution.



PRODUCTS



CII TO-5 and .100 Grid Low Signal Relays

- Miniature hermetically sealed relays
- Non-latching
- Through hole and gull-wing surface mount terminals
- High frequency models capable of switching up through 6 GHz
- Excellent isolation, insertion loss and VSWR
- MIL-PRF-28776 and MIL-PRF-39016 qualifications products available



Time Delay Relays and Sensors

- Solid-state timing circuitry with either electromechanical or solid state output
- Sensors for voltage, frequency or phase
- Most types offer a variety of enclosures and mounting options
- Customized models available with tighter timing or sensing tolerance
- Several models qualified to MIL-PRF-83726



CII 1/5, 1/2 and Full-Size Crystal Can Relays

- Hermetically sealed
- Terminals are arranged on .200" grid (1/2 and full size) or .150" grid (1/5 size)
- Plain case or choice of various mounting brackets or mounting studs
- Non-latching and latching designs
- Choice of straight pins or solder hooks
- MIL-R-5757, MIL-PRF-39016, MS27245 and MS27247 qualified products available



KILOVAC Lightweight DC Relays and Contactors

- Make and break current ratings from 5 to 600 A
- For switching from 28 to 1800 Vdc
- Small, lightweight, hermetically sealed units have gas or vacuum dielectric
- Wide variety of mounting and termination styles
- Contacts available in Form A, Form B, Form C and latching arrangements
- Versions with current sensing and overcurrent trip capabilities



CII Mid-Range Relays

- 5 to 50 A relays in compact or standard size cases
- Balanced force design with permanent magnet drive
- Terminal styles include socket pins, solder pin PCB terminals, and solder hook terminals
- Numerous mounting options
- Hermetically sealed, welded construction
- MIL-PRF-6106 and MIL-PRF-83536 qualifications products available



KILOVAC High-Voltage Relays

- Voltage isolation to 70 kV
- Current carrying capability to 110 A
- Up to 10 million cycles
- Various contact forms available
- Flange, panel and PC board mounting styles



Solid-State Relays and Power Controllers

- Various models have switch ratings from 90 mA up to 100 A and 270 Vdc
- AC, DC and bidirectional output
- Available for panel or PC board mounting
- Some types incorporate circuit protection, switch status, and trip status
- Most are qualified to MIL-PRF-28750D or associated DSCC drawings



KILOVAC High-Reliability Relays and Contactors for Space Applications

- High voltage relays rated for isolation to 15 kV
- 5, 10 and 15 A powerswitching relays for make and break applications
- Contactors for high current power switching to 500 A
- Latching and non-latching models
- Lightweight, hermetically sealed construction



KILOVAC Lightweight Contactors Designed to Switch up to 1000 Vdc and 1000 A

- Interrupt currents up to 3300 A
- Voltage isolation from 5 to 1800 Vdc
- One- or two-pole models with normally open or normally closed main contacts
- Non-position sensitive, hermetically sealed models for side or bottom mounting
- Available with a variety of auxiliary contact arrangements
- Latching and non-latching types



HARTMAN and Wilmar Sensors, Monitors and Protective Relays

- Overcurrent, undercurrent and over/undercurrent sensors and indicators
- Overvoltage, undervoltage and over/undervoltage sensors and monitors
- Overfrequency, under frequency and over/underfrequency sensors
- Phase loss/rotation sensors and ground power monitors
- Time delay versions available
- Smart Contactors—RCCB, RPC & ELCU versions



HARTMAN Lightweight 28 Vdc Contactors

- Main contact ratings to 1000 A
- Available with a variety of auxiliary contact arrangements
- SPST and SPDT main contact forms
- Standard, reverse current, and automatic dropout types
- Hermetically or gasket-sealed IP67 models in conventional or bus bar mounting versions
- Optional Hall effect current sensing



CII Custom-Designed, Linear Motion, Tubular High-Performance Solenoids

- From 0.5" (12.7 mm) diameter models producing only a few ounces (<1 N) of force at very short strokes, to 3" (76.2 mm) diameter models capable of 100 lb (445 N) force at 1" (25.4 mm) strokes
- Push, pull or combination motion is available
- Broad range of coil, termination, plunger options



HARTMAN DC Contactors for Space Applications

- Lightweight construction with hermetically sealed panel mount enclosure
- Main contact ratings of 100 A at 28 Vdc or 35 Vdc
- Main contact arrangements to 2PDT, double break
- 2PDT auxiliary contacts
- Efficient magnetic latching design with self-deenergizing coil



AGASTAT Time Delay Relays and Sensors

- Solid-state timing circuitry with either electromechanical or solid state output
- Sensors for voltage, frequency or phase
- Most types offer a variety of enclosures and mounting options
- Customized models available with tighter timing or sensing tolerance



HARTMAN AC Contactors

- Main contact ratings to 800 A; arrangements to 4PDT
- Available with a variety of auxiliary contact arrangements
- Side stable, latching and center off models
- Hermetically or gasket sealed
- More compact, lighter weight models as well as traditional designs
- Bus bar mount versions available



Rotary Relays for High Shock and Vibration Naval Applications

- Contacts will not chatter when relay is subjected to 2000 ft.-lb. shock blows
- Panel mount relays are often used aboard combat naval vessels
- Contact arrangements from 4PDT up through 24PDT
- Rated to carry maximum currents of up to 10 A
- AC and DC coils



Customized Lightweight Power Distribution Units

- For primary and secondary power distribution
- Modular systems consist of various plug-in and bus bar line-replaceable modules (LRMs) installed on a panel mounting system or backplane

- LRMs may be contactors, circuit breakers, sensing units, ELCUs, etc.
- Backplanes, designed as a fault-free zone with no moving parts, are intended as a permanent installation on the mother vehicle
- Optional current/voltage sensing, fuses, circuit breakers, power monitors, etc.
- Weight-saving and space-saving designs reduce OEM labor requirements and ease maintenance
- Optional integration of generator control units and logic control units

Qualified Parts Listing

Turn to TE Connectivity (TE) for rugged, reliable products that meet tough military QPL and DSCC specification standards.

Mil-PRF-39016: Electromagnetic Relays	Mil-PRF-28750: Solid-State Relays	Mil-PRF-83536: Electromagnetic Relays
M39016/6	M28750/5	M83536/1
M39016/7	M28750/6	M83536/2
M39016/9	M28750/7	M83536/5
M39016/10	M28750/9	M83536/6
M39016/11	M28750/10	M83536/9
M39016/13	Mil-PRF-28776: Hybrid Relays	M83536/10
M39016/14	M28776/1	M83536/15
M39016/15	M28776/3	M83536/16
M39016/16	M28776/4	M83536/32
M39016/17	M28776/5	M83536/33
M39016/18	M28776/6	M83536/36
M39016/19	M28776/7	M83536/37
M39016/20	Mil-R-5757: Electrical Relays	Mil-DTL-83725: Vacuum Dielectric Relays
M39016/21	M5757/1	M83725/1
M39016/22	M5757/7	M83725/2
M39016/23	M5757/8	M83725/4
M39016/24	M5757/10	M83725/5
M39016/25	M5757/13	M83725/10
M39016/26	M5757/23	M83725/16
M39016/31	Mil-PRF-6106: Electromagnetic Relays	M83725/17
M39016/32	MS27245	M83725/18
M39016/34	MS27247	M83725/21
M39016/35	MS27418	M83725/22
M39016/36	M6106/19	M83725/23
M39016/37	Mil-PRF-83726: Time-Delay Relays	M83725/24
M39016/38	M83726/28	DSCC Spec Relays
M39016/40	M83726/29	85092
M39016/41	M83726/30	86031
M39016/42	M83726/31	88062
M39016/43		89116
M39016/44		90091
M39016/53		MS18-1002
M39016/54		

LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit www.te.com/industrial to chat with a Product Information Specialist.

Technical Support

te.com/support-center

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te.com/relays

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Consult TE for the latest dimensions and design specifications.

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HARSH, RUGGED RELIABILITY

INDUSTRIAL & COMMERCIAL TRANSPORTATION TERMINALS & CONNECTORS CATALOG

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>



INDUSTRIAL & COMMERCIAL TRANSPORTATION

Terminals and Connectors

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We go to extremes to make sure EVERY CONNECTION COUNTS.

TE Connectivity's (TE) products are in nearly every high-tech product imaginable. From consumer electronics, health care, energy supply, and communication networks, to the transportation and aviation industries, TE's extensive portfolio of over 500,000 products keep the world connected. TE's intelligent and robust solutions and technologies carry over to the industrial and heavy duty vehicle markets. TE offers products that work just as hard as the vehicles in which they are installed.



Years ago, tractors, construction equipment, trucks, and boats had simple electrical systems that might have included electrical starting and a basic lighting package. Today, ECUs, joysticks, fuel-efficient engines, LED lights, and CAN systems are standard equipment. The need to protect sensitive electrical systems from vibration, moisture, dust, dirt, salt and airborne particles has never been greater. TE Industrial & Commercial Transportation is a leader in supporting today's increasingly complex and sophisticated equipment and applications.

TE's comprehensive line of Industrial & Commercial Transportation products include an unparalleled portfolio of rugged electrical connector products and sensor technologies. TE's environmentally sealed connectors are designed to withstand the harshest environmental conditions and to keep vehicles moving forward. TE's portfolio of heavy duty sensors help vehicles operate safer, cleaner, and smarter.

From heavy duty trucks to construction equipment, mining vehicles to fire trucks, as well as boats, motorcycles, and tractors, leading manufacturers count on TE Industrial & Commercial Transportation.

Online Resources

The TE Connectivity Industrial & Commercial Transportation's website is an innovative and interactive source for application information, product updates, and technical solutions.



PRODUCT LITERATURE AND VIDEOS

TE Industrial & Commercial Transportation offers a variety of product specific catalogs, brochures, and videos to better serve you.

For more information on literature for TE Industrial & Commercial Transportation, please contact your representative or go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/ictliterature.html>

To view videos about TE Industrial & Commercial Transportation, please go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/ict-video-index.html>

TE INDUSTRIAL & COMMERCIAL TRANSPORTATION PRODUCTS

For more information on TE Industrial & Commercial Transportation products, please go to <http://www.te.com/usa-en/industries/truck-bus-off-road-vehicles/products.html>



PRODUCT INFORMATION CENTER (PIC)

You can rely on TE Connectivity's PIC team to provide support for answers to your general information or technical questions in an efficient and effective manner.

Connect with our PIC staff, <http://www.te.com/usa-en/customer-support/email.html>

Introduction to Connectors

In heavy industries, electrical systems must stand up to rigorous conditions and all weather environments. Failure in an electrical system can be expensive to diagnose and down equipment can stop entire operations. As equipment becomes increasingly sophisticated and reliant on electronic packaging and diagnostics, design engineers know the importance of choosing environmentally sealed electrical connectors capable of holding up to extreme conditions. Many manufacturers count on TE Connectivity Industrial & Commercial Transportation's electrical connectors to maintain their electrical connections.



Benefits of industrial connectors

There are many different connectors for harsh environments and connector selection for each specific application is important. Once the questions of wire gauge and pin count have been addressed, the environmental challenges specific to each application must be identified, including if the electrical system will be exposed to heat, impact or vibration. Other elements that need to be addressed include if the connectors will be susceptible to moisture or chemicals and field serviceability. Developed with simplicity of design and ease of use in mind, TE connectors offer a variety of innovative solutions to suit nearly any application and stand up to environmental challenges.

Whether for a new application or a retrofit, connectors provide simplified design and wiring, and easy field repairs. TE Industrial & Commercial Transportation's connector applications include ECUs, joysticks, industrial and marine engines, control boxes, lights and CAN systems, just to mention a few. TE Industrial & Commercial Transportation's connector series offer several features designed to combat environmental challenges.

Connector features help protect electrical connections

Connector bodies must be able to stand up to environmental conditions. Rugged all-metal bodies and corrosion resistant thermoplastic shells are manufactured from high quality materials selected for their ability to withstand years of environmental exposure. Metal connectors are built to withstand the force and shock of hard impacts that connectors face in rough environments. High-grade thermoplastic connectors are lightweight and are engineered to be flame resistant and extremely chemical resistant. Different connector body materials are available to meet diverse application requirements.

Introduction to Connectors

Proper contact alignment is another important aspect of environmentally sealed electrical connectors. Secondary locks snap into or onto the mating face of a connector to help confirm the contacts slide together properly when the connectors are mated. Many of TE Industrial & Commercial Transportation's connectors feature secondary locks that are commonly referred to as wedgelocks, terminal position assurance (TPA), or primary latch reinforcement (PLR). Wedgelocks, TPAs, and PLRs provide additional stability to both the contact barrel and the mated connectors.

A firm, secure locking mechanism that can withstand vibration and shock is critical to maintain a steadfast

connector engagement in rugged applications. TE Industrial & Commercial Transportation's connectors are held together by push-latches, threaded coupling rings, or tightened together by jackscrews. The locking mechanisms are easy to engage and disengage and give an audible or tactile signal when they are securely fastened. Once fastened, the locking mechanisms prevent disengagement due to vibration or impact.

Since even a small degradation in electrical connections can be critical to industrial vehicles, manufacturers are turning to TE Industrial & Commercial Transportation's environmentally sealed electrical connectors to keep their equipment running. Connectors are increasingly needed as industrial equipment becomes more complex and reliant on electronic control units, CAN systems, and on-board communications systems. With a wide variety of industrial electrical connectors, manufacturers can find a connector for nearly any application. No matter the environment, TE's industrial connectors provide the innovative solutions demanded by harsh conditions. TE's dedication to quality and innovation has created a unique system of easy-to-use connectors to simplify processes from start to finish.



Connector Series Overview

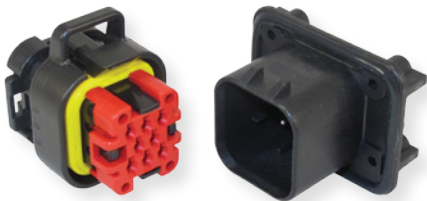
Connector Series Overview

TE Connectivity connectors offer different shapes, latching mechanisms, mounting styles, and materials to meet diverse application requirements and offer accessories to further expand the series' flexibility. Below is an overview of each connector series that highlights the cavity count, wire gauge, material, and locking mechanism style. For complete series information, please see the series section of the catalog.



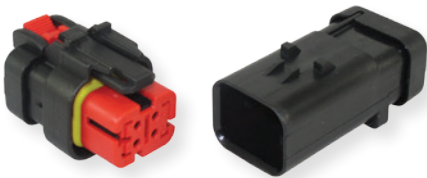
AEC Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm²)
- 40 cavity arrangement
- In-line
- Square, thermoplastic housing
- Jackscrew for mating



AMPSEAL Connectors

- Accepts contact size 1.3 mm (up to 17 amps gold, up to 8 amps tin)
- 16-20 AWG (1.25-0.50 mm²)
- 8, 14, 23, and 35 cavity arrangements
- PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Integrated wedgelock confirms contact alignment and retention
- Product specification documents: 108-1329 and 114-16016



AMPSEAL 16 Connectors

- Accepts contact size HDSF 16 (up to 13 amps)
- 14-20 AWG (2.00-0.50 mm²)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Integrated Primary Latch Reinforcement (PLR) confirms contact alignment and retention
- Product specification documents: 108-2184, 114-13045, and 114-13065



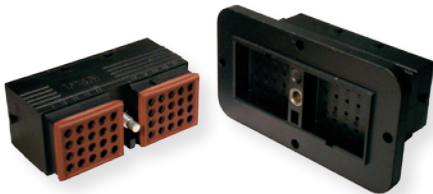
Circular DIN Connectors

- Accepts contact size 2.5 mm (up to 40 amps)
- 2.50-0.20 mm²
- 2, 3, and 4 cavity arrangements
- In-line, flange, or PCB mount
- Circular, thermoplastic housing
- Coupling ring for mating
- Product specification documents: 108-18621 and 114-18255



DRB Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 6-22 AWG (16.00-0.35 mm²)
- 48, 60, 102, and 128 cavity arrangements
- Flange mount
- Rectangular, thermoplastic housing
- Jackscrew for mating
- Wedgelocks confirm contact alignment and retention



DRC Series

- Accepts contact sizes 16 (13 amps), and 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm²)
- 24, 38, 40, 50, 60, 64, 70, and 76 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Jackscrew for mating



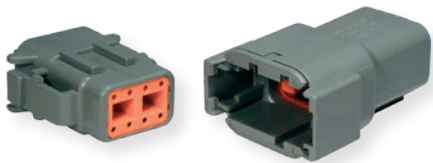
DT Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm²)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention
- Product specification document: 108-151009



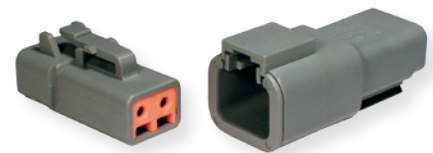
DTTHD Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), and 12 (25 amps)
- 6-14 AWG (16.00-2.00 mm²)
- 1 cavity arrangement
- In-line or flange mount
- Circular, thermoplastic housing
- Integrated latch for mating



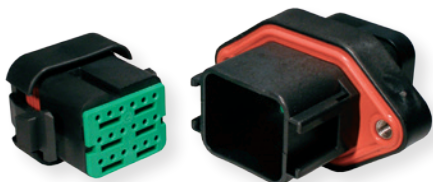
DTM Series

- Accepts contact size 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm²)
- 2, 3, 4, 6, 8, and 12 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention
- Product specification document: 108-151010



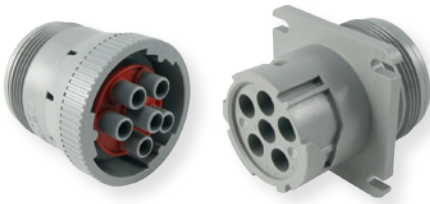
DTP Series

- Accepts contact size 12 (25 amps)
- 10-14 AWG (6.00-2.00 mm²)
- 2 and 4 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention



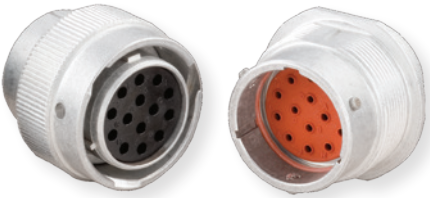
DTV Series

- Accepts contact size 16 (13 amps)
- 14-20 AWG (2.00-0.50 mm²)
- 18 cavity arrangement
- Flange mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- Wedgelocks confirm contact alignment and retention



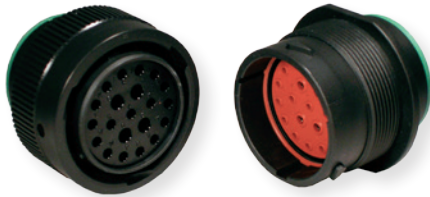
HD10 Series

- Accepts contact sizes 4 (100 amps), 12 (25 amps), and 16 (13 amps)
- 6-20 AWG (16.00-0.50 mm²)
- 3, 4, 5, 6, and 9 cavity arrangements
- In-line, flange, or PCB mount
- Circular, thermoplastic housing
- Coupling ring for mating



HD30 Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 6-22 AWG (13.00-0.35 mm²)
- 2, 6, 8, 9, 14, 16, 18, 19, 20, 21, 23, 29, 31, 33, 35, and 47 cavity arrangements
- In-line or flange mount
- Circular, aluminum housing
- Coupling ring for mating



HDP20 Series

- Accepts contact sizes 4 (100 amps), 8 (60 amps), 12 (25 amps), 16 (13 amps), and 20 (7.5 amps)
- 4-22 AWG (25.00-0.35 mm²)
- 2, 6, 7, 8, 9, 14, 16, 18, 19, 20, 21, 23, 29, 31, 33, 35, and 47 cavity arrangements
- In-line or flange mount
- Circular, thermoplastic housing
- Coupling ring for mating



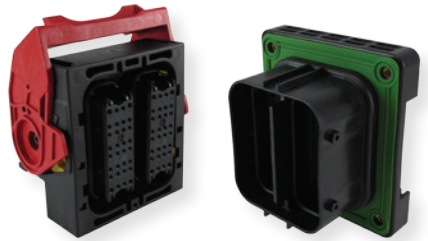
HDSCS Connectors

- Accepts contact sizes 6.3 (up to 40 amps), 2.8 (up to 40 amps), and 1.5K (up to 20 amps)
- 6.00-0.20 mm²
- 2, 3, 4, 6, 7, 8, 10, 12, 15, 16, and 18 cavity arrangements
- In-line or flange mount
- Rectangular, thermoplastic housing
- Slide lock for mating
- Integrated secondary lock confirms contact alignment and retention
- Product specification documents: 108-94020 and 114-18756



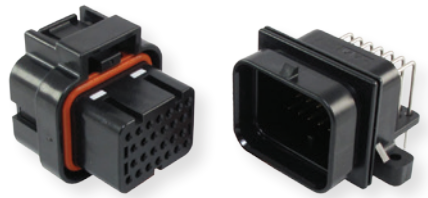
LEAVYSEAL Connectors

- Accepts contact sizes 6.3 (up to 40 amps), 2.8 (up to 40 amps), and 1.5K (up to 20 amps)
- 6.00-0.20 mm²
- 15, 18, 21, 22, 26, 29, 31, 39, 46, 62, and 92 cavity arrangements
- In-line, flange, or PCB mount
- Rectangular, thermoplastic housing
- Lever for mating
- Integrated secondary lock confirms contact alignment and retention
- Product specification documents: 108-18696 and 114-18376



STRIKE Series

- Accepts contact sizes 16 (13 amps) and 20 (7.5 amps)
- 14-22 AWG (2.50-0.35 mm²)
- 32 and 64 cavity arrangements
- In-line, flange, or PCB mount
- Square, thermoplastic housing
- Lever for mating
- TPA confirms contact alignment and retention



Superseal 1.0 Connectors

- Accepts contact size 1.0 mm (up to 15 amps)
- 1.25-0.50 mm²
- 26, 34, and 60 cavity arrangements
- PCB mount
- Rectangular, thermoplastic housing
- Integrated latch for mating
- TPA confirms contact alignment and retention
- Product specification documents: 108-78140 and 114-78011

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AMPSEAL Connector Overview

AMPSEAL connectors provide rugged reliability and environmental sealing. They are available in cable plugs and PCB mount headers that are designed to stand up to high-temperature underhood applications. The pre-assembled receptacle housing connector features built-in contact sealing and an integral interfacial seal that protects mated connectors.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with AMPSEAL connector products. The following TE Connectivity document numbers may be helpful:

54285-2 (Catalog Section)	408-3229 (Instruction Sheet)
108-1329 (Product Specification)	408-9592 (Instruction Sheet, Tooling)
114-16016 (Application Specification)	408-9999 (Instruction Sheet, Tooling)

AMPSEAL CONNECTOR PERFORMANCE SPECIFICATIONS

Current:	Up to 17 amps gold, up to 8 amps tin
Temperature:	Operating at temperatures -40°C to +125°C for gold plated, -40°C to +105°C for tin plated
Durability:	See <i>note</i> . Mate and unmate specimens for 10 cycles at maximum rate of 600 cycles per hour.
Physical Shock:	No discontinuities of 1 microsecond or longer duration. TE Spec 109-26-1. Subject mated specimens to 50 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Fig 5 in TE product document 108-1329.
Insulation Resistance:	100 megohms minimum. TE Spec 109-28-4. Test between adjacent contacts of mated specimens.
Immersion:	Leakage current not to exceed 50 micro-amperes at 48 volts DC. TE Spec 109-74-5. Immerse specimens to a depth of 100 mm in 5% salt water at a temperature of $23 \pm 5^\circ \text{C}$ for 1 hour. Check between adjacent circuits and each surface to reference electrode.
Random Vibration:	See <i>note</i> . TE Spec 109-21-7, Condition G, except 10-500 Hz frequency range. Subject mated specimens to 10 Gs for 8 hours each plane.
Voltage:	250 volts AC

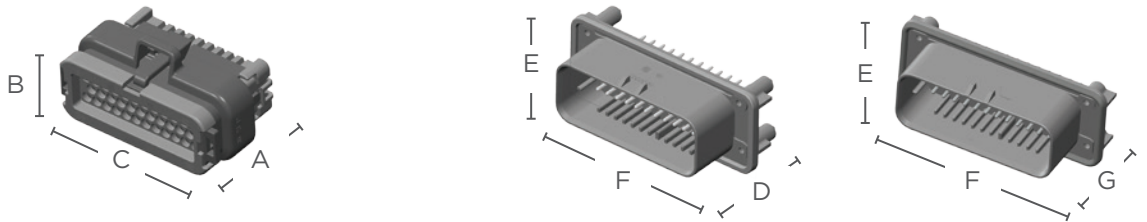
Note: Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 3 of TE product document 108-1329.

AMPSEAL Connectors

MATERIAL SPECIFICATIONS

- Wire Seal:** Silicone rubber
- Mating Seal:** Silicone rubber
- Cover:** Glass filled PBT
- Locking Wedge:** PBT

DIMENSIONS



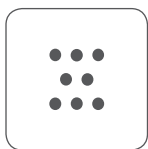
AMPSEAL Receptacle Housing

AMPSEAL Header

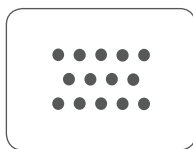
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length Straight D	Overall Height E	Overall Width F	Overall Length 90° G
8	1.32 (33.6)	1.36 (34.6)	1.08 (27.4)	1.35 (34.3)	1.26 (32.1)	1.61 (40.8)	1.49 (37.9)
14	1.32 (33.6)	1.36 (34.6)	1.39 (35.4)	1.35 (34.3)	1.26 (32.1)	1.92 (48.8)	1.49 (37.9)
23	1.32 (33.6)	1.36 (34.6)	1.87 (47.4)	1.35 (34.25)	1.26 (32.1)	2.39 (60.8)	1.49 (37.9)
35	1.32 (33.6)	1.36 (34.6)	2.50 (63.4)	1.35 (34.25)	1.26 (32.1)	3.03 (76.9)	1.49 (37.9)

Dimensions are for reference only.

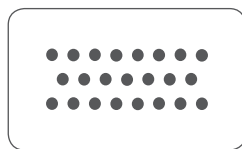
CONFIGURATIONS



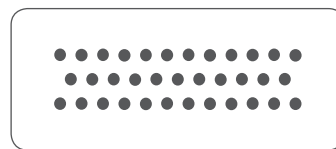
8 Positions
8 size 1.3 mm



14 Positions
14 size 1.3 mm



23 Positions
23 size 1.3 mm



35 Positions
35 size 1.3 mm

ORDERING INFORMATION

Position	Keyed Housing Color	Contact Finish	Receptacle Housing	Right-Angle PCB Header		Vertical PCB Header	
				Without Seal	With Seal	Without Seal	With Seal
8	Black	Tin plated	776286-1	776279-1	776280-1	776275-1	776276-1
		Gold plated		1-776279-1	1-776280-1	1-776275-1	1-776276-1
	Natural	Tin plated	776286-2	776279-2	776280-2	776275-2	776276-2
		Gold plated		1-776279-2	1-776280-2	1-776275-2	1-776276-2
14	Black	Tin plated	776273-1	776266-1	776267-1	776261-1	776262-1
		Gold plated		1-776266-1	1-776267-1	1-776261-1	1-776262-1
	Natural	Tin plated	776273-2	776266-2	776267-2	776261-2	776262-2
		Gold plated		1-776266-2	1-776267-2	1-776261-2	1-776262-2
	Gray	Tin plated	776273-4	776266-4	776267-4	776261-4	776262-4
		Gold plated		1-776266-4	1-776267-4	1-776261-4	1-776262-4
	Blue	Tin plated	776273-5	776266-5	776267-5	776261-5	776262-5
		Gold plated		1-776266-5	1-776267-5	1-776261-5	1-776262-5
23	Black	Tin plated	770680-1	770669-1	776087-1	776200-1	776228-1
		Gold plated		1-770669-1	1-776087-1	1-776200-1	1-776228-1
	Natural	Tin plated	770680-2	770669-2	776087-2	776200-2	776228-2
		Gold plated		1-770669-2	1-776087-2	1-776200-2	1-776228-2
	Gray	Tin plated	770680-4	770669-4	776087-4	776200-4	776228-4
		Gold plated		1-770669-4	1-776087-4	1-776200-4	1-776228-4
	Blue	Tin plated	770680-5	770669-5	776087-5	776200-5	776228-5
		Gold plated		1-770669-5	1-776087-5	1-776200-5	1-776228-5
35	Black	Tin plated	776164-1	776180-1	776163-1	776230-1	776231-1
		Gold plated		1-776180-1	1-776163-1	1-776230-1	1-776231-1
	Natural	Tin plated	776164-2	776180-2	776163-2	776230-2	776231-2
		Gold plated		1-776180-2	1-776163-2	1-776230-2	1-776231-2
	Gray	Tin plated	776164-4	776180-4	776163-4	776230-4	776231-4
		Gold plated		1-776180-4	1-776163-4	1-776230-4	1-776231-4
	Blue	Tin plated	776164-5	776180-5	776163-5	776230-5	776231-5
		Gold plated		1-776180-5	1-776163-5	1-776230-5	1-776231-5
Orange	Gold plated	776164-6	1-776180-6	1-776163-6	-	1-776231-6	

AMPSEAL Connectors

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal
1.3 mm 16-20 AWG (1.5-0.5mm ²)	.067-.106 (1.7-2.7)

Accessories

Wire relief is available as an accessory for the AMPSEAL 23 and 35 positions connectors. The wire relief offers a high level of protection and helps reduce strain from the wires.

WIRE RELIEF



Positions	Part Number	Description
23	776464-1 (one half, two halves required per receptacle housing)	Vertical, sealed receptacle housing wire relief (accepts no. 4 self-tapping screw)
35	776463-1 (one half, two halves required per receptacle housing)	Vertical, sealed receptacle housing wire relief (accepts no. 4 self-tapping screw)

Contacts

The AMPSEAL connectors commonly use the 1.3 mm three contact beam lanceless stamped & formed contact system.

1.3 MM CONTACT PERFORMANCE SPECIFICATIONS

Durability

TE Spec 109-27. Mate and unmate specimens for 10 cycles at maximum rate of 600 cycles per hour. See *note*.

Current Rating

Up to 17 amps gold, up to 8 amps tin, consult TE product document 108-1329.

Contact Retention

TE Spec 109-30. Apply an axial load of 115 N to contacts in the axial direction with wedge lock in locked position. Contacts shall not dislodge.

Crimp Tensile Strength

Contact Size	Tensile Strength
Size 20	80 lbs
Size 18	90 lbs
Size 16	150 lbs

Note: Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 3 of TE product document 108-1329.

AMPSEAL Connectors

1.3 MM STAMPED & FORMED CONTACTS FOR AMPSEAL

Size	Receptacle Part Numbers				Wire Size AWG (mm ²)	Insulation Diameter (mm)	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
1.3 mm	770520-1	5000	770854-1	1000	16-20 (1.5-0.5)	.067-.106 (1.7-2.7)	Pre-tin plated
	770520-3	5000	770854-3	1000			Selective gold plated



SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity that has been pierced must be filled with the appropriate size sealing plug.



Color	Part Number	Contact Size	Wire Gauge Range	Material
White	770678-1	1.3 mm	16-20 AWG	Nylon

AMPSEAL Connectors

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOLS FOR 1.3 MM CONTACTS



PRO-CRIMPER III CERTI-CRIMP II

Receptacle Strip Form	Receptacle Loose Piece	Tool P/N	Description
770520-1 770520-3	770854-1 770854-3	58529-1	PRO-CRIMPER III hand tool and die set assembly
		2217748-1	CERTI-CRIMP II straight action hand tool

Note: Base PRO-CRIMPER III tool part number with -2 suffix is the part number for the die set, which can be ordered separately

AUTOMATED TOOLING FOR 1.3 MM CONTACTS

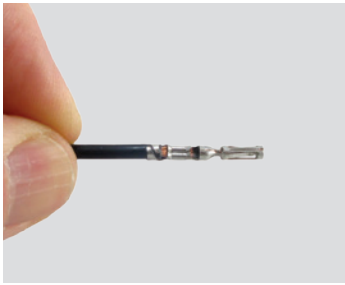


Receptacle Strip Form	Applicator P/N	Description
770520-1 770520-3	2151376-1	OCEAN end feed applicator with mechanical feed
	2151376-2	OCEAN end feed applicator with pneumatic feed

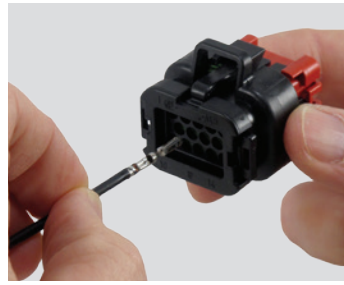
Note: Applicators with additional feed styles are available, contact your representative

How To Instructions

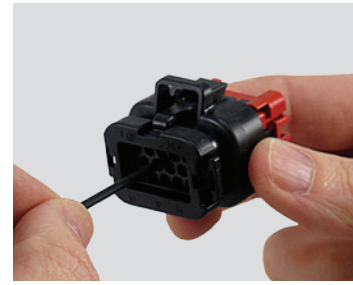
CONTACT INSERTION



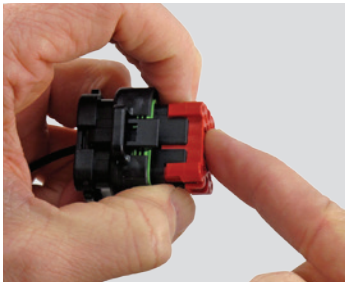
Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.



Step 2:
Check that the wedgelock of the plug assembly is in open position. Align the contact with the applicable cavity.



Step 3:
Insert the contact into the connector cavity until there is an audible and tactile click. A slight tug will verify the contact is locked in place.

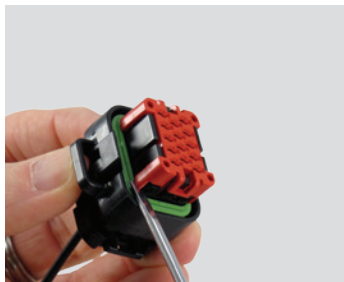


Step 4:
After all the contacts have been inserted, close the wedgelock by simultaneously squeezing locking latches inward and pushing the wedgelock into the housing.

Note

AMPSEAL connector grommet is solid until pierced.

CONTACT REMOVAL



Step 1:
Insert the tip of a screwdriver (2-5mm wide blade) between the edge of the plug assembly housing and one corner of the wedgelock.



Step 2:
Gently pry the edge of the wedgelock until it is released from (but not completely removed) the housing. Repeat these steps for the opposite corner of the wedge.



Step 3:
Gently pull the wire of the contact to be removed while rotating the wire (a quarter turn each direction) back and forth until the contact is removed from the housing.

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AMPSEAL 16 Connectors

AMPSEAL 16 Connector Overview

The AMPSEAL 16 connector system is targeted for off-road, heavy duty industrial, recreational and agricultural applications. This wire-to-wire and wire-to-device connector line was designed to meet the rigorous demands of an industry that requires the highest standards in performance.

AMPSEAL 16 receptacle and pin housings offer a one-piece approach and come fully assembled.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with AMPSEAL 16 products. The following TE Connectivity document numbers may be helpful:

1654281-2 (Catalog Section)

108-2184 (Product Specification)

114-13065 (Application Specification)

114-13045 (Application Specification, Contacts)

408-8623 (Instruction Sheet)

501-708 (Qualification Test Report)

AMPSEAL 16 CONNECTOR PERFORMANCE SPECIFICATIONS

Current:	Up to 13 amps
Temperature:	Operating at temperatures -40°C to +125°C
Durability:	<i>See note.</i> 50 cycles.
Insulation Resistance:	20 megohms minimum. SAE J2030 6.3. Insulation resistance at 1000 volts DC adjacent terminals measured after 60 seconds or until stabilization occurs.
Immersion:	IP67 rating
Random Vibration:	No discontinuities. <i>See note.</i> EIA-364-28 Subject mated specimens to 21 G's rms between 25 to 2000 Hz. Twenty hours in each of three mutually perpendicular planes.
Voltage:	250 volts DC

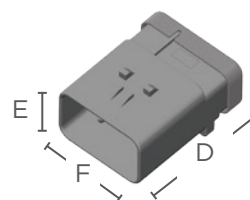
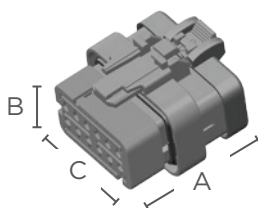
Note: Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in Product Qualification and Requalification Test Sequence in Figure 3 of TE product document 108-2184.

AMPSEAL 16 Connectors

MATERIAL SPECIFICATIONS

Wire Seal:	Silicone rubber
Plug Peripheral Seal:	Silicone rubber
Housing	15% Glass filled thermoplastic
CPA:	15% Glass filled thermoplastic
PLR:	15% Glass filled thermoplastic

DIMENSIONS



AMPSEAL 16 Receptacle Housing

AMPSEAL 16 Cap

Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
2	1.45 (36.75)	.93 (23.5)	.80 (20.33)	1.87 (47.55)	.75 (18.93)	.77 (19.60)
3	1.45 (36.80)	.93 (23.5)	.98 (24.83)	1.87 (47.55)	.75 (19.15)	.95 (24.10)
4	1.44 (36.70)	1.06 (26.8)	1.00 (25.33)	1.87 (47.55)	.88 (22.45)	.97 (24.60)
6	1.44 (36.60)	1.22 (31.0)	1.00 (25.33)	1.87 (47.55)	1.05 (26.65)	.97 (24.60)
8	1.45 (36.80)	1.24 (31.5)	1.15 (29.33)	1.87 (47.55)	1.05 (26.65)	1.13 (28.60)
12	1.45 (36.80)	1.24 (31.5)	1.51 (38.33)	1.87 (47.55)	1.05 (26.65)	1.48 (37.60)

Dimensions are for reference only.

CONFIGURATIONS



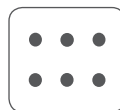
2 Positions
2 size 16



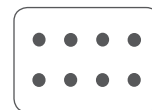
3 Positions
3 size 16



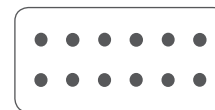
4 Positions
4 size 16



6 Positions
6 size 16



8 Positions
8 size 16



12 Positions
12 size 16

AMPSEAL 16 Connectors

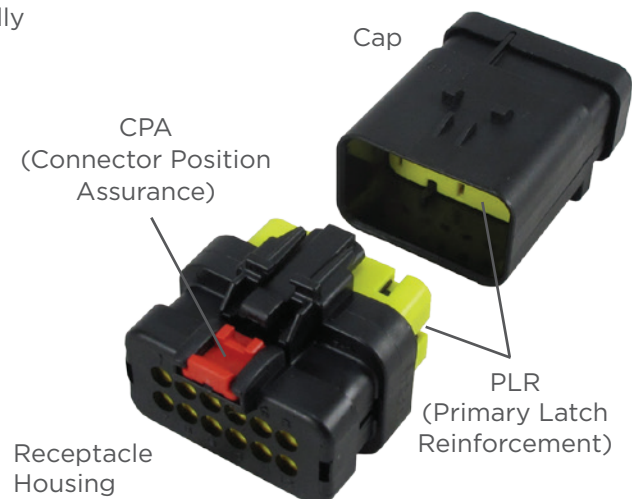
ORDERING INFORMATION

Position	PLR Color	Keying	Receptacle Housing		Receptacle Housing	
			Standard Dia. Seal	Cap Standard Dia. Seal	Reduced Dia. Seal	Cap Reduced Dia. Seal
2	Red	Key A	776427-1	776428-1	776522-1	776534-1
	Gray	Key B	776427-2	776428-2	776522-2	776534-2
	Yellow	Key C	776427-3	776428-3	776522-3	776534-3
	Green	Key D	776427-4	776428-4	776522-4	776534-4
3	Red	Key A	776429-1	776430-1	776523-1	776535-1
	Gray	Key B	776429-2	776430-2	776523-2	776535-2
	Yellow	Key C	776429-3	776430-3	776523-3	776535-3
	Green	Key D	776429-4	776430-4	776523-4	776535-4
4	Red	Key A	776487-1	776488-1	776524-1	776536-1
	Gray	Key B	776487-2	776488-2	776524-2	776536-2
	Yellow	Key C	776487-3	776488-3	776524-3	776536-3
	Green	Key D	776487-4	776488-4	776524-4	776536-4
6	Red	Key A	776433-1	776434-1	776531-1	776537-1
	Gray	Key B	776433-2	776434-2	776531-2	776537-2
	Yellow	Key C	776433-3	776434-3	776531-3	776537-3
8	Red	Key A	776494-1	776495-1	776532-1	776538-1
	Gray	Key B	776494-2	776495-2	776532-2	776538-2
	Yellow	Key C	776494-3	776495-3	776532-3	776538-3
	Green	Key D	776494-4	776495-4	776532-4	776538-4
12	Red	Key A	776437-1	776438-1	776533-1	776539-1
	Gray	Key B	776437-2	776438-2	776533-2	776539-2
	Yellow	Key C	776437-3	776438-3	776533-3	776539-3
	Green	Key D	776437-4	776438-4	776533-4	776539-4

Receptacle housing and cap PLR colors are mechanically keyed to mate only with identical colors.

Part Number Suffix:

- 1 = A key (**red PLR**)
- 2 = B key (**gray PLR**)
- 3 = C key (**yellow PLR**)
- 4 = D key (**green PLR**)



AMPSEAL 16 Connectors

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Reduced Diameter Seal
HDSF 16 14-20 AWG (2.0-0.5mm ²)	.086-.144 (2.18-3.67)	.051-.100 (1.30-2.54)

Accessories

Backshells and mounting clips are accessory items available for use with AMPSEAL 16 connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

BACKSHELLS



Part Numbers

Number of Positions	Conduit Size	Standard Straight	Standard 90°	Low Profile 90° Rec. Housing	Low Profile 90° Pin Housing
2	NC08/NW7.5	2035047-1 [†]	2035048-1 [†]	2035366-1	2098436-1
	NC12/NW10	-	2035048-5 [†]	2035366-3	2098436-3
3	NC08/NW7.5	2035047-2 [†]	2035048-2 [†]	2035366-2	2098436-2
	NC12/NW10	-	2035048-6 [†]	2035366-4	2098436-4
4	NC08/NW7.5	2035047-3 [†]	2035048-3 [†]	2035366-7	2098436-7
	NC12/NW10	2035047-5 [†]	2035048-7 [†]	2035366-9	2098436-9
	NC16/NW13	-	-	1-2035366-1	1-2098436-1
6	NC08/NW7.5	2035047-4 [†]	-	2035366-8	2098436-8
	NC12/NW10	2035047-6 [†]	-	1-2035366-0	1-2098436-0
	NC16/NW13	-	-	1-2035366-2	1-2098436-2
8	NC12/NW10	2035047-7 [†]	-	-	-
	NC16/NW13	2035047-9 [†]	2035047-9 [†]	-	-
12	NC12/NW10	2035047-8 [†]	-	-	-
	NC16/NW13	1-2035047-0 [†]	-	-	-
	NC20/NW17	1-2035047-1 [†]	-	-	-

[†] = Backshell available only with latch window. Can be used for cap assembly if desired.

AMPSEAL 16 Connectors

BACKSHELLS - NEXT GENERATION

Number of Positions	Conduit Size	Plug Part Numbers		Cap Part Numbers	
		Straight Backshell Part Number	90° Adapter Part Number	Straight Backshell Part Number	90° Adapter Part Number
2	Smooth	2292797-1	2292849-1	2292860-1	2292849-1
	NC12/NW10	2292797-2	2292849-2	2292860-2	2292849-2
	NC08/NW7.5	2292797-3	2292849-3	2292860-3	2292849-3
3	Smooth	2292798-1	2292849-1	2292861-1	2292849-1
	NC12/NW10	2292798-2	2292849-2	2292861-2	2292849-2
	NC08/NW7.5	2292798-3	2292849-3	2292861-3	2292849-3
4	Smooth	2292799-1	2292850-1	2292862-1	2292850-1
	NC16/NW13	2292799-2	2292850-2	2292862-2	2292850-2
	NC12/NW10	2292799-3	2292850-3	2292862-3	2292850-3
6	Smooth	2292800-1	2292850-1	2292863-1	2292850-1
	NC16/NW13	2292800-2	2292850-2	2292863-2	2292850-2
	NC12/NW10	2292800-3	2292850-3	2292863-3	2292850-3
8	Smooth	2292801-1	2292851-1	2292864-1	2292851-1
	NC20/NW17	2292801-2	2292851-2	2292864-2	2292851-2
	NC16/NW13	2292801-3	2292851-3	2292864-3	2292851-3
12	Smooth	2292802-1	2292851-1	2292865-1	2292851-1
	NC16/NW13	2292802-2	2292851-2	2292865-2	2292851-2
	NC12/NW10	2292802-3	2292851-3	2292865-3	2292851-3

Note: Expected availability December 2015, contact your representative

MOUNTING CLIPS



Part Number	Description
1924487-1	Mounting clip without anti-rotational feature
1924487-2	Mounting clip with anti-rotational feature

AMPSEAL 16 Connectors

AMPSEAL 16 Hybrid Lever Overview

The AMPSEAL 16 hybrid lever is a sealed connector system that features a lever slide mechanism for mating and a slide in mounting clip. The mix of 24 size 16 and 4 size 12 terminals creates design flexibility for use in various vehicle applications.



The tool-less mounting design, environmental protection, and temporary panel retention latches (which temporarily hold the connector in place for one person mounting through the panel) all reduce application cost and assembly time.

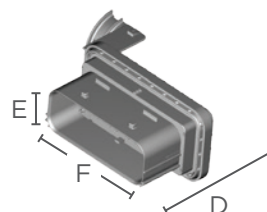
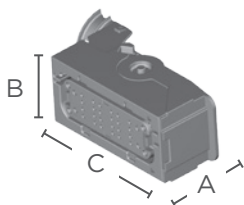
APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with the AMPSEAL 16 hybrid lever product. The following TE Connectivity document numbers may be helpful:

108-32036 (Product Specification)
114-32117 (Application Specification)

501-32026 (Qualification Test Report)

DIMENSIONS



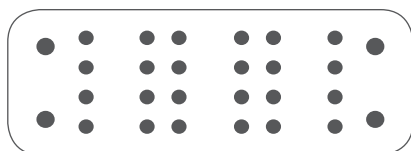
AMPSEAL 16 Hybrid Lever Receptacle Housing

AMPSEAL 16 Hybrid Lever Cap

Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
28	2.08 (52.95)	1.82 (46.25)	4.59 (116.5)	2.86 (72.75)	1.91 (48.45)	4.38 (111.25)

Dimensions are for reference only.

CONFIGURATION



28 Positions

24 size 16, 4 size 12

AMPSEAL 16 Connectors

ORDERING INFORMATION

Position	Keying	Plug Housing	Cap Housing
28	Key A	2138839-1	2138846-1
	Key B	2138839-2	2138846-2

Accessories

Wire covers and mounting clips are accessory items available for use with AMPSEAL 16 hybrid lever connectors. These accessories cover design requirements by assisting with mounting and providing wire strain relief.

WIRE COVER



Part Number	Description
2138853-1	Wire cover for 28 position AMPSEAL 16 hybrid lever

MOUNTING CLIPS



Part Number	Description
2138852-1	Mounting clip, 5 mm panel
2138852-2	Mounting clip, 4 mm panel
2138852-3	Mounting clip, 3 mm panel

AMPSEAL 16 Connectors

Contacts

AMPSEAL 16 and AMPSEAL 16 hybrid lever connectors commonly use the HDSF size 16 contact system. The contacts are round, stamped & formed contacts with dual beam sockets.

HDSF 16 CONTACT PERFORMANCE SPECIFICATIONS

Durability

SAE J2030 6.11. 50 cycles. *See note.*

Current Rating

Up to 13 amps, consult TE product document 108-2184.

Contact Retention

IEC 512-8, Test 51a. Apply axial load of 111 N to contacts at a maximum rate of 10 N per second (or 50mm per minute) and hold for 10 seconds. Contacts shall not dislodge.

Crimp Tensile Strength

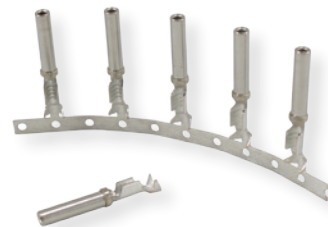
USCAR 21 @ 50mm/min

Wire Gauge	Tensile Strength
18 AWG	90 N Min
16 AWG	120 N Min
14 AWG	180 N Min

Voltage Drop

Contact Size	Test Current Amps	Voltage Drop (millivolts max)
18	8	100
16	10	100
14	13	100

Note: Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence in Figure 3 of TE product document 108-2184. USCAR is a trademark.



AMPSEAL 16 Connectors

HDSF 16 STAMPED & FORMED CONTACTS FOR AMPSEAL 16 CONNECTORS

Size	Pin Part Numbers				Wire Size AWG (mm ²)	Insulation Diameter (mm)	Wire Insulation Support	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity				
HDSF 16	1924463-1	4000	1924579-1	1000	18-20 (0.8-0.5)	.107-.05 (2.72-1.27)	yes	Gold
	1924463-3	4000	1924579-3	1000				Nickel
	776349-1	4000	-	-	18-20 (0.8-0.5)	.131-.089 (3.33-2.26)	yes	Gold
	776349-3	4000	-	-				Nickel
	638078-1	4000	776300-1	1000	14-18 (2.0-0.8)	.131-.089 (3.33-2.26)	yes	Gold
	638078-3	4000	776300-2	1000				Nickel
	638112-1	4000	776298-1	1000	14-18 (2.0-0.8)	.155-0.077 (3.94-1.96)	no	Gold
	638112-3	4000	776298-2	1000				Nickel
	2098250-1	4000	-	-	18 (1.5-0.8)	.118-.065 (3.00-1.65)	yes	Gold
	2098250-3	4000	-	-				Nickel
	2098252-1	4000	-	-	14 (2.0-1.5)	.128-.083 (3.25-2.10)	yes	Gold
	2098252-3	4000	-	-				Nickel

Size	Receptacle Part Numbers				Wire Size AWG (mm ²)	Insulation Diameter (mm)	Wire Insulation Support	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity				
HDSF 16	1924464-1	4000	1924580-1	1000	18-20 (0.8-0.5)	.107-.05 (2.72-1.27)	yes	Gold
	1924464-2	4000	1924580-2	1000				Nickel
	776493-1	4000	-	-	18-20 (0.8-0.5)	.131-.089 (3.33-2.26)	yes	Gold
	776493-2	4000	-	-				Nickel
	776492-1	4000	776299-1	1000	14-18 (2.0-0.8)	.131-.089 (3.33-2.26)	yes	Gold
	776492-2	4000	776299-2	1000				Nickel
	776491-1	4000	776297-1	1000	14-18 (2.0-0.8)	.155-.077 (3.94-1.96)	no	Gold
	776491-2	4000	776297-2	1000				Nickel
	2098251-1	4000	-	-	18 (1.5-0.8)	.118-.065 (3.00-1.65)	yes	Gold
	2098251-2	4000	-	-				Nickel
	2098253-1	4000	-	-	14 (2.0-1.5)	.128-.083 (3.25-2.10)	yes	Gold
	2098253-2	4000	-	-				Nickel

AMPSEAL 16 Connectors

SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



Color	Part Number	Contact Size	Wire Gauge Range	Description
Yellow	776363-1	Size 16	16-20 AWG	PBT, used with AMPSEAL 16 (standard diameter cavities)
White	776364-1	Size 20	16-20 AWG	PBT, used with AMPSEAL 16 (reduced diameter cavities)

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOLS FOR HDSF 16 CONTACTS



PRO-CRIMPER III

CERTI-CRIMP II

Pin Strip Form	Pin Loose Piece	Socket Strip Form	Socket Loose Piece	Tool P/N	Description
1924463-1 1924463-3	1924579-1 1924579-3	1924464-1 1924464-2	1924580-1 1924580-2	2119118-1	PRO-CRIMPER III hand tool and die set assembly
638078-1 638078-3 776349-1 776349-3	776300-1 776300-2	776492-1 776492-2 776493-1 776493-2	776299-1 776299-2	91337-1	PRO-CRIMPER III hand tool and die set assembly
638112-1 638112-3	776298-1 776298-2	776491-1 776491-2	776297-1 776297-2	2217753-1	CERTI-CRIMP II straight action hand tool

Note: Base PRO-CRIMPER III tool part number with -2 suffix is the part number for the die set, which can be ordered separately

AMPSEAL 16 Connectors

AUTOMATED TOOLING FOR HDSF 16 CONTACTS



OCEAN end
feed applicator



OCEAN side
feed applicator

Pin Strip Form	Socket Strip Form	Applicator P/N	Description
1924463-1 1924463-3	1924464-1 1924464-2	2151962-1	OCEAN end feed applicator with mechanical feed
		2151962-2	OCEAN end feed applicator with pneumatic feed
638078-1 638078-3 776349-1 776349-3	776492-1 776492-2 776493-1 776493-2	2151731-1	OCEAN end feed applicator with mechanical feed
		2151731-2	OCEAN end feed applicator with pneumatic feed
638112-1 638112-3	776491-1 776491-2	2151239-1	OCEAN end feed applicator with mechanical feed
		2151239-2	OCEAN end feed applicator with pneumatic feed
2098250-1 2098250-3	2098251-1 2098251-2	2151617-1	OCEAN end feed applicator with mechanical feed
		2151617-2	OCEAN end feed applicator with pneumatic feed
2098252-1 2098252-3	2098253-1 2098253-2	1530207-1	OCEAN side feed applicator that crops the terminal strip, for use in lead-maker
		1530207-2	OCEAN side feed applicator that crops the terminal strip, for use in bench press
		1530207-6	OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker

Note: Applicators with additional feed styles are available, contact your representative

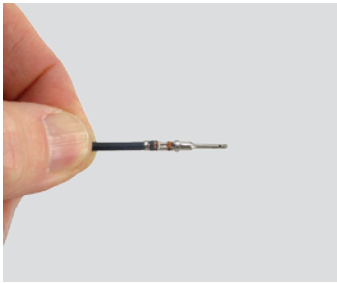
EXTRACTION TOOL FOR HDSF 16 CONTACTS



Part Number	Description
776106-1	Contact extraction tool for HDSF 16 contacts

How To Instructions

CONTACT INSERTION



Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.



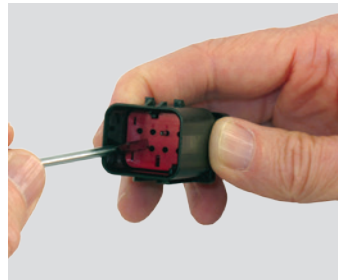
Step 2:
Verify the PLR is in the pre-staged position, unlocked.



Step 3:
Align the contact with the desired circuit cavity at the rear of the housing assembly.

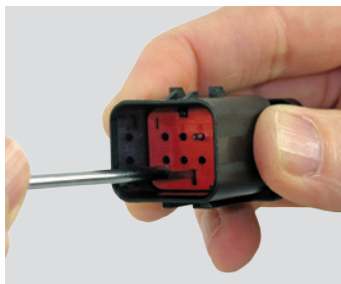


Step 4:
Push the contact straight into the connector cavity until the contact retention finger returns to its normal position behind the retention shoulder on the contact. A slight tug will verify the contact is locked in place.



Step 5:
When all of the required contacts have been inserted, push the PLR into the fully locked position.

CONTACT REMOVAL



Step 1:
Insert the removal tool into the PLR extraction slot and pull until the PLR is completely removed from the housing.



Step 2:
Insert the tool into the contact cavity and deflect the contact retention finger.



Step 3:
Gently pull the wire until the contact is free from the housing.

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Circular DIN Connectors

Circular DIN Connector Overview

The Circular DIN connectors are designed to meet the requirements of the DIN 72585/ISO 15170 standards. They feature a coupling ring for mating. Circular DIN connectors are suitable for in-line, flange mount, or PCB applications.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with Circular DIN products. The following TE document numbers may be helpful:

1654286-3 (Catalog Section)

108-18621 (Product Specification)

114-18255 (Application Specification)

CIRCULAR DIN CONNECTOR PERFORMANCE SPECIFICATIONS

Current:	Up to 40 amps
Temperature:	Operating at temperatures -40°C to +120°C for plastic parts, short term up to +140°C defined in the standard ISO 15170
Durability:	20 cycles, max. testing requirement in the standard ISO 15170, former DIN 72585
Insulation Resistance:	No flash over or breakdown between every two contacts or between every contact and outer contour of the housing permitted at 1000 volts AC and 50 or 60 Hz for 60 seconds.
Immersion:	No ingress of water is allowed, acc. to DIN 40050-9 IPX7, IPX9K
Vibration:	According to standard ISO 15170, former DIN 72585
Dielectric Withstanding Voltage:	No flash over or breakdown between every two contacts or between every contact and outer contour of the housing permitted at 1000 volts AC and 50 or 60 Hz for 60 seconds.

MATERIAL SPECIFICATIONS

Flange Seal:	Silicone rubber
Housing:	Glass filled PBT and PA

Circular DIN Connectors

DIMENSIONS



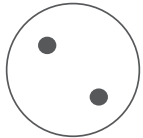
Circular DIN Socket Housing

Circular DIN Pin Housing

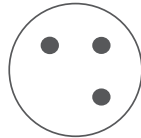
Cavity	Overall Length A	Overall Height ØB	Overall Length C	Overall Height ØD
2	1.22 (31.0)	1.29 (32.8)	1.73 (44.0)	1.34 (34.0)
3	1.22 (31.0)	1.29 (32.8)	1.73 (44.0)	1.34 (34.0)
4	1.22 (31.0)	1.29 (32.8)	1.73 (44.0)	1.34 (34.0)

Dimensions are for reference only.

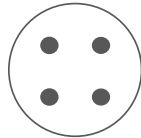
CONFIGURATIONS



2 Positions
2 size 2.5 mm



3 Positions
3 size 2.5 mm



4 Positions
4 size 2.5 mm

Circular DIN Connectors

ORDERING INFORMATION

Position	Keying Type	Housing Color	Socket Housing	Pin Housing	PCB Header Vertical
2	1	Black	1-967325-3	1-967402-3	1394324-1 (tin)
			1-968968-3 (secondary locking)		
	2	Gray	2-967325-3	2-967402-3	-
			2-968968-3		-
3	Green	3-967325-3	-	-	
4	Blue	4-967325-3	-	-	
3	1	Black	1-967325-2	1-967402-2	1394324-4
			1-968968-2 (secondary locking)		
	2	Gray	2-967325-2	-	-
	3	Green	3-967325-2	-	-
4	Blue	4-967325-2	-	-	
4	1	Black	1-967325-1	1-967402-1	1241598-1 (no ventilation disk)
			1-968968-1 (secondary locking)		1394324-2 (tin)
					1394324-3 (gold)
			1703780-1 (ferrite disk)		
	2	Gray	2-967325-1	2-967402-1	-
	3	Green	3-967325-1	3-967402-1	-
4	Blue	4-967325-1	4-967402-1	-	

Accessories

Covers, backshells, and mounting rings are accessory items available for use with Circular DIN connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

COVERS



Description	Color	Part Number
Front cover for socket housing 967325, suitable for IPX9K	Black	185636-1
Front cover for pin housing 967402, with ring		1394277-1
Front cover for pin housing 967402, without ring		1394277-2

Circular DIN Connectors

BACKSHELLS



Description	Color	Part Number
Right-angle adapter with universal clamp	Black	965576-1
Vertical adapter with universal clamp	Black	965784-1
Right-angle adapter for NW 7.5 mm diameter corrugated tubing	Black	185793-1
Right-angle adapter for NW 8.5 mm diameter corrugated tubing	Black	965577-1
Right-angle adapter for NW 10 mm diameter corrugated tubing	Black	965783-1
Vertical adapter for NW 7.5 mm diameter corrugated tubing	Black	185792-1
Vertical adapter for NW 8.5 mm diameter corrugated tubing	Black	965785-1
Vertical adapter for NW 10 mm diameter corrugated tubing	Black	965786-1
Right-angle adapter 4 position for hose	Black	1534789-1
Vertical adapter 4 position for hose	Black	1534791-1
Vertical adapter 4 position for jacketed cable 5.2-6.5 mm	Black	1418916-1
Vertical adapter 4 position for jacketed cable 6.0-9.5 mm	Black	1418917-1
Right-angle adapter 4 position for jacketed cable 5.2-6.5 mm	Black	1418918-1
Right-angle adapter 4 position for jacketed cable 6.0-9.5 mm	Black	1418919-1

MOUNTING RING

Description	Color	Part Number
Mounting ring for pin housing	Black	965687-1

Contacts

The Circular DIN connectors commonly use the 2.5 mm round, two-piece stamped & formed contact system.

2.5 MM CONTACT PERFORMANCE SPECIFICATIONS

Durability

Maximum mating cycles
 10 (tin)
 50 (silver)
 100 (gold)

Current Rating

Contact Size Max. Current
 2.5 mm up to 40 amps

Contact Retention(in housing)

Contact Size Min. Load
 2.5 mm > 90 N
 with secondary retention up to 100 N

Crimp Tensile Strength

Contact Size Tensile Strength
 .35 mm² ≥ 50 N
 .5 mm² ≥ 60 N
 1.0 mm² ≥ 100 N
 1.5 mm² ≥ 150 N
 2.5 mm² ≥ 200 N
 4.0 mm² ≥ 250 N

Circular DIN Connectors

2.5 MM STAMPED & FORMED CONTACTS FOR CIRCULAR DIN

Stamped & Formed Pins

Size	Pin Part Numbers				Wire Size (mm ²)	Insulation Diameter FLR (mm)	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
2.5 mm	929963-1	3500	962967-1	500	0.5-1.0	1.4-2.1	Tin plated
	929963-8	3500	962967-8	500			Gold plated
	1-929963-0	3500	1-962967-0	500			
	929964-1	3500	962968-1	500	≥1.0-2.5	1.9-3.0	Tin plated
	1-929964-0	3500	1-962968-0	500			Gold plated
	929965-1	2500	962969-1	500	≥2.5-4.0	2.7-3.6	Tin plated

Stamped & Formed Pins with Single Wire Sealing System

Size	Pin Part Numbers				Wire Size (mm ²)	Insulation Diameter FLR (mm)	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
2.5 mm	929966-1	3500	962970-1	500	0.2-0.4	1.2-2.1	Tin plated
	929966-7	3500	962970-7	500			Silver plated
	929967-1	3000	962971-1	500	0.5-1.0	1.2-2.1	Tin plated
	929967-4	3000	962971-4	500			
	929967-7	3000	962971-7	500			Silver plated
	1-929967-4	3000	1-962971-4	500			
	929967-8	3000	962971-8	500			Gold plated
	1-929967-0	3000	1-962971-0	500			
	929968-1	3000	962972-1	500	≥1.0-2.5	2.2-3.0	Tin plated
	929968-4	3000	962972-4	500			
	929968-7	3000	962972-7	500			Silver plated
	929968-8	3000	962972-8	500			Gold plated



Circular DIN Connectors

Stamped & Formed Sockets

Size	Socket Part Numbers				Wire Size (mm ²)	Insulation Diameter FLR (mm)	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
2.5 mm	929969-1	3000	962976-1	500	0.2-0.4	1.15-1.6	Tin plated
	929970-1	3000	962977-1	500	0.5-1.0	1.4-2.1	Tin plated
	929970-7	3000	962977-7	500			Silver plated
	929970-8	3000	962977-8	500			Gold plated
	929971-1	3000	962978-1	500	≥1.0-2.5	1.9-3.0	Tin plated
	929971-7	3000	962978-7	500			Silver plated
	929971-8	3000	962978-8	500			Gold plated
	929972-1	3000	962979-1	500	≥2.5-4.0	2.7-3.0	Tin plated

Stamped & Formed Sockets with Single Wire Sealing System

Size	Socket Part Numbers				Wire Size (mm ²)	Insulation Diameter FLR (mm)	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
2.5 mm	929973-1	3000	962980-1	500	0.2-0.4	1.2-2.1	Tin plated
	929974-1	3000	962981-1	500	0.5-1.0	1.2-2.1	Tin plated
	929974-4	3000	962981-4	500			Gold plated
	929974-8	3000	962981-8	500			Silver plated
	929974-7	3000	962981-7	500			
	1-929974-4	3000	1-962981-4	500	≥1.0-2.5	2.2-3.0	
	929975-1	3000	962982-1	500			Tin plated
	929975-4	3000	962982-4	500			
	929975-8	3000	962982-8	500			Gold plated
	929975-7	3000	962982-7	500			Silver plated



Circular DIN Connectors

WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.

Contact Size	Insulation Diameter (mm)	Color	Part Number	Package Quantity
2.5 mm	1.2-2.1 FLR	Gray	828920-1	5000
	2.2-3.0 FLR	Violet	828921-1	

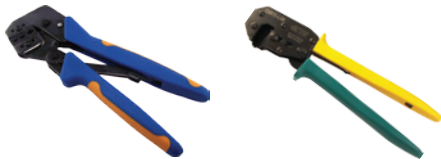
SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

Contact Size	Wire Size	Color	Part Number	Package Quantity
2.5 mm	up to 3.0 mm	Natural	828922-1	10,000
		Green	828922-2	
	up to 3.7 mm	Natural	828986-1	

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.



PRO-CRIMPER III CERTI-LOK

HAND TOOL FOR 2.5 MM CONTACTS

Pin Strip Form	Pin Loose Piece	Socket Strip Form	Socket Loose Piece	Tool P/N	Description
1-929967-0 1-929967-4 929967-1 929967-4 929967-7 929967-8	1-926971-0 1-926971-4 962971-1 962971-4 962971-7 962971-8	1-929974-4 929974-1 929974-4 929974-7 929974-8 929975-1 929975-4 929975-7 929975-8	1-962981-4 962981-1 962981-4 962981-7 962981-8 962982-1 962982-4 962982-7 962982-8	58606-1	PRO-CRIMPER III hand tool and die set assembly
1-929964-0 929964-1	1-962968-0 962968-1	929971-1 929971-7 929971-7	962978-1 962978-7 962978-8	734285-2	CERTI-LOK hand tool with fixed die

Circular DIN Connectors

AUTOMATED TOOLING FOR 2.5 MM CONTACTS



OCEAN end
feed applicator



OCEAN side
feed applicator

Pin Strip Form	Socket Strip Form	Applicator P/N	Description
1-929963-0 929963-1 929963-8	929970-1 929970-7 929970-8	1426121-1	OCEAN side feed applicator that crops the terminal strip, for use in lead-maker
		1426121-2	OCEAN side feed applicator that crops the terminal strip, for use in bench press
		1426121-6	OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker
		1528689-1	OCEAN side feed applicator with fine adjust that crops the terminal strip, for use in lead-maker
		1528689-2	OCEAN side feed applicator with fine adjust that crops the terminal strip, for use in bench press
		1528689-6	OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker
929966-1 929966-7	929973-1	2151732-1	OCEAN end feed applicator with mechanical feed
		2151732-2	OCEAN end feed applicator with pneumatic feed
1-929964-0 929964-1	929971-1 929971-7 929971-8	2266503-1	OCEAN end feed applicator with mechanical feed
		2266503-2	OCEAN end feed applicator with pneumatic feed
929965-1	929972-1	1426425-1	OCEAN side feed applicator that crops the terminal strip, for use in lead-maker
		1426425-2	OCEAN side feed applicator that crops the terminal strip, for use in bench press
		1426425-6	OCEAN side feed applicator that does not crop the terminal strip, for use in lead-maker

Note: Applicators with additional feed styles are available, contact your representative

Circular DIN Connectors

AUTOMATED TOOLING FOR 2.5 MM CONTACTS (CONTINUED)

Pin Strip Form	Socket Strip Form	Applicator P/N	Description
1-929967-0 1-929967-4 929967-1 929967-4 929967-7 929967-8	1-929974-4 929974-1 929974-4 929974-7 929974-8	2151139-1	OCEAN end feed applicator with mechanical feed
		2151139-1	OCEAN end feed applicator with pneumatic feed
-	929975-1 929975-4 929975-7 929975-8	2151345-1	OCEAN end feed applicator with mechanical feed
		2151345-2	OCEAN end feed applicator with pneumatic feed

Note: Applicators with additional feed styles are available, contact your representative

EXTRACTION TOOL FOR 2.5 MM CONTACTS



Part Number	Description
1-1579007-8	Contact extraction tool for 2.5 mm contact system

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HDSCS Connectors

HDSCS Connector Overview

The Heavy Duty Sealed Connector Series (HDSCS) offers several cavity arrangements and mixed wire sizes. The rugged, thermoplastic connectors have a secondary lock with poke-yoke feature and can be used for in-line or flange mount applications. HDSCS connectors are available in five housing sizes and four keying options.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with HDSCS products. The following TE Connectivity document numbers may be helpful:

1654326-1 (Catalog Section)

108-94020 (Product Specification)

114-18756 (Application Specification)

1563709 (Product Group Drawing)

HDSCS CONNECTOR PERFORMANCE SPECIFICATIONS

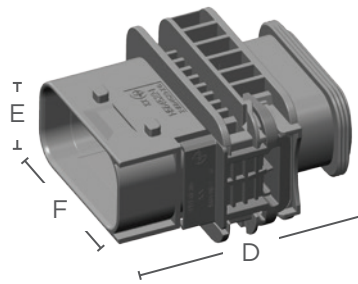
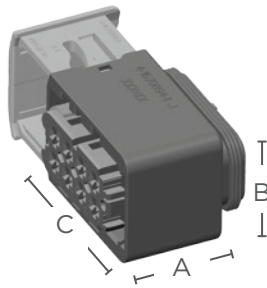
Current:	Up to 40 amps
Temperature:	Operating at temperatures -40°C to +140°C
Durability:	Up to 10 cycles (tin), up to 50 cycles (silver), up to 100 cycles (gold), see individual product specifications for additional details.
Insulation Resistance:	500 volts DC, test acc. to ISO 16750-2 (4.12).
Immersion:	IP67 rating, IP6K9K with cover, for tab housings with flange, only by observing mounting instructions.
Random Vibration:	No physical damage of housings and contacts, no derogation of function; the connection may not open at 177 m/s ² , 94 hours for each of the three axes. See product specification 108-94020 for full specifications.
Voltage:	Up to 42 volts DC
Dielectric Withstanding Voltage:	No flash over or breakdown between adjacent contacts and outer contour of the housing permitted at 500 volts AC and 50 or 60 Hz for 60 seconds.
Flammability	Product with UL 94 V0 rated material is available

HDSCS Connectors

MATERIAL SPECIFICATIONS

Flange Seal:	Silicone rubber
Seal for Secondary Locking:	Silicone rubber
Housing:	Glass filled PBT
Secondary Locking:	Glass filled PBT
Slide Lock:	Glass filled PBT

DIMENSIONS



HDSCS Receptacle Housing

HDSCS Tab Housing

Group	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
A	1.23 (31.3)	0.73 (18.5)	1.02 (26.0)	1.64 (47.1)	0.75 (19.0)	1.09 (27.6)
B	1.23 (31.3)	1.01 (25.7)	1.19 (30.2)	1.64 (47.1)	1.06 (27.0)	1.09 (27.6)
C	1.23 (31.3)	1.01 (25.7)	1.23 (31.2)	1.64 (47.1)	1.06 (27.0)	1.28 (32.6)
D	1.23 (31.3)	1.01 (25.7)	1.54 (39.2)	1.64 (47.1)	1.06 (27.0)	1.60 (40.6)
E	1.23 (31.3)	1.01 (25.7)	2.02 (51.2)	1.64 (47.1)	1.06 (27.0)	2.07 (52.6)

Dimensions are for reference only.

HDSCS Connectors

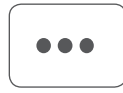
GROUP A SIZE CONFIGURATIONS



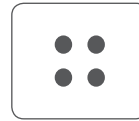
2 Positions
2 size 1.5K



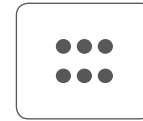
2 Positions
2 size 2.8



3 Positions
3 size 1.5K

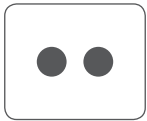


4 Positions
4 size 2.8

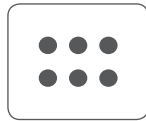


6 Positions
6 size 1.5K

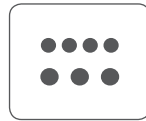
GROUP C SIZE CONFIGURATIONS



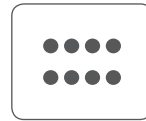
2 Positions
2 size 6.3



6 Positions
6 size 2.8

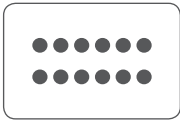


7 Positions
4 size 1.5K
3 size 2.8

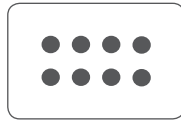


8 Positions
8 size 1.5K

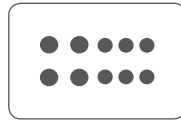
GROUP D SIZE CONFIGURATIONS



12 Positions
12 size 1.5K

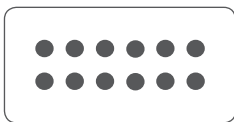


8 Positions
8 size 2.8

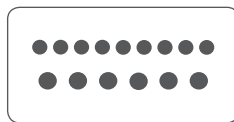


10 Positions
6 size 1.5K
4 size 2.8

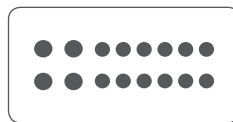
GROUP E SIZE CONFIGURATIONS



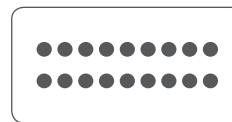
12 Positions
12 size 2.8



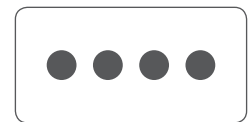
15 Positions
9 size 1.5K
6 size 2.8



16 Positions
12 size 1.5K
4 size 2.8



18 Positions
18 size 1.5K



4 Positions
4 size 6.3

HDSCS Connectors

ORDERING INFORMATION

Position	Group	Contact Size	Keying Color	Receptacle Housing	Tab Housing	
					Flange	Without Flange
2	A	2.8	Black	1-1418483-1	1-1703841-1	1-1703839-1
			Gray	2-1418483-1	2-1703841-1	2-1703839-1
			Green	3-1418483-1	3-1703841-1	3-1703839-1
			Blue	4-1418483-1	4-1703841-1	4-1703839-1
(3) 2	A	1.5K	Black	1-1418448-2	-	-
			Gray	2-1418448-2	-	-
			Green	3-1418448-2	-	-
			Blue	4-1418448-2	-	-
2	C	6.3	Black	1-1564542-1	1-1564546-1	1-1564544-1
			Gray	2-1564542-1	2-1564546-1	2-1564544-1
			Green	3-1564542-1	3-1564546-1	3-1564544-1
			Blue	4-1564542-1	4-1564546-1	4-1564544-1
3	A	1.5K	Black	1-1418448-1	1-1703843-1	1-1670730-1
			Gray	2-1418448-1	2-1703843-1	2-1670730-1
			Green	3-1418448-1	3-1703843-1	3-1670730-1
			Blue	4-1418448-1	4-1703843-1	4-1670730-1
4	B	2.8	Black	1-1418390-1	1-1703808-1	1-1703818-1
			Gray	2-1418390-1	2-1703808-1	2-1703818-1
			Green	3-1418390-1	3-1703808-1	3-1703818-1
			Blue	4-1418390-1	4-1703808-1	4-1703818-1
	E	6.3	Black	1-1564330-1	-	1-1564534-1
			Gray	2-1564330-1	-	2-1564534-1
			Green	3-1564330-1	-	3-1564534-1
			Blue	4-1564330-1	-	4-1564534-1
6	B	1.5K	Black	1-1418469-1	1-1703820-1	1-1703773-1
			Gray	2-1418469-1	2-1703820-1	2-1703773-1
			Green	3-1418469-1	3-1703820-1	3-1703773-1
			Blue	4-1418469-1	4-1703820-1	4-1703773-1
	C	2.8	Black	1-1418437-1	-	-
			Gray	2-1418437-1	-	-
			Green	3-1418437-1	-	-
			Blue	4-1418437-1	-	-
7	C	(4) 1.5K (3) 2.8	Black	1-1418480-1	1-1670214-1	1-1703648-1
			Gray	2-1418480-1	2-1670214-1	2-1703648-1
			Green	3-1418480-1	3-1670214-1	3-1703648-1
			Blue	4-1418480-1	4-1670214-1	4-1703648-1

ORDERING INFORMATION (CONTINUED)

Position	Group	Contact Size	Keying Color	Receptacle Housing	Tab Housing	
					Flange	Without Flange
8	C	1.5K	Black	1-1418479-1	1-1564416-1	1-1564512-1
			Gray	2-1418479-1	2-1564416-1	2-1564512-1
			Green	3-1418479-1	3-1564416-1	3-1564512-1
			Blue	4-1418479-1	4-1564416-1	4-1564512-1
	D	2.8	Black	1-1670894-1	-	1-1564522-1
			Gray	2-1670894-1	-	2-1564522-1
			Green	3-1670894-1	-	3-1564522-1
			Blue	4-1670894-1	-	4-1564522-1
10	D	(6) 1.5K (4) 2.8	Black	1-1564514-1	1-1564518-1	1-1564516-1
			Gray	2-1564514-1	2-1564518-1	2-1564516-1
			Green	3-1564514-1	3-1564518-1	3-1564516-1
			Blue	4-1564514-1	4-1564518-1	4-1564516-1
12	D	1.5K	Black	1-1703639-1	1-1564520-1	1-1564414-1
			Gray	2-1703639-1	2-1564520-1	2-1564414-1
			Green	3-1703639-1	3-1564520-1	3-1564414-1
			Blue	4-1703639-1	4-1564520-1	4-1564414-1
	E	2.8	Black	1-1670901-1	-	-
			Gray	2-1670901-1	-	-
			Green	3-1670901-1	-	-
			Blue	4-1670901-1	-	-
15	E	(9) 1.5K (6) 2.8	Black	1-1563878-1	1-1564532-1	1-1564530-1
			Gray	2-1563878-1	2-1564532-1	2-1564530-1
			Green	3-1563878-1	3-1564532-1	3-1564530-1
			Blue	4-1563878-1	4-1564532-1	4-1564530-1
16	E	(12) 1.5K (4) 2.8	Black	1-1564337-1	1-1564407-1	1-1564528-1
			Gray	2-1564337-1	2-1564407-1	2-1564528-1
			Green	3-1564337-1	3-1564407-1	3-1564528-1
			Blue	4-1564337-1	4-1564407-1	4-1564528-1
18	E	1.5K	Black	1-1563759-1	1-1564526-1	1-1564412-1
			Gray	2-1563759-1	2-1564526-1	2-1564412-1
			Green	3-1563759-1	3-1564526-1	3-1564412-1
			Blue	4-1563759-1	4-1564526-1	4-1564412-1

HDSCS Connectors

Accessories

Several accessory items are available to complement the HDSCS connectors including backshells, fixing slides, and protection caps. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

BACKSHELLS

Group	Part Number	Description
A	1670365-1	Vertical adapter for NW 8.5 mm diameter corrugated tubing
	1670150-1	Right-angle adapter for NW 8.5 mm diameter corrugated tubing
B	965576-1	Right-angle adapter with universal clamp
	965784-1	Vertical adapter with universal clamp
	185793-1	Right-angle adapter for NW 7.5 mm diameter corrugated tubing
	965577-1	Right-angle adapter for NW 8.5 mm diameter corrugated tubing
	965783-1	Right-angle adapter for NW 10 mm diameter corrugated tubing
	185792-1	Vertical adapter for NW 7.5 mm diameter corrugated tubing
	965785-1	Vertical adapter for NW 8.5 mm diameter corrugated tubing
	965786-1	Vertical adapter for NW 10 mm diameter corrugated tubing
	1534789-1	Right-angle adapter 4/7 position for hose
	1534791-1	Vertical adapter 4/7 position for hose
	1418916-1	Vertical adapter 4/7 position for jacketed cable 5.2-6.5 mm
	1418917-1	Vertical adapter 4/7 position for jacketed cable 6.0-9.5 mm
	1418918-1	Right-angle adapter 4/7 position for jacketed cable 5.2-6.5 mm
	1418919-1	Right-angle adapter 4/7 position for jacketed cable 6.0-9.5 mm
	C	1670364-1
1670057-1		Right-angle adapter for NW 13 mm diameter corrugated tubing
D	1563111-1	Vertical adapter for NW 13 mm diameter corrugated tubing
	1563110-1	Right-angle adapter for NW 13 mm diameter corrugated tubing
E	1670866-1	Vertical adapter for NW 17 mm diameter corrugated tubing and hose
	1670865-1	Right-angle adapter for NW 17 mm diameter corrugated tubing and hose

HDSCS Connectors

FIXING SLIDES

Fixing slides are used to help secure HDSCS connectors while mounting them. The locking slides can accommodate panel thicknesses from 1.0-3.5 mm.



Group	Part Number	Color	Panel Thickness
A	1703838-6	Gray	3.5 mm
	1703838-1	Yellow	3.0 mm
	1703838-2	Red	2.5 mm
B	1703810-6	Gray	3.5 mm
	1703810-1	Yellow	3.0 mm
	1703810-2	Red	2.5 mm
C	1670720-6	Gray	3.5 mm
	1670720-1	Yellow	3.0 mm
	1670720-2	Red	2.5 mm
D	1564562-1	Yellow	3.0 mm
	1564562-2	Red	2.5 mm
	1564562-5	Gray	1.5 mm
	1564562-4	Natural	1.0 mm
E	1564411-6	Gray	3.5 mm
	1564411-1	Yellow	3.0 mm
	1564411-2	Red	2.5 mm
	1564411-5	Gray	1.5 mm

PROTECTION CAPS

The HDSCS protection caps provide an environmental seal and are used to protect the connector interface when the two halves are not mated.



Group	Part Number	Housing
A	2112299-1	Receptacle
	2112289-1	Tab
B	2112300-1	Receptacle
	2112291-1	Tab
C	2112301-1	Receptacle
	2112293-1	Tab
D	2112302-1	Receptacle
	2112295-1	Tab
E	2112303-1	Receptacle
	2112297-1	Tab

HDSCS Connectors

Contacts

The HDSCS connectors commonly use the AMP MCP stamped & formed contact system.

AMP MCP CONTACT PERFORMANCE SPECIFICATIONS

Durability

10 cycles (tin)
50 cycles (silver)
100 cycles (gold)

Current Rating

Contact Size	Max. Current
1.5K	up to 20 amps
2.8	up to 40 amps
6.3/4.8K	up to 40 amps

Contact Retention

Contact Size	Min. Load
1.5K	40/60 N
2.8	80 N
6.3/4.8K	80 N

Crimp Tensile Strength

Contact Size	Tensile Strength
--------------	------------------

1.5K

.22 mm ²	≥ 32 N
.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.25 mm ²	≥ 135 N (16 AWG)
1.5 mm ²	≥ 135 N

2.8

.22 mm ²	≥ 28 N
.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.5 mm ²	≥ 150 N
2.5 mm ²	≥ 200 N

6.3./4.8K

.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.5 mm ²	≥ 150 N
2.5 mm ²	≥ 200 N
4.0 mm ²	≥ 310 N
6.0 mm ²	≥ 450 N

HDSCS Connectors

AMP MCP CONTACTS FOR HDSCS

Stamped & Formed Tabs with Single Wire Sealing System - AMP MCP

Size	Tab Part Numbers				Wire Size (mm ²)	Insulation Dia. (mm) FLR	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
1.5K	969028	4000	969029	500	0.2-0.5	1.2-1.6	-2/-3
	964269	4000	964270	500	0.5-1.0	1.4-2.1	-2/-3/-5
	1703278	4000	1703279	500	1.5	1.9-2.4	-2/-5
2.8	965982	3500	965983	500	0.2-0.5	max 2.1	1-xxx-1 1-xxx-3
	962915	3500	963748	500	0.5-1.0	max 2.1	1-xxx-1 1-xxx-2 1-xxx-3 2-xxx-1 2-xxx-2 2-xxx-3
	962916	3300	963749	500	1.5-2.5	max 3.0	1-xxx-1 1-xxx-2 1-xxx-3 2-xxx-1 2-xxx-2 2-xxx-3
	1719504	3200	1719503	500	12 TXL	max 3.2	1-xxx-1 1-xxx-2
6.3/ 4.8K	962917	1500	963742	500	0.5-1.0	1.4-2.1	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2
	962918	1500	963743	500	1.5-2.5	2.2-3.0	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2
	962919	1500	963744	500	>2.5-4.0	2.7-3.7	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2

AMP MCP Tab Finish Codes

Finish Code	Material
-2	CuFe2, pre-tin plated
-3	CuSn4, gold plated
-5	CuSn4, selective silver plated
1-xxx-1	CuSn, pre-tin plated

Finish Code Material

1-xxx-2	CuSn, selective silver plated
1-xxx-3	CuSn, selective gold plated
2-xxx-1	CuFe, pre-tin plated
2-xxx-2	CuFe, selective silver plated
2-xxx-3	CuFe, selective gold plated

HDSCS Connectors

Stamped & Formed Receptacles with Single Wire Sealing System - AMP MCP

Size	Receptacle Part Numbers				Wire Size (mm ²)	Insulation Diameter (mm)		Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity		FLK	FLR	
1.5K	1564324	4500	1564325	500	0.22-0.35	-	1.1-1.4	-1/-2/-3
	1241380	4500	1241381	500	0.5-1.0	-	1.4-2.1	-1/-2/-3 1-xxx-2*
	1418884	4500	1418885	500	>1.0-1.5	-	2.2-2.4	-1/-3
2.8	968882	4500	968896	500	0.35	-	1.2-1.4	1-xxx-1 1-xxx-3
	968855	3500	968875	500	0.5-1.0	-	1.4-2.1	1-xxx-1 1-xxx-2 1-xxx-3
	968857	4000	968876	500	>1.0-2.5	-	2.2-3.0	1-xxx-1 1-xxx-3
6.3/ 4.8K	1241410	1500	1241411	500	0.35-0.5	1.3-2.3	1.2-1.6	-1/-3
	1241412	1500	1241413	500	0.5-1.0	2.0-2.7	1.4-2.1	-1/-3
	1241414	1500	1241415	500	>1.0-2.5	2.7-3.7	2.2-3.0	-1/-3
	1241416	1500	1241417	500	>2.5-4.0	4.1-4.5	3.4-3.7	-1/-3
	1241418	1500	1241419	500	4.0-6.0	-	3.4-4.3	-4 1-xxx-3 2-xxx-3

AMP MCP Receptacle Finish Codes

Finish Code	Material
-1	CuNiSi, pre-tin plated
-2	CuNiSi, selective gold plated
-3	CuNiSi, selective silver plated
-4	CuNiSi, tin-silver pre-plated
1-xxx-1	CuNiSi, pre-tin plated
1-xxx-2	CuNiSi, selective gold plated
1-xxx-2*	CuNiSi, min 1.27 µm selective gold plated
1-xxx-3	CuNiSi, selective silver plated



HDSCS Connectors

WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.



Contact Size	Insulation Diameter (mm)	Color	Part Number	Package Quantity
1.5K	0.9-1.2	Green	1718705-1	10,000
	1.2-1.6	Red	964971-1	
		Blue	1394133-1	
	1.4-1.9	Gray	963530-1	
	1.9-2.1	Yellow	964972-1	
	1.9-2.4	Orange	2112323-1	
2.8	1.2-2.1	Blue	828904-1	1000
			828904-2	10,000
	2.2-3.0	White	828905-1	
6.3/4.8K	1.4-2.0	Yellow	2177018-1	10,000
	2.0-2.7	White	1394511-1	
	2.7-2.9	Red brown	1823111-1	
	3.4-3.7	Blue	1394512-1	
	4.0-4.5	Green	1719043-1	

SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

Contact Size	Wire Size	Color	Part Number	Package Quantity
1.5K	3.6 mm	White	963531-1	10,000
		Natural	1394132-1	
2.8	5.6 mm	Natural	828922-1	
		Green	828922-2	
6.3/4.8K	8.5 mm	Transparent	967652-1	

HDSCS Connectors

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOL FOR AMP MCP CONTACTS



Contact Size	Tab Strip Form	Tab Loose Piece	Receptacle Strip Form	Receptacle Loose Piece	Tool P/N	Description
1.5K	1703278 964269 969028	1703279 964270 969029	-	-	539663-2 (die) 539663-2 (frame)	ERGOCRIMP hand tool and die assembly
	-	-	1418884	1418885	5-1579001-3 (die) 539635-1 (frame)	
	-	-	1564324	1564325	4-1579016-0 (die) 539635-1 (frame)	
2.8	962915 962916	963748 963749	-	-	539758-2 (die) 539635-1 (frame)	ERGOCRIMP hand tool and die assembly
	965982	965983	-	-	539737-2 (die) 539635-1 (frame)	
	-	-	968882	968896	539725-2 (die) 539635-1 (frame)	
6.3/ 4.8K	962917 962918 962919	963742 963743 963744	-	-	539757-2 (die) 539635-1 (frame)	ERGOCRIMP hand tool and die assembly
	-	-	1241410 1241412	1241411 1241413	539955-2 (die) 539635-1 (frame)	
	-	-	1241416 1241414	1241415 1241417	539956-2 (die) 539635-1 (frame)	
	-	-	1241418	1241419	3-1579021-7 (die) 539635-1 (frame)	

HDSCS Connectors

AUTOMATED FOR AMP MCP CONTACTS



OCEAN end
feed applicator

Contact Size	Tab Strip Form	Receptacle Strip Form	Applicator P/N	Feed Type
1.5K	969028	-	2151056-1	Mechanical end feed
			2151056-2	Pneumatic end feed
	964269	-	2151935-1	Mechanical end feed
			2151935-2	Pneumatic end feed
	1703278	-	2266180-1	Mechanical end feed
			2266180-2	Pneumatic end feed
	-	1418884	2266179-1	Mechanical end feed
			2266179-2	Pneumatic end feed
	-	1564324	2151469-1	Mechanical end feed
			2151469-2	Pneumatic end feed
2.8	962915	-	2151181-1	Mechanical end feed
			2151181-2	Pneumatic end feed
	962916	-	2151260-1	Mechanical end feed
			2151260-2	Pneumatic end feed
	965982	-	2151840-1	Mechanical end feed
			2151840-2	Pneumatic end feed
	-	968882	2151559-1	Mechanical end feed
			2151559-2	Pneumatic end feed

Note: Applicators with additional feed styles are available, contact your representative

HDSCS Connectors

AUTOMATED FOR AMP MCP CONTACTS (CONTINUED)

Contact Size	Tab Strip Form	Receptacle Strip Form	Applicator P/N	Description
6.3/4.8K	962917	-	2266535-1	Mechanical end feed
			2266535-2	Pneumatic end feed
	962918	-	2151783-1	Mechanical end feed
			2151783-2	Pneumatic end feed
	962919	-	2151782-1	Mechanical end feed
			2151782-2	Pneumatic end feed
	-	1241410	2151695-1	Mechanical end feed
			2151695-2	Pneumatic end feed
	-	1241412	2151234-1	Mechanical end feed
			2151234-2	Pneumatic end feed
	-	1241416	2151151-1	Mechanical end feed
			2151151-2	Pneumatic end feed
	-	1241414	2266490-1	Mechanical end feed
			2266490-2	Pneumatic end feed
	-	1241418	2151466-1	Mechanical end feed
			2151466-2	Pneumatic end feed

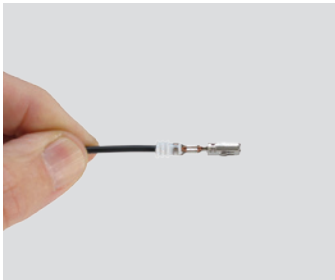
Note: Applicators with additional feed styles are available, contact your representative

EXTRACTION AND INSERTION TOOLS FOR AMP MCP CONTACTS

Contact Size	Part Number	Description
1.5K	539960-1	Extraction
	1-1579007-1	Extraction
	1579008-9	Insertion
2.8	519609-1	Insertion
2.8 6.3/4.8K	1-1579007-6	Extraction
6.3/4.8K	1-1579007-3	Extraction

How To Instructions

CONTACT INSERTION



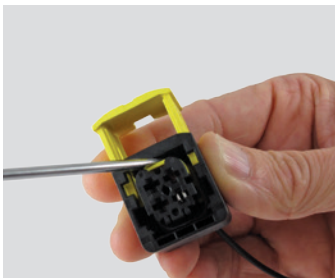
Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.



Step 2:
Make sure the contact is in the correct orientation. Verify the integrated secondary lock is in the unlocked position.



Step 3:
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.



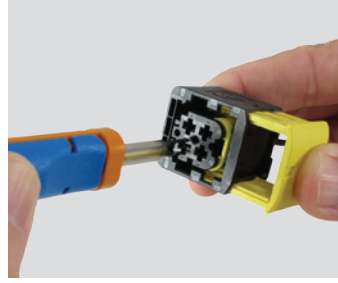
Step 4:
Push the integrated secondary lock into the locked position with a DT-RT1 or a screwdriver.

HDSCS Connectors

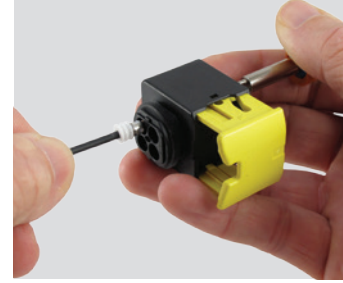
CONTACT REMOVAL



Step 1:
Using a DT-RT1 or a screwdriver, unlock the integrated secondary lock.



Step 2:
Using the appropriate extraction tool, insert the blades into the contact cavity until they stop.



Step 3:
Pull contact wire assembly out of connector.

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LEAVYSEAL Connectors

LEAVYSEAL Connector Overview

The rugged LEAVYSEAL connectors are multi-pin and accept multiple wire sizes. LEAVYSEAL products utilize a lever lock system for mating and are available in several mounting styles and keying options. The housings come in six sizes and feature an integrated cable attachment.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with LEAVYSEAL products. The following TE Connectivity document numbers may be helpful:

1307998-3 (Catalog Section)

108-18696 (Product Specification)

114-18376 (Application Specification)

2293396 (Product Group Drawing)

LEAVYSEAL CONNECTOR PERFORMANCE SPECIFICATIONS

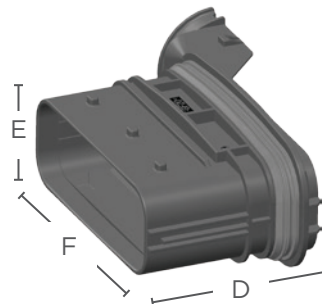
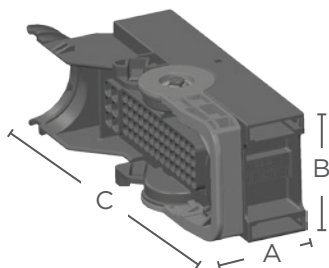
Current:	Up to 40 amps
Temperature:	Operating at temperatures ranges -40°C to +140°C, see individual product specifications for specific range.
Durability:	Up to 20 cycles (tin), up to 50 cycles (silver), up to 100 cycles (gold), see individual product specifications for additional details.
Insulation Resistance:	500 volts DC, see individual product specifications for testing conditions.
Immersion:	IP67 rating, IP6K9K with cover
Voltage:	42 volts AC/DC
Dielectric Withstanding Voltage:	No flash over or breakdown between adjacent contacts and outer contour of the housing permitted at 500 volts AC and 50 or 60 Hz for 60 seconds.
Flammability	Product with a UL 94 V0 rated material is available

MATERIAL SPECIFICATIONS

Flange Seal:	Silicone rubber
Housing:	Glass filled PBT
Secondary Locking:	Glass filled PBT

LEAVYSEAL Connectors

DIMENSIONS



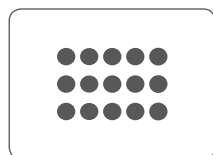
LEAVYSEAL Receptacle Housing

LEAVYSEAL Tab Housing

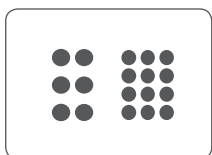
Group	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
1	1.46 (37.0)	1.57 (40.0)	2.33 (57.9)	1.48 (37.6)	1.93 (49.0)	1.91 (48.4)
2	1.49 (37.9)	1.72 (43.7)	2.73 (69.4)	1.81 (46.1)	2.03 (51.5)	2.62 (66.6)
3	1.73 (44.0)	1.64 (41.7)	3.64 (92.5)	2.19 (55.5)	2.47 (62.7)	3.62 (92.0)
4	1.43 (36.4)	1.71 (43.5)	4.09 (104.0)	-	-	-
5	1.73 (44.0)	1.81 (46.0)	4.04 (102.5)	1.80 (45.8)	2.78 (70.7)	4.46 (113.3)
6	1.83 (46.6)	1.79 (45.5)	5.26 (133.5)	-	-	-

Dimensions are for reference only.

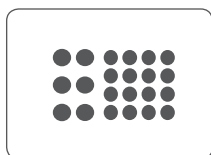
GROUP 1 CONFIGURATIONS



15 Positions
15 size 2.8

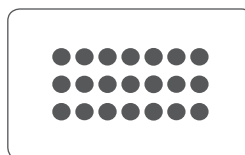


18 Positions
12 size 1.5K
6 size 2.8

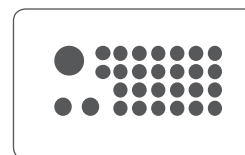


22 Positions
16 size 1.5K
6 size 2.8

GROUP 2 CONFIGURATIONS

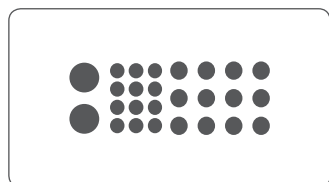


21 Positions
21 size 2.8



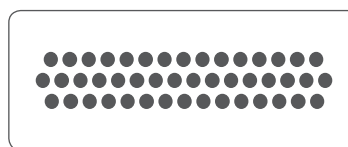
29 Positions
26 size 1.5K
2 size 2.8
1 size 6.3

GROUP 3 CONFIGURATIONS



26 Positions
12 size 1.5K
12 size 2.8
2 size 6.3

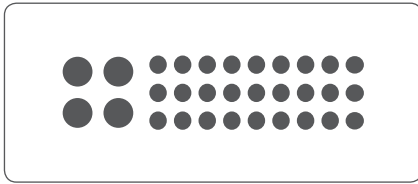
GROUP 4 CONFIGURATIONS



46 Positions
46 size 1.5K

LEAVYSEAL Connectors

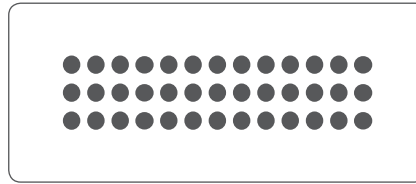
GROUP 5 CONFIGURATIONS



31 Positions

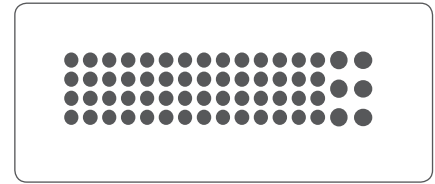
27 size 2.8

4 size 6.3



39 Positions

39 size 2.8

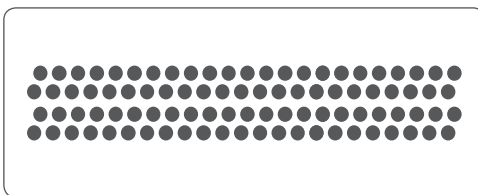


62 Positions

56 size 1.5K

6 size 2.8

GROUP 6 CONFIGURATIONS



92 Positions

92 size 1.5K

LEAVYSEAL Connectors

ORDERING INFORMATION

Position	Group	Contact Size	Keying	Housing Color	Receptacle Housing	Tab Housing	
						In-line/Flange	PCB
15	1	2.8	A	Black	1-1534126-1	1703799-1	-
			B	Natural	2-1534126-1	-	-
			C	Blue	3-1534126-1	-	-
21	2	2.8	A	Black	1-1534127-1	1-2112162-1 (flange)	1534238-1 (straight)
			B	Natural	2-1534127-1	2-2112162-1	-
			C	Blue	3-1534127-1	3-2112162-1	-
			D	Violet	4-1534127-1	4-2112162-1	-
31	5	(27) 2.8 (4) 6.3	A	Bordeaux	1-1564297-6	-	-
39	5	2.8	E	Emerald Green	5-1718321-3	5-1718323-1	5-1418363-1 (straight)
			F	Fawn Brown	6-1718321-3	6-1718323-1	5-1418363-3 (90°)
46	4	1.5K	A	Black	1-2112231-1	-	-
62	5	(56) 1.5K (6) 2.8	A	Black	1-1418883-1	1-1718324-1	1-1418362-1 (straight)
			B	Gray	2-1418883-1	2-1718324-1	1-1418362-3 (90°)
			C	Blue	3-1418883-1	3-1718324-1	2-1418362-1 (straight)
			D	Green	4-1418883-1	-	2-1418362-3 (90°)
92	6	1.5K	A	Black	1-703998-1 (NW 26 wire exit)	-	1-1452228-9 (straight)
					3-1703998-1 (NW 29 wire exit)		
			B	Black	4-1703998-1 (NW 29 wire exit)	-	-
C	Black	5-1703998-1 (NW 29 wire exit)	-	-			

LEAVYSEAL Connectors

ORDERING INFORMATION - VO RATED MATERIAL

Position	Group	Contact Size	Keying	Housing Color	Receptacle Housing	Tab Housing	
						In-line/Flange	PCB
18	1	(12) 1.5K (6) 2.8	A	Black	1823440-2	1-1823448-2	-
21	2	2.8	A	Black	1-2208688-1	1-2112162-1* (flange)	1534238-1* (straight)
22	1	(16) 1.5K (6) 2.8	A	Black	1-1823440-3	1-1823449-1	-
			B	Gray	2-1823440-3	2-1823449-1	-
			C	Blue	3-1823440-3	-	-
			D	Green	4-1823440-3	-	-
26	3	(12) 1.5K (12) 2.8 (2) 6.3	A	Black	1-2112035-1	1-2112041-1	-
						1-2112041-2	
29	2	(26) 1.5K (2) 2.8 (1) 6.3	A	Black	1-1823402-1	-	-
			B	Gray	2-1823402-1	-	-
			C	Blue	3-1823402-1	-	-
31	5	(27) 2.8 (4) 6.3	A	Bordeaux	1-2208685-6	-	-
39	5	2.8	E	Emerald Green	5-2208684-3	5-1718323-1*	5-1418363-1* (straight)
			F	Fawn Brown	6-2208684-3	6-1718323-1*	5-1418362-3* (90°)
62	5	(56) 1.5K (6) 2.8	A	Black	1-1823498-1	-	-
			B	Gray	2-1823498-1	-	-
			C	Blue	3-1823498-1	-	-
			D	Green	4-1823498-1	-	-

*Non-VO rated material

LEAVYSEAL Connectors

Accessories

Backshells, adapters, locking slides, and protective covers are accessory items available for use with LEAVYSEAL connectors. These accessories cover design requirements by assisting with mounting, providing additional protection, and offering increased aesthetics.

BACKSHELLS/COVERS

To achieve an IP6K9K rating, backshells must be used with the LEAVYSEAL connectors. The 90° backshells are available with ribs to accommodate corrugated tubing.



Positions	Housing	Part Number	Tubing
15	Receptacle	9-1394049-1	NW 13
	Tab	9-1394049	NW 13
21	Receptacle	9-1394050-1	NW 17
	Tab	2112167-1	NW 17
22	Receptacle	2112452-1	NW 17
26	Receptacle or Tab	2112046-1	NW 22
31	Receptacle	1418882-1	NW 26
39	Receptacle	1418882-1	NW 26
	Tab		
46	Receptacle	2112233-1	NW 22
62	Receptacle	1418882-1	NW 26
	Tab		
62 (V0)	Receptacle/Tab	1823500-1	NW 26
92	Receptacle (NW 26 wire exit)	1703997-1	NW 26
	Receptacle (NW 29 wire exit)	2141345-1	NW 29

LEAVYSEAL Connectors

ADAPTERS

Adapters are available to aid in mounting LEAVYSEAL connectors. The adapters are available in multiple sizes and can mount up to four LEAVYSEAL connectors.



Positions	Housing	Part Number	Description
15/22	Tab	1703806-1	1 bay, sealed
39/62	Tab	1718329-1	1 bay, unsealed
		1813123-1	2 bays, unsealed
		1813123-2	2 bays, 1 bay closed, unsealed
		2138002-1	4 bays, sealed

LOCKING SLIDES

Locking slides are used to help secure LEAVYSEAL connectors while mounting them. The locking slides may be used with adapters or panels with a thickness of 2.5 mm, 3.0 mm, or 3.5 mm.



Positions	Part Number	Color	Description
15/22	1703804-1	Red	For use with adapter
21	2112166-1	Red	For use with 2.5 mm panel thickness
	2112166-2	Yellow	For use with 3 mm panel thickness
	2112166-3	Gray	For use with 3.5 mm panel thickness
26	2112045-1	Red	For use with 2.5 mm panel thickness
	2112045-2	Yellow	For use with 3 mm panel thickness
39/62	1718328-1	Red	For use with adapter

LEAVYSEAL Connectors

INTERFACE PROTECTION COVER

The LEAVYSEAL protection cover provides an environmental seal and is used to protect the connector interface when the two halves are not mated.

Positions	Part Number	Color
21	1-1394052-1	Black

Contacts

The LEAVYSEAL connectors commonly use the AMP MCP stamped & formed contact system.

AMP MCP CONTACT PERFORMANCE SPECIFICATIONS

Durability

10 cycles (tin)
50 cycles (silver)
100 cycles (gold)

Current Rating

Contact Size	Max. Current
1.5K	up to 20 amps
2.8	up to 40 amps
6.3/4.8K	up to 40 amps

Contact Retention

Contact Size	Min. Load
1.5K	40/60 N
2.8	80 N
6.3/4.8K	80 N

Crimp Tensile Strength

Contact Size	Tensile Strength
1.5K	
.22 mm ²	≥ 32 N
.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.25 mm ²	≥ 135 N (16 AWG)
1.5 mm ²	≥ 135 N

2.8

.22 mm ²	≥ 28 N
.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.5 mm ²	≥ 150 N
2.5 mm ²	≥ 200 N

6.3/4.8K

.35 mm ²	≥ 50 N
.50 mm ²	≥ 60 N
.75 mm ²	≥ 85 N
1.0 mm ²	≥ 108 N
1.5 mm ²	≥ 150 N
2.5 mm ²	≥ 200 N
4.0 mm ²	≥ 310 N
6.0 mm ²	≥ 450 N

LEAVYSEAL Connectors

AMP MCP CONTACTS FOR LEAVYSEAL

Stamped & Formed Tabs with Single Wire Sealing System - AMP MCP

Size	Tab Part Numbers				Wire Size (mm ²)	Insulation Dia. (mm) FLR	Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity			
1.5K	969028	4000	969029	500	0.2-0.5	1.2-1.6	-2/-3
	964269	4000	964270	500	0.5-1.0	1.4-2.1	-2/-3/-5
	1703278	4000	1703279	500	1.5	1.9-2.4	-2/-5
2.8	965982	3500	965983	500	0.2-0.5	max 2.1	1-xxx-1 1-xxx-3
	962915	3500	963748	500	0.5-1.0	max 2.1	1-xxx-1 1-xxx-2 1-xxx-3 2-xxx-1 2-xxx-2 2-xxx-3
	962916	3300	963749	500	1.5-2.5	max 3.0	1-xxx-1 1-xxx-2 1-xxx-3 2-xxx-1 2-xxx-2 2-xxx-3
	1719504	3200	1719503	500	12 TXL	max 3.2	1-xxx-1 1-xxx-2
6.3/ 4.8K	962917	1500	963742	500	0.5-1.0	1.4-2.1	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2
	962918	1500	963743	500	1.5-2.5	2.2-3.0	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2
	962919	1500	963744	500	>2.5-4.0	2.7-3.7	1-xxx-1 1-xxx-2 2-xxx-1 2-xxx-2

AMP MCP Tab Finish Codes

Finish Code	Material
-2	CuFe2, pre-tin plated
-3	CuSn4, gold plated
-5	CuSn4, selective silver plated
1-xxx-1	CuSn, pre-tin plated

Finish Code Material

1-xxx-2	CuSn, selective silver plated
1-xxx-3	CuSn, selective gold plated
2-xxx-1	CuFe, pre-tin plated
2-xxx-2	CuFe, selective silver plated
2-xxx-3	CuFe, selective gold plated

LEAVYSEAL Connectors

Stamped & Formed Receptacles with Single Wire Sealing System - AMP MCP

Size	Receptacle Part Numbers				Wire Size (mm ²)	Insulation Diameter (mm)		Finish
	Strip Form	Package Quantity	Loose Piece	Package Quantity		FLK	FLR	
1.5K	1564324	4500	1564325	500	0.22-0.35	-	1.1-1.4	-1/-2/-3
	1241380	4500	1241381	500	0.5-1.0	-	1.4-2.1	-1/-2/-3 1-xxx-2*
	1418884	4500	1418885	500	>1.0-1.5	-	2.2-2.4	-1/-3
2.8	968882	4500	968896	500	0.35	-	1.2-1.4	1-xxx-1 1-xxx-3
	968855	3500	968875	500	0.5-1.0	-	1.4-2.1	1-xxx-1 1-xxx-2 1-xxx-3
	968857	4000	968876	500	>1.0-2.5	-	2.2-3.0	1-xxx-1 1-xxx-3
6.3/ 4.8K	1241410	1500	1241411	500	0.35-0.5	1.3-2.3	1.2-1.6	-1/-3
	1241412	1500	1241413	500	0.5-1.0	2.0-2.7	1.4-2.1	-1/-3
	1241414	1500	1241415	500	>1.0-2.5	2.7-3.7	2.2-3.0	-1/-3
	1241416	1500	1241417	500	>2.5-4.0	4.1-4.5	3.4-3.7	-1/-3
	1241418	1500	1241419	500	4.0-6.0	-	3.4-4.3	-4 1-xxx-3 2-xxx-3

AMP MCP Receptacle Finish Codes

Finish Code	Material
-1	CuNiSi, pre-tin plated
-2	CuNiSi, selective gold plated
-3	CuNiSi, selective silver plated
-4	CuNiSi, tin-silver pre-plated
1-xxx-1	CuNiSi, pre-tin plated
1-xxx-2	CuNiSi, selective gold plated
1-xxx-2*	CuNiSi, min 1.27 µm selective gold plated
1-xxx-3	CuNiSi, selective silver plated



LEAVYSEAL Connectors

WIRE SEALS

Wire seals are required for connectors without an integrated rear seal to maintain an environmental seal.



Contact Size	Insulation Diameter (mm)	Color	Part Number	Package Quantity
1.5K	0.9-1.2	Green	1718705-1	10,000
	1.2-1.6	Red	964971-1	
		Blue	1394133-1	
	1.4-1.9	Gray	963530-1	
	1.9-2.1	Yellow	964972-1	
	1.9-2.4	Orange	2112323-1	
2.8	1.2-2.1	Blue	828904-1	1000
			828904-2	10,000
	2.2-3.0	White	828905-1	
6.3/4.8K	1.4-2.0	Yellow	2177018-1	10,000
	2.0-2.7	White	1394511-1	
	2.7-2.9	Red brown	1823111-1	
	3.4-3.7	Blue	1394512-1	
	4.0-4.5	Green	1719043-1	

SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.

Contact Size	Wire Size	Color	Part Number	Package Quantity
1.5K	3.6 mm	White	963531-1	10,000
		Natural	1394132-1	
2.8	5.6 mm	Natural	828922-1	
		Green	828922-2	
6.3/4.8K	8.5 mm	Transparent	967652-1	

LEAVYSEAL Connectors

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOL FOR AMP MCP CONTACTS



Contact Size	Tab Strip Form	Tab Loose Piece	Receptacle Strip Form	Receptacle Loose Piece	Tool P/N	Description
1.5K	1703278 964269 969028	1703279 964270 969029	-	-	539663-2 (die) 539663-2 (frame)	ERGOCRIMP hand tool and die assembly
	-	-	1418884	1418885	5-1579001-3 (die) 539635-1 (frame)	
	-	-	1564324	1564325	4-1579016-0 (die) 539635-1 (frame)	
2.8	962915 962916	963748 963749	-	-	539758-2 (die) 539635-1 (frame)	ERGOCRIMP hand tool and die assembly
	965982	965983	-	-	539737-2 (die) 539635-1 (frame)	
	-	-	968882	968896	539725-2 (die) 539635-1 (frame)	
6.3/ 4.8K	962917 962918 962919	963742 963743 963744	-	-	539757-2 (die) 539635-1 (frame)	ERGOCRIMP hand tool and die assembly
	-	-	1241410 1241412	1241411 1241413	539955-2 (die) 539635-1 (frame)	
	-	-	1241416 1241414	1241415 1241417	539956-2 (die) 539635-1 (frame)	
	-	-	1241418	1241419	3-1579021-7 (die) 539635-1 (frame)	

AUTOMATED FOR AMP MCP CONTACTS



OCEAN end
feed applicator

Contact Size	Tab Strip Form	Receptacle Strip Form	Applicator P/N	Feed Type	
1.5K	969028	-	2151056-1	Mechanical end feed	
			2151056-2	Pneumatic end feed	
	964269	-	2151935-1	Mechanical end feed	
			2151935-2	Pneumatic end feed	
	1703278	-	2266180-1	Mechanical end feed	
			2266180-2	Pneumatic end feed	
	-	1418884	2266179-1	Mechanical end feed	
			2266179-2	Pneumatic end feed	
	-	1564324	2151469-1	Mechanical end feed	
			2151469-2	Pneumatic end feed	
	2.8	962915	-	2151181-1	Mechanical end feed
				2151181-2	Pneumatic end feed
962916		-	2151260-1	Mechanical end feed	
			2151260-2	Pneumatic end feed	
965982		-	2151840-1	Mechanical end feed	
			2151840-2	Pneumatic end feed	
-		968882	2151559-1	Mechanical end feed	
			2151559-2	Pneumatic end feed	

Note: Applicators with additional feed styles are available, contact your representative

LEAVYSEAL Connectors

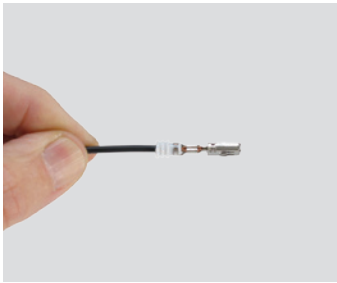
AUTOMATED FOR AMP MCP CONTACTS (CONTINUED)

Contact Size	Tab Strip Form	Receptacle Strip Form	Applicator P/N	Description
6.3/4.8K	962917	-	2266535-1	Mechanical end feed
			2266535-2	Pneumatic end feed
	962918	-	2151783-1	Mechanical end feed
			2151783-2	Pneumatic end feed
	962919	-	2151782-1	Mechanical end feed
			2151782-2	Pneumatic end feed
	-	1241410	2151695-1	Mechanical end feed
			2151695-2	Pneumatic end feed
	-	1241412	2151234-1	Mechanical end feed
			2151234-2	Pneumatic end feed
	-	1241416	2151151-1	Mechanical end feed
			2151151-2	Pneumatic end feed
	-	1241414	2266490-1	Mechanical end feed
			2266490-2	Pneumatic end feed
	-	1241418	2151466-1	Mechanical end feed
			2151466-2	Pneumatic end feed

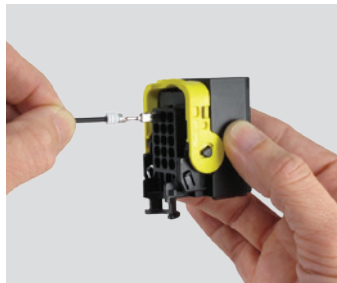
Note: Applicators with additional feed styles are available, contact your representative

How To Instructions

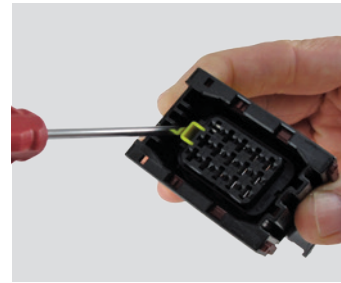
CONTACT INSERTION



Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.



Step 2:
Verify the integrated secondary lock is in the unlocked position. Make sure the contact is in the correct orientation. Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.



Step 3:
Push the integrated secondary lock into the locked position with a DT-RT1 or a screwdriver.

CONTACT REMOVAL



Step 1:
Using a DT-RT1 or a screwdriver, unlock the integrated secondary lock.



Step 2:
Using the appropriate extraction tool, insert the blades into the contact cavity until they stop.



Step 3:
Pull contact wire assembly out of connector.

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Superseal 1.0 Connectors

Superseal 1.0 Connector Overview

The Superseal 1.0 mm connectors are designed to meet the increasing need for dependable printed circuit board applications in harsh environments. The Superseal headers are available with straight or right-angle pins. Various locking latch options and keying configurations are available.



APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with Superseal 1.0 products. The following TE document numbers may be helpful:

1308072-2 (Catalog Section)
108-78140 (Product Specification)
114-78011 (Application Specification)

SUPERSEAL 1.0 CONNECTOR PERFORMANCE SPECIFICATIONS

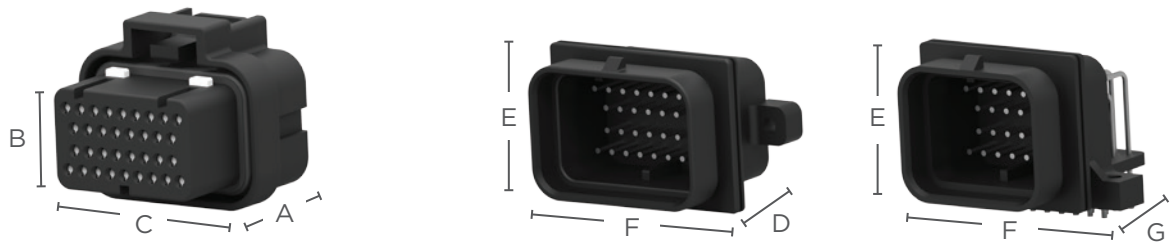
Current:	Up to 15 amps
Temperature:	Operating at temperatures -40°C to +125°C
Durability:	After cap housing is connected, the plug housing is mated and then 78.4 N force is applied in a rocking motion. 25 test cycles.
Insulation Resistance:	100 megohms minimum. Test between adjacent contacts and between contact and earth with insulation resistance meter of 500 volts DC.
Immersion:	Per JIS D0203
Random Vibration:	Tested in each of three mutually perpendicular axis. See Fig 8 in product document 108-78140.
Dielectric Withstanding Voltage:	Insulation does not breakdown at 1000 volts AC or 1600 volts DC for duration of 1 minute between contacts and between contact and earth.
Voltage:	250 volts AC, DC

MATERIAL SPECIFICATIONS

Grommet:	Silicone rubber
Housing:	Thermoplastic
TPA:	Thermoplastic polyester

Superseal 1.0 Connectors

DIMENSIONS



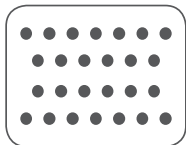
Superseal 1.0 Plug Housing

Superseal 1.0 Pin Header

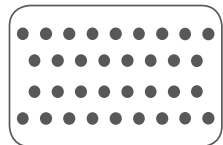
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length Vertical D	Overall Height E	Overall Width F	Overall Length 90° G
26	1.26 (32.1)	1.36 (34.5)	1.26 (32.1)	1.14 (29.0)	1.23 (31.4)	1.55 (39.5)	1.44 (36.5)
34	1.26 (32.1)	1.49 (38.0)	1.50 (38.2)	1.14 (29.0)	1.23 (31.4)	1.79 (45.5)	1.44 (36.5)
60	-	-	-	-	1.23 (31.4)	3.07 (78.0)	1.44 (36.5)

Dimensions are for reference only.

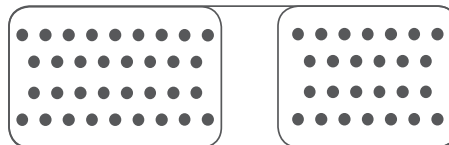
CONFIGURATIONS



26 Positions
26 size 1.0 mm



34 Positions
34 size 1.0 mm



60 Positions
60 size 1.0 mm

ORDERING INFORMATION

Position	Pin Header	Plug Housing	Keying Type	Locking
26	9-6437287-8	3-1437290-7	1 (4 row)	Upper
	9-6437287-9	3-1437290-8	2 (4 row)	Upper
	6473423-1	1473416-1	3 (4 row)	Upper
	6473423-2	1473416-2	4 (4 row)	Upper
	5-6447223-0	3-1437290-7	1 (4 row)	Lower
	6437288-4	3-1437290-8	2 (4 row)	Lower
	2-6437285-8	2-1437285-2	1 (4 row)	Double
	2-6437285-9	1-1447232-7	2 (4 row)	Double
	6437288-6	3-1437290-7	1 (4 row, vertical)	Upper
	6473418-1	3-1437290-8	2 (4 row, vertical)	Upper
	6473418-2	1473416-1	3 (4 row, vertical)	Upper
	6473711-1	1473712-1	1 (2 row)	Upper
	6473711-2		1 (2 row)	Lower
	34	6437288-1	4-1437290-0	1 (4 row)
6437288-2		4-1437290-1	2 (4 row)	Upper
2-6437285-5		4-1437290-0	1 (4 row)	Lower
2-6437285-6		4-1437290-1	2 (4 row)	Lower
3-6437285-0		2-1437285-3	1 (4 row)	Double
3-6437285-1		3-1437290-9	2 (4 row)	Double
2-6447232-3		4-1437290-0	1 (4 row, vertical)	Upper
2-6447232-4		4-1437290-1	2 (4 row, vertical)	Upper
60	6437288-3	3-1437290-7 (26P), 4-1437290-0 (34P)	1 (4 row)	Upper
	6473427-1	1473416-1 (26P), 4-1437290-1 (34P)	2 + 3 (4 row)	Upper
	6437288-5	3-1437290-7 (26P), 4-143790-0 (34P)	1 (4 row)	Lower
	3-6437285-2	2-1437285-2 (26P), 2-1437285-3 (34P)	1 (4 row)	Double

Superseal 1.0 Connectors

Contacts

The Superseal 1.0 mm connectors commonly use the AMP Superseal double spring, stamped & formed contact system.

1.0 MM CONTACT PERFORMANCE SPECIFICATIONS

Durability

25 cycles, per “Kojiri” (rocking motion) durability test

Contact Retention (between contact and housing)

1.0mm \geq 58.8N

Current Rating

Up to 15 amps, consult TE product specification 108-78140

Crimp Tensile Strength

Contact Size	Tensile Strength
.5mm ²	\geq 88.2N
.85 mm ²	\geq 127.4N
1.25 mm ²	\geq 176.4N

1.0 MM STAMPED & FORMED CONTACTS FOR SUPERSEAL 1.0



Stamped & Formed Receptacles - 1.0 mm

Size	Receptacle Strip Form	Wire Size (mm ²)	Insulation Diameter (mm)	Finish
1.0 mm	3-1447221-4	0.5	1.6-2.2	Copper alloy Gold over nickel (contact part), Tin over Nickel (crimp area)
	3-1447221-3	.75-.85	1.6-2.4	
		1.25	1.9-2.2	

SEALING PLUGS

Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



Contact Size	Color	Part Number
1.0 mm	White	4-1437284-3

Superseal 1.0 Connectors

Tooling

Tools are specific to the contact style. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOLS FOR 1.0 MM CONTACTS



Receptacle P/N	Tool P/N	Description
3-1447221-3 3-1447221-4	1454509-1	CERTI-CRIMP straight action hand tool with fixed dies

AUTOMATED TOOLING FOR 1.0 MM CONTACTS



Receptacle P/N	Applicator P/N	Description
3-1447221-3 3-1447221-4	2151705-1	OCEAN end feed applicator with mechanical feed
	2151705-2	OCEAN end feed applicator with pneumatic feed

Note: Applicators with additional feed styles are available, contact your representative

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AEC Series Overview

DEUTSCH AEC series connectors are environmentally sealed, heavy duty electrical connectors that accept size 16 contacts. The AEC series connectors are constructed of rugged thermoplastic and offer several keying options.



DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

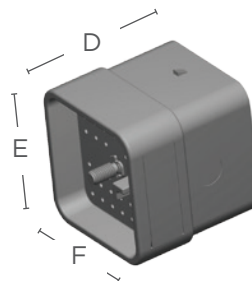
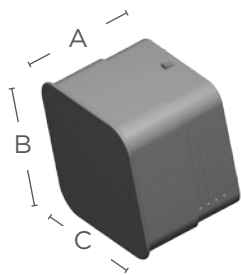
Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

MATERIAL SPECIFICATIONS

Grommet:	Silicone rubber
Jackscrew:	Stainless steel
Plug Threaded Inserts:	Stainless steel
Receptacle Threaded Inserts:	Stainless steel/brass
Shell:	Glass filled PEI

AEC Series

DIMENSIONS



AEC Plug

AEC Receptacle

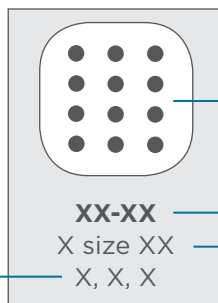
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
40	1.440 (36.58)	1.778 (45.16)	1.894 (48.11)	1.642 (41.71)	1.944 (49.38)	1.828 (46.43)

Dimensions are for reference only.

CONFIGURATION

Keying Options

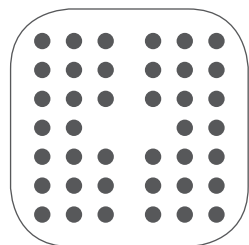
A	A key
B	B key
C	C key
D	D key
U	Universal key



Insert Arrangement

Part Number

Number and Size of Cavities



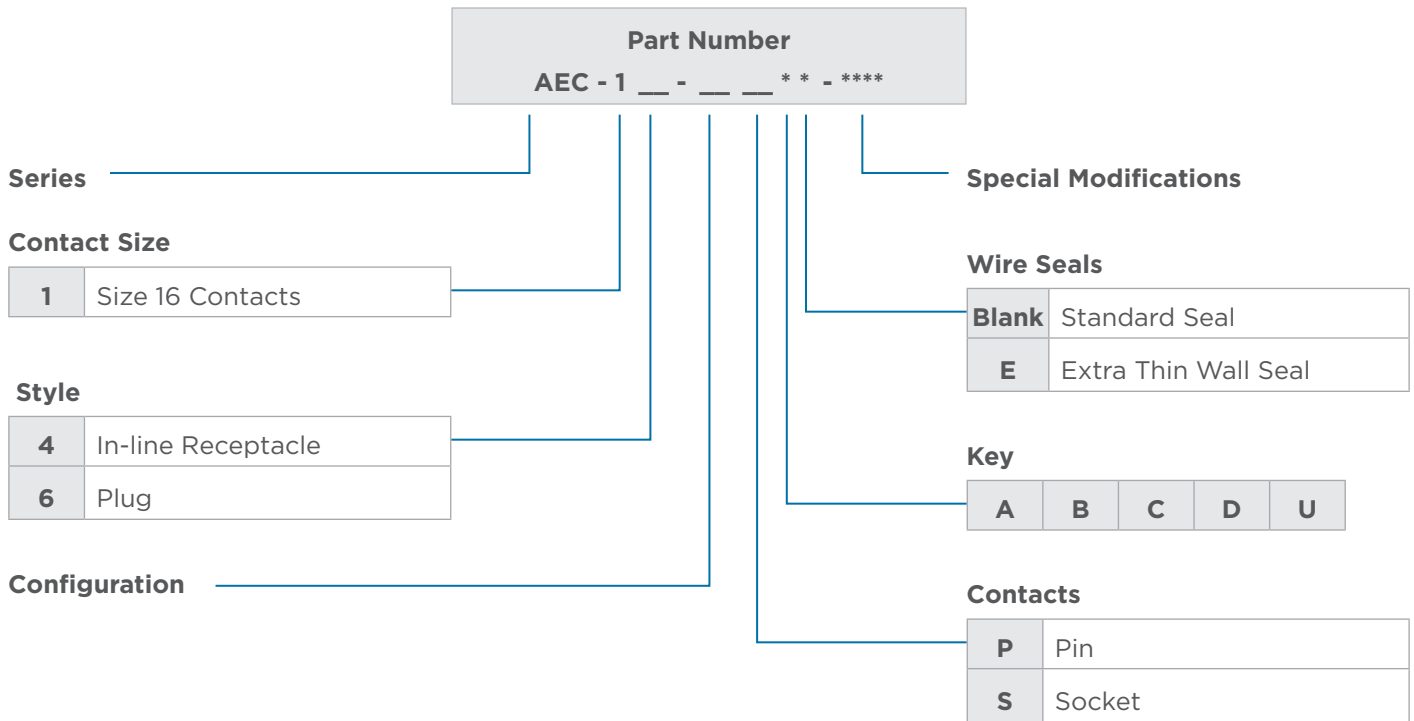
AEC1*-40***
40 size 16
A, B, C, D, U

Note

Do not over torque jackscrew.
The recommended torque rating for the AEC series plug jackscrew when tightening is 25-28 IN-LB (2.86-3.16 N.M.).

AEC Series

PART NUMBERING SYSTEM



ORDERING INFORMATION

Here are some of the common part numbers in the AEC series. Several additional connectors may be available.

Position	Keying	Plug	Receptacle
40	A	AEC16-40SA	AEC14-40PA
	B	AEC16-40SB	AEC14-40PB
	C	AEC16-40SC	AEC14-40PC
	D	AEC16-40SD	AEC14-40PD

WIRE SEALING RANGES

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Thin Seal T-Seal	Extra Thin Seal E-Seal
16 14-20 AWG (2.0-0.5mm ²)	.100-.134 (2.54-3.40)	.088-.134 (2.23-3.40)	.053-.120 (1.35-3.05)

AEC Series

Accessories

Dust caps and boots are available for use with AEC series connectors. The dust caps are designed to help provide protection to the connector interface when the connector halves are not mated. The boots are aesthetically appealing and provide increased protection from dirt, paint overspray, and pressure washing.



Dust Cap Description

Dust Cap Description	Part Number
Dust cap, 40 way receptacle, environmentally sealed	0504-002-4001
Dust cap, 40 way receptacle, non-environmentally sealed	0515-009-4005
Dust cap, 40 way plug, non-environmentally sealed	0515-010-4005

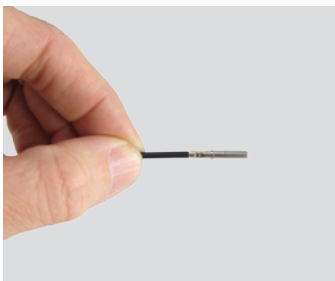
Boot Description

Boot Description	Part Number
Boot, 40 way plug or receptacle, black, step-down	AEC40-BT-STPDWN

*Distorting the boots can lessen their longevity

How To Instructions

CONTACT INSERTION



Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.

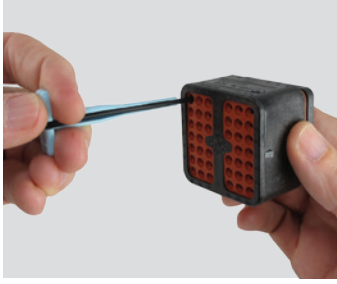


Step 2:
Hold connector with rear grommet facing you.

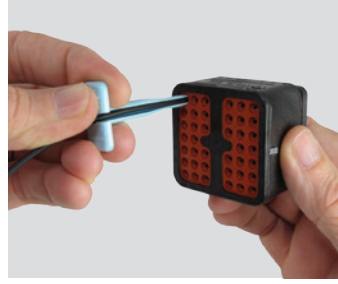


Step 3:
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

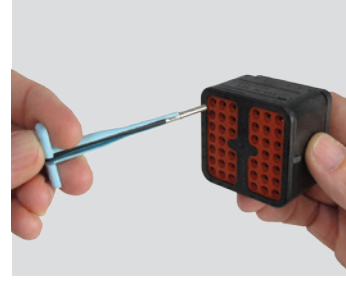
CONTACT REMOVAL



Step 1:
With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



Step 2:
Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



Step 3:
Pull contact wire assembly out of connector.

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DRB Series Overview

DEUTSCH DRB series connectors are heavy duty connectors suitable for bulkhead applications. They are designed to accommodate multiple wire gauges and feature high pin counts, including 48, 60, 102, and 128 cavities. To increase the design flexibility, the DRB series offers several mounting flange options and wire arrangements. The DRB series is suited for on- and off-highway applications, marine, industrial, and agriculture markets in harsh environments.



DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

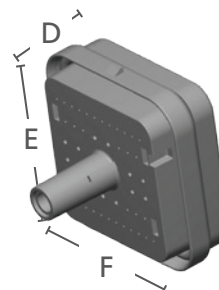
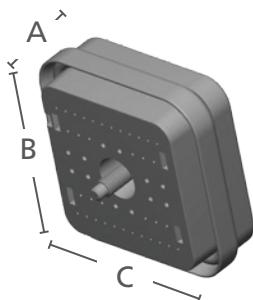
Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

MATERIAL SPECIFICATIONS

Flange Body:	Glass filled PA
Flange Clip:	Spring steel
Grommet:	Silicone rubber
Jackscrew:	Stainless steel
Shell:	Glass filled PA
Wedgelocks:	Glass filled PBT

DRB Series

DIMENSIONS



DRB Plug

DRB Receptacle

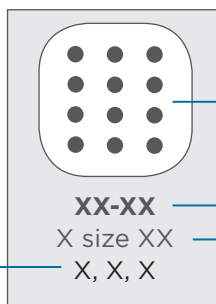
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
48 & 60	1.406 (35.71)	2.606 (66.19)	2.606 (66.19)	2.077 (52.76)	2.606 (66.19)	2.606 (66.19)
102	1.778 (45.16)	2.966 (75.34)	4.951 (125.76)	2.291 (58.19)	2.966 (75.34)	4.951 (125.76)
128	1.748 (44.40)	2.966 (75.34)	4.951 (125.76)	2.291 (58.19)	2.966 (75.34)	4.951 (125.76)

Dimensions are for reference only.

CONFIGURATIONS

Keying Options

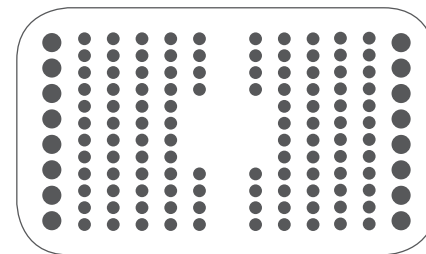
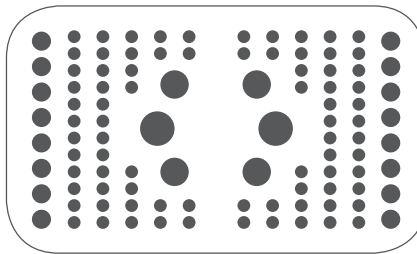
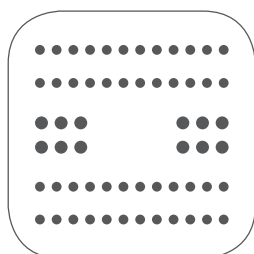
A	A key
B	B key
C	C key
D	D key



Insert Arrangement

Part Number

Number and Size of Cavities



DRB1*-48**

12 size 12
12 size 16
24 size 20
A, B, C, D

DRB1*-60**

12 size 16
48 size 20
A, B, C, D

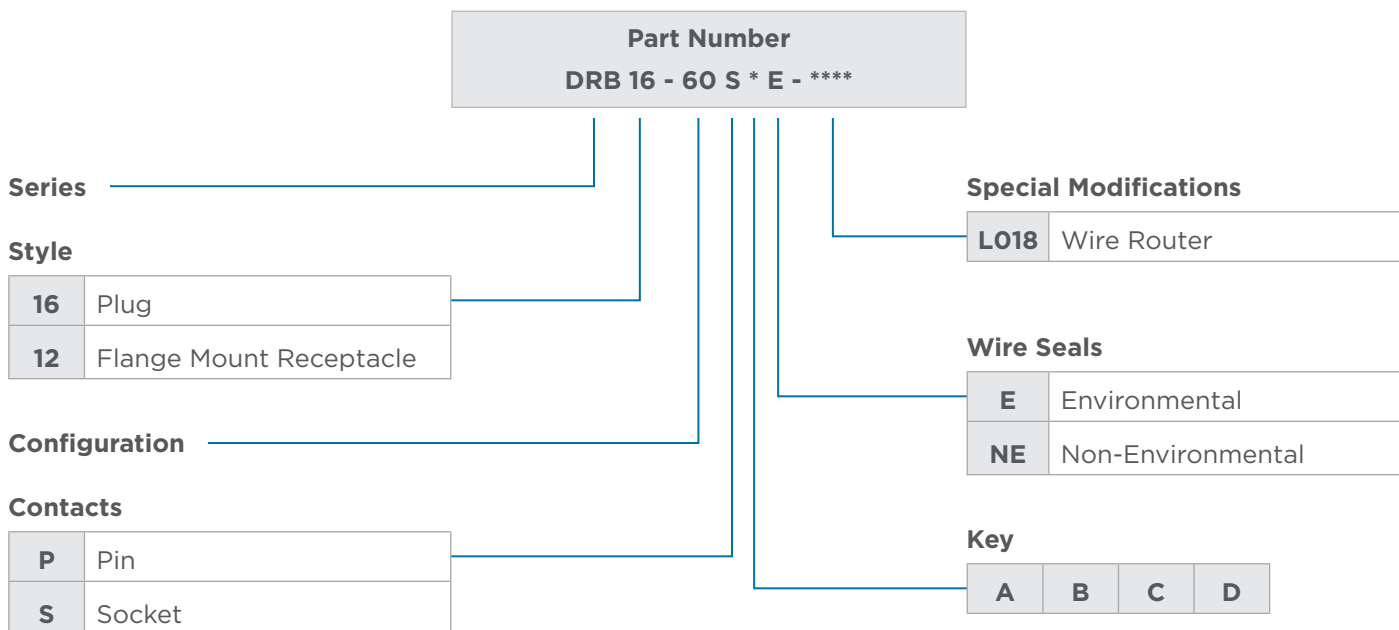
DRB1*-102***

2 size 4
4 size 8
16 size 12
80 size 16
A, B, C, D

DRB1*-128***

16 size 12
112 size 16
A, B, C, D

PART NUMBERING SYSTEM



ORDERING INFORMATION

Here are some of the common part numbers in the DRB series. Several additional connectors may be available.

Position	Keying	Plug	Receptacle
48	Key A	DRB16-48SAE-L018	DRB12-48PAE-L018
	Key B	DRB16-48SBE-L018	DRB12-48PBE-L018
	Key C	DRB16-48SCE-L018	DRB12-48PCE-L018
	Key D	DRB16-48SDE-L018	DRB12-48PDE-L018
60	Key A	DRB16-60SAE-L018	DRB12-60PAE-L018
	Key B	DRB16-60SBE-L018	DRB12-60PBE-L018
	Key C	DRB16-60SCE-L018	DRB12-60PCE-L018
	Key D	DRB16-60SDE-L018	DRB12-60PDE-L018
102	Key A	DRB16-102SAE-L018	DRB12-102PAE-L018
	Key B	DRB16-102SBE-L018	DRB12-102PBE-L018
	Key C	DRB16-102SCE-L018	DRB12-102PCE-L018
	Key D	DRB16-102SDE-L018	DRB12-102PDE-L018
128	Key A	DRB16-128SAE-L018	DRB12-128PAE-L018
	Key B	DRB16-128SBE-L018	DRB12-128PBE-L018
	Key C	DRB16-128SCE-L018	DRB12-128PCE-L018
	Key D	DRB16-128SDE-L018	DRB12-128PDE-L018



DRB Series

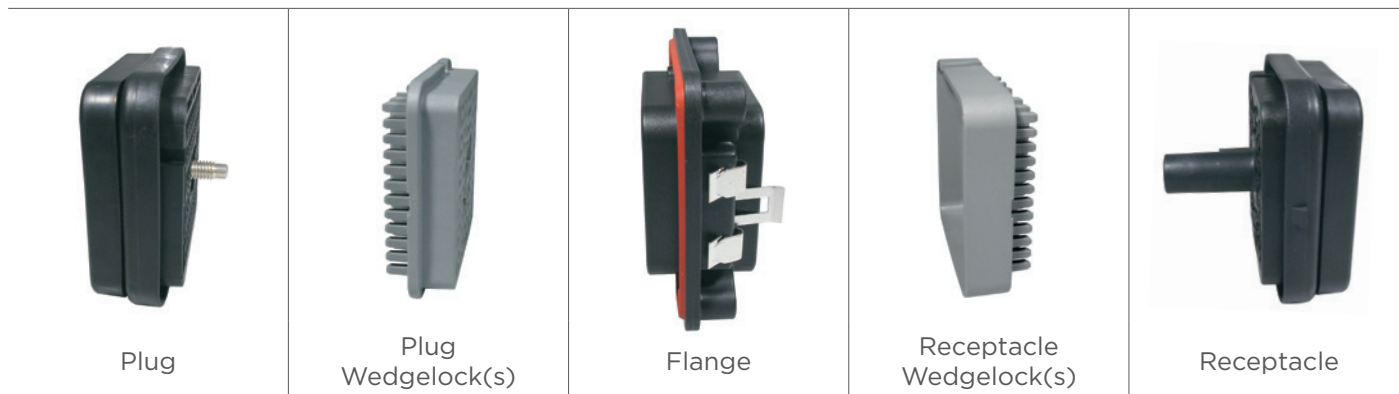
WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Extra Thin Seal E-Seal
20 16-22 AWG (1.0-0.35mm ²)	.040-.095 (1.02-2.41)	.040-.095 (1.02-2.41)
16 14-20 AWG (2.0-0.5mm ²)	.100-.134 (2.54-3.40)	.053-.120 (1.35-3.05)
12 10-14 AWG (5.0-2.0mm ²)	.134-.170 (3.40-4.32)	.097-.158 (2.46-4.01)
8 8-10 AWG (8.0-5.0mm ²)	.190-.240 (4.83-6.10)	.135-.220 (3.43-5.59)
4 6 AWG (13.0mm ²)	.280-.292 (7.11-7.42)	.261-.292 (6.63-7.42)

Required Components

A complete DRB assembly requires a wedgelock for each plug and receptacle and a mounting flange. There are several flange options to accommodate design requirements. The wedgelocks are required to confirm proper contact placement.



FLANGE OPTIONS



Part Number	Accepts Connectors	Description
DRBF-2*	(1) DRB 48 or 60 way	Single mounting flange for one 48 or 60 way DRB plug and receptacle mated pair
DRBF-3**	(2) DRB 48 or 60 ways	Double mounting flange for any combination of two 48 or 60 way DRB plug and receptacle mated pairs
DRBF-1*	(1) DRB 102 way or (1) DRB 128 way	Single mounting flange for the 102 or 128 way DRB plug and receptacle mated pair
DRBM-3*	(1) DRB 102 way or (1) DRB 128 way	Single mounting flange for the 102 or 128 way DRB plug and receptacle mated pair, includes two 125 amp mounting posts

*A, B, C, D keying available, contact your representative

SECONDARY WEDGELOCKS

DEUTSCH DRB electrical connectors require secondary wedgelocks which are sold separately. The wedgelocks confirm proper contact alignment and offer keying options within each connector. Secondary wedgelocks are assembled at the mating interfaces and click into place.

Receptacle Wedgelocks

WB-48P*	Wedgelock for 48 way receptacle
WB-60P*	Wedgelock for 60 way receptacle
WB-51P*L	Left wedgelock for 102 way receptacle
WB-51P*R	Right wedgelock for 102 way receptacle
WB-64P*	Wedgelock for 128 way receptacle (requires two)

*A, B, C, D keying available

Plug Wedgelocks

WB-48S*	Wedgelock for 48 way plug
WB-60S*	Wedgelock for 60 way plug
WB-51S*L	Left wedgelock for 102 way plug
WB-51S*R	Right wedgelock for 102 way plug
WB-64S*	Wedgelock for 128 way plug (requires two)

*A, B, C, D keying available



Accessories

BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DRB series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.

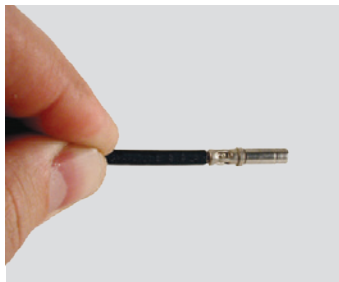


Part Number	Description
DRB48-60-BT	48 way plug or receptacle boot, black
DRB48-60-BT	60 way plug or receptacle boot, black
DRB102-BT	102/128 way plug or receptacle boot, black
DRB102-BT-90DEG	102/128 way plug or receptacle boot, 90° bend, black

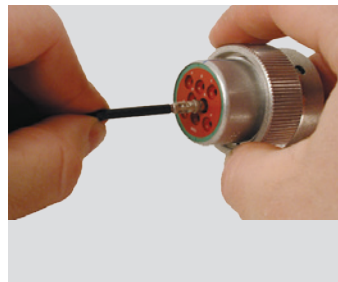
*Distorting the boots can lessen their longevity

How To Instructions

CONTACT INSERTION



Step 1:
Hold connector with rear grommet/wire router cap facing you.



Step 2:
Push contact straight into contact cavity until a click is heard/felt. A slight tug will confirm the contact is inserted correctly.



Step 3:
Once all contacts are in place, insert wedge-lock by lining up the keyway. The wedgelock will press into place.

CONTACT REMOVAL



Step 1:
Remove wedge lock using a screwdriver. Pull wedge lock straight out.



Step 2:
To remove contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.

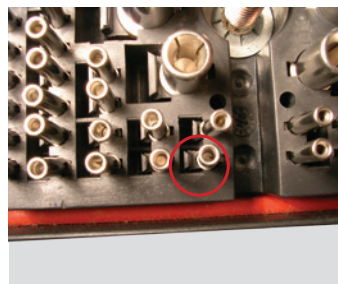
ASSEMBLY



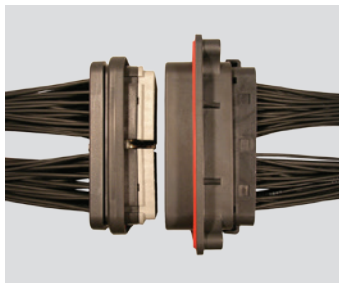
Step 1:
Wedgelocks should be pressed firmly in place, with only a slight gap showing between the wedgelock and connector.



Step 2:
If the wedgelock will not go all the way in, check to make sure all of the contacts are properly seated.



Step 3:
Contacts should be fully inserted into the connector, with the locking fingers in place under the shoulder of the contact. If a contact is not fully inserted, the retention finger will prevent the wedgelock from pressing into place.



Step 4:
When mating the plug with the receptacle, confirm that the plug is not being pulled into the receptacle at an angle by the jackscrew.

Improper assembly can cause the jackscrew to be stripped during assembly. To prevent damage, the jackscrew will strip out before the threads in the connector are damaged. If the jackscrew becomes stripped, please replace the jackscrew and the push nut.

Note

Do not over torque jackscrew. The recommended torque rating for the DRB series plug jackscrew when tightening is 30-35 IN-LB (3.38-3.95 N.M.).

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DRC Series Overview

The environmentally sealed DEUTSCH DRC series is a rectangular connector series that offers insert arrangements of 24, 40, 50, 60, 64, 70, and 76 cavities and accepts size 12, 16, and 20 contacts. Several mounting options are available including in-line, flange mount, and PCB mount.



DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

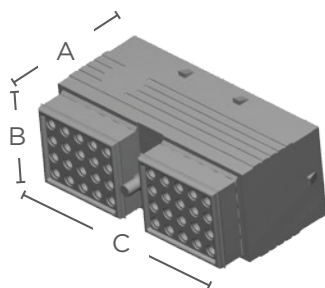
Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

MATERIAL SPECIFICATIONS

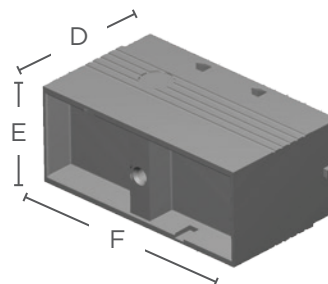
Grommet:	Silicone rubber
Insert Retainer:	Unfilled PEI
Jackscrew:	Stainless steel
Receptacle Threaded Inserts:	Stainless steel/Brass
Shell:	Glass filled PA, Glass filled PPS

DRC Series

DIMENSIONS



DRC Plug



DRC Receptacle

Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
24 (sz. 20)	1.435 (36.45)	1.244 (31.60)	2.004 (50.90)	1.785 (45.34)	1.500 (38.10)	3.104 (78.84)
24 (sz. 16)	1.600 (40.64)	1.148 (29.16)	2.100 (53.34)	1.742 (44.25)	1.202 (30.53)	2.154 (54.71)
38	1.435 (36.45)	1.274 (32.36)	2.700 (68.58)	-	-	-
40 (sz. 20)	1.380 (35.05)	1.244 (31.60)	2.700 (68.58)	1.785 (45.34)	1.500 (38.10)	3.800 (96.52)
40 (sz. 16)	1.597 (40.56)	1.202 (30.53)	2.868 (72.85)	1.699 (43.15)	1.202 (30.53)	2.908 (73.86)
50	1.435 (36.45)	1.408 (35.76)	2.700 (68.58)	-	1.987 (50.47)	3.094 (78.59)
60	1.435 (36.45)	1.448 (36.78)	2.700 (68.58)	-	2.161 (54.89)	3.094 (78.59)
64	-	-	-	1.785 (45.34)	1.500 (38.10)	5.866 (149.00)
70	1.643 (41.73)	1.421 (36.09)	4.094 (103.99)	1.757 (44.63)	1.421 (36.09)	4.094 (103.99)
76	-	-	-	1.115 (28.32)	1.827 (46.41)	5.686 (144.42)

Dimensions are for reference only.

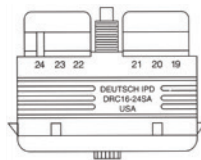
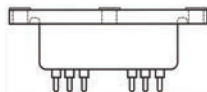
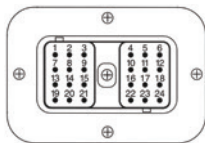
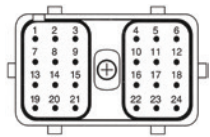
CONNECTOR STYLES

In-line
Receptacle

Flange Mount
Receptacle

PCB Receptacle

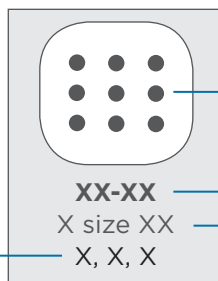
Standard Plug



CONFIGURATIONS

Connector Styles

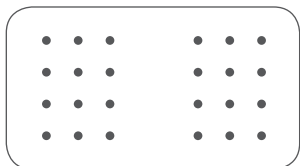
I	In-line
F	Flange Mount Receptacle
P	PCB Receptacle



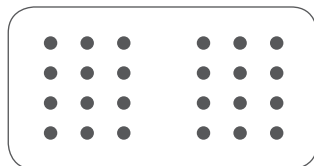
Insert Arrangement

Part Number

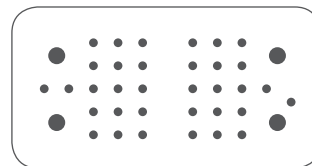
Number and Size of Cavities



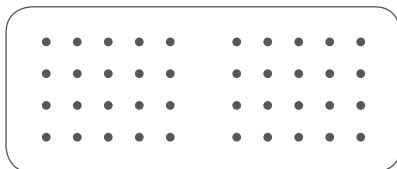
DRC2*-24**
24 size 20
I, F, P



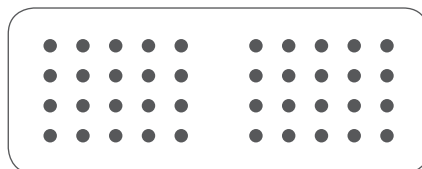
DRC1*-24**
24 size 1
I, F, P



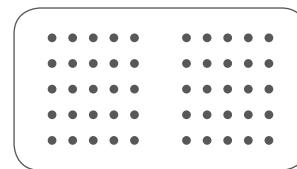
DRC26-38**
34 size 20, 4 size 12
(Plug for **DRC20-76P******)



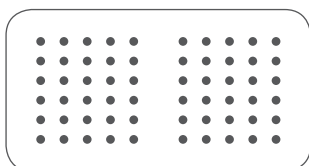
DRC2*-40**
40 size 20
F, P



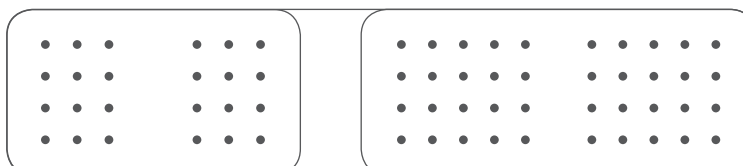
DRC1*-40**
40 size 16
I, F, P



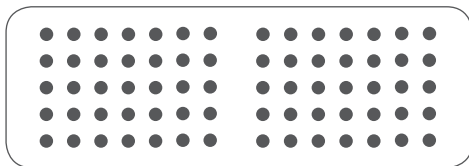
DRC2*-50**
50 size 20
P



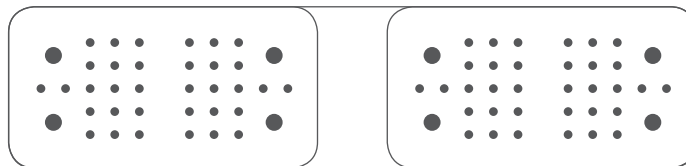
DRC2*-60**
60 size 20
P



DRC2*-64**
64 size 20
P



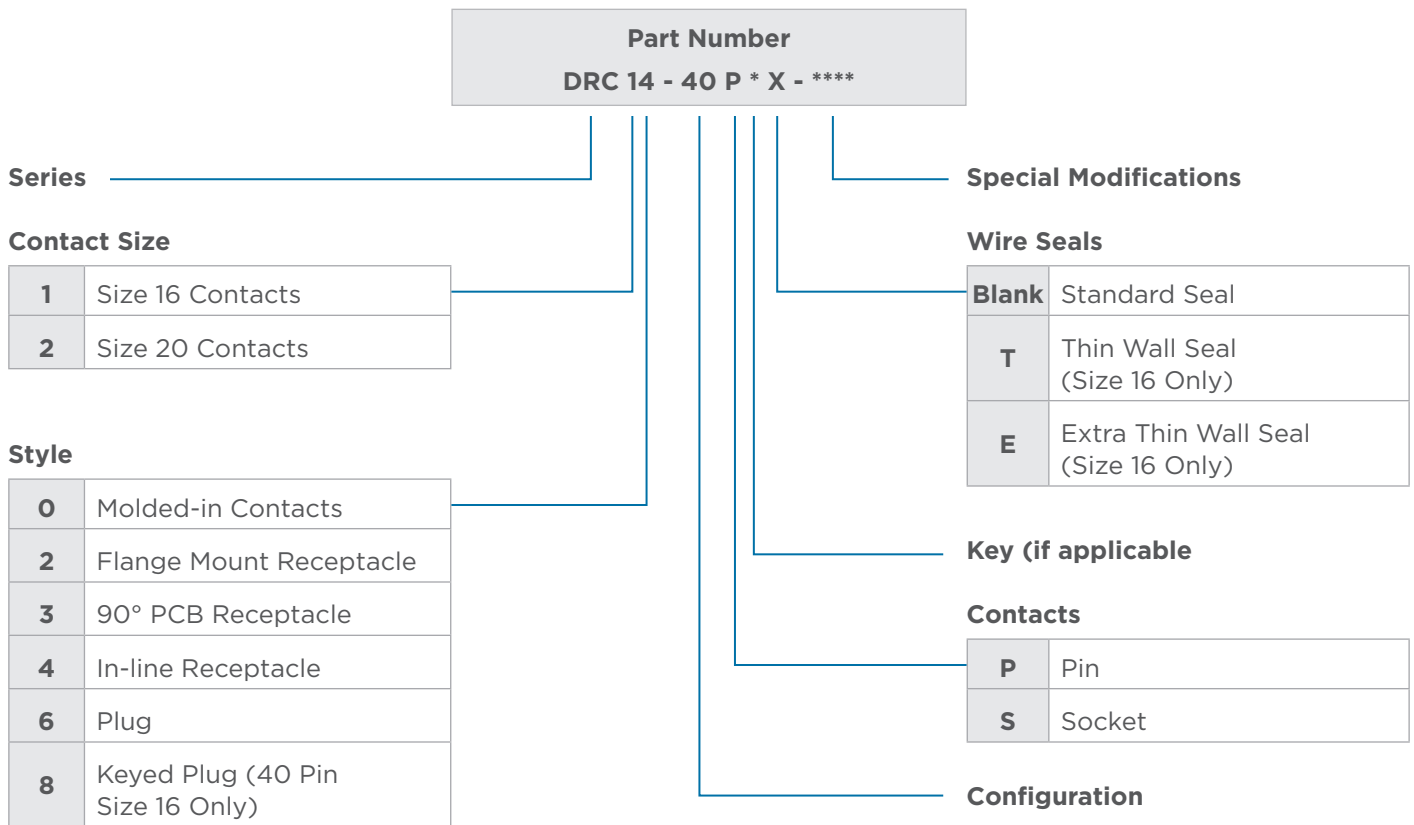
DRC1*-70**
70 size 16
I, F, P



DRC20-76P****
68 size 20, 8 size 12
P

DRC Series

PART NUMBERING SYSTEM



ORDERING INFORMATION

Here are some of the common part numbers in the DRC series. Several additional connectors may be available.

Position	Key	Plug	Receptacle In-line	Receptacle Flange	Receptacle PCB
24 (sz. 20)	A	DRC26-24SA	-	-	DRC23-24PA (90°)
	B	DRC26-24SB	-	-	DRC23-24PB (90°)
	C	DRC26-24SC	-	-	DRC23-24PC (90°)
	D	DRC26-24SD	-	-	DRC23-24PD (90°)
24 (sz. 16)	A	DRC16-24SA	DRC14-24PA	DRC12-24PA	DRC10-24PA (180°)
					DRC13-24PA (90°)
	B	DRC16-24SB	DRC14-24PB	DRC12-24PB	DRC10-24PB (180°)
					DRC13-24PB (90°)
	C	DRC16-24SC	DRC14-24PC	DRC12-24PC	DRC10-24PC (180°)
					DRC13-24PC (90°)
	D	DRC16-24SD	DRC14-24PD	DRC12-24PD	DRC10-24PD (180°)
					DRC13-24PD (90°)
38 (sz. 20)	01	DRC26-38S01-P017	-	-	DRC20-76P0102 (180°)
	02	DRC26-38S02-P017	-	-	

ORDERING INFORMATION (CONTINUED)

Position	Key	Plug	Receptacle In-line	Receptacle Flange	Receptacle PCB
40 (sz. 20)	A	DRC26-40SA	-	DRC22-40PA	DRC23-40PA (90°)
	B	DRC26-40SB	-	DRC22-40PB	DRC23-40PB (90°)
	C	DRC26-40SC	-	DRC22-40PC	DRC23-40PC (90°)
	D	DRC26-40SD	-	DRC22-40PD	DRC23-40PD (90°)
40 (sz. 16)	A	DRC18-40SA	DRC14-40PA	DRC12-40PA	DRC10-40PA (180°)
					DRC13-40PA (90°)
	B	DRC18-40SB	DRC14-40PB	DRC12-40PB	DRC10-40PB (180°)
					DRC13-40PB (90°)
	C	DRC18-40SC	DRC14-40PC	DRC12-40PC	DRC10-40PC (180°)
					DRC13-40PC (90°)
	D	DRC18-40SD	DRC14-40PD	DRC12-40PD	DRC10-40PD (180°)
					DRC13-40PD (90°)
50 (sz. 20)	01	DRC26-50S01	-	-	DRC20-50P01 (180°, outside mount)
					DRC22-50P01 (180°, inside mount)
	02	DRC26-50S02	-	-	DRC20-50P02 (180°, outside mount)
					DRC22-50P02 (180°, inside mount)
	03	DRC26-50S03	-	-	DRC20-50P03 (180°, outside mount)
					DRC22-50P03 (180°, inside mount)
	04	DRC26-50S04	-	-	DRC20-50P04 (180°, outside mount)
					DRC22-50P04 (180°, inside mount)
60 (sz. 20)	05	DRC26-60S05	-	-	-
	06	DRC26-60S06	-	-	-
	07	DRC26-60S07	-	-	-
64 (sz. 20)	AA	DRC26-24SA/ DRC26-40SA	-	-	DRC23-64PAA (90°)
70 (sz. 16)	A	DRC16-70SA	DRC14-70PA	DRC12-70PA	DRC13-70PA
	B	DRC16-70SB	DRC14-70PB	DRC12-70PB	DRC13-70PB
	C	DRC16-70SC	DRC14-70PC	DRC12-70PC	DRC13-70PC
	D	DRC16-70SD	DRC14-70PD	DRC12-70PD	DRC13-70PD
76 (sz. 20 and sz. 12)	01/02	DRC26-38S01-P017/ DRC26-38S02-P017	-	-	DRC20-76P0102 (180°)

DRC Series

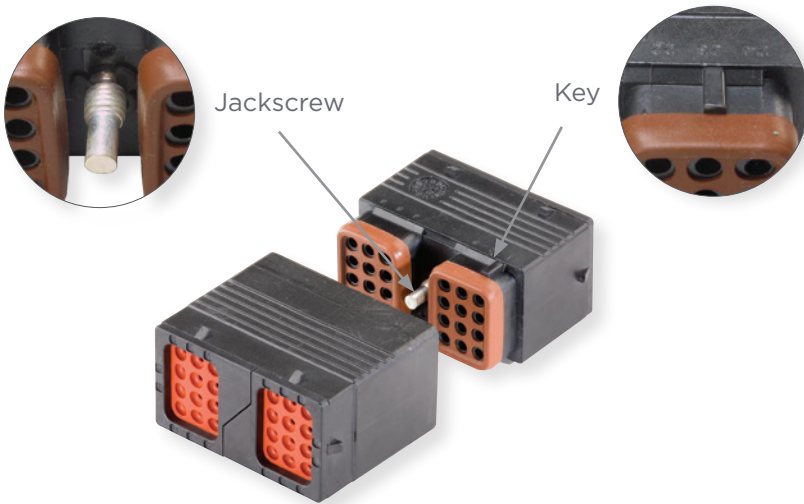
WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Thin Seal T-Seal	Extra Thin Seal E-Seal
20 16-22 AWG (1.0-0.35mm ²)	.040-.095 (1.02-2.41)	.040-.095 (1.02-2.41)	.040-.095 (1.02-2.41)
16 14-20 AWG (2.0-0.5mm ²)	.100-.134 (2.54-3.40)	.088-.134 (2.23-3.40)	.053-.120 (1.35-3.05)
12 10-14 AWG (6.0-2.0mm ²)	.097-.170 (2.46-4.95)	.113-.170 (2.87-4.32)	.097-.158 (2.46-4.01)

MATING CRITERIA

DEUTSCH DRC series plugs are keyed to provide positive alignment and to prevent mis-mating.



Note

Do not over torque jackscrew.
The recommended torque rating for the DRC series plug jackscrew when tightening is 25-28 IN-LB (2.82-3.16 N.M.).

Accessories

Several accessory items are available to complement the connectors including boots, gaskets, backshells, and wire routers. Accessories are designed to complete the application and meet a wide array of design requirements such as providing additional protection and offering increased aesthetics.

BACKSHELLS

DEUTSCH DRC series backshells are designed to snap onto the back of the connectors and accept convoluted tubing. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



Connector Cavities	Part Number	Description
38	0528-003-3805	90° backshell to the side, plug
38	0528-004-3805	90° backshell, plug
38	0528-005-3805	90° low profile backshell, plug
40	0515-015-4005	Wire router, plug
50	0528-001-5005	90° backshell, plug
60	0528-002-6005	90° backshell, plug
60	0528-007-6005	90° backshell to the side, plug
70	0515-029-7005	Straight wire router, plug
70	0515-031-7005	Straight wire router, plug or receptacle,
70	0528-006-7005	Straight backshell, plug or receptacle, requires two halves and wire router
70	0528-012-7005	90° backshell to the side, plug or receptacle, without tubing rib

DRC Series

BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DRC series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



Part Number	Description
DRC24-BT	24 way boot, size 16 contact arrangements, black
DRC26-24BT	24 way boot, size 20 contact arrangements, black
DRC40-BT	40 way boot, size 16 contact arrangements, black
DRC40-BT-90DEG	40 way boot, size 16 contact arrangements, 90° bend, black
DRC26-40BT	40 way boot, size 20 contact arrangements, black
DRC70-BT	70 way boot, size 16 contact arrangements, black

*Distorting the boots can lessen their longevity

GASKETS



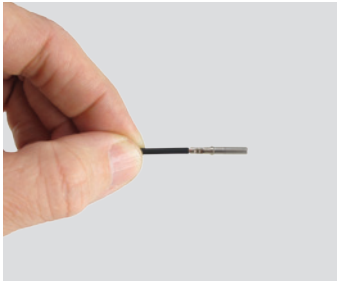
Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225 F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



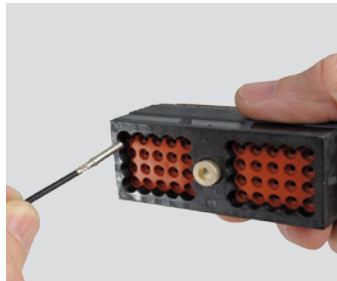
Gasket Part Number	Connector Part Number
DRC24-GKT	DRC12-24P**
DRC40-GKT	DRC12-40P**
DRC70-GKT	DRC12-70P**

How To Instructions

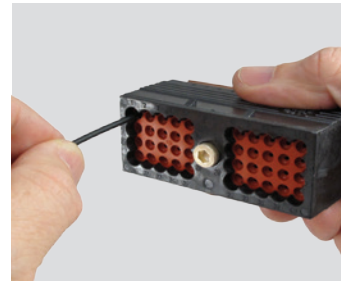
CONTACT INSERTION



Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.

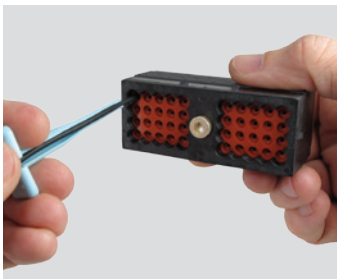


Step 2:
Hold connector with rear grommet facing you.



Step 3:
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

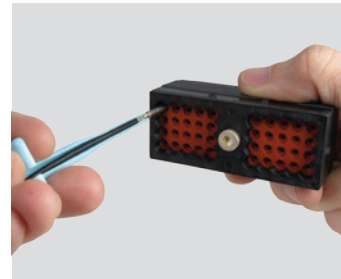
CONTACT REMOVAL



Step 1:
With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



Step 2:
Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



Step 3:
Pull contact wire assembly out of connector.

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DT Family

DT Family Overview

DEUTSCH DT, DTM, and DTP series environmentally sealed connectors are designed for cable to cable and cable to board applications. The DT connectors are used in harsh environment applications where even a small degradation in connection may be critical. Thermoplastic housings offer a wide operating temperature range and silicone rear wire and interface seals allow the connectors to withstand conditions of extreme temperature and moisture.

The DEUTSCH DT series general purpose connectors will provide reliability and performance on the engine or transmission, under the hood, on the chassis, or in the cab.



DT SERIES OVERVIEW

DEUTSCH DT series connectors offer field proven reliability and rugged quality. The DT design strengths include optional flange mounting, multi-pin arrangements, and design flexibility. The DT series offers the designer the ability to use multiple size 16 contacts, each with 13 amp continuous capacity, within a single shell.

DTM SERIES OVERVIEW

DEUTSCH DTM series connectors offer solutions to your smaller wire gauge applications. Building on the DT design strengths, the DTM connector line was developed to fill the need for lower amperage, multi-pin connectors. The DTM series offers the designer the ability to use multiple size 20 contacts, each with 7.5 amp continuous capacity, within a single shell.

DTP SERIES OVERVIEW

DEUTSCH DTP series connectors provide solutions for your power application requirements. Building on both the DT and DTM design strengths, the DTP connector line was developed to fill the need for higher amperage, multi-pin connectors.

The DTP series offers the designer the ability to use multiple size 12 contacts, each with 25 amp continuous capacity, within a single shell. The DTP connectors are currently available in two and four pin configurations.

DT Family

APPLICABLE PRODUCT DOCUMENTATION

Additional documentation is available for assistance with DT Family products. The following TE Connectivity document numbers may be helpful:

108-151009 (Product Specification, DT series)
108-151010 (Product Specification, DTM series)

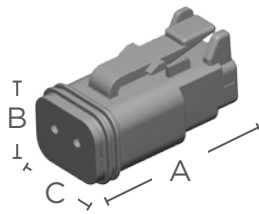
DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

Temperature:	Operating at temperatures -55°C to +125°C • DTMH series: -55°C to +150°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

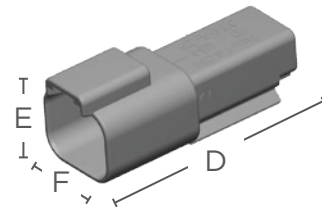
MATERIAL SPECIFICATIONS (DT, DTM, DTMH, DTP, DTV SERIES)

Grommet:	Silicone rubber
Receptacle Interfacial Seal:	Silicone rubber
Receptacle Threaded Inserts:	Stainless steel
Shell:	Glass filled PA
Wedgelocks:	Glass filled PBT

DT SERIES DIMENSIONS



DT Plug

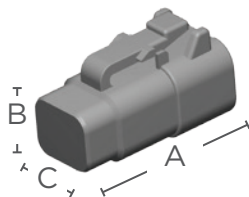


DT Receptacle

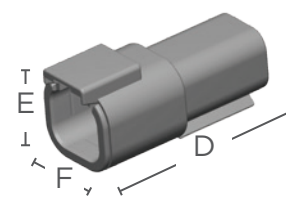
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
2	1.118 (28.4)	.628 (15.95)	.591 (15.01)	1.708 (43.38)	.670 (17.02)	.675 (17.15)
3	1.118 (28.4)	.934 (23.72)	.718 (18.23)	1.698 (43.13)	.973 (24.71)	.832 (21.13)
4	1.218 (30.94)	.724 (18.39)	.716 (18.19)	1.808 (45.92)	.776 (19.71)	.820 (20.83)
6	1.218 (30.94)	.891 (22.63)	.716 (18.19)	1.808 (45.92)	.951 (24.16)	.820 (20.83)
8	1.217 (30.91)	.776 (19.71)	1.465 (37.21)	1.798 (45.67)	1.000 (25.40)	1.435 (36.45)
12	1.218 (30.94)	.716 (18.19)	1.597 (40.56)	1.808 (45.92)	.876 (22.25)	1.597 (40.56)

Dimensions are for reference only.

DTM SERIES DIMENSIONS



DTM Plug

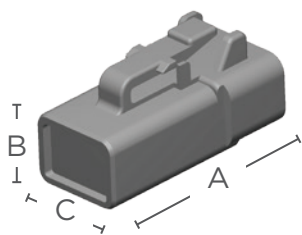


DTM Receptacle

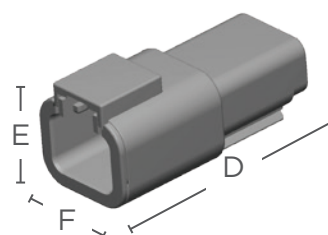
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
2	1.085 (27.56)	.508 (12.90)	.475 (12.07)	1.620 (41.15)	.638 (16.21)	.651 (16.54)
3	1.085 (27.56)	.551 (14.00)	.640 (16.26)	1.620 (41.15)	.638 (16.21)	.861 (20.73)
4	1.185 (30.10)	.695 (17.65)	.600 (15.24)	1.720 (43.69)	.772 (19.61)	.756 (19.20)
6	1.185 (30.10)	.817 (20.75)	.600 (15.24)	1.720 (43.69)	.937 (23.80)	.756 (19.20)
8	1.185 (30.10)	.600 (15.24)	1.245 (31.62)	1.720 (43.69)	.796 (20.22)	1.245 (31.62)
12	1.185 (30.10)	.600 (15.24)	1.575 (40.01)	1.720 (43.69)	.796 (20.22)	1.575 (40.01)

Dimensions are for reference only.

DTP SERIES DIMENSIONS



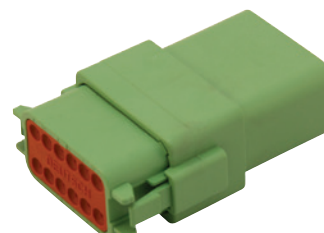
DTP Plug



DTP Receptacle

Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
2	1.364 (34.65)	.711 (18.06)	.732 (18.59)	1.861 (47.27)	.869 (22.07)	.872 (22.15)
4	1.364 (34.65)	.960 (24.38)	.868 (22.05)	1.861 (47.27)	1.048 (26.62)	1.060 (26.92)

Dimensions are for reference only.

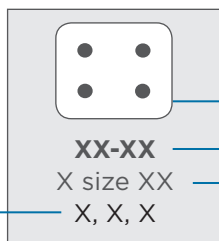


DT Family

DT FAMILY CONFIGURATIONS

Keying Options

A	A key
B	B key
C	C key
D	D key



Insert Arrangement

Part Number

Number and Size of Cavities

DT SERIES CONFIGURATIONS



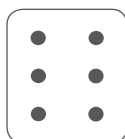
DT0*-2*
2 size 16



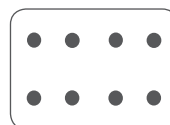
DT0*-3*
3 size 16



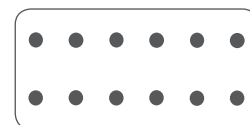
DT0*-4*
4 size 16



DT0*-6*
6 size 16



DT0*-08**
8 size 16
A, B, C, D



DT0*-12**
12 size 16
A, B, C, D

DTM SERIES CONFIGURATIONS



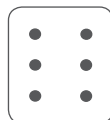
DTM0*-2*
2 size 20



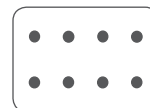
DTM0*-3*
3 size 20



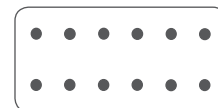
DTM0*-4*
4 size 20



DTM0*-6*
6 size 20



DTM0*-08**
8 size 20
A, B, C, D

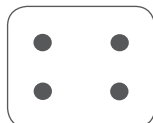


DTM0*-12**
12 size 20
A, B, C, D

DTP SERIES CONFIGURATIONS



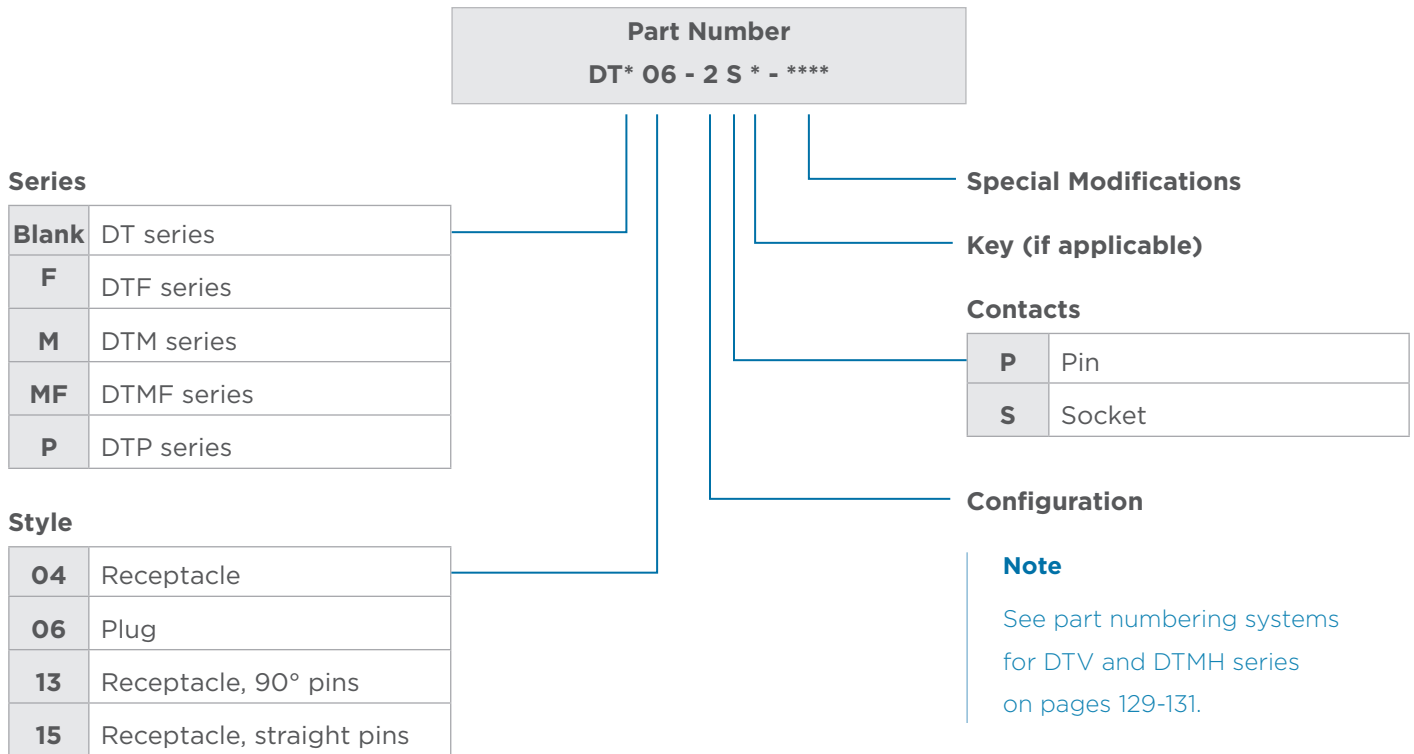
DTPO*-2*
2 size 12



DTPO*-4*
4 size 12

DT Family

PART NUMBERING SYSTEM



DT SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DT series. Several additional connectors may be available.

Position	Keying	Plug	Receptacle	Plug Reduced Dia. Seals	Receptacle Reduced Dia. Seals
2	-	DT06-2S	DT04-2P	DT06-2S-C015	DT04-2P-C015
3	-	DT06-3S	DT04-3P	DT06-3S-C015	DT04-3P-C015
4	-	DT06-4S	DT04-4P	DT06-4S-C015	DT04-4P-C015
6	-	DT06-6S	DT04-6P	DT06-6S-C015	DT04-6P-C015
8	Key A	DT06-08SA	DT04-08PA	DT06-08SA-C015	DT04-08PA-C015
	Key B	DT06-08SB	DT04-08PB	DT06-08SB-C015	DT04-08PB-C015
	Key C	DT06-08SC	DT04-08PC	DT06-08SC-C015	DT04-08PC-C015
	Key D	DT06-08SD	DT04-08PD	DT06-08SD-C015	DT04-08PD-C015
12	Key A	DT06-12SA	DT04-12PA	DT06-12SA-C015	DT04-12PA-C015
	Key B	DT06-12SB	DT04-12PB	DT06-12SB-C015	DT04-12PB-C015
	Key C	DT06-12SC	DT04-12PC	DT06-12SC-C015	DT04-12PC-C015
	Key D	DT06-12SD	DT04-12PD	DT06-12SD-C015	DT04-12PD-C015

DTM SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DTM series. Several additional connectors may be available.

Position	Keying	Plug	Receptacle
2	-	DTM06-2S	DTM04-2P
3	-	DTM06-3S	DTM04-3P
4	-	DTM06-4S	DTM04-4P
6	-	DTM06-6S	DTM04-6P
8	Key A	DTM06-08SA	DTM04-08PA
	Key B	DTM06-08SB	DTM04-08PB
	Key C	DTM06-08SC	DTM04-08PC
	Key D	DTM06-08SD	DTM04-08PD
12	Key A	DTM06-12SA	DTM04-12PA
	Key B	DTM06-12SB	DTM04-12PB
	Key C	DTM06-12SC	DTM04-12PC
	Key D	DTM06-12SD	DTM04-12PD

DTP SERIES ORDERING INFORMATION

Here are some of the common part numbers in the DTP series. Several additional connectors may be available.

Position	Plug	Receptacle	Plug Reduced Dia. Seals	Receptacle Reduced Dia. Seals
2	DTP06-2S	DTP04-2P	DTP06-2S-C015	DTP04-2P-C015
4	DTP06-4S	DTP04-4P	DTP06-4S-C015	DTP04-4P-C015

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Extra Thin Seal E-Seal
20 14-22 AWG (2.5-0.35mm ²)	.053-.120 (1.35-3.05)	-
16 14-20 AWG (2.0-0.5mm ²)	.088-.145 (2.23-3.68)	.053-.120 (1.35-3.05)
12 10-14 AWG (6.0-2.0mm ²)	.134-.170 (3.40-4.32)	.097-.158 (2.46-4.01)

Required Components

SECONDARY WEDGELOCKS

DEUTSCH DT style electrical connectors require secondary wedgelocks which are sold separately. The wedgelocks help confirm proper contact alignment within each connector. Secondary wedgelocks are assembled at the mating interface and press into place. If by chance the secondary wedgelocks are not properly seated during assembly, they will be pressed into locked position during the mating of the connector.

Adding to the design flexibility of the DT series, several wedgelocks offer keying options. Wedgelocks for enhanced seal retention plugs (P012) are also available.



DT Series Receptacle Wedgelocks

W2P*	Wedgelock for 2 way receptacle *A, B, C, D keying available
W3P*	Wedgelock for 3 way receptacle *J1939 keying available
W4P*	Wedgelock for 4 way receptacle *A, B, C, D keying available
W6P	Wedgelock for 6 way receptacle
W8P	Wedgelock for 8 way receptacle
W12P	Wedgelock for 12 way receptacle



DT Series Plug Wedgelocks

W2S*	Wedgelock for 2 way plug *A, B, C, D keying available
W3S*	Wedgelock for 3 way plug *J1939 keying available
W4S*	Wedgelock for 4 way plug *A, B, C, D keying available
W6S	Wedgelock for 6 way plug
W8S	Wedgelock for 8 way plug
W12S	Wedgelock for 12 way plug

Note

Wedgelocks for enhanced seal retention plugs (P012) are available.

DT Family



DTM Series Receptacle Wedgelocks

WM-2P*	Wedgelock for 2 way receptacle *A, B, C, D keying available
WM-3P	Wedgelock for 3 way receptacle
WM-4P	Wedgelock for 4 way receptacle
WM-6P	Wedgelock for 6 way receptacle
WM-8P	Wedgelock for 8 way receptacle
WM-12P	Wedgelock for 12 way receptacle



DTM Series Plug Wedgelocks

WM-2S*	Wedgelock for 2 way plug *A, B, C, D keying available
WM-3S	Wedgelock for 3 way plug
WM-4S	Wedgelock for 4 way plug
WM-6S	Wedgelock for 6 way plug
WM-8S	Wedgelock for 8 way plug
WM-12S	Wedgelock for 12 way plug



DTP Series Receptacle Wedgelocks

WP-2P	Wedgelock for 2 way receptacle
WP-4P	Wedgelock for 4 way receptacle



DTP Series Plug Wedgelocks

WP-2S	Wedgelock for 2 way plug
WP-4S	Wedgelock for 4 way plug

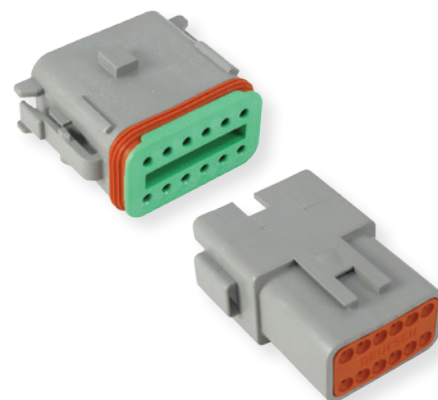
Special Modifications

The DT series connectors offer several modifications to enhance the design flexibility and meet application specific needs. Options include enhanced seal retention, flanges, and connector body color just to mention a few. By combining the DT series connectors with the available modifications and accessories, the design possibilities are immense.

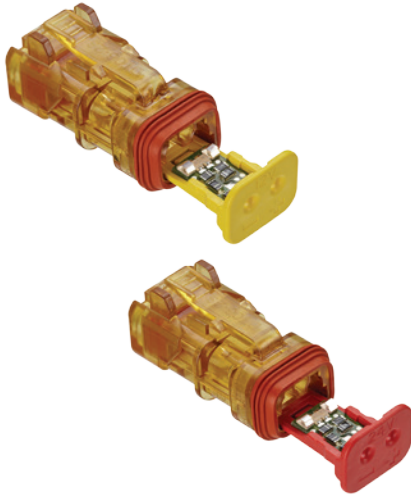
B016 MODIFICATION

The B016 receptacle modification helps prevent mis-mating. The B016 is available for the DT 12 way connectors, DT13/15, and DTF13/15 PCB series connectors. In addition to the four keying positions (A, B, C, or D) and color coding, the B016 enhancement gives the user both visual and tactile proof of correct mating, thus helping eliminate mis-mating opportunities during assembly.

Please note the P012 plug is the required mate for the B016 receptacle to make the enhancement effective.



DETECTOR



The Detector connector has an integrated LED used for diagnostics. The transparent housing features reduced diameter seals and may be ordered with or without an end cap. Color coded wedgelocks for operating voltages, 12VDC and 24VDC are available.

Description	Part Number
Plug, 2 way, LED, transparent Ultem material, reduced diameter seals, end cap	DT06-2S-SDT-CE27
Plug, 2 way, LED, transparent Ultem material, reduced diameter seals	DT06-2S-SDT-CE28
Wedgelock, LED, 12V, yellow	W2S-SDT-12V
Wedgelock, LED, 24V, red	W2S-SDT-24V

P012 MODIFICATION



The DT P012 plugs provide enhanced front seal retention resulting in an ultra tight environmental seal. The enhanced seal retention keeps the seal in place during mating and unmating. The P012 modification requires an enhanced P012 wedgelock. The DEUTSCH P012 modification is available in 2, 3, 4, 6, 8, and 12 cavity arrangements. P012 plugs have a black connector body except for the 8 and 12 cavity arrangements, where the color is based on the key.

C015 MODIFICATION



The C015 modification offers a reduced diameter insert cavity allowing for a proper seal with smaller wire insulation. The C015 modification is also referred to as an "E" seal.

E003 MODIFICATION



The E003 modification offers a protective end cap attached to the rear of the connector. There are holes in the cap to allow the contacts to be inserted.



E004 MODIFICATION

The E004 modification changes the connector body color to black.



E005 MODIFICATION

The E005 modification offers a protective end cap attached to the rear of the connector and has a black connector body.



E007 & E008 MODIFICATION

To meet the application requirements where wires need added protection, the DT (E008) and DTM (E007) series may be supplied with shrink boot adapters. These adapters accept shrink tubing.



FLANGE MODIFICATIONS

Designed to simplify wire routing and assembly, DT series receptacles are available in many mounting configurations and styles.

Welded flange

- Welded flange - BL04, BL08, CL03, L012, LE14
- Welded flange, end cap - LE07, LE11
- Welded flange, shrink boot adapter - LE08, LE12

Sealed flange

- Sealed flange, end cap - CL09, LE01, LE05, LE06, LE09, LE10, LE17, LE21
- Sealed flange, shrink boot adapter - BL10, CL07

Note

Additional modifications are available, please contact your representative.

DT Family

Accessories

Several accessory items are available to complement the connectors including boots, backshells, gaskets, dust caps, and mounting clips. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

GASKETS



Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



Gasket Part Number	Connector Part Number
DT3P-L012-GKT	DT04-3P-L012
DT4P-L012-GKT	DT04-4P-L012
DTP4P-L012-GKT	DTPO4-4P-L012
DT8P-L012-GKT	DT04-08P*-L012
DT12-L012-GKT	DT04-12P*-L012 DTM04-12P*-L012

DUST CAPS



The DT series dust caps are made of either thermoplastic or durable plastisol and are designed to provide protection for the connector interface when the two halves are not mated. The plastisol caps, available for plugs and receptacles, are suitable for providing temporary protection from dirt, dust, and paint overspray. The thermoplastic caps provide an environmental seal for an unmated plug.



Thermoplastic Dust Cap Part Number	Connector Part Number
1011-344-0205	DT06-2S
1011-345-0305	DT06-3S
1011-346-0405	DT06-4S
1011-347-0605	DT06-6S
1011-348-0805	DT06-08S*
1011-349-1205	DT06-12S*, DT16-15S*, DT16-18S*



Plastisol Dust Cap Part Number	Connector Part Number
DTM3S-DC	DTM06-3S
DT3P-DC	DT04-3P
DT4P-DC	DT04-4P
DT6P-DC	DT04-6P
DTM12P-DC	DTM04-12P*
DT12P-DC, DT12P-DC-BK	DT04-12P*
DT12S-DC	DT06-12S*

BOOTS



Boots provide a professional looking finishing touch for DEUTSCH DT family connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



Receptacle Boot Description	Boot Part Number		
	DT Series	DTM Series	DTP Series
2 way receptacle boot, gray	DT2P-BT	DTM2P-BT	DTP2P-BT
2 way receptacle boot, black	DT2P-BT-BK	DTM2P-BT-BK	DTP2P-BT-BK
3 way receptacle boot, gray	DT3P-BT	DTM3P-BT	-
3 way receptacle boot, black	DT3P-BT-BK	DTM3P-BT-BK	-
4 way receptacle boot, gray	DT4P-BT	DTM4P-BT	DTP4P-BT
4 way receptacle boot, gray, enhanced length	-	-	DTP4P-BT-EN
6 way receptacle boot, gray	DT6P-BT	DTM6P-BT	-
6 way receptacle boot, black	DT6P-BT-BK	-	-
8 way receptacle boot, gray	DT8P-BT	DTM8P-BT	-
8 way receptacle boot, black	DT8P-BT-BK	DTM8P-BT-BK	-
12 way receptacle boot, gray	DT12P-BT	DTM12P-BT	-
12 way receptacle boot, black	DT12P-BT-BK	DTM12P-BT-BK	-
12 way receptacle boot, gray, enhanced length	DT12P-BT-EN	-	-

*Distorting the boots can lessen their longevity



Plug Boot Description	Boot Part Number		
	DT Series	DTM Series	DTP Series
2 way plug boot, gray	DT2S-BT	DTM2S-BT	DTP2S-BT
2 way plug boot, black	DT2S-BT-BK	DTM2S-BT-BK	-
3 way plug boot, gray	DT3S-BT	DTM3S-BT	-
3 way plug boot, black	DT3S-BT-BK	DTM3S-BT-BK	-
4 way plug boot, gray	DT4S-BT	DTM4S-BT	DTP4S-BT
4 way plug boot, gray, enhanced length	-	-	DTP4S-BT-EN
6 way plug boot, gray	DT6S-BT	DTM6S-BT	-
6 way plug boot, black	DT6S-BT-BK	-	-
8 way plug boot, gray	DT8S-BT	DTM8S-BT	-
8 way plug boot, black	DT8S-BT-BK	DTM8S-BT-BK	-
12 way plug boot, gray	DT12S-BT	DTM12S-BT	-
12 way plug boot, black	DT12S-BT-BK	DTM12S-BT-BK	-
12 way plug boot, gray, enhanced length	DT12S-BT-EN	-	-
48 way plug boot, gray	DT48S-BT	-	-

*Distorting the boots can lessen their longevity

BACKSHELLS

The DEUTSCH DT and DTM series backshells are designed to snap onto and mate with all standard (basic plug and receptacles without modifications that affect the rear of the connector) DT and DTM series connectors. The rigid, durable backshells offer a high level of protection and allow convoluted tubing to nest within the rear of the backshell. Straight (180°) and right angle (90°) versions and backshells with strain relief for jacketed cable are also available.



Since the backshells are designed to work with the standard DT and DTM connectors, tests should be conducted for fit and function of a backshell being used on any part with a modification.

DT Series Receptacle Backshells

Connector	Style	Strain Relief	Tubing size (mm)	Part Number
DT04-2P	180°		6, 7.5, 8.5, and 10	1011-229-0205
	180°	X	6, 7.5, 8.5, and 10	1011-257-0205
	90°		6, 7.5, 8.5, and 10	1011-230-0205
	90°	X	6, 7.5, 8.5, and 10	1011-258-0205
DT04-3P	180°		6, 7.5, 8.5, and 10	1011-233-0305
	180°	X	6, 7.5, 8.5, and 10	1011-261-0305
	90°		6, 7.5, 8.5, and 10	1011-234-0305
	90°	X	6, 7.5, 8.5, and 10	1011-262-0305
DT04-4P	180°		6, 7.5, 8.5, and 10	1011-237-0405
	180°	X	6, 7.5, 8.5, and 10	1011-265-0405
	90°		6, 7.5, 8.5, and 10	1011-238-0405
	90°	X	6, 7.5, 8.5, and 10	1011-266-0405
DT04-6P	180°		8.5, 10, and 13	1011-241-0605
	180°	X	8.5, 10, and 13	1011-269-0605
	90°		8.5, 10, and 13	1011-242-0605
	90°	X	8.5, 10, and 13	1011-270-0605
DT04-08P*	180°		8.5, 10, and 13	1011-245-0805
	90°		8.5, 10, and 13	1011-246-0805
DT04-12P*	180°		10, 13, and 17	1011-249-1205
	90°		10, 13, and 17	1011-250-1205



DT Series Plug Backshells



Connector	Style	Strain Relief	Tubing size (mm)	Part Number
DT06-2S	180°		6, 7.5, 8.5, and 10	1011-227-0205
	180°	X	6, 7.5, 8.5, and 10	1011-255-0205
	90°		6, 7.5, 8.5, and 10	1011-228-0205
	90°	X	6, 7.5, 8.5, and 10	1011-256-0205
DT06-3S	180°		6, 7.5, 8.5, and 10	1011-231-0305
	180°	X	6, 7.5, 8.5, and 10	1011-259-0305
	90°		6, 7.5, 8.5, and 10	1011-232-0305
	90°	X	6, 7.5, 8.5, and 10	1011-260-0305
DT06-4S	180°		6, 7.5, 8.5, and 10	1011-235-0405
	180°	X	6, 7.5, 8.5, and 10	1011-263-0405
	90°		6, 7.5, 8.5, and 10	1011-236-0405
	90°	X	6, 7.5, 8.5, and 10	1011-264-0405
DT06-6S	180°		8.5, 10, and 13	1011-239-0605
	180°	X	8.5, 10, and 13	1011-267-0605
	90°		8.5, 10, and 13	1011-240-0605
	90°	X	8.5, 10, and 13	1011-268-0605
DT06-08S*	180°		8.5, 10, and 13	1011-243-0805
	90°		8.5, 10, and 13	1011-244-0805
DT06-12S*	180°		10, 13, and 17	1011-247-1205
	90°		10, 13, and 17	1011-248-1205
DT06-12S*-****	180°		13 and 17	1028-043-1205

Note: 1028-043-1205 backshell is designed to fit on 12 way plugs with modifications

PULL OFF STRENGTH

Connector	F_p [N]	F_T [N]
DT04-2P / DT06-2S	50 / 50	50 / 10
DT04-3P / DT06-3S	50 / 50	50 / 50
DT04-4P / DT06-4S	50 / 50	50 / 25
DT04-6P / DT06-6S	50 / 50	50 / 30
DT04-08P* / DT06-08S*	50 / 50	50 / 35
DT04-12P* / DT06-12S*	50 / 50	50 / 40



DTM Series Backshells

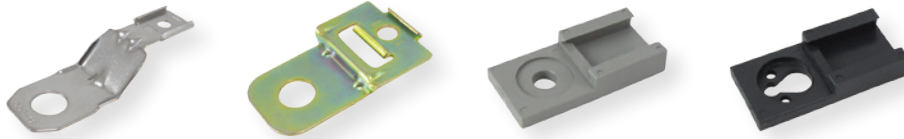


Connector	Style	Tubing size (mm)	Part Number
DTM*04-2P	180°	7.5 and 8.5	1028-021-0205
DTM06-2S	180°	7.5 and 8.5	1011-273-0205
DTM*06-2S	180°	8.5	1028-041-0205
DTM*04-3P	180°	8.5	1028-024-0305
DTM*06-3S	180°	8.5	1028-005-0305
DTM*04-4P	180°	8.5	1028-027-0405
DTM*06-4S	180°	8.5	1028-008-0405
DTM06-6S	180°	10 and 13	1028-011-0605
DTM06-08S*	180°	10 and 13	1028-013-0805
DTM04-12P*	180°	13 and 17	1028-034-1205
DTM06-12S*	180°	13 and 17	1028-015-1205
Adapter for 2, 3, and 4 pin	90°	7.5 and 8.5	1028-016-0005
Adapter for 6 and 8 pin	90°	10 and 13	1028-017-0005

DT Family

MOUNTING CLIPS

Mounting clips are installed on the receptacle to mount DT series connectors. To meet design needs, the clips are available for several configurations and in plastic, stainless steel, or steel with zinc plating.



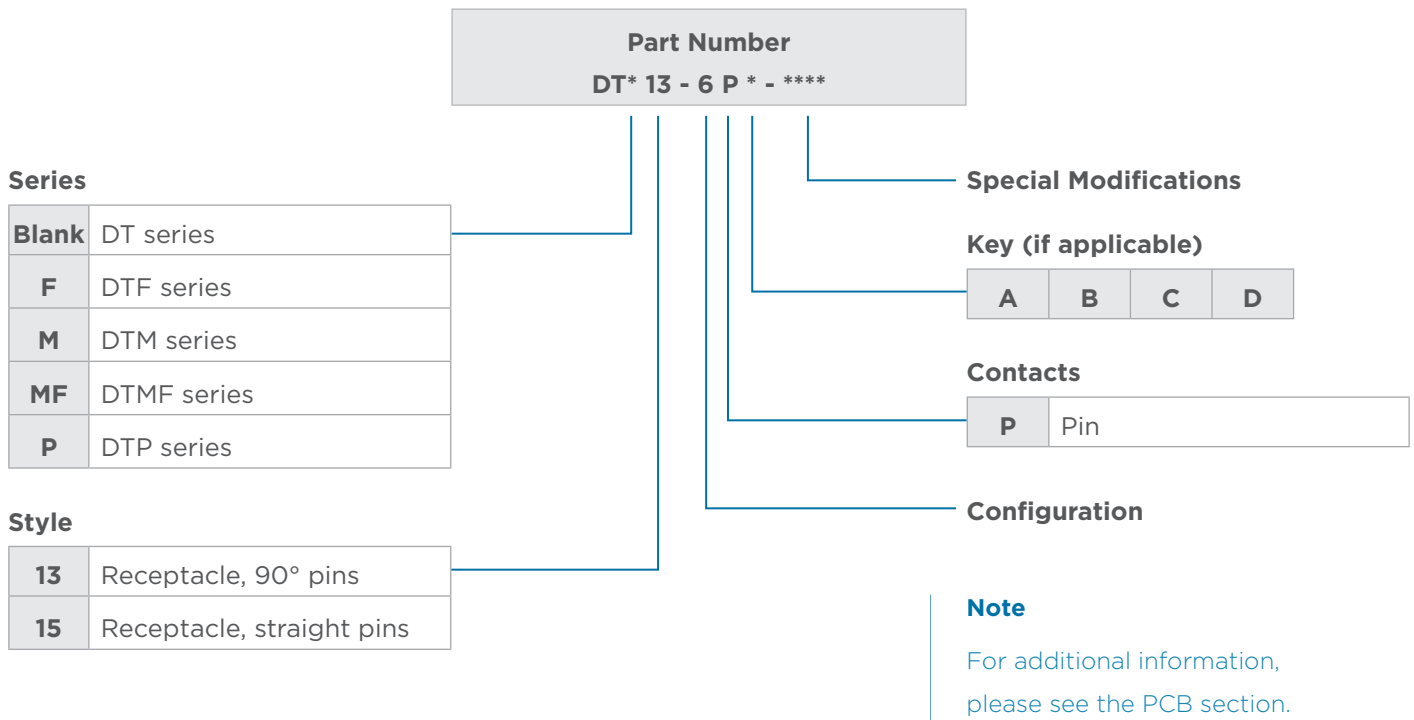
Part Number	Cavity Arrangement	Mounting Direction	Color/Material	Hole O.D. inches (mm)
1027-003-1200	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Stainless steel	.433 (11.0)
1027-005-1200	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Stainless steel	.512 (13.0)
1027-004-1200	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Steel w/ zinc plating	.512 (13.0)
1027-008-1200	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Side	Steel w/ zinc plating	.433 (11.0)
1027-013-1200/ 1027-017-1200	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Side	Steel w/ zinc plating	.323 (8.2)
1027-001-0800	DT 8 cavity only	Straight	Stainless steel	.433 (11.0)
1027-006-0800	DT 8 cavity only	Straight	Stainless steel	.512 (13.0)
1027-002-0800	DT 8 cavity only	Straight	Steel w/ zinc plating	.512 (13.0)
1027-014-0800	DT 8 cavity only	Straight	Steel w/ zinc plating	.323 (8.2)
1011-026-0205	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Gray plastic	.200 (5.08)
1011-030-0205	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Black plastic	---
1011-310-0205* *Connector removeable with 50N of force	DT 2, 3, 4, 6, 12 DTM, DTP (all)	Straight	Black plastic	---
1011-027-0805	DT 8 cavity only	Straight	Gray plastic	.200 (5.08)

DT Family

DT Family Printed Circuit Board Connectors

The DT Family offers printed circuit board (PCB) connectors that are heavy duty environmentally sealed connectors designed for wire-to-circuit board connections. Available in a variety of styles for the DT, DTM, and DTP connector series, DEUTSCH PCB connectors cover a range of pin counts from 2 to 48 and wire gauges from 10 to 22. Many of the connectors are available in straight or 90° pin options.

PCB PART NUMBERING SYSTEM



DT FAMILY PCB CONFIGURATIONS

Connector Description	Pin/Flange Style			
	90° Flange	Straight Flange	90° Flangeless	Straight Flangeless
2 way receptacle, DT series	DT13-2P	DT15-2P	DTF13-2P	-
3 way receptacle, DT series	-	-	DTF13-3P	-
4 way receptacle, DT series	DT13-4P	DT15-4P	DTF13-4P	-
4 way receptacle, DTP series	DTP13-4P	DTP15-4P	-	-
6 way receptacle, DT series	DT13-6P	DT15-6P	DTF13-6P	-
8 way receptacle, DT series	DT13-08P*	DT15-08P*	-	-
12 way receptacle, DT series	DT13-12P*	DT15-12P*	DTF13-12P*	DTF15-12P*
12 way receptacle, DTM series	DTM13-12P*	DTM15-12P*	-	-
48 way receptacle, DTM series	-	-	-	DTMF15-48P

* = Keying (A, B, C, or D)

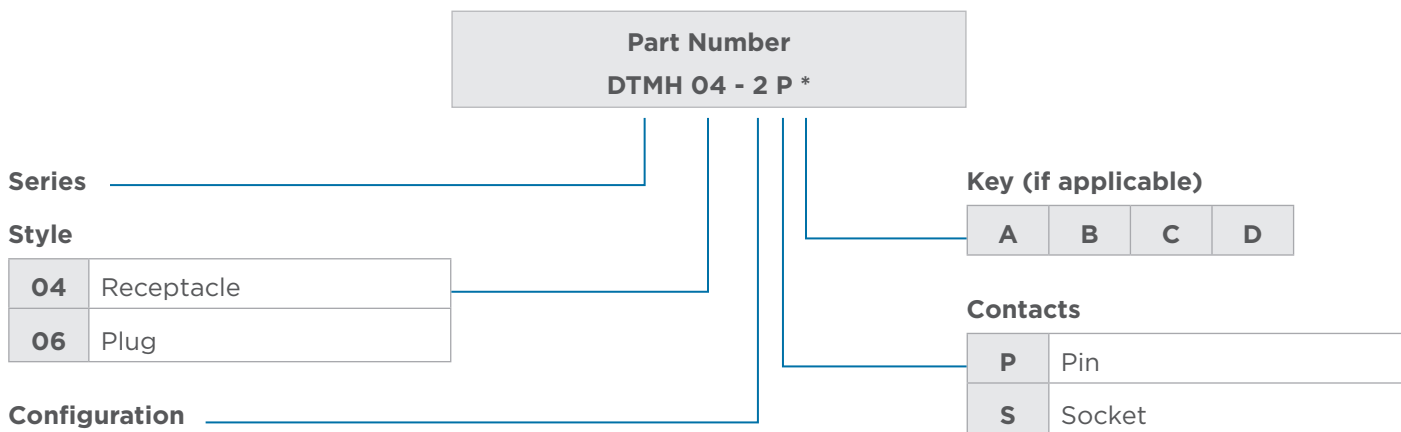
DT Family

DTMH Series & High Temperature Modification Overview

The DTMH series and DTM series EE04 modification connectors are environmentally sealed, high temperature connectors capable of operating in temperatures -55°C to +150°C. They accept size 20 contacts and carry 7.5 amps each. The DTMH connectors are available in 2-4 cavity arrangements and feature an integrated TPA for easy assembly. The EE04 connectors are available in 6, 8, and 12 cavity arrangements and require a secondary wedgelock.



DTMH SERIES PART NUMBERING SYSTEM



DTMH SERIES CONFIGURATIONS



DTMH0*-2**
2 size 20

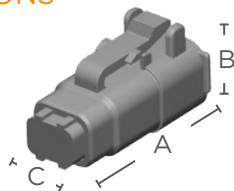


DTMH0*-3**
3 size 20

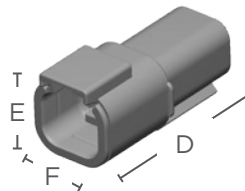


DTMH0*-4**
4 size 20

DTMH SERIES DIMENSIONS



DTMH Plug

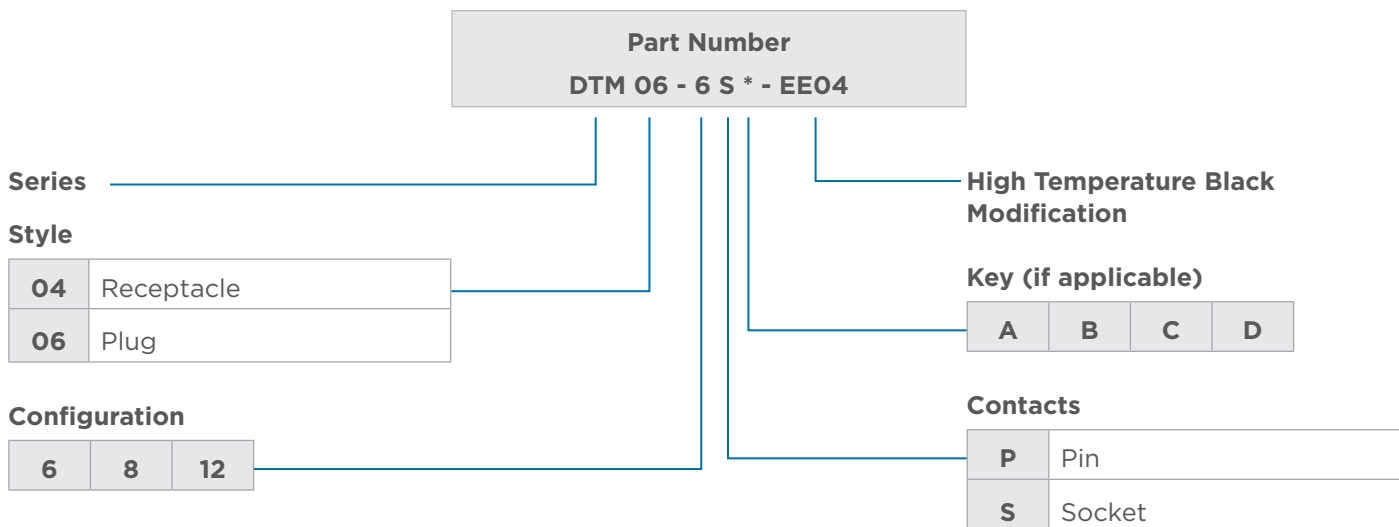


DTMH Receptacle

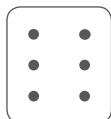
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
2	1.085 (27.56)	.508 (12.90)	.555 (14.10)	1.620 (41.15)	.638 (16.21)	.729 (18.52)
3	1.085 (27.56)	.558 (14.17)	.640 (16.26)	1.620 (41.16)	.638 (16.21)	.894 (22.71)
4	1.185 (30.10)	.652 (16.56)	.680 (17.27)	1.720 (43.69)	.772 (19.61)	.834 (21.18)

Dimensions are for reference only.

DTM SERIES (EE04 MOD) PART NUMBERING SYSTEM



DTM SERIES CONFIGURATIONS



DTM0*-6*-EE04
6 size 20



DTM0*-08-EE04**
8 size 20
A, B, C, D

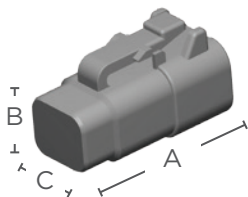


DTM0*-12-EE04**
12 size 20
A, B, C, D

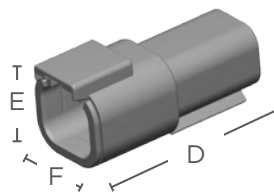
Note

DTM EE04 connectors require a secondary wedgelock that is sold separately.

DTM SERIES DIMENSIONS



DTM Plug



DTM Receptacle

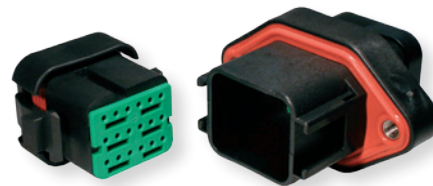
Cavity	Overall Length	Overall Height	Overall Width	Overall Length	Overall Height	Overall Width
	A	B	C	D	E	F
6	1.185 (30.10)	.817 (20.75)	.600 (15.24)	1.720 (43.69)	.937 (23.80)	.756 (19.20)
8	1.185 (30.10)	.600 (15.24)	1.245 (31.62)	1.720 (43.69)	.792 (20.12)	1.245 (31.62)
12	1.185 (30.10)	.600 (15.24)	1.575 (40.01)	1.720 (43.69)	.796 (20.22)	1.575 (40.01)

Dimensions are for reference only.

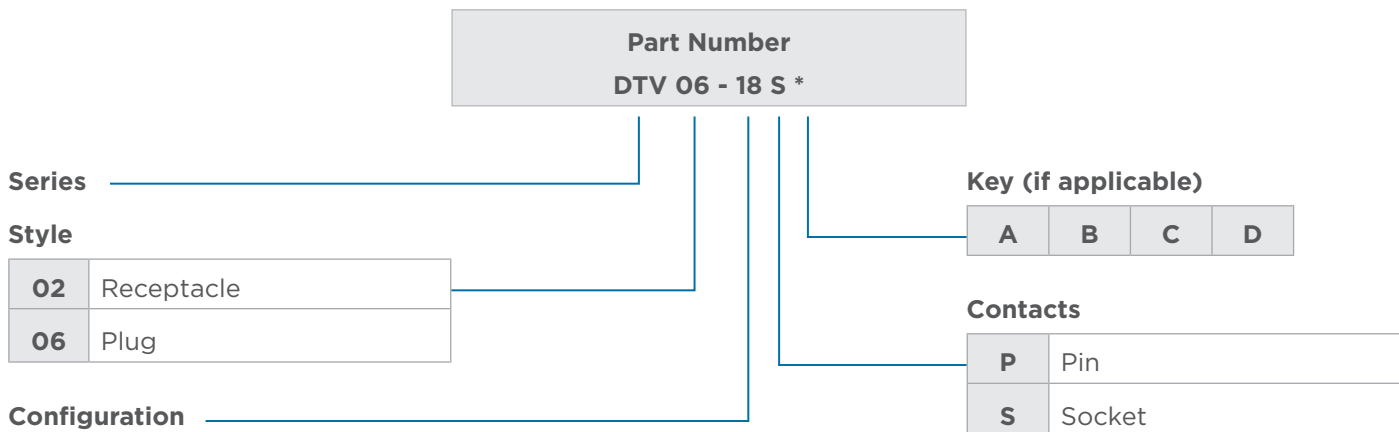
DT Family

DTV Series Overview

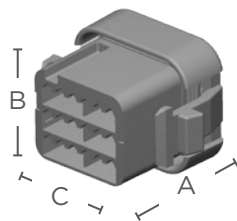
The DEUTSCH DTV series connectors offer the same time tested reliability and performance as the DT series, with the added flexibility of an 18 cavity flanged design.



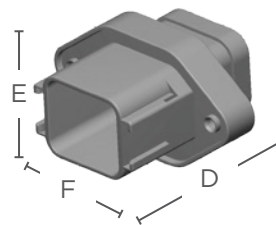
DTV SERIES PART NUMBERING SYSTEM



DTV SERIES DIMENSIONS



DTV Plug



DTV Receptacle

Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
18	1.405 (35.69)	1.059 (26.90)	1.450 (36.83)	2.495 (63.37)	1.786 (45.36)	3.194 (81.12)

Dimensions are for reference only.

SECONDARY WEDGELOCKS



DTV Series Receptacle Wedglock

WV-18P	Wedglock for 18 way receptacle
--------	--------------------------------

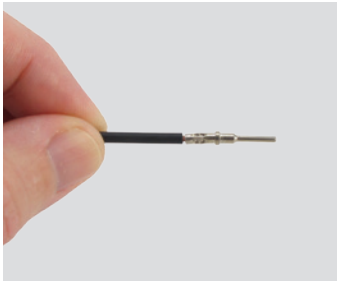


DTV Series Plug Wedglock

WV-18S	Wedglock for 18 way plug
--------	--------------------------

How To Instructions

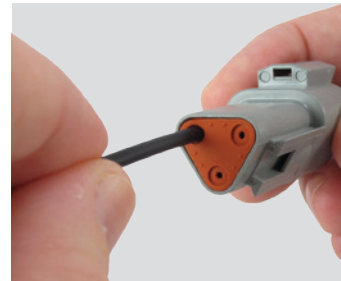
CONTACT INSERTION



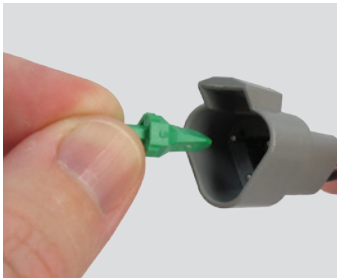
Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.



Step 2:
Hold connector with rear grommet facing you.



Step 3:
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

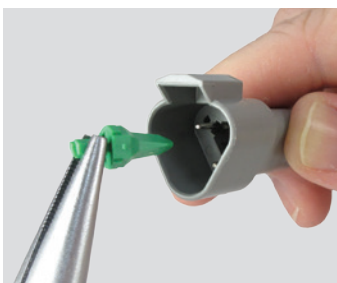


Step 4:
Once all contacts are in place, insert green wedge. The green wedge will snap into place.

Note

The receptacle is shown, use the same procedure for the plug.

CONTACT REMOVAL



Step 1:
Remove green wedge using needle-nose pliers to pull wedge straight out.



Step 2:
To remove the contacts, gently pull wire backwards, while at the same time releasing the locking finger by moving it away from the contact with a screwdriver.



Step 3:
Hold the rear seal in place, as removing the contact will displace the seal.

Contents

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Material Specifications	134
Dimensions	135
Configurations	136
Ordering Information	137
Special Modifications	138
Accessories	139-142
How To Instructions	143

HD10 Series

HD10 Series Overview

The HD10 series is an environmentally sealed, thermoplastic, and cylindrical connector series. With arrangements from 3 to 9 cavities, HD10 connectors accept size 4, 12, or 16 contacts and are available either in-line or flanged. HD10 connectors are heavily used for diagnostic applications and are available with or without a coupling ring.



DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

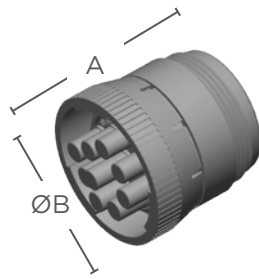
MATERIAL SPECIFICATIONS

Grommet:	Silicone rubber
Insert Retainer:	Thermoplastic
Receptacle	
Interfacial Seal:	Silicone rubber
Shell:	Thermoplastic

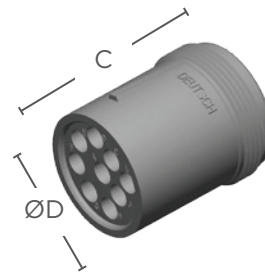


HD10 Series

DIMENSIONS



HD10 Plug



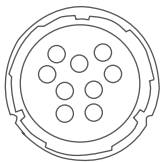
HD10 Receptacle

Cavity	Overall Length A	Overall Height ØB	Overall Length C	Overall Height ØD
3	1.609 (40.87)	1.069 (27.15)	1.639 (41.63)	.851 (21.62)
4	1.639 (41.63)	1.595 (40.51)	1.639 (41.63)	1.281 (32.54)
5	1.609 (40.87)	1.218 (30.94)	1.639 (41.63)	1.001 (25.43)
6	1.619 (41.12)	1.453 (36.91)	1.639 (41.63)	1.141 (28.98)
9	1.609 (40.87)	1.593 (40.47)	1.639 (41.63)	1.281 (32.54)

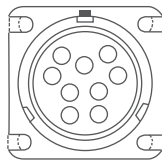
Dimensions are for reference only.

CONNECTOR STYLES

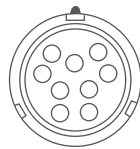
Plug
HD16



Square Flange
Receptacle
HD10

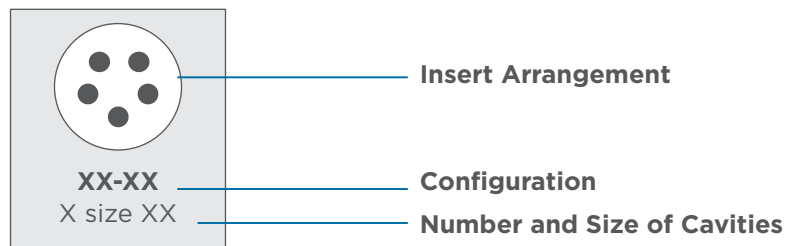


In-line
Receptacle
HD14



HD10 Series

CONFIGURATIONS



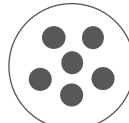
3-16/3-96*
3 size 16



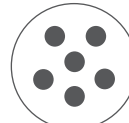
4-4
1 size 4
3 size 16



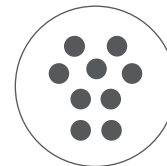
5-16
5 size 16



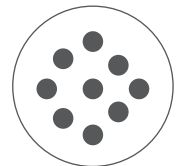
6-12
6 size 12



6-96
6 size 16



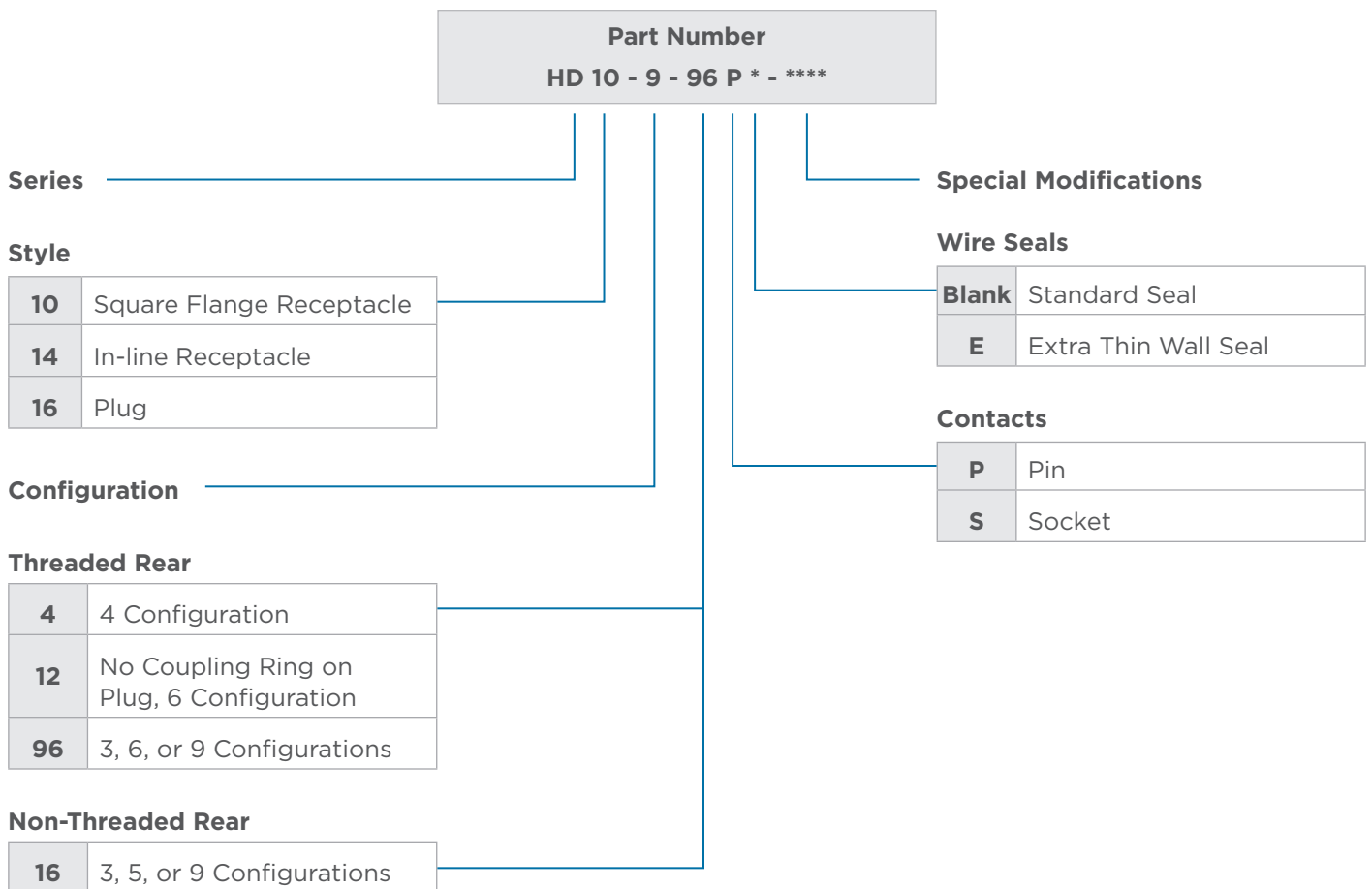
9-16
9 size 16



9-96*
9 size 16

*Also available in an "E" seal

PART NUMBERING SYSTEM



HD10 Series

ORDERING INFORMATION

Here are some of the common part numbers in the HD10 series. Several additional connectors may be available.

Position	Contact Size	Rear Threads	Plug	Receptacle Inline	Receptacle Flange
3	16	no	HD16-3-16S	HD14-3-16P	-
		yes	HD16-3-96S	HD14-3-96P	HD10-3-96P
4	4/16	yes	HD16-4-4S	-	HD10-4-4P
5	16	no	HD16-5-16S	HD14-5-16P	HD10-5-16P
6	16	yes	HD16-6-96S	HD14-6-96P	HD10-6-96P
6	12	yes	HD16-6-12S-B010	HD14-6-12P	HD10-6-12P
9	16	no	HD16-9-16S	HD14-9-16P	HD10-9-16P
		yes	HD16-9-96S	HD14-9-96P	HD10-9-96P
9 (1939)	16	yes	HD16-9-1939S	HD14-9-1939P	HD10-9-1939P

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal	Extra Thin Seal E-Seal
16 14-20 AWG (2.0-0.5mm ²)	.100-.150 (2.54-3.81)	.053-.120 (1.35-3.05)
12 10-14 AWG (5.0-2.0mm ²)	.134-.170 (3.40-4.32)	-
4 6 AWG (13.0mm ²)	.280-.292 (7.11-7.42)	-

Special Modifications

HD10 series connectors offer several modifications to enhance the design flexibility and meet application specific needs. Options include the addition of a coupling ring and connector body color, just to mention a few. By combining the HD10 series connectors with the available modifications and accessories, the design possibilities are increased.



B010 MODIFICATION

The B010 modification provides the addition of a coupling ring used for mating. The B010 modification is only available on the HD16-6-12S-B010 connector.



E004 MODIFICATION

The E004 modification changes the HD10 series connector from the standard gray to a black connector body.



J1939 MODIFICATIONS (BP03, P080)

The P080 modification changes the HD10 series connector body color from the standard gray to green and meets the J1939 Type II requirements. The BP03 modification is similar to the P080 modification, but features a panel mount.



N005 MODIFICATION

The N005 modification is an HD10 series receptacle with molded-in, straight PCB pins.

HD10 Series

Accessories

Several accessory items are available to complement HD10 series connectors including boots, backshells, gaskets, and protective caps. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced aesthetics.

BACKSHELLS



DEUTSCH HD10 series backshells are designed to screw onto all threaded HD10 connectors. Rated for temperatures from -40°C to +134°C, the rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



Connector Part Number	Cable Diameter	Backshell Part Number	Compression Nut Part Number
HD1*-3-96*	.187-.300	M902-2131	M902-2041
	.300-.430	M902-2132	M902-2042
HD1*-6-96*/HD1*-6-12*	.187-.300	M902-2161	M902-2041
	.300-.430	M902-2162	M902-2042
	.430-.570	M902-2163	M902-2053
	.570-.710	M902-2164	M902-2054
HD1*-9-96*/HD1*-9-1939**	.187-.300	M902-2191	M902-2041
	.300-.430	M902-2192	M902-2042
	.430-.570	M902-2193	M902-2053
	.570-.710	M902-2194	M902-2054

Backshell Technical Specifications:
 Material - PC/PET Polyester Blend, UV-Stabilized, Flame Retardant, Black
 Flammability - UL94-VO rated material, Weatherability - UL746C

HD10 Series

STRAIN RELIEF

DEUTSCH HD10 series strain reliefs are designed to screw onto threaded 3, 4, 6, and 9 cavity HD10 connectors. The rigid, durable strain reliefs offer a high level of protection, provide tie wrap holders to reduce strain from the wires, and improve aesthetics.



Part Number	Description
HD18-003	3 cavity strain relief
HD18-006	6 cavity strain relief
HD18-009	4 or 9 cavity strain relief

helpful hint

Attaching the connector to a structure eliminates straining the electrical system in service.



BOOTS



Boots provide a professional looking finishing touch for DEUTSCH HD10 series connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



Part Number	Description
HD10-3BT	3 cavity boot, gray
HD10-5BT	5 cavity boot, gray
HD10-5BT-BK	5 cavity boot, black
HD10-6BT	6 cavity boot, gray
HD10-6BT-BK	6 cavity boot, black
HD10-9BT	9 cavity boot, gray
HD10-9BT-BK	9 cavity boot, black

*Distorting the boots can lessen their longevity

HD10 Series

GASKETS



Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



Gasket Part Number	Connector Part Number
HD10-3-GKT	HD10-3-****
HD10-5-GKT	HD10-5-****
HD10-6-GKT	HD10-6-****
HD10-9-GKT	HD10-9-****

PROTECTIVE DUST CAPS

HD10 series protective dust caps provide an environmental seal and are used to protect the connector interface when the connector is not mated.



Part Number	Description
HDC14-3	3 cavity plug protective cap
HDC14-6	6 cavity plug protective cap
HDC14-9	9 cavity plug protective cap
HDC16-3	3 cavity receptacle protective cap
HDC16-5	5 cavity receptacle protective cap
HDC16-6	6 cavity receptacle protective cap
HDC16-6-E004	6 cavity receptacle protective cap, black
HDC16-9	9 cavity receptacle protective cap
HDC16-9-E004	9 cavity receptacle protective cap, black

LANYARDS





Lanyards are available in nitrile or nylon coated steel and designed for use with protective dust caps.



HDC9-JDL082397
(DEUTSCH HDC16-9-E004 dust cap assembled with JDL082397)



HDC16-9-L47N
(DEUTSCH HDC16-9 dust cap assembled with L47N-600-1)

Lanyard	Material	Material Diameter	Length	Min. Breaking Strength
 JDL082397	Nitrile o-ring, 3M heat shrink with thermoplastic adhesive	.07 inches	5.31 inches	---
 L47N-600-1	7 x 7 galvanized steel cable coated with clear nylon	.047 inches	6 inches	270 lbs.

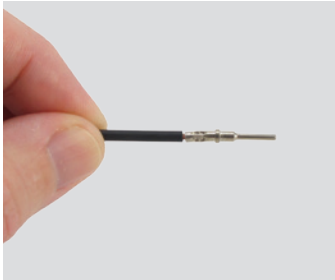
Dimensions are for reference only.

Dust Cap/Lanyard Assembly Part Number*	Used On	Connector Cavities	Lanyard Material	Dust Cap Color
HDC14-3-JDL	Plug	3	Nitrile	Gray
HDC14-6-JDL	Plug	6	Nitrile	Gray
HDC14-6-LA	Plug	6	Steel	Gray
HDC14-9-JDL	Plug	9	Nitrile	Gray
HDC16-3-JDL	Receptacle	3	Nitrile	Gray
HDC16-3-LA	Receptacle	3	Steel	Gray
HDC16-5-LA	Receptacle	5	Steel	Gray
HDC16-6-JDL	Receptacle	6	Nitrile	Gray
HDC16-6-LA	Receptacle	6	Steel	Gray
HDC16-9-JDL	Receptacle	9	Nitrile	Gray
HDC9-JDL082397	Receptacle	9	Nitrile	Black
HDC16-9-L47N	Receptacle	9	Steel	Gray
HDC16-9-E004-L47N	Receptacle	9	Steel	Black

*Other dust cap/lanyard assemblies may be available

How To Instructions

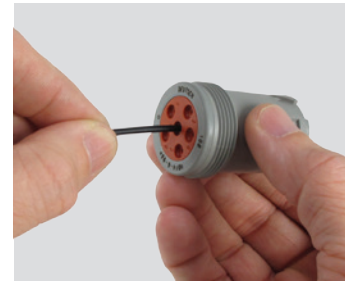
CONTACT INSERTION



Step 1:
Grasp crimped contact approximately one inch behind the contact barrel.

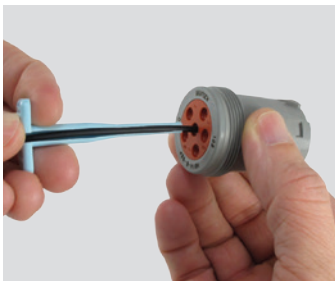


Step 2:
Hold connector with rear grommet facing you.

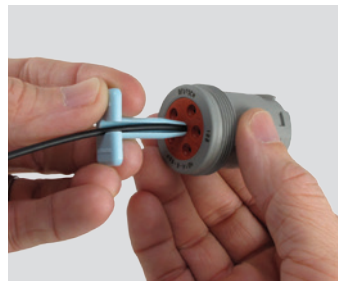


Step 3:
Push contact straight into connector grommet until a click is felt. A slight tug will confirm that it is properly locked in place.

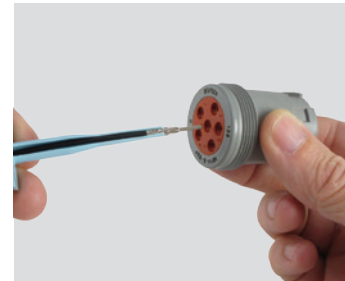
CONTACT REMOVAL



Step 1:
With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



Step 2:
Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.

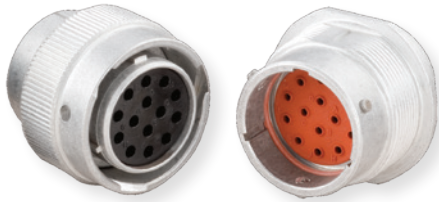


Step 3:
Pull contact wire assembly out of connector.

HD30 & HDP20 Series

HD30 & HDP20 Series Overview

Designed specifically for the truck, bus, and off-highway industry, the HD30 & HDP20 series connectors are heavy duty, environmentally sealed, multi-pin circular connectors. Available in metal or thermoplastic housings, these connectors offer multiple pin configurations that accept contact sizes 4 through 20.



HD30 SERIES OVERVIEW

The DEUTSCH HD30 series connectors are constructed from a metal shell developed to meet the needs of the heavy duty equipment and transportation industries. The HD30 features include quick connect-disconnect bayonet coupling, single hole bulkhead mounting, silicone seals, and a rear insertion/rear removal contact system.



HDP20 SERIES OVERVIEW

The HDP20 series connectors are heavy duty rated, environmentally sealed, composite shell, multi-pin connectors. The composite thermoplastic shell is suited for applications where chemicals can damage a connector housing. HDP20 features quick connect-disconnect bayonet coupling, single hole bulkhead mounting, silicone seals, and a rear insertion/rear removal contact system.

DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

Contents

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Dimensions	147
Configurations	148-149
Ordering Information	150-151
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Accessories	154-158
Mounting	158-159
How To Instructions	159-160

HD30 & HDP20 Series

MATERIAL SPECIFICATIONS

HD30 Series

Grommet: Silicone rubber

Insert Retainer: Unfilled PEI

Plug Coupling Ring: Aluminum

Shell: Aluminum

HDP20 Series

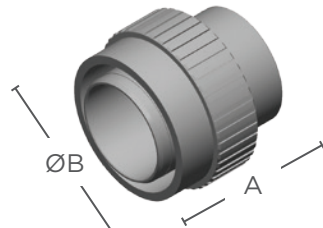
Grommet: Silicone rubber

Insert Retainer: Unfilled PEI

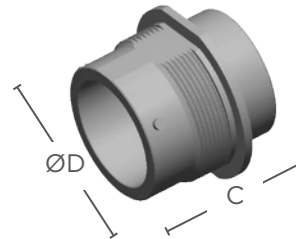
Plug Coupling Ring: Glass filled PA

Shell: Glass filled PA

DIMENSIONS



HD/HDP Plug



HD/HDP Receptacle

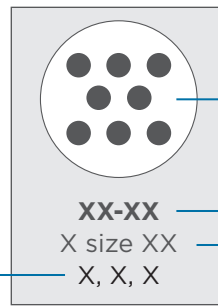
Shell Size	Overall Length A	Overall Height ØB	Overall Length C	Overall Height ØD
18	1.521 (38.63)	1.700 (43.17)	1.648 (41.86)	1.750 (44.45)
24	1.521 (38.63)	1.950 (49.53)	1.648 (41.86)	2.000 (50.80)

Dimensions are for reference only.

CONFIGURATIONS

Wire Seal Options

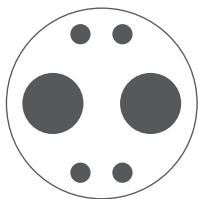
N	Normal wire seals (green ring)
T	Thin wall wire seals (gray ring)
E	Extra thin wall wire seals (blue ring)



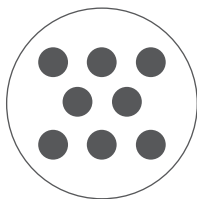
Insert Arrangement

Shell Size - Configuration
Number and Size of Cavities

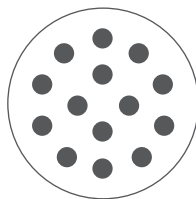
18 SHELL SIZE CONFIGURATIONS



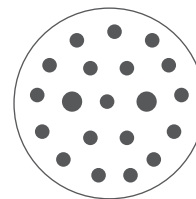
18-6
2 size 4 & 4 size 16
N, E



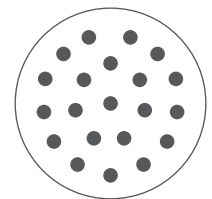
18-8
8 size 12
N, E



18-14
14 size 16
N, T, E

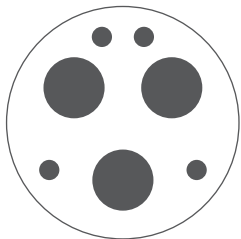


18-20
2 size 16 & 18 size 20
N, E

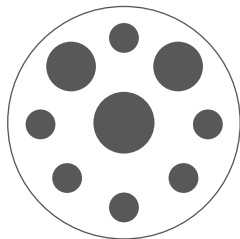


18-21
21 size 20
N

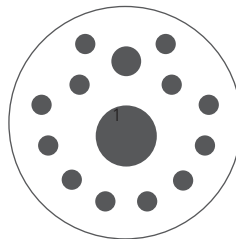
24 SHELL SIZE CONFIGURATIONS



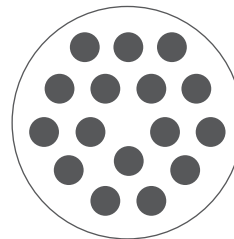
24-7(-C038 only)
3 size 4+ & 4 size 16
N



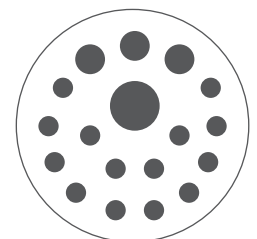
24-9
1 size 4, 2 size 8
& 6 size 12
N, E



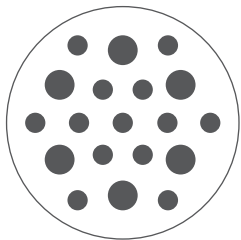
24-14
1 size 4, 1 size 12
& 12 size 16
N, E



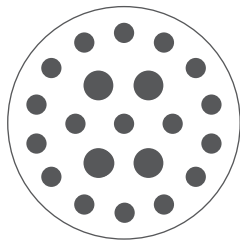
24-16
16 size 12
N, E



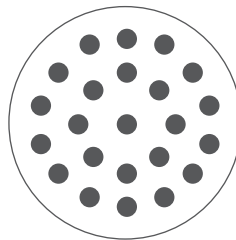
24-18
1 size 8, 3 size 12
& 14 size 16
N, E



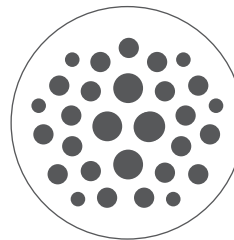
24-19
6 size 12
& 13 size 16
N, E



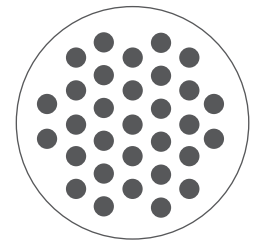
24-21
4 size 12
& 17 size 16
N, E



24-23
23 size 16
N, T, E



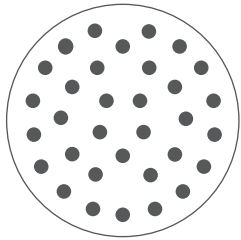
24-29
4 size 12, 19 size 16
& 6 size 20
E*



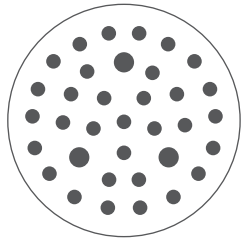
24-31
31 size 16
T*, E*

†Requires size 4 contact part numbers, 5960-203-04**(pin) and 5962-203-04**(socket) *Modified seal, see drawing.

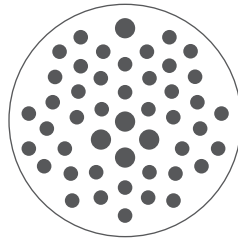
HD30 & HDP20 Series



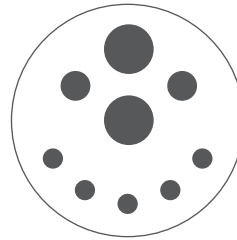
24-33
33 size 20
N



24-35
3 size 16 & 32 size 20
N, E



24-47
5 size 16 & 42 size 20
E*

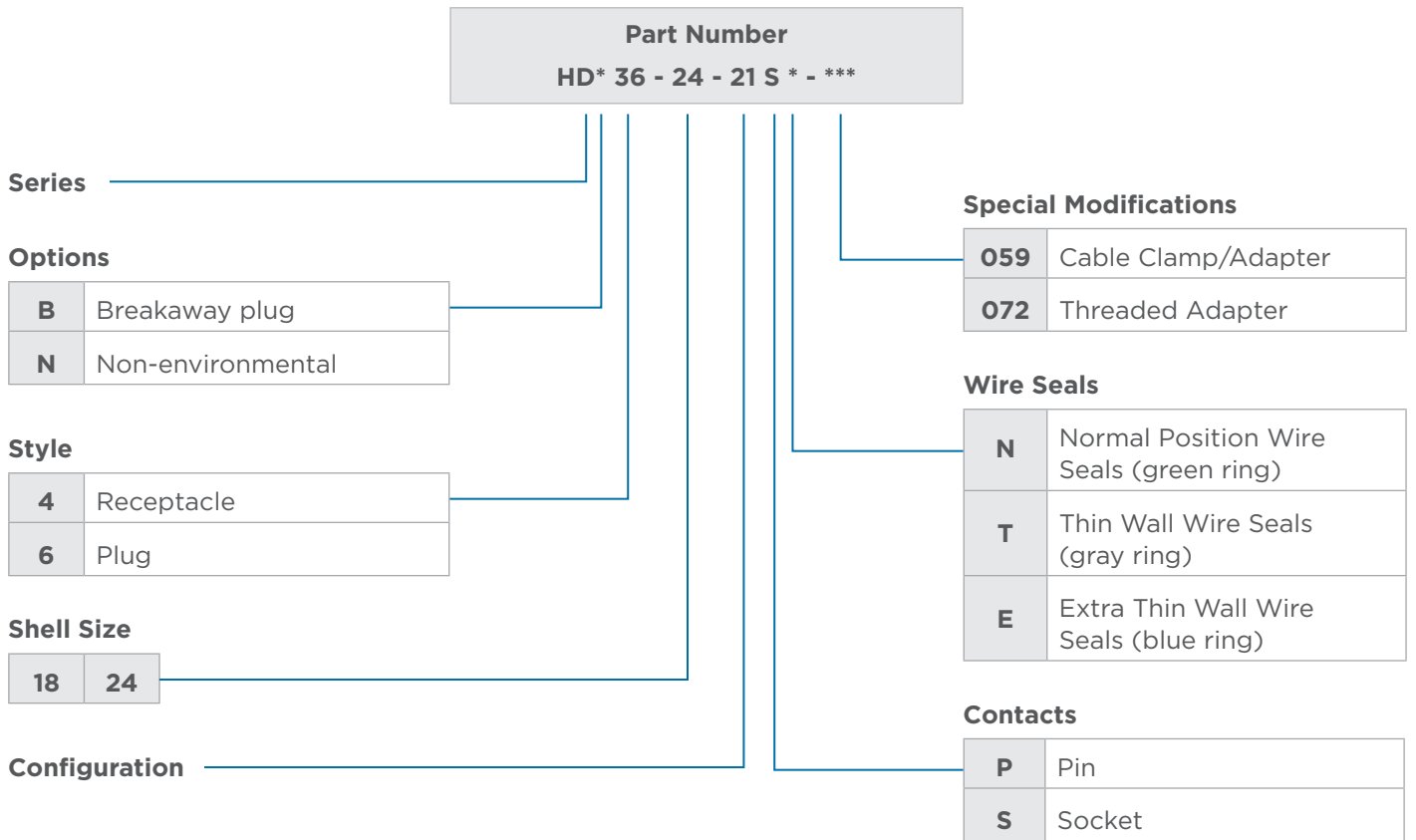


24-91-P064†
2 size 8, 2 size 12 & 5 size 16
N, E

*Modified seal, see drawing

†Without P064 modification, plug cavities 4 and 5 are internally connected

HD30 SERIES PART NUMBERING SYSTEM

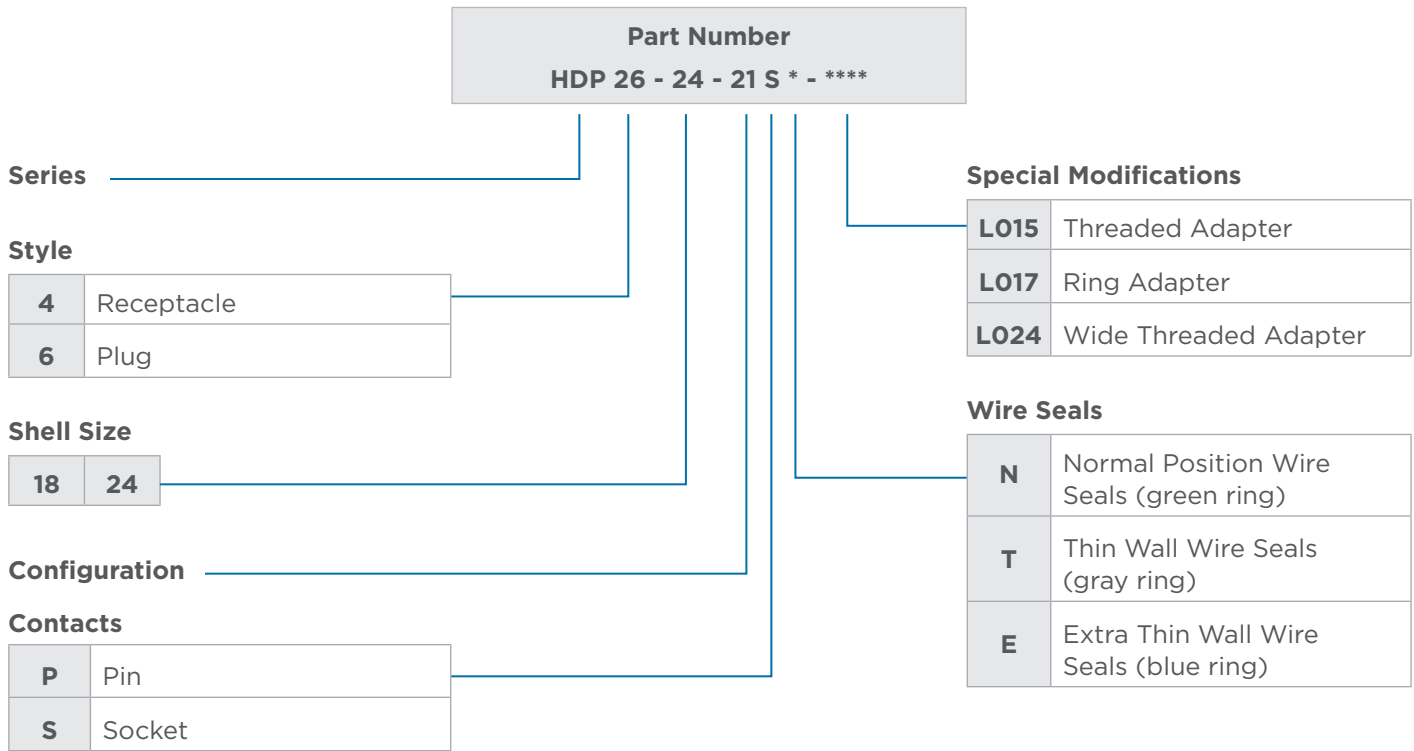


Note

Reverse arrangements are available as a keying option for the HD30 & HDP20 series connectors.

HD30 & HDP20 Series

HDP20 SERIES PART NUMBERING SYSTEM



helpful hint

Making the socket contact side the “hot side” can reduce the danger of electric shock.



ORDERING INFORMATION

Here are some of the common part numbers in the HD30 & HDP20 series. Several additional connectors may be available.

Shell Sz- Position	Series	Plug Standard Dia. Seal	Receptacle Standard Dia. Seal	Plug Reduced Dia. Seal	Receptacle Reduced Dia. Seal
18-6	HDP20	HDP26-18-6SN	HDP24-18-6PN	HDP26-18-6SE	HDP24-18-6PE
	HD30	HD36-18-6SN	HD34-18-6PN	HD36-18-6SE	HD34-18-6PE
18-8	HDP20	HDP26-18-8SN	HDP24-18-8PN	HDP26-18-8SE	HDP24-18-8PE
	HD30	HD36-18-8SN	HD34-18-8PN	HD36-18-8SE	HD34-18-8PE
18-14	HDP20	HDP26-18-14SN	HDP24-18-14PN	HDP26-18-14SE	HDP24-18-14PE
	HD30	HD36-18-14SN	HD34-18-14PN	HD36-18-14SE	HD34-18-14PE
18-20	HDP20	HDP26-18-20SN	HDP24-18-20PN	HDP26-18-20SE	HDP24-18-20PE
	HD30	HD36-18-20SN	HD34-18-20PN	HD36-18-20SE	HD34-18-20PE

HD30 & HDP20 Series

ORDERING INFORMATION (CONTINUED)

Shell Sz- Position	Series	Plug Standard Dia. Seal	Receptacle Standard Dia. Seal	Plug Reduced Dia. Seal	Receptacle Reduced Dia. Seal
18-21	HDP20	HDP26-18-21SN	HDP24-18-21PN	HDP26-18-21SE	HDP24-18-21PE
	HD30	HD36-18-21SN	HD34-18-21PN	HD36-18-21SE	HD34-18-21PE
24-7	HDP20	HDP26-24-7SN	HDP24-24-7PN	HDP26-24-7SE	HDP24-24-7PE
	HD30	HD36-24-7SN	HD34-24-7PN	HD36-24-7SE	HD34-24-7PE
24-91- P064	HDP20	HDP26-24- 91SN-P064	HDP24-24- 91PN-P064	-	-
24-9	HDP20	HDP26-24-9SN	HDP24-24-9PN	HDP26-24-9SE	HDP24-24-9PE
	HD30	HD36-24-9SN	HD34-24-9PN	HD36-24-9SE	HD34-24-9PE
24-14	HDP20	HDP26-24-14SN	HDP24-24-14PN	HDP26-24-14SE	HDP24-24-14PE
	HD30	HD36-24-14SN	HD34-24-14PN	HD36-24-14SE	HD34-24-14PE
24-16	HDP20	HDP26-24-16SN	HDP24-24-16PN	HDP26-24-16SE	HDP24-24-16PE
	HD30	HD36-24-16SN	HD34-24-16PN	HD36-24-16SE	HD34-24-16PE
24-18	HDP20	HDP26-24-18SN	HDP24-24-18PN	HDP26-24-18SE	HDP24-24-18PE
	HD30	HD36-24-18SN	HD34-24-18PN	HD36-24-18SE	HD34-24-18PE
24-19	HDP20	HDP26-24-19SN	HDP24-24-19PN	HDP26-24-19SE	HDP24-24-19PE
	HD30	HD36-24-19SN	HD34-24-19PN	HD36-24-19SE	HD34-24-19PE
24-21	HDP20	HDP26-24-21SN	HDP24-24-21PN	HDP26-24-21SE	HDP24-24-21PE
	HD30	HD36-24-21SN	HD34-24-21PN	HD36-24-21SE	HD34-24-21PE
24-23	HDP20	HDP26-24-23SN	HDP24-24-23PN	HDP26-24-23SE	HDP24-24-23PE
	HD30	HD36-24-23SN	HD34-24-23PN	HD36-24-23SE	HD34-24-23PE
24-29	HDP20	HDP26-24-29SN	HDP24-24-29PN	HDP26-24-29SE	HDP24-24-29PE
	HD30	HD36-24-29SN	HD34-24-29PN	HD36-24-29SE	HD34-24-29PE
24-31	HDP20	HDP26-24-31SN	HDP24-24-31PN	HDP26-24-31SE	HDP24-24-31PE
	HD30	HD36-24-31SN	HD34-24-31PN	HD36-24-31SE	HD34-24-31PE
24-33	HDP20	HDP26-24-33SN	HDP24-24-33PN	HDP26-24-33SE	HDP24-24-33PE
	HD30	HD36-24-33SN	HD34-24-33PN	HD36-24-33SE	HD34-24-33PE
24-35	HDP20	HDP26-24-35SN	HDP24-24-35PN	HDP26-24-35SE	HDP24-24-35PE
	HD30	HD36-24-35SN	HD34-24-35PN	HD36-24-35SE	HD34-24-35PE
24-47	HDP20	HDP26-24-47SN	HDP24-24-47PN	HDP26-24-47SE	HDP24-24-47PE
	HD30	HD36-24-47SN	HD34-24-47PN	HD36-24-47SE	HD34-24-47PE

Note

Undersize wire insulation is a major cause for leakage.

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	N-Seal Green Ring	T-Seal Gray Ring	T-Seal Modified*	E-Seal Blue Ring	E-Seal Modified*
20 14-22 AWG (2.5-0.35mm ²)	.040-.095 (1.02-2.41)	.040-.095 (1.02-2.41)	-	.040-.095 (1.02-2.41)	.040-.083 (1.01-2.10)
16 14-20 AWG (2.0-0.5mm ²)	.100-.134 (2.54-3.40)	.088-.134 (2.23-3.40)	.088-.106 (2.24-2.69)	.053-.120 (1.35-3.05)	.053-.103 (1.35-2.62)
12 10-14 AWG (6.0-2.0mm ²)	.134-.170 (3.40-4.32)	.113-.170 (2.87-4.32)	-	.097-.158 (2.46-4.01)	.097-.158 (2.46-4.01)
8 8-10 AWG (10.0-5.0mm ²)	.190-.240 (4.83-6.10)	.170-.240 (4.32-6.10)	-	.135-.220 (3.43-5.59)	-
4 6 AWG (16.0-13.0mm ²)	.280-.292 (7.11-7.42)	.261-.292 (6.63-7.42)	-	.261-.292 (6.63-7.42)	-
4 4 AWG (25.0-21.0mm ²)	.311-.420 (7.90-10.67)	-	-	-	-

*DEUTSCH cavity arrangements 24-29, 24-47, and 24-31 are only available with the modified seals. Arrangement 24-31 Modified E Seal = .053-.106. Please see drawings 0425-016-0000 and 0425-021-0000 for full specifications.

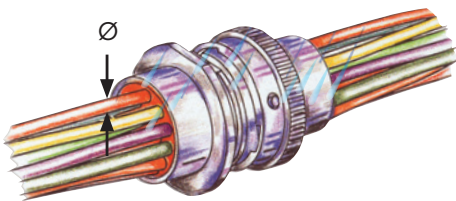
Color code is visible from the rear of the receptacle or plug.

- Green:** Normal Seal
- Gray:** Thin Wall Seal
- Blue:** Extra Thin Wall Seal



helpful hint

Proper wire outside diameters help provide water tight seals.



HD30 & HDP20 Series

Special Modifications

The HD30 & HDP20 series connectors offer several modifications to enhance design flexibility and meet application specific needs. Options include breakaway plugs, adapters, and high amperage options just to mention a few. By combining the HD30 & HDP20 series connectors with the available modifications and accessories, the design possibilities are greatly expanded.



HDB - BREAKAWAY PLUG (HD30 SERIES ONLY)

The HDB breakaway plug is designed to provide an emergency disconnect between farm tractors and implements that require power connections. The HDB breakaway plug is designed to break the connection before damaging the wiring system. These plugs can be specified with pin or socket contacts and connect only with the HD30 series receptacles. As an added design convenience, the HDB breakaway plug is also available with an optional cable clamp (059 mod). Breakaway function occurs at an axial load of 50-100 lbs.



L015
Threaded
Adapter



L017
Ring Adapter



L024
Wide Threaded
Adapter

L015/L017/L024 MODIFICATIONS

The L015/L024 threaded adapters and L017 ring adapter modifications are available for the DEUTSCH HDP20 series connectors. These adapter modifications provide simple, low cost assembly solutions for applications that require a backshell or conduit. The adapters are designed to be used with the backshell of your choice.

- The L015 threaded adapter is available on size 24 shells in the HDP20 series.
- The L017 ring adapter is available on size 24 or size 18 shells in the HDP20 series.
- The L024 wide threaded adapter is available on size 24 or size 18 shells in the HDP20 series.



C030 MODIFICATION

Originally designed for multiplexing and battery cable applications, the DEUTSCH C030 modification is an environmentally sealed, heavy duty two cavity connector that accepts size 4 solid contacts rated up to 100 amps for each cavity.



The C030 modification is available in size 18 shell in both metal (HD30 series) and thermoplastic (HDP20 series) to meet your heavy wire gauge application needs.

HD30 & HDP20 Series



C041/CL20 MODIFICATIONS

The C041 and CL20 modifications are available for the DEUTSCH HDP20 series 14 pin connector. The C041 modification features a data link key and reduced diameter seals on the receptacle. The CL20 modification includes a ring adapter, reduced diameter seals, and a data link key on the plug.

CABLE CLAMP/BACKSHELL MODIFICATIONS



DEUTSCH cable clamps provide positive support to the wire bundle while reducing strain on the connector. The backshell is available with or without drain holes.

Part Number Suffix

Description

Part Number Suffix	Description
-072	Adapter only
-059	Adapter and cable clamp assembly with drain holes
-L006	Adapter and cable clamp assembly without drain holes

Accessories

Several accessory items can be used to complement the connectors. The HD30 & HDP20 family accessories include items such as boots, backshells, gaskets, and protective caps. Accessories are designed to complete the application and meet a wide array of design requirements such as solutions for mounting, providing additional protection, and offering increased aesthetics.

BOOTS



Boots provide a professional looking finishing touch for the DEUTSCH HD30 & HDP20 family of connectors. Made of durable plastisol, these slip-on boots are not only aesthetically appealing, but also provide increased protection from dirt, paint overspray, and pressure washing. The plastisol boots are rated from -20°F to +212°F (-28°C to +100°C) and offer a slip-on design making installation quick and easy.



Part Number

Description

Part Number	Description
HD30-18BT	18 shell size boot, gray
HD30-18BT-BK	18 shell size boot, black
HD30-18BT-90-BK	18 shell size boot, 90° bend, black
LC-90BT-HT	18 shell size boot, 90° bend, high temperature material, yellow
HD30-24BT	24 shell size boot, gray
HD30-24BT-BK	24 shell size boot, black
HD30-24BT-90-BK	24 shell size boot, 90° bend, black
MT-90BT-HT-24	24 shell size boot, 90° bend, high temperature material, yellow

*Distorting the boots can lessen their longevity

HD30 & HDP20 Series

PROTECTIVE DUST CAPS

Protective caps are available for both plug and receptacle halves of the connectors. The metal caps, for use with the HD30 series, come with a mounting chain and are used to protect the connector while not mated. The thermoplastic caps, for use with the HDP20 series, are available with or without a lanyard.

HDP20 Series Dust Caps



Shell Size	Part Number	Description
18	HDC26-18	Plug cap for receptacle protection, environmentally sealed
24	HDC26-24	

HD30 Series Dust Caps



Shell Size	Part Number	Description
18	HDC36-18	Plug cap for receptacle protection
24	HDC36-24	
18	HDC34-18	Receptacle cap for plug protection
24	HDC34-24	

To order HD30(HD3-**) protective caps without the mounting chain, add -1E to the end of the part number

STRAIN RELIEF

The DEUTSCH HD30 & HDP20 series connectors offer several backshell options to meet your design needs. Backshell options include straight or 90° and plastic or metal. The metal backshells work best with the HD30 series. It is attached to the rear of the connector using an adjustable screw and is secured to the wire bundle with the use of a tie wrap. The plastic backshells work best with the HDP20 series and attach to the rear of the connector with either a clamshell snap closure or by screwing them on to a threaded adapter. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



Shell Size	Orientation	HD30 Series Backshell Part Number
18	Straight	WHDS-18-1
24		WHDS-24-1
18	90°	WHDS-18-2
24		WHDS-24-2

HD30 & HDP20 Series



Shell Size	Orientation	HDP20 Series L017 Backshell	
		Part Number	Conduit Size
18	Straight	2428-016-1805	13, 17, 19 (mm) NW
	90°	2428-015-1805	13, 17, 19 (mm) NW
24	Straight	2428-008-2405	1"
	90°	2428-004-2405	1"
24	Straight	2428-010-2405	17, 19, 23, 26 (mm) NW
	90°	2428-011-2405	17, 19, 23, 26 (mm) NW

NW = Nominal Width of the conduit's inside diameter. See drawings for full specifications.



Seal Ring

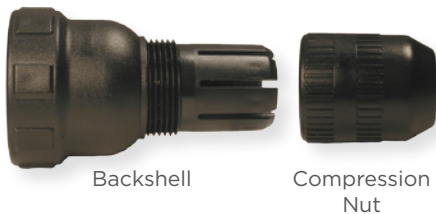
Cap Nut

Shell Size	HDP20 Series L015 Conduit Adapter		Conduit Size
	Part Number	Part Number	
24	Seal Ring SRN21	Cap Nut CN21	22 (mm) NW

BACKSHELLS FOR L015 MODIFICATION



The DEUTSCH HDP20 series backshells are designed to screw onto connectors with the L015 modification, which adds a threaded adapter. Rated for temperatures from -40°C to +134°C, the rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.



Backshell

Compression Nut

Shell Size	Cable Diameter	HDP20 Series L015	
		Backshell Part Number	Compression Nut Part Number
24	.430-.570	M902-2243	M902-2053
	.570-.710	M902-2244	M902-2054

Backshell Technical Specifications:

Material - PC/PET Polyester Blend, UV-Stabilized, Flame Retardant, Black
Flammability - material meets UL94-VO, Weatherability - UL746C

HD30 & HDP20 Series

BACKSHELLS FOR L024 MODIFICATION

The DEUTSCH HDP20 series backshells are designed to screw onto connectors with the L024 modification, which adds a wide threaded adapter. The rigid, durable backshells offer a high level of protection, provide strain relief, and improve aesthetics.

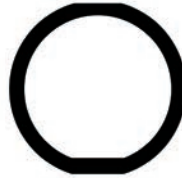


Shell Size	Orientation	HDP20 Series L024 Backshell Part Number
18	Straight	2428-025-1805
24		2428-024-2405

GASKETS



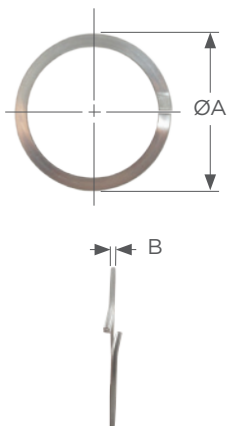
Moisture, dirt, salt, sand, and road debris can all work their way into electrical panels through unsealed mounting flanges. Rated to operate in environments from -70°F to +225°F (-56°C to +107°C), these rugged high quality neoprene gaskets form a tight seal between the panel face and connector flange to help keep out destructive elements. The gaskets have a thickness of .125" and the material meets the UL-94-HBF, Mil-R-6130C, and FMVSS-302 flammability specifications.



Receptacle Shell Size	Gasket Part Number
18	16-04978
24	16-04477

MOUNTING HARDWARE

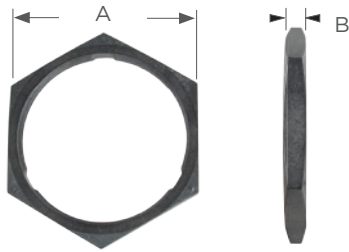
DEUTSCH lockwashers and panel nuts are available to aid in mounting the HD30 and HDP20 series connectors. The lockwashers are used to add tension between the threads and the nut to provide a secure mount. The lockwasher and the panel nut should be used together.



Shell Size	Series	Panel Lockwasher Part Number	ØA	B
18	HDP20	2414-002-1886	1.892 (48.06)	-
	HD30	114021	1.699 (43.15)	.062 (1.57)
24	HDP20	2414-001-2486	2.080 (52.83)	-
	HD30	112264	1.887 (47.93)	.062 (1.57)

Dimensions are for reference only

HD30 & HDP20 Series



Panel Nut Mounting Torque

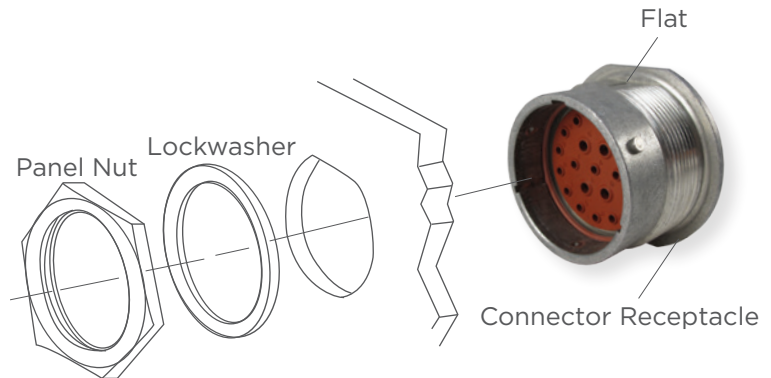
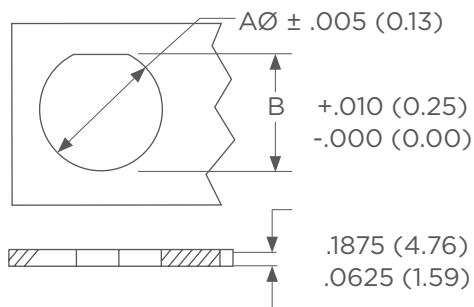
HD30 series 18 shell size	260-280 IN. LB. (29.4-31.6 N.M.)
HDP20 series 18 shell size	45-55 IN. LB. (5.1-6.1 N.M.)
HD30 series 24 shell size	350-375 IN. LB. (39.5-42.6 N.M.)
HDP20 series 24 shell size	65-75 IN. LB. (7.4-8.4 N.M.)

Shell Size	Series	Panel Nut Part Number	Material	A	B
18	HDP20	2411-002-1805	Plastic	1.685 (42.80)	.250 (6.35)
	HD30	114020-90	Metal		.178 (4.52)
24	HDP20	2411-001-2405	Plastic	1.875 (47.63)	.250 (6.35)
	HD30	112263-90	Metal		.178 (4.52)

Dimensions are for reference only

Mounting

RECEPTACLE MOUNTING



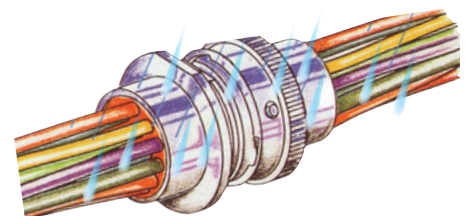
Recommended Size of Mounting Hole

Shell Size	ØA	B
18	1.507 (38.28)	1.442 (36.63)
24	1.696 (43.08)	1.632 (41.45)

Dimensions are for reference only

helpful hint

Mounting connectors horizontally allows proper water drainage.



HD30 & HDP20 Series

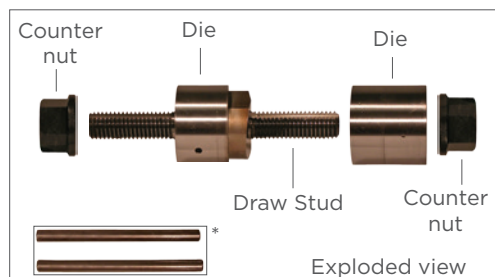
D HOLE PUNCH



The D hole punch is a hand tool used to cut a D shaped hole. The D shaped hole allows the connector to be securely mounted and helps prevent the connector from spinning.



- Punchable Material: Up to .078" mild steel or aluminum. Up to .1875" plastic, wood, paneling, or other soft material.
- Tool Material: A2 material heat treated to a Rockwell hardness of 60 to 62.
- Tool Size: (rough dimensions) 5.5"L x 2"H x 2"D
- Sharpening: The tool can be sharpened as needed.
- Usability: A .625" minimum pilot hole is required to accommodate the draw stud. Air tools can be used.



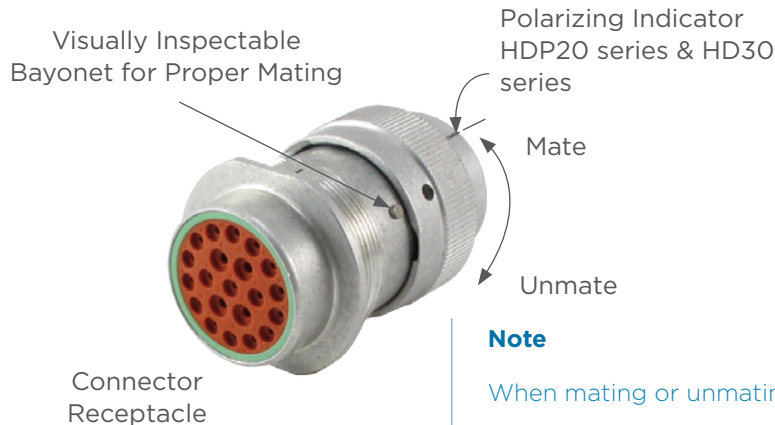
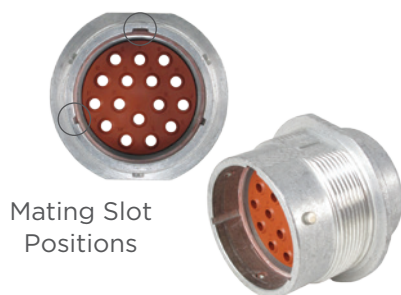
*The rods included with the "D" hole punch are used to remove the cutout and are not used in the cutting process.

Shell Size	D Hole Punch Part Number
18	18-D-PUNCH
24	24-D-PUNCH

How To Instructions

MATING INSTRUCTIONS

To mate the plug and the receptacle, line up the index groove on the plug with the flat surface on the receptacle, turn 1/4 turn clockwise. You will feel and hear the pieces snap into the locked position. To unmate the plug and receptacle, release the coupling ring by turning it counter-clockwise.



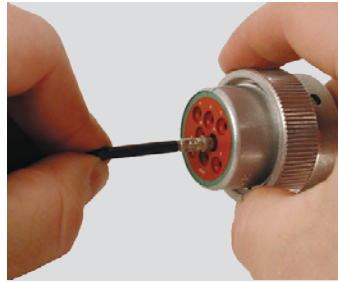
Note

When mating or unmating connectors, disassemble by hand. Do not use pliers or any other tool.

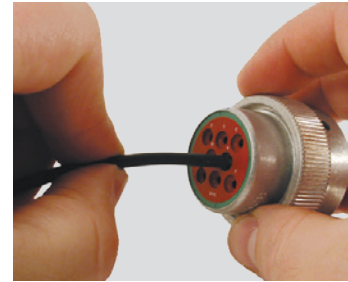
CONTACT INSERTION



Step 1:
Grasp contact approximately one inch behind the contact crimp barrel.

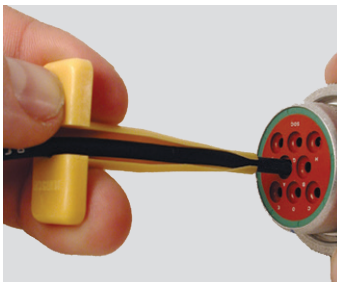


Step 2:
Hold connector with the rear grommet facing you.

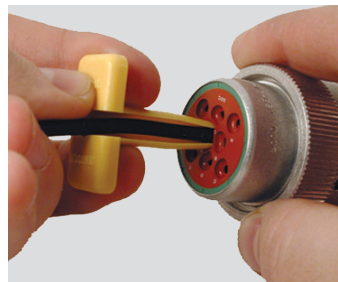


Step 3:
Push contact straight into connector grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.

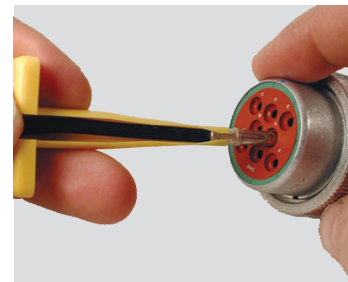
CONTACT REMOVAL



Step 1:
With rear insert toward you, snap appropriate size removal tool over the wire of contact to be removed.



Step 2:
Slide tool along the wire into the insert cavity until it engages contact and resistance is felt.



Step 3:
Pull contact wire assembly out of connector.

Note

Do not twist or insert tool at an angle.

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STRIKE Series

STRIKE Series Overview

The STRIKE connector series features a lever lock system and is designed for heavy duty equipment applications. The environmentally sealed series offers two different size rugged housings that accept contacts from size 20 to 16 with arrangements of 32 and 64 cavities.



DEUTSCH CONNECTOR PERFORMANCE SPECIFICATIONS

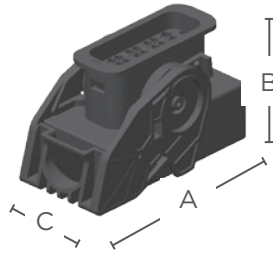
Temperature:	Operating at temperatures -55°C to +125°C
Durability:	No electrical or mechanical defects after 100 cycles of engagement and disengagement.
Vibration:	No unlocking or unmating and exhibits no mechanical or physical damage after sinusoidal vibration levels of 20 G's at 10 to 2000 Hz in each of the three mutually perpendicular planes. No electrical discontinuities longer than 1 microsecond.
Fluid Resistance:	Connectors show no damage when exposed to most fluids used in industrial applications.
Insulation Resistance:	1000 megohms minimum at 25°C.
Immersion:	IP68 rating
Moisture Resistance:	Properly wired and mated connections will withstand immersion under three feet of water without loss of electronic qualities or leakage.
Dielectric Withstanding Voltage:	Current leakage less than 2 milliamps at 1500 volts AC.
Thermal Cycle:	No cracking, chipping or leaking after 20 test cycles from -55°C to +125°C.

MATERIAL SPECIFICATIONS

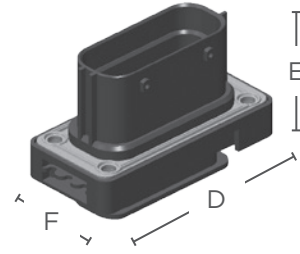
Flange Seal:	Silicone rubber
Plug Grommet:	Silicone rubber
Receptacle Threaded Inserts:	Brass
Shell:	Glass filled PBT
TPA:	Glass filled PBT

STRIKE Series

DIMENSIONS



STRIKE Plug



STRIKE Receptacle

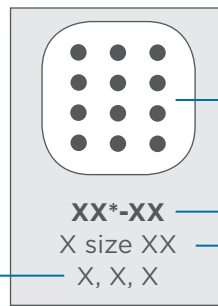
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
MD	3.189 (81.00)	1.909 (84.50)	1.531 (38.90)	3.228 (82.00)	2.205 (56.00)	1.575 (40.00)
FL	3.358 (85.28)	1.913 (48.60)	2.780 (70.60)	3.228 (82.00)	2.205 (56.00)	2.953 (75.00)

Dimensions are for reference only.

CONFIGURATIONS

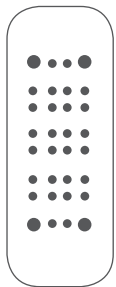
Connector Styles

I	In-line
F	Flange Mount Receptacle
P	PCB Receptacle

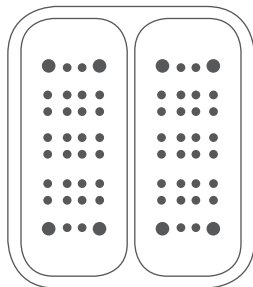


Insert Arrangement

Shell Size/Key - Configuration Number and Size of Cavities

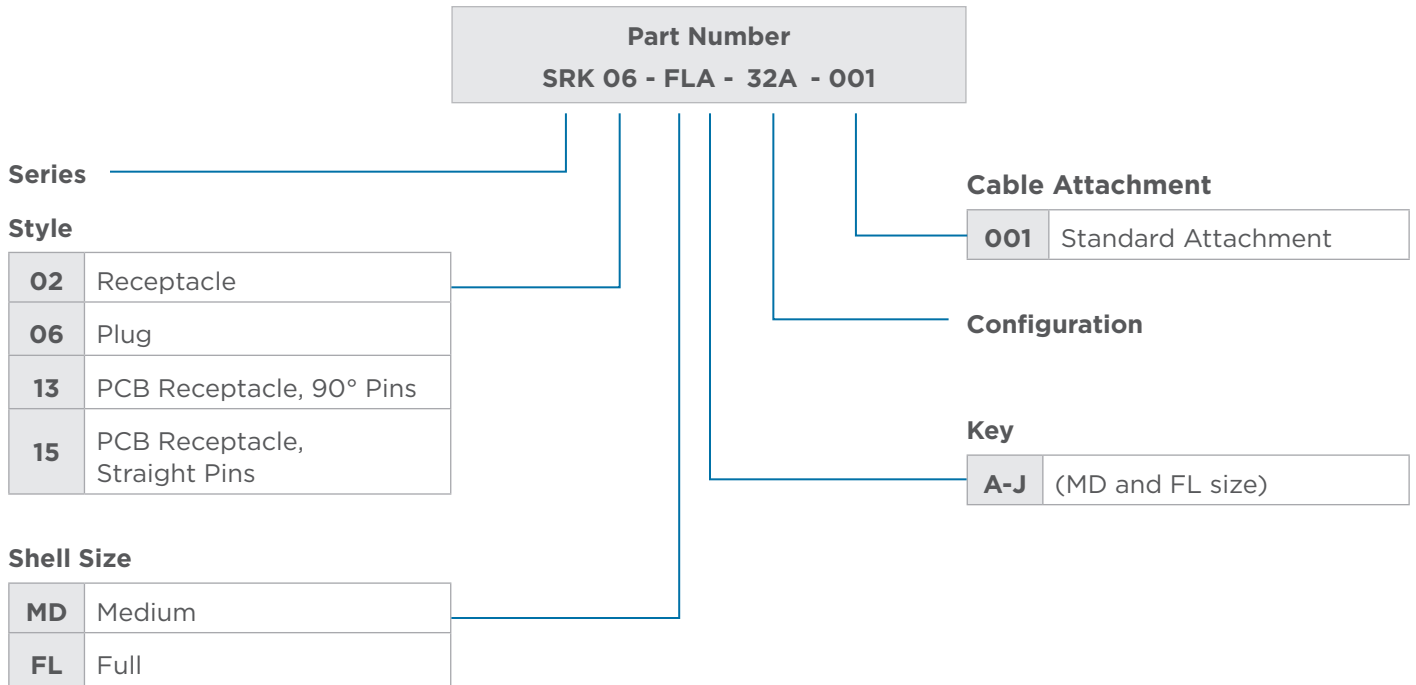


MD*-32A
4 Size 16
28 Size 20
I, F, P



FL*-64A
8 Size 16
56 Size 20
I, F

PART NUMBERING SYSTEM



ORDERING INFORMATION

Here are some of the common part numbers of the STRIKE connectors. Several additional connectors may be available.

Position	Keying	Plug	Receptacle
32	A	SRK06-MDA-32A-001	SRK02-MDA-32A-001
	B	SRK06-MDB-32A-001	SRK02-MDB-32A-001
	C	SRK06-MDC-32A-001	SRK02-MDC-32A-001
64	A	SRK06-MDA-64A-001	SRK02-MDA-64A-001
	B	SRK06-MDB-64A-001	SRK02-MDB-64A-001
	C	SRK06-MDC-64A-001	SRK02-MDC-64A-001

STRIKE Series

WIRE SEALING RANGE

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size	Standard Seal
20 16-22 AWG (1.0-0.35mm ²)	.061-.095 (1.55-2.41)
16 14-20 AWG (2.0-0.5mm ²)	.061-.120 (1.55-3.05)

Accessories

Backshells can be used to complement STRIKE connectors. The backshells are designed to snap onto the connectors and accept convoluted tubing. The backshells assist with wire routing to ease engagement and disengagement of the lever lock.



Part Number	Size	Orientation	Convoluted Tubing	Description
SRK-BS-MD-90-001 SRK-BS-MD-90-002	Medium	90°	NW17 & 22(-001) NW22(-002)	90° plastic backshell for medium or full size plugs and receptacles
SRK-BS-FL-90-001 SRK-BS-FL-90-002	Full		NW22 & 26(-001) NW26(-002)	
SRK-BS-MD-ST-001 SRK-BS-MD-ST-002	Medium	Straight	NW17(-001) NW22(-002)	Straight plastic backshell for medium or full size plugs and receptacles
SRK-BS-FL-ST-001 SRK-BS-FL-ST-002	Full		NW22(-001) NW26(-002)	

How To Instructions

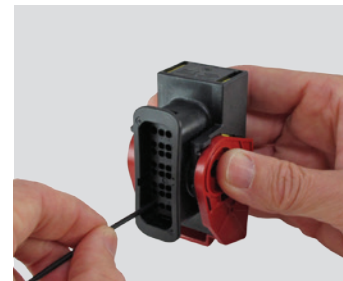
CONTACT INSERTION



Step 1:
Confirm TPA locking is open.



Step 2:
Hold connector with rear seal retainer facing you.



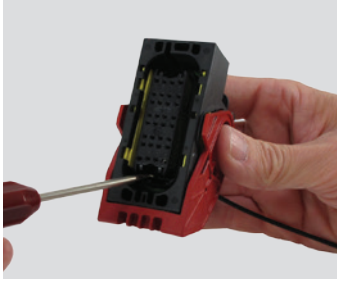
Step 3:
Push contact straight into the grommet until a positive stop is felt. A slight tug will confirm that it is properly locked in place.



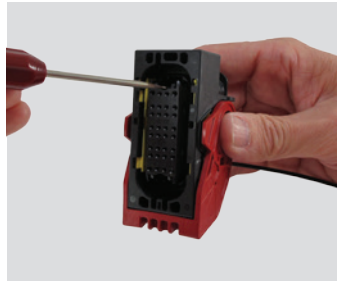
Step 4:
Push to close the TPA.
TPA will not close unless all contacts are fully seated in connector.

STRIKE Series

CONTACT REMOVAL



Step 1:
Use DT-RT1 to gently pry the locking clip and release the TPA.



Step 2:
Repeat step 1 on the other side of the TPA.



Step 3:
Remove the TPA.



Step 4:
Unlock the contacts and pull on the wire.

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DEUTSCH Common Contacts Overview

Several contacts are used interchangeably across most DEUTSCH connector product lines. This commonality improves performance, reliability, and maintainability by reducing changes in the assembly of the wire harness. The use of the same contact system helps eliminate many of the failures reported in harnesses where hundreds of different terminations are used.

CONTACT STYLES

Two styles of contacts are available: solid and stamped & formed. Both contact types use a crimp style termination, eliminating the need for solder. The variations in the contact system are those dictated by wire gauge and contact style.

Solid

The solid contacts are designed for use with larger wire size and heavy duty applications. Solid contacts are manufactured using a cold heading process with solid copper alloy wire and are available with either a nickel or gold plating finish.

Solid contacts terminate wire from 4 AWG to 20 AWG (25 - 0.5mm²) and are available in 5 sizes each of the pin and socket. The applicable contact is determined by the size of the conductor only.



Stamped & Formed

Stamped & formed contacts are designed for use where wire termination costs are of primary concern without sacrificing reliability of electrical circuits. The stamped & formed contacts are made on a precision stamping machine using flat strip stock, then a durable and corrosion proof nickel, tin, or optional gold plating is applied.

The stamped & formed style contacts terminate wire from 10 AWG to 22 AWG (6.0 - 0.35mm²) and are available in multiple sizes to accommodate a wide range of wire insulation. The specific contact is determined by the outside diameter of wire insulation and conductor size.



DEUTSCH Common Contacts

DEUTSCH CONTACT PERFORMANCE SPECIFICATIONS

Durability

No electrical or mechanical defects after 100 cycles of engagement and disengagement.

Current Rating (Contact current rating at 125° C continuous)

Contact Size	Max. Current
Size 20	7.5 amps
Size 16	13 amps
Size 12	25 amps
Size 8	60 amps
Size 4	100 amps

Contact Retention (Solid and Stamped & Formed)

Contacts withstand a minimum load of:

- 20 lbs (89 N) for size 20
- 25 lbs (111 N) for size 16
- 30 lbs (133 N) for size 12
- 35 lbs (156 N) for size 8
- 35 lbs (156 N) for size 4

Contact Millivolt Drop

Contact Size	Test Current Amps	Millivolt Drop* (Solid)	Millivolt Drop* (S&F)
20	7.5	60	100
16	13	60	100
12	25	60	100
8	60	60	-
4	100	60	-

*Less drop through wire

Crimp Tensile Strength (Solid)

Contact Size	Tensile Strength
Size 20	20 lbs
Size 16	25 lbs
Size 12	70 lbs
Size 8	90 lbs
Size 4	300 lbs

Crimp Tensile Strength (Stamped & Formed)

Contact Size	Tensile Strength
Size 20	20 lbs
Size 16	25 lbs
Size 12	70 lbs

helpful hint

A crimp tensile test easily and rapidly identifies a proper crimp.



DEUTSCH Common Contacts

SOLID CONTACT PART NUMBERS

Size	Solid Contact Part Numbers		Wire Size AWG (mm ²)	Recommended Strip Length Inches (mm)	Min. Contact Retention	Ref Crimp Tensile Lbs. (N)	Max Rated Amps at 125° C Continuous
	Pin	Socket					
20	0460-202-20**	0462-201-20**	20 (0.50)	.156-.218 (3.96-5.54)	20 (89)	20 (89)	7.5
20	0460-010-20**	0462-005-20**	16-18 (1.0-0.75)	.156-.218 (3.96-5.54)	20 (89)	20 (89)	7.5
16	0460-202-16**	0462-201-16**	16-20 (1.5-0.50)	.250-.312 (6.35-7.92)	25 (111)	35-20 (156-89)	13
16	0460-215-16**	0462-209-16**	14 (2.0)	.250-.312 (6.35-7.92)	25 (111)	70 (311)	13
12	0460-204-12**	0462-203-12**	12-14 (3.0-2.0)	.222-.284 (5.64-7.21)	30 (134)	75-70 (334-311)	25
8	0460-204-08**	0462-203-08**	8-10 (10.0-5.0)	.430-.492 (10.92-12.50)	35 (156)	125-90 (556-400)	60
4	0460-204-04**	0462-203-04**	6 (16.0-13.0)	.430-.492 (10.92-12.50)	35 (156)	300 (1334)	100
4 (C038)	5960-203-04141	5962-203-04141	4 (25.0-21.0)	.430-.492 (10.92-12.50)	35 (156)	300 (1334)	100

** = Plating codes

Solid Contact Plating Codes

Part Number Suffix	Plating Material
31	Gold
90	Nickel (size 4 pin only)
141	Nickel

Note

See information drawing
0425-015-0000.



DEUTSCH Common Contacts

STAMPED & FORMED CONTACT PART NUMBERS

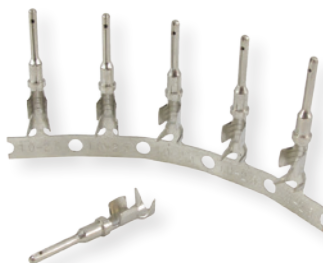
Size	S&F Contact Part Numbers		Carrier Strip	Wire Size AWG (mm ²)	Wire Insulation O.D. Range	Recommended Strip Length Inches (mm)	Min. Contact Retention	Max Rated Amps at 125° C Continuous
	Pin	Socket						
20	1060-20-01**	1062-20-01**	20-01	16-22 (1.5-0.35)	.075-.125 (1.91-3.18)	.150-.200 (3.81-5.08)	20 (89)	7.5
20	1060-20-02**	1062-20-02**	20-02	16-22 (1.5-0.35)	.051-.085 (1.30-2.16)	.150-.200 (3.81-5.08)	20 (89)	7.5
20	-	1062-20-03** sleeveless	20-03	16-22 (1.5-0.35)	.075-.125 (1.91-3.18)	.150-.200 (3.81-5.08)	20 (89)	7.5
20	1060-20-06**	1062-20-06**	20-06	14-16 (2.5-1.0)	.075-.125 (1.91-3.18)	.150-.200 (3.81-5.08)	20 (89)	7.5
16	1060-14-01**	1062-14-01**	14-16	14-18 (2.0-.75)	.095-.150 (2.41-3.81)	.150-.200 (3.81-5.08)	25 (111)	13
16	1060-14-10**	1062-14-10**	14-16	14-18 (2.0-.75)	.095-.150 (2.41-3.81)	.150-.200 (3.81-5.08)	25 (111)	13
16	1060-16-01**	1062-16-01**	16-18	14-18 (2.0-.75)	.075-.140 (1.90-3.55)	.150-.200 (3.81-5.08)	25 (111)	13
16	1060-16-06**	1062-16-06**	0.5-1.0	16-20 (1.0-.50)	.055-.100 (1.40-2.54)	.150-.200 (3.81-5.08)	25 (111)	13
16	1060-16-09**	1062-16-09**	16-18	14-18 (2.0-.75)	.075-.140 (1.90-3.55)	.150-.200 (3.81-5.08)	25 (111)	13
16	1060-16-12**	1062-16-12**	1.0-2.5	12-16 (2.5-1.0)	.075-.140 (1.90-3.55)	.175-.225 (4.45-5.72)	25 (111)	13
16	-	1062-16-14** sleeveless	14-16	12-16 (2.5-1.0)	.075-.140 (1.90-3.55)	.175-.225 (4.45-5.72)	25 (111)	13
12	1060-12-01**	1062-12-01**	12-14	12-14 (4.0-2.0)	.113-.176 (2.87-4.47)	.225-.275 (5.72-6.99)	30 (134)	25
12	1060-12-02**	1062-12-02**	10-12	10 [†] (6.0-4.0)	.140-.204 (3.56-5.18)	.225-.275 (5.72-6.99)	30 (134)	25

** = Plating codes

† = TXL wire insulation is preferred

S&F Contact Plating Codes

Part Number Suffix	Plating Material
22	Nickel
44	Gold
66	Tin/Nickel
77	Tin
88	Selective Gold



Note

See information drawing 0425-015-0000.

DEUTSCH Common Contacts

PCB PINS

Straight reduced diameter extended pins are available for installation in the DEUTSCH family of connectors. The use of removable contacts provides design flexibility and a low cost alternative to meet application needs. These solid copper alloy pins may be specified in various platings and assembled in HD30, HDP20, HD10, DRC, or DT receptacles.

Material

Copper alloy

Plating Codes

31: Gold

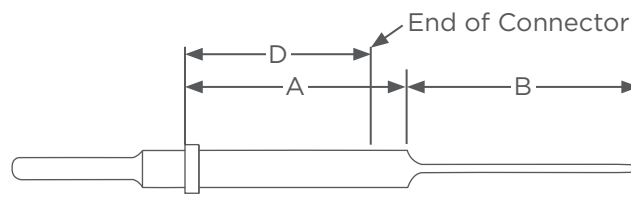
90: Tin

141: Nickel



PCB Mounting

Consult factory for PCB mounting details and pin positions.



Note

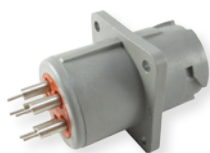
See information drawing 0425-202-0000 for full specifications.

Contact Size

Contact Size	Part Number	A	B	C	Series	D*
20	0460-208-2031	1.305 (33.15)	.248 (6.30)	.025 (.64)	HD30/HDP20	.939 (23.85)
	0460-208-2090	1.305 (33.15)	.248 (6.30)	.025 (.64)	HD10	.925 (23.50)
16	0460-208-16141	1.300 (33.02)	.248 (6.30)	.025 (.64)	DT	.777 (19.74)
	0460-208-1631	1.300 (33.02)	.248 (6.30)	.025 (.64)	DT04-2P	.677 (17.20)
	0460-229-16141	.545 (13.84)	.248 (6.30)	.025 (.64)	DT04-3P	.677 (17.20)
	0460-241-16141	1.305 (33.15)	.160 (4.06)	.040 (1.02)	DRC	1.063 (27.00)
	0460-244-16141	.976 (24.79)	.400 (10.16)	.041 (1.04)		
	0460-244-1631	.976 (24.79)	.400 (10.16)	.041 (1.04)		
12	0460-208-12141	1.305 (33.15)	.248 (6.30)	.025 (.64)		
	0460-245-1231	1.024 (26.01)	.500 (12.70)	.041 (1.04)		
	0460-245-1290	1.024 (26.01)	.500 (12.70)	.041 (1.04)		

*D is equal to the distance from the contact shoulder to the end of the connector.

Dimensions are for reference only.



HD10 Series



HDP20 Series



HD30 Series

Crimping

Crimping is defined as the act of joining a conductor to a pin or socket contact using a mechanical tool to compress and displace metal. In a good crimp joint, there is mutual flow of metal, causing a symmetrical distortion of wire strands.

CRIMPING CONFIGURATIONS

Stamped & formed contacts use a folded type of crimp (Fig. 1) while solid contacts use a 1, 2, or 4 indent crimp (Fig. 2). In both styles of crimps, the wire strands and the contact material are formed together in a solid mass creating a reduction of the wire strand area. The reduced wire strand area creates a minimum of voids allowing for excellent conductivity. Crimping may be accomplished with hand tools or power tools.

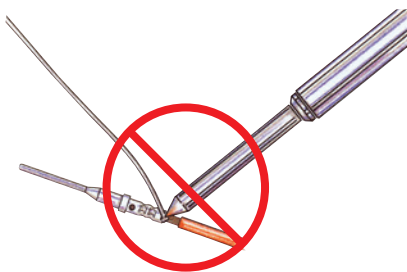
BENEFITS OF CRIMPED CONTACTS

Mechanically crimping contacts is the leading wire termination method for some very good reasons:

- With smaller wire, the crimp is as strong as the wire itself.
- The joint can be visually inspected. Viewing the wire through an inspection hole in the contact makes inspection quick and easy, both by the operator and the inspector.
- Plating thickness is not restricted, as in solder joints, so better corrosion resistance and contact reliability are achieved.
- Crimping can be done anywhere, without special preparation. Terminations are replaced or modified in the field exactly the same as in the shop, using the same tools and the same techniques, and with the same ease of operation and certainty of results.
- Total installed and maintenance costs are lower.

helpful hint

Solder should not be added to DEUTSCH terminals.



Stamped & Formed Style



Cross-Section Across Axis

Figure 1

Solid Style



Indenter Crimp
Cross-Section Across Axis

Figure 2

Note

The use of dielectric grease is not recommended.

CRIMP INSPECTION

Crimping tools provide lower total installation and maintenance costs. However, controls are required to help confirm that the proper crimp tools designed for the type and size contact are used, the pin or socket is properly inserted into the tool, the wire insulation is stripped properly, and the wire fully inserts into the contact.

When a crimp is completed, correct termination can be visually inspected. The inspector should check for:

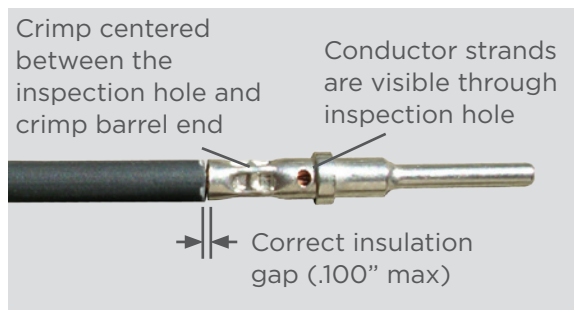
- The removed insulation should expose a conductor length that will pass beyond the inspection hole in the contact and still reveal the appropriate length of conductor between the contact and the insulation on the wire.
- Wire strands intact.
- All wire strands enter the contact barrel.
- Wire inserted to the proper depth in the contact.

When the correct crimp tool and process are used, a good termination results.

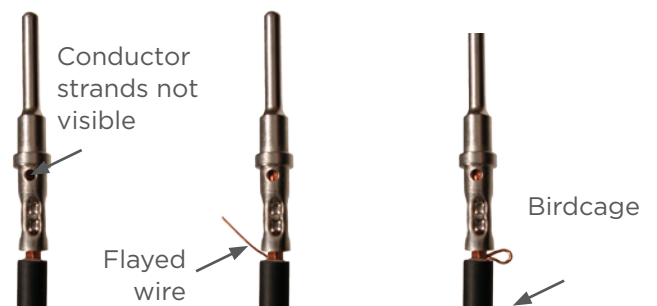
Note

For more detailed crimp dimensions please request a drawing.

SOLID CONTACT CRIMP

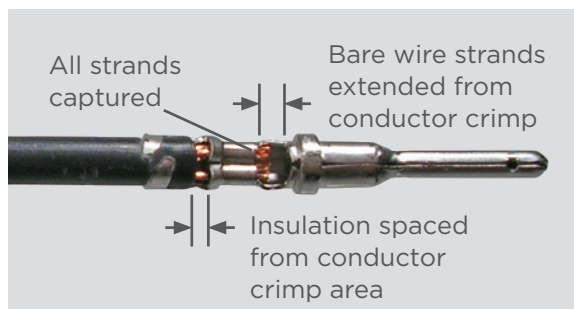


Acceptable Crimp

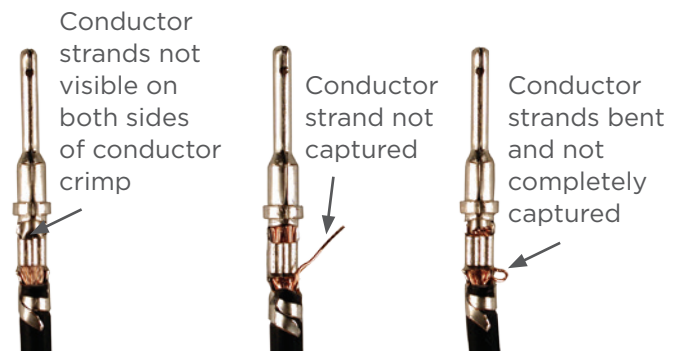


Unacceptable Crimps

STAMPED & FORMED CONTACT CRIMP



Acceptable Crimp



Unacceptable Crimps

DEUTSCH Common Contacts

Accessories

Additional accessories are available to aid in the design flexibility and sealing requirements of applications. Accessory items such as sealing plugs and keying pins help to maintain an environmental seal and prevent mis-mating.

KEYING PINS

Keying pins are solid plastic rods used to help prevent mis-mating of like connectors in close proximity. Applicable DEUTSCH product lines include HD10, HD30, HDP20, DT, and DTM series.

Keying pins are inserted into the retention fingers of an empty socket cavity. Once installed, the keying pin blocks a mating contact pin from being inserted. The contact pin will be blocked before the coupling device mates the connectors, helping to prevent the mis-mating of like connectors. Proper usage requires that the corresponding mating pin be omitted and a sealing plug inserted in the rear cavity of the mating connector. Individual applications will vary, and testing should be done to determine the best pattern arrangement to help prevent improper connector mating.



Part Number	Contact Size	Color
0413-216-2005	20	Red
0413-215-1605	16	White
0413-214-1205	12	Yellow

Note

Multiple keying pins may be required to help prevent unintentional forced mating.

CONTACT CRIMP SLEEVE REDUCER

A crimp sleeve reducer is available to allow DEUTSCH size 4 solid contacts to accept 8-10 AWG wire. When populating a connector using a contact with a reducer sleeve, be sure the insert seal penetrates the rear grommet. The use of the crimp sleeve reducer requires no extra crimp tools and provides an easy transition and increased flexibility.



Insert Seal
0410-241-0406



Crimp Sleeve
0421-203-04141

Note

TXL wire insulation with 10 AWG is not recommended because it may not provide an environmental seal against the insert seal.

SEALING PLUGS

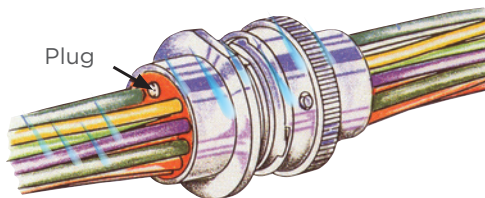
Open cavities provide pathways for contaminants to enter the connectors. To maintain seal integrity, any unused cavity must be filled with the appropriate size sealing plug.



Part Number	Contact Size	Description
114019	Size 4	Silicone rubber
114018	Size 8	Thermoplastic
114017	Size 12, 16	Thermoplastic
0413-217-1605 (locking sealing plug)	Size 16	Thermoplastic, retained by locking fingers
0413-003-1605	Size 16	Thermoplastic, used with STRIKE series
0413-204-2005	Size 20	Thermoplastic

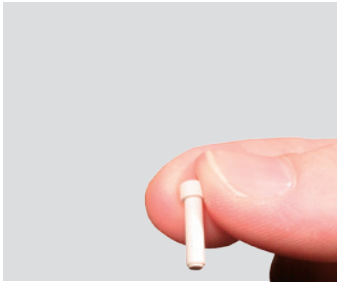
helpful hint

Sealing plugs are used to seal the connector when all the cavities are not used by wires.



How To Instructions

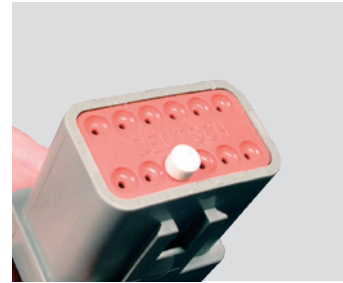
SEALING PLUG INSTALLATION



Step 1:
Holding the sealing plug with large diameter end away from the connector, gently apply downward pressure to force the sealing plug into the cavity.

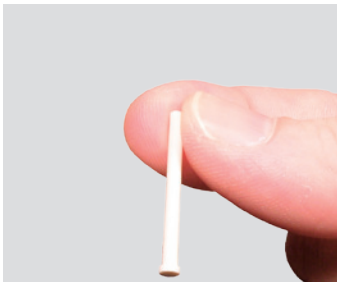


Step 2:
With perpendicular motion, apply downward pressure to the large diameter end of the sealing plug.

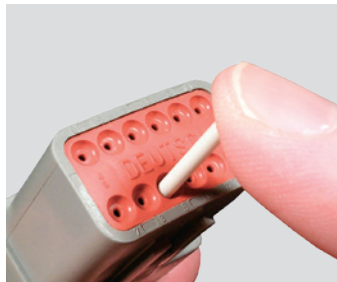


Step 3:
Apply pressure until sealing plug is forced to stop by contact with rear grommet. Visually inspect the sealing plug to confirm it is flush with cavity opening.

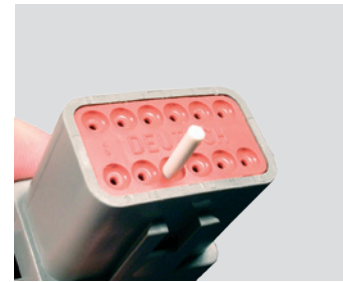
LOCKING SEALING PLUG INSTALLATION



Step 1:
Holding the sealing plug with large diameter end towards the connector, gently apply downward pressure to force the sealing plug into the cavity.



Step 2:
With perpendicular motion, apply downward pressure to the small diameter end of the sealing plug.

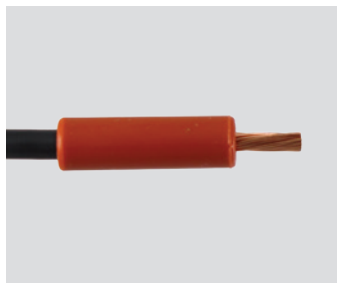


Step 3:
Apply pressure until sealing plug locks into place. A slight tug on the sealing plug will confirm it is locked into place.

CONTACT CRIMP SLEEVE REDUCER ASSEMBLY



Step 1:
Place crimp sleeve reducer into contact barrel.



Step 2:
Slide insert seal onto 8-10 AWG wire stopping just at the edge of the stripped insulation.



Step 3:
Insert wire into barrel of contact and crimp using designated tooling.



Step 4:
Confirm seal is not distorted.

Contents

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Crimp Tool Overview

The two types of DEUTSCH contacts are solid and stamped & formed. Both styles of contacts are designed for crimp style terminations - no solder is required or recommended. A crimp style termination displaces the wire strands creating a superior bond between the wire and the contact.

Several tools are available for hand and production wire crimping, wire insertion and removal, and wedgelock/terminal position assurance removal. The tools are specific to the solid contacts or the stamped & formed contacts. To create a proper crimp and achieve the highest performance specifications, contacts must be crimped with the recommended tooling.

Automated Tooling Overview

For higher production volumes, a pneumatic power crimp tool is available for the DEUTSCH solid contacts, and applicator dies for stamped & formed contacts. The HDP-400, a pneumatic solid crimp tool, is a fast, bench-top tool that crimps most DEUTSCH contacts. The HDP-400 has a foot control, and easy-to-change dies and locators for each contact size. TE's stamped & formed OCEAN applicator dies are heavy duty mini-dies that work in many industry standard presses. The OCEAN applicator dies offer simple adjustments and the flexibility to accept different sized contacts and wire gauge.

AUTOMATED TOOLING FOR SOLID CONTACTS



Tool Part Number	Contact Size	Contact Part Number
HDP-400	4	0460-204-0490
		0462-203-04141
	8	0460-204-08141
		0462-203-08141
	12	0460-204-12**
	0462-203-12**	
16	0460-202-16**	
	0462-201-16**	
20	0460-215-16**	
	0462-209-16**	
	0460-202-20**	
	0462-201-20**	

For the appropriate die and locator, see drawing 0425-205-0000

HDP-400 TOOLING ACCESSORIES

The Go-No-Go gauge is used to determine if the HDP-400 tool is calibrated within the recommended specifications to produce a proper crimp.



Part Number	Go-No-Go Gauges
GA20N	HDP-400 Size 20
450GA-16N	HDP-400 Size 16
450GA-12N	HDP-400 Size 12
GA8-SPEC	HDP-400 Size 8
450GA-4-SPEC	HDP-400 Size 4

AUTOMATED TOOLING FOR STAMPED & FORMED CONTACTS



	Pin P/N	Socket P/N	Insulation Range O.D. (mm)	Applicator P/N Conversion Kit P/N
Size 12 -Group 1	1060-12-0144 1060-12-0166	1062-12-0144 1062-12-0166	.151-.176 (3.83-4.47)	2266124-1 7-2266124-8
			.130-.154 (3.30-3.91)	2266125-1 7-2266125-8
			.113-.135 (2.87-3.43)	2266126-1 7-2266127-8
Size 12 -Group 2	1060-12-0222 1060-12-0244	1062-12-0222 1062-12-0244	.185-.204 (4.70-5.18)	2266127-1 7-2266127-8
			.155-.190 (3.94-4.83)	2266128-1 7-2266128-8
			.140-.160 (3.56-4.06)	2266129-1 7-2266129-8
Size 16 -Group 1	1060-14-0122 1060-14-0144 1060-14-0177	1062-14-0122 1062-14-0144 1062-14-0177	.120-.150 (3.05-3.81)	2266100-1 7-2266100-8
			.105-.125 (2.67-3.18)	2266101-1 7-2266101-8
Size 16 -Group 1	1060-16-0122 1060-16-0144 1060-16-0177	1062-16-0122 1062-16-0144 1062-16-0177	.105-.125 (2.67-3.18)	2266101-1 7-2266101-8
			.085-.111 (2.16-2.82)	2266102-1 7-2266102-8
	1060-16-0722 1060-16-0744 1060-16-0777	1062-16-0722 1062-16-0744 1062-16-0777	.075-.105 (1.91-2.67)	2266103-1 7-2266103-8
			.063-.094 (1.60-2.39)	2266104-1 7-2266104-8

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.

AUTOMATED TOOLING FOR STAMPED & FORMED CONTACTS (CONTINUED)

	Pin P/N	Socket P/N	Insulation Range O.D. (mm)	Applicator P/N Conversion Kit P/N
Size 16 -Group 2	1060-16-0622	1062-16-0622	.063-.094 (1.60-2.39)	2266110-1 7-2266110-8
	1060-16-0644	1062-16-0644		
	1060-16-0677	1062-16-0677	.050-.075 (1.27-1.91)	2266111-1 7-2266111-8
	1060-16-0688	1062-16-0688		
Size 16 -Group 3	1060-16-1222	1062-16-1222	.120-.140 (3.05-3.56)	2266112-1 7-2266112-8
	1060-16-1244	1062-16-1244	.105-.125 (2.67-3.18)	2266113-1 7-2266113-8
	1060-16-1277	1062-16-1277		
	-	1062-16-1422	.090-.110 (2.29-2.79)	2266114-1 7-2266114-8
	-	1062-16-1444	.075-.095 (1.91-2.41)	2266115-1 7-2266115-8
	-	1062-16-1477		
	Size 20 -Group 1	1060-20-0122	1062-20-0122	.105-.125 (2.67-3.18)
1060-20-0144		1062-20-0144		
1060-20-0177		1062-20-0177	.085-.111 (2.16-2.82)	2266117-1 7-2266117-8
-		1062-20-0322		
-		1062-20-0344	.075-.105 (1.91-2.67)	2266118-1 7-2266118-8
-		1062-20-0377		
1060-20-0222		1062-20-0222	.063-.085 (1.62-2.16)	2266119-1 7-2266119-8
1060-20-0244		1062-20-0244		
1060-20-0277	1062-20-0277	.050-.075 (1.27-1.91)	2266120-1 7-2266120-8	

The -1 suffix on the applicator p/n represents a mechanical feed, for other feed options contact your representative. The conversion kit is to convert applicators within the same group. For more information, please reference TE catalog 1-1773730-8 or contact your representative.

DEUTSCH Tooling

Hand Tool Overview

For field service, prototype, and low-volume production, there are several easy-to-use hand crimp tools for both solid barrel and stamped & formed contacts. All hand crimp tools provide a tight, complete crimp with minimal effort. The HDT-48-00, the most commonly used tool for solid contacts, crimps a wide range of contact sizes. It provides a symmetrical four indent crimp, is compact and easy-to-use for field service, yet sturdy and reliable enough for low volume production. Hand crimp tools for DEUTSCH stamped & formed contacts are wire gauge specific and simultaneously crimp the insulation and conductor, saving time and effort during field service.

HAND TOOLS FOR SOLID CONTACTS



HDT-04-08



HDT-48-00



HDT-50-00



HDT-1561

Contact Size	Contact Part Number	Tool Part Number	Crimp Type
4	0460-204-0490 0462-203-04141	HDT-04-08	Two indent crimp
8	0460-204-08141 0462-203-08141	HDT-04-08	Two indent crimp
12	0460-204-12** 0462-203-12**	HDT-48-00	Four indent crimp
		HDT-1561	Two indent crimp
		HDT-50-00	One indent crimp
16	0460-202-16** 0462-201-16** 0460-215-16** 0462-209-16**	HDT-48-00	Four indent crimp
		HDT-1561	Two indent crimp
		HDT-50-00	One indent crimp
20	0460-202-20** 0462-201-20**	HDT-48-00	Four indent crimp
		HDT-1561	Two indent crimp
		HDT-50-00	One indent crimp

HDT-48-00 TOOLING ACCESSORIES

Replacement parts, such as adjustment screws, locking nuts, and inspection tools are available for the HDT-48-00 hand tool.



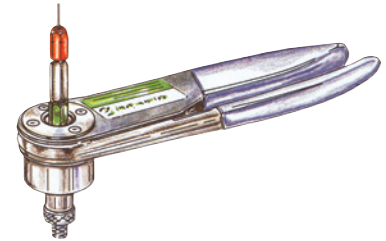
Part Number	Crimp Tool Replacement Part
0426-209-0000	Adjustment screw and locking nut
M2700-395-10	Locking nut

helpful hint

Go-no-go gauges are used to inspect crimp tooling. The G454 gauge is used with the HDT-48-00 hand tool.



Part Number	Description
G454	HDT-48-00 Go-No-Go Gauge



HAND TOOLS FOR DEUTSCH STAMPED & FORMED CONTACTS



DTT-12-00




DTT-12-01



DTT-16-00
DTT-16-01
DTT-20-00
DTT-20-02

Contact Size	Contact Part Number	Tool Part Number
12	1060-12-01** 1062-12-01**	DTT-12-00
	1060-12-02** 1062-12-02**	DTT-12-01
16	1060-16-01** 1062-16-01**	DTT-16-00 (14-16 AWG)
	1060-16-06** 1062-16-06**	DTT-16-01 (18 AWG)
20	1060-20-01** 1062-20-01**	DTT-20-00
	1060-20-02** 1062-20-02**	DTT-20-02

MULTI-USE REMOVAL TOOL

Part Number	Description
 DT-RT1	Multi-use tool with a small hook on one end for wedgelock removal, and a small screwdriver on the other end to push back the locking fingers and release the contact. For use with the DT, DTM, DTP, DTV, DRB, and STRIKE series.

REMOVAL TOOLS

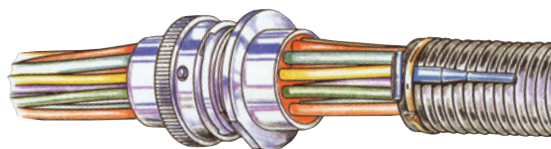
DEUTSCH removal tools are designed to simplify contact removal and field service repair in connectors that utilize a round shoulder contact retention system. Removal tools are compact, easy-to-use, and manufactured of heavy duty plastic to remove contacts without damage to the wire, insulation, connector seals, or connector body. The removal tools are required for wire removal in the DTHD, Jiffy Splices, HD10, HDP20, HD30, DRC, AEC, and WT series.



Part Number	Contact Size	Wire Gauge Range	Color
0411-027-0405	Size 4	4 AWG	Black
114009	Size 4	6 AWG	White
114008	Size 8	8-10 AWG	Green
0411-353-0805	Size 8 for HD Box	8-10 AWG	Green Extended
114010	Size 12	12 AWG	Yellow
0411-337-1205	Size 12	12-14 AWG Extra Thin Wall (E-Seal)	Orange
0411-291-1405	Size 16	14-16 AWG	Green
0411-310-1605	Size 16	16-20 AWG	Light Blue
0411-336-1605	Size 16	16-18 AWG Extra Thin Wall (E-Seal)	Dark Blue
0411-240-2005	Size 20	20-22 AWG	Red

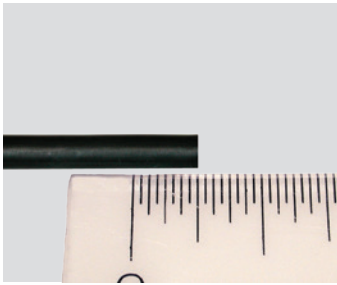
helpful hint

A contact removal tool taped or tie wrapped to the harness will make it easily available, should repairs be needed.



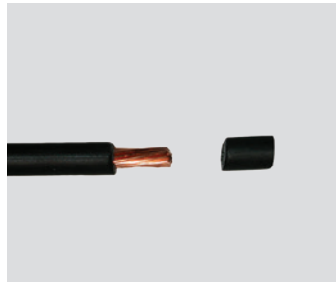
How To Instructions

WIRE STRIPPING



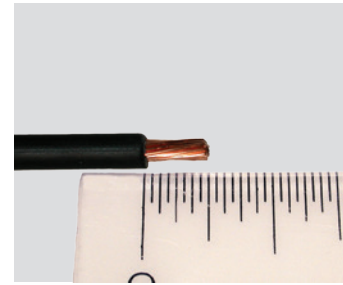
Step 1:

1. Choose the correct AWG for the contact being used.
2. Measure from the end of the wire the recommended strip length according to the contact size.
3. Place the wire into a stripping tool at the recommended strip length. Strip the wire according to stripping tool instructions.



Step 2:

1. After stripping, a small piece of the insulation should come off.
2. Check for any broken strands or for a dent in the wire. If either exist, the wire is damaged and should be cut and stripped again.

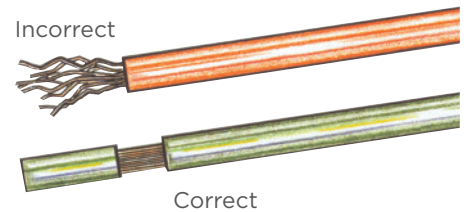


Step 3:

1. Measure the exposed strands to be sure the crimp length is correct.

helpful hint

Leaving the stripped portion of the insulation on the wire until crimping will avoid flayed wire strands.



CRIMPING WITH THE HDT-48-00 HAND TOOL



Step 1:

1. Strip insulation from wire.
2. Raise selector knob and rotate until arrow is aligned with wire size to be crimped.
3. Loosen locknut, turn adjusting screw in until it stops.



Step 2:

1. Insert contact with barrel up. Turn adjusting screw counterclockwise until contact is flush with indenter cover. Tighten locknut.



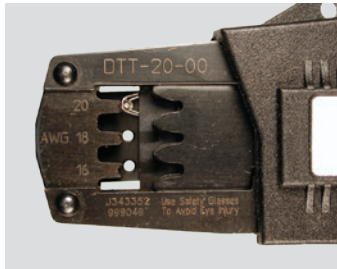
Step 3:

1. Insert wire into contact. Contact must be centered between indentors. Close handles until crimp cycle is completed.
2. Release handles and remove crimped contact.

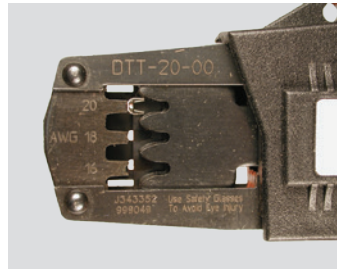
Note

Tool must be adjusted for each type/size of contact.

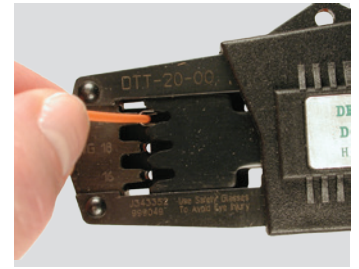
CRIMPING WITH DTT STYLE HAND TOOLS (SIZE 16 & 20)



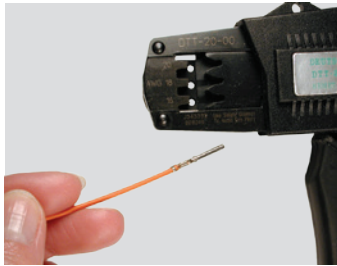
Step 1:
Cycle the hand tool to the open position. Place the contact into the correct die nest.



Step 2:
Partially close the tool until the contact is held in place.



Step 3:
Insert the prestripped wire into the crimp area of the contact.



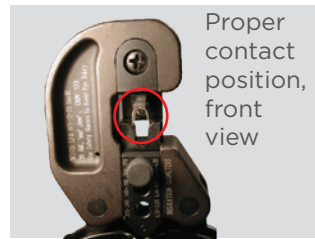
Step 4:
Close the tool until the ratchet releases. The ratchet is released when a loud click is heard and crimp is complete.

CRIMPING WITH DTT-12-01 HAND TOOL



Step 1:
Cycle handles to release ratchet and fully open crimp jaws. Pull out insulation selector and push into proper diameter using the chart below.

Wire Type	Insulation Selector
10 TXL	.150-.170
10 GXL	.160-.180
10 SXL	.170-.205
5.0 mm ²	.160-.180
6.0 mm ²	.170-.205



Step 2:
1. Insert contact into locator. Adjust alignment and width of crimp wings if necessary to help confirm capture by crimp jaws.



2. Insert stripped wire into the contact. Close crimp tool until full-cycle ratchet control releases.

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Bussing Options

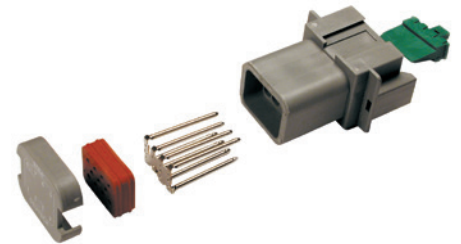
Bussed Overview

DEUTSCH industrial bussed feedback receptacles are environmentally sealed connectors designed for use in heavy duty applications where multiple circuits require a common electrical pathway. Available in the DT Series, DEUTSCH bussed connectors feature integrated bussbars with standard DEUTSCH contacts.

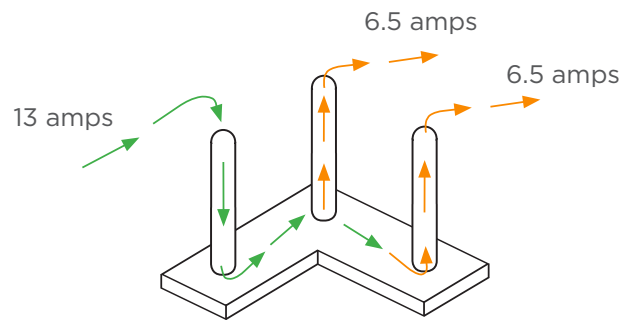
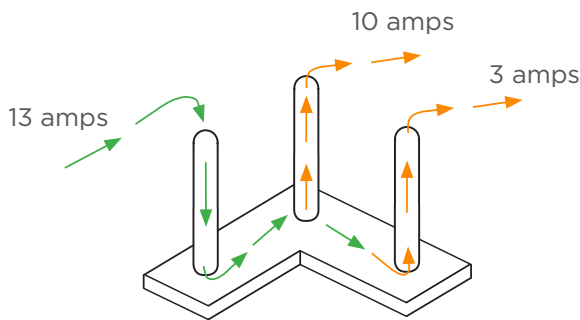
A bussbar, or buss, is a thin conductive strip connecting two or more contacts within the body of a connector. Bussbars allow power or data to be fed into a connector through one or more terminals and drawn out as needed through the other contacts on the same buss. Connectors can carry one or more bussbars, creating multiple independent electrical circuits within the same connector body and distributing power or data to many components. A single bussed connector can replace several standard connectors or splices, saving space, wiring, and weight.

DT SERIES BUSSED FEEDBACK RECEPTACLES

DT bussed feedback receptacles are a compact economical bussing option housed in rugged, field-proven DT receptacle bodies. The bussed DTs mate with standard DT plugs and meet all the performance specifications for the DT series. The connectors are available in multiple buss configurations using standard size 16 contacts, with plating options in nickel or gold.



BUSSED EXAMPLES



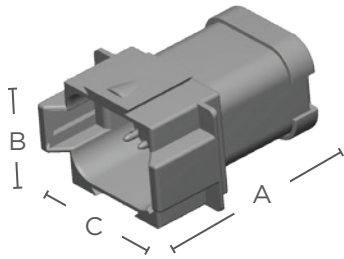
In the examples, there are three size 16 pins each rated for 13 amps mounted to the buss. A total of 13 amps can be pulled into one pin and going out the 13 amps are split between the remaining two pins. No more than 13 amps can go through any single pin.

Note

The maximum current rating is the total amount of current for the entire buss. Current can be distributed in many combinations, but cannot exceed 13 amps per contact.

Bussing Options

DIMENSIONS

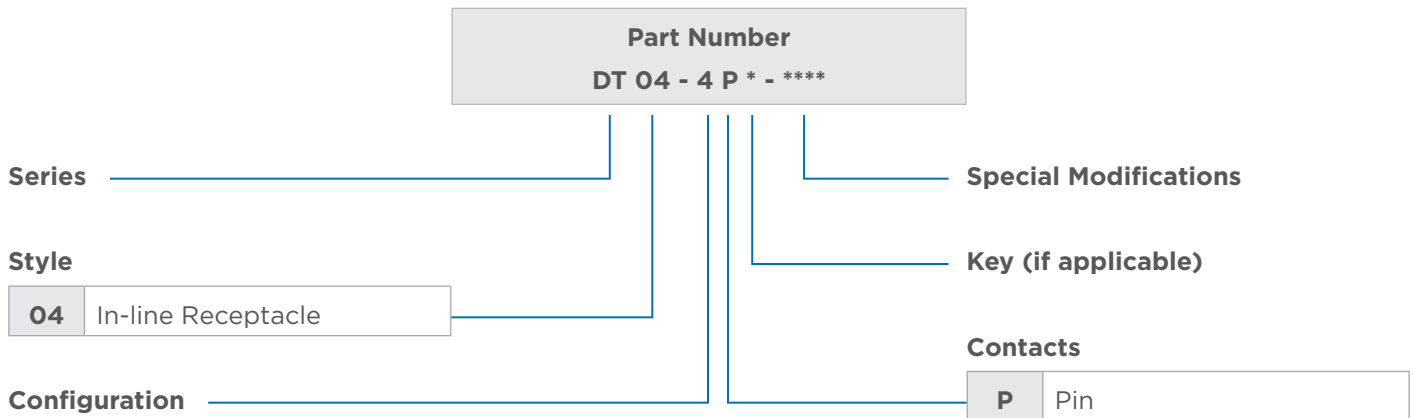


DT Receptacle

Cavity	Overall Length A	Overall Height B	Overall Width C
2	1.818 (46.18)	.670 (17.15)	.675 (17.15)
4	1.868 (47.45)	.797 (20.24)	.820 (20.83)
6	1.858 (47.19)	.972 (24.69)	.820 (20.83)
8	1.848 (46.94)	1.000 (25.40)	1.435 (36.45)
12	2.043 (51.89)	.876 (22.25)	1.597 (40.56)












Dimensions are for reference only.

DT SERIES BUSSED FEEDBACK RECEPTACLE PART NUMBERING SYSTEM



Bussing Options

ORDERING INFORMATION

Bussing Arrangements	Maximum Current Rating*	Buss Plating	Connector Color	Receptacle Part Number	Mating Plug Part Number
 (1) 2	(1) 2 Pin Buss=13 amps	Nickel	Black	DT04-2P-P060	DT06-2S-****
 (1) 4	(1) 4 Pin Buss=26 amps	Nickel Nickel	Black Gray	DT04-4P-EP13 DT04-4P-P021	DT06-4S-**** DT06-4S-****
 (1) 6	(1) 6 Pin Buss=39 amps	Nickel Nickel	Black Gray	DT04-6P-EP13 DT04-6P-P021	DT06-6S-**** DT06-6S-****
 (2) 3's	(2) 3 Pin Busses=13 amps each	Nickel	Black	DT04-6P-EP14	DT06-6S-****
 (1) 8	(1) 8 Pin Buss=52 amps	Nickel Nickel	Gray Black	DT04-08PA-P021 DT04-08PB-P021	DT06-08SA-**** DT06-08SB-****
 (1) 3, (1) 5	(1) 3 Pin Buss=13 amps (1) 5 Pin Buss=26 amps	Nickel Nickel	Gray Black	DT04-08PA-P028 DT04-08PB-P028	DT06-08SA-**** DT06-08SB-****
 (2) 4's	(2) 4 Pin Busses=26 amps each	Nickel Nickel	Gray Black	DT04-08PA-P026 DT04-08PB-P026	DT06-08SA-**** DT06-08SB-****
 (1) 12	(1) 12 Pin Buss=78 amps	Gold Gold Nickel Nickel	Gray Black Gray Black	DT04-12PA-P016 DT04-12PB-P016 DT04-12PA-P021 DT04-12PB-P021	DT06-12SA-**** DT06-12SB-**** DT06-12SA-**** DT06-12SB-****
 (2) 6's	(2) 6 Pin Busses=39 amps each	Nickel Nickel Gold	Gray Black Black	DT04-12PA-P026 DT04-12PB-P026 DT04-12PB-P027	DT06-12SA-**** DT06-12SB-**** DT06-12SB-****
 (3) 4's	(3) 4 Pin Busses=26 amps each	Nickel	Gray	DT04-12PA-P075	DT06-12SA-****
 (4) 3's	(4) 3 Pin Busses=13 amps each	Nickel Nickel Gold Gold	Gray Black Gray Black	DT04-12PA-P030 DT04-12PB-P030 DT04-12PA-P031 DT04-12PB-P031	DT06-12SA-**** DT06-12SB-**** DT06-12SA-**** DT06-12SB-****

*Maximum current rating is the total amperage for the buss

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CAN Overview

Controller Area Networks, or CAN, are multiplex data systems. Multiplexing allows multiple data signals to travel on the same wires, integrating separate electronic systems and applications to a single point control and monitoring system. Using signals sent over a serial network, CAN systems provide instantaneous monitoring of diagnostic and control systems allowing early detection of potential problems. Early detection of problems leads to lower repair costs and reduced downtime. CAN systems allow an operator to use a single command station to control diagnostic systems and receive such varied information as brake and transmission temperature, tire pressure, fuel efficiency, and emissions levels. Anything that can be measured and controlled electronically can be monitored and directed by a CAN system.

ISO/CD 11783-2 ISO BOX AND ASSOCIATED CONNECTORS

Originally designed for agricultural applications, the DEUTSCH ISO Box creates a communication pathway between an on-board CAN system and the electronic components on an attached implement. The HDBox, which holds two DT13 connectors and an HD30 series receptacle, mounts on the vehicle and mates with an HD30 plug connector that features a breakaway coupling ring. DEUTSCH breakaway couplings are designed to help prevent damage to the vehicle or the attached implement by fragmenting and separating from the vehicle in the event of a drive-away disconnect.



Part Number	Description
HDBOX-24-91PN	ISO Box assembly
HDBOX-24-91PE	ISO Box assembly, reduced wire seal
HD36-24-91SN-059	Plug, cable clamp assembly
HD36-24-91SE-059	Plug, cable clamp assembly, reduced wire seal
HDB36-24-91SN-059	Plug, breakaway coupling, cable clamp assembly
HDB36-24-91SE-059	Plug, breakaway coupling, cable clamp assembly, reduced wire seal
DT06-4S-EP06*	Plug, black, end cap
DT06-2S-EP06*	Plug, black, end cap
W4S-P012	Wedgelock, green
W2S-P012	Wedgelock, green
0460-204-08141	Pin, solid, size 8
0460-204-12141	Pin, solid, size 12
0460-202-1631	Pin, solid, size 16, gold
0462-203-08141	Socket, solid, size 8
0462-203-12141	Socket, solid, size 12
0462-201-1631	Socket, solid, size 16, gold

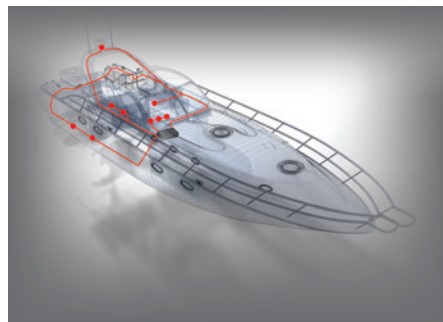
*DT series receptacles are molded in the HDBox

Controller Area Networks

CAN PRODUCT OPTIONS

Whether you're building a Controller Area Network for anything from on/off-highway, construction, material handling, agriculture machines, to your OEM fleet of fire engines, there is a DEUTSCH solution for your CAN needs. Options include several configurations: 2-wire, 3-wire, and 4-wire, with in-line and flange mount, along with splitters, heavy duty breakaway connectors, and an off-board 9-pin diagnostic connector.

SAE J1939 is a specific type of CAN that defines the communications pathways for vehicle networks. Improved electrical systems as defined under SAE J1939 allow electrical devices to communicate with each other. Communication occurs using a Controlled Area Network between intelligent sensors over a serial network. Through a series of microprocessors a CAN interconnects every device establishing a common link between each.



There are three main electrical interconnect subsets of J1939 including /11, /13, and /15:

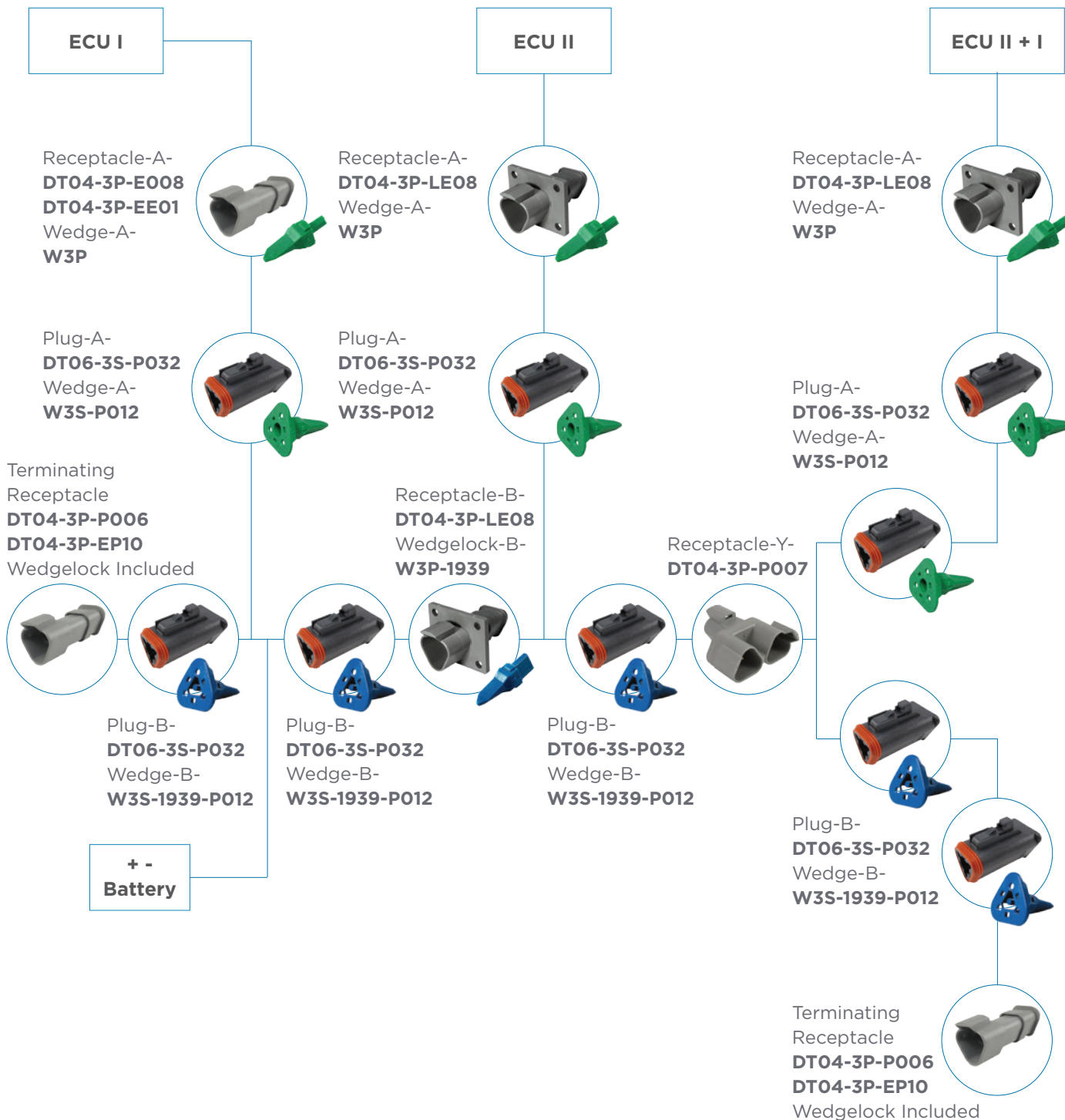
- J1939/11 is a 3-wire system that uses the DEUTSCH DT series connectors primarily for truck and bus. The DT series accepts size 16 contacts and 14-20 AWG. Connector options include in-line, bulkhead, "Y" splitter, and terminating resistors.
- J1939/13 is a system that uses the DEUTSCH HD10 series connectors for on-board diagnostics. The HD10 series accepts size 16 contacts and 14-20 AWG.
- J1939/15 is a 2-wire system that uses the DEUTSCH DTM series connectors. The DTM series accepts size 20 contacts and 16-22 AWG. Connector options include in-line, "Y" splitter, and terminating resistors.

The sophistication of equipment design is demanding increased response of electrical systems. The application of J1939 allows designers to improve the quantity and the quality of the options offered along with increased electrical system reliability.

Controller Area Networks

J1939/11 3 WIRE SYSTEM SCHEMATIC

DEUTSCH J1939/11 connectors are rugged field proven DT 3 pin connectors designed to meet the SAE requirements for 3-wire CAN applications linking ECUs for serial data communications. The DT 3 way connectors accommodate the CAN_HI, CAN_LO and shield wires with a variety of options including “Y” receptacles, connectors with mounting flanges, keyed wedgelocks to prevent mis-mating, and network terminating connectors with molded-in 120Ω resistors.



J1939/11 DEUTSCH CONNECTOR OPTIONS

Part Number	Description
DT04-3P-P007	Receptacle, "y" connector
DT04-3P-E008	Receptacle, gray, shrink boot adapter
DT04-3P-P006	Receptacle, gray, 120Ω resistor
DT04-3P-EE01	Receptacle, black, shrink boot adapter
DT04-3P-EP10	Receptacle, black, 120Ω resistor
DT06-3S-E008	Plug, gray, shrink boot adapter
DT06-3S-P006	Plug, gray, 120Ω resistor
DT06-3S-EP11	Plug, black, shrink boot adapter
DT06-3S-PP01	Plug, black, 120Ω resistor
DT06-3S-PE01	Plug, black, 120Ω resistor, latch guard
DT06-3S-P032	Plug, black, single piece shrink boot adapter
W3P-1939	Wedglock, blue
W3S	Wedglock, orange
W3S-P012	Wedglock, green
W3S-1939	Wedglock, blue
W3S-1939-P012	Wedglock, blue
0460-202-1631	Pin, solid, size 16, gold
1060-16-0144	Pin, stamped & formed, size 16, gold
0460-247-1631	Pin, solid, size 16, gold, extended
0462-201-1631	Socket, solid, size 16, gold
1062-16-0144	Socket, stamped & formed, size 16, gold
0462-221-1631	Socket, solid, size 16, gold, extended



J1939/13 UNIVERSAL 9-PIN DIAGNOSTIC

DEUTSCH J1939/13, HD10 9 pin connector is a standard diagnostic tool interface for on- and off-highway OEMs. The HD10-9-1939P is a data port connector designed to allow an on-board CAN system to mate with a diagnostic computer. The connectors are for use with the 250 kbps network. The DEUTSCH HD10 J1939/13 connectors offer several mounting options for the receptacle, and a mating plug that is available with or without a coupling ring.

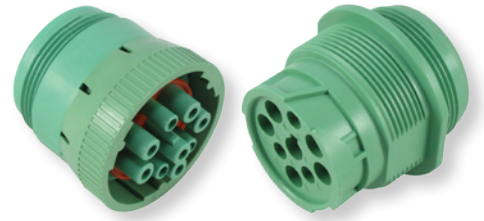


Part Number	Description
HD10-9-1939P	Receptacle
HD10-9-1939P-B022	Receptacle, panel nut mount
HD10-9-1939PE-B022	Receptacle, panel nut mount, reduced wire seal
HD10-9-1939PE	Receptacle, reduced wire seal
HD16-9-1939S	Plug, coupling ring
HD16-9-1939SE	Plug, coupling ring, reduced wire seal
HD17-9-1939S	Plug, no coupling ring (slip-on)
HD17-9-1939SE	Plug, no coupling ring (slip-on), reduced wire seal
0460-202-1631	Pin, solid, size 16, gold
0460-247-1631	Pin, solid, size 16, gold, extended
0462-201-1631	Socket, solid, size 16, gold
0462-221-1631	Socket, solid, size 16, gold, extended

Controller Area Networks

J1939/13 TYPE II UNIVERSAL 9-PIN DIAGNOSTIC

DEUTSCH J1939/13, HD10 9 pin connector is a standard diagnostic tool interface for on- and off-highway OEMs. The HD10-9-1939P*-P080 is a data port connector designed to allow an on-board CAN system to mate with a diagnostic computer. The green, Type II connectors, HD10-9-1939P-P080, are for use with the 500 kbps network. The DEUTSCH HD10 J1939/13 connectors offer several mounting options for the receptacle, and a mating plug that is available with or without a coupling ring.

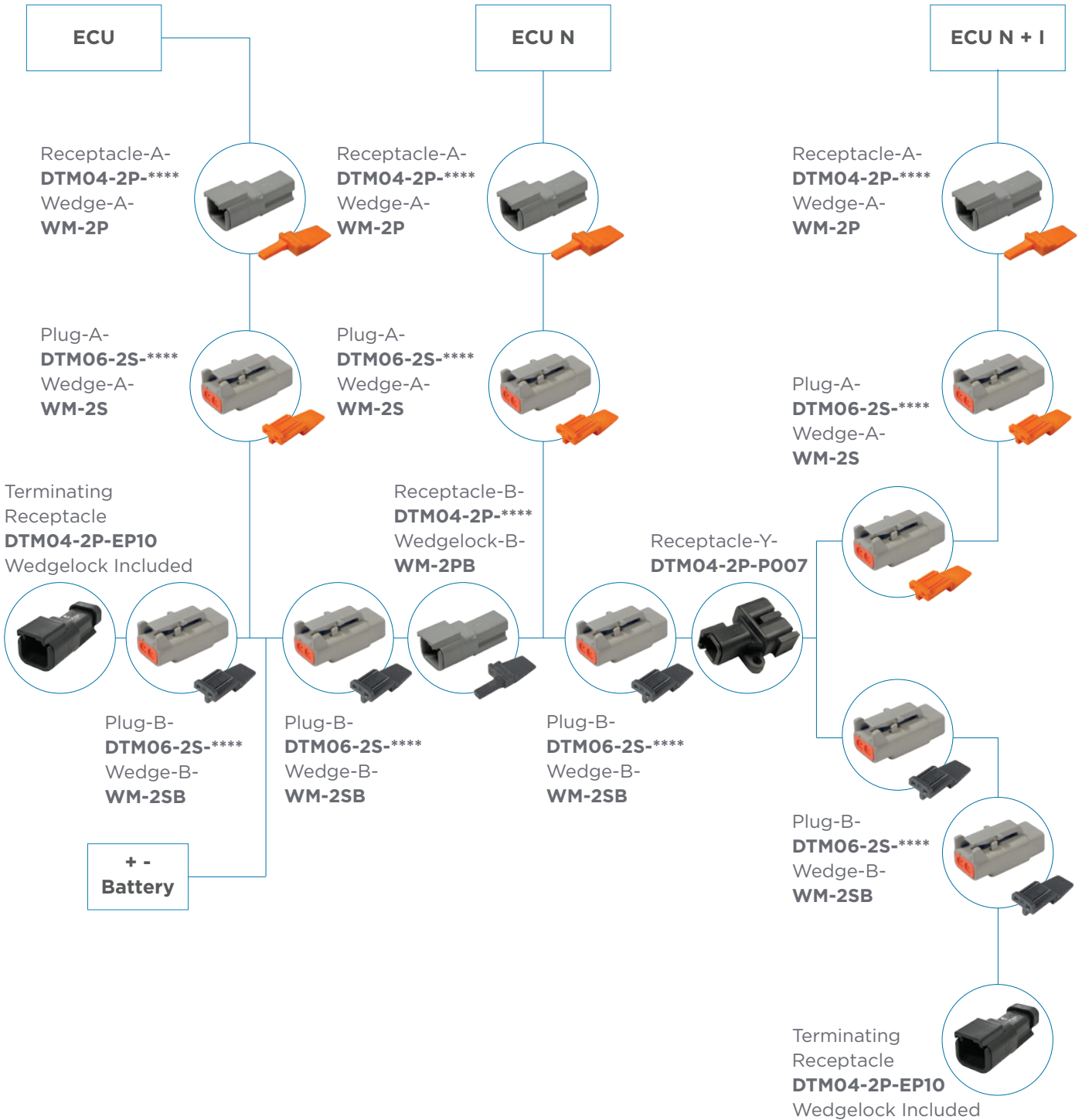


Part Number	Description
HD10-9-1939P-P080	Receptacle, flange mount, type II
HD10-9-1939PE-P080	Receptacle, flange mount, type II, reduced wire seal
HD10-9-1939P-BP03	Receptacle, panel nut mount, type II
HD10-9-1939PE-BP03	Receptacle, panel nut mount, type II, reduced wire seal
HD14-9-1939P-P080	Receptacle, type II
HD14-9-1939PE-P080	Receptacle, type II, reduced wire seal
HD16-9-1939S-P080	Plug, coupling ring, type II
HD16-9-1939SE-P080	Plug, coupling ring, type II, reduced wire seal
HD17-9-1939S-P080	Plug, no coupling ring (slip-on), type II
HD17-9-1939SE-P080	Plug, no coupling ring (slip-on), type II, reduced wire seal
0460-202-1631	Pin, solid, size 16, gold
0460-247-1631	Pin, solid, size 16, gold, extended
0462-201-1631	Socket, solid, size 16, gold
0462-221-1631	Socket, solid, size 16, gold, extended

Controller Area Networks

J1939/15 2 WIRE SYSTEM SCHEMATIC

SAE J1939/15 defines the requirements for reduced physical layer 2-wire CAN systems consisting of an unshielded twisted pair of wires. DEUTSCH DTM 2 way connectors are offered in several modifications to meet the requirements of this standard. DTM connectors for serial data communications include “Y” receptacles, connectors with end caps and shrink boot adapters, and receptacles with molded-in 120Ω resistors for network terminations.



J1939/15 DEUTSCH CONNECTOR OPTIONS

Part Number	Description
DTM04-2P-P007	Receptacle, "y" connector
DTM04-2P-E007	Receptacle, gray, shrink boot adapter
DTM04-2P-P006	Receptacle, gray, 120Ω resistor
DTM04-2P-EE03	Receptacle, black, shrink boot adapter
DTM06-2S-E007	Plug, gray, shrink boot adapter
DTM06-2S-P006	Plug, gray, 120Ω resistor
DTM06-2S-EE03	Plug, black, shrink boot adapter
DTM06-2S-EP10	Plug, black, 120Ω resistor
WM-2P	Wedglock, orange
WM-2PA	Wedglock, gray
WM-2PB	Wedglock, black
WM-2S	Wedglock, orange
WM-2SA	Wedglock, gray
WM-2SB	Wedglock, black
0460-202-2031	Pin, solid, size 20, gold
1060-20-0144	Pin, stamped & formed, size 20, gold
0462-201-2031	Socket, solid, size 20, gold
1062-20-0144	Socket, stamped & formed, size 20, gold



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Diodes & Resistors Overview

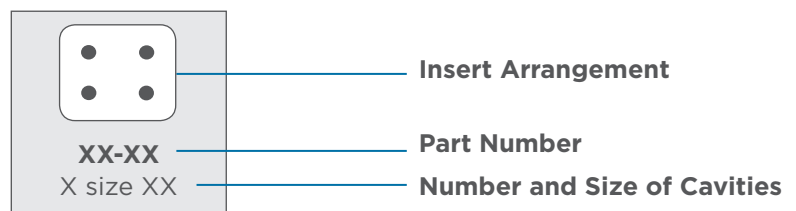
DEUTSCH DT connectors with diodes and resistors are useful anywhere you need to regulate power or protect a device against a potential power surge.

A diode allows current to flow in one direction only. By preventing current from traveling a circuit in the wrong direction, a diode can protect an electronic device from damage. Devices with batteries will often use diodes to prevent power from flowing in reverse if the battery is not installed correctly.

A resistor limits or blocks current flow in both directions. Resistors protect sensitive electronics by limiting the amount of electricity that can flow to the device through the resistor, and therefore preventing power spikes. For example, resistors are used to prevent power surges from burning out an LED by restricting current flow to the light.

DEUTSCH diode and resistor connectors are easily added to an application after the fact if unwanted power surges are discovered.

DIODE & RESISTOR CONFIGURATIONS



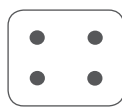
DT SERIES CONFIGURATIONS



DT0*-2*-****
2 size 16



DT0*-3*-****
3 size 16



DT0*-4*-****
4 size 16

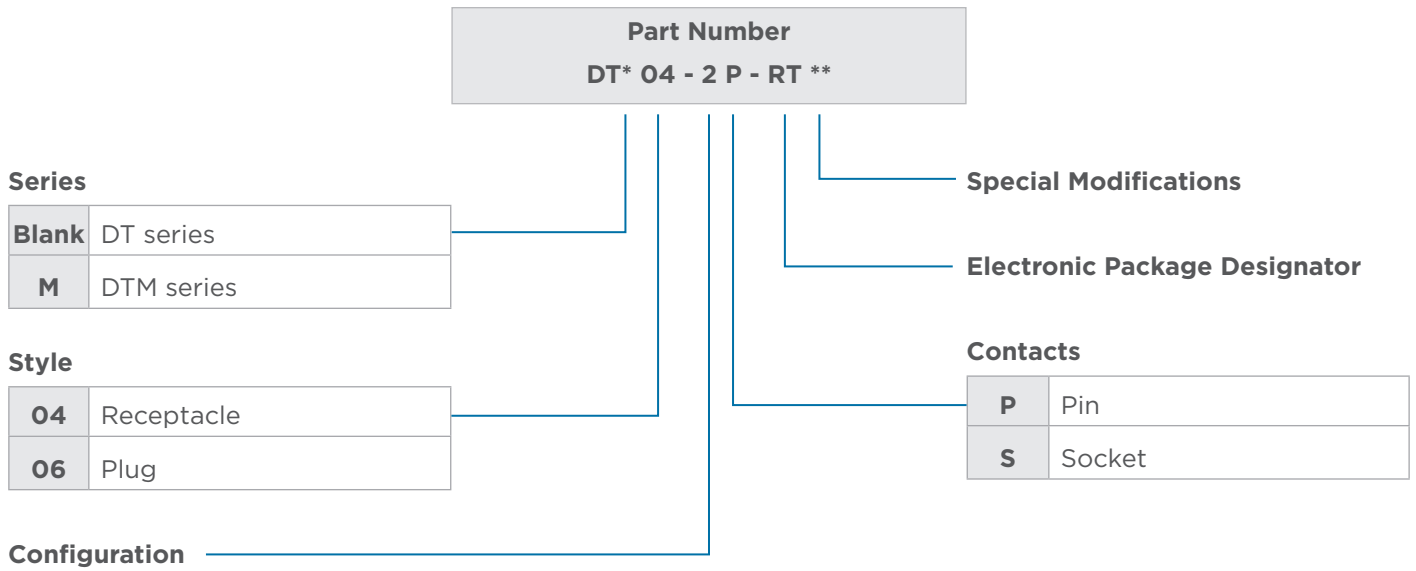
DTM SERIES CONFIGURATIONS



DTM0*-2*-****
2 size 20

DEUTSCH Diodes & Resistors





PART NUMBERING SYSTEM








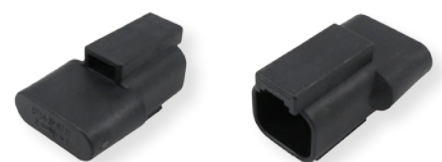
DIODE CHARACTERISTICS

DT Series	Part Number	Plug or Receptacle	Diode Part Number	Peak Reverse Volts	Peak Forward Volts	Avg. Forward Current	Color
	DT04-2P-RT01	Receptacle	MUR460	600 V max.	1.28 V max.	4.0 A max.	Black
	DT04-2P-RT02	Receptacle	1N5625GP	400 V max.	1.0 V max.	3.0 A max.	Black
	DT04-4P-RT01	Receptacle	MUR460 (3)	600 V max.	1.28 V max.	4.0 A max.	Black
	DT04-4P-RT03	Receptacle	MUR460 (2)	600 V max.	1.28 V max.	4.0 A max.	Gray

RESISTOR CHARACTERISTICS

DTM Series	Part Number	Plug or Receptacle	Resistor Ohms	Resistor Watts	Color
	DTM04-2P-EP10	Receptacle	120	0.4	Black (B keyed wedgelock included)
	DTM04-2P-P006	Receptacle	120	0.4	Gray (A keyed wedgelock included)
	DTM06-2S-EP10	Plug	120	0.4	Black (B keyed wedgelock included)
	DTM06-2S-P006	Plug	120	0.4	Gray (A keyed wedgelock included)

DT Series	Part Number	Plug or Receptacle	Resistor Ohms	Resistor Watts	Color
	DT04-2P-RT25	Receptacle	27k	0.5	Black
	DT04-3P-EP10	Receptacle	120	0.4 min.	Black (J1939 keyed wedgelock included)
	DT04-3P-P006	Receptacle	120	0.4 min.	Gray (J1939 keyed wedgelock included)
	DT06-3S-EP10	Plug	120	0.4 min.	Black (J1939 keyed wedgelock included)
	DT06-3S-P006	Plug	120	0.4 min.	Gray (J1939 keyed wedgelock included)



Contents

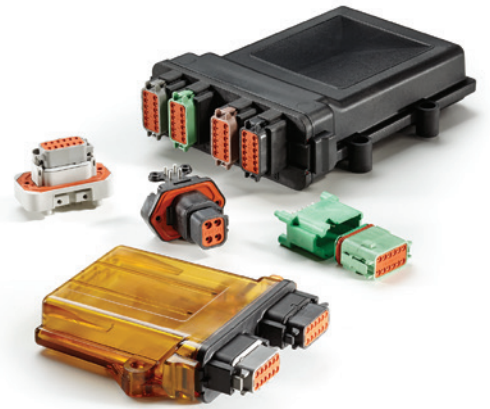
Printed Circuit Board Overview	210
PCB Connector Options	210
AMPSEAL Connectors	211
Circular DIN Connectors	211
DRC Series	212-213
DT Family	214-216
HD10 Series	216
LEAVYSEAL	217
STRIKE Series	217
Superseal 1.0 Connectors	218
PCB Enclosures and Headers	218-221

Printed Circuit Board Connectors

Printed Circuit Board Overview

Printed circuit board or PCB connectors are heavy duty environmentally sealed connectors designed for wire-to-circuit board connections. TE Connectivity Industrial & Commercial Transportation's connectors are built to maintain the integrity and continuity of data and power signals in harsh environments. Developed and designed for heavy duty electronically equipped vehicles, TE's printed circuit board connector bodies will withstand dust, dirt, moisture, and vibration.

Available in a variety of styles from several different connector families, TE's printed circuit board connectors cover a range of pin counts from 2 to 76 and wire gauges from 10 to 22. Many of the connectors are available in straight, 90°, or solder pot options.



PRINTED CIRCUIT BOARD CONNECTOR OPTIONS

Product Line	Cavity Arrangements	Mating Connector Wire Size
AMPSEAL	8, 14, 23, 35	16-20 AWG
Circular DIN	2, 3, 4	2.50-.20 mm ²
DRC Series	24, 40, 50, 60, 70, 76	14-22 AWG
DT Series	2, 3, 4, 6, 8, 12	14-20 AWG
DTM Series	8, 12, 48 (flangeless)	16-22 AWG
DTP Series	4	10-14 AWG
HD10 Series	6,9	14-20 AWG
LEAVYSEAL	21, 39, 62, 92	6.0-.20 mm ²
STRIKE	32	14-22 AWG
Superseal 1.0	26, 34, 60	1.25-.50 mm ²
EEC Enclosure and Flange Receptacle	12, 24, 36, 48 (DT series headers)	14-20 AWG
	12, 24 (DTM series headers)	16-22 AWG

Notes: DT series has flangeless options. Some arrangements of the DT and DTM series are available with A, B, C, and D keying options.

Note

See individual product line sections for part numbering system.

Printed Circuit Board Connectors

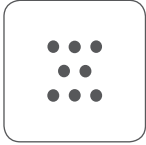
AMPSEAL CONNECTORS 90° OR STRAIGHT

Materials

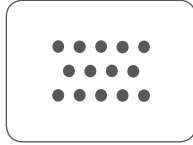
Cover: Glass filled PBT
Wire Seal: Silicone rubber
Contacts: Tin or gold plated brass

Mating Plugs

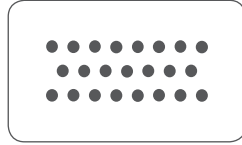
8 Position: 776286-*
14 Position: 776273-*
23 Position: 770680-*
35 Position: 776164-*



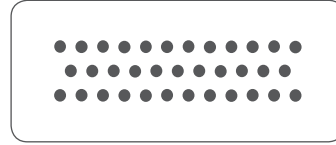
8 Positions
8 size 1.3 mm



14 Positions
14 size 1.3 mm



23 Positions
23 size 1.3 mm



35 Positions
35 size 1.3 mm

Note

See pages 11-20 for comprehensive AMPSEAL product information.

CIRCULAR DIN CONNECTORS STRAIGHT

Materials

Housing: Glass filled PBT & PA
Flange Seal: Silicone rubber
Contacts: CuZn, tin plated
CuZn, gold plated

Mating Plugs

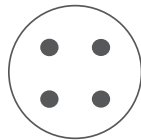
2 Position: 1-967325-3, 1-968968-3 (secondary locking)
3 Position: 1-967325-2, 1-968968-2 (secondary locking)
4 Position: 1-967325-1, 1-968968-1 (secondary locking)



2 Positions
2 size 2.5 mm



3 Positions
3 size 2.5 mm



4 Positions
4 size 2.5 mm

Note

See pages 35-44 for comprehensive Circular DIN product information.

DRC10 SERIES STRAIGHT

Materials

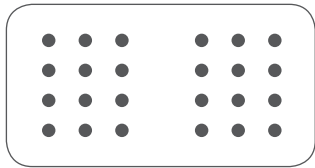
Housing: Glass filled PA and PPS
Grommet: Silicone rubber
Receptacle Threaded Insert:
Stainless steel/brass
Contacts: Molded-in copper alloy,
tin plated solder pot standard
(gold optional - see
modifications)

Mating Plugs

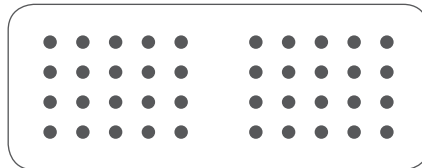
24 Pin: DRC16-24S*
40 Pin: DRC16-40S

Modifications

A004: Tin plated PCB pins
AG02: Some terminals
are gold plated



DRC10-24P*
24 size 16



DRC10-40P*
40 size 16

DRC13 SERIES 90°

Materials

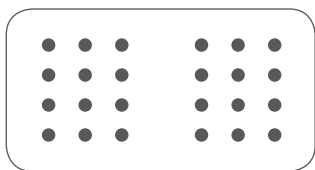
Housing: Glass filled PA and PPS
Receptacle Threaded Insert:
Stainless steel/brass
Contacts: Molded-in copper alloy,
tin plated PCB pins standard (gold
optional - see modifications)
Mounting Seal: Silicone rubber

Mating Plugs

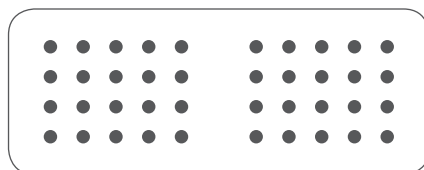
24 Pin: DRC16-24S*
40 Pin: DRC18-40S*
70 Pin: DRC16-70S*

Modifications

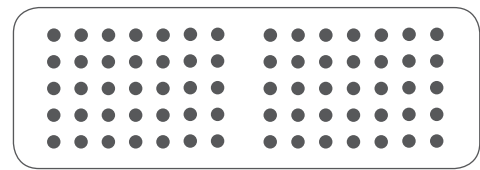
C023: 5mm² threaded insert
mounting holes
G002: Only outside terminal rows
are gold plated
N012: One piece connector design



DRC13-24P*
24 size 16



DRC13-40P*
40 size 16



DRC13-70P*
70 size 16

Printed Circuit Board Connectors

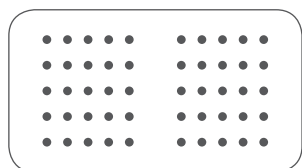
DRC20/22 SERIES STRAIGHT

Materials

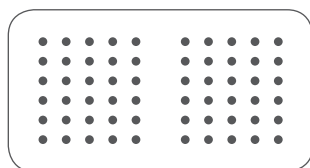
Housing: Glass filled PA and PPS
 Grommet: Silicone rubber
 Receptacle Threaded Insert:
 Stainless steel/brass
 Contacts: Molded-in copper alloy,
 gold plated mating side, tin plated
 PCB side (size 12 contacts are tin
 plated on mating and PCB sides)
 Mounting Seal: Silicone rubber

Mating Plugs

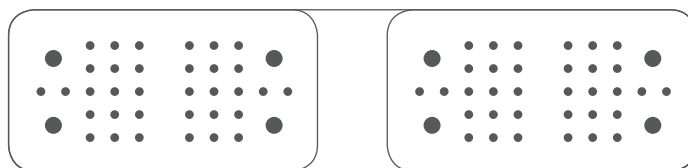
50 Pin: DRC26-50S**
 60 Pin: DRC26-60S**
 76 Pin: (2) DRC26-38S**



DRC2*-50P*
50 size 20



DRC20-60P*
60 size 20



DRC20-76P***
68 size 20, 8 size 12

DRC23 SERIES 90°

Materials

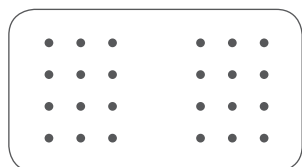
Housing: Glass filled PA and PPS
 Grommet: Silicone rubber
 Receptacle Threaded Insert:
 Stainless steel/brass
 Contacts: Molded-in copper alloy,
 gold plated PCB pins standard
 (tin optional)
 Mounting Seal: Silicone rubber

Mating Plugs

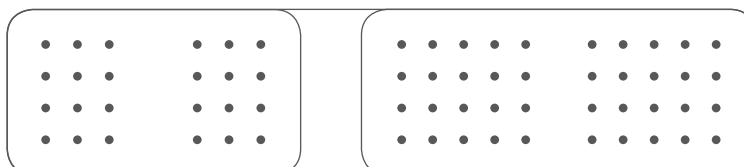
24 Pin: DRC26-24S*
 40 Pin: DRC26-40S*
 64 Pin: DRC26-24S*, DRC26-40S*

Modifications

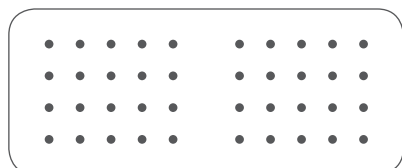
N010: Custom mount
 N012: One piece connector design



DRC2*-24**
24 size 20



DRC2*-64**
64 size 20



DRC2*-40**
40 size 20

Note

See pages 99-108 for comprehensive
 DRC series product information.

Printed Circuit Board Connectors

DT13/15 SERIES 90° OR STRAIGHT

Materials

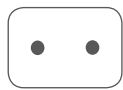
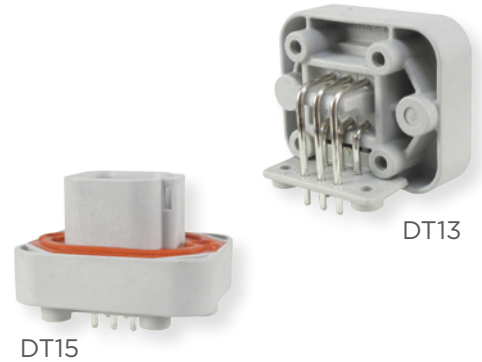
Housing: Glass filled PA
 Contacts: Molded-in copper alloy, nickel plated mating side, tin plated PCB side (gold plating optional - contact your representative)
 Mounting Seal: Silicone rubber

Mating Plugs

2 Pin: DT06-2S
 3 Pin: DT06-3S
 4 Pin: DT06-4S
 6 Pin: DT06-6S
 8 Pin: DT06-08S*
 12 Pin: DT06-12S*

Modifications

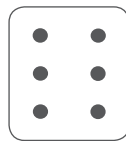
B016: Extended shell and additional keys
 G003: Gold plated pins



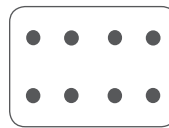
DT1*-2P
2 size 16



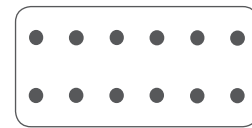
DT1*-4P
4 size 16



DT1*-6P
6 size 16



DT1*-08P*
8 size 16
A, B, C, D



DT1*-12P*
12 size 16
A, B, C, D

Note

Camcar thread forming screws are recommended. See drawing.

DTF13 SERIES FLANGELESS 90°

Materials

Housing: Glass filled PA
 Contacts: Molded-in copper alloy, tin plated PCB side (gold plating optional - contact your representative)

Mating Plugs

2 Pin: DT06-2S
 3 Pin: DT06-3S
 4 Pin: DT06-4S
 6 Pin: DT06-6S
 12 Pin: DT06-12S*

Modifications

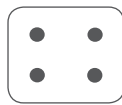
G003: Gold plated pins



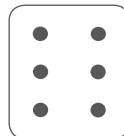
DTF13-2P
2 size 16



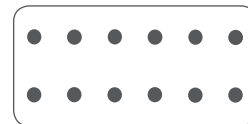
DTF13-3P
3 size 16



DTF13-4P
4 size 16



DTF13-6P
6 size 16



DTF13-12P*
12 size 16
A, B, C, D

Printed Circuit Board Connectors

DTF15 SERIES FLANGELESS STRAIGHT

Materials

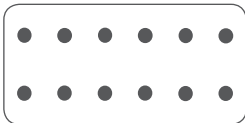
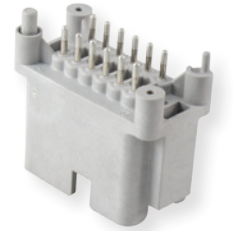
Housing: Glass filled PA
Contacts: Molded-in copper alloy, tin plated PCB side (gold plating optional - contact your representative)

Mating Plugs

12 Pin: DT06-12S*

Modifications

G003: Gold plated pins



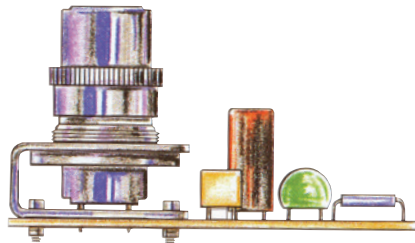
DTF15-12P*

12 size 16

A, B, C, D

helpful hint

By fixing the connectors to the board prior to soldering, pressure can be greatly reduced at the solder joint.



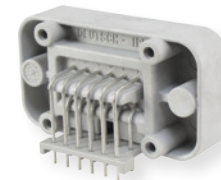
DTM13/15 SERIES 90° OR STRAIGHT

Materials

Housing: Glass filled PA
Contacts: Molded-in copper alloy, tin plated PCB side (gold plating optional - contact your representative)
Mounting Seal: Silicone rubber

Mating Plugs

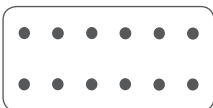
12 Pin: DTM06-12S*



DTM13



DTM15



DTM1*-12P*

12 size 20

A, B, C, D

Note

See pages 109-132 for comprehensive DT Family product information.

Printed Circuit Board Connectors

DTMF15 SERIES STRAIGHT

Materials

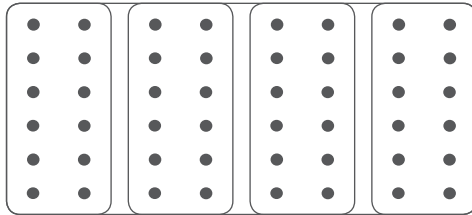
Housing: Glass filled PA
Contacts: Molded-in copper alloy, tin plated (gold plating optional - contact your representative)

Mating Plugs

12 Pin: (4) DTM06-12S*

Modifications

B026: Alternate keying position



DTMF15-48P
(4) 12 size 20

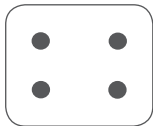
DTP10/13/15 SERIES 90° OR STRAIGHT

Materials

Housing: Glass filled PA
Contacts: Molded-in copper alloy, tin plated
Mounting Seal: Silicone rubber

Mating Plugs

4 Pin: (4) DTP06-4S



DTP1*-4P
4 size 12



DTP10

DTP13

HD10 SERIES STRAIGHT

Materials

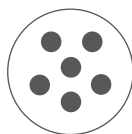
Housing: Glass filled PA
Contacts: Molded-in copper alloy, nickel plated
Mounting Seal: Standard o-rings may be used

Mating Plugs

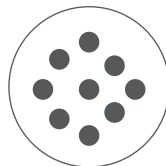
6 Pin: HD16-6-96S
9 Pin: HD16-9-96S

Modifications

N005: Straight reduced diameter pins supplied as standard



HD10-6-96P-N005
6 size 16



HD10-9-96P-N005
9 size 16

Printed Circuit Board Connectors

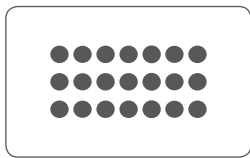
LEAVYSEAL CONNECTORS 90° OR STRAIGHT

Materials

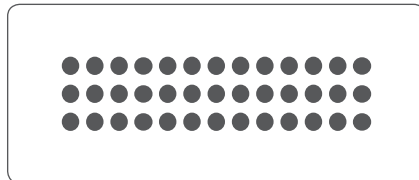
Housing: Glass filled PBT
Contacts: CuSn, silver plated

Mating Plugs

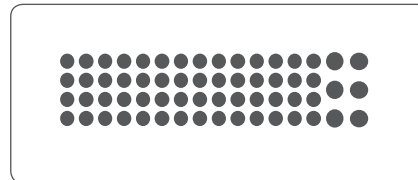
21 Pin: 1-1534127-1, 1-2208688-1 (VO rated material)
39 Pin: 5-1718321-3, 5-2208684-3 (VO rated material)
62 Pin: 1-1418883-1 (A key), 2-1418883-1 (B key)
92 Pin: 1-703998-1 (NW 26 wire exit),
3-1703998-1 (NW 29 wire exit)



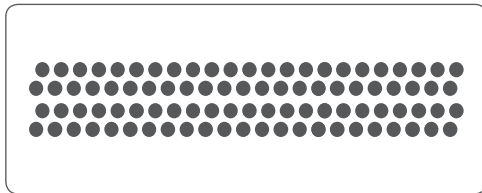
21 Positions
21 size 2.8



39 Positions
39 size 2.8



62 Positions
56 size 1.5
6 size 2.8



92 Positions
92 size 1.5

Note

See pages 63-78 for comprehensive LEAVYSEAL product information.

STRIKE13/15 SERIES 90° OR STRAIGHT

Materials

Housing: Glass filled PBT
Contacts: Molded-in copper alloy, tin plated (gold plating optional-contact your representative)

Mating Plugs

32 Pin: SRK06-MD*-32A-001

Modifications

G003: Gold plated pins



SRK1*-MD*-32A-001-****
4 Size 16
28 Size 20

Note

See pages 161-168 for comprehensive STRIKE series product information.

Printed Circuit Board Connectors

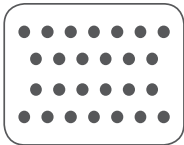
SUPERSEAL 1.0 MM CONNECTORS 90° OR STRAIGHT

Materials

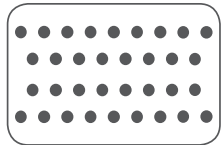
Housing: Thermoplastic
 Contacts: Gold over Ni -
 mating pins, tin-lead over
 Ni - soldering pins

Mating Plugs

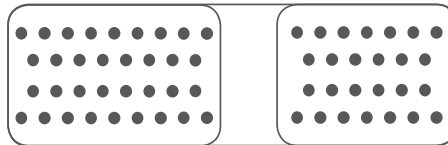
26 Pin: 3-1437290-7
 34 Pin: 4-1437290-0
 60 Pin: (1) 3-1437290-7 (26P), (1) 4-1437290-0 (34P)



26 Positions
 26 size 1.0 mm



34 Positions
 34 size 1.0 mm



60 Positions
 60 size 1.0 mm

Note

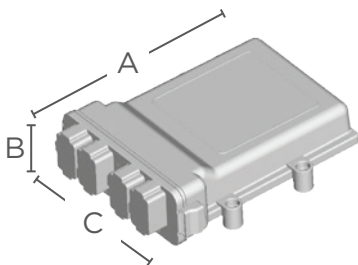
See pages 79-84 for comprehensive Superseal 1.0 product information.

Printed Circuit Board Enclosures and Headers

Compact circuit board enclosures that accept snap-in headers are available. The enclosure features a through hole mounting flange on each side, as well as optional venting. Designed with space to accommodate one or more DT or DTM series interfaces, the headers feature 90° pins. A radial flange seal provides environmental sealing to the enclosure. The headers mate with the DT and DTM standard plugs.



DT SERIES ENCLOSURE WITH HEADER DIMENSIONS



DT Series Enclosure with Header

Overall Length A	Overall Height B	Overall Width C
7.93 (201.30)	2.15 (54.63)	6.30 (160.00)

Dimensions are for reference only

Printed Circuit Board Connectors

DT SERIES HEADER CONNECTOR

Materials

Contacts: Molded-in tin
(gold plating optional - contact
your representative)

Mating Plugs

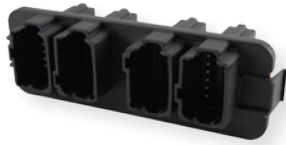
12 Pin: DT06-12S*
24 Pin: (2) DT06-12S*
36 Pin: (3) DT06-12S*

Modifications

GR02: DT Series snap-in header with
gold plated pins
R015: DT Series snap-in header



DT13-12PA-****
12 size 16
A



DT13-24PAB-****
(2) 12 size 16
A, B



DT13-36PABC-****
(3) 12 size 16
A, B, C



DT13-48PABCD-****
(4) 12 size 16
A, B, C, D

Note

Keying position of receptacle
must match keying position
of mating plug(s).

DT SERIES PCB ENCLOSURE

Materials

Housing: Thermoplastic

Board Size

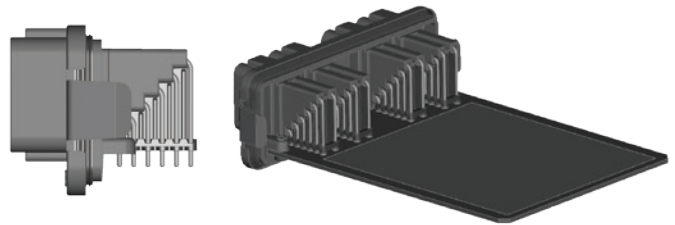
5" x 6.50"

Venting

A: With vent hole
B: Without vent hole

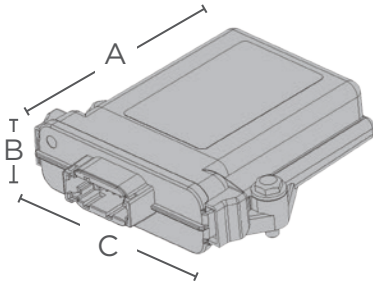


EEC-5X650*



Printed Circuit Board Connectors

DTM SERIES ENCLOSURE WITH HEADER DIMENSIONS



DTM Series Enclosure with Header

Overall Length A	Overall Height B	Overall Width C
5.24 (133.03)	1.42 (36.00)	4.68 (118.80)

Dimensions are for reference only

DTM SERIES HEADER CONNECTOR

Materials

Contacts: Molded-in nickel
mating side, tin plated PCB side

Mating Plugs

12 Pin: DTM06-12S*
24 Pin: (2) DTM06-12S*

Modifications

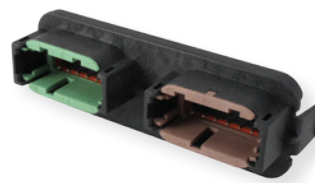
GR01: DTM Series snap-in
header with gold plated pins



DTM13-12P*-.****
12 size 20
A, B, C, D



DTM13-12PA-12PB-****
(2) 12 size 20
A, B



DTM13-12PC-12PD-****
(2) 12 size 20
C, D

Printed Circuit Board Connectors

DTM SERIES PCB ENCLOSURE

Materials

Housing: Thermoplastic

Board Size

3.25" x 4"

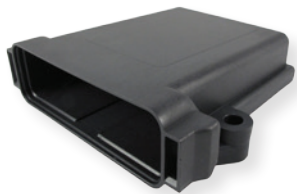
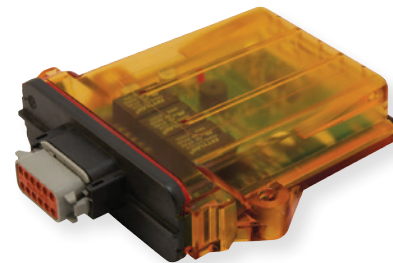
Venting

A: With vent hole

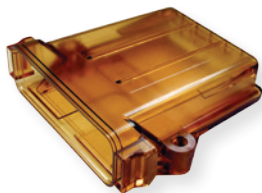
B: Without vent hole

Modifications

E016: Molded in clear
Ultem® material



EEC-325X4*



EEC-325X4*-E016

NOTES:

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Single Terminal Solutions

Single Terminal Overview

Two different solutions are available for applications that require heavy duty single terminal connections. DEUTSCH DTHD series connectors and Jiffy Splices provide environmentally sealed field-serviceable connections for the full range of wire gauges covered by DEUTSCH contacts. DTHD connectors are heavy duty power terminations for in-line and mounted applications. Jiffy Splices are lightweight in-line splices for quick connections. Both options provide easy installation and service with standard tools and contacts.

DTHD SERIES OVERVIEW

DTHD connectors are single terminal connectors for heavy duty applications. Easy to install, environmentally sealed and compact in size, they are a simple, field serviceable alternative to a splice. DTHD connectors are available in three sizes, carry 25 to 100 amps, and can be mounted or used in-line.

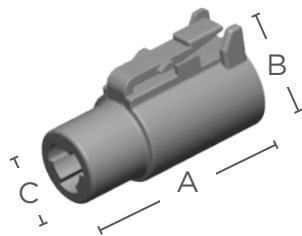


MATERIAL SPECIFICATIONS

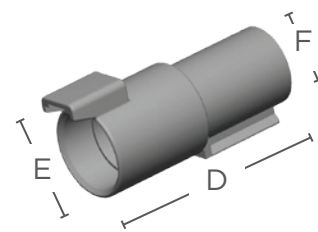
Grommet: Silicone rubber

Shell: Unfilled PEI

DIMENSIONS



DTHD Plug



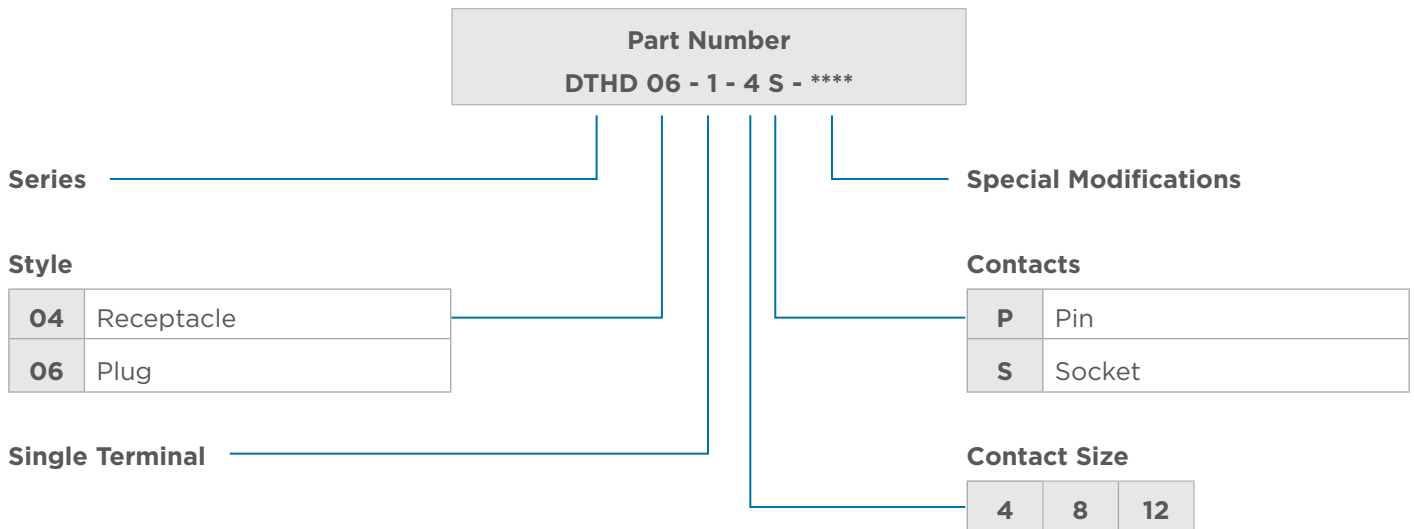
DTHD Receptacle

Contact Size	Overall Length A	Overall Height B	Overall Width C	Overall Length D	Overall Height E	Overall Width F
12	1.498 (38.05)	.771 (19.58)	.570 (14.48)	2.068 (52.53)	.850 (21.59)	.710 (18.08)
8	1.498 (38.05)	.861 (21.87)	.660 (16.76)	2.068 (52.53)	.940 (23.88)	.800 (20.32)
4	1.498 (38.05)	1.076 (27.33)	.875 (22.23)	2.068 (52.53)	1.170 (29.72)	1.045 (26.54)

Dimensions are for reference only.

Single Terminal Solutions

DTHD SERIES PART NUMBERING SYSTEM



ORDERING INFORMATION

Here are some of the common part numbers in the DTHD series. Several additional connectors may be available.

Position	Contact Size	Plug	Receptacle
1	12	DTHD06-1-12S	DTHD04-1-12P
	8	DTHD06-1-8S	DTHD04-1-8P
	4	DTHD06-1-4S	DTHD04-1-4P

Special Modifications

DTHD series connectors offer modifications to enhance the design flexibility and meet application specific needs. Options include end caps and flanges.



E003 MODIFICATION

The E003 is an end cap modification. The end cap is a protective cap that is sonically welded to the rear of the connector.



L009



L013

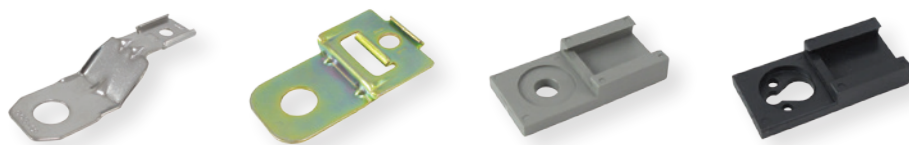
L013 & L009 MODIFICATION

The L013 and L009 are sealed flange modifications. The L013 offers outside mounting and the L009 offers inside mounting.

Single Terminal Solutions

Accessories

There is a full line of mounting clips available for use with the DTHD series. The mounting clips offer straight or side mounting and several material options. The mounting clips are designed to be used on all DTHD receptacles.



Part Number	Mounting Direction	Color/Material	Hole O.D. inches (mm)
1027-003-1200	Straight	Stainless steel	.433 (11.0)
1027-005-1200	Straight	Stainless steel	.512 (13.0)
1027-004-1200	Straight	Steel w/ zinc plating	.512 (13.0)
1027-008-1200	Side	Steel w/ zinc plating	.433 (11.0)
1027-013-1200/ 1027-017-1200	Side	Steel w/ zinc plating	.323 (8.2)
1011-026-0205	Straight	Gray plastic	.200 (5.08)
1011-030-0205	Straight	Black plastic	-
1011-310-0205* *Connector removeable with 50N of force	Straight	Black plastic	-

Single Terminal Solutions

JIFFY SPLICE OVERVIEW



DEUTSCH Jiffy Splices are a unique, field-serviceable alternative to permanent splices. Made from the same high quality silicone elastomer as DEUTSCH connector seals and grommets, the Jiffy Splice body houses a contact retention system that secures a mated pair of contacts in a compact environmentally sealed unit. Jiffy Splices are easy to install and service.



Part Number	Size	A	B (min.)	Wire AWG	Hole O.D. inches (mm)
JS-04-00	4	3.437 (87.30)	.765 (19.43)	6	.280-.292 (7.11-7.42)
JS-12-00	12	2.500 (63.50)	.500 (12.70)	12-14	.134-.170 (3.40-4.32)
JS-16-00	16	2.465 (62.61)	.385 (9.78)	14-20	.100-.134 (2.54-3.40)

Dimensions are for reference only

Note

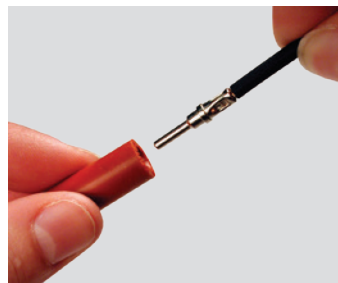
Jiffy Splices accept one pin and one socket.

How To Instructions

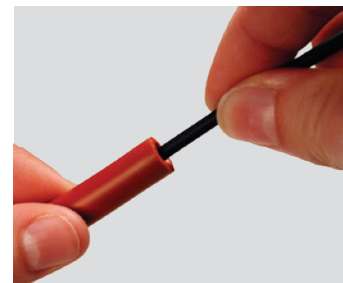
CONTACT INSERTION



Step 1:
Grasp contact approximately one inch behind the contact crimp barrel.

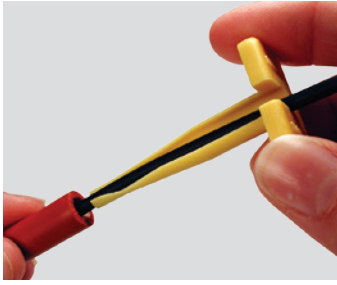


Step 2:
Hold Jiffy Splice between thumb and forefinger approximately one half inch behind cavity.

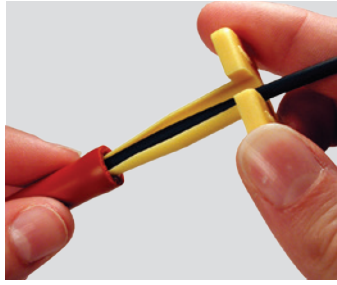


Step 3:
Push contact straight into Jiffy Splice until a positive stop is felt. An audible “snap” will occur when correctly mated. A light tug will confirm it is properly seated.

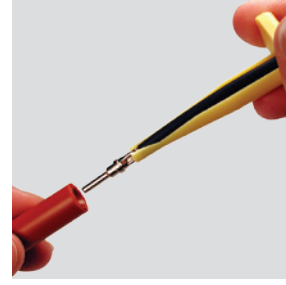
CONTACT REMOVAL



Step 1:
Snap appropriate size removal tool over the wire.



Step 2:
Hold Jiffy Splice between thumb and forefinger approximately one half inch behind cavity. Slide tool into cavity until resistance is felt and retaining fingers are engaged. Do not twist or insert tool at an angle.



Step 3:
Grip Jiffy Splice between thumb and forefinger and slowly pull contact wire assembly with removal tool out of cavity.

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Additional Resources

Modification List

The modification list is only applicable to the DEUTSCH product line and series listed. Modifications listed are for reference only and may not be available for every arrangement.

Mod #	Series	Description
A		
A004	DRC	Receptacle with molded-in PCB pins, 24 and 40 way
A006	DRC	Receptacle with molded-in PCB pins, 40 way, #40 pin removed
<hr/>		
B		
B009	HD10	Receptacle with raised key removed from front of flange, no rear threads
B010	HD10	Plug with coupling ring added
B016	DT, DT13/15	Receptacle has extended shell and enhanced keys, plug has enhanced seal retention (P012), 12 way
B019	HD30	Custom snap ring mount
B022	HD10	Receptacle with D-hole panel mount, rear threads, J1939, black
B025	HD10	Receptacle with D-hole panel mount, no rear threads, black
B026	DTMF	PCB receptacle with alternate keying, requires plugs with WM-12S-B026 wedgelocks
B028	DT15	5 P.S.I rating
<hr/>		
BE		
BE02	DT	Receptacle with extended shell and enhanced keys (B016), end cap
BE03	DT	Receptacle with extended shell and enhanced keys (B016), end cap, black
BE04	DT	Receptacle with extended shell and enhanced keys (B016), end cap, reduced diameter seals (E seal), black
BE05	DT	Receptacle with extended shell and enhanced keys (B016), end cap, sealed flange, reduced diameter seals (E seal), threaded stainless steel flange inserts
<hr/>		
BL		
BL04	DT	Receptacle with extended shell and enhanced keys (B016), welded flange
BL08	DT	Receptacle with extended shell and enhanced keys (B016), welded flange, black

Additional Resources

Mod #	Series	Description
BL10	DT	Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), shrink boot adapter, threaded stainless steel flange inserts
BL11	DT	Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), end cap, threaded stainless steel flange inserts

BP

BP03	HD10	Receptacle with D-hole panel mount, J1939 Type II, green
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C

C003	HDN	Standard cavity marking identification
C008	DT	Cavity blocked (C)
C012	HD30	Cavities blocked (J, P)
C015	DT, DTP	Reduced diameter seals (E seal)
C016	HD10	Cavities blocked (H, J) - HD10 Series 9 way
C017	DT, DTM, DTP	Solid rear grommet
C018	HD30	Cavities blocked (11, 18, 19), N/E seal options
C019	HD30	Cavities blocked (1, 2, 8, 9), N/E seal options
C020	HD30	Cavities blocked (A, D), N/E seal options
C021	HD30	Cavities blocked (A, B, C, D)
C022	HD30	Cavities blocked (A, D, J, M), with reduced diameter seals (E seal)
C024	HD10	Cavities blocked (B, C, D)
C026	DRC	Cavities blocked, 50 way
C030	HD30, HDP20	Four size 16 cavities blocked (1, 2, 5, 6)
C038	HD30, HDP20	Three size 4, four size 16, requires special size 4 AWG contacts
C041	HDP20	Receptacle with diagnostic keying

CE

CE01	DT	Reduced diameter seals (E seal), end cap
CE02	DT, DTP	Reduced diameter seals (E seal), black
CE03	DT	Reduced diameter seals (E seal), end cap, black
CE04	DT	Reduced diameter seals (E seal), shrink boot adapter

Additional Resources

Mod #	Series	Description
CE05	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), end cap
CE06	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012)
CE07	DT	Receptacle with extended shell and enhanced keys (B016), reduced diameter seals (E seal), end cap
CE08	DT	Receptacle with extended shell and enhanced keys (B016), reduced diameter seals (E seal)
CE09	DT	Reduced diameter seals (E seal), shrink boot adapter, black
CE10	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), black
CE11	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), end cap, black
CE12	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), shrink boot adapter, black
CE13	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), shrink boot adapter
CE14	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), latch guard end cap, black
CE27	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), for use with integrated LED wedgelock, end cap, transparent Ultem
CE28	DT	Plug with reduced diameter seals (E seal), enhanced seal retention (P012), for use with integrated LED wedgelock, transparent Ultem

CL

CL01	HD30	Cavities blocked (J, Q, R, S, X), adapter for cable clamp (072)
CL03	DT	Reduced diameter seals (E seal), welded flange
CL07	DT	Reduced diameter seals (E seal), sealed flange, shrink boot adapter
CL08	DT	Reduced diameter seals (E seal), welded flange, end cap, disabled latch
CL09	DT	Reduced diameter seals (E seal), sealed flange, end cap, black
CL15	DT	Reduced diameter seals (E seal), welded flange, black
CL20	HDP20	Plug with diagnostic keying

CG

CG01	DRC	5mm threaded insert with silver plating, molded-in contacts, outside rows gold
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Additional Resources

Mod #	Series	Description
CP		
CP01	DT	All cavities plugged, enhanced seal retention (P012), end cap
<hr/>		
E		
E003	DT, DTHD, DTM, DTP	End cap
E004	DT, DTM, DTP, HD10	Black
E005	DT, DTM, DTP	Black, end cap
E007	DTM	Shrink boot adapter
E008	DT	Shrink boot adapter
E009	DRC	24 way and 40 way receptacle, B keys, housing is gray, flange is black
E016	EEC	Standard EEC box, molded-in transparent Ultem material
E019	AEC	Backshell adapter
<hr/>		
EE		
EE01	DT	Shrink boot adapter, black
EE03	DTM	Shrink boot adapter, black
EE04	DTM	High temp, black
EE05	DT	High temp, enhanced seal retention (P012) on plug, end cap, black
<hr/>		
EF		
EF01	DT	Fluorosilicone front seals, end cap
EF02	DT	Fluorosilicone front seals, latch guard end cap
<hr/>		
EK		
EK02	DT	Plug, 18 cavity DT with 18 size 16 contacts, enhanced seal retention (P012), end cap, "A" key is gray, "B" key is black, "C" key is green, "D" key is brown
<hr/>		
EP		
EP04	DT	End cap (same as E003 mod)
EP05	DT	Latch guard end cap

Additional Resources

Mod #	Series	Description
EP06	DT	Plug with enhanced seal retention (P012), end cap
EP07	DT	Plug with enhanced seal retention (P012), black
EP08	DT	Plug with enhanced seal retention (P012), end cap, black
EP09	DT	Plug with enhanced seal retention (P012), latch guard end cap, black
EP10	DT, DTM	120 ohm terminating resistor (J1939), black
EP11	DT	Plug with enhanced seal retention (P012), shrink boot adapter, black
EP12	DT	Bussed receptacle, 4 and 6 way only, 1 buss, black, gold plated pins
EP13	DT	Bussed receptacle, 4 and 6 way only, 1 buss, black, nickel plated pins
EP14	DT	Bussed receptacle, 6 way, 2 busses, black, nickel plated pins
EP20	DT	Plug with enhanced seal retention (P012), shrink boot adapter

F

F001	HDN	Inserts within connector made of Ultem
------	-----	--

G

G001	DRC	Gold plated pins
G002	DRC	Outside rows of pins are gold plated and rest are tin plated
G003	DT13/15	Gold plated pins
G004	DRC	Interface side pins are nickel plated, PCB side pins are tin plated
G005	DRCP	Tin plated signal pins, tin plated power pins

GC

GC03	DRCP	Gold plated signal pins, depopulated power pins
GC05	DRCP	Tin plated signal pins, depopulated power pins

GR

GR01	DTM13 (EEC headers)	Snap-in DTM PCB mounted header for DTM EEC enclosure, 12 and 24 pins, gold plated pins
------	---------------------	--

H

H001	HD30	Plated with yellow chromate conversion
------	------	--

Additional Resources

Mod #	Series	Description
HL		
HL01	HD30	Dust cap plated with yellow chromate conversion, sash chain with eyelet for #10 screw
HL02	HD30	Adapter for cable clamp (-072) plated with yellow chromate conversion
<hr/>		
J		
J001	HD30	Reverse cavity marking identification on grommet
J059	HD30	Reverse cavity marking identification on grommet, cable clamp (-059)
<hr/>		
K		
K001	AEC	Molded-in shell marking, remove blue stripe, end cap
K003	DT16	Plug, 15 cavity DT with two size 12 contacts and 13 size 16 contacts, enhanced seal retention (P012), end cap, black
K004	DT16	Plug, 18 cavity DT with 18 size 16 contacts, enhanced seal retention (P012), end cap, black
<hr/>		
KP		
KP01	DT16	Plug, six cavity DT with six size 16 contacts, enhanced seal retention (P012), end cap, green
<hr/>		
L		
L001	HD30	Same as -059 (cable clamp)
L003	HD30	Cable clamp adapter (-072)
L005	HD30	Cable clamp adapter (-072) without drain holes
L006	HD30	-059 modification using adapter without drain holes
L009	DTHD	Sealed flange, inside mount
L011	DRC	Wire router
L012	DT, DTP, DTM	Welded flange
L013	DTHD	Sealed flange, outside mount
L015	HDP20	Threaded adapter for backshell strain relief
L017	HDP20	Ring adapter for backshell strain relief
L018	DRB	Wire router
L020	HD30, HD50	Removes #10 eyelet from the dust cap chain

Additional Resources

Mod #	Series	Description
L024	HDP20	Wide threaded adapter for backshell strain relief
L072	HD30	Adapter ring
<hr/>		
LE		
LE01	DT	Sealed flange, inside mount, gasket, end cap
LE03	DT	Sealed flange, outside mount, o-ring sold separately, end cap, NOTE: DT04-08PA-LE03 comes with shrink boot adapter and o-ring on flange
LE05	DT	Sealed flange, inside mount, gasket, end cap
LE06	DT	Sealed flange, inside mount, reduced diameter seals (E seal), end cap
LE07	DT, DTP	Welded flange, end cap
LE08	DT	Welded flange, shrink boot adapter, gray
LE09	DT	Sealed flange, o-ring, end cap, black
LE10	DT	Sealed flange, inside mount, gasket, end cap, black
LE11	DT	Welded flange, end cap, black
LE12	DT	Welded flange, shrink boot adapter, black
LE13	DT	Special adapter, round housing, end cap
LE14	DT	Welded flange, black
LE17	DT	Receptacle with extended shell and enhanced keys (B016), sealed flange, gasket sold separately, end cap, black
LE21	DT	Receptacle with extended shell and enhanced keys (B016), sealed flange, reduced diameter seals (E seal), end cap, one piece connector design, threaded stainless steel flange inserts
<hr/>		
N		
N005	HD10	Receptacle with molded-in PCB pins, modified shell
N006	DT	Receptacle with 90° molded-in contacts
N012	DRC	Receptacle, one piece connector design
<hr/>		
P		
P005	AEC	Special oversized seal on AEC Series plugs and dust caps
P006	DT, DTM	120 ohm terminating resistor (J1939)
P007	DT, DTM	Receptacle “Y” connector (J1939)

Additional Resources

Mod #	Series	Description
P012	DT	Plug with enhanced seal retention, 2-6 way are black, 8 and 12 way "A" key is gray, "B" key is black, "C" key is green, "D" key is brown
P013	DRC	Plug with bonded front seal, silicone adhesive
P016	DT	Bussed receptacle, 12 way, gold plated contacts
P017	DRC	Stainless steel retention clip for jackscrew
P018	DTP	Receptacle with 12 AWG wires attached
P019	DRC	Zinc chromate retention clip for jackscrew
P021	DT	Bussed receptacle, 6, 8, and 12 way, one buss, nickel plated pins
P026	DT	Bussed receptacle, 8 and 12 way, two busses, nickel plated pins
P027	DT	Bussed receptacle, 12 way, two busses, gold plated pins
P028	DT	Bussed receptacle, 8 way, two busses, nickel plated pins
P030	DT	Bussed receptacle, 12 way, four busses, nickel plated pins
P031	DT	Bussed receptacle, 12 way, four busses, gold plated pins
P032	DT	Integrated shrink boot adapter (J1939), black
P060	DT	Bussed receptacle, 2 way, one buss, nickel plated pins
P064	HD30, HDP20	24-91 arrangement without internal jumper
P075	DT	Bussed receptacle, 12 way, three busses, nickel plated pins
P080	HD10	J1939 Type II, green
<hr/>		
PE		
PE01	DT	Latch guard, 120 ohm terminating resistor (J1939)
<hr/>		
PP		
PP01	DT	Plug with enhanced seal retention (P012), 120 ohm terminating resistor (J1939), end cap, black
<hr/>		
R		
R004	DTM13	Custom enclosure header, 90° pins
R005	DTM13	Custom flange, 90° pins
R008	DTM13 (EEC headers)	Snap-in DTM PCB mounted header for DTM EEC enclosure, 12 and 24 pins

Additional Resources

Mod #	Series	Description
R015	DT13 (EEC headers)	Snap-in DT PCB mounted header for DT EEC enclosure, 12, 24, 36, and 48 pins

RT

RT01	DT	Receptacle with MUR 460 diode
RT02	DT	Receptacle with 1N5625GP diode
RT03	DT	Receptacle with MUR 460 diode, 4 way available
RT06	DT	Receptacle with Phillips T.V.S diode 1.5KE130CA, green
RT25	DT	Receptacle with 27k ohm resistor, black

#'s

059	HD30	Addition of threaded adapter and cable clamp assembly
072	HD30	Addition of threaded adapter
1E	HD30	Removes rivet and chain from protective dust cap

Additional Resources

We go to extremes to make every connection count

TE Industrial & Commercial Transportation has a product series for every harsh environment. Our time-tested, high vibration resistant products and technologies provide the right solution for your applications and requirements. In addition to our terminals and connectors, our product portfolio extends to offer sensors, cylinder head wiring, hybrid & electric mobility solutions, relays, and lighting.



SENSORS

TE's broad portfolio of sensor technologies is designed for a wide range of applications. TE's sensors perform under the extreme temperature, vibration, shock, durability and performance profiles required by heavy duty on- and off-highway vehicles. Sensors for engine management, aftertreatment systems, transmissions, vehicle control and management, and cabin and occupant safety are available.



CYLINDER HEAD WIRING

TE offers a full-range of cable products and pass-through connectors for cylinder head wiring that deliver highly integrated systems in harsh environment applications. TE's cylinder head wiring solutions are suitable for heavy duty diesel motors, common rail engines, pump nozzle engines, harness system undervalue cover for injector, and sensor to cylinder head exit connections.



HYBRID & ELECTRIC MOBILITY SOLUTIONS

TE has combined experience in the transportation and high-voltage industries to create safe, reliable, efficient solutions for hybrid and electric vehicles. Our solutions include AK 4.3.3, LV215-1 compliant connections and headers for electric vehicles. Also, by utilizing an integrated internal HVIL that optimizes package size and plug and header selections, multiple wire harness assembly routing options are created.



RELAYS

TE Connectivity's 24V relay product line includes a broad range of robust and versatile relays for many diverse applications within trucks, buses, tractors, construction equipment, and other heavy duty vehicles. With increased contact gaps and other key design features, these relays are designed for use in challenging environments where they may regularly encounter extended periods of shock and vibration.



LIGHTING

Lighting helps to better define space perception and functionality, which increases vehicle safety and human machine interface (HMI). TE offers high-performance, customized solutions for interior and exterior vehicle lighting.

Additional Resources

Requirements & Standards

IMDS

The International Material Data System (IMDS) is a collective, computer-based material data system developed as a collaborative effort by large automotive OEMs to manage environmentally relevant aspects of parts used in vehicles. It has been adopted as the global standard for reporting material content in the automotive industry. TE Connectivity recognizes IMDS and will work with customers that use the system.

IP Rating

The IP Rating system is a way of classifying the degree of protection provided against the intrusion of solid objects, dust, and water in electrical enclosures. The 6 in IP 67 means that the connectors have to be completely sealed from fine dust. The 7 in IP 67 means that the connector needs to be protected from the effects of a one meter submersion. AMPSEAL, AMPSEAL 16, HDSCS, and LEAVYSEAL connectors are IP 67 rated. DEUTSCH connectors are rated IP 68. The 8 in IP 68 means that the connector needs to be protected from the effects of immersion in water under pressure for long periods.

IP6K9K

IP6K9K is similar to the standard IP Ratings, but is commonly referred to as a pressure washing specification. The letter K is used after the numbers to denote special testing. The 6K means the connectors need to be completely sealed from fine dust. The 9K means the connector needs to be protected from the penetrating effects of water used for high pressure/steam jet cleaning purposes. Several DEUTSCH connectors in the DT, DTM, DRC, and DRB series have been through independent lab testing and pass IP6K9K, as well as AMPSEAL connectors. HDSCS and LEAVYSEAL connectors used with the appropriate accessories meet the IP6K9K standard.

J1939/11, J1939/13, and J1939/15

See CAN section.

J2030

J2030 is an SAE standard for connectors between two cables or between a cable and an electrical component. The standard primarily focuses on the connectors used to mate to the electrical component. J2030 also provides environmental test and acceptance criteria for connectors used in DC electrical systems of 50 V or less in heavy duty applications typically used in off-highway equipment. Severe applications may require more rigid test levels, or field-testing on the intended application. AMPSEAL 16 connectors meet the SAE J2030 standard.

RoHS

The Restriction of Hazardous Substances (RoHS) in electrical and electronic equipment is a European directive. The directive restricts the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls, and polybrominated diphenyl ether in new electrical and electronic components. To verify individual product compliance, please visit <http://www.te.com/commerce/alt/product-compliance.do>.

UL Recognized

A UL Recognized Component is one that is to be installed within a larger assembly by a manufacturer, and this larger assembly is then expected to be tested by UL to become UL LISTED. AMPSEAL, AMPSEAL 16, and many DEUTSCH connectors are UL Recognized Components. DEUTSCH connectors that are UL Recognized Components include the AEC, DRC, DT, DTM, DTP, HD10, and HDP20 series. Not every variation and/or modification within a DEUTSCH series may be UL Recognized Components. AMPSEAL connectors are UL 94 V0 rated. LEAVYSEAL and HDSCS products constructed with a UL 94 V0 rated material are available. For additional information, visit www.ul.com.

Glossary

AWG (American Wire Gauge): Standardized system of wire diameter measurement. Commonly referred to as wire gauge. (Reference: National Bureau of Standards, Copper Wire Table [Handbook 100] AVS.)

Adapter: Device attached to a connector to allow connection to a second device that it would not otherwise be able to attach.

Ambient Temperature: The temperature of a medium (gas or liquid) surrounding an object.

Ampere (amp): The unit of current. One ampere is the current flowing through one ohm of resistance at one volt potential.

ARC Resistance: Time required for an electrical current to render the surface of a material conductive due to carbonization by the arc flame. Or, the time required for an arc to establish a conductive path in a material.

Applicator: Tooling used in automatic machines to crimp stamped & formed contacts.

Backshell: A secondary attachment for the rear of a connector to provide strain relief, environmental protection, and/or improved aesthetics.

Barrel: (1) Conductor Barrel: the section of the terminal, splice, or contact that accommodates the stripped wire. (2) Insulation Barrel: the section of the terminal, splice, or contact that accommodates the unstripped wire.

Barrel Chamfer: Beveled entry at mating end of the socket contact. Reduces contact mating force for easier connector mating.

Blocked Cavities: Unused holes or contact positions in a connector which have been filled with sealing plugs or made inaccessible by modification to the rear grommet.

Breakaway: Connector with a slotted coupling ring. Coupling ring is intended to fragment and allow connectors to separate without damage to the implement in the event of an unintended pull-away.

Boot: Attachment for the back of a connector. Boots are typically flexible, made from plastic or plastisol, and may provide wire strain relief, environmental protection, and/or improved aesthetics.

Bulkhead: Dividing wall or partition. Bulkhead connectors are designed to be mounted to a dividing wall through a cutout.

Buss (also bussbar, bus or busbar): A thin conductive strip connecting multiple contacts within the body of a connector. Used to distribute electrical current to the branches of a circuit.

Cable Clamp: An attachment to provide support and strain relief to the wire bundle where it exits the connector.

Cavity: Hole in the connector grommet and housing, into which the contact must fit.

Cold Heading: Process by which contacts are formed from individual pieces of metal using dies and punches.

Compression Nut: Secondary backshell assembly. Threads onto rear of backshell to compact the wire bundle and provide additional support.

Conductivity: The capability of a material to carry an electrical current.

Conductor: Any material capable of carrying an electrical charge easily. The most common materials for wire and cable applications are aluminum and copper (bare or coated).

Connector Position Assurance (CPA): A locking mechanism on the connector that prevents the mated connectors from accidental unmating.

Glossary

Contact: Conductive device crimped or soldered onto the end of conductor wire to allow the transfer of electricity or data to a second conductor. Contacts are most frequently used in multiples in connectors. Also commonly referred to as terminals, pins and/or sockets.

Contact, Crimp: Wire termination engineered to be permanently applied to conductor wire end with pressure. Does not use solder or heat.

Contact, Insertable/Removable: Wire termination that can be mechanically joined to or removed from the connector body.

Contact, Pin: Wire termination with solid mating end. Provides connection by insertion into a female or socket contact. Also referred to as male contact.

Contact, Receptacle: Wire termination with hollow mating end into which the pin or male terminal is inserted. Also referred to as a female contact.

Contact, Socket: Wire termination with hollow mating end into which the pin or male terminal is inserted. Also referred to as a female contact.

Contact, Solder: Wire termination joined to the wire conductor with a metal joining compound. Contacts intended for solder will typically have a cup, hollow-cylinder eyelet or hook to accept a conductor and retain the applied solder.

Contact Area: The area where two conductors, a wire termination and a conductor, or two wire terminations touch, permitting the flow of electricity.

Contact Arrangement: The number, spacing, and organization of cavities in a connector.

Contact Rating: The maximum recommended amperage to be passed through a wire terminal.

Contact Resistance: The measurement of opposition to electrical flow through a pair of mated wire terminations. Resistance may be measured in ohms or in millivolt drop at a specified current over the mated terminals.

Contact Retention: The axial load in either direction that a terminal can withstand without being dislodged from its correct position in the connector.

Contact Shoulder: A small flange or collar on a terminal that limits the contact's travel into or removal from the connector.

Contact Size: Overall size of barrel determined by size of wire it will accept.

Controller Area Network (CAN): Multiplex data systems. Multiplexing allows multiple data signals to travel on the same wires, integrating separate electronic systems and applications to a single point control and monitoring system. SAE J1939/11, J1939/13, and J1939/15 are specific types of controller area networks.

Corrosion Resistance: The ability of a substance to withstand corrosion.

Coupling Ring: Attached cylindrical ring used to lock mated connectors together.

Crimping: To mechanically secure a terminal or splice to a conductor by use of pressure.

Crimping Die: The part of a crimping tool that physically compresses the contact barrel and shapes the crimp.

Crimp Tool: Implement that permanently attaches a contact to a wire using pressure.

Current (I): The rate of transfer of electricity usually expressed in amperes.

Current Rating: The maximum continuous electrical flow of a current recommended for a given wire situation. Expressed in amperes.

Dielectric Strength: The voltage which an insulating material can withstand before breakdown occurs, usually expressed as a voltage gradient (such as volts/mil).

Glossary

Dielectric Test: A test in which a voltage higher than the rated voltage is applied for a specific time to determine the adequacy of the insulation under normal conditions.

Dielectric Withstanding Voltage: The amount of leakage current that flows through the insulation.

Diode: Electronic component that allows electrical flow in one direction only.

Direct Current: An electrical current that flows in one direction only.

Dust Cover: Cap used to protect and conceal the interface of an unmated connector.

“E” Seal: Reduced diameter insert cavity in the rear grommet. Creates a proper seal with smaller than standard wire or insulation. Also referred to as extra thin or European seal. “E” seals are smaller than “N” and “T” seals.

End Cap: A protective cover integral to, or sonically welded onto the rear of a connector.

Engaging and Separating Force: Measured pull required to mate or unmate contacts or connectors.

Enhanced Key: Additional indexing or polarization to help prevent mis-mating.

Enhanced Seal Retention: Modification to the plug, front seal, and wedgelock to help prevent the seal from separating from the connector during unmating.

Environmentally Sealed: Maintains functionality when exposed to environmental elements.

Extraction Tool: An implement for removing contacts from a connector.

Flange: A flat, perpendicular extension of the connector body. Flanges are used for mounting and are typically found on receptacles.

Flange Seal: Elastomeric silicone seal used between flange and mounting surface to prevent leakage around the mounting cutout.

Front Seal: Elastomeric silicone seal or o-ring on the mating face of a connector. The front seal is also referred to as an interfacial seal and is usually found on the plug.

Grommet: Rubber or elastomeric seal. On connectors the grommet is on the rear or cable end of the connector and has the cavities through which the contact is inserted into the connector body.

Ground: A conducting connection between an electrical circuit and the earth or other large conducting body to serve as an earth thus making a complete electrical circuit.

Header: Flanged connector designed for wire to printed circuit board applications.

Heat Seal: In cabling, a method of sealing a tape wrap jacket by means of thermal fusion.

Heat Shrink: Type of tubing that shrinks to form a tight bond when heated.

Indenter: The part of a crimp tool or die that compresses the contact barrel onto the conductor.

In-line: Connectors that are not intended for use in mounted or PCB applications.

Insertion Tool: A device used to guide contacts into proper position within a connector.

Inspection Hole: An opening in a barrel contact to allow visual inspection of the conductor to verify that it has been inserted to the right depth.

Insulation Resistance: The measure of resistance offered by insulation material to the flow of current.

Insulation: A material having high resistance to the flow of electric current.

Glossary

Insulation Crimp: (1) The physical deformation of the insulation sleeve covering a terminal or splice and the adjacent conductor insulation to hold the sleeve in place; (2) Shape combination of insulation sleeve to terminal or splice and conductor insulation after crimping.

Insulation Resistance: That property of an insulating material which resists electrical current flow through the insulating material when a potential difference is applied.

Insulation Support: The portion of the contact barrel enclosing but not crimped to the conductor insulation.

Interface: The surfaces of a mating pair of connectors that face each other when connected.

Interfacial Seal: A seal at the mating edge of the connector to prevent ingress of moisture or contaminants when a connector is properly mated.

Internal Seal: Waterproof form, typically made of silicone elastomer, that is inside the body of the connector. Provides moisture and fluid resistance when connectors are properly mated.

IP Rating: A way of classifying the degree of protection provided against the intrusion of solid objects, dust, and water in electrical enclosures.

Jacket: An outer nonmetallic protective covering applied over an insulated wire or cable.

Key: Unique pattern of corresponding notches and projections on a set of mating connectors. The projections are intended to match the notches and prevent mis-mating.

Keying Pin: Solid plastic rod designed to be inserted into an empty socket cavity to help prevent mis-mating.

Locator: A device in a crimp tool to help provide proper contact position during crimping.

Lockwasher: Thin metal ring used between the panel nut and mounting surface to create spring force to confirm a tight fitting mount.

Millimeters Squared or mm²: Unit of measure for European Wire Size Standards (ref. DIN 72551-6 and ISO 6722-3).

Moisture Resistance: Amount of water (in any form) that a properly wired and mated connection will withstand without loss of electronic qualities or leakage.

Mounting Bracket: A rectangular metal device used to attach or mount connectors in an application.

Mounting Clip: A plastic or metal piece that attaches to a non-flanged connector to allow surface mounting.

“N” Seal: Normal wire seal diameter.

Neoprene: Thermosetting material, chemically known as polychloroprene, with excellent flame retarding and abrasion resisting qualities.

Nest: The part of a crimping die that supports the barrel during crimping.

Newton (N): A unit of force which is based on the metric system. It is the force that produces an acceleration of 1 meter per second per second when exerted on a mass of 1 kilogram.

O-ring: Circular seal found around the inside diameter of a receptacle: typically made from elastomeric or silicone material. Provides an environmental seal.

Oxidation: The process of uniting a compound with oxygen, usually resulting in an unwanted surface degradation of the material or compound.

Panel Nut: A hexagonal threaded plastic or metal ring. Along with a lockwasher, a panel nut is used for mounting.

Partial Strip: A quantity less than a standard full reel of stamped & formed contacts.

PCB (Printed Circuit Board) Mount: Connectors designed for wire to printed circuit board applications.

Glossary

Peak Voltage: The maximum instantaneous voltage.

Pin Housing (Cap): One half of a mated pair of connectors. AMPSEAL 16 pin housings mate with a receptacle contact housing (plug) and house pin contacts.

Plating: Thin overlay coating of metal on contacts or components. Can be used to improve conductivity, provide for easy soldering, and prevent corrosion.

Plug: One half of a mated pair of connectors. Plugs typically have the locking mechanism for the mated pair, usually house the sockets, and mate with a receptacle.

Pre-Tinned: Solder applied to the contact and/or conductor prior to soldering.

Primary Latch Reinforcement (PLR): Locking mechanism that snaps into place on the mating face of a connector after the connector is populated. A PLR holds contacts in correct alignment for mating and prevents them from being removed.

Pull-Out Force: Measured energy required to separate a conductor from a contact, or a contact from a termination assembly.

Ratchet Control: A crimping device that helps provide a full crimping cycle by allowing motion in only one direction until contact is fully crimped.

Receptacle: One half of a mated pair of connectors. Receptacles mate with a plug and usually house pins.

Receptacle Housing (Plug): One half of a mated pair of connectors. AMPSEAL and AMPSEAL 16 plugs typically have the locking mechanism for the mated pair, house the receptacle contacts, and mate with a pin housing (cap) or header.

Reduced Diameter Seal: Smaller than standard holes in the connector grommet.

Removal Tool: Device to disengage contacts from connector body.

Retaining Bolt: Screw used to draw and hold mating connectors together.

Retaining Sleeve: Lining sheath that fits into receptacle body to maintain internal seal and provide keying.

Reverse Arrangement: Non-standard cavity/contact assignment (eg. Plug connectors that require pin contacts, and receptacles that require socket contacts).

Ring Adapter (HDP20): Cylindrical rim or collar attached to the rear of a connector to allow the attachment of backshells or strain relief.

Sealed Flange: A flange that is molded or tooled as an integral part of the connector body to help prevent leakage at the mounting site.

Sealing Plug: A non-conductive dummy pin inserted to fill an open cavity in a connector. Sealing plugs are required to maintain the integrity of the environmental seal.

Seamless Terminal or Splice: Terminal or splice conductor barrel made from a single piece of metal, finished without lines or grooves that would typically appear where metal is joined to metal.

Secondary Lock: Device inserted into or onto the connector interface to position and hold contacts in correct alignment. Secondary locks are called wedge-locks or terminal position assurance.

Self-Extinguishing: The characteristic of a material whose flame is extinguished after the igniting flame is removed.

Selective Plating: Application of a thin coating of a finish metal to specific parts of a contact, but not to others. If selective plating is used, plating is typically applied to the mating surface to provide better conductivity and reduce wear and corrosion.

Shells: Outside case into which the insert and contacts are assembled. Shells of mating connectors usually also provide proper alignment and protection of projecting contacts. Also known as housing or body.

Glossary

Shield: A metallic layer, commonly aluminum or copper, of tape, braid or spiral wrapped wire construction. Its primary purpose is to prevent electrostatic or electromagnetic interference between adjacent wires and external sources.

Shielded Cable: A cable in which the insulated conductor or conductors is/are enclosed in a conducting envelope or envelopes. Constructed so that essentially every point on the surface of the insulation is at ground potential or at some predetermined potential with respect to ground.

Shrink Boot Adapter: Thermoplastic rear adapter designed to provide a lip for heat shrink to form around to attach it securely to a connector.

Signal: An electric current used to convey information either digital, analog, audio or video.

Sleeving: A braided, knitted or woven tube.

Splice: A connection of two or more conductors or cables to provide good mechanical strength as well as good conductivity.

Socket Contact Sleeve: A cylindrical, protective encasement for the contact fingers or a contact spring. The socket contact sleeve holds the inner mechanism of the contact in place and provides a smooth exterior surface.

Solderless Connection: Joint between two metals created by pressure without the use of metallic alloy compounds or heat.

Solid Contact: Closed barrel terminal manufactured using a cold heading process.

Stamped & Formed Contact: Open barrel terminal manufactured using a precision stamping process.

Strain Relief: Hard plastic or metal device that attaches to the rear of a connector to provide wire support.

Strand: A single filament of uninsulated wire.

Strip: To remove insulation from a conductor.

Swedge: A cold-forging process to press-fit or force two metal forms into one.

“T” Seal: Reduced diameter insert cavity in the rear grommet. Also referred to as thin seal, a “T” seal allows for the use of smaller wire or thinner insulation diameter. A “T” seal is larger than an “E” seal and smaller than an “N” seal.

Temperature Coefficient of Resistivity: The change in resistance per degree of change in temperature.

Terminal: A device designed to attach to the end of a conductor wire to allow it to connect to another conductor wire and allow electrical current to pass between them. Also commonly referred to as a contact.

UL Recognized Component: One that is to be installed within a larger assembly by a manufacturer, and this larger assembly is then expected to be tested by UL to become UL Listed.

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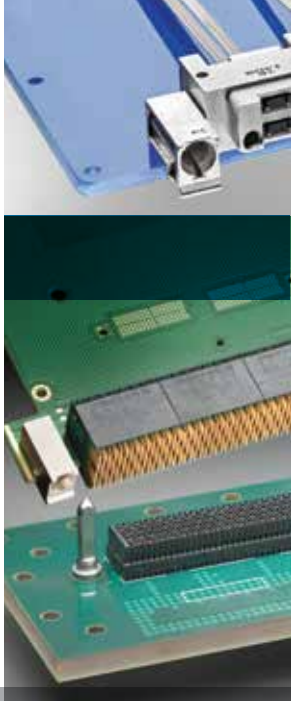
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Embedded Computing

Rugged, Weight- and Space-Saving High-Speed Solutions



SWaP: Reduce Size and Weight Increase Power, Data and Bandwidth Speed Design with Open Architecture Solutions

Next-generation processors need next-generation connectivity to keep pace with the growing demand for bandwidth even as space, weight, and power savings become critical.

TE Connectivity (TE) has been pushing the bandwidth envelope by adapting high-speed commercial technology and combining it with our expertise in rugged packaging. The results are board-level interconnects that give you more performance in harsh military and aerospace applications.



Beyond Speed

We are also reducing size through higher contact densities and supporting RF and optical interconnects at the board level. And to allow compact, high-speed box-to-box connectivity, we have a full range of I/O connectors supporting rates to 10 Gb/s.



Meeting the Needs of Battlespaces

We are meeting the demanding needs of battlespaces with ruggedized copper and fiber interconnect and cable assemblies. And we are helping to protect systems with lightweight shielding and EMI-immune datapaths.

TE is focusing our technology to minimize size, weight and power consumption, to increase bandwidth, and to enable open architecture systems.

More Performance for Land, Sea, Air, and Space

- Avionics and Vetrronics
- Communications Hubs and Processing
- Electronic Warfare and Countermeasure Management
- Two-Level Maintenance and ESD Sensitive Applications
- Mobile and Fixed Satellite Terminals and Ground Base Stations
- Power Supply and Distribution
- Radar Interface and Processing – RF and Digital
- Sensor Array Hubs and Data Processing
- Vehicle Mission Computers and Navigation
- Weapons Control and Targeting
- Space

TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem | Rochester | DEUTSCH
SEACON Phoenix | LL ROWE | Phoenix Optix | AFP | SEACON

Empower Engineers to Solve Problems, Moving the World Forward.



VPX Compliant Solutions

As the latest standard architecture evolving from VMEbus, the VPX standard meets the needs for data-intensive processing in the aerospace and defense industries, where both ruggedness and high-speed performance are crucial. Supporting 6.25 Gb/s in a switched fabric architecture, VPX systems are designed for flexible application of demanding high-speed protocols, such as 10G Ethernet, RapidIO, InfiniBand, and HyperTransport, in ground, aerospace, and marine applications.

Scalable

VPX systems are highly scalable and flexible, supporting both 3U and 6U formats to meet the widest range of needs. The VPX backplane uses the TE 7-row MULTIGIG RT 2 connector system to support both single-ended and differential signals.

Open Architecture

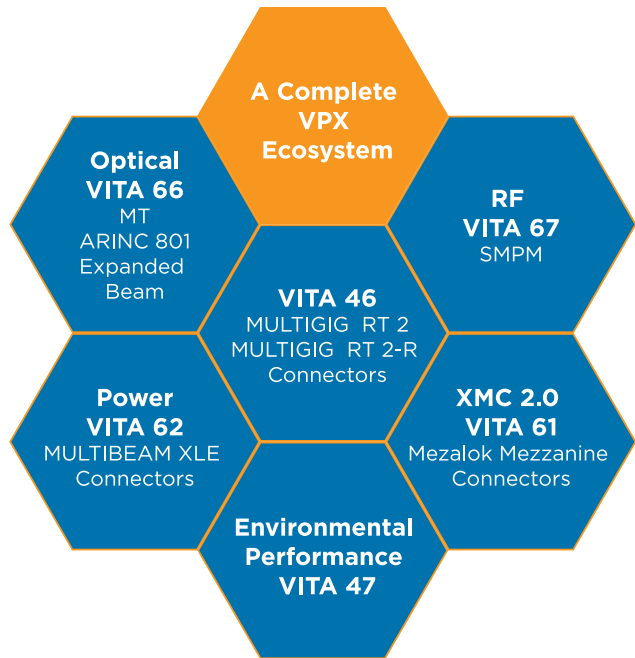
As a widely used standard, VPX promotes interoperability, a healthy choice of suppliers, and economies of scale that result from higher board volumes.

Flexible

Not only does VPX accommodate new technologies, it has expanded beyond backplane/daughterboard signaling to embrace mezzanine application, power modules, and optical and RF connectivity—all with the goal of providing unmatched flexibility and capabilities for embedded computing.

High Speeds, Multimedia, Maximum Flexibility

TE's portfolio of VPX systems gives you a complete array for high-speed data, optical, RF, power, and mezzanine connectivity. More choice means more flexibility in achieving specific system architectures with standards-based solutions. Get the high-speed signal integrity advanced applications require in rugged, reliable connectors.





**MULTIGIG RT 2
RUGGED**

- The standard for VITA 46 applications
- Modular connector system features a protected backplane connector

FAST

- Supports speeds up to 10 Gb/s, providing a comfortable performance margin in VPX applications

FLEXIBLE

- Wafers are easily modified to support the need for propagation delay, characteristic impedance, and other electrical parameters
- Lightweight connector offers built-in ESD features enabling field serviceability

**MULTIGIG RT 2-R
EXTREME RUGGEDNESS**

- Passes extreme requirements of VITA 72 study group
- Features a quad-redundant contact system for greater reliability in a high vibration environment
- Specified for VITA 78 SpaceVPX applications

ULTRA FLEXIBLE

- Compatible with standard MULTIGIG RT-2 connectors for VITA 46
- Optimized footprints for signal integrity and ease of board design
- Low outgassing

VITA 46 MULTIGIG RT 2 and MULTIGIG RT 2-R Connectors

Modular MULTIGIG RT 2 Connector System with Data Rates up to 10 Gb/s

The MULTIGIG RT 2 connector, the standard for VITA 46, represents a huge step forward in the world of rugged computing and C4ISR enabling technology. The connectors support speeds up to 10 Gb/s, providing a comfortable performance margin in VPX applications.

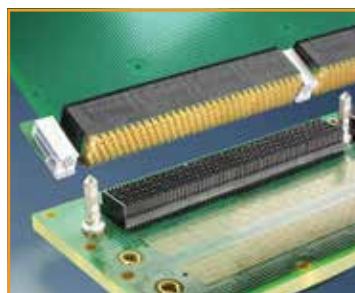
This modular connector system features a protected pinless backplane connector and wafer-based design in place of pin contacts. Wafers, available for differential, single-ended, and power needs, can be easily modified to support specific customer needs for characteristic impedance, propagation delay, and other electrical parameters. This lightweight connector system also offers built in ESD features, enabling field serviceability, and is fully qualifies for VITA 47 environments.

Ultra-Rugged MULTIGIG RT 2-R Connectors

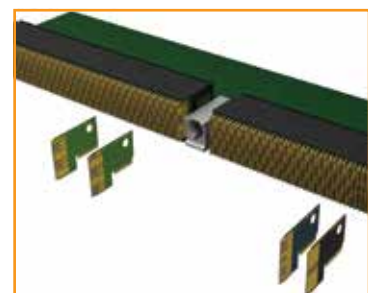
MULTIGIG RT 2-R connectors are an evolution of MULTIGIG RT 2 connectors, designed to offer even more ruggedness and reliability in demanding high-vibration environments. They go beyond VITA 47 environmental performance to meet the demanding requirements of VITA 72.

The connectors are specified for VITA 78 SpaceVPX fault-tolerant interoperable backplanes and modules. The lightweight connectors offer low outgassing and resist the growth of tin whiskers to high reliability in the challenging environment of space.

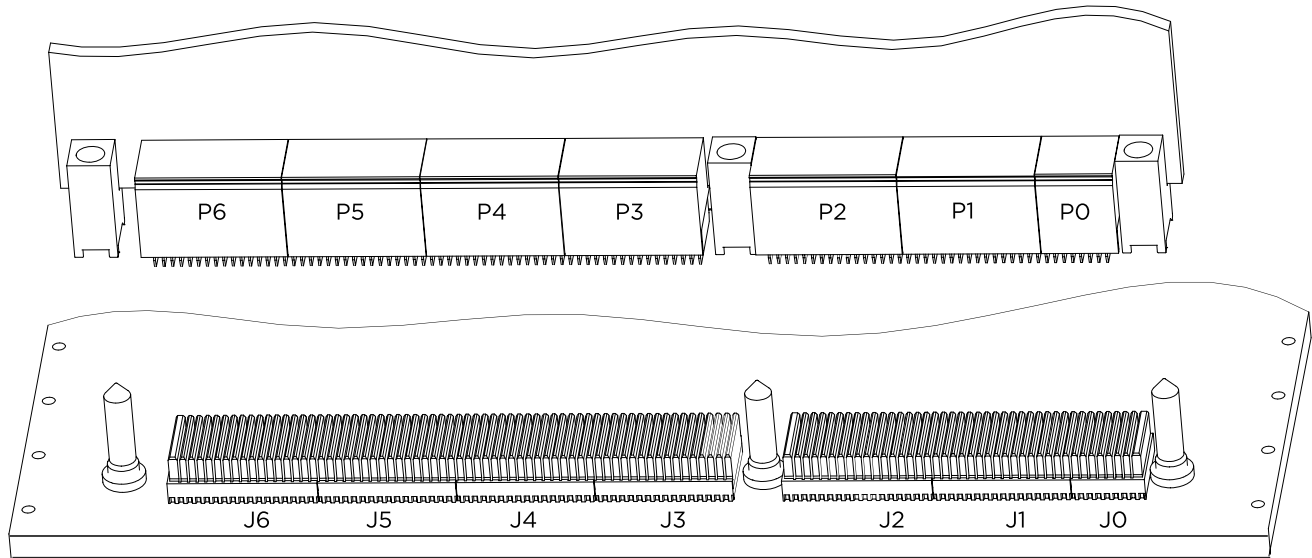
Backward compatible to all existing VITA 46 daughtercards, rugged MULTIGIG RT 2-R connectors have a pinless interface tested to 10,000 mating/unmating cycles. The connector has been torture tested by exposing a 6U VPX test unit to random vibration levels of 0.2 g²/Hz for 12 hours.



MULTIGIG RT 2



MULTIGIG RT 2-R



DAUGHTERCARD

Module Position	Part No.	
	MULTIGIG RT 2	MULTIGIG RT 2-R
P0	1410189-3	2102772-1
P1, P2, P3, P4, P5, P6	Differential	1410187-3
	Single-Ended	1410190-3
Keying Guide Socket Modules	1-1469492-X (Standard Zinc Die Cast)	2000713-X (Machined 6061 Aluminum with ESD Contact)

BACKPLANE

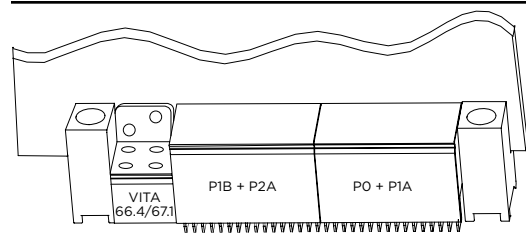
Module Position	Part No.	
	MULTIGIG RT 2	MULTIGIG RT 2-R
J0	1410186-1	2102735-1
J1, J3, J4, J5	1410140-1	2102736-1
J2, J6	1410142-1	2102737-1
Keying Guide Pin	1-1469491-X (Standard Zinc Die Cast)	2000676-X (Stainless Steel)

See TE drawings for guide module and pin options.
RoHS equivalents available.

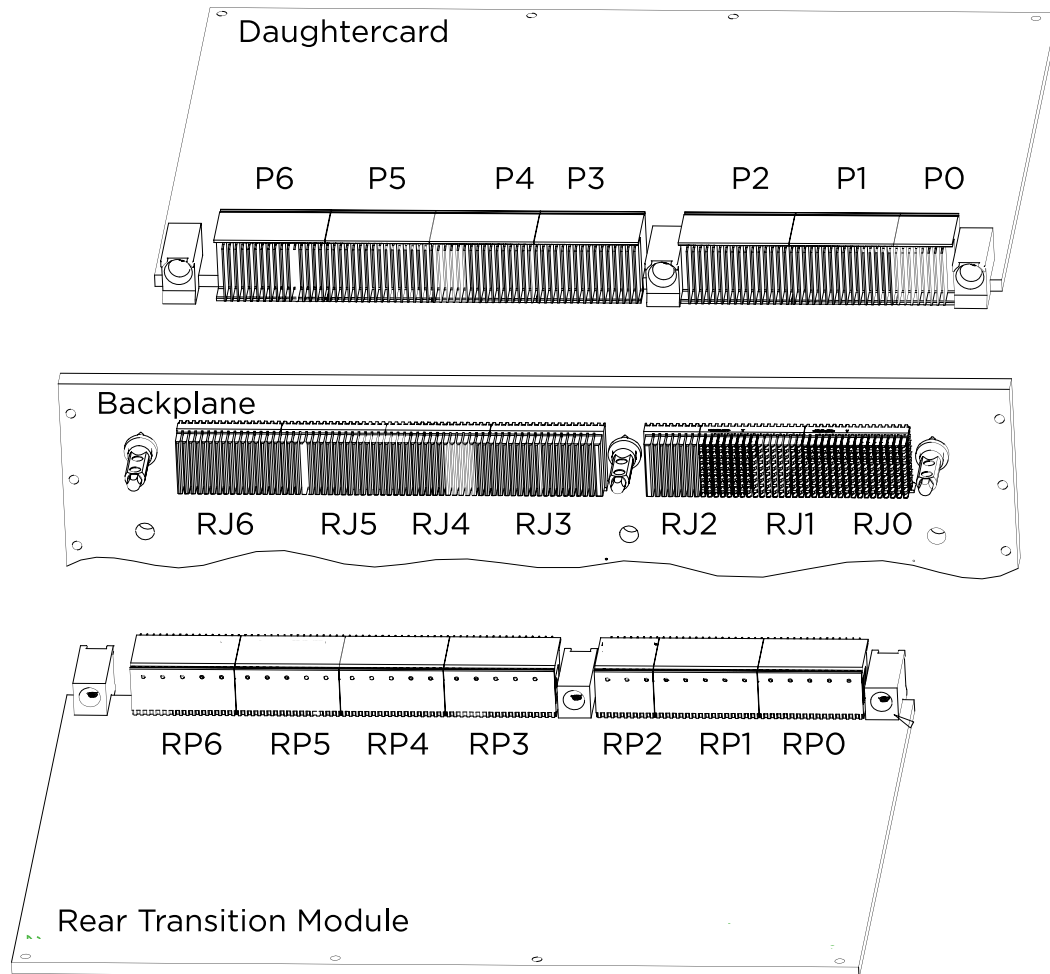
SpaceVPX CONNECTORS (PER VITA 78) FOR SpaceUM MODULES

VITA 78 Module Designation	3U position	6U position	Part No.
Module 8	P0	P0	2286123-1
Module 16A	—	P1, P5	2286117-1
Module 16B	P2	P2, P6	2286118-1
Module 16C	—	P3	2286119-1
Module 16D	—	P4	2286120-1
Module 16E	P1	—	2286121-1

DAUGHTERCARD MODULES FOR VITA 66.4 AND 67.1 3U APPLICATIONS



Module Position	Part No.	
	MULTIGIG RT 2	MULTIGIG RT 2-R
P0 + P1A	1410326-3	2286250-1
P1B + P2A	Differential	1410187-3
	Single-Ended	1410190-3



REAR TRANSITION MODULE

Module Position	Part No.	
	MULTIGIG RT 2	MULTIGIG RT 2-R
RP0	1410968-3	2102773-1
RP1	Differential	1410975-3
	Single-Ended	1410970-3
RP2	Differential	1410971-3
	Single-Ended	1410972-3
RP3, RP4, RP5, RP6	Differential	1410975-3
	Single-Ended	1410190-3
Keying Guide Socket Modules	1-1469492-X (Standard Zinc Die Cast)	2000713-X (Machined 6061 Aluminum with ESD Contact)

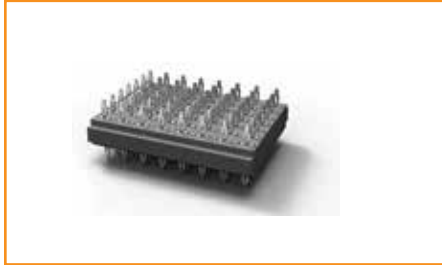
REAR TRANSITION BACKPLANE

Module Position	Part No.	
	MULTIGIG RT 2	MULTIGIG RT 2-R
RJ0	See Note 1	1410964-1
	See Note 2	1410965-1
RJ1	See Note 3	1410140-1
	See Note 4	1410966-1
RJ2	1410186-1	2102735-1
RJ3	1410142-1	2102737-1
RJ4, RJ5, RJ6	1410140-1	2102736-1
Keying Guide Pin	1410956-1 (Standard Zinc Die Cast)	2226127-1 (Stainless Steel)

Notes (Reference VITA 46.10; Observation 3-6):
 Note 1: 16 column shell, 15 columns of contacts
 Note 2: 16 column shell, 7 columns of contacts present (plus contacts i9-16)
 Note 3: 16 column shell, 16 columns of contacts
 Note 4: 16 column shell, 8 columns of contacts present (plus contacts i1-8)



Additional VPX-Compatible Products



Stacking Compliant Pin Connector

Part No. 2102785-1

Permanent Stacking

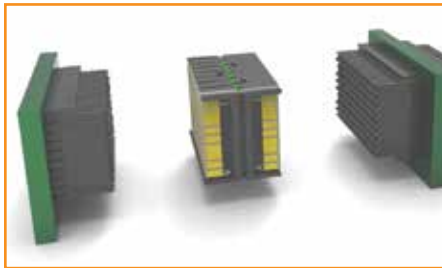
- Compliant pin termination on both sides
- Well suited for rigid flex or board-to-board stacking where a separable interface is not required

Convenient

- Simple press-fit application
- Connector footprint matches the MULTIGIG RT 2 daughtercard connector pattern for low noise and low loss
- 56 position modules, end-to-end stackable to build the pin count required with standard components

Low Profile

- 4 mm stack height



VITA 46 Interposer

Part No. 2226027-1

Parallel Backplanes

- Stacking connector to enable parallel backplanes in a VPX chassis.
- Mates to backplane VITA 46 connectors, maintaining VITA 46 pinout
- 25 mm stack height

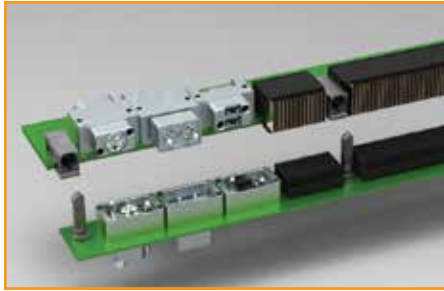
VPX Daughtercard (Plug-In Module) Covers

Part No. 2226808-1 6U

Part No. 2226808-2 3U

Rugged Protection

- Durable polycarbonate protective cover applied to a plug-in card
- Prevents connector damage in handling



VITA 66 Optical Modules

The VITA 66 standard for optics gives you the choice of MT array connectors, ARINC 801 termini, or expanded beam (EB) contacts using a common module. With an aerospace pedigree, each style of termini offers different benefits in terms of density, ruggedness, repairability, and other characteristics.

MT Ferrules

- Highest-density interconnection
- Up to 48 fibers in a 3U system
- Up to 248 fibers in a 6U system

ARINC 801 Termini

- Industry-standard 1.25 mm high-performance ceramic ferrules
- Physical contact technology for very low insertion loss, with angled polishes
- Keyed orientation for optimal single-mode performance

Expanded Beam Termini

- Up to four fibers per module
- Ball lens to tolerate less than pristine conditions
- Excellent for handling shock, vibration, or repeated mating/unmating
- Well suited to two-level maintenance or applications calling for frequent insertion/extraction

MORE CHOICE

- Choose from MT array connectors, ARINC 801 termini, or expanded beam (EB) contacts using a common module
- Up to 248 fibers in a 6U system
- Each style of termini offers different benefits

EASY TO USE

- Common mounting interface requirements for the various fiber-optic interconnects within 3U and 6U VPX applications
- Quickly and confidently implement the best solution for specific applications

RUGGED

- Improved density, ruggedness, and repairability via three termini styles
- The three module varieties are based upon proven optical termini for military and aerospace applications

Interface	Part No.	
	Backplane	Daughtercard
VITA 66.1: MT	2000973-1	2000974-1
VITA 66.2: ARINC 801	—	—
VITA 66.3: Expanded Beam	2102282-1	2102283-1
VITA 66.4: MT	2226880-1	2226881-1
MT Ferrule Kit (12 Fiber, Multimode)	2102866-1	2102866-2

Contact TE about availability and additional fiber assemblies.



VITA 67 RF Modules

VITA 67 RF modules from TE are modular systems designed specifically to allow backplane/daughtercard multi-contact mating within a robust platform to withstand the mechanical rigors of military and aerospace applications. They are also fully compatible with VPX packaging to make it easy and convenient to achieve RF connectivity within a well-established architecture.

The contacts tolerate generous misalignment to allow blind mating and be configured to eliminate the possibility of stubbing. The contacts are housed in robust stainless steel or aluminum modules that hold four or eight contacts. The modules are configured to provide RFI/EMI shielding between the RF contacts and provide a high level of adjacent channel isolation of at least 100 dBc up through 40 GHz.

MORE CHOICE

- Modular design with 4- or 8-position modules for application-specific configuration
- Modules available in stainless steel and aluminum
- Float-mounted jack maintains positive RF connection

VERSATILE

- Will support 0.80" card pitch
- .240" center-to-center contact spacing
- RF contacts are available for a variety of cables

ROBUST

- SMPM-based contact performance to 40 GHz
- Excellent channel-to-channel isolation
- Higher packaging density saves space and weight

VITA 67 MODULES

Interface Side	Mounting Flange	Material	Part No.	
			4-Position	8-Position
Daughtercard (Plug-In Module)	Countersink Through Holes to Accept 2-56 UNC	Stainless Steel	1996883-4	1996705-4
		Aluminum	2157338-3	2157350-3
	2-56 UNC Mounting Holes	Stainless Steel	2101925-4	2101924-4
		Aluminum	2157339-4	2157340-4

	Contact Interface to Rear of Backplane	Module Material	Part No.	
			4-Position	8-Position
Backplane	SMPM Plug (Snap On)	Stainless Steel	1996884-1	1996706-1
	OSMM Jack (Threaded)	Stainless Steel	2101510-2	1996777-2
	Direct Attach Cable	Aluminum	—	2157553-1

RF CONTACTS

Interface Side	Cable Type*	Part No.
Daughtercard	.047" Dia.	1996771-1
	.086" Dia.	1996390-1
	.086" Low-Loss Cable	2101814-1
Backplane	.047" Dia. (For Direct Attach Cable)	2157248-1
	.086" Dia. (For Direct Attach Cable)	2101012-1
	.086" Low-Loss Cable (For Direct Attach Cable)	2157022-1
	NA — Press Fit Directly Into Backplane	1996318-1

*Semirigid cable or flex equivalent.

TOOLING

Tool	Use	Part No.
OSMM Low-Profile Wrench	Use for OSMM Connectors Mating to Backplane Modules	2119704-1
SMPM Jack Insertion/Extraction Tool	Use On 1996390-1, 1996771-1	2101595-1
SMPM Plug Extraction Tool	Use On 2101012-1, 2157248-1	2161640-1



VERSATILE

- 114-position module is VITA 61 compliant
- 60, 114, and 320 positions
- 10, 12, 15, and 18 mm stack heights

ROBUST

- Rugged surface-mount mezzanine connector with 500 mating cycle durability
- Improved thermal cycling stability compared to VITA 42 connectors—2000 or more thermal shock cycles
- Supports data rates to 5+ Gb/s
- Anti-stubbing design during mating

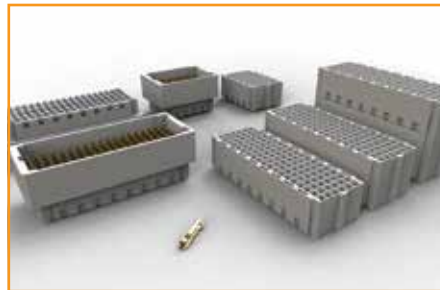
HIGH PERFORMANCE

- Mini-Box contact system provides four points of contact for ultra-reliability
- LCP plastic housings offer superior thermal stability and low outgassing
- Compliant BGA board-attach supports standard surface mount processing and excellent thermal stability

VITA 61 Mezalok Connectors

TE's Mezalok connectors are rugged surface mount connectors featuring a quad redundant mini-box contact system having 500-mating-cycle durability.

Engineered for high-speed reliability across the most adverse environments, the Mezalok connector enables 10+ Gb/s data rates coupled with a four-point redundant contact system based on the M55302 standard. The 114-position connectors are compliant with VITA 61 for XMC 2.0 applications.



		50 Microinch Gold Mating Face		30 Microinch Gold Mating Face	
		Tin-Lead BGA	Lead Free BGA	Tin-Lead BGA	Lead Free BGA
60 (6 x 10) Positions					
Pin Connector		2102079-1	2102079-2	2102079-3	2102079-4
	10 mm	2102080-1	2102080-2	2102080-5	2102080-6
	12 mm	2102080-3	2102080-4	2102080-7	2102080-8
	18 mm	2102080-9	1-2102080-0	1-2102080-1	1-2102080-2
114 (6 x 19) Positions					
Pin Connector		2102060-1	2102060-2	2102060-3	2102060-4
	10 mm	2102061-1	2102061-2	2102061-5	2102061-6
	12 mm	2102061-3	2102061-4	2102061-7	2102061-8
	15 mm	1-2102061-3	1-2102061-4	1-2102061-5	1-2102061-6
	18 mm	2102061-9	1-2102061-0	1-2102061-1	1-2102061-2
320 (8 x 40) Positions					
Pin Connector		2102429-1	2102429-2	2102429-3	2102429-4
	10 mm	2102430-1	2102430-2	2102430-5	2102430-6
	18 mm	2102430-9	1-2102430-0	1-2102430-1	1-2102430-2



VITA 62 MULTI-BEAM XLE Power Connectors

The MULTI-BEAM XLE power connector, specified for the VPX VITA 62 power supply standard, offers 50 A and 20 A contacts.

The design is hot pluggable, features a vented housing for heat dissipation, tolerates mating misalignment, and has lower mating forces.

HIGH PERFORMANCE

- 20 A and 50 A power contacts, plus signal contacts
- 3-beam high-conductivity-copper contact design allows for a greater angular misalignment between mating connectors and offers a lower mating force
- Hot-plug capable

CONVENIENT

- Slim guide sockets reduce the overall PCB footprint
- Vented housing allows for better heat dissipation
- Connector tolerates mating misalignment
- Lower mating force

Connector Configuration (No. of Contacts)				Part No.	
High Power (50 A)	Low Power (20 A)	Signal	Plug-In Module Size	Receptacle	Plug
2	6	32	3U	1-6450869-4	6450849-7
7	—	—	6U	6450863-5	6450843-6
10	—	36	6U	1-6450869-0	6450849-6



Next-Generation Connectivity Fortis Zd Connectors

Extreme Mechanical and Electrical Performance for the Most Demanding Bandwidth Applications

With high speeds and high reliability in demanding applications, the Fortis Zd connector family is designed to meet next-generation processing-intensive applications. The connectors support speeds of 12+ Gb/s in a design that saves weight and space.

FAST

- Allows 12+ Gb/s data rates in a design that saves weight and space

RUGGED

- Extreme mechanical and electrical performance for the most demanding applications
- Space-compatible materials
- Proven compliant pin board attach facilitates manufacturing efficiency, reparability, and superior electrical performance
- Protected pin field on backplane for reliability and durability

FLEXIBLE

- Modular design allows for user configurability and modular evolution
- M55302-heritage Mini-Box separable interface provides four points of contact on all sides of the pin
- Staggered daughtercard pin field supports two-level maintenance

HIGH PERFORMANCE

- Three shell varieties for application versatility, including:

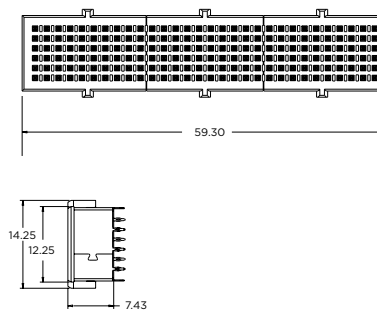
Shielded for EMI protection
Plastic for lowest weight
Machined metal shell for ruggedized daughtercard

- 3-pair (9-row) and 2-pair (6-row) versions available to accommodate multiple slot pitches

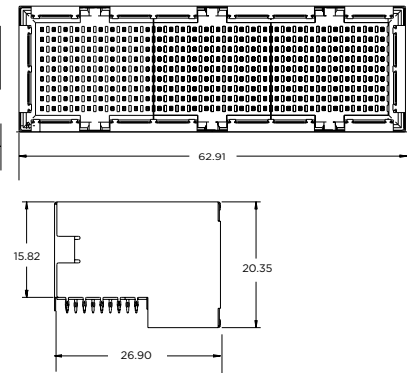
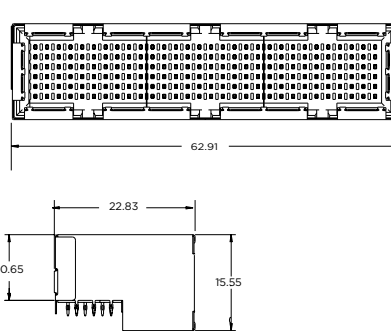
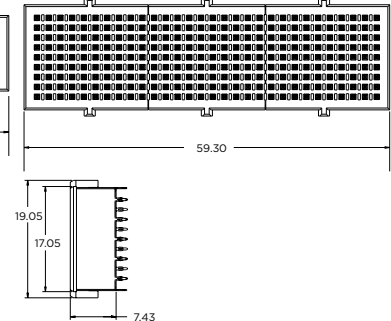


The Mini-Box contact, with spring contact on all four of the mating posts, has years of proven reliability in rugged applications.

Six-Row Connectors



Nine-Row Connectors





STANDARD FORTIS Zd MODULES

		Part No.					
		Left	Center		Right	Full Shroud	
		10 Col.	10 Col.	20 Col.	10 Col.	10 Col.	20 Col.
6-Row (2-Pair) Connector Modules							
Right-Angle	Differential	2102086-1	2102087-1	2102096-1	2102088-1	2102081-1	2102232-1
Vertical	—	2102092-1	2102093-1	2102098-1	2102092-1	2102094-1	2102234-1
9-Row (3-Pair) Connector Modules							
Right-Angle	Differential	2000890-1	2000891-1	2000903-1	2000892-1	2102155-1	2102159-1
	Single Ended	2102314-1	2102315-1	2102316-1	2102317-1	2102318-1	2102319-1
Vertical	—	2000895-1	2000896-1	2000905-1	2000895-1	2102157-1	2102161-1

-1 parts have tin-lead plated contact tails; for lead-free tin order -2.

SHIELDED FORTIS Zd MODULES

		Part No.					
		10 Col.	20 Col.	30 Col.	40 Col.	50 Col.	60 Col.
6-Row (2-Pair) Connector Modules							
Right-Angle	Differential	2102515-1	2102515-2	2102515-3	2102515-4	2102515-5	2102515-6
Vertical	—	2102516-1	2102516-2	2102516-3	2102516-4	2102516-5	2102516-6
9-Row (3-Pair) Connector Modules							
Right-Angle	Differential	2102247-1	2102247-2	2102247-3	2102247-4	2102247-5	2102247-6
	Single Ended	2102320-1	2102320-2	2102320-3	2102320-4	2102320-5	2102320-6
Vertical	—	2102248-1	2102248-2	2102248-3	2102248-4	2102248-5	2102248-6

MACHINED METAL SHELL FOR RIGHT-ANGLE FORTIS Zd MODULES

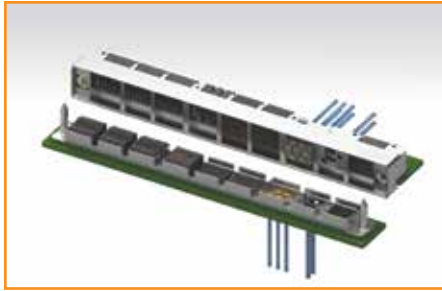
		Part No.					
		10 Col.	20 Col.	30 Col.	40 Col.	50 Col.	60 Col.
6-Row (2-Pair) Connector Modules							
Right-Angle	Differential	2102114-1	2102114-2	2102114-3	2102114-4	2102114-5	2102114-6
9-Row (3-Pair) Connector Modules							
Right-Angle	Differential	2102077-1	2102077-2	2102077-3	2102077-4	2102077-5	2102077-6

Shells are applied to right-angle modules, ordered separately. They mate with standard vertical modules.

GUIDE HARDWARE

		Part No.		
		Universal Guide Hardware	VITA 46	Rugged VITA 46 Machined
Guide Pin		223969-X	1-1469491-X	2000676-X
Guide Module		223979-X	1-1469492-X	2000713-X (with ESD contact)

See TE drawings for guide module and pin options.



Fortis Zd LRM Connector System

Rugged Next-Generation Packaging Made Flexible with Lightweight, Modular System

The Fortis Zd LRM Connector System is an innovative modular connector system for rugged next-generation packaging, from avionics boxes to military ground vehicles. Optical and RF modules are based on VITA 66 and 67, featuring precision guide hardware and shell features that ensure reliable plug-in and excellent stability under extreme vibration.

It features a rugged, lightweight, multibay shell that accepts high-speed digital signal, power, RF and optical modules. Based on well-established technology, Fortis Zd LRM connector systems feature M55320 box contacts, with four points of contact, to provide electrical stability in high-vibration environments. Additionally, the compliant pin board attach results in manufacturing efficiency, reparability, and superior electrical performance.

HIGH PERFORMANCE

- Performance to 12+ Gb/s
- Controlled impedance design
- Low crosstalk and superior electrical characteristics
- Low noise board footprint

WEIGHT SAVING MODULAR DESIGN

- Lightweight aluminum shell with chromate finish
- 3, 4, 8 or 9 bays standard, with other sizes possible
- Easy mixing and matching of modules

RUGGED RELIABILITY

- High-temperature, space-compatible materials
- Shell's integral guide keys align and minimize micromotion between boards

FULL RANGE OF MODULES

- Single-ended signals
- Differential signals
- Power
- RF
- Fiber optics



Shells

Rugged and Lightweight

- Precision machined from aluminum for light weight
- Chromate finished

Modular Flexibility

- Identical bays for flexibility in mixing and matching modules and positioning them optimally

3U and 6U Solutions

- 3 and 4-bay shells support 3U boards
- 8 and 9-bay shells support 6U boards
- Other sizes can be made available
- Custom shell features possible, including integrated covers



Signal Modules

Flexible

- Differential and single-ended signal daughtercard modules
- Universal backplane module for both differential and single-ended signals
- 90 contacts per module
- Differential module supports 30 pairs, with ground shields for isolation

Reliable

- Reliable box contacts with four points of contact
- RoHS compliant



High-Power Modules

High Current

- 55 A contacts
- Two contacts per module
- 3-beam high-conductivity contacts
- Vented housing for thermal dissipation

Tried and True Technology

- Based on MULTI-BEAM XLE connector design
- Same interface as used in VITA 62 power supply modules for VPX



Low-Power Modules

Flexible Current Handling

- 15 A contacts
- Five contacts per module

Tried and True Technology

- Based on TE Universal Power Module



RF Modules

Rugged Performance

- Superior RF performance to 40 GHz
- Float-mounted contacts ensure mated contacts bottom, for excellent isolation and low VSWR

Tried and True Technology

- Based on TE's VITA 67 modules for VPX
- SMPM contacts
- Five position modules



Optical Modules

Tried and True Technology

- MT ferrule inserts
- Up to 24 fibers (12 per ribbon)
- Based on VITA 66



Filler Modules

- Protects unused bays from dust or contamination
- Snaps into place on daughtercard shell



Guide Hardware

Precision Machined

- Tightly toleranced to minimize micromotion between boards
- Lightweight aluminum

Flexible Keying

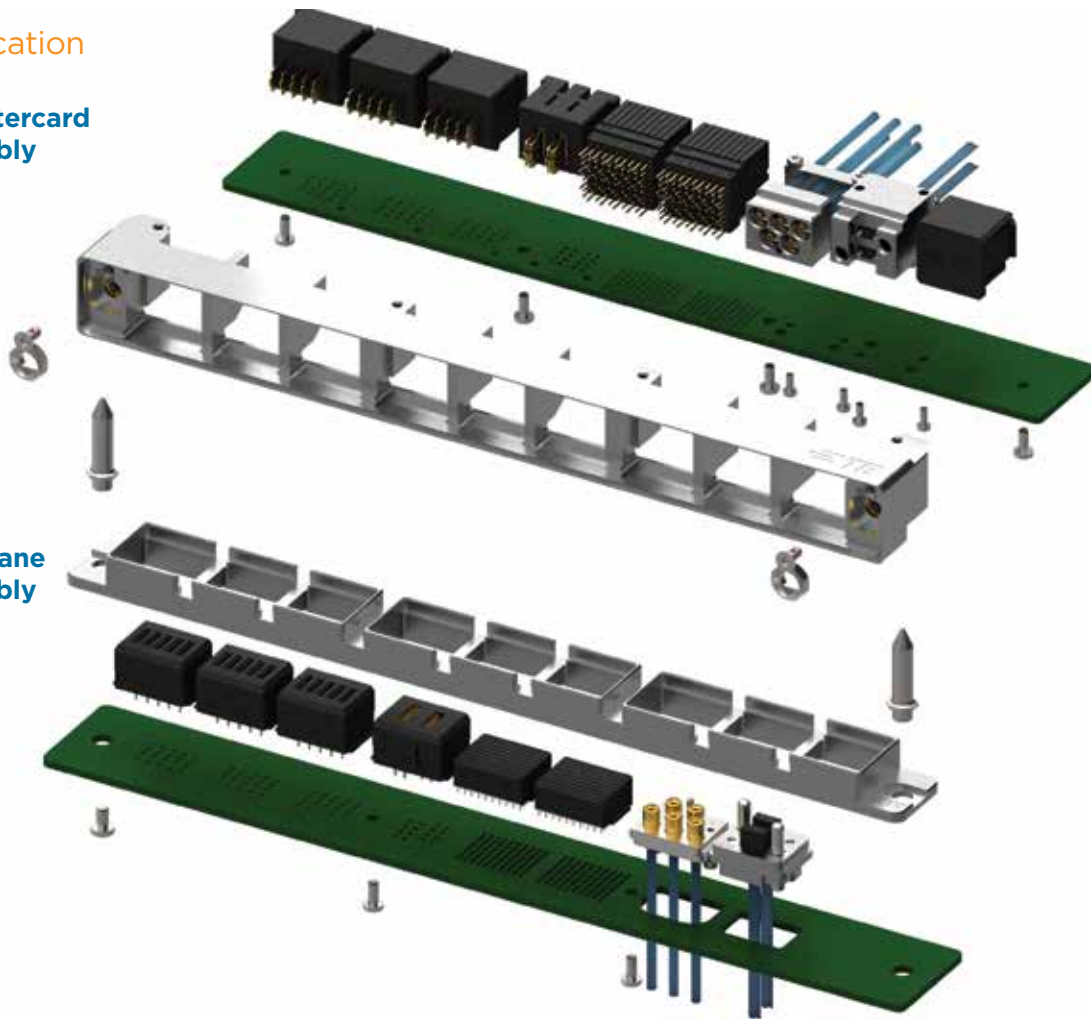
- 8 key orientations per pin
- 64 key combinations per assembly
- ESD springs in daughtercard shell's guide sockets



Application

Daughtercard Assembly

Backplane Assembly



PART NUMBERS

Part	Type	Part No.	
		Daughtercard	Backplane
Connector Shells	3 bay	2226783-1	2226784-1
	4 bay	2226783-2	2226784-2
	9 bay	2226783-3	2226784-3
	8 bay	2226783-4	2226784-4
Modules	Differential Pair	2102436-1	2102438-1
	Single Ended	2102436-2	2102438-1
	Low-Power Module	2102444-1	2102446-1
	High-Power Module	2102440-1	2102442-1
	RF (SMPM) Module	2226511-1	2226512-1
	Optical (MT) Module	2226790-1	2226789-1
	Filler	2102449-1	—
Guide Hardware	Guide Socket, Keyed	2102503-2	—
	Guide Socket, Non-Keyed	2102503-4	—
	Screw, Guide Module, Phillips Head	208021-1	—
	Screw, Guide Module, Torx	2226170-1	—
	Guide Pin, Keyed	—	2102502-2
	Guide Pin, Non-Keyed	—	2102502-4



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Count on TE for complete end-to-end solutions to enable high-performance computing. Our I/O solutions give you one of the widest ranges of choices for helping to increase speeds, going longer distances, and eliminating bandwidth bottlenecks.



CeeLok FAS-T Connectors

- Small, field terminable, 10 Gigabit Ethernet, rugged I/O connector
- Compact size 8 shell saves weight and space
- Ruggedized for excellent shock, vibration, temperature, and sealing performance, with integral backshell that provides low cost, low-weight strain relief, and EMI protection



CeeLok FAS-X Connectors

- One of the highest speed I/O connectors available
- Single-channel size 11 or four-channel size 25 38999 shells or ARINC 809
- Fast, easy assembly
- Composite or metal shell
- Lanyard-release option



DEUTSCH Wildcat Connectors

- Full range of sizes and configurations, with wide choice of materials and finishes
- 38999 and micro sizes
- Close to double density compared to standard 38999



Rack and Panel Connectors

- I/O for LRUs and LRMs
- Blindmate, rugged, high pin count
- Signal, Quadrax, RF, power, and optical (ARINC 801 and mini expanded beam)



RF Connectors

- I/O for LRUs and LRMs
- Blindmate, rugged, high pin count
- Signal, Quadrax, RF, power, and optical (ARINC 801 and mini expanded beam)



High-Speed Cable

- Gigabit/10G Ethernet
- Fibre Channel
- DVI/HDMI
- IEEE 1394
- USB 3.0
- CANbus



Optical Connectors

- Expanded beam, ceramic ferrule, and MT termini
- Single mode and multimode for any reach
- Compatibility with an extensive line of standard and optics-only connectors



Harnessing Components

- Families matched to application extremes
- Heat-shrink tubing
- Molded parts
- Adhesives
- Backshells
- Identification
- Solder sleeves and termination devices

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Weight and Space



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Consult TE for the latest dimensions and design specifications.

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4-1773700-7 06/17

HARSH, RUGGED RELIABILITY

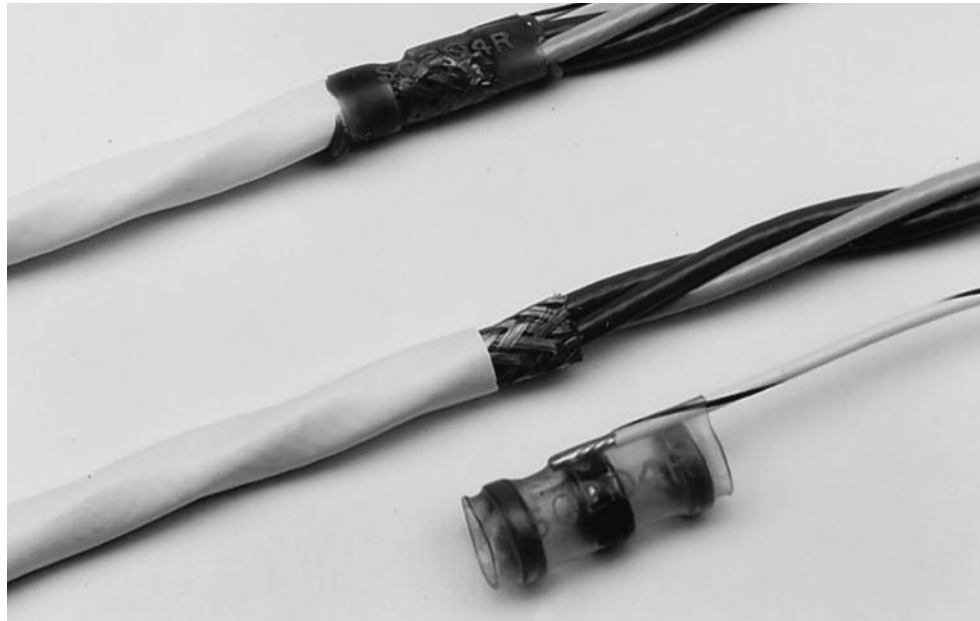
SHIELD TERMINATION CATALOG

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>

SolderSleeve Shield Terminators

Product Facts

- Transparent insulation sleeve provides encapsulation, inspectability, strain relief, and insulation
- Prefluxed solder preform provides a controlled soldering process
- One-piece design offers easy installation and lower installed cost
- Optional preinstalled ground leads provide convenience and ease of installation

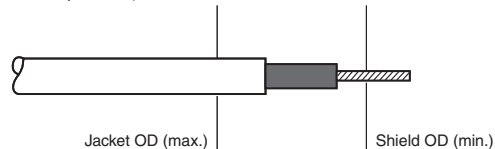


Applications

Used for shield-to-ground termination.

Product Selection Process

1. Select product series from the Product Options table below.
2. Determine cable dimensions.
3. Optional: Select preinstalled wire lead type (see Table G on page 8-49 for type descriptions).
4. Select part number (use the selection table indicated for your product series in the Product Options table below).
5. Refer to Table H on page 8-49 for cross-reference information.



Product Options (Refer to Table G on Page 8-49 for Additional Information)

Product Series	System Oper. Temperature (Max.)	Used on Cables Rated (Min.)	Environmental Protection	Solder Alloy	Flux Type	Insulation Material	Part No. Selection Table
B-155	125°C [257°F]	85°C [185°F]	Splash resistant	Bi58	PA	Polyolefin	A
CWT	125°C [257°F]	85°C [185°F]	Splash resistant	Cd18	RA	Polyolefin	A
SO63*	150°C [302°F]	125°C [257°F]	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	B
S01/S02**, S03	150°C [302°F]	125°C [257°F]	Immersion resistant	Sn63	RMA	Polyvinylidene fluoride	C, D
SO96***	175°C [347°F]	150°C [302°F]	Immersion resistant	Sn96	RA	Polyvinylidene fluoride	E
SO175****	175°C [347°F]	150°C [302°F]	Immersion resistant	Sn96	RA	Polyvinylidene fluoride	F
S200****	200°C [392°F]	150°C [302°F]	Immersion resistant	Sn96	RA	Fluoropolymer	G

*Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with BiAlloy temperature indicator.

**Qualified to SAE-AS83519 (formerly MIL-S-83519), supplied with thermochromic temperature indicator.

***Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with thermochromic temperature indicator.

****Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519), supplied with BiAlloy temperature indicator.

Note: Cadmium-free option (B-152 series) is available for operating temperature of 125°C [257°F]. Consult TE for details.

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

SolderSleeve Shield Terminators (Continued)

Table A. B-155 Series
(125°C [257°F] rated)

Cable OD		Part Nos.	
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	With Preinstalled Lead (22AWG/0.38 mm² green)
1.7 [.065]	0.9 [.035]	B-155-3801	—
1.95 [.075]	1.1 [.043]	B-155-3802	—
2.7 [.105]	1.5 [.059]	B-155-3	B-155-03-35-22-5
4.5 [.180]	2.0 [.079]	B-155-5	B-155-05-35-22-5
6.0 [.235]	3.3 [.130]	B-155-6	B-155-06-35-22-5
7.0 [.275]	3.3 [.130]	B-155-7	B-155-07-35-22-5
8.7 [.340]	4.5 [.177]	B-155-9	B-155-09-35-22-5
10.7 [.420]	4.5 [.177]	B-155-11	B-155-11-35-22-5
13.0 [.510]	7.0 [.276]	B-155-13	B-155-13-35-22-5

*See Table G on page 8-49 for lead description.

Note: The B-155 series is suitable for applications using low-temperature wires (typically rated at 85°C [185°F] to 125°C [257°F]) with bare copper or tin plating.

Table B. SO63 Series

BiAlloy Temperature
Indication System

This system greatly enhances the reliability and repeatability of SO63 series terminators while reducing installed cost. The heat-shrinkable thermoplastic sleeve contains a precisely engineered, fluxed solder band that is visible through the sleeve. The band provides exactly the amount of solder and flux required to terminate the ground lead to the cable shield. Encircling the band is a small temperature indicator ring. This ring melts only when the surfaces to be joined have reached the correct soldering temperature, thus ensuring a properly soldered connection. Process control is built into each sleeve.

Cable OD		No Preinstalled Lead	Part Nos.					
Jacket OD Max.	Shield OD Min.		Preinstalled Lead Option*				Braid Strap	
			20 AWG	22 AWG	24 AWG	26 AWG	Nickel Plated	Tin Plated
1.95 [0.075]	0.90 [.035]	SO63-1-00	SO63-1-55-20-90	SO63-1-55-22-90	SO63-1-55-24-90	SO63-1-55-26-90	SO63-1-01	SO63-1-9030
2.7 [0.105]	1.40 [.055]	SO63-2-00	SO63-2-55-20-90	SO63-2-55-22-90	SO63-2-55-24-90	SO63-2-55-26-90	SO63-2-01	SO63-2-9030
4.3 [0.170]	2.15 [.085]	SO63-3-00	SO63-3-55-20-90	SO63-3-55-22-90	SO63-3-55-24-90	SO63-3-55-26-90	SO63-3-01	SO63-3-9030
6.0 [0.235]	3.30 [.130]	SO63-4-00	SO63-4-55-20-90	SO63-4-55-22-90	SO63-4-55-24-90	SO63-4-55-26-90	SO63-4-01	SO63-4-9030
7.0 [0.275]	4.30 [.170]	SO63-5-00	SO63-5-55-20-90	SO63-5-55-22-90	SO63-5-55-24-90	SO63-5-55-26-90	SO63-5-01	SO63-5-9030

*See Table G on page 8-49 for lead description. Color of wire lead is denoted by the last two digits of the part number as follows:

90 = White with a black stripe 9 = White 0 = Black 6 = Blue (24 AWG only) 5 = Green (20, 22, 24 AWG)

The SO63 series is immersion resistant, features the TE BiAlloy temperature indication system, and meets the performance requirements of SAE-AS83519 (formerly MIL-S-83519).

SolderSleeve Shield Terminators (Continued)**Table C. S01/S02 M83519 Series****Thermochromic Temperature Indicator**

The M83519 (S01 and S02) series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No. (MIL Part Number and TE Part No.) by Lead Option					
Jacket OD Max	Shield OD Min	No Preinstalled Lead		Preinstalled Lead Option*			
		MIL	TE	20 AWG		22 AWG	
				MIL	TE	MIL	TE
1.95 [0.075]	0.9 [.035]	M83519/1-1	S01-01-R	M83519/2-1	S02-01-R	M83519/2-6	S02-06-R
2.7 [0.105]	1.40 [.055]	M83519/1-2	S01-02-R	M83519/2-2	S02-02-R	M83519/2-7	S02-07-R
4.3 [0.170]	2.15 [.085]	M83519/1-3	S01-03-R	M83519/2-3	S02-03-R	M83519/2-8	S02-08-R
6.0 [0.235]	3.30 [.130]	M83519/1-4	S01-04-R	M83519/2-4	S02-04-R	M83519/2-9	S02-09-R
7.0 [0.275]	4.30 [.170]	M83519/1-5	S01-05-R	M83519/2-5	S02-05-R	M83519/2-10	S02-10-R
Jacket OD Max.	Shield OD Min.	Preinstalled Lead Option*					
				24 AWG		26 AWG	
1.95 [0.075]	0.9 [.035]			M83519/2-11	S02-11-R	M83519/2-16	S02-16-R
2.7 [0.105]	1.40 [.055]			M83519/2-12	S02-12-R	M83519/2-17	S02-17-R
4.3 [0.170]	2.15 [.085]			M83519/2-13	S02-13-R	M83519/2-18	S02-18-R
6.0 [0.235]	3.30 [.130]			M83519/2-14	S02-14-R	M83519/2-19	S02-19-R
7.0 [0.275]	4.30 [.170]			M83519/2-15	S02-15-R	M83519/2-20	S02-20-R

*See Table G for lead description.

M83519 is the qualified product listed in SAE-AS83519 (formerly MIL-S-83519). The series features a thermochromic temperature indicator to assist in termination and inspection. The part number is permanently marked on the sleeve.

Table D. S03 Series**Thermochromic Temperature Indicator**

The S03 series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both Manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No.	
Jacket OD Max.	Shield OD Min.	Preinstalled Lead Option*	
		Tin plated Braid Strap	Nickel plated Braid Strap
1.95 [0.075]	0.9 [.035]	S03-01-R	S03-06-R
2.7 [0.105]	1.40 [.055]	S03-02-R	S03-07-R
4.3 [0.170]	2.15 [.085]	S03-03-R	S03-08-R
6.0 [0.235]	3.30 [.130]	S03-04-R	S03-09-R
7.0 [0.275]	4.30 [.170]	S03-05-R	S03-10-R

*See Table G for lead description.

SolderSleeve Shield Terminators (Continued)**Table E. SO96 Series**
(175°C [347°F] rated)**Thermochromic**
Temperature Indicator

The SO96 series terminators contain a colored thermochromic temperature indicator that exhibits a distinct color change when surfaces have reached wetting temperature. This color change gives both manufacturing and Quality Control an aid in the inspection of the completed termination.

Cable OD		Part No.		
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	Preinstalled Lead Option*	
			22 AWG	Braid Strap
1.95 [0.075]	0.9 [0.035]	SO96-1-00	SO96-1-55-22-90	SO96-1-01
2.7 [0.105]	1.40 [0.055]	SO96-2-00	SO96-2-55-22-90	SO96-2-01
4.3 [0.170]	2.15 [0.085]	SO96-3-00	SO96-3-55-22-90	SO96-3-01
6.0 [0.235]	3.30 [0.130]	SO96-4-00	SO96-4-55-22-90	SO96-4-01
7.0 [0.275]	4.30 [0.170]	SO96-5-00	SO96-5-55-22-90	SO96-5-01

*See Table G for lead description.

The SO96 series is designed for high-temperature applications with operating temperature requirements up to 200°C [392°F]. This series features a thermochromic temperature indicator and meets performance requirements of SAE-AS83519 (formerly MIL-S-83519). The solder is Sn96 with RA flux compatible with nickel-plated shields.

Table F. SO175 Series
(175°C [347°F] rated)**BiAlloy Temperature Indication System**

This system greatly enhances the reliability and repeatability of SO175 series terminators while reducing installed cost. The temperature indicator ring, encircling the solder preform, melts to indicate the very minimum amount of heat.

Cable OD		Part No.		
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	Preinstalled Lead Option*	
			22 AWG	Braid Strap
1.95 [0.075]	0.90 [0.035]	SO175-1-00	SO175-1-55-22-90	SO175-1-01
2.7 [0.105]	1.40 [0.055]	SO175-2-00	SO175-2-55-22-90	SO175-2-01
4.3 [0.170]	2.15 [0.085]	SO175-3-00	SO175-3-55-22-90	SO175-3-01
6.0 [0.235]	3.30 [0.130]	SO175-4-00	SO175-4-55-22-90	SO175-4-01
7.0 [0.275]	4.30 [0.170]	SO175-5-00	SO175-5-55-22-90	SO175-5-01

*See Table H for lead description.

Table G. S200 Series
(200°C [392°F] rated)**BiAlloy Temperature Indication System**

This system greatly enhances the reliability and repeatability of S200 series terminators while reducing installed cost. The temperature indicator ring, encircling the solder preform, melts to indicate the very minimum amount of heat.

Cable OD		Part No.		
Jacket OD Max.	Shield OD Min.	No Preinstalled Lead	Preinstalled Lead Option*	
			22 AWG	Braid Strap
1.95 [0.075]	0.90 [0.035]	S200-1-00	S200-1-WI-22-9	S200-1-01
2.7 [0.105]	1.40 [0.055]	S200-2-00	S200-2-WI-22-9	S200-2-01
4.3 [0.170]	2.15 [0.085]	S200-3-00	S200-3-WI-22-9	S200-3-01
6.0 [0.235]	3.30 [0.130]	S200-4-00	S200-4-WI-22-9	S200-4-01
7.0 [0.275]	4.30 [0.170]	S200-5-00	S200-5-WI-22-9	S200-5-01

*See Table H for lead description.

Table H. Preinstalled Lead Description

Series	Lead Type	Remarks	Plating	Stranding	Min. Length
S200	M22759/91	MIL-W-22759/91	Silver	Stranded	150 (6.00)
M83519, SO63	55A0111	MIL-W-22759/32	Tin	Stranded	150 [6.00]
SO96, SO175	55A0813	MIL-W-22759/41	Nickel	Stranded	150 [6.00]
SO63, SO96, S03	Braid strap	Uninsulated	Nickel	40 x 38 AWG	150 [6.00]
B-155	XL polyethylene	RoHS	Tin	Stranded (W2)	150 [6.00]
CWT	XL polyethylene	UL Listed	Tin	Stranded (W1)	150 [6.00]
SO63, S03	Braid Strap	Uninsulated	Tin	Stranded	150 [6.00]

SolderSleeve Shield Terminators (Continued)**Product Characteristics**

Material		
Insulation		
S200	Radiation-crosslinked, heat-shrinkable, modified fluoropolymer	
SO, M83519	Radiation-crosslinked, heat-shrinkable polyvinylidene fluoride	
B-155	Radiation-crosslinked, heat-shrinkable polyolefin	
Solder and flux		
SO63, M83519, S03	Solder: Sn63 Pb37	Flux: ROL1 per ANSI - J - 004 (RMA Flux)
S200, SO96, SO175 series	Solder: Sn96 Ag4	Flux: ROM1 per ANSI - J - 004 (RA Flux)
B-155	Solder: SN42Bi58	Flux: ROM1 per ANSI - J - 004 (RA Flux)
Ground lead		
B-155 series	XL polyethylene	
S200 series	MIL-C-22759/91 or /87	
SO, M83519, SO175	MIL-W-22759/32 or /41	
Typical Performance		
Voltage drop	2.5 mV	
Tensile strength	Exceeds strength of ground lead	
Dielectric strength	1.0 kV immersed	
Temperature rating		
B-155	-55°C to 125°C [-67°F to 257°F]	
SO63/M83519/S03	-55°C to 150°C [-67°F to 302°F]	
SO96/SO175 series	-55°C to 175°C [-67°F to 347°F]	
S200	-55°C to 200°C [-67°F to 392°F]	
Insulation resistance	1000 megohms	

Specifications/Approvals

Series	Agency	TE
B-155	—	RT-1404
SO63*	NAS 1747	RT-1404
M83519**	MIL-S-83519/1&2	RT-1404
SO96***	NAS 1747	RT-1404
SO175	—	RT-1404
S200	—	RT-1404

* Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with BiAlloy temperature indicator.

** Qualified to SAE-AS83519 (formerly MIL-S-83519), supplied with thermochromic temperature indicator.

***Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519) and NAS 1747, supplied with thermochromic temperature indicator.

Installation

For proper installation of these devices, the correct heating tool and reflector attachment must be used. Any one of the following TE heating tools is recommended:

- HL1901E/HL2010E
- AA-400 Super Heater
- CV-1981
- MiniRay
- IR-1759

For detailed instructions and recommended reflector attachments, refer to the appropriate TE installation procedure:

Series	Procedure
B-155	RPIP-824-000
CWT	RPIP-655-00-D
SO63	RCPS-100-70
M83519 (S01/S02)	RCPS-100-70
SO96	RCPS-100-70
S03	RCPS-100-70
SO175	RCPS-100-70
S200	RCPS-100-71

You will find ordering information for these tools in section 10.

SolderSleeve Shield Terminators (Continued)

Table H. NAS, M83519, and TE Cross-Reference

NAS Part No.	TE D Series Part No.	NAS Comment
1744-1	D-1744-01	
1744-2	D-1744-02	
1744-3	D-1744-03	
1744-4	D-1744-04	
1744-5	D-1744-05	
1744-6	D-1744-06	
1744-7	D-1744-07	
1744-8	D-1744-08	
1745-1	D-144-25	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1745-2	D-100-00	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1745-3	D-101-00	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1745-4	D-103-00	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1745-5	D-144-26	
1745-6	D-100-31	
1745-7	D-101-31	
1745-8	D-103-31	
1745-9		Obsolete - Use NAS1745-13
1745-10		Obsolete - Use NAS1745-14
1745-11		Obsolete - Use NAS1745-15
1745-12		Obsolete - Use NAS1745-16
1745-13	D-142-83	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1745-14	D-142-50	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1745-15	D-142-51	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1745-16	D-142-52	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1745-17	D-107-00	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1745-18	D-104-00	
1745-19	D-105-00	
1745-20	D-107-31	
1745-21	D-104-31	
1745-22	D-105-31	
1745-23	D-142-56	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1745-24	D-142-65	
1745-25	D-142-66	
1746-1	D-144-25	Inactive, Use SAE-AS83519/1-1 (formerly MIL-S-83519)
1746-2	D-144-00	Inactive, Use SAE-AS83519/1-2 (formerly MIL-S-83519)
1746-3	D-144-01	Inactive, Use SAE-AS83519/1-3 (formerly MIL-S-83519)
1746-4	D-144-02	Inactive, Use SAE-AS83519/1-5 (formerly MIL-S-83519)
1746-5	D-144-26	
1746-6	D-144-03	
1746-7	D-144-04	
1746-8	D-144-05	
1746-9	D-144-46	Inactive, Use SAE-AS83519/1-4 (formerly MIL-S-83519)
1746-10	D-144-37	
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M83519/1-1	S01-01-R	SO63-1-00
M83519/1-2	S01-02-R	SO63-2-00
M83519/1-3	S01-03-R	SO63-3-00
M83519/1-4	S01-04-R	SO63-4-00
M83519/1-5	S01-05-R	SO63-5-00
M83519/2-1	S02-01-R	SO63-1-55-20-90
M83519/2-2	S02-02-R	SO63-2-55-20-90
M83519/2-3	S02-03-R	SO63-3-55-20-90
M83519/2-4	S02-04-R	SO63-4-55-20-90
M83519/2-5	S02-05-R	SO63-5-55-20-90
M83519/2-6	S02-06-R	SO63-1-55-22-90
M83519/2-7	S02-07-R	SO63-2-55-22-90
M83519/2-8	S02-08-R	SO63-3-55-22-90
M83519/2-9	S02-09-R	SO63-4-55-22-90
M83519/2-10	S02-10-R	SO63-5-55-22-90
M83519/2-11	S02-11-R	SO63-1-55-24-90
M83519/2-12	S02-12-R	SO63-2-55-24-90
M83519/2-13	S02-13-R	SO63-3-55-24-90
M83519/2-14	S02-14-R	SO63-4-55-24-90
M83519/2-15	S02-15-R	SO63-5-55-24-90
M83519/2-16	S02-16-R	SO63-1-55-26-90
M83519/2-17	S02-17-R	SO63-2-55-26-90
M83519/2-18	S02-18-R	SO63-3-55-26-90
M83519/2-19	S02-19-R	SO63-4-55-26-90
M83519/2-20	S02-20-R	SO63-5-55-26-90

* QPL listed to SAE-AS83519 (formerly MIL-S-83519)

** Meets performance requirements of SAE-AS83519 (formerly MIL-S-83519)

HARSH, RUGGED RELIABILITY

AMPLIMITE SUBMINIATURE D CONNECTORS CATALOG

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>



AMPLIMITE Subminiature D Connectors

RoHS
Ready 

Introduction

AMPLIMITE family of Subminiature D connectors is the industry's most extensive and versatile. These subminiature D connectors have become the most popular type of input/output (I/O) connectors in use today. Established and proven, they are rugged, easily used and have been widely adopted in standards for serial communications, telecommunications and local area networks (LANS).

This family of connectors consists of:

- Standard Subminiature D Connectors, Cable Mount and Board Mount

Standard AMPLIMITE connectors come in two series, HD-20 and HD-22, each having five sizes related to the size of the shell. The shell sizes, numbering from one to five, are identical for each series, while the number of positions differ. Depending on the size of the contacts, it is possible to have different numbers of contact cavities in a given shell size.

HD-20 connectors use size 20 contacts, which are based on .040 [1.02] pin diameters with contact centerlines of .109 x .112 [2.77 x 2.85]. This size is the more common variety.

HD-22 connectors use size 22 contacts, based on .030 [0.76] pin diameters on centerlines of .090 x .078 [2.29 x 1.98] for shell sizes 1, 2 and 3; .095 x .078 [2.41 x 1.98] for shell size 4; and .095 x .082 [2.41 x 2.08] for shell size 5. The smaller pin diameter of the HD-22 series allow roughly 65% more contacts to be held in a given shell size. For example, shell size three holds 25 contacts in an HD-20 connector and 44 contacts in an HD-22 connector.

Choosing a subminiature D connector requires evaluating application requirements and deciding which of the many options available best suits your needs. It is due to this wealth of choices to satisfy and performance and costs requirements that makes the subminiature D connector family the world's most popular choice.

Need more information?

Call Technical Support at the numbers listed below.

Technical Support is staffed with specialists well versed in all TE Connectivity products. They can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- TE Authorized Distributor Locations

For information on application tooling call the Tooling Assistance Hotline:
1-800-722-1111

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■ Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request



Restriction on the use of Hazardous Substances (RoHS)

At TE, we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

RoHS Compliant — Part numbers in this catalog are RoHS Compliant, unless marked otherwise. These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

NOTE: For purposes of this Catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

NOTE: Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced at right.

Getting the Information You Need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above
- So whatever your questions when it comes to RoHS, we have the answers at www.te.com/leadfree



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

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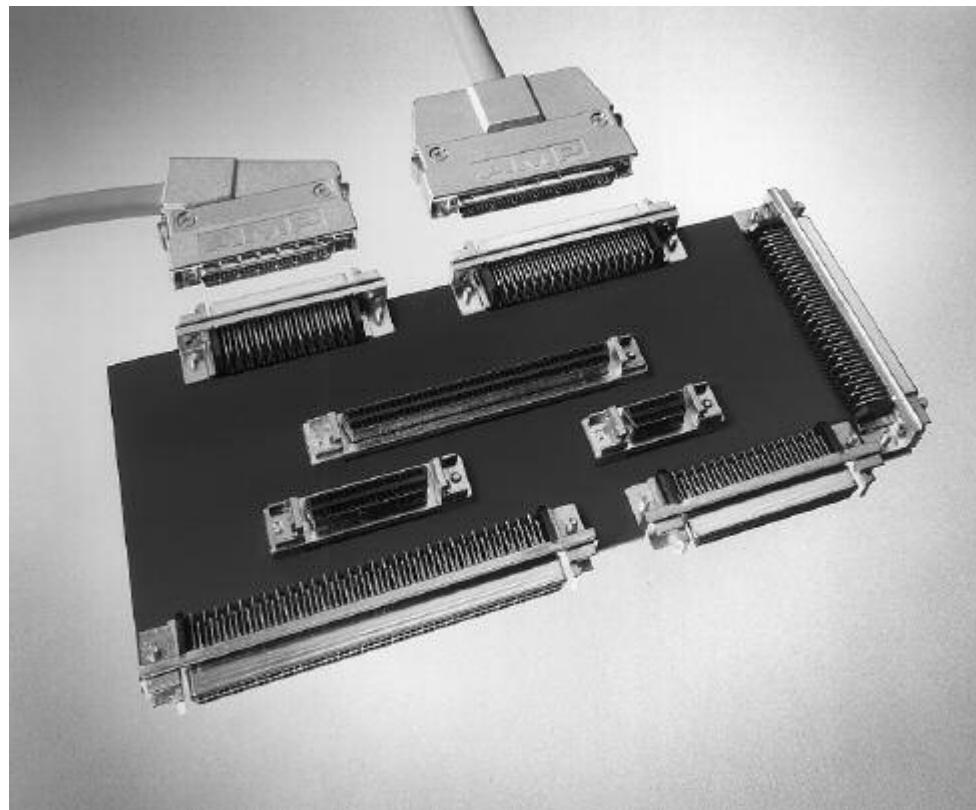
AMPLIMITE .050 Series Connector (.050 x .100 [1.27 x 2.54] Centerline) Series III

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 100 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
- 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)
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Listed and complies with UL 1863, Communication Circuit Accessories  File No. E81956
- Certified by Canadian Standards Association,  File No. 1088108 (LR 7189A-207)

- Produced under a Quality Management System certified to ISO 9001 

A copy of the certificate is available upon request



Introduction

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*, IPI-2, HIPPI, and IEE 802.3 MII standards.

Connectors are available in cable-mount and panel mount versions and vertical and right-angle pcb headers plus vertical mount with ACTION PIN contacts. The headers feature high temperature housings for reflow soldering processes.

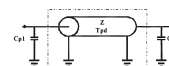
Cable and panel connectors use insulation displacement contacts for fast termination of discrete, round-to-flat laminated, and ribbon cable.

Series I, II and III intermateability:

Only the 50 and 68 position sizes are intermateable between Series I, II, and III.

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.



AMP Single Line and Multi Line Models are available for AMPLIMITE Subminiature D Type connectors at www.te.com/simulation.

*26-position cable assembly with spring latches

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

Product Facts

- **Compact design, profile for the right-angle header 1.230 x .588 [31.24 x 14.94], vertical header 1.230 x .433 [31.24 x 11.00], right-angle stacked headers 1.230 x .803 [31.24 x 20.40]**
- **Housings and covers made of UL 94V-0 rated thermoplastic**
- **Header footprint for right-angle and stacked configurations is .100 x .050 [2.54 x 1.27] staggered centerlines**
- **Header footprint for vertical configuration is .100 x .075 [2.54 x 1.90] staggered centerlines**
- **Right-angle and stacked headers feature integral boardlocks for positive board retention and grounding**
- **Vertical headers feature 8 below the board, retentive contact legs for mechanical retention before and after soldering**
- **Vertical headers feature polarized grounding posts to assure correct header-to-board orientation**
- **Stacked headers reduce overall total header volume by 48% and PC board area by 38%**
- **Stacked headers offer optional contact shield for additional EMI/RFI protection**
- **Plugs preloaded with insulation displacement contacts (IDC) provide fast, reliable and economical terminations**
- **Choice of three keying positions, plus non-keyed inserts for assurance against mismatch mating**

Shielded AMPLIMITE .050 Series, Slimline Connectors answer today's industry requirement for higher density in a smaller overall package. The present line consists of 26 position, shielded right-angle and vertical PCB receptacle headers, 26 position right-angle stacked PCB receptacle header, and mating 26 position plug connectors. All header, plug and backshell housings are made of UL 94V-0 rated thermoplastic. PCB headers are compatible with surface mount reflow solder processes. Right-angle and stacked PCB headers feature contact footprints on .100 x .050 [2.54 x 1.27] staggered centerlines and vertical header footprints are on .100 x .075 [2.54 x 1.90] staggered centerlines.

The compact design of the **right-angle header** package measures only 1.230 W x .588 D x .300 H [31.24 W x 14.94 D x 7.62 H] for maximum board real estate conservation. Right-angle PCB headers feature integral boardlocks for positive board retention and grounding.

Vertical headers feature 8 below the board, retentive contact legs for mechanical retention before and after soldering. Polarized grounding posts provide correct header-to-board orientation. The complete package occupies an area only 1.230 W x .325 D x .433 H [31.24 W x 8.26 D x 11.00 H].

Right-angle stacked headers provide 52 contacts in a package only .635 [16.13] high, allowing parallel (board-over-board) board spacing of .800 [20.32].

Centerlines between the top connector and the bottom connector measure .335 [8.51] when compared to .400 [10.06] on the standard .050 Series stacked headers. This results in an overall reduction of total header volume, in comparison to the standard AMPLIMITE .050 Series header, of 48%, and a comparative reduction in PC board area of 38%.

Stacked header board retention and stabilization is provided by two boardlocks and four grounding posts. In addition, an optional rear contact shield is available for additional EMI/RFI protection.

The mating plug connector consists of a thermoplastic housing, preloaded with insulation displacement contacts (IDC) for fast, reliable terminations that offer greater applied cost savings. TE offers a choice of termination equipment to meet your production requirements.

The backshell hardware kit includes a two-piece, aesthetically designed, thermoplastic cover over an inner and outer shield and two, high strength #2-56 male jackscrews with insulated heads (easy finger grip caps) to secure mated connectors.

The AMPLIMITE .050 Series, Slimline family of connectors offers **keyed coupling**. This feature reduces the problem of mismatch mating of plug and receptacle, particularly in stacked applications. There are three possible keying arrangements, plus unkeyed inserts to assure maximum options for multiple connector applications.

To meet Standard Applications the following 106 ohm, black jacketed cable assemblies are available. For AMPLIMITE .050 Series cable assemblies that meet other impedance requirements or other lengths consult TE.

AMPLIMITE .050 Series Cable Assemblies, Series III



SCSI-2



SCSI-1 to SCSI-2



RS-232 (Alternate)



RS-232 (Alternate) to RS-232



IPI-2 and HIPPI

Application	Assembly	Part Numbers		
		2 Feet	2 Meters	3 Meters
SCSI-2	50 pos. .050 Series Plug to 50 pos. .050 Series Plug	750254-1	5750254-2	750254-3
SCSI-2*	68 pos. .050 Series Plug to 68 pos. .050 Series Plug	—	5750732-2	5750732-4
RS-232 (Alternate)	26 pos. .050 Series Plug to 26 pos. .050 Series Plug	—	750255-2	750255-3

Application	Assembly	Part Numbers		
		5 Meters	15 Meters	25 Meters
IPI-2 and HIPPI	100 pos. .050 Series Plug to 100 pos. .050 Series Plug	749755-2	—	—

*This version has spring latches. Consult TE for availability of jackscrew version.

Note: .050 centerline ribbon cable assemblies are available in single or double ended versions. These assemblies are made using AMPLIMITE .050 Series panel mount connectors, AMPLIMITE .050 Series all-plastic connectors and AMP-LATCH Novo receptacles. Consult TE.

SCSI—Small Computer Systems Interface
 HIPPI—High Performance Parallel Interface
 IPI—Intelligent Peripheral Interface

Note: All part numbers are RoHS compliant.

HARSH, RUGGED RELIABILITY

WIRE & CABLE CATALOG

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>

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Note: Users should independently evaluate the suitability of the product for their application. Before ordering, check with TE Connectivity for most current data.

Introduction

TE provides wire and cable solutions for challenging environments and demanding applications. The product range includes high-performance insulated wires, coaxial and data bus cables, power cables, electronics wire, and multi-core cables.

- **SPEC 44** wire is an economical yet rugged dual-wall insulation system rated at 150°C [221°F], with consistently low cost and reliable performance.
 - **SPEC 55** wire insulation provides high reliability in harsh environments from -65°C to +200°C [-85°F to +392°F]. Resistant to electrical arc tracking, it combines the easy handling of a flexible wire with excellent resistance to scrape abrasion, and cut-through.
 - **SPEC 80 (FlexLine)** wire is insulated with a flexible modified radiation cross-linked ETFE polymer with a temperature rating of -65°C to +200°C [-85°F to +395°F]
 - **Type 99** wire has a dual wall construction and has excellent mechanical performance and chemical resistance with a range of enhanced fire hazard properties.
 - **ElectroLoss Filterline** wire reduces the vulnerability of critical circuits to high-frequency electromagnetic interference.
 - **Cheminax** coaxial and data bus cables allow system designers to optimize minimum size and weight with impedance and attenuation characteristics.
 - **Multiconductor (multi-core)** cables organize a variety of TE wire and cable products in controlled geometries for specific applications.
- Using a computer-aided design system, TE can quickly design multicore cables to meet your needs. A variety of cable jackets are available to suit most applications.
- **High Speed Copper cable** designs are available for Cat 5e, Cat 6, IEEE 1394 and USB applications. This family of cables can be customized to meet specific application needs.
 - **SeaLAN Cat 5e and Zerohal PROFIBUS** cables are designed to be used in the demanding marine environmental conditions while still meeting the high performance data standards.
 - **Quadlite** quadraxial cables, rated up to 200°C, offer small size and light weight high speed solutions in aerospace applications which require data protocols such as 100BaseT, 1000BaseT, FiberChannel and IEEE 1394.
 - **C-Lite low fire hazard lightweight cables** offer significant size and weight reduction, when compared to conventional insulation systems, while at the same time meeting key criteria such as low fire hazard performance and mechanical robustness.
 - **FlexLite commercial wire** family is available in various constructions for a variety of applications with temperature ratings from -45°C up to 250°C. **FLCW** is a general purpose and motor lead wire. **FLDW** is a dual-wall primary wire. **FLTW** is a thin-wall hookup wire and cable. **FLHT** is a high-temperature hookup wire. **FLTX** is an ultra-high temperature hookup wire.

TE wire and cable products can meet your specific application needs. Here are just a few examples:

- Limited-fire-hazard wire and cable for mass transit and marine applications.
- High-performance, high temperature automotive wiring.
- Small, light hookup wires for high-temperature applications in commercial appliances, tools, and devices.
- Very flexible, rugged, thin-wall insulated power cables.
- Low-outgassing space-vehicle wiring.
- Lightweight, shielded wire and cable constructions for aerospace applications.
- Thermocouple extension cables with a range of our high-performance insulation materials.

Contact TE to find out more about wire and cable and our associated interconnection products.

SPEC 44

Product Facts

- Dual wall construction
- 600, 1000 and 2500 voltage rating
- Small size, light weight
- Resistant to most chemicals and electrical arc tracking



Applications

SPEC 44 wire has a dual wall construction which combines the outstanding physical and electrical characteristics of radiation crosslinked polyalkene with the excellent mechanical and chemical properties of radiation cross-linked polyvinylidene fluoride (PVDF).

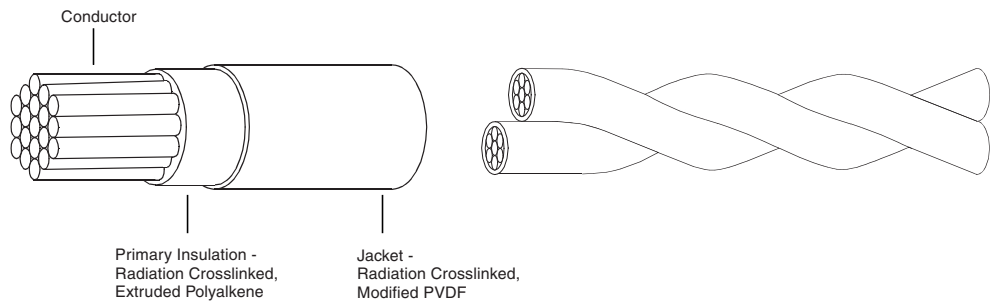
The result is a wire insulation system that offers a 150°C [302°F] temperature rating, small size, light weight, solder iron resistance, and resistance to most solvents, fuels and lubricants.

SPEC 44 wire and cable is highly flame retardant, non-melting, does not cold flow,

and though mechanically very tough, is easy to handle and install using conventional tools.

Originally developed for aerospace and military requirements in applications of high density and complex circuitry, SPEC 44 wire and cable now finds wide use throughout industry, in commercial and military electronics, avionics, on satellites, aircraft, helicopters, ships, trains, military ground systems, and offshore platforms where environmental conditions demand consistently reliable performance. In airframe applications SPEC 44 constructions can

offer a modern dimensional replacement for PVC/Nylon/ Glass braid type wire and cables. SPEC 44 wire is offered in a wide range of sizes in stranded conductors, standard materials available being tin or silver-plated copper and high strength copper alloy. Voltage ratings of 600, 1000 and 2500 volts are available as standard. Shielded and jacketed versions include single and multi-conductor constructions and flat braid shields where further size and weight savings are achieved.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

SPEC 44 (Continued)

Physical Characteristics

Small Size

SPEC 44 equipment wire, 600 volt rated has a 0.19 [.008] nominal wall thickness compared to 0.25 [.010] and 0.38 [.015] for equivalent PTFE and PVC wires in MIL-DTL-16878, SAE AS22759 or BS 3G210.

Light Weight

Because of the thin wall and low density of the insulation materials considerable weight savings are made over similarly rated PTFE wires, eg:- 44A0111-22AWG equipment wire 4.45 grams/meter max
22 AWG PTFE equipment wire, AS-81044 5.54 grams/meter max

General Handling

The flexibility of SPEC 44 and the ease with which it takes a 'set' makes it one of the easiest of the 'high performance' wires to install. Stripping is done with conventional die blade strippers.

The tin-plated conductor usually specified is easily soldered or crimped. The insulation may be easily printed and does not need etching before potting.

Lengths

SPEC 44 is available in long continuous lengths and can be supplied for use on automatic cut and strip wire preparation machines.

Specifications/Approvals

AS-81044, NEMA-WC-27500 (Cables)

Def Stan. 61-12 Part 18 - Type 1 pliable (Maintenance Range)

Def Stan. 61-12 Part 26 All types

VG 95218 Parts 20, 21, 22, 23 and 1000

NATO Stock Numbers (NSN's) exist for most standard constructions

Civil Aviation Authority Accessory Approval E11623

TE Specification 44

NOTE:

Please check with TE personnel to ensure the product you wish to purchase is manufactured and released to the specification required.

Typical Properties

Temperature rating	-65°C to +150°C [-85°F to +302°F]
Voltage rating (thin wall)	600 V
Voltage rating (thick wall)	2500 V
Tensile strength and elongation of insulation	28 N/mm ² , (4000 PSI), 230%
Notch propagation, 0.05mm notch	Pass
Solder iron resistance (370°C, 1 minute)	Pass
Shrinkage, 300°C	<1%
Low temperature bend	-65°C [-85°F]
Voltage withstand (thin wall)	2500 V
Resistance: fuels, oils, solvents	Pass

SPEC 44 (Continued)

Environmental Performance

Temperature Rating

SPEC 44 wire and cable is rated for continuous operation from -65°C to +150°C [-85°F to +302°F] and for short periods at temperatures as high as 300°C [572°F]. Heat ageing tests are routinely performed at temperatures of 200°C [392°F] (168 hr) and 300°C [572°F] (6 hr). In addition SPEC 44 insulation will not shrink back under repeated cycling.

Mechanical Performance

SPEC 44 wire provides better cut through resistance than some wires with much thicker walls. 600 volt equipment wire 44A0111 (0.19 mm wall) has 40% greater cut through resistance than 600 volt PTFE insulated wire (0.25 mm wall).

Solder Iron/Overload Resistance

The radiation crosslinking of the materials used in SPEC 44 makes them non-melting at high temperature. As a result SPEC 44 wire is resistant to prolonged contact with solder irons and is resistant to current overloads which would melt most thermoplastic insulation.

Chemical Resistance

The irradiated dual wall construction of SPEC 44 wire is highly resistant to many acids, alkalis, hydrocarbon solvents, fuels, lubricants, water, and many missile fuels and oxidizers.

Cold Flow

Radiation cross-linking of SPEC 44 prevents cold flow of the insulation — a recognized problem of some uncrosslinked materials.

Voltage Ratings

Standard available voltage ratings for SPEC 44 wire are 600 volts (0.19 mm wall thickness), 1000 volts (0.28 mm wall) and 2500 volts (0.48 mm wall).

Electrical Arc Track Resistance

SPEC 44 insulation demonstrates a resistance to arc tracking under both wet and dry conditions at aircraft system voltages.

Low Outgassing

For use in space applications, special constructions of SPEC 44 wire are available with low outgassing characteristics, for use in an environment of high vacuum and high temperature.

Fire Hazard Performance

Flammability	Federal Aviation Reg FAR-25	Pass
	BS EN 50265 Vertical Flammability	Pass
	S424 14751 (Swedish chimney)	Pass
	NFC 32070 (2) (French chimney)	Pass
	IEC 60332 part 3 (Cable ladder)	Pass
Smoke/Toxicity Index	Smoke Index, Def Stan 61-12 (18)	6 per meter of wire
	Toxicity Index, Def Stan 61-12 (18)	0.8 per meter of wire
	BS EN 1S0-4589 Part 2	30% Oxygen
	BS EN 1S0-4589 Part 3	
	Temperature Index, NES 715	>300°C [572°F]

SPEC 44 (Continued)

Part Numbering System

Cross items that are not standard.

44 X X X X X- AWG- X/X- X

Jacket Color

(codes same as for Primary Wire Insulation Color)

Primary Wire Insulation Color

(code per MIL-STD-681)

- | | |
|------------|------------|
| 0 - Black | 5 - Green |
| 1 - Brown | 6 - Blue |
| 2 - Red | 7 - Violet |
| 3 - Orange | 8 - Gray |
| 4 - Yellow | 9 - White |

Conductor Size (AWG)

Conductor Type

- | | |
|--|---|
| 1 - Tin-coated copper | A - Silver-coated CS95 |
| 2 - Silver-coated copper | C - Silver-coated high strength copper alloy (cadmium-free) |
| 3 - Nickel-coated copper | D - Nickel-coated high strength copper alloy (cadmium-free) |
| 4 - Silver-coated high strength copper alloy | |
| 5 - Aluminum | |
| 6 - Nickel-coated high strength copper alloy | |

Number of Conductors

1 through 10 (designator for 10 conductor = 0)

Class of Wire

- | | |
|--------------------------------|-----------------------------|
| 1 - 600 volt, general purpose | 6 - 2500 volt, outerspace* |
| 2 - 1000 volt, general purpose | 7 - 600 volt, airframe |
| 3 - 2500 volt, general purpose | 8 - 600 volt, medium weight |
| 4 - 600 volt, outerspace* | |
| 5 - 1000 volt, outerspace* | |

Construction

- 0 - Primary wire; or unshielded & unjacketed cable
- 1 - Round braid shielded and jacketed cable**
- 2 - Tin-coated copper flat braid shielded & jacketed cable
- 3 - Round braid shielded cable, no jacket**
- 4 - Jacketed cable, no shield
- 5 - Spiral braid shielded & jacketed cable**
- 7-9 - Special constructions

Temperature Rating:

- / - 135°C (XL-PVF2 cable jacket) - USA only
- A - 150°C (XL-PVF2 cable jacket)
- AC - 150°C (same as 44AM with 90% min. shield coverage)
- AM - 150°C (M27500, shielded and/or XL-PVF2 jacketed cable)
- B - 150°C (XL-ETFE cable jacket)
- D - 135°C (XL-PVF2) - Def Stan Part 26-UK only

Part Numbering System is a cross reference only and not meant for part creation.

Basic Product Number

* Classes 4, 5 and 6 available only as "44/" constructions. 44/7xxx and 44A7xxx will be available as indicated on the applicable SCD.
 **Shield coating same as conductor coating except: - for Conductor Type 4, 6, C and D, shield shall be tin-coated copper for standard products

Typical ordering example	3 conductors, brown, yellow with green stripe, blue, white jacket. If 600 volt, round braid, 20 AWG tinned conductor, 44A1131-20-1/45/6-9.
Ordering information	Other constructions and custom designed wire and cable are available on request.

SPEC 44 (Continued)

**NEMA WC-27500 Cable
Part Numbering System**

M27500 X AWG XX X X XX

Basic Specification Number

Component Wire ID/Shield Coverage Code

Shield Coverage

85%	90%
-	C
A	D
B	E
F	H
G	J
K	M
L	N
P	R
S	T
U	V

Component Wire Identification

Colored Stripes on White Wire
(9/96/93/95/92/90/94/97/98/91... etc.)
Solid Color Wires (9/6/3/5/2/0/4/7/8/1...etc.)
Band Marks on Solid Colors (by AWG)
Alternate Colored Stripes
(92/96/94/95/9/90/91/93/97/98...etc)
Alternate Solid Colors (2/6/4/5/9/0/1/3/7/8...etc.)
Number Marking on Solid Colors (by AWG)
Number Marking on White Wires
Band Marks on Colored Stripes (by AWG)
Band Marks on White Wires
Non-standard color - defined by customer

Conductor Size (AWG)

Basic Wire Spec Code (MIL-W-81044) and Slash Sheet

- MD - M81044/5 (44A0712)
- ME - M81044/6 (44A0711)
- MF - M81044/7 (44A0714)
- MG - M81044/8 (44A0812)
- MH - M81044/9 (44A0811)
- MJ - M81044/10 (44A0814)
- MK - M81044/11 (44A0112)
- ML - M81044/12 (44A0111)
- MM - M81044/13 (44A0114)

Number of Component Wires

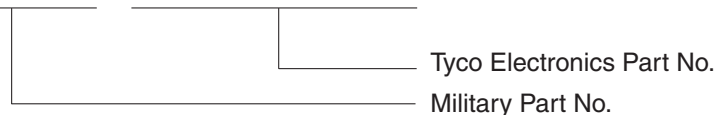
Shield Material and Style Code

- U - No shield
- T - Tin-coated copper, round
- J - Tin-coated copper, flat
- S - Silver-coated copper, round
- G - Silver-coated copper, flat
- N - Nickel-coated copper, round

Jacket Material and Style Code

- 00 - No jacket
- 08 - Crosslinked, white PVDF
- 23 - Crosslinked, white Modified ETFE

Example: M27500-22ML3T08 = 44AM1131-22-9/96/93-9



Tyco Electronics Part No.

Military Part No.

Part Numbering System is a cross reference only and not meant for part creation.

SPEC 44 (Continued)

Primary Wires/Twisted Pair



**44A011X (600 V)
Primary Wire**

**44A021X (1000 V)
Primary Wire**

Wire Size (AWG)	Stranding		CSA (mm ²)	44A011X (600 V)		44A021X (1000 V)	
	(mm)	#/AWG		Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	7/0.10	7/38	0.06	0.68 [0.027]	1.06 [0.71]	0.81 [0.032]	1.34 [0.9]
28	7/0.13	7/36	0.09	0.76 [0.030]	1.43 [0.96]	0.89 [0.035]	1.64 [1.1]
26*	19/0.10	19/38	0.15	0.86 [0.034]	2.08 [1.4]	1.02 [0.040]	2.38 [1.6]
24	19/0.13	19/36	0.25	1.02 [0.040]	2.98 [2.0]	1.17 [0.046]	3.57 [2.4]
22	19/0.16	19/34	0.40	1.19 [0.047]	4.46 [3.0]	1.37 [0.054]	5.20 [3.5]
20	19/0.20	19/32	0.60	1.40 [0.055]	6.70 [4.5]	1.57 [0.062]	7.59 [5.1]
18	19/0.25	19/30	1.00	1.65 [0.065]	10.12 [6.8]	1.85 [0.073]	11.46 [7.7]
16	19/0.29	19/29	1.25	1.83 [0.072]	12.80 [8.6]	2.06 [0.081]	14.58 [9.8]
14	19/0.36	19/27	2.00	2.26 [0.089]	19.64 [13.2]	2.49 [0.098]	21.88 [14.7]
12	37/0.32	37/28	3.00	2.74 [0.108]	30.06 [20.0]	2.97 [0.117]	32.89 [22.1]
10	37/0.40	37/26	5.00	3.28 [0.129]	46.28 [31.1]	3.71 [0.146]	52.98 [35.6]
8	133/0.29	133/29	8.30	—	—	5.23 [0.206]	91.97 [61.8]

*For 44A0211-26 the stranding is 7/0.16mm 7/34 AWG



**44A031X (2500 V)
Primary Wire**

**44A081X (600 V)
Airframe Wire**

**44A012X (600 V)
Twisted Pair**

Wire Size (AWG)	Stranding		CSA (mm ²)	44A031X (2500 V)		44A081X (600 V)		44A012X (600 V)	
	(mm)	#/AWG		Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	7/0.10	7/38	0.06	—	—	—	—	1.37 [0.054]	2.38 [1.6]
28	7/0.13	7/36	0.09	—	—	—	—	1.52 [0.060]	3.13 [2.1]
26	19/0.10	19/38	0.15	1.35 [0.053]	3.13 [2.1]	1.22 [0.048]	2.98 [2.0]	1.73 [0.068]	4.31 [2.9]
24	19/0.13	19/36	0.25	1.44 [0.057]	4.46 [3.0]	1.37 [0.054]	3.87 [2.6]	2.03 [0.080]	6.39 [4.3]
22	19/0.16	19/34	0.40	1.75 [0.069]	6.40 [4.3]	1.57 [0.062]	5.65 [3.8]	2.38 [0.094]	9.37 [6.3]
20	19/0.20	19/32	0.60	1.98 [0.078]	9.08 [6.1]	1.78 [0.070]	8.04 [5.4]	2.79 [0.110]	13.98 [9.4]
18	19/0.25	19/30	1.00	2.23 [0.088]	12.95 [8.7]	2.03 [0.080]	11.91 [8.0]	3.30 [0.130]	21.27 [14.3]
16	19/0.29	19/29	1.25	2.46 [0.097]	16.22 [10.9]	2.26 [0.089]	14.73 [9.9]	3.65 [0.144]	26.93 [18.1]
14	19/0.36	19/27	2.00	2.92 [0.115]	24.10 [16.2]	2.74 [0.108]	22.17 [14.9]	4.52 [0.178]	42.25 [28.4]
12	37/0.32	37/28	3.00	3.32 [0.131]	36.01 [24.2]	3.20 [0.126]	32.59 [21.9]	5.48 [0.216]	65.91 [44.3]
10	37/0.40	37/26	5.00	4.09 [0.161]	54.32 [36.5]	3.94 [0.155]	52.08 [35.0]	—	—
8	133/0.29	133/29	8.30	96.20 [0.219]	96.73 [65.0]	92.94 [0.214]	93.46 [62.8]	—	—

SPEC 44 (Continued)

Shielded and Jacketed Cable



44A111X (600 V)
1 Conductor



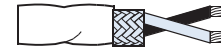
44A121X (1000 V)
1 Conductor

Wire Size (AWG)	Stranding		44A111X (600 V)		44A121X (1000 V)	
	(mm)	#/AWG	Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	7/0.10	7/38	1.54 [0.061]	5.21 [3.5]	—	—
28	7/0.13	7/36	1.61 [0.063]	5.80 [3.9]	—	—
26	19/0.10	19/38	1.57 [0.065]	6.84 [4.6]	1.73 [0.068]	6.85 [4.6]
24	19/0.13	19/36	1.83 [0.072]	8.63 [5.8]	1.98 [0.078]	9.67 [6.5]
22	19/0.16	19/34	2.01 [0.079]	10.71 [7.2]	2.24 [0.088]	12.35 [8.3]
20	19/0.20	19/32	2.26 [0.089]	14.73 [9.9]	2.54 [0.100]	17.41 [11.7]
18	19/0.25	19/30	2.62 [0.103]	20.68 [13.9]	2.82 [0.111]	22.62 [15.2]
16	19/0.29	19/29	2.79 [0.110]	24.55 [16.5]	3.02 [0.119]	26.64 [17.9]
14	19/0.36	19/27	3.22 [0.127]	34.08 [22.9]	3.45 [0.136]	36.16 [24.3]
12	37/0.32	37/28	3.70 [0.146]	47.77 [32.1]	4.14 [0.155]	49.56 [33.3]

Other sizes are also available in some constructions depending on conductor type and construction required.



44A181X (600 V)
1 Conductor



44A112X (600 V)
2 Conductor

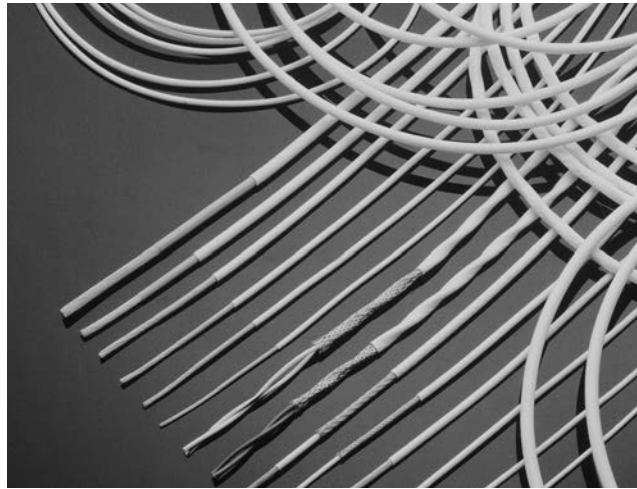
Wire Size (AWG)	44A181X (600 V)		44A112X (600 V)	
	Nom. OD	Max. Weight (g/m) lb/kft	Nom. OD	Max. Weight (g/m) lb/kft
30	—	—	2.23 [0.088]	8.20 [5.8]
28	—	—	2.38 [0.094]	9.40 [6.6]
26	—	—	2.59 [0.102]	12.05 [8.1]
24	2.26 [0.089]	11.76 [7.9]	2.99 [0.118]	16.82 [11.3]
22	2.57 [0.101]	15.48 [10.4]	3.35 [0.132]	21.57 [14.5]
20	2.77 [0.109]	19.19 [12.9]	3.76 [0.148]	27.97 [18.8]
18	3.02 [0.119]	24.11 [16.2]	4.32 [0.170]	38.24 [25.7]
16	3.25 [0.128]	28.13 [18.9]	4.67 [0.184]	44.94 [30.2]
14	3.73 [0.147]	38.69 [26.0]	5.53 [0.218]	64.28 [43.2]
12	4.19 [0.165]	52.38 [35.2]	6.50 [0.256]	91.51 [61.5]

Other sizes are also available in some constructions depending on conductor type and construction required.

SPEC 55

Product Facts

- Resistant to electrical arc tracking in wet or dry conditions
- Single or dual wall constructions
- Small size, ultra light weight
- Exceptional chemical resistance
- -65°C to 200°C [-85°F to 392°F]



Applications

SPEC 55 wire is insulated with modified radiation cross-linked ETFE polymer. It has a temperature rating of -65°C to 200°C [-85°F to 392°F] continuous using a silver plated copper conductor, and combines the easy handling of a flexible wire with excellent scrape abrasion and cut-through characteristics.

The dual wall airframe construction of SPEC 55 wire is currently used on numerous aircraft programs. It has a choice of two total wall thicknesses, 0.25 [.010] (55A08XX 10 mil) and 0.2 [.008] (55A02XX 8 mil). Both have a contrasting core color to act as a damage indicator. Chosen for its balance of properties, SPEC 55 wire has outstanding resistance to chemicals and solvents, excellent electrical arc track resistance, and is not susceptible to UV and moisture degradation. Single wall equipment wire constructions are available in 0.10 [.004] (55/03XX 4 mil) and 0.15 [.006] (6 mil) wall thicknesses for use inside black boxes where flexibility and solder-iron resistance make it a wire which is very easy to install reliably.

Both single and dual wall insulated wires are available

in twisted pairs, triples, etc., and as shielded and jacketed cables.

Physical Characteristics

Size and Weight

SPEC 55 wire provides one of the most comprehensive wiring product ranges for aerospace users, with a wide choice of conductor sizes and insulation wall thicknesses. The dual wall airframe wire has an insulation wall thickness of either 0.2 [.008] or 0.25 [.010] for robustness in unprotected harnesses and has excellent wire to wire abrasion properties.

The single wall equipment wire has a 0.15 [.006] wall thickness for use inside equipment and protected harnesses. For high density, interconnect wiring, the 450 volt 55M041X series of equipment wire has a nominal 0.1 [.004] wall and provides considerable weight and size savings over other comparable wires.

Handling

The excellent flexibility and handleability makes SPEC 55 the ideal wire to install, both in new aircraft and equipment and for maintenance purposes. The wire is easily stripped with conventional tooling. The insulation is readily marked

by hot stamp, ink jet or laser, and can be potted without pre-etching.

SPEC 55PC Wire and Cable Insulation System

This product was originally developed to meet Boeing's material standard BMS13-48 for the 777 airliner. SPEC 55PC provides lightweight, compact insulation that matches the proven performance of our SPEC 55 wire. Today, 55PC is specified and utilized on the majority of aerospace platforms worldwide.

TE's rigorous, statistical-process-controlled manufacturing has produced wiring that is rugged and versatile enough for a wide range of commercial and defense aerospace applications, including electronic hook-ups in harsh, open airframe environments.

SPEC 55PC wire and cable systems feature an 8-mil airframe wire that is lighter and smaller than typical 10-mil wire, with little reduction in key mechanical performance features. SPEC 55PC wire offers flame resistance superior to FAA standards and also resists scrape abrasion, notch, propagation, cut-through, and electrical arc tracking.

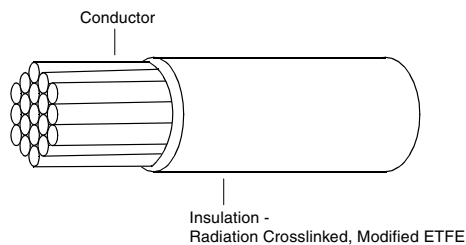
- Meets Boeing material standard BMS 13-48.
- Exceeds FAR 25 test requirements for flame resistance and smoke density.

Available in:

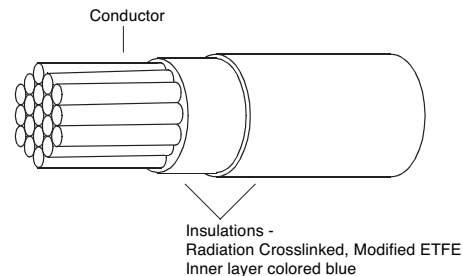
- Americas ■
- Europe ■
- Asia Pacific ■

SPEC 55 (Continued)

Specifications



SPEC 55 Insulation System - Single Wall



SPEC 55 Insulation System - Dual Wall

SAE AS22759/32-35 and /41 to /46 and NEMA-WC-27500 (Cables)

- Defense Standard 61-12 Part 33 Issue 5
- Part 1001 and Part 1002
- VDE 9426, 9427, 9428
- British Standard 3G233
- Boeing BMS 13-48
- Airbus ABS 0820 to 0826
- NASA preferred product list
- European Space Agency 3901/012, 3901/020 and 3901/022
- TE Specification 55
- Civil Aviation Authority Accessory Approval E11623

NOTE:

Please check with TE personnel to ensure the product you wish to purchase is manufactured and released to the specification required.

Typical Properties

Temperature rating (Tin plated conductor)	-65°C to +150°C [-85°F to +302°F]
(Silver or nickel plated conductor)	-65°C to +200°C [-85°F to +392°F]
Thermal endurance	200 °C [392°F], 10000 h
Scrape abrasion (BS 3G233)	>100 cycles at 150°C [302°F]
Flexing endurance (Boeing BSS 7324)	>1000 cycles
Voltage rating	600 V, 1000V
Tensile strength + elongation (core only)	(Dual wall wire) 35 N/mm ² , 125% min.
Tensile strength + total elongation (core & primary jacket)	(Dual wall wire) 35 N/mm ² , 75% min.
Notch propagation BS 3G230 0.05 mm notch	Pass
Solder iron resistance (370 °C, 1 minute)	Pass
Solderability - Tin plated copper conductor BS 3G233 conditions	<0.8 secs to wet
Shrinkage	<1%
Long term water resistance	Will not hydrolyze
Permittivity 1 KHz (ASTM D150)	2.7
Dissipation factor (ASTM D150)	0.001
FAR 25	⊖
Afterburn (sec)	30 sec. max.
Burn length	75 mm [3 in.] max.

SPEC 55 (Continued)

Environmental Performance

Temperature Rating

SPEC 55 wire and cable is rated for continuous operation from -65°C to +200°C [-85°F to +392°F] and for short periods at temperatures as high as 400°C [752°F].

Mechanical Performance

Radiation crosslinking of the SPEC 55 insulation significantly improves the following mechanical characteristics; scrape (sharp edges), cross wire abrasion, cut-through resistance and creep resistance.

Solder Iron/Overload Resistance

Radiation crosslinking ensures that the insulation resists melting at high temperatures. As a result SPEC 55 wire is resistant to hot solder irons and current overloads which would melt most thermoplastic insulation.

Chemical Resistance

SPEC 55 is unaffected by all commonly used chemicals, eg. fuels, hydraulic fluids, defluxing agents, cleaners, coolants and de-icers. It also shows excellent resistance to weathering (UV, ozone, pollutants, water).

Space Wire

SPEC 55 is available in special versions suitable for use in outer space meeting both ESA and NASA requirements for outgassing.

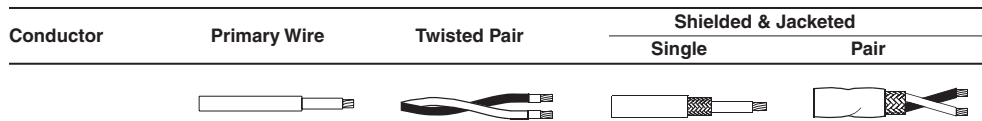
Flammability

Special additives increase the flame retardance of SPEC 55 compared to unirradiated ETFE so that it meets the latest high performance tests, eg. BS 3G230 and vertical test FAR25.

Electrical Arc Tracking Resistance

SPEC 55 insulation demonstrates resistance to arc tracking under both wet and dry conditions at aircraft system voltages.

SPEC 55 Wire & Cable: Standard Constructions, Nominal Sizes, Strandings, Diameters and Weights



55PC - Extra Light Weight Constructions

For applications where weight is critical, light weight tight tolerance conductors and insulation are available. These are manufactured using statistical process control methods and achieve weights that are equal or lighter than the equivalent polyimide/PTFE constructions.

SPEC 55 (Continued)

**55A - AWG Conductor:
Equipment/Interconnect Wires
& Cables**

Wire Size (AWG)	Stranding (mm)	55A011X		55A012X	
		Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
30	7/0.102	0.61 [0.024]	0.98 [0.66]	1.27 [0.048]	1.94 [1.3]
28	7/127	0.68 [0.027]	1.35 [0.91]	1.42 [0.054]	2.68 [1.8]
26	19/102	0.81 [0.032]	2.08 [1.4]	1.67 [0.064]	4.16 [2.8]
24	19/127	0.94 [0.037]	2.98 [2.0]	1.93 [0.074]	5.96 [4.0]
22	19/0.16	1.09 [0.043]	4.17 [2.8]	2.23 [0.086]	8.63 [5.8]
20	19/0.203	1.27 [0.050]	6.40 [4.3]	2.66 [0.102]	13.24 [8.9]
18	19/0.25	1.52 [0.060]	9.67 [6.5]	3.20 [0.122]	20.09 [13.5]
16	19/287	1.73 [0.068]	12.35 [8.3]	3.58 [0.138]	25.75 [17.3]
14	19/0.36	2.20 [0.085]	19.34 [13.0]	4.47 [0.172]	39.58 [26.6]
12	37/0.32	2.62 [0.103]	29.32 [19.7]	5.38 [0.208]	59.97 [40.3]
10	37/0.403	3.25 [0.128]	47.32 [31.8]	6.65 [0.256]	96.58 [64.9]
8	133/0.287	4.77 [0.188]	87.50 [58.8]	9.80 [0.376]	178.58 [120.0]

Wire Size (AWG)	55A111X		55A112X	
	Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
30	1.51 [0.057]	5.06 [3.4]	2.12 [0.081]	8.03 [5.4]
28	1.59 [0.060]	5.80 [3.9]	2.27 [0.087]	9.37 [6.30]
26	1.71 [0.065]	6.85 [4.6]	2.53 [0.097]	11.75 [7.9]
24	1.84 [0.070]	8.19 [5.5]	2.80 [0.107]	14.58 [9.8]
22	1.99 [0.076]	10.27 [6.9]	3.07 [0.119]	18.15 [12.2]
20	2.20 [0.084]	13.40 [9.0]	3.50 [0.135]	24.10 [16.2]
18	2.45 [0.094]	17.86 [12.0]	4.10 [0.155]	32.60 [21.9]
16	2.67 [0.102]	21.73 [14.6]	4.43 [0.171]	39.73 [26.7]
14	3.10 [0.119]	30.36 [20.4]	5.30 [0.205]	57.13 [38.4]
12	3.55 [0.137]	42.41 [28.5]	6.30 [0.243]	81.98 [55.1]
10	4.20 [0.161]	62.65 [42.1]	7.40 [0.291]	123.63 [83.1]
8	5.80 [0.223]	110.42 [74.2]	10.60 [0.417]	226.15 [152.0]

**55A - AWG Conductor:
Airframe Wires & Cables**

Wire Size (AWG)	Stranding (mm)	55A081X		55A082X	
		Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	19/102	1.01 [0.040]	2.5 [1.7]	2.10 [0.080]	5.06 [3.4]
24	19/127	1.14 [0.045]	3.4 [2.3]	2.33 [0.090]	6.84 [4.6]
22	19/0.16	1.27 [0.050]	4.8 [3.2]	2.64 [0.102]	9.98 [6.7]
20	19/0.203	1.47 [0.058]	7.0 [4.7]	3.07 [0.118]	14.73 [9.9]
18	19/0.25	1.78 [0.070]	10.7 [7.2]	3.63 [0.140]	21.88 [14.7]
16	19/287	1.96 [0.077]	13.4 [9.0]	4.06 [0.156]	27.53 [18.5]
14	19/0.36	2.40 [0.094]	20.5 [13.8]	4.90 [0.190]	42.26 [28.4]
12	37/0.32	2.82 [0.111]	30.5 [20.5]	5.80 [0.224]	63.00 [42.3]
10	37/0.403	3.40 [0.134]	48.3 [32.4]	7.10 [0.272]	98.96 [66.5]

Wire Size (AWG)	55A181X		55A182X	
	Nom. OD	Max. Weight (g per m/lbs per kft)	Nom. OD	Max. Weight (g per m/lbs per kft)
26	1.854 [0.073]	7.89 [5.3]	2.870 [0.113]	14.29 [9.6]
24	1.981 [0.078]	9.37 [6.3]	3.124 [0.123]	16.37 [11.0]
22	2.134 [0.084]	11.76 [7.9]	3.429 [0.135]	20.68 [13.9]
20	2.337 [0.092]	14.88 [10.0]	3.853 [0.151]	27.08 [18.2]
18	2.616 [0.103]	19.79 [13.3]	4.394 [0.173]	36.46 [24.5]
16	2.819 [0.111]	23.81 [16.0]	4.801 [0.189]	42.86 [28.8]
14	3.251 [0.128]	33.03 [22.2]	5.715 [0.225]	61.61 [41.4]
12	3.683 [0.145]	45.09 [30.3]	6.578 [0.259]	85.42 [57.4]
10	4.192 [0.168]	66.97 [45.0]	7.797 [0.307]	127.54 [85.7]

SPEC 55 (Continued)

**55PC - AWG Conductor:
Statistical Process Controlled
Airframe Wires & Cables**

Wire Size (AWG)	Stranding (mm)	55PC021X		55PC022X	
		Nom. OD	Target Weight (g per m/lbs per kft)	Nom. OD	Target Weight (g per m/lbs per kft)
26	19/102	0.087 [0.035]	2.05 [1.38]	—	—
24	19/127	1.00 [0.0395]	2.95 [1.98]	2.00 [0.079]	5.95 [4.00]
22	19/0.16	1.15 [0.0455]	4.31 [2.90]	2.31 [0.091]	8.74 [5.87]
20	19/0.203	1.37 [0.0540]	6.51 [4.38]	2.74 [0.108]	13.2 [8.87]
18	19/0.25	1.61 [0.0635]	9.81 [6.59]	3.22 [0.127]	19.84 [13.33]
16	19/287	1.80 [0.0710]	12.46 [8.37]	3.60 [0.142]	25.21 [16.94]
14	19/036	2.18 [0.0860]	19.17 [12.88]	4.36 [0.172]	38.80 [26.07]
12	37/0.32	2.66 [0.1047]	29.36 [19.73]	5.30 [0.209]	59.42 [39.93]
10	37/0.403	3.27 [0.1290]	46.31 [31.12]	6.55 [0.258]	93.92 [62.99]

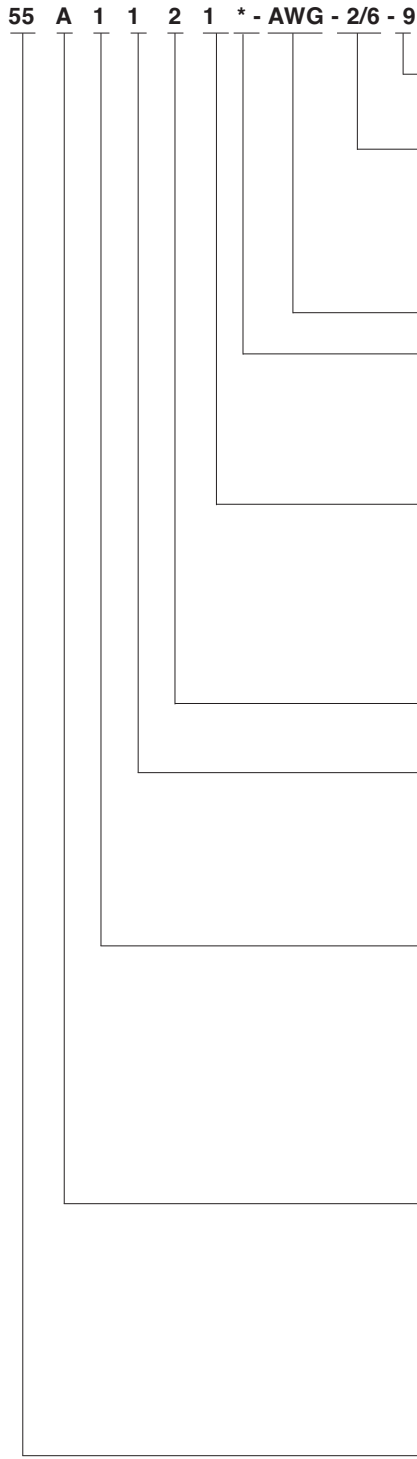
Wire Size (AWG)	55PC121X		55PC122X	
	Nom. OD	Target Weight (g per m/lbs per kft)	Nom. OD	Target Weight (g per m/lbs per kft)
26	1.52 [0.064]	6.54 [4.4]	2.33 [0.100]	11.34 [7.62]
24	1.65 [0.069]	7.86 [5.28]	2.89 [0.109]	13.90 [9.34]
22	1.80 [0.075]	9.81 [6.59]	2.89 [0.122]	17.89 [12.02]
20	2.00 [0.083]	12.83 [8.62]	3.30 [0.139]	23.84 [16.02]
18	2.23 [0.093]	17.01 [11.43]	3.78 [0.158]	32.10 [21.57]
16	2.44 [0.100]	20.36 [13.68]	4.16 [0.174]	39.00 [26.21]
14	2.79 [0.116]	28.69 [19.28]	4.92 [0.204]	55.21 [37.10]
12	3.30 [0.135]	40.73 [27.37]	5.92 [0.243]	80.23 [53.45]
10	3.98 [0.159]	59.90 [40.25]	7.39 [0.297]	123.65 [83.09]

X = 1 - Tin plated copper conductor.

4 - Silver plated high strength copper alloy conductor. (Recommended for size 24 & 26 in airframe applications and mandatory for CAA release.)

SPEC 55 (Continued)

Part Numbering System
55A and 55LF —
General Purpose



Jacket Color (code per MIL-STD-681)

Codes same as for Primary Wire Insulation Color

Primary Wire Insulation Color (code per MIL-STD-681)

- | | | |
|------------|------------|-----------|
| 0 - Black | 4 - Yellow | 8 - Gray |
| 1 - Brown | 5 - Green | 9 - White |
| 2 - Red | 6 - Blue | |
| 3 - Orange | 7 - Violet | |

Conductor Size (AWG)

***Optional Shield Material**

H - High strength copper alloy, shield coating same as conductor coating (No designator defaults to coated "copper" shield, if any)

Conductor Type

- 1 - Tin-coated copper
- 2 - Silver-coated copper
- 3 - Nickel-coated copper
- 4 - Silver-coated high strength copper alloy
- 6 - Nickel-coated high strength copper alloy
- A - Silver-coated ultra high-strength copper alloy

Number of Conductors

1 through 10 (designator for 10 conductor = 0)

Class of Wire

- 1 - 600 volt, lightweight
- 2 - 600 volt, medium weight
- 4 - 450V (55M 20-30 AWG only)
- 7 - 1000 volt, heavy duty, airframe
- 8 - 600 volt, normal weight, airframe

Constructions

- 0 - Primary wire; or unshielded & unjacketed cable
- 1 - **Round braid shielded & jacketed cable
- 2 - ** Flat braid shielded & jacketed cable
- 3 - ** Round braid shielded cable, no jacket
- 4 - Jacketed cable, no shield
- 5 - ** Spiral braid shielded & jacketed cable
- 6-9- Special constructions

Product Type

- A - General purpose
- AC- General purpose, 90% min. shield coverage
- AF - General purpose, low fluoride
- D - Defense Standard 61-12 Part 33
- LF - General purpose, ultra low fluoride
- LFC- General purpose, ultra low fluoride, 90% min. shield coverage
- M - 450 Volt

Basic Product Number

Except for p/ns with Shield Material designation "H", shield coating same as conductor coating, **except:

- for Conductor Type 4, shield shall be tin-coated cooper
- for Conductor Types 6 and A, flat braid only, shield shall be tin-coated copper

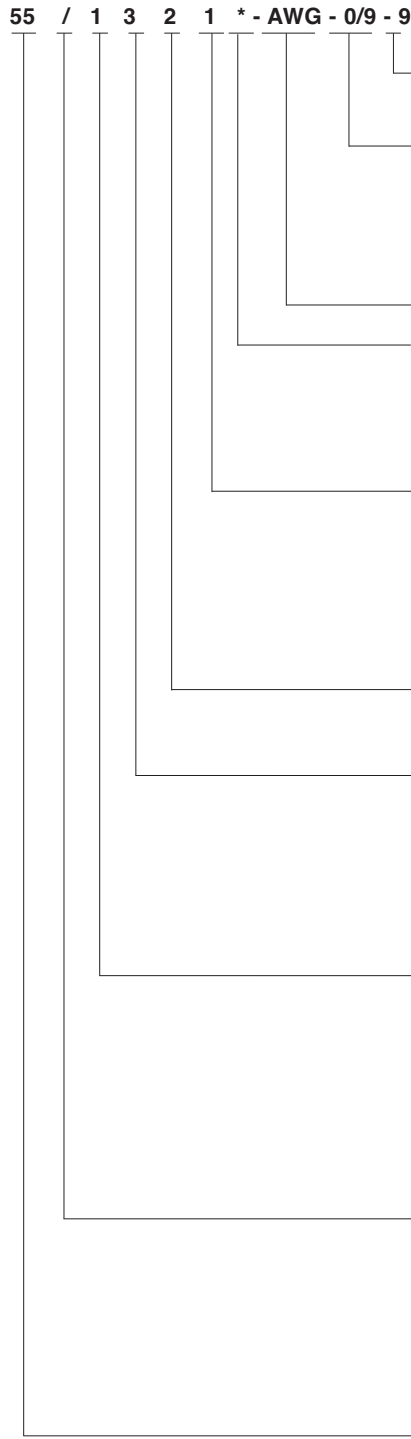
The UK manufactures and supply large volumes of 55Mx4x4 (450 volt) construction wires and cables for Aerospace and Multisport applications.

Part Numbering System is a cross reference only and not meant for part creation.

SPEC 55 (Continued)

Part Numbering System

55/ — Outer Space



Jacket Color (code per MIL-STD-681)

Codes same as for Primary Wire Insulation Color

Primary Wire Insulation Color (code per MIL-STD-681)

- | | | |
|------------|------------|-----------|
| 0 - Black | 4 - Yellow | 8 - Gray |
| 1 - Brown | 5 - Green | 9 - White |
| 2 - Red | 6 - Blue | |
| 3 - Orange | 7 - Violet | |

Conductor Size (AWG)

***Optional Shield Material**

H - High strength copper alloy, shield coating same as conductor coating (No designator defaults to coated "copper" shield, if any)

Conductor Type

- 1 - Tin-coated copper
- 2 - Silver-coated copper
- 3 - Nickel-coated copper
- 4 - Silver-coated high strength copper alloy
- 6 - Nickel-coated high strength copper alloy
- A - Silver-coated ultra high-strength copper alloy

Number of Conductors

1 through 10 (designator for 10 conductor = 0)

Class of Wire

- 1 - 600 volt, lightweight
- 2 - 600 volt, medium weight
- 3 - 600 volt, ultra lightweight
- 4 - 300 volt (discontinued)
- 7 - 1000 volt, heavy duty
- 8 - 600 volt, normal weight

Constructions

- 0 - Primary wire; or unshielded & unjacketed cable
- 1 - **Round braid shielded & jacketed cable
- 2 - ** Flat braid shielded & jacketed cable
- 3 - ** Round braid shielded cable, no jacket
- 4 - Jacketed cable, no shield
- 5 - ** Spiral braid shielded & jacketed cable
- 6-9- Special constructions

Product Type

- / - Outer Space
- /F - Outer Space, low fluoride
- /LF- Outer Space, ultra low fluoride
- /P - Outer Space, shield coating same as conductor coating (valid with the following conductor types only: 4 for round braid; 4, 6 or A for flat braid)

Basic Product Number

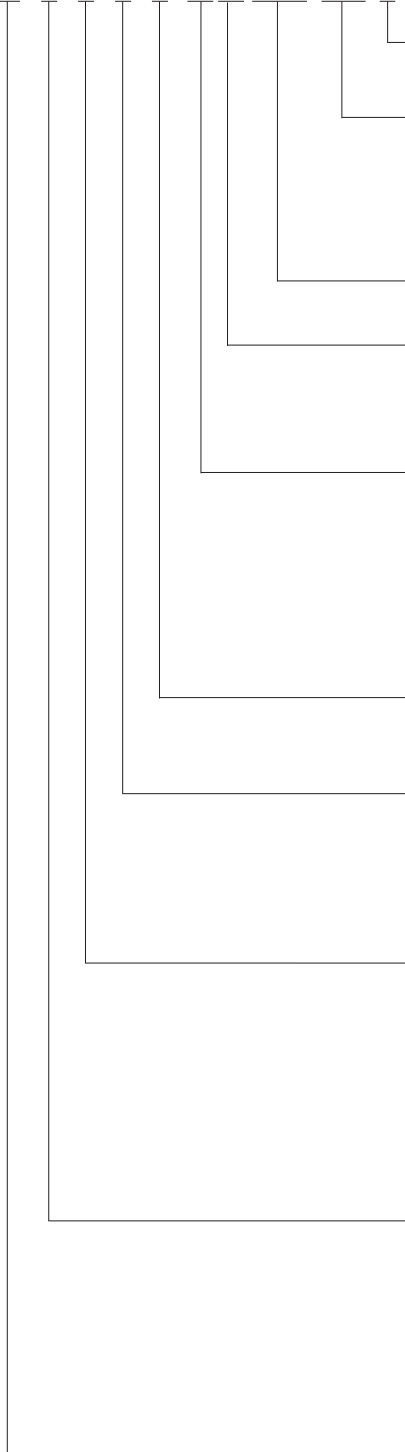
For 55/: Except for p/ns with Shield Material designation "H", shield coating same as conductor coating, **except: - for Conductor Type 4, shield shall be tin-coated copper; - for Conductor Types 6 and A, flat braid only, shield shall be tin-coated copper. For 55/P, /LF: Shield coating same as conductor coating. For product released to ESCC 3901/012, 3901/020 and/or 3901/022, please refer to TE for product designation and construction.

Part Numbering System is a cross reference only and not meant for part creation.

SPEC 55 (Continued)

Part Numbering System
55PC and 55 PLF —
Process Control

55 PC 1 1 2 4 * - AWG - 2/6 - 9



Jacket Color (code per MIL-STD-681)

Codes same as for Primary Wire Insulation Color

Primary Wire Insulation Color (code per MIL-STD-681)

- | | | |
|------------|------------|-----------|
| 0 - Black | 4 - Yellow | 8 - Gray |
| 1 - Brown | 5 - Green | 9 - White |
| 2 - Red | 6 - Blue | |
| 3 - Orange | 7 - Violet | |

Conductor Size (AWG)

***Optional Shield Material**

H - High strength copper alloy, shield coating same as conductor coating (No designator defaults to coated "copper" shield, if any)

Conductor Type

- 1 - Tin-coated copper
- 2 - Silver-coated copper
- 3 - Nickel-coated copper
- 4 - Silver-coated high strength copper alloy
- 5 - Aluminum
- 6 - Nickel-coated high strength copper alloy
- A - Silver-coated ultra high-strength copper alloy

Number of Conductors

- 1 through 10 (designator for 10 conductor = 0)
- 0 - 10 conductors

Class of Wire

- 1 - 600 volt, lightweight, general purpose, single wall
- 2 - 600 volt, medium weight, general purpose
- 5 - 600 volt, lightweight, general purpose, dual wall
- 7 - 1000 volt, heavy duty, airframe, general purpose
- 8 - 600 volt, normal weight, airframe, general purpose

Constructions

- 0 - Primary wire; or unshielded & unjacketed cable
- 1 - **Round braid screened & jacketed cable
- 2 - ** Flat braid screened & jacketed cable
- 3 - ** Round braid, screened cable, no jacket
- 4 - Jacketed cable, no shield
- 5 - ** Spiral braid shielded & jacketed cable
- 6-9- Special constructions

Product Type

- PC- Process Control
- PCF- Process Control, low fluoride
- PCFL-Process Control, low fluoride (lite)
- PCL - Process Control (lite)
- PCT- Process Control (stripping thread under jacket, and shield, if any)
- PLF - Process Control, ultra low fluoride
- PLFL-Process Control, ultra low fluoride (lite)

Basic Product Number

Except for p/ns with Shield Material designation "H", shield coating same as conductor coating, **except:
 For 55PCL - for conductor type 6, flat braid only, shield shall be tin-coated copper
 For 55PC and 55PCT - for conductor Type 4 and A, shield shall be tin-coated copper
 for Conductor Type 6, flat braid only, shield shall be tin-coated copper

Part Numbering System is a cross reference only and not meant for part creation.

SPEC 55 (Continued)





Typical Ordering Example	3 conductors, red, yellow, blue, 600 volt equipment wire with overall round braid, 20 AWG tinned conductor and white jacket: total part number is 55A1131-20-2/4/6-9.
Ordering Information	A list of stock policy items can be identified by contacting TE.

SPEC 55 Part Numbering System — General

Temperature Rating	Conductor Material	AWG Range Available	Part Number	MIL-SPEC No.
600-V Lightweight Single-wall Hookup Wire, .152 [.006] Nominal Wall				
150°C [302°F]	Tin-coated copper	12–30	55A0111	M22759/32
200°C [392°F]	Silver-coated copper	12–28	55A0112	M22759/44
200°C [302°F]	Nickel-coated copper	12–28	55A0113	M22759/45
200°C [392°F]	Silver-coated high-strength alloy	20–30	55A0114	M22759/33
200°C [392°F]	Nickel-coated high-strength alloy	20–28	55A0116	M22759/46
600-V Lightweight Dual-wall Airframe Wire, .203 [.008] Nominal Wall				
150°C [302°F]	Tin-coated copper	6–26	55A0211	—
200°C [392°F]	Silver-coated copper	10–26	55A0212	—
200°C [392°F]	Nickel-coated copper	10–26	55A0213	—
200°C [392°F]	Silver-coated high-strength alloy	18–30	55A0214	—
200°C [392°F]	Nickel-coated high-strength alloy	16–26	55A0216	—
600-V Dual-wall Airframe Wire, .254 [.010] Nominal Wall				
150°C [302°F]	Tin-coated copper	00–24	55A0811	M22759/34
200°C [392°F]	Silver-coated copper	00–26	55A0812	M22759/43
200°C [392°F]	Nickel-coated copper	00–26	55A0813	M22759/41
200°C [392°F]	Silver-coated high-strength alloy	20–26	55A0814	M22759/35
200°C [392°F]	Nickel-coated high-strength alloy	20–26	55A0816	M22759/42
1000-V Medium-Weight Dual-wall Airframe Wire, .381 [.015] Nominal Wall				
150°C [302°F]	Tin-coated copper	10–24	55A0711	—
200°C [392°F]	Silver-coated copper	16–24	55A0712	—
200°C [392°F]	Nickel-coated copper	16–24	55A0713	—
200°C [392°F]	Silver-coated high-strength alloy	16–24	55A0714	—
200°C [392°F]	Nickel-coated high-strength alloy	16–26	55A0716	—

SPEC 55 (Continued)

SPEC 55 Cable Constructions

Construction	Number of Components	Component Conductor ¹	Shield Material ¹	Part Number		
				Light Wt. ²	Medium Wt.	
Unshielded, unjacketed		2-10	1	—	55*01X1-AWG-Y	55*08X1-AWG-Y
		2	—	55*01X2-AWG-Y	55*08X2-AWG-Y	
		3	—	55*01X3-AWG-Y	55*08X3-AWG-Y	
		4	—	55*01X4-AWG-Y	55*08X4-AWG-Y	
		6	—	55*01X6-AWG-Y	55*48X6-AWG-Y	
		6	—	55*41X6-AWG-Y	55*48X6-AWG-Y	
Unshielded, jacketed		2-10	1	—	55*41X1-AWG-Y	55*48X1-AWG-Y
		2	—	55*41X2-AWG-Y	55*48X2-AWG-Y	
		3	—	55*41X3-AWG-Y	55*48X3-AWG-Y	
		4	—	55*41X4-AWG-Y	55*48X4-AWG-Y	
		6	—	55*41X6-AWG-Y	55*48X6-AWG-Y	
		6	—	55*41X6-AWG-Y	55*48X6-AWG-Y	
Shielded (round braid), jacketed		1-10	1	1	55*11X1-AWG-Y	55*18X1-AWG-Y
		2	2	55*11X2-AWG-Y	55*18X2-AWG-Y	
		3	3	55*11X3-AWG-Y	55*18X3-AWG-Y	
		4	1	55*11X4-AWG-Y	55*18X4-AWG-Y	
		6	3	55*11X6-AWG-Y	55*18X6-AWG-Y	
		6	3	55*11X6-AWG-Y	55*18X6-AWG-Y	
Shielded (flat braid), jacketed		1-10	1	1	55*21X1-AWG-Y	55*28X1-AWG-Y
		2	1	55*21X2-AWG-Y	55*28X2-AWG-Y	
		3	1	55*21X3-AWG-Y	55*28X3-AWG-Y	
		4	1	55*21X4-AWG-Y	55*28X4-AWG-Y	
		6	1	55*21X6-AWG-Y	55*28X6-AWG-Y	
		6	1	55*21X6-AWG-Y	55*28X6-AWG-Y	

¹Type of conductor or shield material:
 1 = tin-coated copper
 2 = silver-coated copper
 3 = nickel-coated copper
 4 = silver-coated high-strength copper alloy
 6 = nickel-coated high-strength copper alloy
 * = A or PC

² X = no. of wire components
 Y = color code
 For complete part number, see Part Numbering System on page 9-15.

SPEC 55 (Continued)

**NEMA WC-27500 Cable
Part Numbering System**

M27500 X AWG XX X X XX

Basic Specification Number

Component Wire ID/Shield Coverage Code

Shield Coverage

85%	90%
-	C

Component Wire Identification

Colored Stripes on White Wire
(9/96/93/95/92/90/94/97/98/91... etc.)
Solid Color Wires (9/6/3/5/2/0/4/7/8/1...etc.)
Band Marks on Solid Colors (by AWG)
Alternate Colored Stripes
(92/96/94/95/9/90/91/93/97/98...etc)
Alternate Solid Colors (2/6/4/5/9/0/1/3/7/8...etc.)
Number Marking on Solid Colors (by AWG)
Number Marking on White Wires
Band Marks on Colored Stripes (by AWG)
Band Marks on White Wires

A	D
B	E
F	H
G	J
K	M
L	N
P	R
S	T

Conductor Size (AWG)

Basic Wire Spec Code (SAE-AS-22759) and Slash Sheet

SB - 32 = 55A0111
SC - 33 = 55A0114
SD - 34 = 55A0811
for 2 AWG and larger, use 55A8039
SE - 35 = 55A0814
SM - 41 = 55A0813
for 2 AWG and larger, use 55A8595
SN - 42 = 55A0816
SP - 43 = 55A0812
for 2 AWG and larger, use 55A6089
SR - 44 = 55A0112
SS - 45 = 55A0113
ST - 46 = 55A0116

Number of Component Wires

1 through 9; 10 Components = 0

Shield Material and Style Code

U - No shield
T - Tin-coated copper, round
J - Tin-coated copper, flat
S - Silver-coated copper, round
G - Silver-coated copper, flat
N - Nickel-coated copper, round
V - Tin-coated copper, round, double shield
W - Silver-coated copper, round, double shield

Jacket Material and Style Code

00 - No jacket
23 - Single jacket crosslinked, modified ETFE, white
73 - Double jacket crosslinked, modified ETFE, white

Example: M27500-22SB3T23 = 55A1131-22-9/96/93-9

Tyco Electronics Part No.

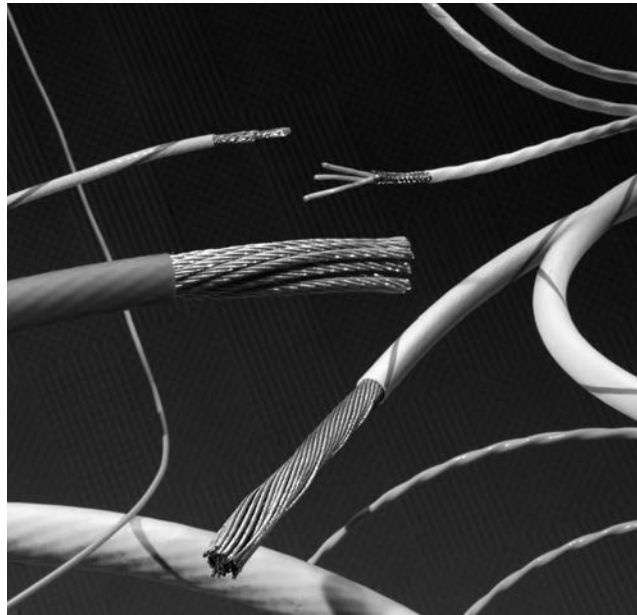
Military Part No.

Part Numbering System is a cross reference only and not meant for part creation.

FlexLine (SPEC 80)

Product Facts

- Reduced weight
- Flexibility
- Low outgassing
- Function over a broad temperature range
- Flammability
- Arc track resistance
- Resistance to atomic oxygen
- Radiation resistance
- High quality and reliability
- Ease of fabrication (into Harnesses due to flexibility)
- Agency approvals
- -65°C up to +200°C [-85°F up to +395°F]
- Small size
- 600V rating
- Optional high strand count for increased flexibility
- Variety of insulation/jacket options
- Dual wall and single wall options
- Easy to install
- Mechanically tough
- Compliance with FAR 25 flammability requirements
- Resistance to harsh fluids & solvents per SAE-AS-22759



Applications

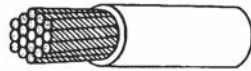
FlexLine wire (also known as SPEC 80) is insulated with a flexible modified radiation cross-linked ETFE polymer. It has a temperature rating of -65°C to +200°C [-85°F to +395°F] continuous using silver copper conductor, and combines the easy handling of our SPEC 55 wire and cable with additional flexibility. FlexLine wire is used in a broad range of applications, from Hook-up wire to Power Cables.

FlexLine wire constructions provide maximum flexibility similar to the SAE-AS-22759 products in Mechanical, Chemical and Thermal properties.

Available in:	Americas	Europe	Asia Pacific
	■	■	■

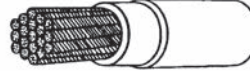
FlexLine (SPEC 80) (Continued)

FlexLine Insulation System



Single Wall

Single Wall 82 Wire
 High strand count conductors
 Light weight
 AWG sizes 28 to 00
 (6-mil nominal insulation thickness)



Dual Wall

Dual Wall 81 Wire
 Standard M22759 conductor stranding
 Increased toughness
 AWG sizes 28 to 000
 (10-mil nominal insulation thickness)

Part Numbering System

81 & 82 —

**General Purpose,
 Outer Space**

82 A 1 1 2 1 - AWG - 0/9 - 9

- Jacket Color** (code per MIL-STD-681)
 Codes same as for Primary Wire Insulation Color
- Primary Wire Insulation Color** (code per MIL-STD-681)

0 - Black	4 - Yellow	8 - Gray
1 - Brown	5 - Green	9 - White
2 - Red	6 - Blue	
3 - Orange	7 - Violet	
- Conductor Size (AWG)**
- Conductor Type**

1 - Tin-coated copper	4 - Silver-coated high strength copper alloy
2 - Silver-coated copper	6 - Nickel-coated high strength copper alloy
3 - Nickel-coated copper	
- Number of Conductors**
 1 through 10 (designator for 10 conductor = 0)
- Class of Wire**
 1 - 600 volt, lightweight
 8 - 600 volt, normal weight
- Construction**
 0 - Primary wire or unshielded & unjacketed cable
 1 - *Round-braid shielded & jacketed cable
 2 - *Flat-braid shielded & jacketed cable
 3 - *Round-braid shielded cable, no jacket
 4 - Jacketed cable, no shield
 5 - *Spiral- braid shielded & jacketed cable
 6-9 Special constructions
- Product Type**
 / - Outer Space
 A - General Purpose
 AC- Same as A with 90% min. shield coverage
 B - Discontinued
- Basic Product Number**
 81 - Normal Stranding
 82 - High Stranding

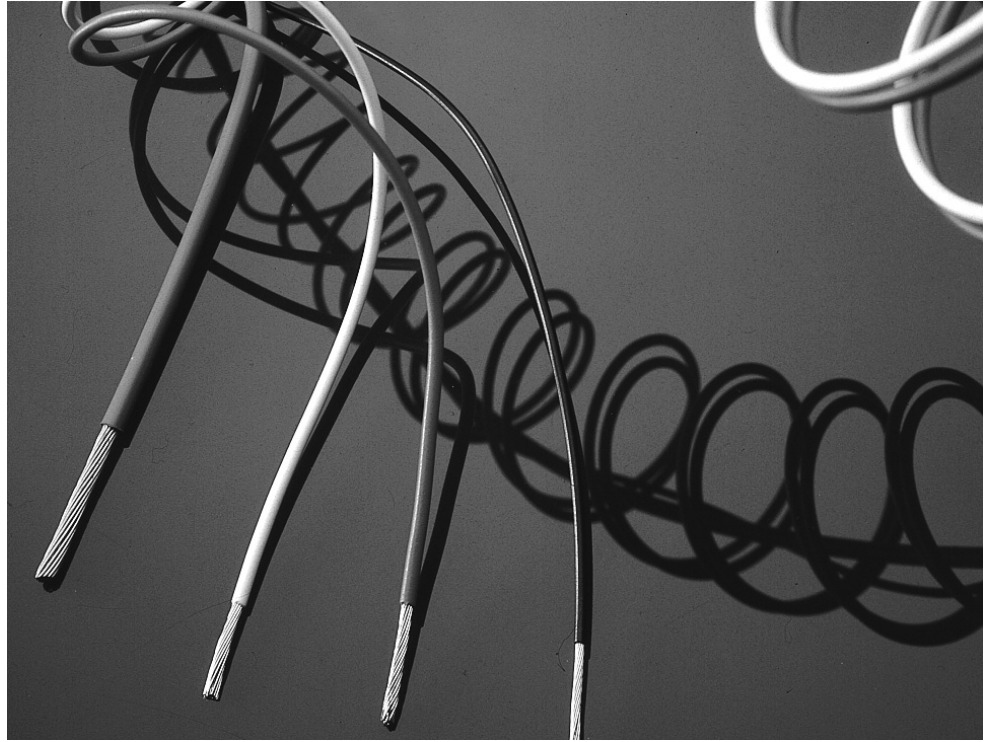
Part Numbering System is a cross reference only and not meant for part creation.

* Shield coating same as conductor coating except for the following:
 - for conductor type 4, shield shall be tin-coated copper
 - for conductor type 6, flat braid only, shield shall be tin-plated copper

Type 99M

Product Facts

- Low flammability
- Low smoke generation
- Low toxicity index
- Low generation of corrosive gases
- Small size, lightweight



Applications

Type 99M wire has a dual wall construction of radiation cross-linked modified polyester. This combines excellent mechanical performance and chemical resistance with a range of enhanced fire hazard properties. Type 99M wire is designed to meet the stringent low fire hazard performance now being specified by the UK Naval Defense Standard Authority for ship wiring and cabling.

During the 1980's there were major changes in the demands of many wire and cable specifications to reduce the risks associated with all aspects of fire hazards. Specifications

such as Def Stan 61-12 Part 18, have been developed over the last decade demanding improved performance of wires and cables under fire conditions.

This has led to a tightening of the requirements for flammability, smoke generation, corrosive gas generation and hazardous fume emission. Type 99M wire achieves these improvements in performance whilst retaining small size, light weight, flexibility, handleability, resistance to carbon arc tracking and resistance to chemicals and fluids.

Physical Characteristics

Handleability

Type 99M wire has been designed to be compatible with modern wiring and harnessing techniques. It is a flexible wire with virtually no springback once set. It is easily stripped with tools such as conventional die-blade strippers.

Small Size

Type 99M equipment wire has a nominal 0.2 mm insulation wall thickness which is comparable to other established thin wall wires such as SPEC 44 wire.

Light Weight

Type 99M wire is designed to have the same weights as SPEC 44 wire.

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Type 99M (Continued)

Approvals

TE WCD 281
 Defense Standard 61-12 Part 18 Issue 5 Type 1
 Italian Navy STN-SR-01

**Type 99M Wire and Cable -
 Nominal Sizes, Strandings
 and Weights**



**99M011X (600 V)
 Primary Wire**



**99M1111
 Shielded & Jacketed**



**99M1121
 Shielded & Jacketed**

**Primary Wires/Shielded and
 Jacketed Cables - 99M**

Size	Stranding (mm)	99M011X (600 V)		99M1111		99M1121	
		OD	Weight (g/m)	OD	Weight (g/m)	OD	Weight (g/m)
26	19x0.10	0.88 [.035]	2.00	1.80 [.071]	7.5	2.91 [.115]	13.3
24	19x0.12	0.98 [.039]	3.00	1.90 [.075]	9.2	3.20 [.126]	16.6
22	19x0.15	1.13 [.044]	4.40	2.05 [.081]	11.1	3.52 [.139]	20.5
20	19x0.20	1.40 [.055]	6.50	2.30 [.091]	14.6	4.02 [.158]	27.7
18	19x0.25	1.65 [.065]	9.90	2.55 [.100]	19.3	4.57 [.180]	37.1
16	19x0.30	1.90 [.075]	14.15	2.95 [.116]	24.9	5.13 [.202]	48.5
14	37x0.25	2.25 [.089]	18.62	3.13 [.123]	30.9	5.72 [.225]	60.5
12	37x0.32	2.60 [.102]	25.70	3.48 [.137]	43.1	6.42 [.253]	81.3

Typical Properties (wire only)

Test	Method	Typical value
Temperature rating	BS 3G230	120°C [248°F]
Voltage rating	TE	600 V thin wall
Tensile strength/elongation of insulation	—	30 MPa/250%
Notch propagation (0.05 mm notch)	BS 3G230	Pass
Shrinkage 200°C [392°F]	BS 3G230	<1%
Low temperature bend	BS 3G230	-55°C [-67°F]
Voltage withstand	BS 3G230	2.5 kV
Insulation resistance (20°C [68°F])	BS 3G230	1000 M ohms km (min)
Pliability rating	Def Stan 61-12 (18)	82 - Pliable
Fluid resistance	Def Stan 61-12 (18)	
Fuels - aircraft		Pass
Oils - (IRM 903)		Pass
Solvents		Pass

Type 99M (Continued)

Environmental Properties

Mechanical Performance

Type 99M wire has good scrape abrasion and cut through performance complying with the requirements of Def. Standard 61-12 Part 18.

Fluid Resistance

Type 99M wire demonstrates outstanding resistance to most acids, alkalis, hydrocarbon solvents, fuels, lubricants and water.

Electrical Arc Tracking

Type 99M wire is resistant to electrical arc tracking.

Voltage Ratings

Standard available voltage ratings for Type 99M wire is 600 V (0.2 mm wall thickness).

Fire Hazard Characteristics

Low Toxicity Index

Type 99M wire is designed to meet the low hazardous fume emission levels required in modern specifications. For example, the change in the Toxicity Index requirement from 1.5 to 0.2 between Issue 2 and Issue 5 of Def Stan 61-12 (Part 18), is met by Type 99M wire.

Flammability

Type 99M wire has passed the stringent flammability test requirements of Def. Standard 61-12 (Part 18).

Smoke Generation

Type 99M wire has been designed to meet stringent smoke tests such as those specified in Def Stan 61-12 (Part 18).

Corrosivity

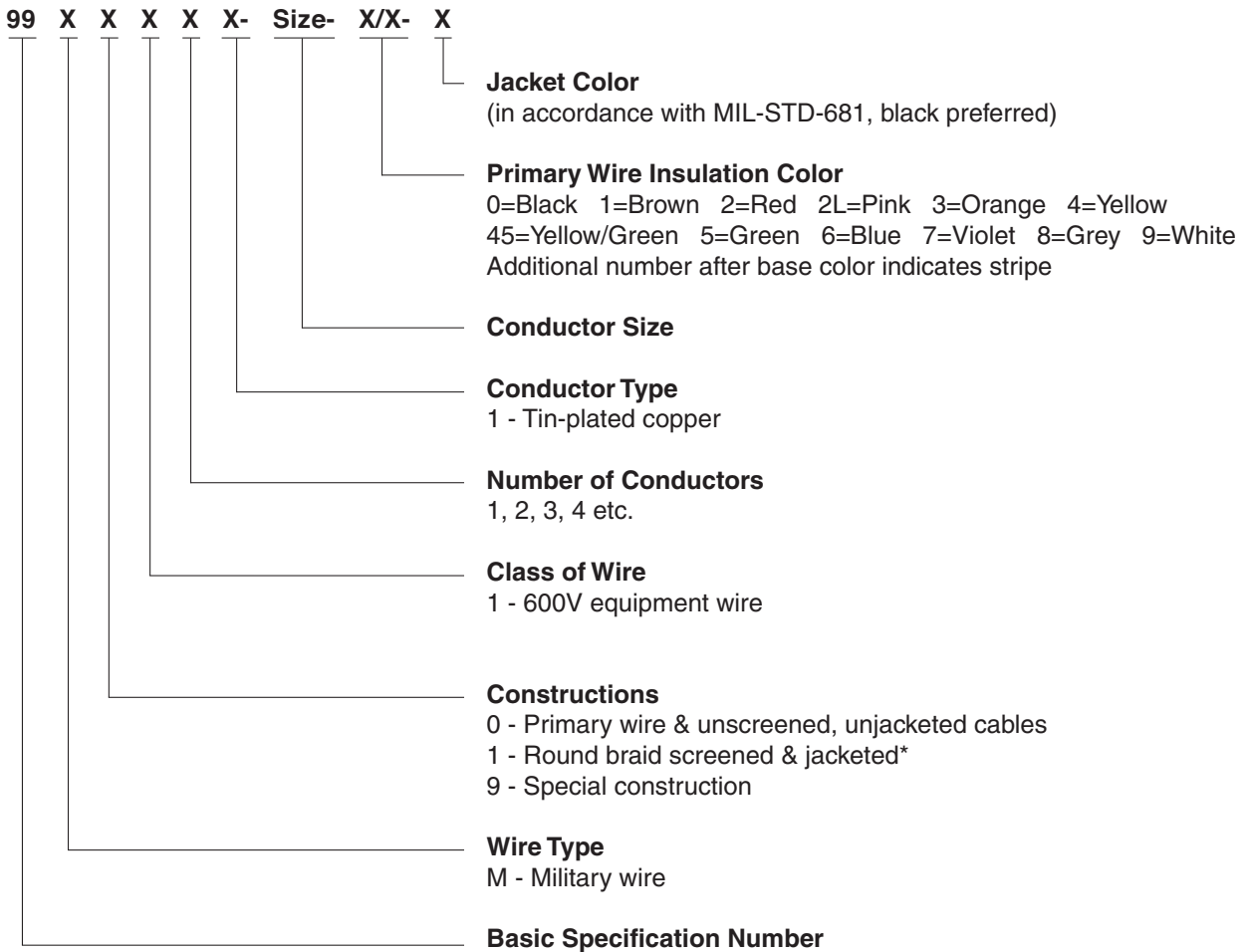
Type 99M wire has a low corrosive gas emission, demonstrated by its low acid gas value, sufficient to pass the requirements of Def. Standard 61-12 Part 18.

Fire Hazard Properties

Test	Method	Typical value
Flammability	BS 3G230	Pass
Toxicity index	Def Stan 61-12 (18)	0.1 per meter of wire
Smoke index	Def Stan 61-12 (18)	8 per meter of wire
Acid gas equivalent	TDE 76/P/76	<1.5%

Type 99M (Continued)

Part Numbering System



* The cable jackets are TE Zerohal and the preferred color is black.

Part Numbering System is a cross reference only and not meant for part creation.

Zerohal 100A

Product Facts

- Halogen free, low smoke
- Highly flame retardant
- Flexible, easy to install
- Small size, lightweight (thin wall construction)



Applications

TE's latest generation LFH, thinwall wire has been designed for use primarily in signal, control and light power circuits in subway, regional and high speed trains. It is ideal for applications where space and weight are at a premium; fire safety is important; reliability is imperative; rugged properties to withstand service in an RMT environment are required.

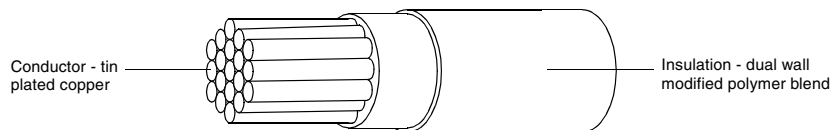
The construction is a dual wall combination of TE formulated polymer blends developed to meet the specification requirements while maintaining the desirable features of small size, lightweight, flexibility, non-wrinkling, ease of stripping, compatibility with standard

stripping equipment, lack of recoil and mechanical robustness.

Physical Characteristics

Handleability

Zerohal 100A wire has been designed for minimum recoil during harnessing operations, to be readily handleable by modern wiring and harnessing techniques and to be easily stripped with standard equipment and tools.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

Low-Fire-Hazard Wire and Cable

Zerohal 100A (Continued)

Typical Properties

Test	Method	Typical Values			
Physical Properties					
Insulation Tensile Strength and Ultimate Elongation	ASTM D3032	Tensile Strength 3500 psi minimum Ultimate Elongation 250% minimum			
Scrape Abrasion Resistance	AAR S 501	1000 cycles minimum (90°, 0.01 inch radial edge blade, 6N load, 20°C [68°F])			
Dynamic Cut Through	ASTM D3032	20 lbs. minimum (90°, 0.01 inch radial edge blade, 0.2 inch per min, 20°C [68°F])			
Static Cut-through Penetration	AAR S 501	No contact with the conductor (90°, 0.01 inch radial edge blade, 10 min, 9N load, 125°C [257°F])			
Thermal Properties					
Temperature Index	ASTM D3032	10,000 hours minimum at 125°C [257°F]			
Accelerated ageing	ASTM D3032	No cracks, flow or dielectric breakdown. (168hr at 170°C [338°F])			
Shrinkage	IEC 811-1-3	0.5% maximum at each end. (6hr at 160°C [320°F])			
Insulation Blocking	MIL-W-22759E	Cores must be easily separated without damage (24hr at 125°C [257°F], 6X mandrel.)			
Electrical Properties					
IR Constant	ASTM D3032	>10000 MΩkft at 20°C [68°F] >100 MΩkft at 60°C [140°F] >10 MΩkft at 90°C [194°F]			
Environmental Properties					
Fluid Immersion	ASTM D3032	Fluid	NATO code	Temp (°C)	Time (hr)
		ASTM No. 1 Oil	—	100	70
		IRM 902 Oil	—	100	70
		IRM 903 Oil	—	100	70
		70/30 iso-octane/toluene	—	23	24
		Engine lubricating oil	O-236	70	24
		Grease	G-354	70	24
		Hydraulic fluid, petroleum base	H-515	50	24
		Silicone damping fluid	S-1724	70	24
		Automotive brake fluid	H-542	23	24
		Fire resistant hydraulic fluid	H-544	50	24
		De-icing fluid	S-745	23	24
Methyl Ethyl Ketone	—	23	1		
5% max swell. No dielectric breakdown. (30mm diameter mandrel)					
Fire Hazard Properties					
Flammability - small scale	IEC 332-1	Charring confined between 50mm and 540mm from lower edge of top support. (Single vertical wire, 60 s flame)			
Flammability - large scale	IEC 332-3	2.5m maximum burn length. (Five 3.5m long 37-wire bundles, vertical, 20.5 kW flame)			
Smoke - small scale	ISO 5659-2	Ds1.5 of 100 max., Ds4 of 150 max., Dmax of 150 max., VOF4 of 300 max. (‘NBS’ smoke box with cone heater, 1.8m of wire 50 kW/m ² heat flux with and without a pilot flame)			
Smoke - large scale	IEC 1034	90% minimum transmittance. (3m cube smoke box. Eight 1m long 7-wire bundles, horizontal. Fire source: 1 litre burning alcohol.)			
Toxicity	IMO FTPC	Toxicity index < 1 (Test conditions as in smoke - small scale)			
Halogen Content	IEC 684-2	Less than 0.2% Cl + Br + I. Less than 0.1% F (Wet chemical analysis)			
Copper Mirror Corrosion	ASTM D2671	5% maximum etched area. (0.4g sample, 200°C [392°F], 16hr.)			
Acid Gas Detection	IEC 754-2	pH greater than 4.3 10 μS/mm maximum (1g sample, tube furnace, T > 935°C [1715°F], gases dissolved in water)			

Ordering Information

Wire Size AWG	Conductor		Finished Wire Maximum Resistance at 20°C /kft/km	Diameter		Maximum Weight lbs/kft kg/km	Part No.
	Stranding No x AWG Dia (mm)	Diameter Min. Max.		Min.	Max.		
24	19x36	0.550 [0.022] 0.63 [0.025]	25.7 [84.32]	1.09 [0.043]	1.19 [0.047]	2.41 [3.59]	100A0111-24*
22	19x34	0.735 [0.029] 0.79 [0.031]	15.9 [52.2]	1.26 [0.050]	1.33 [0.052]	3.34 [4.98]	100A0111-22*
20	19x32	0.940 [0.037] 1.01 [0.040]	9.9 [32.4]	1.46 [0.057]	1.54 [0.061]	4.98 [7.42]	100A0111-20*
18	19x30	1.170 [0.046] 1.26 [0.050]	6.2 [20.4]	1.69 [0.067]	1.79 [0.071]	7.31 [10.89]	100A0111-18*
16	19x29	1.321 [0.052] 1.37 [0.054]	4.8 [15.8]	1.84 [0.072]	1.94 [0.076]	9.19 [13.70]	100A0111-16*
14	19x27	1.650 [0.065] 1.79 [0.070]	3.1 [10.0]	2.27 [0.089]	2.39 [0.094]	14.45 [21.53]	100A0111-14*
12	37x28	2.080 [0.082] 2.24 [0.088]	2.0 [6.63]	2.71 [0.107]	2.86 [0.113]	21.03 [31.33]	100A0111-12*
10	37x26	2.690 [0.106] 2.83 [0.111]	1.3 [4.13]	3.33 [0.131]	3.51 [0.138]	33.27 [49.58]	100A0111-10*

Zerohal 100A (Continued)

Environmental Properties

Fluid Resistance

Zerohal 100A wire demonstrates an outstanding balance of resistance to a wide range of commonly used solvents, fluids and lubricants.

Voltage Rating

Zerohal 100A wire is a 600 volt rated wire.

Fire Hazard Characteristics

Zerohal 100A wire is a halogen free insulation system and does not contain phosphorus or sulphur. It meets the toxicity, smoke density, halogen content, corrosivity and flammability requirements of major recognized agencies.

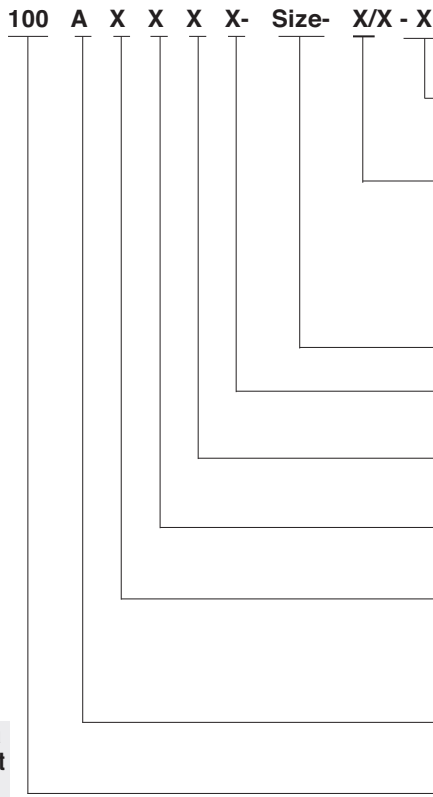
Flammability

Zerohal 100A wire meets the flammability/burning behavior requirements of major recognized agencies.

Fire Hazard Properties

Test	Method	Typical Value
Flammability - small scale	IEC 332-1	Charring confined between 50mm and 540mm from lower edge of top support. (Single vertical wire, 60 s flame)
Flammability - large scale	IEC 332-3	2.5m maximum burn length. (Five 3.5m long 37-wire bundles, vertical, 20.5 kW flame)
Flammability	IEEE 383	Pass
Smoke - small scale	ISO 5659-2	Ds1.5 of 100 max., Ds4 of 150 max., Dmax of 150 max., VOF4 of 300 max. ('NBS' smoke box with cone heater, 1.8m of wire 50 kW/m ² heat flux with and without a pilot flame)
Smoke - small scale	ASTM E662	Smoke density - Ds4 (Max.) Flaming - 200 Non-Flaming - 75
Toxicity	IMO FTPC	Toxicity index < 1 (Test conditions as in smoke - small scale)
Halogen Content	IEC 684-2	Less than 0.2% Cl + Br + I. Less than 0.1% F (Wet chemical analysis)
Copper Mirror Corrosion	ASTM D2671	5% maximum etched area. (0.4g sample, 200°C [392°F], 16hr.)
Acid Gas Detection	IEC 754-2	pH greater than 4.3 10 µS/mm maximum (1g sample, tube furnace, T > 935°C [715°F], gases dissolved in water)

Part Numbering System



Jacket Color

- 0 - Black
- 2 - Red

Primary Wire Insulation Color

- 0 - Black
- 1 - Brown
- 2 - Red
- 3 - Orange
- 4 - Yellow
- 5 - Green
- 6 - Blue
- 7 - Violet
- 8 - Gray
- 9 - White

Conductor Size

Conductor Type

- 1 - Tin-plated copper

Number of Conductors

- 1 to 9

Class of Wire

- 1 - 600 V equipment wire

Construction

- 0 - Primary wire and unscreened, unjacketed cables
- 1 - Roundbraid, screened and jacketed
- 4 - Jacketed, no screen

Wire Type

- A - AWG construction (US Specification)

Basic Specification Number

Part Numbering System is a cross reference only and not meant for part creation.

Zerohal 100G

Product Facts

- Meets requirements of VG 95218-20 Type E
- Halogen free, low smoke
- Highly flame retardant
- Flexible, easy to install
- Small size, lightweight (thin wall construction)



Applications

Zerohal 100G wire was originally developed to meet the requirements of German Specification VG 95218-20, Type E primary wire.

The construction is a dual wall combination of TE formulated polymer blends developed to meet the specification requirements while maintaining the desirable features of small size, lightweight, flexibility, non-wrinkling, ease of stripping, compatibility with standard stripping equipment, lack of recoil and mechanical robustness.

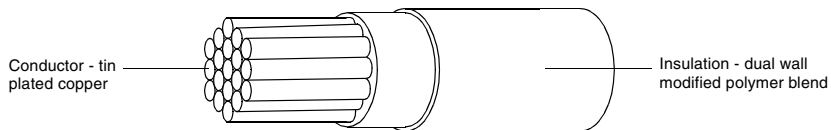
System

- System 100

Physical Characteristics

Handleability

Zerohal 100G wire has been designed for minimum recoil during harnessing operations, to be readily handleable by modern wiring and harnessing techniques and to be easily stripped with standard equipment and tools.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

Zerohal 100G (Continued)

Approvals

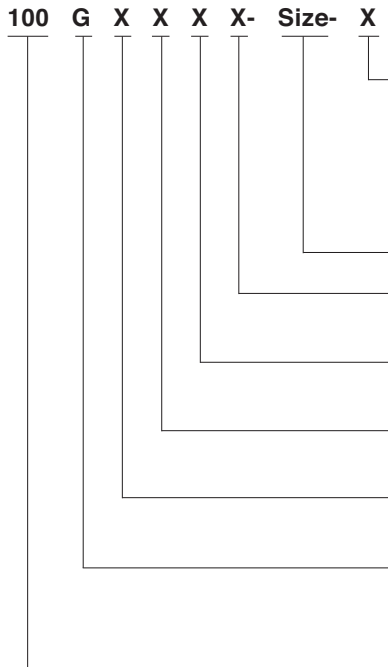
TE Specification WSD912 (Electrical cables and insulated wires for signals and power.
- Part 20: Single core insulated wires.)

Typical Properties

Test	Method	Typical Value
Max. operating temperature	VG 95218-20, ASTM D 3032	125°C [257°F] (20,000 h)
Insulation shrinkage (150°C)	DIN VDE 0472 Pt 628, IEC 811-1-3	< 0.5%
Low temperature bend	VG 95218 - Pt 2	-55°C [-67 °F]
Pressure test at high temperature	DIN VDE 0472 Pt 609, IEC 811-3-1	125°C [257°F] < 30% indentation
Heat aging (150°C, 6 h) (140°C, 120 h)	DIN VDE 0472 Pt 303, IEC 811-1-2	No cracking, no dielectric breakdown
Voltage rating	VG 95218-20	750/1300 V AC
Abrasion resistance	VG 95218 - Pt 2	Pass
Insulation blocking (125°C)	VG 95218 - Pt 2	Pass
Voltage withstand (23°C, 2.5 kV rms)	DIN VDE 0472 pt 509	Pass
Insulation resistance	DIN VDE 0472 pt 502, IEC 885-1	> 500 M ohms. km (20°C [68°F]) > 0.5 M ohms. km (90°C [194°F])
Chemical resistance		
Grease (G-354)*	VG 95218 - Pt 2, 70°C 24h	< 5% diameter change, no dielectric breakdown
Hydraulic fluid (H-515, H-544)*	VG 95218 - Pt 2, 50°C 24h	< 5% diameter change, no dielectric breakdown
Brake fluid (H-542)*	VG 95218 - Pt 2, 23°C 24h	< 5% diameter change, no dielectric breakdown
De-icing fluid (S-745)*	VG 95218 - Pt 2, 23°C 24h	< 5% diameter change, no dielectric breakdown
MEK	VG 95218 - Pt 2, 23°C 1h	< 5% diameter change, no dielectric breakdown
70/30 ISO-Octane/Toluene	VG 95218 - Pt 2, 23°C 24h	< 5% diameter change, no dielectric breakdown
Insulation		
Tensile strength	DIN VDE 0472 pt 602, IEC 811-1-1	> 20 MPa
Elongation at break	DIN VDE 0472 pt 602, IEC 811-1-1	> 200%

*NATO code. For further details please consult the German Standard VG 95218-20, Type E.

Part Numbering System



Primary Wire Insulation Color

- | | | |
|-----------|------------|------------|
| 0 - Black | 3 - Orange | 7 - Violet |
| 1 - Brown | 4 - Yellow | 8 - Gray |
| 2 - Red | 5 - Green | 9 - White |
| 2L - Pink | 6 - Blue | |

Conductor Size

Conductor Type

- 1 - Tin-plated copper

Number of Conductors

- 1

Class of Wire

- 1 - 750 V equipment wire

Construction

- 0 - Primary wire

Wire Type

- G - Meeting the performance requirements of German Specification VG 95218-20, Type E

Basic Specification Number

Part Numbering System is a cross reference only and not meant for part creation.

Zerohal 100G (Continued)

Environmental Properties

Fluid Resistance

Zerohal 100G wire demonstrates an outstanding balance of resistance to a wide range of commonly used solvents, fluids and lubricants.

Voltage Rating

Zerohal 100G wire is a 750/1300 V AC rated wire.

Fire Hazard Characteristics

Zerohal 100G wire is a halogen free insulation system and does not contain phosphorus or sulphur. It meets the toxicity, smoke density, halogen content, corrosivity and flammability requirements of VG 95218-20, Type E.

Flammability

Zerohal 100G wire meets the flammability/burning behavior requirements of VG 95218-20, Type E.

Fire Hazard Properties

Test	Method	Typical value
Toxicity	Def. Standard 02-713	3.5
Smoke density	IEC 1034 Pt 1 and 2	95% light transmittance
Halogen content	DIN VDE 0472 pt 815	Non-detected
Corrosivity of combustion gases	DIN VDE 0472 pt 813, IEC 754-2	5.0 pH, <4 µS/mm conductivity
Flammability	VG 95218 Pt 2	< 15 sec afterburn < 150 mm burn length

Ordering Information

Part Description	Nominal Cross Sectional Area mm ²	Nominal Conductor Stranding No./Dia (mm)	Equivalent AWG Size	Conductor Diameter (mm)		Minimum Insulation Thickness (mm)	Maximum Resistance @ 20° C (ohm/km)	Diameter (mm)			Maximum Weight (kg/km)
				Min.	Max.			Lower Spec Limit	Target	Upper Spec Limit	
100G0111-0.15-*	0.15	19/0.10	26	0.45	0.50	0.20	133.0	0.98	1.03	1.08	2.59
100G0111-0.25-*	0.25	19/0.13	24	0.55	0.63	0.20	83.30	1.09	1.14	1.19	3.59
100G0111-0.40-*	0.40	19/0.16	22	0.73	0.79	0.20	50.50	1.28	1.33	1.38	5.18
100G0111-0.50-*	0.50	19/0.18	—	0.82	0.90	0.20	40.10	1.37	1.40	1.45	6.60
100G0111-0.60-*	0.60	19/0.20	20	0.95	1.01	0.20	31.10	1.47	1.52	1.57	7.40
100G0111-0.75-*	0.75	19/0.23	—	1.04	1.15	0.20	24.70	1.59	1.60	1.65	8.90
100G0111-1.00-*	1.00	19/0.25	18	1.17	1.26	0.20	20.00	1.69	1.75	1.80	10.7
100G0111-1.20-*	1.20	19/0.29	16	1.32	1.42	0.20	15.30	1.88	1.93	1.98	13.6
100G0111-1.50-*	1.50	37/0.23	15	1.46	1.58	0.20	12.90	2.03	2.08	2.13	16.0
100G0111-2.00-*	2.00	37/0.25	14	1.68	1.82	0.20	9.80	2.31	2.36	2.41	20.3
100G0111-2.50-*	2.50	37/0.29	13	1.85	2.01	0.25	8.01	2.50	2.55	2.63	25.7
100G0111-3.00-*	3.00	37/0.32	12	2.12	2.24	0.25	6.40	2.70	2.78	2.86	31.0
100G0111-4.00-*	4.00	56/0.30	—	2.41	2.57	0.25	4.89	3.01	3.09	3.17	43.6

C-Lite Low Fire Hazard Lightweight Cables

Product Facts

- 30% lighter than standard commercial cable for weight savings reductions
- Reduced diameter means that smaller bend radius can be used during installation
- Reduced and easier cable pulling time



Applications

TE materials technology and expertise in processing allows the use of thinwall insulation systems. The use of Zerohal-EN cross-linked cable jacket completes this product offering.

C-Lite cable products can offer significant size and weight reduction, when compared to conventional insulation systems, while at the same time meeting key criteria such as low fire hazard performance and mechanical robustness.

Crosslinked Molecular Chain

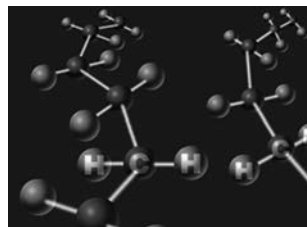
TE Raychem was the first company to commercialize radiation cross-linking of insulation, initially for aerospace applications.

To achieve crosslinking a polymer product is exposed to high-energy radiation. This is generally done by exposure to beta radiation (high-energy electrons) using an electron beam.

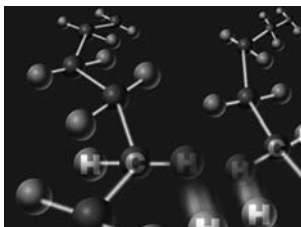
Crosslinked insulations in wire and cable products are lightweight, mechanically tough and thermally stable.

Radiation Crosslinking

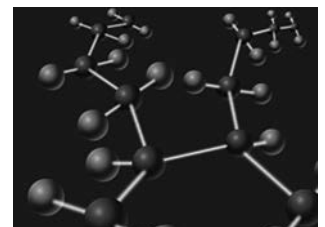
Molecular Chain



Crosslinking



Crosslinked Molecular Chain



Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

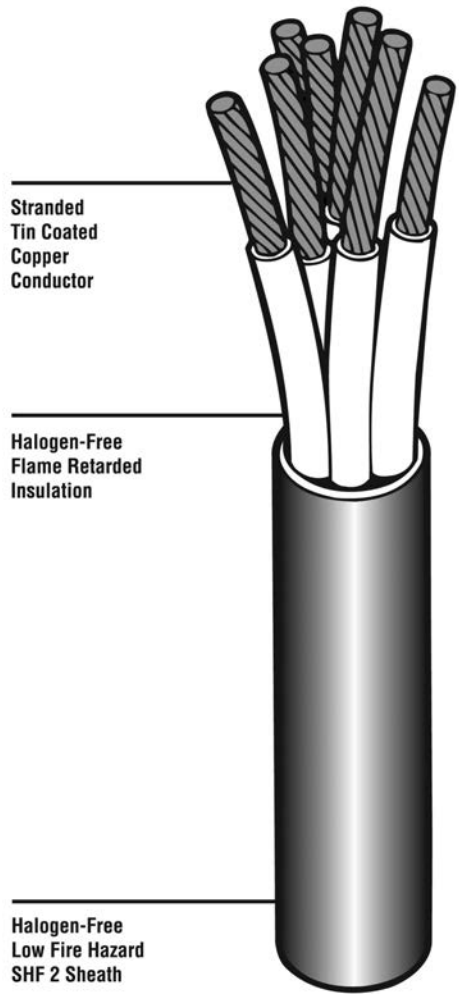
C-Lite CL105-SU

**Multicore Unscreened
Cables**

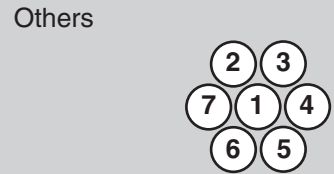
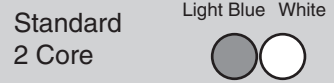
The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.

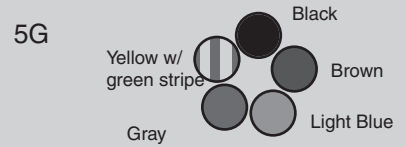
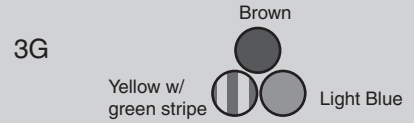
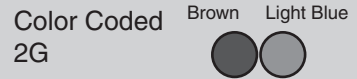
- Field of application**
- Instrumentation and communication control
- General power and lighting
- Voltage class**
- 0.6/1kV
- Temperature class**
- 90°C
- Flame retarded**
- IEC 60332-1,-3
- Cable jacket**
- Zerohal



Core Identification



Additional cores numbered sequentially



Approvals

DNV, LR, GL, ABS, KR, CCS, RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105-SU (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
STANDARD					
CL105-2x0.5 - SU	2.9	0.9	4.7	0.3	33
CL105-3x0.5 - SU	3.1	0.9	4.9	0.3	39
CL105-4x0.5 - SU	3.5	0.9	5.3	0.3	48
CL105-5x0.5 - SU	3.9	1.0	5.9	0.4	59
CL105-7x0.5 - SU	4.3	1.0	6.3	0.4	75
CL105-12x0.5 - SU	5.9	1.0	7.9	0.5	117
CL105-19x0.5 - SU	7.1	1.1	9.3	0.6	176
CL105-27x0.5 - SU	8.7	1.1	10.9	0.7	239
CL105-2x0.75 - SU	3.3	0.9	5.1	0.3	40
CL105-3x0.75 - SU	3.6	0.9	5.4	0.4	48
CL105-4x0.75 - SU	4	1.0	6.0	0.4	62
CL105-5x0.75 - SU	4.4	1.0	6.4	0.4	75
CL105-7x0.75 - SU	4.9	1.0	6.9	0.4	95
CL105-12x0.75 - SU	6.8	1.1	9.0	0.6	155
CL105-19x0.75 - SU	8.1	1.1	10.3	0.7	226
CL105-27x0.75 - SU	10	1.2	12.4	0.8	316
CL105-2x1.0 - SU	3.6	0.9	5.4	0.4	45
CL105-3x1.0 - SU	3.9	1.0	5.9	0.4	58
CL105-4x1.0 - SU	4.3	1.0	6.3	0.4	72
CL105-5x1.0 - SU	4.8	1.0	6.8	0.4	87
CL105-7x1.0 - SU	5.4	1.0	7.4	0.5	110
CL105-12x1.0 - SU	7.4	1.1	9.6	0.6	180
CL105-19x1.0 - SU	8.9	1.2	11.3	0.7	271
CL105-27x1.0 - SU	10.9	1.2	13.3	0.9	372
CL105-2x1.5 - SU	4.3	1.0	6.3	0.4	64
CL105-3x1.5 - SU	4.6	1.0	6.6	0.4	82
CL105-4x1.5 - SU	5.1	1.0	7.1	0.5	97
CL105-5x1.5 - SU	5.7	1.0	7.7	0.5	119
CL105-7x1.5 - SU	6.3	1.1	8.5	0.6	158
CL105-12x1.5 - SU	8.8	1.2	11.2	0.7	259
CL105-14x1.5 - SU	9.3	1.2	11.7	0.8	295
CL105-19x1.5 - SU	10.5	1.2	12.9	0.8	385
CL105-24x1.5 - SU	12.6	1.3	15.2	1.0	488
CL105-27x1.5 - SU	12.9	1.3	15.5	1.0	540
CL105-37x1.5 - SU	14.7	1.4	17.5	1.1	725
CL105-2x2.5 - SU	5.2	1.0	7.2	0.5	91
CL105-3x2.5 - SU	5.6	1.0	7.6	0.5	118
CL105-4x2.5 - SU	6.3	1.1	8.5	0.6	153
CL105-5x2.5 - SU	7	1.1	9.2	0.6	181
CL105-7x2.5 - SU	7.8	1.1	10.0	0.7	235
CL105-12x2.5 - SU	10.7	1.2	13.1	0.9	391
CL105-19x2.5 - SU	12.9	1.3	15.5	1.0	597
CL105-27x2.5 - SU	15.8	1.4	18.6	1.2	838
CL105-37x2.5 - SU	18	1.5	21.0	1.4	1129
COLOR CODED					
CL105-2Gx0.5 - SU	2.9	0.9	4.7	0.3	33
CL105-3Gx0.5 - SU	3.1	0.9	4.9	0.3	39
CL105-5Gx0.5 - SU	3.9	1.0	5.9	0.4	59
CL105-2Gx0.75 - SU	3.3	0.9	5.1	0.3	40
CL105-3Gx0.75 - SU	3.6	0.9	5.4	0.4	48
CL105-5Gx0.75 - SU	4.4	1.0	6.4	0.4	75
CL105-2Gx1.0 - SU	3.6	0.9	5.4	0.4	45
CL105-3Gx1.0 - SU	3.9	1.0	5.9	0.4	58
CL105-5Gx1.0 - SU	4.8	1.0	6.8	0.4	87
CL105-2Gx1.5 - SU	4.3	1.0	6.3	0.4	64
CL105-3Gx1.5 - SU	4.6	1.0	6.6	0.4	82
CL105-5Gx1.5 - SU	5.7	1.0	7.7	0.5	119
CL105-2Gx2.5 - SU	5.2	1.0	7.2	0.5	91
CL105-3Gx2.5 - SU	5.6	1.0	7.6	0.5	118
CL105-5Gx2.5 - SU	7.0	1.1	9.2	0.6	181

C-Lite CL105-S0

**Multicore Overall Screened
Cables**

The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.

Field of application

Instrumentation and
communication control
General power and lighting

Voltage class

0.6/1kV

Temperature class

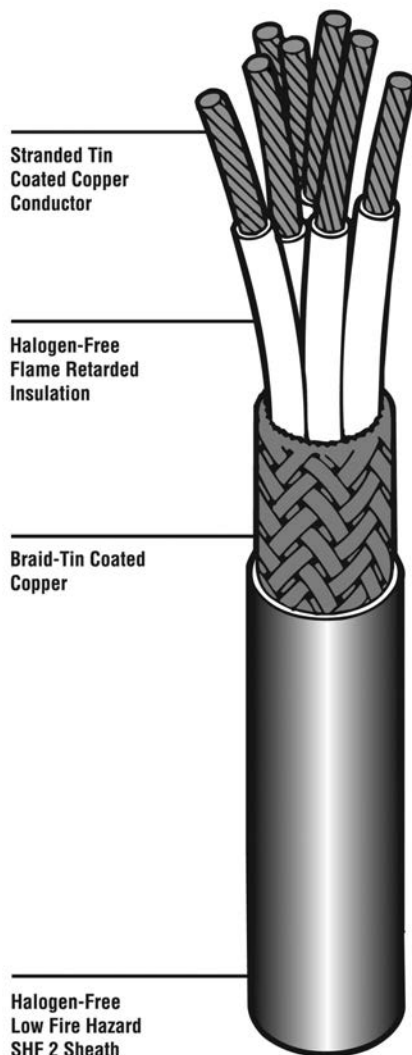
90°C

Flame retarded

IEC 60332-1,-3

Cable jacket

Zerohal

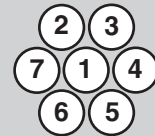


Core Identification

Standard
2 Core



Others

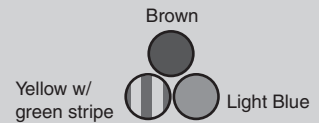


Additional cores numbered sequentially

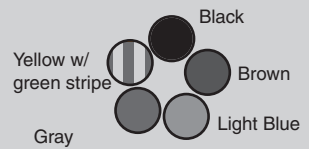
Color Coded
2G



3G



5G



Approvals

DNV, LR, GL, ABS, KR, CCS,
RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105-SO (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
STANDARD					
CL105-2x0.5 - SO	3.5	0.9	5.3	0.3	48
CL105-3x0.5 - SO	3.7	0.9	5.5	0.4	55
CL105-4x0.5 - SO	4.1	1.0	6.1	0.4	68
CL105-5x0.5 - SO	4.5	1.0	6.5	0.4	79
CL105-7x0.5 - SO	4.9	1.0	6.9	0.4	96
CL105-12x0.5 - SO	6.5	1.1	8.7	0.6	149
CL105-19x0.5 - SO	7.7	1.1	9.9	0.6	208
CL105-27x0.5 - SO	9.3	1.2	11.7	0.8	284
CL105-2x1.0 - SO	4.2	1.0	6.2	0.4	66
CL105-3x1.0 - SO	4.5	1.0	6.5	0.4	78
CL105-4x1.0 - SO	4.9	1.0	6.9	0.4	93
CL105-5x1.0 - SO	5.4	1.0	7.4	0.5	110
CL105-7x1.0 - SO	6	1.0	8	0.5	135
CL105-12x1.0 - SO	8	1.1	10.2	0.7	214
CL105-19x1.0 - SO	9.5	1.2	11.9	0.8	311
CL105-27x1.0 - SO	11.5	1.3	14.1	0.9	427
CL105-2x1.5 - SO	4.9	1.0	6.9	0.4	85
CL105-3x1.5 - SO	5.2	1.0	7.2	0.5	104
CL105-4x1.5 - SO	5.7	1.0	7.7	0.5	122
CL105-5x1.5 - SO	6.3	1.1	8.5	0.6	150
CL105-7x1.5 - SO	6.9	1.1	9.1	0.6	187
CL105-12x1.5 - SO	9.4	1.2	11.8	0.8	299
CL105-14x1.5 - SO	9.9	1.2	12.3	0.8	337
CL105-19x1.5 - SO	11.1	1.2	13.5	0.9	432
CL105-24x1.5 - SO	13.3	1.3	15.9	1.0	558
CL105-27x1.5 - SO	13.6	1.3	16.2	1.1	611
CL105-37x1.5 - SO	15.6	1.4	18.4	1.2	828
CL105-2x2.5 - SO	5.8	1.0	7.8	0.5	116
CL105-3x2.5 - SO	6.2	1.0	8.2	0.5	145
CL105-4x2.5 - SO	6.9	1.1	9.1	0.6	183
CL105-5x2.5 - SO	7.6	1.1	9.8	0.6	214
CL105-7x2.5 - SO	8.4	1.1	10.6	0.7	271
CL105-12x2.5 - SO	11.3	1.3	13.9	0.9	446
CL105-19x2.5 - SO	13.6	1.3	16.2	1.1	668
CL105-27x2.5 - SO	16.7	1.5	19.7	1.3	958
CL105-37x2.5 - SO	18.9	1.6	22.1	1.4	1264
COLOR CODED					
CL105-2Gx0.5 - SO	3.5	0.9	5.3	0.3	48
CL105-3Gx0.5 - SO	3.7	0.9	5.5	0.4	55
CL105-5Gx0.5 - SO	4.5	1.0	6.5	0.4	79
CL105-2Gx1.0 - SO	4.2	1.0	6.2	0.4	66
CL105-3Gx1.0 - SO	4.5	1.0	6.5	0.4	78
CL105-5Gx1.0 - SO	5.4	1.0	7.4	0.5	110
CL105-2Gx1.5 - SO	4.9	1.0	6.9	0.4	85
CL105-3Gx1.5 - SO	5.2	1.0	7.2	0.5	104
CL105-5Gx1.5 - SO	6.3	1.1	8.5	0.6	150
CL105-2Gx2.5 - SO	5.8	1.0	7.8	0.5	116
CL105-3Gx2.5 - SO	6.2	1.0	8.2	0.5	145
CL105-5Gx2.5 - SO	7.6	1.1	9.8	0.6	214

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite CL105-PF/C-Lite CL105-TF

**Multipair and Multitriple
Unscreened Cables**

The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.

Field of application

Instrumentation and
communication control
General power and lighting

Voltage class

0.6/1kV

Temperature class

90°C

Flame retarded

IEC 60332-1,-3

Cable jacket

Zerohal

Core Identification

Pairs

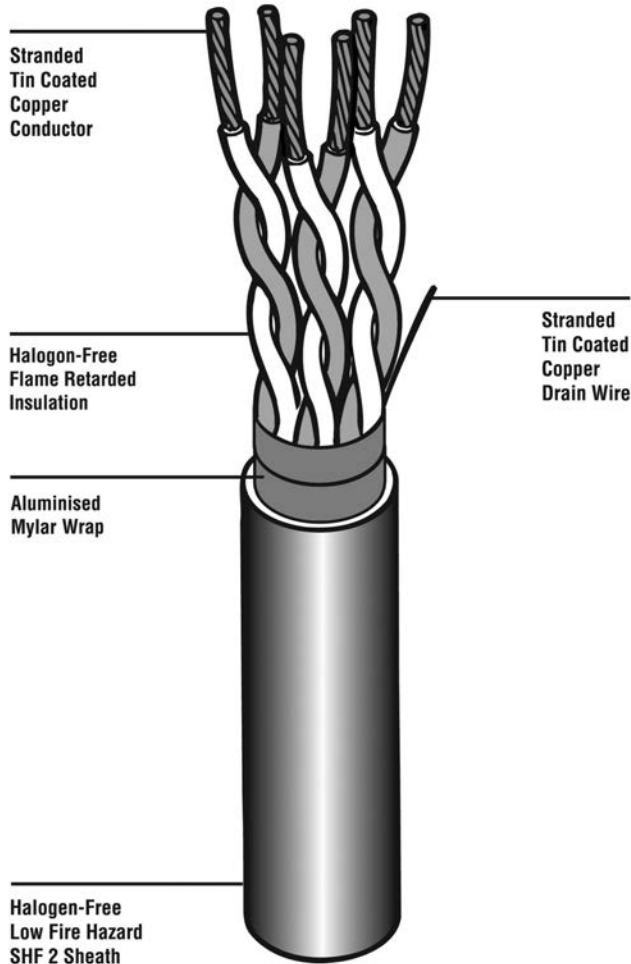
	Light Blue	White
1	1	2
2	3	4
3	5	6

Additional pairs numbered sequentially

Triples

	Red	Light Blue	White
1	1	2	3
2	4	5	6
3	7	8	9

Additional triples numbered sequentially



Approvals

DNV, LR, GL, ABS, KR, CCS,
RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105-PF/C-Lite CL105-TF (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
PAIRS					
CL105-2x2x0.5 - PF	3.7	0.9	5.5	0.4	51
CL105-3x2x0.5 - PF	5.7	1.0	7.7	0.5	85
CL105-4x2x0.5 - PF	6.3	1.1	8.5	0.6	106
CL105-7x2x0.5 - PF	7.8	1.1	10	0.7	152
CL105-10x2x0.5 - PF	9.9	1.2	12.3	0.8	210
CL105-14x2x0.5 - PF	11.5	1.3	14.1	0.9	281
CL105-19x2x0.5 - PF	13.3	1.3	15.9	1.1	360
CL105-24x2x0.5 - PF	14.8	1.4	17.6	1.2	446
CL105-37x2x0.5 - PF	18.1	1.5	21.1	1.4	655
CL105-2x2x0.75 - PF	4.1	1.0	6.1	0.4	70
CL105-3x2x0.75 - PF	6.5	1.1	8.7	0.6	112
CL105-4x2x0.75 - PF	7.2	1.1	9.4	0.6	133
CL105-7x2x0.75 - PF	8.9	1.2	11.3	0.7	204
CL105-10x2x0.75 - PF	11.2	1.2	13.6	0.9	271
CL105-14x2x0.75 - PF	13	1.3	15.6	1.0	365
CL105-19x2x0.75 - PF	15	1.4	17.8	1.2	481
CL105-24x2x0.75 - PF	16.7	1.5	19.7	1.3	597
CL105-37x2x0.75 - PF	20.6	1.6	23.8	1.5	881
CL105-2x2x1.0 - PF	4.4	1.0	6.4	0.4	79
CL105-3x2x1.0 - PF	7.1	1.1	9.3	0.6	128
CL105-4x2x1.0 - PF	7.9	1.1	10.1	0.7	154
CL105-7x2x1.0 - PF	9.8	1.2	12.2	0.8	239
CL105-10x2x1.0 - PF	12.1	1.3	14.7	1.0	326
CL105-14x2x1.0 - PF	14.2	1.4	17	1.1	440
CL105-19x2x1.0 - PF	16.3	1.5	19.3	1.3	580
CL105-24x2x1.0 - PF	18.2	1.5	21.2	1.4	709
CL105-37x2x1.0 - PF	22.4	1.7	25.8	1.7	1064
CL105-2x2x1.5 - PF	5.2	1.0	7.2	0.5	105
CL105-3x2x1.5 - PF	8.4	1.1	10.6	0.7	181
CL105-4x2x1.5 - PF	9.3	1.2	11.7	0.8	218
CL105-7x2x1.5 - PF	11.6	1.3	14.2	0.9	332
CL105-10x2x1.5 - PF	14.2	1.4	17	1.1	452
CL105-14x2x1.5 - PF	16.6	1.5	19.6	1.3	613
CL105-19x2x1.5 - PF	19.2	1.6	22.4	1.5	810
CL105-24x2x1.5 - PF	21.4	1.7	24.8	1.6	1006
CL105-37x2x1.5 - PF	26.4	1.9	30.2	2.0	1511
TRIPLES					
CL105-2x3x0.75 - TF	7.1	1.1	9.3	0.6	126
CL105-4x3x0.75 - TF	8.5	1.1	10.7	0.7	182
CL105-7x3x0.75 - TF	10.5	1.2	12.9	0.8	283
CL105-10x3x0.75 - TF	15	1.4	17.8	1.2	412
CL105-15x3x0.75 - TF	17.5	1.5	20.5	1.3	601
CL105-2x3x1.5 - TF	9.1	1.2	11.5	0.7	191
CL105-4x3x1.5 - TF	10.9	1.2	13.3	0.9	290
CL105-7x3x1.5 - TF	13.5	1.3	16.1	1.0	453

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite CL105/PI/C-Lite CL105-TI

Multipair and Multitriple Individually Screened Cables

Field of application
Instrumentation and communication control
General power and lighting

Voltage class

0.6/1kV

Temperature class

90°C

Flame retarded

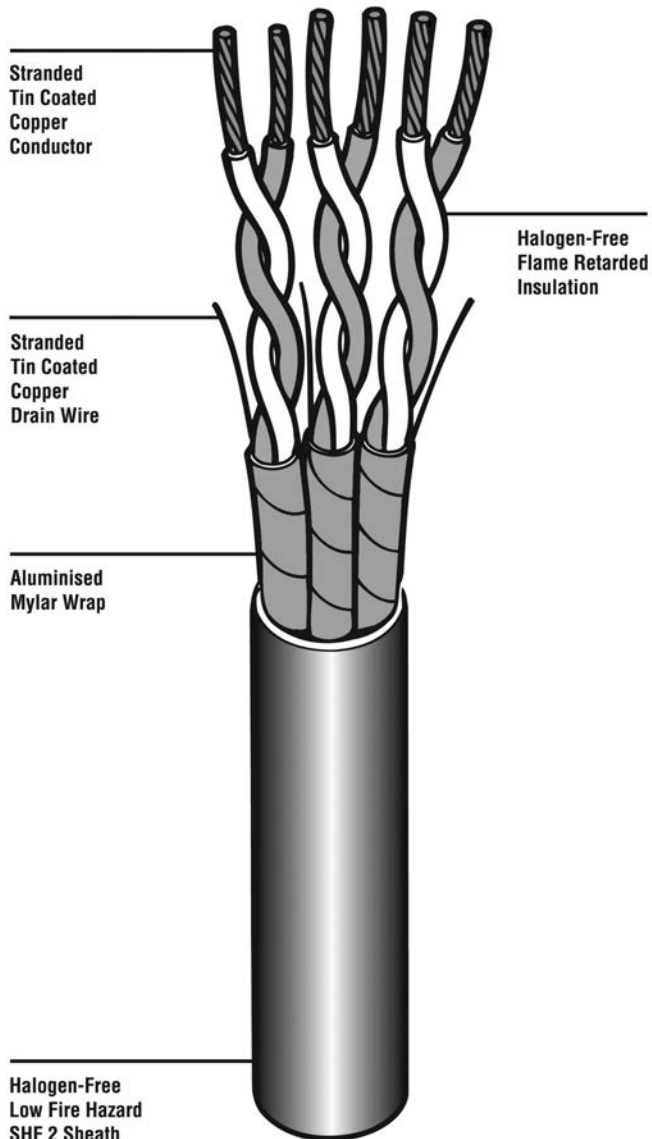
IEC 60332-1,-3

Cable jacket

Zerohal

The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.



Core Identification

Pairs	Light Blue	White
1	1	2
2	3	4
3	5	6

Additional pairs numbered sequentially

Triples	Red	Light Blue	White
1	1	2	3
2	4	5	6
3	7	8	9

Additional triples numbered sequentially

Approvals

DNV, LR, GL, ABS, KR, CCS, RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105/PI/C-Lite CL105-TI (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
PAIRS					
CL105-1x2x0.5 - PI	3.2	0.9	5	0.3	41
CL105-2x2x0.5 - PI	6.1	1.0	8.1	0.5	87
CL105-3x2x0.5 - PI	6.3	1.1	8.5	0.6	103
CL105-4x2x0.5 - PI	7	1.1	9.2	0.6	126
CL105-7x2x0.5 - PI	8.7	1.1	10.9	0.7	185
CL105-10x2x0.5 - PI	10.1	1.2	12.5	0.8	255
CL105-14x2x0.5 - PI	11.9	1.3	14.5	0.9	347
CL105-19x2x0.5 - PI	13.8	1.4	16.6	1.1	462
CL105-24x2x0.5 - PI	15.5	1.4	18.3	1.2	566
CL105-37x2x0.5 - PI	19.2	1.6	22.4	1.5	856
CL105-1x2x0.75 - PI	3.4	0.9	5.2	0.3	46
CL105-2x2x0.75 - PI	6.9	1.1	9.1	0.6	112
CL105-3x2x0.75 - PI	7.1	1.1	9.3	0.6	132
CL105-4x2x0.75 - PI	7.9	1.1	10.1	0.7	164
CL105-7x2x0.75 - PI	9.9	1.2	12.3	0.8	250
CL105-10x2x0.75 - PI	11.4	1.3	14	0.9	344
CL105-14x2x0.75 - PI	13.4	1.3	16	1.0	462
CL105-19x2x0.75 - PI	15.7	1.4	18.5	1.2	616
CL105-24x2x0.75 - PI	17.5	1.5	20.5	1.3	769
CL105-37x2x0.75 - PI	21.8	1.7	25.2	1.6	1164
CL105-1x2x1.0 - PI	3.7	0.9	5.5	0.4	55
CL105-2x2x1.0 - PI	7.5	1.1	9.7	0.6	133
CL105-3x2x1.0 - PI	7.7	1.1	9.9	0.6	159
CL105-4x2x1.0 - PI	8.6	1.1	10.8	0.7	198
CL105-7x2x1.0 - PI	10.7	1.2	13.1	0.9	306
CL105-10x2x1.0 - PI	12.4	1.3	15	1.0	423
CL105-14x2x1.0 - PI	14.6	1.4	17.4	1.1	579
CL105-19x2x1.0 - PI	17.1	1.5	20.1	1.3	773
CL105-24x2x1.0 - PI	19.1	1.6	22.3	1.4	965
CL105-37x2x1.0 - PI	23.7	1.7	27.1	1.8	1448
CL105-1x2x1.5 - PI	4.4	1.0	6.4	0.4	73
CL105-2x2x1.5 - PI	8.8	1.2	11.2	0.7	179
CL105-3x2x1.5 - PI	9.1	1.2	11.5	0.7	211
CL105-4x2x1.5 - PI	10.1	1.2	12.5	0.8	265
CL105-7x2x1.5 - PI	12.6	1.3	15.2	1.0	406
CL105-10x2x1.5 - PI	14.6	1.4	17.4	1.1	562
CL105-14x2x1.5 - PI	17.2	1.5	20.2	1.3	769
CL105-19x2x1.5 - PI	20.1	1.6	23.3	1.5	1027
CL105-24x2x1.5 - PI	22.5	1.7	25.9	1.7	1283
CL105-37x2x1.5 - PI	27.9	1.9	31.7	2.1	1943
TRIPLES					
CL105-1x3x0.75 - TI	3.7	0.9	5.5	0.4	54
CL105-2x3x0.75 - TI	7.4	1.1	9.6	0.6	132
CL105-4x3x0.75 - TI	8.9	1.2	11.3	0.7	209
CL105-7x3x0.75 - TI	11.1	1.2	13.5	0.9	309
CL105-10x3x0.75 - TI	14.7	1.4	17.5	1.1	449
CL105-15x3x0.75 - TI	17.3	1.5	20.3	1.3	664
CL105-1x3x1.5 - TI	4.7	1.0	6.7	0.4	88
CL105-2x3x1.5 - TI	9.5	1.2	11.9	0.8	213
CL105-4x3x1.5 - TI	11.4	1.3	14	0.9	337
CL105-7x3x1.5 - TI	14.2	1.4	17	1.1	521

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite CL105/PO/C-Lite CL105-TO

**Multipair and Multitriple
Overall Screened Cables**

The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.

Field of application

Instrumentation and
communication control
General power and lighting

Voltage class

0.6/1kV

Temperature class

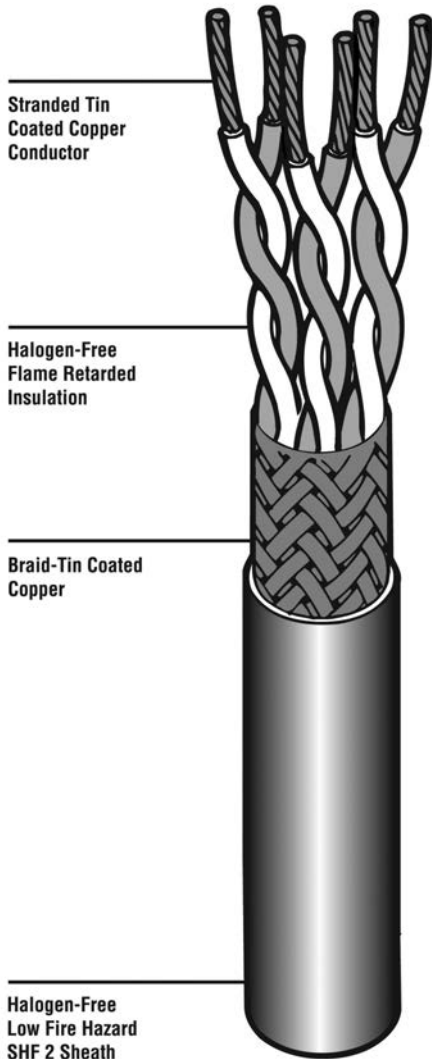
90°C

Flame retarded

IEC 60332-1,-3

Cable jacket

Zerohal



Core Identification

Pairs

	Light Blue	White
1	1	2
2	3	4
3	5	6

Additional pairs numbered sequentially

Triples

	Red	Light Blue	White
1	1	2	3
2	4	5	6
3	7	8	9

Additional triples numbered sequentially

Approvals

DNV, LR, GL, ABS, KR, CCS,
RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105/PO/C-Lite CL105-TO (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
PAIRS					
CL105-1x2x0.5 - PO	3.5	0.9	5.3	0.3	48
CL105-2x2x0.5 - PO	4.1	1.0	6.1	0.4	68
CL105-3x2x0.5 - PO	6.2	1.1	8.4	0.6	109
CL105-4x2x0.5 - PO	6.9	1.1	9.1	0.6	130
CL105-7x2x0.5 - PO	8.3	1.1	10.5	0.7	178
CL105-10x2x0.5 - PO	9.6	1.2	12	0.8	236
CL105-14x2x0.5 - PO	11.2	1.3	13.8	0.9	312
CL105-19x2x0.5 - PO	13	1.3	15.6	1.0	412
CL105-24x2x0.5 - PO	14.5	1.4	17.3	1.2	504
CL105-37x2x0.5 - PO	18.1	1.5	21.1	1.4	754
CL105-1x2x0.75 - PO	3.9	1.0	5.9	0.4	60
CL105-2x2x0.75 - PO	4.6	1.0	6.6	0.4	82
CL105-3x2x0.75 - PO	7	1.1	9.2	0.6	134
CL105-4x2x0.75 - PO	7.7	1.1	9.9	0.6	162
CL105-7x2x0.75 - PO	9.4	1.2	11.8	0.8	232
CL105-10x2x0.75 - PO	10.8	1.2	13.2	0.9	301
CL105-14x2x0.75 - PO	12.8	1.3	15.4	1.0	416
CL105-19x2x0.75 - PO	14.8	1.4	17.6	1.1	541
CL105-24x2x0.75 - PO	16.7	1.5	19.7	1.3	688
CL105-37x2x0.75 - PO	20.7	1.6	23.9	1.6	1029
CL105-1x2x1.0 - PO	4.2	1.0	6.2	0.4	66
CL105-2x2x1.0 - PO	4.9	1.0	6.9	0.4	93
CL105-3x2x1.0 - PO	7.6	1.1	9.8	0.6	154
CL105-4x2x1.0 - PO	8.4	1.1	10.6	0.7	186
CL105-7x2x1.0 - PO	10.3	1.2	12.7	0.8	269
CL105-10x2x1.0 - PO	11.8	1.3	14.4	0.9	360
CL105-14x2x1.0 - PO	13.9	1.4	16.7	1.1	496
CL105-19x2x1.0 - PO	16.3	1.5	19.3	1.3	669
CL105-24x2x1.0 - PO	18.2	1.5	21.2	1.4	809
CL105-37x2x1.0 - PO	22.5	1.7	25.9	1.7	1226
CL105-1x2x1.5 - PO	4.9	1.0	6.9	0.4	85
CL105-2x2x1.5 - PO	5.7	1.0	7.7	0.5	122
CL105-3x2x1.5 - PO	8.9	1.2	11.3	0.7	206
CL105-4x2x1.5 - PO	9.9	1.2	12.3	0.8	251
CL105-7x2x1.5 - PO	12.1	1.3	14.7	1.0	367
CL105-10x2x1.5 - PO	14	1.4	16.8	1.1	508
CL105-14x2x1.5 - PO	16.6	1.5	19.6	1.3	703
CL105-19x2x1.5 - PO	19.1	1.6	22.3	1.4	915
CL105-24x2x1.5 - PO	21.6	1.7	25	1.6	1161
CL105-37x2x1.5 - PO	26.5	1.9	30.3	2.0	1703
TRIPLES					
CL105-1x3x0.75 - TO	4.2	1.0	6.2	0.4	69
CL105-2x3x0.75 - TO	7.7	1.1	9.9	0.6	152
CL105-4x3x0.75 - TO	9.1	1.2	11.5	0.7	223
CL105-7x3x0.75 - TO	11.2	1.2	13.6	0.9	318
CL105-10x3x0.75 - TO	14.8	1.4	17.6	1.1	472
CL105-15x3x0.75 - TO	17.4	1.5	20.4	1.3	697
CL105-1x3x1.5 - TO	5.2	1.0	7.2	0.5	104
CL105-2x3x1.5 - TO	9.7	1.2	12.1	0.8	231
CL105-4x3x1.5 - TO	11.5	1.3	14.1	0.9	342
CL105-7x3x1.5 - TO	14.3	1.4	17.1	1.1	520

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite CL105-PIO/C-Lite CL105-TIO

Multipair and Multitriple Individually and Overall Screened Cables

Field of application

Instrumentation and communication control
General power and lighting

Voltage class

0.6/1kV

Temperature class

90°C

Flame retarded

IEC 60332-1,-3

Cable jacket

Zerohal

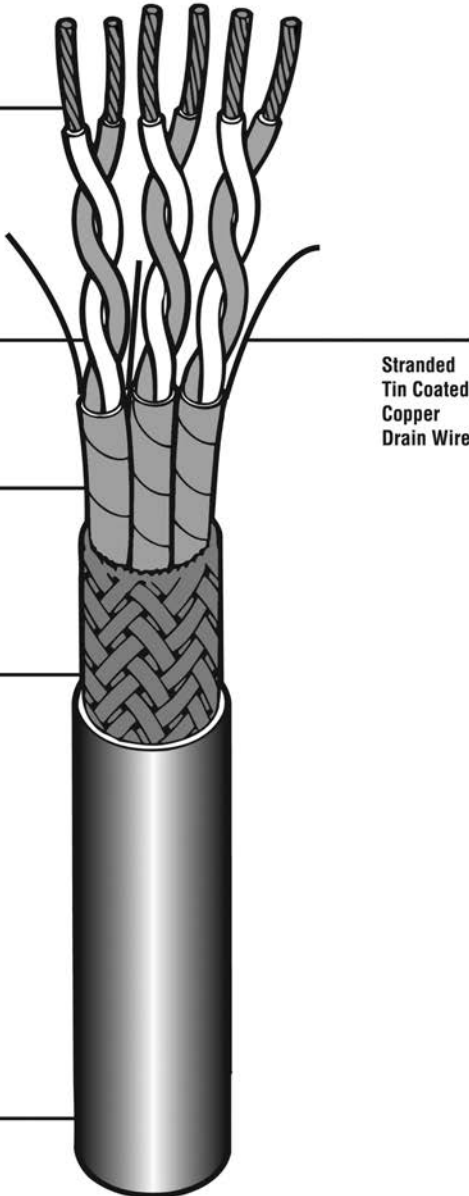
Stranded Tin Coated Copper Conductor

Halogen-Free Flame Retarded Insulation

Aluminised Mylar Wrap

Braid-Tin Coated Copper

Halogen-Free Low Fire Hazard SHF 2 Sheath



The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.

Core Identification

Pairs	Light Blue	White
1	1	2
2	3	4
3	5	6

Additional pairs numbered sequentially

Triples	Red	Light Blue	White
1	1	2	3
2	4	5	6
3	7	8	9

Additional triples numbered sequentially

Approvals

DNV, LR, GL, ABS, KR, CCS, RMRS, NK, BV

Pending

RINA

Signal and Control Cables for
Offshore and Commercial Shipping

C-Lite CL105-PIO/C-Lite CL105-TIO (Continued)

Ordering Description	OD Under jacket (mm)	Nom Wall (mm)	Nom OD (mm)	Tolerance (mm)	Nom weight (kg/km)
PAIRS					
CL105-1x2x0.5 - PIO	3.7	0.9	5.5	0.4	56
CL105-2x2x0.5 - PIO	6.7	1.1	8.9	0.6	117
CL105-3x2x0.5 - PIO	6.9	1.1	9.1	0.6	132
CL105-4x2x0.5 - PIO	7.6	1.1	9.8	0.6	155
CL105-7x2x0.5 - PIO	9.3	1.2	11.7	0.8	230
CL105-10x2x0.5 - PIO	10.7	1.2	13.1	0.9	300
CL105-14x2x0.5 - PIO	12.6	1.3	15.2	1.0	413
CL105-19x2x0.5 - PIO	14.5	1.4	17.3	1.1	538
CL105-24x2x0.5 - PIO	16.4	1.5	19.4	1.3	684
CL105-37x2x0.5 - PIO	20.3	1.6	23.5	1.5	1023
CL105-1x2x0.75 - PIO	4.1	1.0	6.1	0.4	68
CL105-2x2x0.75 - PIO	7.5	1.1	9.7	0.6	144
CL105-3x2x0.75 - PIO	7.7	1.1	9.9	0.6	165
CL105-4x2x0.75 - PIO	8.5	1.1	10.7	0.7	200
CL105-7x2x0.75 - PIO	10.5	1.2	12.9	0.8	294
CL105-10x2x0.75 - PIO	12	1.3	14.6	0.9	395
CL105-14x2x0.75 - PIO	14.1	1.4	16.9	1.1	544
CL105-19x2x0.75 - PIO	16.6	1.5	19.6	1.3	735
CL105-24x2x0.75 - PIO	18.4	1.5	21.4	1.4	891
CL105-37x2x0.75 - PIO	22.9	1.7	26.3	1.7	1352
CL105-1x2x1.0 - PIO	4.4	1.0	6.4	0.4	78
CL105-2x2x1.0 - PIO	8.1	1.1	10.3	0.7	167
CL105-3x2x1.0 - PIO	8.3	1.1	10.5	0.7	194
CL105-4x2x1.0 - PIO	9.2	1.2	11.6	0.8	243
CL105-7x2x1.0 - PIO	11.3	1.3	13.9	0.9	360
CL105-10x2x1.0 - PIO	13.1	1.3	15.7	1.0	492
CL105-14x2x1.0 - PIO	15.5	1.4	18.3	1.2	682
CL105-19x2x1.0 - PIO	18	1.5	21	1.4	891
CL105-24x2x1.0 - PIO	20.2	1.6	23.4	1.5	1131
CL105-37x2x1.0 - PIO	24.8	1.8	28.4	1.8	1665
CL105-1x2x1.5 - PIO	5.1	1.0	7.1	0.5	96
CL105-2x2x1.5 - PIO	9.4	1.2	11.8	0.8	219
CL105-3x2x1.5 - PIO	9.7	1.2	12.1	0.8	252
CL105-4x2x1.5 - PIO	10.7	1.2	13.1	0.9	310
CL105-7x2x1.5 - PIO	13.3	1.3	15.9	1.0	476
CL105-10x2x1.5 - PIO	15.5	1.4	18.3	1.2	664
CL105-14x2x1.5 - PIO	18.1	1.5	21.1	1.4	889
CL105-19x2x1.5 - PIO	21.2	1.6	24.4	1.6	1200
CL105-24x2x1.5 - PIO	23.6	1.7	27	1.8	1476
CL105-37x2x1.5 - PIO	29	2.0	33	2.1	2197
TRIPLES					
CL105-1x3x0.75 - TIO	4.4	1.0	6.4	0.4	62
CL105-2x3x0.75 - TIO	8	1.1	10.2	0.7	166
CL105-4x3x0.75 - TIO	9.5	1.2	11.9	0.8	249
CL105-7x3x0.75 - TIO	11.7	1.3	14.3	0.9	365
CL105-10x3x0.75 - TIO	15.6	1.4	18.4	1.2	552
CL105-15x3x0.75 - TIO	18.2	1.5	21.2	1.4	784
CL105-1x3x1.5 - TIO	5.4	1.0	7.4	0.5	113
CL105-2x3x1.5 - TIO	10.1	1.2	12.5	0.8	255
CL105-4x3x1.5 - TIO	12	1.3	14.6	0.9	388
CL105-7x3x1.5 - TIO	14.9	1.4	17.7	1.2	599

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite Cables

Primary Wire (Switchboard Cable)

Field of application
Instrumentation and
communication control
General power and lighting

Voltage class
0.6/1kV

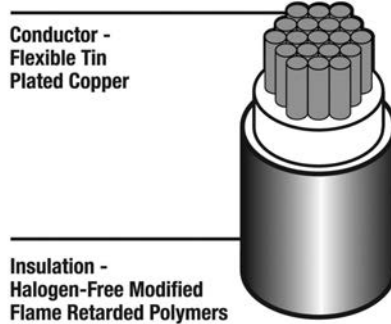
Temperature class
90°C

Flame retarded
IEC 60332-1,-3

Cable jacket
Zerohal

The new C-Lite cable range is constructed from flame retarded halogen free primary wire and crosslinked sheath materials.

Offering size and weight savings over traditional cables. The new C-Lite cable range is suitable for use in general power, lighting, communication, control and instrumentation applications.



Approvals

DNV, LR, GL, ABS, KR, CCS,
RMRS, NK, BV

Pending

RINA

Part Number (CL105-)	Conductor		Finished Wire		
	Standing No' Dia (mm)	Max Diameter (mm)	Maximum Resistance @ 20°C (ohm/km)	Nominal Diameter (mm)	Nominal Weight (kg/km)
Metric Cross Section					
0111-0.50-*	19/0.18	0.90	40.1	1.40	6.60
0111-0.75-*	19/0.23	1.15	26.7	1.60	8.90
0111-1.00-*	19/0.25	1.26	20.0	1.75	10.7
0111-1.50-*	37/0.23	1.58	13.7	2.08	16.0
0111-2.50-*	37/0.29	2.01	8.21	2.55	25.7
0111-4.00-*	56/0.30	2.57	4.89	3.09	43.6
0111-6.00-*	84/0.31	3.05	3.16	3.95	58.3
0111-10.00-*	80/0.41	4.00	1.95	4.95	100.0
AWG Cross Section					
0111-0.25-(24AWG)	19/0.13	0.63	84.32	1.14	3.59
0111-0.40-(22AWG)	19/0.16	0.79	50.5	1.33	5.20
0111-0.60-(20AWG)	19/0.20	1.01	31.1	1.52	7.40
0111-1.00-(18AWG)	19/0.25	1.26	20.0	1.75	10.7
0111-1.20-(16AWG)	19/0.29	1.42	15.3	1.93	13.6
0111-2.00-(14AWG)	37/0.25	1.82	10.5	2.36	20.3
0111-3.00-(12AWG)	37/0.32	2.24	6.58	2.78	31.0

Color Code: The *in the part number shall be replaced by a standard color code designator in accordance with Mil-Std-681

White preferred other colors available on request e.g. CL105-0111-0.5-9 White Insulation

Performance Requirements: To be tested to and meet the requirements of the issue in effect of DNV Type Approval Programme No. 6-827.11-1 (excluding sizes less than 0.5mm²) Note: For installation guidelines refer to TE installation guidelines document WT1189.

C-Lite Approvals

Approval Body

Det Norske Veritas (DNV)

Lloyds Register (LR)

Germanischer Lloyd (GL)

American Bureau of Shipping (ABS)

Korean Register (KR)

Russian Register of Shipping (RMRS)

China Classification Society (CCS)

Nippon Kaiji Kyokai (NK)

Pending

Bureau Veritas (BV)

Registro Italiano Navale (RINA)

Approval System

Type Approval

Program No. 6-827.11.1

2002 Type Approval System

Type Approval System

Type Approval Program

Type Approval

Type Approval

Type Approval

Type Approval

Certificate Numbers

E-7276, E-7277, E-7278,

E-7279, E-7280, E-7281

99/0154(E1)

33 106-6 HH, 33 108-6 HH

06-LB158945-PDA

LDN20867-EL001

07.04389.260, 07.04390.260,

07.04392.260, 07-04393.260

07.04394.260, 07-04395.260

LD07W00001

TA07631M; TA07630M

Additional Type Approvals on request

C-Lite Cables (Continued)

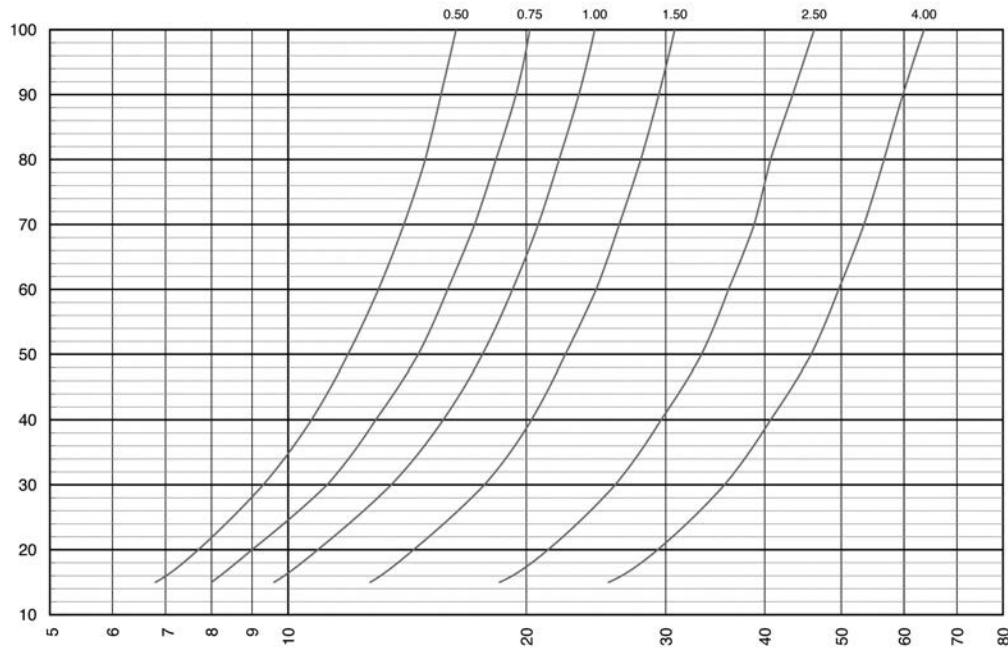
Technical Information

Current Carrying Capacity

Current carrying capacity is defined as the continuous current which when passed through a wire will increase the temperature of the conductor from a specific ambient temperature to the maximum temperature rating of the insulation/sheath.

Temperature Rise v Current Guide

For Type CL105 in free air (single core)



No of cores	Derating Factor
2	0.825
3	0.73
4	0.66
7	0.54
9	0.49
12	0.43
15	0.39
18	0.36
21	0.33
24	0.31
27	0.29
30	0.28
37	0.26

Short Circuit Current

The short circuit current is based on the material the wire is made of, the cross sectional area of the wire and the maximum temperature rating of the insulation material. The short circuit current for a given wire size is provided in the table as constant current for a given amount of time.

Cross-Section of the conductor in mm ²	Duration of short circuit in seconds.				
	0.2	0.5	1.0	2.0	3.0
0.5	122	77	54	38	31
0.75	183	115	82	58	47
1.0	243	154	109	77	63
1.5	365	231	163	115	94
2.5	609	385	272	192	157
4.0	974	616	435	308	251
	Short circuit current in Amps				

Signal and Control Cables for Offshore and Commercial Shipping

C-Lite Cables (Continued)

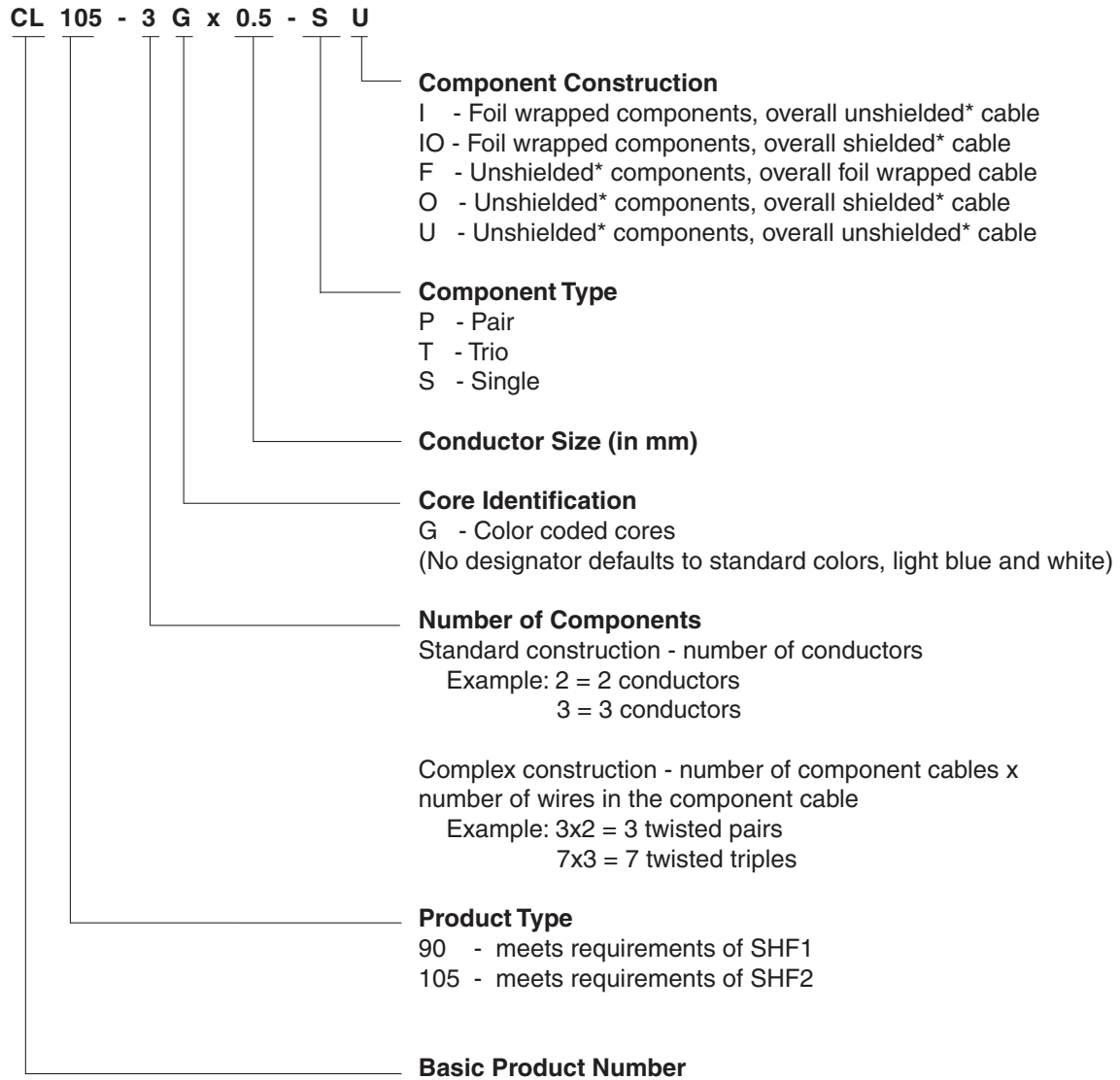
Specification Summary

Examination or test	Test basis	Requirements	Test on
General properties			
Braid coverage	IEC 60092-350	90% minimum coverage density	Cable
Metallic coating of copper conductors	IEC 60092-350 by inspection	Conductor surface will be smooth and uniform. Insulation will not adhere to the conductor.	Conductor
Physical properties			
Tensile strength and ultimate elongation	IEC 60811-1-1	20MPa minimum, 150% minimum (insulation) (speed 50±10 mm/min)	Insulation
Scrape abrasion resistance	NF F 63-808	500 cycles minimum (5N load, 0.45 mm diameter rod, 20°C, 55 cycles/minute)	Core
Dynamic cut through	NF F 63-808	50N minimum (90° 0.13 mm radius blade, 20°C, 100g/s load)	Core
Notch propagation	NF F 63-808	No dielectric breakdown (0.05 mm notch, 6X mandrel, 1.5kV ac for 1 minute)	Core
Mechanical/particular characteristic of sheathing compounds	IEC 60092-350, 12.4 IEC 60092-359 Table II & III	SHF1 or SHF2	Sheath
Thermal properties			
Lifetime	BS 3G230	>20000h @ 120°C	Core
Accelerated ageing	IEC 60811-1-2	No cracks, no dielectric breakdown (168h @ 150°C, 1.5kV ac for 5 minutes)	Core
Insulation blocking	NF F 63-808	Coresh must be easily separated (6h @ 150°C)	Core
Cold bend (Where outer diameter <12.5 mm)	IEC 60811-1-4	No cracks, no dielectric breakdown (-30°C, 10X mandrel, 1.5kV ac for 5 mins for 1m core) (-30°C, 10X mandrel, 3.5kV ac for 5 min. Sample of cable)	Core Cable
Current overload	BS 3G230	No cracks, no dielectric breakdown (30s @ 250°C, 6X mandrel, wind as in lifetime test, 1.5kV ac for 5 minutes)	Core
Electrical properties			
AC and DC voltage tests	IEC 60092-350	No dielectric breakdown (3.5kV ac/8.4kV dc for 5 minutes for 1m of core) (3.5kV ac/8.4kV dc for 5 minutes for each delivery length of cable)	Core Cable
Insulation – continuity proof test	IEC 60092-350 Clause 10.3b	No dielectric breakdown At least 8kV impulse, 8kV dc or 3.5kV ac	Core
Insulation resistance at 20°C	IEC 60092-350	500MΩ/kM min. @ 20°C (5m length, quote actual IR)	Core
Insulation resistance at 90°C	IEC 60092-350	1.5MΩ/kM min @ 90°C (5m length, quote actual IR)	Core
Increase in a.c. capacitance after immersion in water	IEC 60092-350	$C_{14}-C_1 \leq 0.15 C_1$, $C_{14}-C_7 \leq 0.05 C_7$ (14 days @ 50°C in tap water)	Core
Environmental properties			
Ozone resistance	IEC 60092-350 IEC 60811-2-1	No crazing or cracking (250-300ppm, 25°C, 30h)	Core
Fluid immersion: 72h @ 70°C – IRM 902, IRM 903, Diesel (F-76), 3.5% salt water	BS 3G230	No cracking or dielectric breakdown 5% max, swell (6X mandrel, soak in water, 1.5kV ac for 5 minutes)	Core
Fire hazard properties			
Flammability – small scale	IEC 60332-1	Charring confined between 50mm and 540mm from lower edge of top support (Single vertical wire)	Core
Flammability – large scale	IEC 60332-3	Category A, designation F	Cable
Halogen content	IEC 60684-2 cl. 45	Less than 0.5% for each non metallic component	Cable
Toxicity index	IMO FTPC Appendix 3	It of less than 2, report Lc value	Cable
Smoke emission – small scale	ISO 5659-2 Appendix 3	Ds4 150 max. and Dmax 150 max. VOF4 300 max.	Core
Smoke emission – Large scale	IEC 61034-2	70% minimum transmittance	Cable

Note: For installation guidelines refer to TE installation guidelines document WT1189

C-Lite Cables (Continued)

Part Numbering System



*also referred to as screened or unshielded

C-Lite F (Fire Resistant) Cables

Product Facts

- Halogen free
- Small size
- Lightweight
- Tough flexible construction
- Resistant to hot diesel fuels, oils, grease, drilling fluids, and mechanical abuse
- Meets flame retardant requirements of IEC 60332-3
- Controlled dimensions
- Mud resistant to NEK 606
- Fire resistant to IEC 60331-31 (1000°C)



Applications

TE is a major supplier in high performance cable systems to the offshore and industrial markets. Offshore applications include telecommunications, instrumentation and small power cables which represent approximately 80% of the total cable length on a platform.

Easy Design

C-Lite F cable consists of Raychem brand primary C-Lite FR Wire with a Zerohal-EN jacket and can be used throughout an offshore platform, simplifying the selection of cables for designers and electrical engineers.

Zerohal-EN Cables Generate Less Smoke

Zerohal-EN is a halogen-free cable jacket material, developed by TE and combines the good mechanical, environmental and electrical features of some conventional cables, with good fire hazard performance.

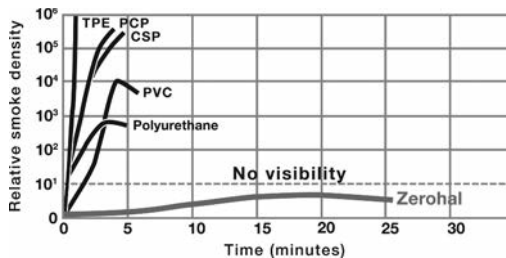
Until recently the flame retardance of cable jackets was achieved by the use of halogenated flame retardants that are effective fire suppressants, but which unfortunately produce dense smoke and corrosive acid gases when burned.

These effects are highly undesirable in a fire, causing corrosion damage to expensive and vital equipment, hindering evacuation and fire fighting and above all, endangering life.

Benefits of Zerohal-EN cable

- Highly flame retarded
- Low smoke generation
- Low toxicity index
- Low acid gas generation
- Operating temperature -40°C up to +120°C
- Low water uptake
- Compatible with Raychem brand heat-shrink components - heat-shrink tubing, molded parts and adhesives.

Smoke generation with time

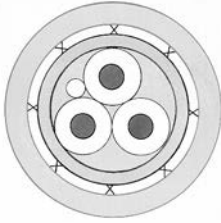


The 10% visibility line on the graph indicates the density of smoke (measured in the NBS smoke chamber) which would cause human disorientation and confusion.

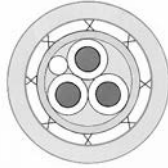
Available in:	Americas	Europe	Asia Pacific
		■	

C-Lite F (Fire Resistant) Cables (Continued)

Traditional Fire Resistant Cable

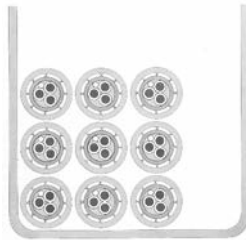
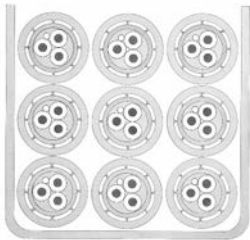


C-Lite F Cable

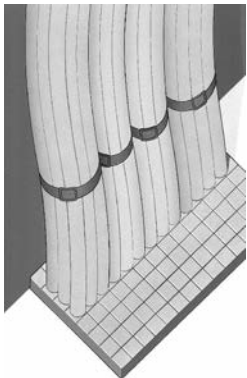


The illustration above shows a TE light weight cable on the right compared with a traditional offshore cable having the same cross-sectional area of copper. Both cables have the same number of conductors. A saving in size has been made on the insulation material, but without sacrificing the mechanical or electrical characteristics of the cable.

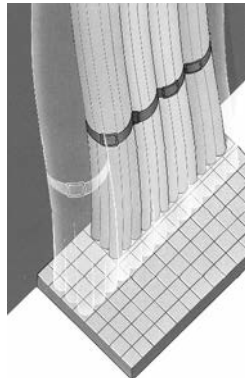
Cable trays



A typical saving in the cable tray volume can exceed 40%



Transits



Over 40% savings in area

With more than 475 km of cabling on a typical large platform, there are potential savings of up to 105 tons topside by using C-Lite throughout the platform. The total cabling system, together with smaller cable glands, trays and transits can lead to overall weight savings of approximately 165 tons and cost savings in excess of 15%.

Designing Platforms

Platforms are becoming smaller and more sophisticated with an ever increasing complexity of electronic systems, sensors, communications and safety equipment. More cables are therefore required to fit into smaller spaces.

C-Lite F small size cable can be a distinct advantage over conventional cables.

Space saving when refurbishing platforms

As technology advances, engineers are called upon to update and modify existing systems or fit completely new ones.

To provide all the necessary interconnections, hundreds of multicore cables have to run throughout the platform. These, along with cables for power, lighting and instrumentation, create a severe space problem on cable trays, cable transits through fire walls, marshalling boxes and gland plates.

Using C-Lite F cable installation is easier because the cable is smaller, lighter, more flexible and has a reduced bend radius than conventional cables.

Lower total installed cost on new platforms

Weight is one of the key factors to consider when designing new platforms.

Reduced size and weight in cables allow for smaller and lighter gauge racking needing less support. Also, smaller transits and cable glands reduce material and installation costs. C-Lite F cable is easier to specify as it meets all the industry's essential requirements in one cable.

Benefits of using TE C-Lite F cable

- Cable can be used throughout the platform
- Smaller tray work/more cables per tray
- Lighter supports
- Smaller cable glands/gland plate optimization
- More cables through transit blocks
- Time saving on installation
- Less cable accessories
- Less inventory
- Lower total installed cost
- Wide size range: 0.50-10.00mm²

FlexLite Commercial Wire

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■



Selection Guide

Application	Temperature Rating (°C/°F)	Features and Benefits	Product Name
Intermittent-duty motors and heating elements	-45°C to 125°C -49°F to 257°F	<ul style="list-style-type: none"> ■ Insulation that does not melt and flow at high temperatures ■ Excellent chemical resistance ■ VW-1 	FlexLite DW
Electronics, appliance, and motor applications	-55°C to 135°C -67°F to 275°F	<ul style="list-style-type: none"> ■ Small size, light weight ■ No plasticizers or corrosive outgassing ■ Excellent shop handling 	FlexLite TW
General purpose commercial and industrial	150°C	<ul style="list-style-type: none"> ■ Excellent chemical resistance ■ Non-melting insulation ■ Insulation does not melt and flow at high temperature 	FlexLite CW
Lighting, motor applications	-55°C to 200°C -67°F to 392°F	<ul style="list-style-type: none"> ■ VW-1 ■ Excellent shop handling ■ No cold-flow problems 	FlexLite HT
Lighting, appliances, motors	-65°C to 250°C -85°F to 482°F	<ul style="list-style-type: none"> ■ Very high temperature ■ VW-1 ■ Superb chemical resistance ■ Excellent shop handling 	FlexLite TX

FlexLite/UL Style Cross-Reference

UL Marking and Labeling

All FlexLite products are UL labeled and reel marked. UL surface marking is additional. Please contact TE for further information.

Primary Wire

Product	UL Style	Temperature Rating	Voltage Rating	AWG Range	Part Description
FlexLite DW*	3584	125°C [257°F]	600 volts	14-26	FLDWX031X
FlexLite TW	10208	135°C [275°F]	600 volts	10-28	FLTWX031X
FlexLite CW	10916	150°C [302°F]	600 volts	0.35mm ² –2.50mm ²	FLCW0219& 0211
FlexLite HT*	3557	200°C [392°F]	600 volts	12-26	FLHTX031X
FlexLite TX	10297	250°C [482°F]	600 volts	10-26	FLTXX031X

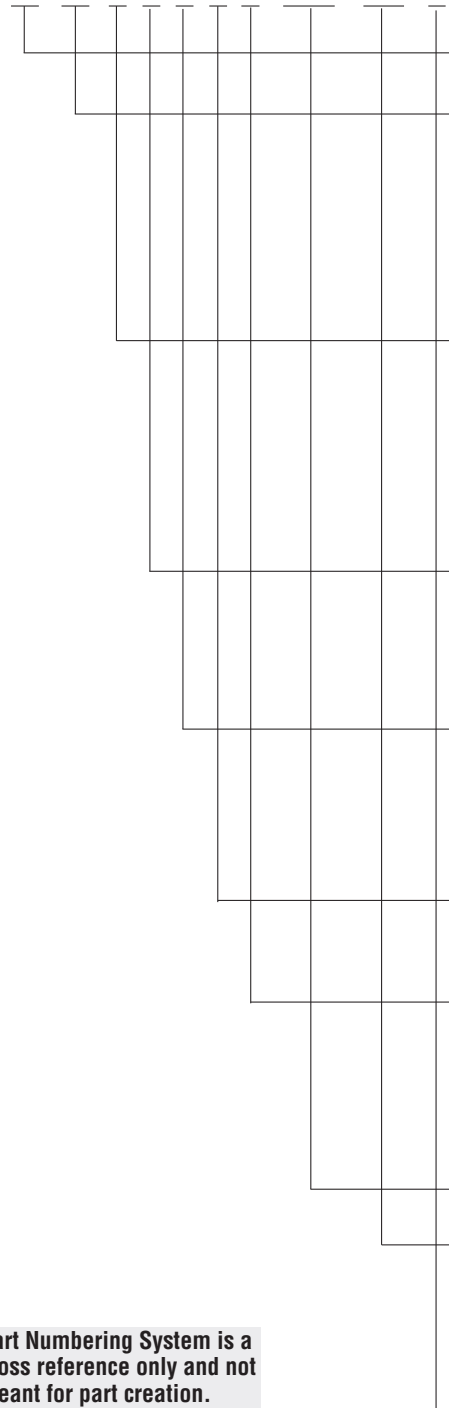
Note: Additional UL-recognized cable constructions are available. Please contact TE for details.

*Available in both metric and imperial sizes.

FlexLite (Continued)

Part Numbering System

FL XX X X X X X - Size - X/X - X



Basic Product Number

Product Type (UL Style - Temperature Rating)

- CW - UL Style 3751 - 150°C
- DW - UL Style 3584 - 125°C
- TW - UL Style 10208 - 135°C
- HT - UL Style 3557 - 200°C
- TX - UL Style 10297 - 250°C

Conductor Stranding

- A - Solid
- B - 7 strand
- C - 19 strand
- D - 37 strand
- E - Rope Lay

Construction

- 0 - Primary wire; or unshielded & unjacketed cable
- 1 - Round braid shielded & jacketed cable*
- 6 - Special constructions

Class of Wire

- 1 - 150 volt
- 2 - 300 volt
- 3 - 600 volt

Number of Conductors

1 through 10 (designator for 10 conductor = 0)

Conductor Type

- 1 - Tin-coated copper
- 2 - Silver-coated copper
- 3 - Nickel coated copper
- 9 - Bare copper

Conductor Size (AWG) or (Metric)

Primary Wire Insulation Color (code per MIL-STD-681)

- | | | | |
|-----------|------------|------------|-----------|
| 0 - Black | 3 - Orange | 6 - Blue | 9 - White |
| 1 - Brown | 4 - Yellow | 7 - Violet | |
| 2 - Red | 5 - Green | 8 - Gray | |

Jacket Color (code per MIL-STD-681)

(codes same as for Primary Wire Insulation Color)

Part Numbering System is a cross reference only and not meant for part creation.

*Shield coating same as conductor coating

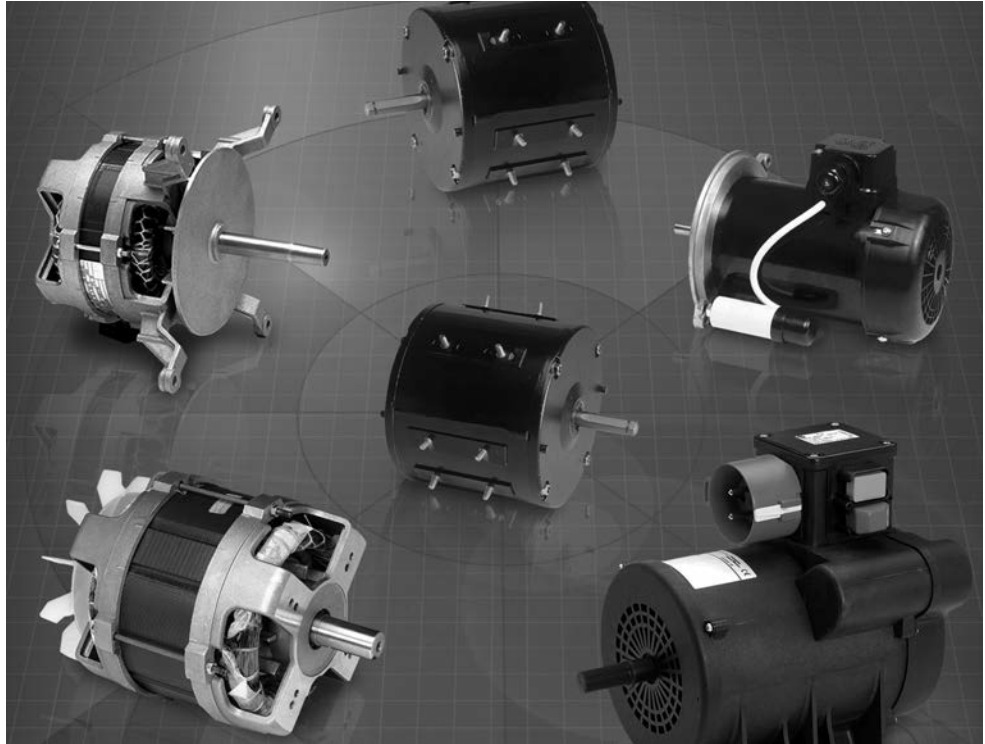
Typical ordering example	19 strand, 20 AWG tin-coated copper, two component, shielded and jacketed cable, 600 volt, blue and white components, white jacket; part number FLDWC1321-20-6/9-9.
Ordering information	For product requiring CUR (Canadian UL) or CSA marking part numbering descriptions above MIGHT NOT apply. Please contact TE for further information.

FlexLite CW

General Purpose and Motor Lead Wire

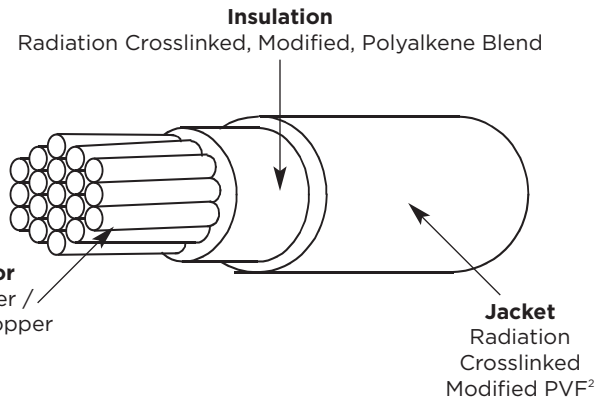
Product Facts

- UL rated operating temperature to 150°C [302°F]
- Non melting cross-linked insulation material provides current overload and resistance to short term thermal excursions
- Insulation offers excellent performance against most fluids, including lubricating oils, hydraulic fluids, cleaning fluids, acids and alkalis
- Varnish resistant for motor lead applications
- Excellent shop floor handling enables ease of termination and full compatibility with automatic cutting and stripping machines
- 600 volt rating exceeds most application needs
- Full range of sizes and colors available
- Thin wall product improves packaging possibilities



Applications

FlexLite CW (FLCW) is designed for general purpose Commercial and Industrial applications. This dual wire combines excellent flexibility, shop floor handling and stripping.



Specifications/Approvals

Series	UL
CW	Style 3751

Available in:	Americas	Europe	Asia Pacific
	■	■	■

FlexLite CW (Continued)

Construction Details

Bare Copper Conductor -FLCW0219

Part Number	Conductor			Finished Wire				Approx. Weight per Unit Length kg/km
	Cross Sectional Area mm ²	Nominal Stranding No / Dia mm	Diameter mm max	Conductor Resistance at 20°C Ω/km max	Diameter mm			
					Lower Spec Limit	Target	Upper Spec Limit	
FLCW0219-0.35-*	0.35	7/0.26	0.78	51.7	1.59	1.63	1.67	5.16
FLCW0219-0.50-*	0.50	19/0.19	0.95	36.9	1.76	1.80	1.84	6.9
FLCW0219-0.75-*	0.75	19/0.23	1.15	24.6	1.96	2.00	2.04	10.9
FLCW0219-1.00-*	1.00	19/0.26	1.30	18.40	2.11	2.15	2.19	11.6
FLCW0219-1.50-*	1.50	19/0.32	1.60	12.60	2.41	2.45	2.49	16.3
FLCW0219-2.50-*	2.5	19/0.41	2.05	7.56	2.86	2.94	2.94	25.70

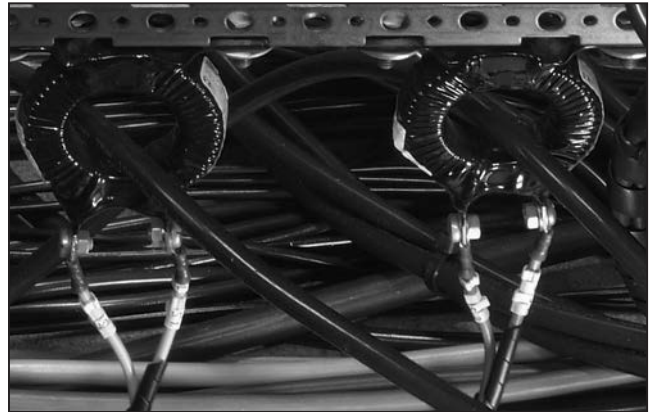
Tin Plated Conductor -FLCW0211

Part Number	Conductor			Finished Wire						
	Cross Sectional Area mm ²	Nominal Stranding No / Dia mm	Diameter mm max	Conductor Resistance at 20°C Ω/km max	Insulation Thickness		Diameter mm			Nominal Weight per Unit Length kg/km
					Absolute Minimum mm	Minimum Average mm	Lower Spec Limit	Target	Upper Spec Limit	
FLCW0211-0.35-*	0.35	7/0.25	0.79	50.9	0.28	0.36	1.60	1.64	1.68	5.22
FLCW0211-0.50-*	0.50	19/0.18	0.88	40.1	0.28	0.36	1.69	1.73	1.77	6.51
FLCW0211-0.75-*	0.75	19/0.23	1.08	24.7	0.28	0.36	1.89	1.93	1.97	8.99
FLCW0211-1.00-*	1.00	19/0.25	1.21	20.0	0.28	0.36	2.02	2.06	2.10	10.7
FLCW0211-1.50-*	1.50	19/0.32	1.51	12.5	0.28	0.36	2.32	2.36	2.40	15.8
FLCW0211-2.50-*	2.50	19/0.41	1.94	7.88	0.28	0.36	2.75	2.79	2.83	25.0

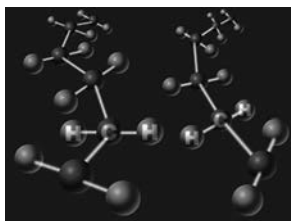
Ballis Resistor



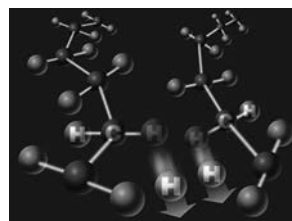
Coil



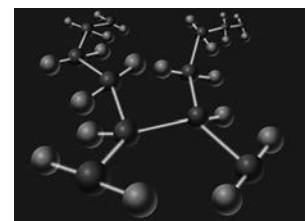
Radiation Cross-Linking



Molecular Chain



Crosslinking



Crosslinked Molecular Chain

FlexLite DW

Dual-Wall Primary Wire

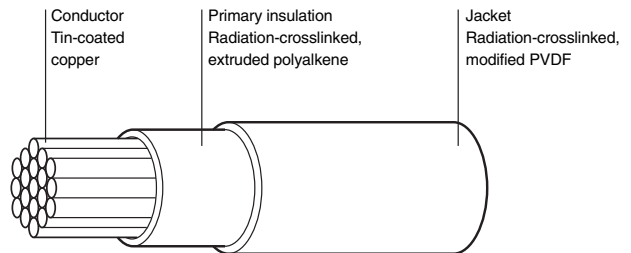
Product Facts

- UL rated operating temperature to 125°C [257°F]
- Non melting insulation material
- Thin-wall product for size and weight savings
- Excellent chemical resistance
- Dual-wall construction for increased mechanical performance
- Compatibility with automated stripping equipment
- Variety of colors and constructions



Applications

FlexLite DW (FLDW) offers a high-performance non melting insulation suitable for a variety of applications, especially those with occasional high-temperature excursions, such as high-power battery-operated devices or intermittent-duty motors or heating elements.



Specifications/Approvals

Series	UL	CUR	CSA	TE
DW	Style 3584 Flammability VW-1 Temperature rating 125°C [257°F]	Recognized	Certified AWMIA	WCD-3106

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Commercial Wire Family

FlexLite DW (Continued)

Construction Details

Part No.	Wire Size (AWG)	Conductor Stranding (No. x AWG)	Nominal Diameter mm [inch]	Finished Wire Maximum Resistance at 20°C (68°F) Ω/km [Ω /1000 ft]	Diameter			Nominal Weight in kg/km [lb/1000 ft]
					Minimum mm [inch]	Nominal mm [inch]	Maximum mm [inch]	
FLDWC0311-26*	26	19 x 38	.470 [.0185]	132 [40.1]	.965 [.038]	1.02 [.040]	1.07 [.042]	2.38 [1.6]
FLDWC0311-24*	24	19 x 36	.597 [.0235]	83.3 [25.4]	1.12 [.044]	1.17 [.046]	1.22 [.048]	3.57 [2.4]
FLDWC0311-22*	22	19 x 34	.749 [.0295]	52.2 [15.9]	1.32 [.052]	1.37 [.054]	1.42 [.056]	5.21 [3.5]
FLDWC0311-20*	20	19 x 32	.953 [.0375]	32.0 [9.76]	1.52 [.060]	1.57 [.062]	1.63 [.064]	7.59 [5.1]
FLDWC0311-18*	18	19 x 30	1.18 [.0465]	20.4 [6.22]	1.78 [.070]	1.85 [.073]	1.93 [.076]	11.46 [7.7]
FLDWC0311-16*	16	19 x 29	1.33 [.0525]	15.8 [4.82]	1.98 [.078]	2.06 [.081]	2.13 [.084]	14.58 [9.8]
FLDWC0311-14*	14	19 x 27	1.68 [.0660]	10.0 [3.05]	2.39 [.094]	2.49 [.098]	2.59 [.102]	21.88 [14.7]

* Replace asterisk with color code designator:
 0 = Black 3 = Orange 7 = Violet
 1 = Brown 4 = Yellow 8 = Gray
 2 = Red 5 = Green 9 = White
 For example: FLDWC0311-20-9 = AWG 20, white.

Construction Details

Nominal CSA Part No.	Wire Size (mm ²)	Conductor Stranding (No. x Dia.)	Diameter		Finished Wire Maximum Resistance at 20°C (68°F) Ω/km [Ω /1000 ft]	Diameter			Nominal Weight in kg/km [lb/1000 ft]
			(min.) mm [inch]	(max.) mm [inch]		Lower Spec. Limit mm [inch]	Target Value mm [inch]	Upper Spec. Limit mm [inch]	
FLDWC0311-0.25*	0.25	19 x 0.127	0.55 [.022]	0.63 [.025]	83.3 [25.5]	1.12 [.044]	1.17 [.046]	1.22 [.048]	3.45 [2.32]
FLDWC0311-0.35*	0.35	19 x 0.15	0.72 [.028]	0.77 [.030]	56.1 [17.1]	1.31 [.052]	1.37 [.054]	1.42 [.056]	4.79 [3.21]
FLDWC0311-0.50*	0.50	19 x 0.19	0.86 [.034]	0.88 [.035]	40.1 [12.2]	1.46 [.057]	1.51 [.059]	1.56 [.061]	6.46 [4.34]
FLDWC0311-0.75*	0.75	19 x 0.23	1.05 [.041]	1.08 [.043]	24.7 [7.53]	1.65 [.065]	1.70 [.067]	1.75 [.069]	8.93 [5.99]
FLDWC0311-1.00*	1.00	19 x 0.25	1.17 [.046]	1.26 [.050]	20.0 [6.1]	1.78 [.070]	1.85 [.073]	1.93 [.076]	10.90 [7.31]
FLDWC0311-1.50*	1.50	19 x 0.32	1.35 [.053]	1.58 [.062]	13.7 [4.2]	2.19 [.086]	2.27 [.089]	2.34 [.092]	17.90 [12.01]
FLDWC0311-2.00*	2.00	19 x 0.36	1.66 [.065]	1.79 [.070]	9.7	2.42 [.095]	2.52 [.099]	2.62 [.103]	21.30 [14.29]
FLDWC0311-2.50*	2.50	19 x 0.41	1.85 [.070]	2.01 [.078]	8.2	2.63 [.104]	2.73 [.104]	2.83 [.111]	27.40 [18.39]

* Replace asterisk with color code designator:
 0 = Black 3 = Orange 6 = Blue 9 = White
 1 = Brown 4 = Yellow 7 = Violet
 2 = Red 5 = Green 8 = Gray
 For example: FLDWC0311-20-9 = AWG 20, white.
 FLDWC0311-1.00-9 = Size 1.00 mm², white.

For product requiring CUR (Canadian UL) or CSA marking in 16-10 AWG, stranded conductors only, the part numbering descriptions above **MIGHT NOT** apply. Please contact TE for further information.

FlexLite TW

Thin-Wall Hookup Wire and Cable

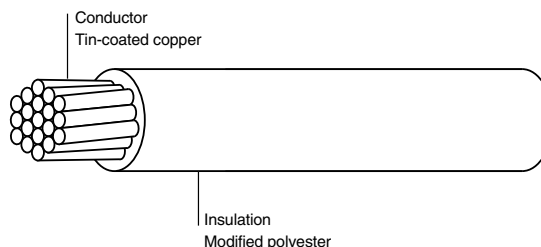
Product Facts

- UL rated operating temperature to 135°C [275°F]
- Thin-wall product for size and weight savings
- Tough insulation material
- Excellent chemical resistance
- Gauge sizes from 10-32 AWG
- No plasticizers or corrosive outgassing, which can be detrimental to sensitive electrical and electronic components



Applications

FlexLite TW (FLTW) wire is commonly used in applications that demand smaller, more rugged components, often in elevated temperatures. Designed to offer reduced size while maintaining superior mechanical performance, FLTW in many cases is a lower-cost solution than expensive fluoropolymer wire.



Specifications/Approvals

Series	UL	CUR	CSA	TE
TW	Style 10208 Temperature rating 135°C [275°F]	Recognized	Certified AWMIA	WCD-3106

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Commercial Wire Family

FlexLite TW (Continued)

Construction Details

Part No.	Wire Size (AWG)	Conductor Stranding (No. x AWG)	Nominal Diameter mm [inch]	Finished Wire Maximum Resistance at 20°C (68°F) Ω /km [Ω /1000 ft]	Diameter			Nominal Weight in kg/km [lb/1000 ft]
					Minimum mm [inch]	Nominal mm [inch]	Maximum mm [inch]	
FLTWC0311-26-*	26	19 x 38	.483 [0.19]	150.0 [45.8]	.813 [.032]	.864 [.034]	.914 [.036]	1.93 [1.3]
FLTWC0311-24-*	24	19 x 36	.610 [0.24]	94.2 [28.7]	.965 [.038]	1.02 [.040]	1.07 [.042]	2.83 [1.9]
FLTWC0311-22-*	22	19 x 34	.762 [.030]	59.4 [18.1]	1.14 [.045]	1.19 [.047]	1.24 [.049]	4.17 [2.8]
FLTWC0311-20-*	20	19 x 32	.965 [.038]	37.4 [11.4]	1.35 [.053]	1.40 [.055]	1.45 [.057]	6.25 [4.2]
FLTWC0311-18-*	18	19 x 30	1.19 [.047]	23.5 [7.15]	1.60 [.063]	1.65 [.065]	1.70 [.067]	9.52 [6.4]
FLTWC0311-16-*	16	19 x 29	1.35 [.053]	15.8 [4.82]	1.75 [.069]	1.83 [.072]	1.91 [.075]	12.20 [8.2]
FLTWC0311-14-*	14	19 x 27	1.68 [.066]	10.0 [3.05]	2.16 [.085]	2.26 [.089]	2.36 [.093]	18.90 [12.7]
FLTWD0311-12-*	12	37 x 28	2.16 [.085]	6.59 [2.01]	2.64 [.104]	2.74 [.108]	2.84 [.112]	28.87 [19.4]
FLTWD0311-10-*	10	37 x 26	2.72 [.107]	4.13 [1.26]	3.23 [1.27]	3.33 [1.31]	3.43 [1.35]	45.39 [30.5]

* Replace asterisk with color code designator:

0 = Black 3 = Orange 6 = Blue 9 = White

1 = Brown 4 = Yellow 7 = Violet

2 = Red 5 = Green 8 = Gray

For example: FLTWC0311-22-9 = AWG 22, white.

For product requiring CUR (Canadian UL) or CSA marking in 16-10 AWG, stranded conductors only, the part numbering descriptions above **DO NOT** apply. Please contact TE for further information.

FlexLite HT

High-Temperature Hookup Wire

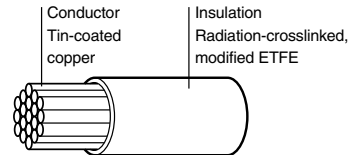
Product Facts

- UL rated operating temperature to 200°C [392°F]
- Exceptional chemical resistance
- Thin-wall, for size and weight savings
- Tough fluoropolymer insulation material
- Excellent stripping and handling
- Variety of constructions and colors
- Crosslinked to minimize cold flow
- VW-1 flammability rating
- 600 V rating



Applications

FlexLite HT (FLHT) wire is the product of choice for high-temperature applications. It offers shop-handling advantages over silicone/ fiberglass constructions (SF1/SF2) and is cost-competitive with other fluoropolymer wire. Applications include halogen lights, wireless tools and small high-end appliances where space and temperature are issues.



Specifications/Approvals

Series	UL	CUR	CSA	TE
HT	Style 3557 Flammability VW-1 Temperature rating 200°C [392°F]	Recognized	Certified AWMIA/B	WCD-3106

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Commercial Wire Family

FlexLite HT (Continued)

Construction Details

Part No.	Wire Size (AWG)	Conductor Stranding (No. x AWG)	Nominal Diameter mm [inch]	Finished Wire Maximum Resistance at 20°C (68°F) Ω/km [Ω /1000 ft]	Diameter			Nominal Weight in kg/km [lb/1000 ft]
					Minimum mm [inch]	Nominal mm [inch]	Maximum mm [inch]	
FLHTC0311-26-*	26	19 x 38	.483 [.019]	150.0 [45.8]	.765 [.0301]	.800 [.0315]	.836 [.0329]	1.89 [1.27]
FLHTC0311-24-*	24	19 x 36	.610 [.024]	94.2 [28.7]	.892 [.0351]	.927 [.0365]	.963 [.0379]	2.75 [1.85]
FLHTC0311-22-*	22	19 x 34	.762 [.030]	59.4 [18.1]	1.04 [.0411]	1.08 [.0425]	1.12 [.0439]	4.08 [2.74]
FLHTC0311-20-*	20	19 x 32	.965 [.038]	37.4 [11.4]	1.25 [.0491]	1.28 [.0505]	1.32 [.0519]	6.21 [4.17]
FLHTC0311-18-*	18	19 x 30	1.19 [.047]	23.5 [7.15]	1.48 [.0583]	1.52 [.0600]	1.57 [.0617]	9.43 [6.34]
FLHTC0311-16-*	16	19 x 29	1.35 [.053]	15.8 [4.82]	1.67 [.0656]	1.71 [.0675]	1.76 [.0694]	12.0 [8.09]
FLHTC0311-14-*	14	19 x 27	1.68 [.066]	10.0 [3.05]	2.03 [.0799]	2.08 [.0820]	2.14 [.0841]	18.6 [12.5]
FLHTD0311-12-*	12	37 x 28	2.16 [.085]	6.59 [2.01]	2.50 [.0984]	2.57 [.1010]	2.63 [.1036]	28.7 [19.3]
FLHTD0311-10-*	10	37 x 26	2.72 [.107]	4.13 [1.26]	3.07 [.1210]	3.18 [.1250]	3.28 [.1290]	30.7 [45.7]

Construction Details

Part No.	Nominal CSA (mm ²)	Conductor Stranding No/Dia. (mm)	Diameter		Finished Wire Maximum Resistance at 20°C (68°F) (ohms/km)	Lower Spec. Limit mm [inch]	Diameter		Nominal Weight (kg/km)
			(min.) mm [inch]	(max.) mm [inch]			Target Value mm [inch]	Upper Spec. Limit mm [inch]	
FLHTC0311-0.25-*	0.25	19/0.127	0.55 [.022]	0.63 [.025]	83.3	0.96 [.038]	1.00 [.039]	1.03 [.041]	2.95
FLHTC0311-0.35-*	0.35	19/0.15	0.74 [.029]	0.76 [.030]	52.2	1.12 [.044]	1.16 [.046]	1.19 [.047]	4.22
FLHTC0311-0.50-*	0.50	19/0.19	0.86 [.034]	0.88 [.035]	40.1	1.24 [.049]	1.27 [.050]	1.31 [.052]	5.59
FLHTC0311-0.75-*	0.75	19/0.23	1.05 [.041]	1.08 [.043]	24.7	1.43 [.056]	1.47 [.058]	1.51 [.059]	7.95
FLHTC0311-1.00-*	1.00	19/0.25	1.17 [.046]	1.26 [.050]	20.0	1.58 [.062]	1.62 [.064]	1.66 [.065]	9.85
FLHTC0311-1.50-*	1.50	19/0.32	1.35 [.053]	1.58 [.062]	13.7	1.82 [.072]	1.87 [.074]	1.92 [.076]	15.69
FLHTC0311-2.00-*	2.00	19/0.36	1.66 [.065]	1.79 [.070]	9.7	2.05 [.081]	2.10 [.083]	2.16 [.085]	18.67
FLHTC0311-2.50-*	2.50	19/0.41	1.85 [.073]	2.01 [.080]	8.2	2.24 [.088]	2.31 [.091]	2.38 [.094]	24.62

* Replace asterisk with color code designator:

0 = Black 3 = Orange 6 = Blue 9 = White

1 = Brown 4 = Yellow 7 = Violet

2 = Red 5 = Green 8 = Gray

For example: FLHTC0311-22-9 = AWG 22, white.

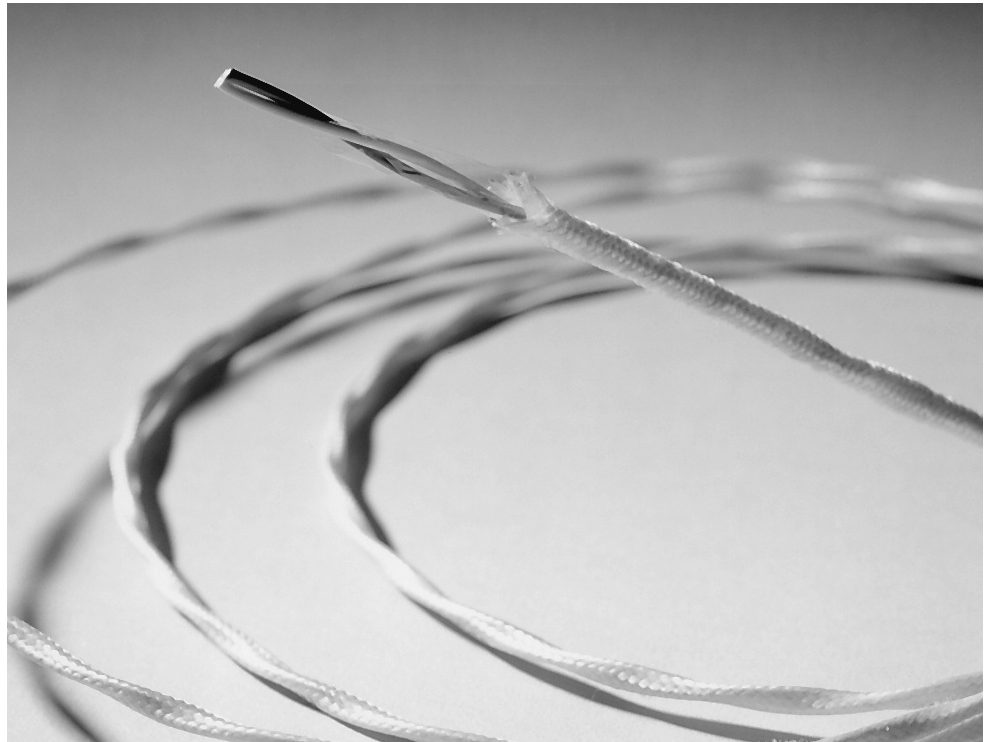
FLHTC0311-0.50-9 = Size 0.50mm², white.

For product requiring CUR (Canadian UL) or CSA marking in 16-10 AWG, stranded conductors only, the part numbering descriptions above **DO NOT** apply. Please contact TE for further information.

Thermocouple Extension Cable

Product Facts

- 19-strand conductor for flexibility
- All 4 types available in different combinations
- Custom designs with different insulation systems are available
- Lightweight, small size thermocouple extension cables



Applications

TE manufactures a broad range of Raychem brand Thermocouple extension cables in four thermoelement combinations. Each provides accurate transmission of electro-motive force (EMF) from a Thermocouple element lead wire of the same conductor material to a thermometer, also known as a pyrometer.

All four types of Thermocouple extension cables use 19-strand conductors and are available in twisted pair, jacketed twisted pair, and shielded and jacketed twisted pair

configurations. A range of cables is available from 16 AWG to 24 AWG.

Wires and cables are insulated and jacketed with radiation-crosslinked ETFE, which has a continuous operating temperature of -65°C to +200°C [-85°F to +392°F]. This material, which is fully specified in TE SPEC 55, has excellent physical properties and is highly resistant to a wide range of chemicals.

Operating Temperature Range

-65°C to 200°C
[-85°F to 392°F]

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Thermocouple Extension Cable (Continued)

Properties

Extension Cable Type	Thermoelement Combination	Initial Calibration Tolerances for Thermocouple Extension Wires		
		Temperature Range	Limit of Range	EMF (mv)* (min.-max.)
EX	Chromel-Constantan	0°C to 200°C [0°F to 392°F]	±1.7°C [35.1°F]	6.18–6.45
JX	Iron-Constantan	0°C to 200°C [0°F to 392°F]	±2.2°C [36.0°F]	5.15–5.39
KX	Chromel-Alumel	0°C to 200°C [0°F to 392°F]	±2.2°C [36.0°F]	4.00–4.19
TX	Copper-Constantan	0°C to 100°C [0°F to 212°F]	±1.0°C [32.0°F]	4.24–4.32

Note: The above is in accordance with ANSI-MC-96.1-1982.
 *EMF is measured in millivolts (mv) at 100°C [212°F] with reference junction at 0°C [0°F].

Product Dimensions (Nominal)**

AWG Size	Twisted Pair		Twisted, Jacketed Pair		Twisted, Shielded, 38 AWG Braid Strand, Jacketed Pair	
	Outside Diameter	Weight in kg/km (lb/1000 ft)	Outside Diameter	Weight in kg/km (lb/1000 ft)	Outside Diameter	Weight in kg/km (lb/1000 ft)
24	2.29 [.090]	7.3 [4.9]	2.67 [.106]	9.9 [6.7]	3.12 [.123]	16.5 [11.1]
22	2.60 [.102]	9.9 [6.7]	2.99 [.118]	13.0 [8.8]	3.43 [.135]	21.4 [14.4]
20	2.99 [.118]	14.4 [9.7]	3.40 [.134]	18.0 [12.1]	3.83 [.151]	27.8 [18.7]
18	3.56 [.140]	20.9 [14.1]	3.96 [.156]	25.1 [16.9]	4.34 [.173]	37.5 [25.2]
16	3.96 [.156]	26.3 [17.7]	4.37 [.172]	30.9 [20.8]	4.80 [.189]	44.9 [30.2]

**Dimensions for 19-strand-conductor thermocouple. Extension Types EX, JX, KX, and TX.

Extension Cable

Color-Coding

Thermocouple extension cables are available with the wires color-coded in accordance with five standards: MIL-STD-687, ANSI-MC-96.1, British Standard Code BS 1843, Japanese JIS-C-1602 and IEC 584-3 color coding system (see below) (International Standard)

Special Cables

Thermocouple extension cables are also available in solid-conductor and seven-strand-conductor configurations. They come in a variety of thermoelement combinations, gauges,

insulations, and multiple-pair designs, and they are available for outer space applications. Contact TE for details.

Extension Cable

Type EX	Chromel +	Constantan -	Jacket (if present)	Color code Wire	Jacket
ANSI-MC-96.1	Violet	Red	Violet	7/2	7
British Std.-BS 1843	Brown	Blue	Brown	1/6	1
JIS-C-1602	Violet	Red	Violet	7/2	7
IEC 584-3	Violet	White	Violet	7/9	7
Type JX	Iron +	Constantan -	Jacket	Wire	Jacket
MIL-STD-687	Black	Yellow	White	0/4	9
ANSI-MC-96.1	White	Red	Black	9/2	0
British Std.-BS 1843	Yellow	Blue	Black	4/6	0
JIS-C-1602	Red	White	Yellow	2/9	4
IEC 584-3	Black	White	Black	0/9	0
Type KX	Chromel +	Alumel -	Jacket	Wire	Jacket
MIL-STD-687	White	Green	White	9/5	9
ANSI-MC-96.1	Yellow	Red	Yellow	4/2	4
British Std.-BS 1843	Brown	Blue	Red	1/6	2
JIS-C-1602	Red	White	Blue	2/9	6
IEC 584-3	Green	White	Green	5/9	5
Type TX	Copper +	Constantan -	Jacket	Wire	Jacket
MIL-STD-687	Red	Yellow	White	2/4	9
ANSI-MC-96.1	Blue	Red	Blue	6/2	6
British Std.-BS 1843	White	Blue	Blue	9/6	6
JIS-C-1602	Red	White	Brown	2/9	1
IEC 584-3	Brown	White	Brown	1/9	1

Thermocouple Extension Cables

Thermocouple Extension Cable (Continued)

Part Number Selection Table

The Thermocouple cable options outlined in the table on the previous page can be ordered from the table below.

TE will assign a new part number on request for cables falling outside the range shown in the table.

Type	Twisted Pair	Twisted, Jacketed Pair	Shield Plating*	Twisted, Shielded, Jacketed Pair
EX	CTC-0077	CTC-0079	T	CTC-0074
			N	55A6169
JX	55A8131	CTC-0080	T	CTC-0044
			T	CTC-0018
KX	55A8002	CTC-0012	N	CTC-0015
			S	CTC-0057
			T	CTC-0073
TX	CTC-0078	CTC-0081	T	CTC-0073

*T = Tin-coated copper.
 N = Nickel-coated copper.
 S = Silver-coated copper.

ElectroLoss Filterline

Lightweight, Ruggedized Filterline Wire and Cable

Product Facts

- Suppresses EMI above 100 MHz
- Light weight, small size
- SPEC 55 insulation
- 600 volt
- -65°C up to 200°C [-85°F to 392°F]



Applications

Today's performance needs for military and commercial electronic systems require increasingly sophisticated equipment and greater use of composite structures and enclosures. As electronics become more sensitive, the EMI protection level for electrical equipment is increasing. The Raychem brand of ElectroLoss FilterLine wire and cable provide a high degree of EMI protection while functioning as conventional electrical wiring.

ElectroLoss FilterLine products include high-performance wire and cable, which when used as specified, suppress conducted and radiated EMI above 100 MHz.

A reliable alternative to conventional discrete filters and filter-pin connectors, ElectroLoss FilterLine cables are flexible, lightweight, and compatible with high-density connectors.

The ElectroLoss FilterLine wire and cable meets the performance requirements of SAE AS85485 originally a military specification developed to provide EMI protection for military electrical interconnects.

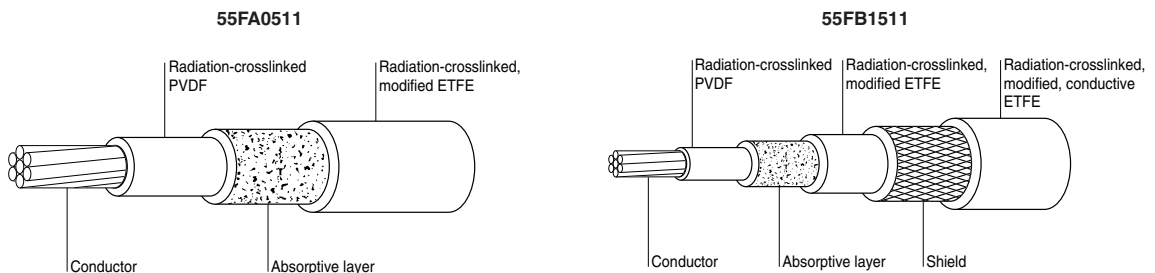
The absorptive layer in ElectroLoss FilterLine cable is constructed of a ferrite-loaded high-temperature polymer, which provides high-frequency EMI absorptive characteristics. Achieving maximum attenuation requires concentrating the electromagnetic fields in the absorptive layer —

either with a metallic shield on each wire or by an overall metallic shield protecting a bundle of individual component wires.

Radiation-crosslinked, modified conductive EFTE jackets are used over shielded filter line cables to eliminate pathways between adjacent cable shields.

Application-driven alternative ElectroLoss FilterLine constructions built to the same rigorous standards demanded of the military requirements are also available. These alternatives offer significant weight savings through the use of flat braids, improved laser mark contrast, and a broader choice of conductors.

Available in:	
Americas	■
Europe	■
Asia Pacific	■



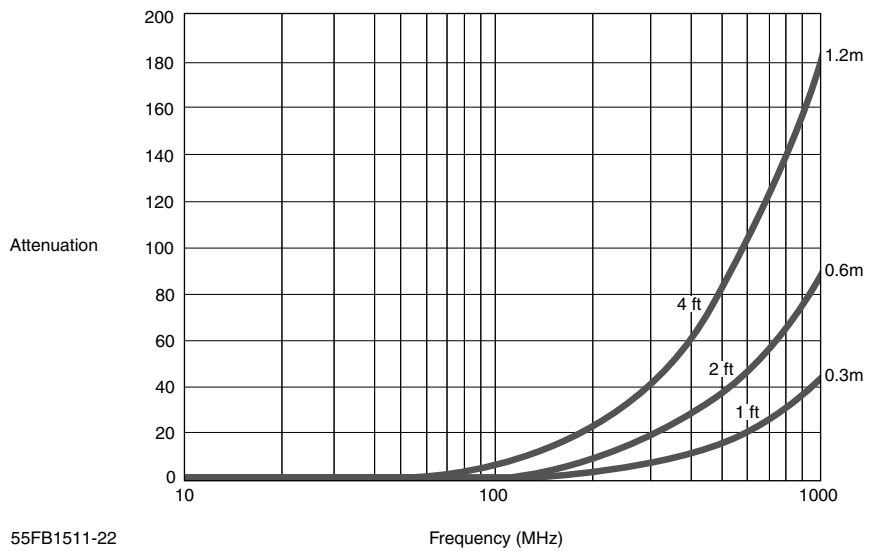
ElectroLoss Filterline (Continued)

Performance

Effective against conducted EMI ElectroLoss FilterLine wire and cable systems attenuate high-frequency signals to pass with minimum loss. When properly installed and used, filter line wire and cables function as low-pass electrical filters, attenuating both

conducted and radiated EMI above 100MHz. The performance of ElectroLoss FilterLine product is best demonstrated by measuring the attenuation (insertion loss) of a length of cable over a broad range of frequencies. Graph 1 depicts typical insertion loss characteristics.

Graph 1 - Typical insertion loss



55FB1511-22

Temperature rating	-65°C up to 200°C [-85°F to 392°F]
Voltage rating	600V r.m.s

ElectroLoss Filterline (Continued)**Lightweight, Ruggedized
Filterline Wire and Cable****Single Conductor Wire
Specifications
150 °C Rated Wire**

AWG Size	Conductor Stranding (Number x AWG)	Maximum Outside Diameter mm (in)	Maximum Weight Kg/Km (lb/1000 ft)	MIL-SPEC Part Number	TE Part Number
24	19 x 36 silver coated high strength copper alloy	1.19 [.047]	4.46 [3.0]	M85485/10-24A	55FA0514-24-*
22	19 x 34 tin coated copper	1.37 [.054]	5.95 [4.0]	M85485/9-22A	55FA0511-22-*
20	19 x 32 tin coated copper	1.57 [.062]	8.63 [5.8]	M85485/9-20A	55FA0511-20-*
18	19 x 30 tin coated copper	1.85 [.073]	12.95 [8.7]	M85485/9-18A	55FA0511-18-*
16	19 x 29 tin coated copper	2.08 [.082]	16.67 [11.2]	M85485/9-16A	55FA0511-16-*
14	19 x 27 tin coated copper	2.51 [.099]	23.96 [16.1]	M85485/9-14A	55FA0511-14-*
12	37 x 28 tin coated copper	2.95 [.116]	35.71 [24.0]	M85485/9-12A	55FA0511-12-*
10	37 x 26 tin coated copper	3.58 [.141]	55.06 [37.0]	M85485/9-10A	55FA0511-10-*

* The color of component wire shall be light violet designated by 7L. The designated colors for components in finished cable shall be light violet for component 1 and light violet with stripe designators for remaining component wires as follows:

Component wire	1	2	3	4	5
Color designator	7L	7L6	7L3	7L5	7L2

**Low Fluoride Specifications
200 °C Rated Wire**

AWG Size	Conductor Stranding (Number x AWG)	Maximum Outside Diameter mm (in)	Maximum Weight Kg/Km (lb/1000 ft)	TE Part Number
24	19 x 36 silver coated high strength copper alloy	1.19 [.047]	4.46 [3.0]	55FAF7128-24-*
22	19 x 34 silver coated copper	1.37 [.054]	5.95 [4.0]	55FAF0512-22-*
20	19 x 32 silver coated copper	1.57 [.062]	8.63 [5.8]	55FAF0512-20-*
18	19 x 30 silver coated copper	1.85 [.073]	12.95 [8.7]	55FAF0512-18-*
16	19 x 29 silver coated copper	2.08 [.082]	16.67 [11.2]	55FAF0512-16-*
14	19 x 27 silver coated copper	2.51 [.099]	23.96 [16.1]	55FAF0512-14-*
12	37 x 28 silver coated copper	2.95 [.116]	35.71 [24.0]	55FAF0512-12-*
10	37 x 26 silver coated copper	3.58 [.141]	55.06 [37.0]	55FAF0512-10-*

The color of the component wire shall be light yellow designated by 4L. The designated colors for components shall be light yellow for component 1 and light yellow with stripe designators for remaining component wires as follows:

Component Wire	1	2	3	4	5
Color Designation	4L	4L6	4L3	4L5	4L2

ElectroLoss Filterline (Continued)

Lightweight, Ruggedized
Filterline Wire and Cable

(Continued)

Unshielded, Unjacketed 2-5
Conductor Cable
Specifications
150 °C Rated Wire

AWG Size	Number of Conductor	Maximum Outside Diameter mm [in.]	Maximum Weight Kg/Km (lb/1000 ft)	MIL-SPEC Part Number	TE Part Number
24	2	2.39 [.094]	9.08 [6.1]	M85485/11-24M2A	55FA0524-24-*
22	2	2.74 [.108]	12.20 [8.2]	M85485/11-22T2A	55FA0521-22-*
20	2	3.15 [.124]	17.56 [11.8]	M85485/11-20T2A	55FA0521-20-*
18	2	3.71 [.146]	26.34 [17.7]	M85485/11-18T2A	55FA0521-18-*
16	2	4.17 [.164]	33.93 [22.8]	M85485/11-16T2A	55FA0521-16-*
14	2	5.03 [.198]	48.81 [32.8]	M85485/11-14T2A	55FA0521-14-*
24	3	2.59 [.102]	13.69 [9.2]	M85485/11-24M3A	55FA0534-24-*
22	3	2.97 [.117]	18.15 [12.2]	M85485/11-22T3A	55FA0531-22-*
20	3	3.40 [.134]	26.34 [17.7]	M85485/11-20T3A	55FA0531-20-*
18	3	4.01 [.158]	39.58 [26.6]	M85485/11-18T3A	55FA0531-18-*
16	3	4.50 [.177]	51.03 [34.3]	M85485/11-16T3A	55FA0531-16-*
14	3	5.44 [.214]	73.36 [49.3]	M85485/11-14T3A	55FA0531-14-*
24	4	3.28 [.129]	18.15 [12.2]	M85485/11-24M4A	55FA0544-24-*
22	4	3.78 [.149]	24.25 [16.3]	M85485/11-22T4A	55FA0541-22-*
20	4	4.34 [.171]	35.27 [23.7]	M85485/11-20T4A	55FA0541-20-*
18	4	5.11 [.201]	52.82 [35.5]	M85485/11-18T4A	55FA0541-18-*
16	4	5.74 [.226]	68.00 [45.7]	M85485/11-16T4A	55FA0541-16-*
14	4	6.91 [.272]	97.76 [65.7]	M85485/11-14T4A	55FA0541-14-*
24	5	3.58 [.141]	22.77 [15.3]	M85485/11-24M5A	55FA0554-24-*
22	5	4.11 [.162]	30.36 [20.4]	M85485/11-22T5A	55FA0551-22-*
20	5	4.72 [.186]	44.04 [29.6]	M85485/11-20T5A	55FA0551-20-*
18	5	5.56 [.219]	66.07 [44.4]	M85485/11-18T5A	55FA0551-18-*
16	5	6.25 [.246]	84.96 [57.1]	M85485/11-16T5A	55FA0551-16-*
14	5	7.54 [.297]	122.16 [82.1]	M85485/11-14T5A	55FA0551-14-*

* The color of component wire shall be light violet designated by 7L.
The designated colors for components in finished cable shall be light violet for component 1 and light violet with stripe designators for remaining component wires as follows:

Component wire	1	2	3	4	5
Color designator	7L	7L6	7L3	7L5	7L2

ElectroLoss Filterline (Continued)**Low Fluoride Specifications
200°C Rated Wire**

AWG Size	Number of Conductor	Maximum Outside Diameter mm [in.]	Maximum Weight Kg/Km (lb/1000 ft)	TE Part Number
24	2	2.39 [.094]	9.08 [6.1]	55FAF7134-24-*
22	2	2.74 [.108]	12.20 [8.2]	55FAF0522-22-*
20	2	3.15 [.124]	17.56 [11.8]	55FAF0522-20-*
18	2	3.71 [.146]	26.34 [17.7]	55FAF0522-18-*
16	2	4.17 [.164]	33.93 [22.8]	55FAF0522-16-*
14	2	5.03 [.198]	48.81 [32.8]	55FAF0522-14-*
24	3	2.59 [.102]	13.69 [9.2]	55FAF7135-24-*
22	3	2.97 [.117]	18.15 [12.2]	55FAF0532-22-*
20	3	3.40 [.134]	26.34 [17.7]	55FAF0532-20-*
18	3	4.01 [.158]	39.58 [26.6]	55FAF0532-18-*
16	3	4.50 [.177]	51.03 [34.3]	55FAF0532-16-*
14	3	5.44 [.214]	73.36 [49.3]	55FAF0532-14-*
24	4	3.28 [.129]	18.15 [12.2]	55FAF7136-24-*
22	4	3.78 [.149]	24.25 [16.3]	55FAF0542-22-*
20	4	4.34 [.171]	35.27 [23.7]	55FAF0542-20-*
18	4	5.11 [.201]	52.82 [35.5]	55FAF0542-18-*
16	4	5.74 [.226]	68.00 [45.7]	55FAF0542-16-*
14	4	6.91 [.272]	97.76 [65.7]	55FAF0542-14-*
24	5	3.58 [.141]	22.77 [15.3]	55FAF7137-24-*
22	5	4.11 [.162]	30.36 [20.4]	55FAF0552-22-*
20	5	4.72 [.186]	44.04 [29.6]	55FAF0552-20-*
18	5	5.56 [.219]	66.07 [44.4]	55FAF0552-18-*
16	5	6.25 [.246]	84.96 [57.1]	55FAF0552-16-*
14	5	7.54 [.297]	122.16 [82.1]	55FAF0552-14-*

The color of the component wire shall be light yellow designated by 4L. The designated colors for components shall be light yellow for component 1 and light yellow with stripe designators for remaining component wires as follows:

Component Wire	1	2	3	4	5
Color Designation	4L	4L6	4L3	4L5	4L2

ElectroLoss Filterline (Continued)

Lightweight, Ruggedized Filterline Wire and Cable

(Continued)

Shielded, Jacketed 1-5 Conductor Cable Specifications

ElectroLoss Filterline Wire and Cable Light Weight Ruggedized Constructions —

150°C

AWG Size	Number of Conductors	Shield Size AWG Tin Coated Copper	Maximum Outside Diameter mm (in)	Maximum Weight Kg/Km (lb/1000 ft)	MIL-SPEC Part Number	TE Part Number
24	1	38	2.13 [.084]	10.86 [7.3]	M85485/12-24U1A	55FB1514-24-*
22	1	38	2.31 [.091]	13.09 [8.8]	M85485/12-22T1A	55FB1511-22-*
20	1	38	2.51 [.099]	16.67 [11.2]	M85485/12-20T1A	55FB1511-20-*
18	1	38	2.79 [.110]	22.17 [14.9]	M85485/12-18T1A	55FB1511-18-*
16	1	38	3.02 [.119]	26.78 [18.0]	M85485/12-16T1A	55FB1511-16-*
14	1	38	3.45 [.136]	35.86 [24.1]	M85485/12-14T1A	55FB1511-14-*
12	1	38	3.89 [.153]	49.40 [33.2]	M85485/12-12T1A	55FB1511-12-*
10	1	38	4.55 [.179]	71.57 [48.1]	M85485/12-10T1A	55FB1511-10-*
24	2	38	3.33 [.131]	19.34 [13.0]	M85485/12-24U2A	55FB1524-24-*
22	2	38	3.68 [.145]	23.81 [16.0]	M85485/12-22T2A	55FB1521-22-*
20	2	38	4.09 [.161]	30.50 [20.5]	M85485/12-20T2A	55FB1521-20-*
18	2	38	4.65 [.183]	41.37 [27.8]	M85485/12-18T2A	55FB1521-18-*
16	2	38	5.11 [.201]	50.59 [34.0]	M85485/12-16T2A	55FB1521-16-*
14	2	38	6.02 [.237]	69.49 [46.7]	M85485/12-14T2A	55FB1521-14-*
24	3	38	3.53 [.139]	25.30 [17.0]	M85485/12-24U3A	55FB1534-24-*
22	3	38	3.91 [.154]	31.10 [20.9]	M85485/12-22T3A	55FB1531-22-*
20	3	38	4.34 [.171]	41.07 [27.6]	M85485/12-20T3A	55FB1531-20-*
18	3	38	4.95 [.195]	56.54 [38.0]	M85485/12-18T3A	55FB1531-18-*
16	3	38	5.44 [.214]	69.94 [47.0]	M85485/12-16T3A	55FB1531-16-*
14	3	38	6.43 [.253]	96.87 [65.1]	M85485/12-14T3A	55FB1531-14-*
24	4	38	4.19 [.165]	31.69 [21.3]	M85485/12-24U4A	55FB1544-24-*
22	4	38	4.67 [.184]	39.58 [26.6]	M85485/12-22T4A	55FB1541-22-*
20	4	38	5.23 [.206]	52.68 [35.4]	M85485/12-20T4A	55FB1541-20-*
18	4	38	5.99 [.236]	72.91 [49.0]	M85485/12-18T4A	55FB1541-18-*
16	4	38	6.68 [.263]	91.36 [61.4]	M85485/12-16T4A	55FB1541-16-*
14	4	38	7.85 [.309]	125.59 [84.4]	M85485/12-14T4A	55FB1541-14-*
24	5	38	4.52 [.178]	37.80 [25.4]	M85485/12-24U5A	55FB1554-24-*
22	5	38	5.05 [.199]	47.32 [31.8]	M85485/12-22T5A	55FB1551-22-*
20	5	38	5.66 [.223]	63.39 [42.6]	M85485/12-20T5A	55FB1551-20-*
18	5	38	6.55 [.258]	89.43 [60.1]	M85485/12-18T5A	55FB1551-18-*
16	5	38	7.24 [.285]	111.00 [74.6]	M85485/12-16T5A	55FB1551-16-*
14	5	38	8.53 [.336]	153.26 [103.0]	M85485/12-14T5A	55FB1551-14-*

* The color of component wire shall be light violet designated by 7L. The designated colors for components in finished cable shall be light violet for component 1 and light violet with stripe designators for remaining component wires as follows:

Component wire	1	2	3	4	5
Color designator	7L	7L6	7L3	7L5	7L2

Fluid Resistance

Fluids	Hydrocarbons
	Fuels and lubricants
	Alcohols
	Cleaning fluids
	Glycols
	Synthetic fuels and lubricants
	Ketones

ElectroLoss Filterline (Continued)**Lightweight, Ruggedized
Filterline Wire and Cable**

(Continued)

**Electroloss Filterline Wire
and Cable Light Weight
Ruggedized Constructions —
200 °C (Flat Braid)**

AWG Size	Number of Conductors	Shield Size AWG Tin Coated Copper	Maximum Outside Diameter mm (in)	Maximum Weight Kg/Km (lb/1000 ft)	TE Part Number
24	1	38	2.13 [.084]	10.86 [7.3]	55FBF7129-*
22	1	38	2.31 [.091]	13.09 [8.8]	55FBF2512-22-*
20	1	38	2.51 [.099]	16.67 [11.2]	55FBF2512-20-*
18	1	38	2.79 [.110]	22.17 [14.9]	55FBF2512-18-*
16	1	38	3.02 [.119]	26.78 [18.0]	55FBF2512-16-*
14	1	38	3.45 [.136]	35.86 [24.1]	55FBF2512-14-*
12	1	38	3.89 [.153]	49.40 [33.2]	55FBF2512-12-*
10	1	38	4.55 [.179]	71.57 [48.1]	55FBF2512-10-*
24	2	38	3.33 [.131]	19.34 [13.0]	55FBF7130-*
22	2	38	3.68 [.145]	23.81 [16.0]	55FBF2522-22-*
20	2	38	4.09 [.161]	30.50 [20.5]	55FBF2522-20-*
18	2	38	4.65 [.183]	41.37 [27.8]	55FBF2522-18-*
16	2	38	5.11 [.201]	50.59 [34.0]	55FBF2522-16-*
14	2	38	6.02 [.237]	69.49 [46.7]	55FBF2522-14-*
24	3	38	3.53 [.139]	25.30 [17.0]	55FBF7131-*
22	3	38	3.91 [.154]	31.10 [20.9]	55FBF2532-22-*
20	3	38	4.34 [.171]	41.07 [27.6]	55FBF2532-20-*
18	3	38	4.95 [.195]	56.54 [38.0]	55FBF2532-18-*
16	3	38	5.44 [.214]	69.94 [47.0]	55FBF2532-16-*
14	3	38	6.43 [.253]	96.87 [65.1]	55FBF2532-14-*
24	4	38	4.19 [.165]	31.69 [21.3]	55FBF7132-*
22	4	38	4.67 [.184]	39.58 [26.6]	55FBF2542-22-*
20	4	38	5.23 [.206]	52.68 [35.4]	55FBF2542-20-*
18	4	38	5.99 [.236]	72.91 [49.0]	55FBF2542-18-*
16	4	38	6.68 [.263]	91.36 [61.4]	55FBF2542-16-*
14	4	38	7.85 [.309]	125.59 [84.4]	55FBF2542-14-*
24	5	38	4.52 [.178]	37.80 [25.4]	55FBF7133-*
22	5	38	5.05 [.199]	47.32 [31.8]	55FBF2552-22-*
20	5	38	5.66 [.223]	63.39 [42.6]	55FBF2552-20-*
18	5	38	6.55 [.258]	89.43 [60.1]	55FBF2552-18-*
16	5	38	7.24 [.285]	111.00 [74.6]	55FBF2552-16-*
14	5	38	8.53 [.336]	153.26 [103.0]	55FBF2552-14-*

The color of the component wire shall be light yellow designated by 4L.
The designated colors for components shall be light yellow for component 1 and light yellow with stripe designators for remaining component wires as follows:

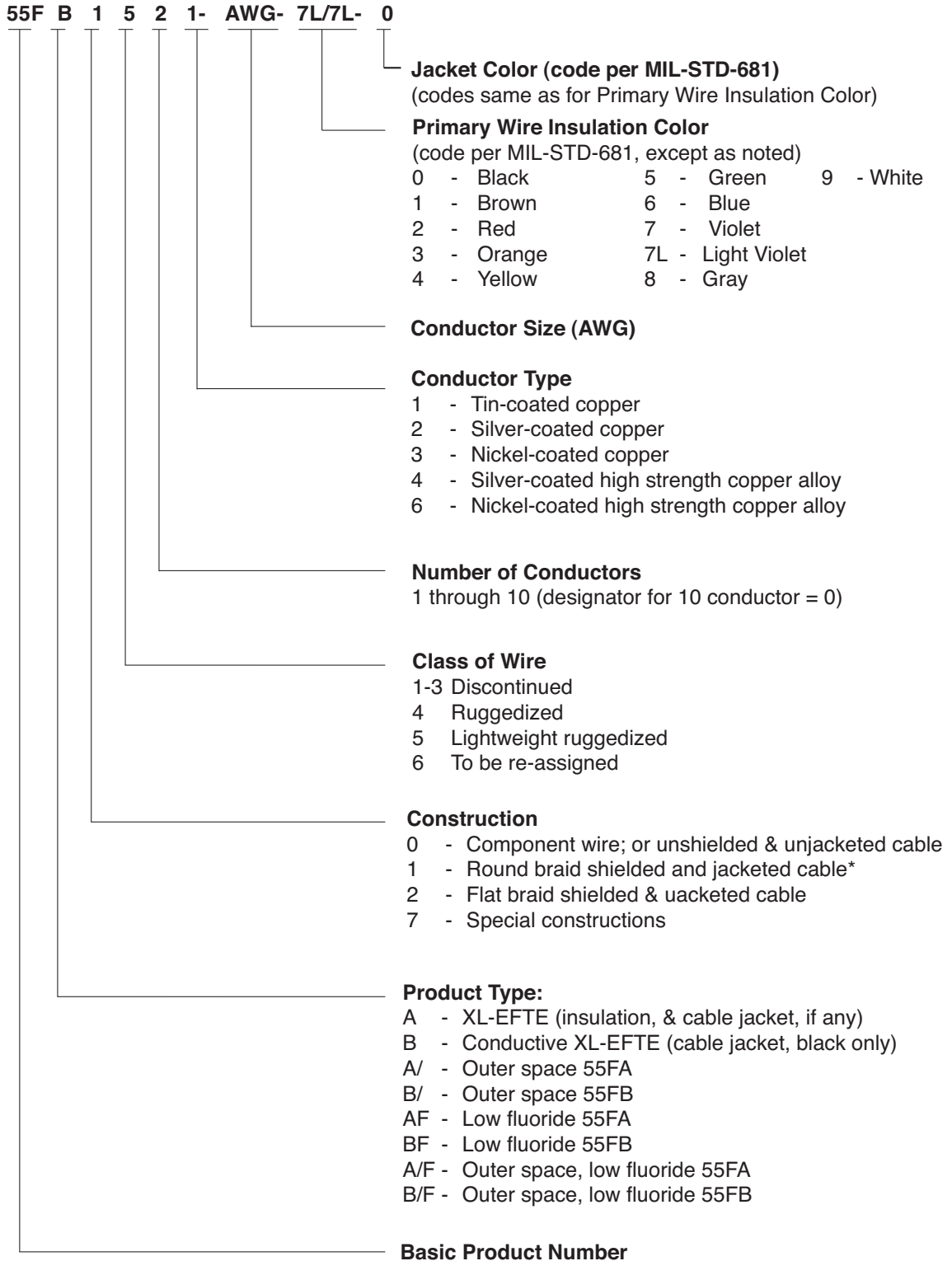
Component Wire Color Designation	1	2	3	4	5
	4L	4L6	4L3	4L5	4L2

Fluid Resistance

Fluids	Hydrocarbons
	Fuels and lubricants
	Alcohols
	Cleaning fluids
	Glycols
	Synthetic fuels and lubricants
	Ketones

ElectroLoss Filterline (Continued)

Part Numbering System



Cheminax Coaxial Cables

Small, Lightweight Coaxial Cables

Product Facts

- Light weight, small size
- Temperature range of -65°C to 200°C [-85°F to 392°F]
- Low capacitance and attenuation
- High velocity of propagation
- High flexibility

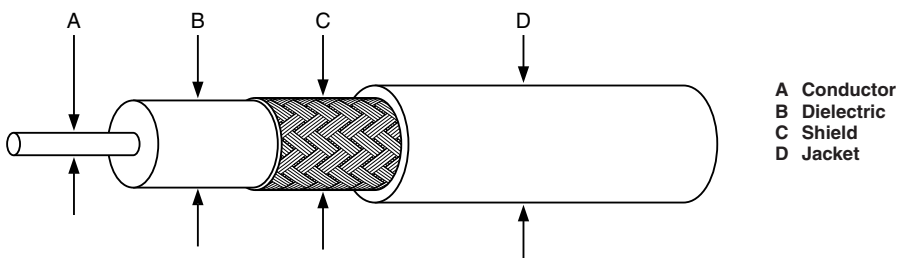


Applications

Cheminax controlled electrical cables are used in the aircraft and aerospace industries. They have a wide range of applications in missiles, avionics, radio-frequency and microwave systems, computers, security and surveillance systems, and communications. Cheminax coaxial cables were designed to solve interconnect problems in

electronic systems, such as computers, military equipment, and other areas of high-density packing, where cables are required to perform to more exacting specifications than standard radio-grade (RG) constructions. TE's advanced materials technology has allowed the design and development of Cheminax miniature coaxial

cables that offer substantial savings in size and weight while improving mechanical performance and reducing attenuation. Cables can be designed that are either smaller and lighter than standard RG cables or provide significantly lower attenuation and capacitance with no significant increase in size.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

Cheminax Coaxial Cables (Continued)

Part Numbering System

95 27 A 1 3 1 7 - 0
 XX XX X X X X X - X

Example: 9527A1317-0

Jacket Color Identification Code

- | | | |
|------------|------------|------------------------|
| 0 - Black | 4 - Yellow | 8 - Gray |
| 1 - Brown | 5 - Green | 9 - White |
| 2 - Red | 6 - Blue | 9X - Translucent White |
| 3 - Orange | 7 - Violet | X - Clear |

Conductor Type

- 1 - Tin-coated copper
- 2 - Silver-coated copper
- 3 - Nickel-coated copper
- 4 - Silver-coated high strength copper alloy
- 5 - Aluminum
- 6 - Nickel-coated high strength copper alloy
- 7 - Tin-coated copper-clad steel
- 8 - Silver-coated copper-clad steel
- 9 - Bare copper
- 0 - Other
- A - Silver-coated CS95

Dielectric Material

- | | |
|------------------------------|--------------------------------|
| 1 - Rayfoam L (Polyethylene) | 6 - Modified XL-ETFE (SPEC 55) |
| 2 - Rayfoam H (Foamed FEP) | 7 - Flex XL-ETFE |
| 3 - Rayolin F (Solid) | 8 - Rayfoam M (Foamed MFA) |
| 4 - Modified FEP (Solid) | 0 - Other |

Outer Jacket Material

- | | |
|--------------------------------------|-----------------------------------|
| 1 - General purpose PVF ² | 6 - Modified XL-ETFE (SPEC 55) |
| 2 - Outerspace PVF ² | 7 - Flex XL-ETFE (SPEC 80) |
| 3 - Thermorad F & S | 8 - Zerohal & Thermorad Low Smoke |
| 4 - Modified FEP | 9 - None |
| 5 - ETFE (Uncrosslinked) | 0 - Other |

Construction

- | | |
|------------------------|----------------------|
| 1 - Round braid | 6 - Triax - other |
| 2 - Flat braid | 7 - Other |
| 3 - 2 round braids | 8 - Composite shield |
| 4 - 2 shields (other) | 9 - Core only |
| 5 - Triax-round braids | 0 - Other |

Variation

- | | |
|-------------------------------|------------------|
| A - Standard | U - Low Loss |
| B - Sequential within any PNs | W - Waterblocked |
| S - Outer Space Requirements | |

Conductor Size (AWG)

Always 2 digits - 0X if under 10 AWG

Impedance

Always 2 digits - last 2 digits if over 100 ohms
 0X (1 digit) if under 10 ohms

Part Numbering System is a cross reference only and not meant for part creation.

Cheminax Coaxial Cables (Continued)

Specifications/Approvals

Series	TE
Cheminax cables	1200

Product Dimensions (Nominal)

Typical Product Part No.	Impedance (ohms)	Capacitance pF/m (pF/ft)	Attenuation at 400 MHz dB/100m (dB/100 ft)	A	B	C	D	Weight in kg/km (lb/1000ft)
				Conductor Diameter	Dielectric Diameter	Shield Diameter	Jacket Diameter	
5012E1339	50	98.4 [30.0]	14.8 [4.5]	2.26 [.089]	7.24 [.285]	7.98 [.314]	10.24 [.403]	162.2 [109.0]
5012M1612	50	82.0 [25.0]	16.1 [4.9]	2.26 [.089]	6.07 [.239]	6.60 [.260]	7.06 [.278]	74.5 [50.1]
5024A1311	50	83.7 [25.5]	50.3 [15.3]	0.62 [.025]	1.70 [.067]	2.18 [.085]	2.67 [.104]	11.8 [7.9]
5026D1027	50	88.9 [27.1]	63.7 [19.4]	0.48 [.019]	1.27 [.050]	1.70 [.067]	2.21 [.087]	11.8 [7.9]
5030A1317	50	90.2 [27.5]	97.5 [29.7]	0.30 [.012]	0.79 [.031]	1.12 [.044]	1.57 [.062]	4.5 [3.0]
5030A1424	50	100.4 [30.6]	94.5 [28.8]	0.30 [.012]	0.86 [.034]	1.19 [.047]	1.60 [.063]	5.7 [3.8]
7520A1311	75	56.1 [17.1]	20.0 [6.1]	1.02 [.040]	4.57 [.180]	5.11 [.201]	6.12 [.241]	43.2 [29.0]
7524A1311	75	56.4 [17.2]	31.8 [9.7]	0.62 [.025]	2.82 [.111]	3.25 [.128]	3.86 [.152]	19.2 [12.9]
7528H1424	75	54.5 [16.6]	44.0 [13.4]	0.32 [.013]	1.37 [.054]	1.73 [.068]	2.13 [.084]	8.9 [6.0]
7530A1317	75	60.4 [18.3]	58.8 [17.9]	0.30 [.012]	1.35 [.053]	1.78 [.07]	2.29 [.09]	8.3 [5.6]
7530H1424	75	57.4 [17.5]	58.1 [17.7]	0.30 [.012]	1.30 [.051]	1.73 [.068]	2.03 [.08]	8.5 [5.7]
9522A1311	95	44.3 [13.5]	19.7 [6.0]	0.79 [.031]	5.51 [.217]	6.05 [.238]	7.32 [.288]	55.1 [37.0]
9527J1528	95	44.3 [13.5]	31.8 [9.7]	0.43 [.017]	2.84 [.112]	3.18 [.125]	3.58 [.141]	19.2 [12.9]
9530H1014	95	44.3 [13.5]	44.3 [13.5]	0.30 [.012]	1.83 [.072]	2.26 [.089]	2.62 [.103]	13.1 [8.8]

Note: All values are nominal.

Product Characteristics

General	Conductor Range Operating Temperature Range*	12 AWG to 30 AWG -65°C to 200°C [-85°F to 392°F]
Electrical	Impedance range Dielectric constant Velocity of propagation	50 ohms to 125 ohms 1.65–2.3 67%–80%

*Temperature rating varies depending on materials used in specific construction.

Small, Lightweight Coaxial Cables

Properties (per SCD)

Physical	Typical Value of Dielectric Material					
	Rayfoam L	Rayfoam H	Rayolin F			
Tensile (min.)	6.8 MPa (1000 psi)	4.1 MPa (600 psi)	12.2 MPa (1800 psi)			
Elongation (min.)	50%	50%	200%			
Electrical						
Dielectric withstand (min.)	1000 V	1000 V	1000 V			
Velocity of propagation (nom.)	78%	78%	67%			
Dielectric constant	1.65	1.65	2.2			
Physical	Type Value of Jacket Material					
	Thermorad	SPEC 55	FlexLine	FEP	Zerohal	SPEC 44
Tensile (min.)	13.6 MPa (2000 psi)	34 MPa (5000 psi)	20.4 MPa (3000 psi)	13.6 MPa (2000 psi)	8.2 MPa (1200 psi)	27.2 MPa (2500 psi)
Elongation (min.)	250%	50%	100%	200%	150%	150%
Temperature (max.)	125°C [257°F]	200°C [392°F]	200°C [392°F]	200°C [392°F]	125°C [257°F]	150°C [302°F]
Flammability*	Method C	Method B	Method B	Method B	Method B	Method B
Fluid category	C	A	A	A	C	B

*See TE specification WCD-1200 for details.

Solvents

Fluid category	A	B***	C
Fluid resistance	All	Hydrocarbons	Hydrocarbons 50°C
		All fuels and lubes	Petroleum base fuels and lubes ≤50°C
		Alcohols	Alcohols
		Cleaning fluids	Cleaning fluids
		Glycois	Synthetic fuels and lubes
			Glycols
			Ketones

**Test method per TE Specification 1200.

***Use caution with ketones.

Cheminax — High Performance Alternatives to Standard Cables (Continued)**TE Alternatives to RG Cables**

RG/U	TE Alternative	Comments
4	5020A3311-0	Small/light
	5018D3311-0	Improved electricals
5	5018D3311-0	Small/light
8	5012E1339-0	Dimensionally similar
11	7518A1311-0	Small/light
29	5020A1311-0	Small/light
31	5012E1339-0	Dimensionally similar
55	5020A3311-0	Small/light
	5018D3311-0	Improved electricals
58	5021D1331-0	Dimensionally similar
	5020A1311-0	Small/light
	5018A1311-0	Improved electricals
59	7523D1331-0	Dimensionally similar
	7524A1311-0	Small/light
	7520A1311-0	Improved electricals
62	9524A1311-0	Small/light
63	2524A1311-0	Small/light
87	5012A3311-0	Small/light
89	5012A3311-0	Small/light
115	5012A3311-0	Small/light
122	5020A1311-0	Improved electricals
124	7524A1311-0	Small/light
133	9524A1311-0	Small/light
140	7524A1311-0	Small/light
141	5020A1311-0	Small/light
142	5019D3318-0	Small/light
	5018D3311-0	Improved electricals
144	7518A1311-0	Small/light
149	7518A1311-0	Small/light

RG/U	TE Alternative	Comments
159	5020A1311-0	Small/light
174	5026A1311-0	Small/light
	5024A1311-0	Improved electricals
178	5030A1317-0	Small/light
	5028A1317-0	Improved electricals
179	7530A1317-0	Small/light
	7528A1317-0	Improved electricals
180	9530E1014-0	Small/light
	9527A1318-9	Improved electricals
188	5026A1311-0	Small/light
	5024A1311-0	Improved electricals
210	9524A1311-0	Small/light
213	5012E1339-0	Dimensionally similar
214	5012A3311-0	Small/light
223	5019D3318-0	Small/light
	5018D3311-0	Improved electricals
225	5012A3311-0	Small/light
235	5012A3311-0	Small/light
279	7524A1311-0	Dimensionally similar
282	5024A1311-0	Small/light
302	7524A1311-0	Small/light
303	5020A1311-0	Small/light
304	5018A1311-0	Small/light
316	5026A1311-0	Small/light
	5024A1311-0	Improved electricals
393	5012A3311-0	Small/light
400	5020A3311-0	Small/light
	5018D3311-0	Improved electricals
403	5030A5314-0	Small/light

Note: To complement the mechanical and electrical features of Cheminax miniature coax cable, TE offers SolderSleeve, SolderTacts, and PinPak termination devices and RF connector devices. Controlled electrical cables and components are available for data bus systems.

Cheminax Twin Axial Cable

Small, Lightweight Twin Axial Cables

Product Facts

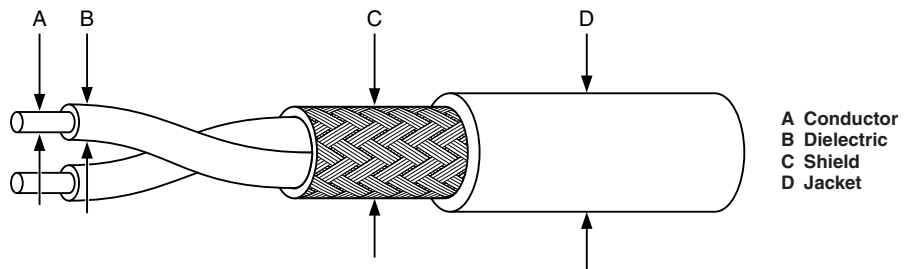
- Light weight, small size
- Temperature range of -65°C to 200°C [-85°F to 392°F]
- Low capacitance
- High data rates
- Excellent shop handling



Applications

These small, lightweight cables are specially designed for use in MIL-STD-1553 CANBUS, and other high speed data bus applications. TE materials technology allows the design and construction of cables that meet rigorous electrical and environmental performance requirements while minimizing size and weight.

Cheminax twin axial cables provide elegant solutions to an increasing range of data bus and multiplex signal transmission applications.



Available in:	Americas	Europe	Asia Pacific
	■	■	■

Cheminax Twin Axial Cables (Continued)

Specifications/Approvals

Series	TE
Cheminax cables	1200

Product Dimensions*

Typical Product Part No.	Impedance (ohms)	Capacitance pF/m(pF/ft)	A	B	C	D	Weight in kg/km (lb/1000ft)
			Conductor Diameter	Dielectric Diameter	Shield Diameter	Jacket Diameter	
5024A1661	50	104.7 [31.9]	.64 [.025]	0.89 [.035]	2.21 [.087]	2.62 [.103]	14.4 [9.7]
5026A1664	50	136.2 [41.5]	.48 [.019]	0.66 [.026]	1.75 [.069]	2.16 [.085]	10.0 [6.7]
7520A1662	75	74.2 [22.6]	1.02 [.040]	2.03 [.080]	4.60 [.181]	5.05 [.199]	42.9 [28.8]
7526J1660	75	88.6 [27.0]	.48 [.019]	0.99 [.039]	2.41 [.095]	2.82 [.111]	14.9 [10.0]
7820D0331	78	67.3 [20.5]	1.02 [.040]	2.11 [.083]	4.75 [.187]	5.72 [.225]	46.9 [31.5]
7824E0422	78	55.1 [16.8]	.64 [.025]	1.19 [.047]	2.82 [.111]	3.33 [.131]	19.6 [13.2]
0022E0311	100	49.2 [15.0]	.79 [.031]	1.98 [.078]	4.39 [.173]	5.16 [.203]	30.5 [20.5]
0024A0024	100	44.3 [13.5]	.64 [.025]	1.30 [.051]	3.02 [.119]	3.63 [.143]	25.1 [16.9]
0026A0024	100	44.0 [13.4]	.48 [.019]	1.14 [.045]	2.72 [.107]	3.23 [.127]	18.7 [12.6]
2524H0524	125	39.4 [12.0]	.64 [.025]	1.83 [.072]	4.09 [.161]	4.50 [.177]	25.3 [17.7]
2526E1114	125	36.1 [11.0]	.48 [.019]	1.40 [.055]	3.33 [.131]	3.73 [.147]	21.7 [14.6]
2530A0314	125	39.4 [12.0]	.30 [.012]	0.86 [.034]	2.16 [.085]	2.67 [.105]	10.6 [7.1]
10595-24	70	91.9 [28.0]	.64 [.025]	1.19 [.047]	2.82 [.111]	3.23 [.127]	17.9 [12.0]
10606-26	75	91.9 [28.0]	.53 [.021]	0.99 [.039]	2.41 [.095]	2.82 [.111]	13.4 [9.0]
10612-24	77	91.9 [28.0]	.64 [.025]	1.22 [.048]	2.90 [.114]	3.30 [.130]	23.7 [15.9]
10613-24	77	91.9 [28.0]	.64 [.025]	1.22 [.048]	3.33 [.131]	3.73 [.147]	39.0 [26.2]
10614-24	77	91.9 [28.0]	.64 [.025]	1.22 [.048]	3.73 [.147]	4.09 [.161]	40.3 [27.1]

*All dimensions are nominal.

Small, Lightweight Twin Axial Cables

Product Characteristics

General	Conductor range Operating temperature range*	20 AWG to 30 AWG -65°C to 200°C [-85°F to 392°F]
Electrical	Impedance range Capacitance range	50 ohms to 125 ohms 30 pF/ft to 10 pF/ft

*Temperature rating varies depending on materials used in specific construction.

Properties (per SCD)

Physical	Typical Value of Dielectric Material					
	Rayfoam L	Rayfoam H	Rayolin F	FEP (solid)	Radiation-Crosslinked XL ETFE	
Tensile (min.)	6.8 MPa (1000 psi)	9.1 MPa (600 psi)	12.2 MPa (1800 psi)	6.8 MPa (1000 psi)	34 MPa (5000 psi)	
Elongation (min.)	50%	50%	200%	150%	50%	
Electrical						
Dielectric withstand (min.)	1000 V	1000 V	1000 V	1000 V	1000 V	
Velocity of propagation (nom.)	78%	78%	67%	69%	61%	
Permittivity (nom.)	1.65	1.65	2.2	2.1	2.7	
Physical	Typical Value of Jacket Material					
	Thermorad	SPEC 55	FlexLine	FEP	Zerohal	SPEC 44
Tensile (min.)	13.6 MPa (2000 psi)	34 MPa (5000 psi)	20.4 MPa (3000 psi)	13.6 MPa (2000 psi)	8.2 MPa (1200 psi)	27.2 MPa (2500 psi)
Elongation (min.)	250%	50%	100%	200%	150%	150%
Temperature (max.)	125°C [257°F]	200°C [392°F]	200°C [392°F]	200°C [392°F]	125°C [257°F]	150°C [302°F]
Flammability*	Method C	Method B	Method B	Method B	Method B	Method B
Fluid category*	C	A	A	A	C	B

*See solvent Page 9-79 for details.

SeaLAN Ethernet Cables

Product Facts

- Low smoke, zero halogen
- Waterblocked cables tested using ASTM D1411 sea water solution
- Humidity resistant designs
- Lightweight
- Flexible



Applications

TE SeaLAN family of waterblocked and non-waterblocked Ethernet cables, as described in MIL-DTL-24643/59 through /61, are qualified to meet the rigorous requirements of flammability, smoke emissions and halogen content. Waterblocked constructions meet severe waterblocking and humidity resistance requirements.

Cables are used in Ethernet applications for:

- Military vessels
MIL-DTL-24643/59, /60 and /61
- Freighters
- Tankers
- Cruise Ships

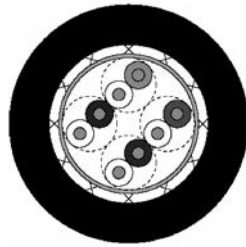
Available in:	Americas	Europe	Asia Pacific
	■	■	■

SeaLAN Ethernet Cables (Continued)

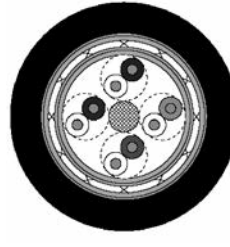
Product Offering

MIL Spec Part Description	Type	TE Description	Cable Description
M24643/59-01UO	LSC5FS-4	CEC-RWC-18982	24 AWG, solid bc, Al/polyester and drain wire
M24643/59-02UO	LSC5FSW-4	CEC-RWC-18983	Waterblocked, 24 AWG, solid bc, Al/polyester and drain wire
M24643/59-03UO	LSC5OS-4	CEC-RWC-18700	24 AWG, solid bc, Al/polyester and woven braid
M24643/59-04UO	LSC50SW-4	CEC-RWC-18600	Waterblocked, 24 AWG, solid bc, Al/polyester and woven braid
M24643/60-01UN	LSC5-4	CEC-RWC-18709	24 AWG, solid bc
M24643/60-02UN	LSC5W-4	CEC-RWC-18710	Waterblocked, 24 AWG, solid bc
M24643/61-01UN	LSC5P-4	CEC-RWC-19043	24 AWG, stranded tc
M24643/61-02UD	LSC5POS-4	CEC-RWC-18886	24 AWG, stranded tc, Al/polyester and woven braid
M24643/61-03UD	LSC5POSR-4	CEC-RWC-19172	26 AWG, stranded tc, Al/polyester and woven braid

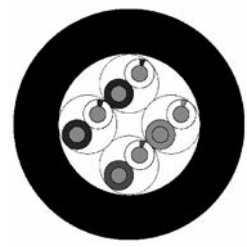
Cable Constructions



CEC-RWC-18700



CEC-RWC-18600



CEC-RWC-18709

SHF-260 Highly Flexible Wire

Product Facts

- Currently available in sizes from 24 to 1/0 AWG
- Highly flexible small bend radius allows for fitting into complex routing
- Extreme temperature resistance for a wide range of applications
- Extruded polymer notch and abrasion resistant — mechanically tough
- Chemical and fluid resistance when tested to SAE-AS-22759/41
- Vibration stability allows a long life cycle in engine compartments



TE Connectivity is pleased to announce the introduction of its new SHF-260 highly flexible wire. The need for a combination of high temperature and high performance in wire insulation has become a critical factor in today's platforms. This is especially true in large diameter power feeder applications where temperature and durability are key.

Its highly flexible characteristic allows the cable to be bent and routed in extremely tight areas with no wrinkling or cracking of the insulation. This results in being able to run shorter distances, reducing the stress on the contact, and reducing the mating and demating forces normally associated with large shell diameter circular connectors, such as MIL-C-5015 and MIL-C-83723 connectors.

Its ability to route in tight spaces may allow the user to go "up" in AWG sizes and eliminate the need to split power, where routing and bending previously prevented the user from doing so.

Applications

Typical uses include both primary and secondary power distribution aerospace, defense and marine applications where high amperage pass through is needed

Materials

Fluoropolymer based material

Standards & Specifications

TE Specification WCD3111

Application Spec SAE-AS-22759ASTM D1868FAR Part 25 - Flammability

Ordering Information

Contact TE

Thermal Properties

Temperature Rating:
-65°C to +260°C

Life Cycle:
290°C for 500 hours

Cold Bend:
-65°C for 4 hours

Thermal Shock Resistance:
Accordance with ASS22759 using an oven temperature of 260°C

Physical Properties

Weight and Dimensions:
See TE Specification Control Drawings

Insulation Elongation:
150% elongation minimum

Tensile Strength:
2000 lbf/inch² minimum

Minimum Bend Radius:
290°C for 500 hours around a mandrel having a diameter as specified in the applicable specification sheet

Wrap Test:
Accordance with ASS22759 using an oven temperature of 290°C

Fire Hazard Properties

Flammability – 60° Flame:
Exceeds test requirements

Smoke:
Smoke resistance test specified in ASS22759 using an oven temperature of 290°C

Electrical Properties

Voltage:
1000 volts (rms)
Insulation Resistance:
Minimum 50,000 Mohms/kft

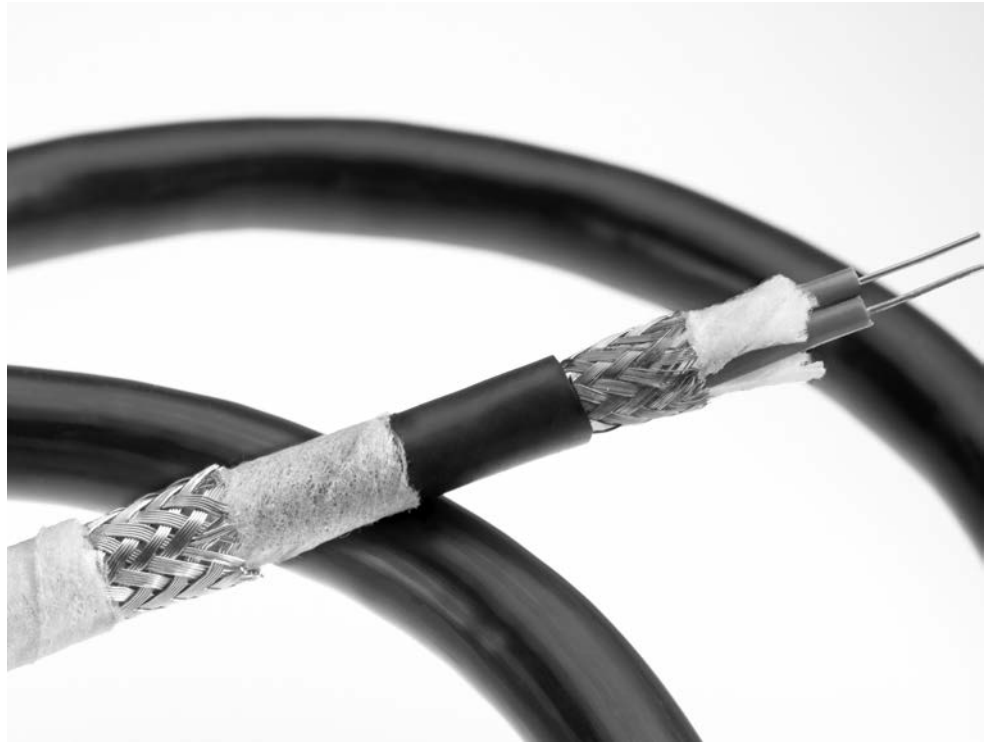
Wire Printing

UV Laser Marking:
Excellent mark contrast

Raychem MIL-DTL-24643 ZEROHAL PROFIBUS Cables

Product Facts

- MIL-DTL-24643/62 qualified
- Waterblocked and non-waterblocked constructions
- Meets water tightness requirements when tested with ASTM D1411 synthetic sea water solution
- Suitable for transmission rates up to 12 megabits per second (Mbits/S)
- Compatible with commercially available Profibus connectors



MIL-DTL-24643 has been the governing specification for low smoke, zero halogen insulated and jacketed shipboard cables used by the United States Navy and other military marine applications.

TE RAYCHEM brand ZEROHAL cables meeting the PROFIBUS standard as described in MIL-DTL-24643/62, are qualified to meet the rigorous requirements to flame, smoke emissions, halogen content and severe water-blocking requirements.

Applications

Cables are used in communications, machinery control monitoring and instrumentation for:

- Military vessels - MIL-DTL-24643/62
- Cruise ships
- Freighters
- Tankers
- Industrial Automation

Electrical

150 ohm impedance
 Transmission rates up to 12 Mbits/s
 Attenuation (dB/100m maximum)

2 MHz:	1.0 dB
4 MHz:	2.5 dB
16 MHz:	5.0 dB
100 MHz:	13.5 dB
300 MHz:	24.0 dB

Materials

Foamed polyethylene components
 Low smoke, Zerohal jacket

Standards & Specs

Raychem Specification 1200
 Raychem Specification 345 MIL-DTL-26463/62

Available in:	Americas	Europe	Asia Pacific
	■	■	■

Raychem MIL-DTL-24643 ZEROHAL PROFIBUS Cables (Continued)

Product Offering

Military Part Number	Type	TE Part Number	Description
M24643/62-01	LSPB2SD-1	5022M1809	22 AWG, bare copper, non-water blocked, shield and jacket
M24643/62-02	LSPB2SDW-1	5022W1809	22 AWG, bare copper, water blocked, shield and jacket
M24643/62-03	LSPB2SDOS-1	5022M5809	22 AWG, bare copper, non-water blocked, two shields and two jackets
M24643/62-04	LSPB2SDOSW-1	5022W0809	22 AWG, bare copper, water blocked, two shields and two jackets

Cable Constructions

5022M1809



5022M5809



5022W0809



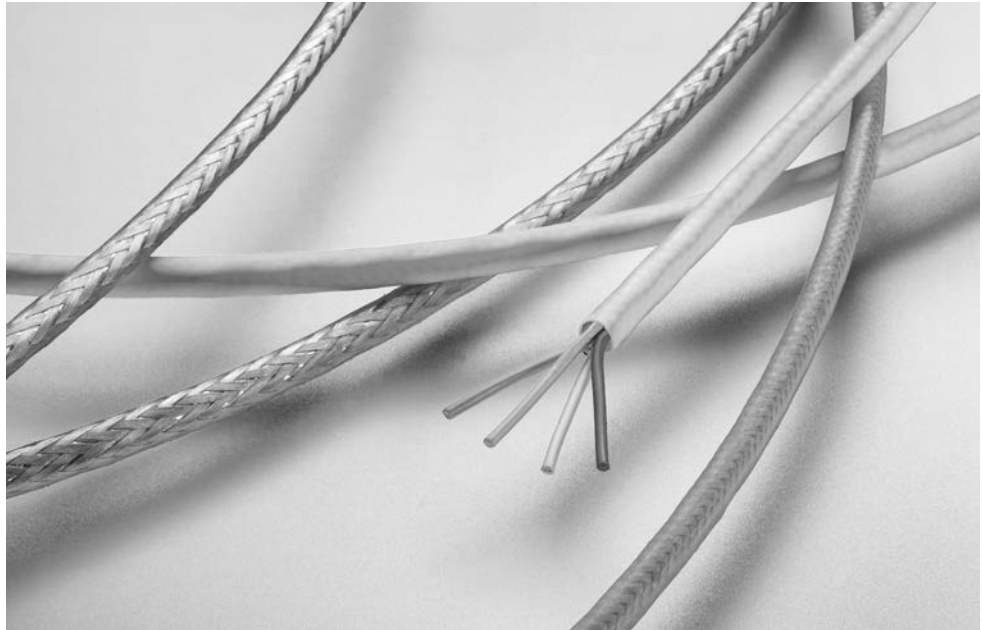
5022W1809



QUADLITE Quadraxial Cables

Product Facts

- 100 Ohm and 150 Ohm cables
- Materials rated from -65°C to +200°C [-85°F to +392°F]
- Low outgassing materials (PTFE, FEP)
- Custom design capabilities
- Proven technologies and materials
- Lightweight
- Low smoke and low toxicity
- Available in 150°C and 200°C rated construction



TE Quadlite family of lightweight, fluoropolymer cables are for use in high speed, high bandwidth applications such as 100Base-T, Gigabit Ethernet, IEEE 1394 and Fiber Channel employed in commercial avionics systems, aircraft data networks, in-flight entertainment systems and military communications.

The Quadlite cables are designed to meet the flammability requirements of FAR Part 25 and the rigorous smoke and toxicity requirements found in commercial aerospace standards such as EN3475.

Quadlite cables are to be used with the Quadrax contacts and connectors.

Applications

Cables are used in communications, control and instrumentation for:

- In-Flight Entertainment
- Satellite TV
- Flight Subsystems
- Military Communications

Materials

Dielectrics — Foamed FEP

Jacket — FEP

Standards and Specifications

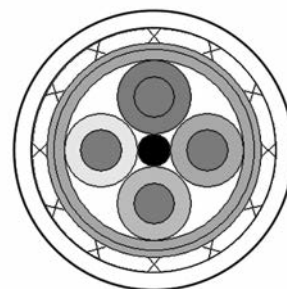
- TE Specification 1200
- ANSI/TIA-568-B.2
- IEEE 1394
- ARINC 664

Available in:	Americas	Europe	Asia Pacific
	■	■	■

QUADLITE Quad coaxial Cables (Continued)**100 Base T Ethernet Cables**
100 Ohms - 150°C

TE Part Number	CEC-RWC-18634		CEC-RWC-18664		CEC-RWC-18666	
Conductor AWG Size (19 Strand)	26		24		22	
Conductor Material:	SCCA		SCCA		SCC	
Nom. Conductor Diameter (in.):	0.0185		0.0235		0.0295	
Insulation Material:	Formed FEP		Formed FEP		Formed FEP	
Nom. Insulation OD± 0.002 (in.):	0.037		0.042		0.057	
Nom. Cable OD (in.):	0.145		0.154		0.195	
Nom. Cable Weight (lbs/1 kft):	17.7		20.3		32.0	
Shield Material:	TCC		TCC		TCC	
Jacket Material:	FEP		FEP		FEP	
Impedance ± 10% (Ω):	100		100		100	
Temp. Rating:	150°C		150°C		150°C	
Nom. Capacitance (pF/ft):	13.5		13.0		12.9	
Nom. Attenuation (dB/100 m):						
1 MHz	4.0		2.2		1.6	
10 MHz	10.5		6.8		5.9	
100 MHz	36.0		24.8		21.0	
Min. NEXT (dB)	<u>10 MHz</u> <u>100 MHz</u>		<u>10 MHz</u> <u>100 MHz</u>		<u>10 MHz</u> <u>100 MHz</u>	
Min. SRL (dB)	50 35		50 35		50 35	
	23 16		23 16		23 16	

TE Part Number	CEC-RWC-20555		CEC-RWC-20333	
Conductor AWG Size (19 Strand)	26		24	
Conductor Material:	SCCA		SCCA	
Nom. Conductor Diameter (in.):	0.0185		0.0235	
Insulation Material:	Formed FEP		Formed FEP	
Nom. Insulation OD± 0.002 (in.):	0.037		0.042	
Nom. Cable OD (in.):	0.144		0.153	
Nom. Cable Weight (lbs/1 kft):	18.7		22.2	
Shield Material:	TCC		TCC	
Jacket Material:	FEP		FEP	
Impedance ± 10% (Ω):	100		100	
Temp. Rating:	150°C		150°C	
Nom. Capacitance (pF/ft):	13.5		13.0	
Nom. Attenuation (dB/100 m):				
1 MHz	4.0		2.2	
10 MHz	10.5		6.8	
100 MHz	36.0		24.8	
Min. NEXT (dB)	<u>10 MHz</u> <u>100 MHz</u>		<u>10 MHz</u> <u>100 MHz</u>	
Min. SRL (dB)	50 35		50 35	
	23 16		23 16	

**100BASE-T Ethernet**

9

Wire and Cable

QUADLITE Quad coaxial Cables (Continued)

100 Base T Ethernet Cables
100 Ohms - 200°C

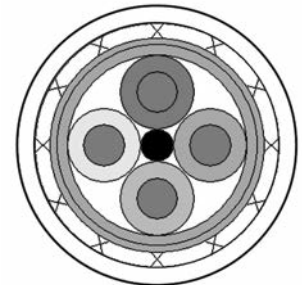
TE Part Number	CEC-RWC-18658		CEC-RWC-18687		CEC-RWC-18665	
Conductor AWG Size (19 Strand)	26		24		22	
Conductor Material:	SCCA		SCCA		SCC	
Nom. Conductor Diameter (in.):	0.0185		0.0235		0.0295	
Insulation Material:	Formed FEP		Formed FEP		Formed FEP	
Nom. Insulation OD± 0.002 (in.):	0.037		0.042		0.057	
Nom. Cable OD (in.):	0.144		0.153		0.194	
Nom. Cable Weight (lbs/1 kft):	18.7		22.2		34.3	
Shield Material:	SCC		SCC		SCC	
Jacket Material:	FEP		FEP		FEP	
Impedance ± 10% (Ω):	100		100		100	
Temp. Rating:	200°C		200°C		200°C	
Nom. Capacitance (pF/ft):	13.5		13.0		12.9	
Nom. Attenuation (dB/100m):						
1 MHz	4.0		2.2		1.6	
10 MHz	10.5		6.8		5.9	
100 MHz	36.0		24.8		21.0	
Min. NEXT (dB)	10 MHz	100 MHz	10 MHz	100 MHz	10 MHz	100 MHz
Min. SRL (dB)	50	35	50	35	50	35
	23	16	23	16	23	16

QUADLITE Quadraxial Cables (Continued)**Fiber Channel Cables
150 Ohms - 150°C**

TE Part Number	CEC-RWC-18680	CEC-RWC-18681	CEC-RWC-18682
Conductor AWG Size (19 Strand)	26	24	22
Conductor Material:	SCCA	SCCA	SCC
Nom. Conductor Diameter (in.):	0.0185	0.0235	0.0295
Insulation Material:	Formed FEP	Formed FEP	Formed FEP
Nom. Insulation OD± 0.002 (in.):	0.058	0.077	0.094
Nom. Cable OD (in.):	0.193	0.224	0.281
Nom. Cable Weight (lbs/1 kft):	23.4	38.3	57.2
Shield Material:	TCC	TCC	TCC
Jacket Material:	FEP	FEP	FEP
Impedance ± 10% (Ω):	150	150	150
Temp. Rating:	150°C	150°C	150°C
Nom. Capacitance (pF/ft):	6.0	6.0	6.0
Nom. Attenuation (dB/100m):			
531 MHz	13	11	9
1062 MHz	21	17	13

150 Ohms - 200°C

TE Part Number	CEC-RWC-18684	CEC-RWC-18685	CEC-RWC-18686
Conductor AWG Size (19 Strand)	26	24	22
Conductor Material:	SCCA	SCCA	SCC
Nom. Conductor Diameter (in.):	0.0185	0.0235	0.0295
Insulation Material:	Formed FEP	Formed FEP	Formed FEP
Nom. Insulation OD± 0.002 (in.):	0.058	0.077	0.094
Nom. Cable OD (in.):	0.192	0.247	0.284
Nom. Cable Weight (lbs/1 kft):	25.8	38.3	57.2
Shield Material:	SCC	SCC	SCC
Jacket Material:	FEP	FEP	FEP
Impedance ± 10% (Ω):	150	150	150
Temp. Rating:	200°C	200°C	200°C
Nom. Capacitance (pF/ft):	6.0	6.0	6.0
Nom. Attenuation (dB/100m):			
531 MHz	13	11	9
1062 MHz	21	17	13

**Fiber Channel**

QUADLITE Quad coaxial Cables (Continued)

**4-Pair Cat 5E Constructions
100 Ohms - 150°C/200°C**

TE Part Number	CEC-RWC-20412		CEC-RWC-21064		CEC-RWC-20638	
Conductor AWG Size (19 Strand)	24		24		26 (7 strand)	
Conductor Material:	SCHSCA		SCC		SCC	
Nom. Conductor Diameter (in.):	0.0235		0.0235		0.019	
Insulation Material:	Formed FEP		Formed FEP		Formed FEP	
Nom. Insulation OD± 0.002 (in.):	0.046		0.046		0.036	
Nom. Cable OD (in.):	0.279		0.249		0.204	
Nom. Cable Weight (lbs/1 kft):	46.2		39.5		29.8	
Shield Material:	TCC		TCC		SCC	
Jacket Material:	FEP		XL-ETFE		FEP	
Impedance ± 10% (Ω):	100		100		100	
Temp. Rating:	150°C		150°C		200°C	
Nom. Capacitance (pF/ft):	13.5		13.5		13.5	
Nom. Attenuation (dB/100m):						
1 MHz	2.4		2.2		2.4	
100 MHz	7.5		6.8		8.8	
100 MHz	26.4		24.8		30.5	
Min. NEXT (dB)	10 MHz	100 MHz	10 MHz	100 MHz	10 MHz	100 MHz
	50	35	50	35	50	35
Min. SRL (dB)	25	19	25	19	23	16

**Cat 6 Constructions
100 Ohms - 100°C/90°C**

TE Part Number	CEC-RWC-20837		CEC-RWC-21088	
Conductor AWG Size (19 Strand)	23		23	
Conductor Material:	Bare Copper		Bare Copper	
Nom. Conductor Diameter (in.):	0.021		0.021	
Insulation Material:	Foamed PE		PE	
Nom. Insulation OD± 0.002 (in.):	0.046		0.046	
Nom. Cable OD (in.):	0.350		0.249	
Nom. Cable Weight (lbs/1 kft):	52.6		39.5	
Shield Material:	TCC		TCC	
Jacket Material:	FDR-25		Raythane	
Impedance ± 10% (Ω):	100		100	
Temp. Rating:	100°C		90°C	
Nom. Capacitance (pF/ft):	13.5		13.5	
Nom. Attenuation (dB/100m):				
1 MHz	1.8		1.8	
100 MHz	5.5		5.5	
100 MHz	18.3		18.3	
250 MHz	30.4		30.4	
Min. NEXT (dB)	10 MHz	250 MHz	10 MHz	250 MHz
	70	52	70	52
Min. SRL (dB)	36	24	36	24

High Speed Copper Cable Assemblies

Product Facts

- End-to-end best performance systems solutions provider
- Quick design turnaround using in-house software
- Full electrical and environmental testing capability
- Certified test processes and equipment ensures optimal signal integrity
- Qualified assembly experts
- Complete lot traceability
- Reliability in harsh environments
- ISO 9001; AS 9100 certified



TE supplies proven technology for high bandwidth data links to customers in the aerospace, ground systems and marine industries. Military cable requirements are designed, manufactured and tested to perform reliably in harsh environments.

Proper cable assembly is critical to realizing the full potential of the cable and connector technologies. TE's lightweight military cables and connector solutions are designed to reduce size and remove weight from your application, leading to benefits that include reduced fuel consumption and increased payload capacity.

Data assemblies can be developed for the following high speed protocols:

- Military Fiber Channel
- Ethernet (Fast Ethernet, GigE, 10GigE)
- 1394b Military Firewire
- USB 3.0

and many other serial communication architectures.

Applications

Unmanned aerial vehicles (UAV), Helicopters, Fighters, Transport, Trainers, Missiles, Satellites, and Ground Vehicles

Applications include:

- Surveillance equipment, ground computing
- Communications
- Collision Avoidance, Navigation
- Cockpit Instrumentation
- Broadband Networks
- Command and Control

Electrical

Testing capabilities include:

- DWV/IR
- Characteristic Impedance
- Return Loss/VSWR
- Insertion Loss
- Crosstalk
- Attenuation
- Eye Diagrams
- etc.

Mechanical Tests Available:

- Vibration
- Mechanical Shock
- Mechanical Durability

Environmental Tests Available:

- Salt Spray
- Thermal Shock / Temperature Life
- Humidity / Fluid Immersion

Available in:	
Americas	■
Europe	■
Asia Pacific	■

High Speed Copper Cables

Product Facts

- Reduced engineering time
- Compatibility with numerous TE contacts and TE termination devices
- Integrated solution
- Cost savings
- Custom solutions available
- Complexity reduction for straight forward installation
- Increased bandwidth
- EMI protection
- Lightning protection
- Ruggedized to survive in harsh environments
- Reduced size and weight



Description

TE Connectivity offers a large and growing range of High Speed Copper Cables for commercial and military aerospace, as well as ground systems and marine applications. Increased usages of high speed protocol such as Ethernet, Firewire, Fiber Channel and USB have become a necessity to be able to deliver information from one point to the next.

TE's high speed copper solutions along with TE's matched impedance contacts and connectors can provide a total solution. TE's total solution can increase the performance and the signal integrity while maintaining robustness in today's Aerospace, Defense and Marine applications.

TE's expansive research and development programs

in material sciences are continually developing unique polymer solutions that will reduce weight and size while increasing robustness of our products

Applications

Military Aerospace: Situation Awareness Systems (radar); Weapons Systems (missiles); Communications (radio and intercoms)

Commercial Aerospace: In-Flight Entertainment; Glass Cockpit; In-flight Wireless

Military Ground Systems: Glass Dashboard; Integrated Computer System; Remote Weapons System; Radio and Intercom Communications; Situational Awareness (thermal imaging, vision systems);

Smart Soldier Systems: Live health monitoring; Real Time Soldier Movement; Portable computers

Materials

Conductor: Tin, Silver, Nickel or Copper

Also available in High Strength Alloys.

Electrical

Matched impedance connectors and cables

Electro-magnetic interferences protection

150-Ohm FiberChannel

100-Ohm Gigabit Ethernet

Mechanical

Small size, reduced complexity and weight

Design Flexibility

CAD for quick response

High product performance

Optimum layout

Rapid quotations

Size and weight details

Dielectric Solutions

TE has designed a new process for extruding Foamed FEP and other various jacket materials, allowing us the advantage of providing relatively uniform bubbles (void spaces) along the entire length of our cables.

This solution has a number of benefits which include increased electrical performance and integrity while maintaining mechanical robustness.

Excellent uniformity (void spaces); Excellent electrical performance; More robust product

High Speed Copper Cables (Continued)

HSC - part numbering system "high-speed conductor"

Example:

C5E - 26 B 1 2 4 - 7 1 4 - 9X

Variation Code (3-digits):

3EA	IEEE1394a	C6X	CAT6	DSP	Display Port	LVD	LVD
3EB	IEEE1394b	C7E	CAT7e	DVI	DVI	TGX	1000B-T Quad
C5E	CAT5e	C7X	CAT7	FBC	Fiber Channel	THX	100B-T Quad
C6A	CAT6a	CBS	Canbus	HDM	HDMI	UB2	USB 2.0
						UB3	USB 3.0

Conductor AWG Size (Data Pair):

Conductor Stranding (Data Pair):

A	Solid	B	7 Strand	C	19 Strand
---	-------	---	----------	---	-----------

Conductor Material (Data Pair):

1	Tin-coated copper	9	Bare copper
2	Silver-coated copper	0	Other
3	Nickel-coated copper	A	Silver-coated ultra high-strength copper alloy
4	Silver-coated high-strength copper alloy		
6	Nickel-coated high-strength copper alloy		

Dielectric Material (Data Pair):

1	Rayfoam L	5	UXL-ETFE	0	Other
2	Rayfoam H	6	XL-ETFE	L	Low Fluoride XL-ETFE
3	Rayolin F	7	Flexible XL-ETFE		
4	Modified FEP	8	Rayfoam FS		

Number of Data Pairs:

1 - 10 (designator for 10 conductor = 0)

Special Construction (P-Line = Power Line):

-	Standard	C	26 AWG (P-Line)	F	20 AWG (P-Line)	W	Waterblocked
A	30 AWG (P-Line)	D	24 AWG (P-Line)	G	18 AWG (P-Line)	X	Special construction
B	28 AWG (P-Line)	E	22 AWG (P-Line)	S	Space rated		

Shield Type:

See page 2.

Shield Material (each, when more than one shield):

1	Tin-coated copper	4	Silver-coated high-strength copper alloy
2	Silver-coated copper	U	Unshielded
3	Nickel-coated copper		

Jacket Material (each, when more than one jacket):

1	Thermorad K	8	Zerohal	M	Laser Markable FEP
3	Thermorad F & S	9	None	N	Thermorad NTFR
4	Modified FEP	0	Other	R	Raythane FR
5	UXL-ETFE	C	Raythane C	T	Thermorad O
6	Thermorad HT	F	FDR-25	W	PET wrap
7	Thermorad FL	L	Low Fluoride XL-ETFE		

Outer Jacket Color (code per MIL-STD-681, except as noted):

(For translucent colors, an "X" is added to the end of the color.)

Example: 9X = Translucent White)

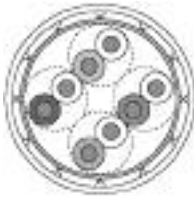
0	Black	3	Orange	6	Blue	9	White
1	Brown	4	Yellow	7	Violet	X	Clear
2	Red	5	Green	8	Gray		

Rayfoam, Rayolin, Raythane, Thermorad, and Zerohal are trademarks.

High Speed Copper Cables (Continued)

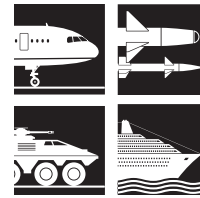
Description

Ethernet



Ethernet Category Cables

Markets: Commercial and MIL Aero, Marine, Military Ground Systems
 Speeds: 10 Mbits/s to 10 Gbit/s
 Common Names: Quadrax, Cat5e, Cat6, Cat 6a, Cat7
 Primary Usage: Generalized Data Communications



Firewire



FireWire/IEEE 1394

Markets: Aerospace Commercial and Military
 Speeds: 100 Mbits/s to 3.2 Gbit/s
 Primary Usage: High Data Rate Communication; Bus Independent



DVI

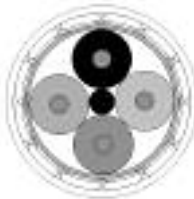


Digital Video Interface (DVI)

Markets: Marine and Ground Systems
 Primary Usage: Video Displays, Uni-Directional Data Transfer



Fiber Channel



Fiber Channel

Markets: Aerospace
 Speeds: 200 MB/s to 1.6 GB/s
 Primary Usage: Storage Technologies and Long Distance Communications

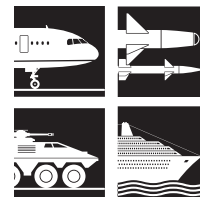


USB-2.0



Universal Serial Bus (Hi-Speed)

Markets: Aerospace, Ground Systems, Marine, Missiles
 Speeds: up to 480 Mbit/s
 Primary Usage: Universal Data Transfer- requires computing system to function

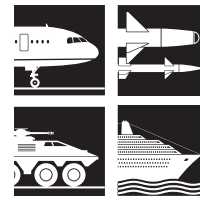


USB-3.0



Universal Serial Bus (Super-Speed)

Markets: Aerospace, Ground Systems, Marine, Missiles
 Speeds: 5 Gbit/s
 Primary Usage: Universal Data Transfer- requires computing system to function



High Speed Copper Cables (Continued)

Compatible Products

The listing below is an “example” only of compatible products. For additional information, contact TE.



CeeLok FAS-T Connector



Molded Shapes



Band Straps



Solder Sleeve Termination Devices



Gigabit Ethernet Connectors



EN4165



Quadrax Contacts



Twinax Contacts

Jacket Materials

Jacket Materials	Temperature Range (°C)	Abrasion Resistance	Flexibility	Typical Industry Use
Thermorad K (Modified PVDF)	-65 to +150	Very Good	Fair	Aerospace, Ground and Marine
Thermorad F & S	-55 to +125	Good	Good	Ground Systems
Modified FEP	-65 to +200	Good	Good	Aerospace
UXL-ETFE	-65 to +150	Good	Fair	Aerospace and Ground Systems
Thermorad HT (Modified ETFE)	-65 to +200	Very Good	Fair	Aerospace
Thermorad FL	-55 to +200	Very Good	Good	Aerospace
Zerohal	-30 to +105	Good	Good	Marine
FDR-25	-40 to +105	Fair	Excellent	Ground Systems
Low Fluoride XL-ETFE	-65 to +200	Very Good	Fair	Aerospace
Laser Markable FEP	-65 to +200	Good	Good	Aerospace
Thermorad NTFR	-55 to +110	Good	Excellent	Ground Systems and Marine
Raythane FR	-65 to +90	Excellent	Excellent	Marine
Thermorad O	-55 to +125	Good	Good	Ground Systems and Marine

Custom-designed and standard Multiconductor (Multicore) Cables

Product Facts

- Temperature capability: -55°C to +260°C [-67°F to +500°F]
- Small size, lightweight
- System compatibility with other Raychem products
- Complete range of components
- Specially formulated jacket materials
- Special shielding to address EMI/EMC problems
- Custom designed and purpose built
- Fast response—design, pricing, and delivery
- Prototype length facility
- Raychem Dynalink for extended flex-life and increased flexibility
- Fire-resistance; circuit integrity (IEC60331), enhanced 950°C [1742°F, 3 hours]
- Small size, lightweight, low fire-hazard for modern high-speed vessels



Applications

TE is the leading manufacturer of Raychem custom-designed, small-size, lightweight, high-performance multi-conductor (multicore) cables. Applications are found in the aerospace, commercial marine, naval, mass transportation, automotive, offshore, military ground vehicle, ground support, high-performance instrumentation, industrial, and commercial markets. Raychem multiconductor (multicore) cables have been approved to many standards demanding high performance criteria in service use.

Multiconductor (Multicore) Cables Purpose Built and Designed Using Raychem Components and Technology

Multiconductor cables are used in widely varying applications and environments. Careful consideration must be given to the selection of components with the right combination of physical, chemical, and electrical properties for specific applications.

TE's leadership in the technologies of polymer blending and subsequent radiation crosslinking has led to the development of a particularly broad range of Raychem brand cables. High-performance component wires and miniature coaxial cables are combined with unique cable

jacket materials to meet the requirements of demanding environments.

Established as the leading manufacturer of special purpose Raychem cables, TE has continued to develop both its design and manufacturing expertise.

Development of a sophisticated CAD system has allowed increasingly rapid response to any design request, followed by manufacturing to the highest quality standards.

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

Specifications/Approvals

Agency	Industry	Military	TE
Underwriters' Laboratories	Lloyd's Register of Shipping	Def. Stan 61-12 Pt 25	WCD series
CSA (Canadian Standards Assn.)	Det Norske Veritas	MIL-DTL-24640	
ISO9001:2000		MIL-DTL-24643	
MSV 34410-34413; 34435; 34436		VG 95218 Pts 27 and 28	
ANSI/ISO/ASQ Q9001-2000			

Multicore Cables



Design Flexibility

Components

- SPEC 44 wire and cable
- SPEC 55 wire and cable
- Type 99 wire and cable
- 100 wire and cable
- ElectroLoss FilterLine cables
- Flexible power cables
- Optical fibers
- Controlled electrical cables

Wraps and Braids

- Fabric and film tapes
- Aramid or steel strength members
- Full range of electrical screens (including SuperScreens)

Jacket Materials

- FDR 25 - Fluid resistant, flexible, high temperature
- Thermorad/ Thermorad F - General purpose
- Thermorad HTF - Very high temperature fluoroelastomer, fluid resistant
- Raythane C - Tough and flexible
- Raythane FR - Tough, flexible, flame-retardant
- Rayolin - Low moisture transmission
- NT/ Thermorad NTFR - Low-temperature flexibility
- Zerohal - LFH (Low Fire Hazard)

How to Build a Multicore Cable

This guide is designed to help you identify the building blocks necessary to create a custom multicore cable design.

- 1. What is your application/end-use?**

- 2. What temperature rating is required (in degrees C)?**

- 3. How many components are needed?**

- 4. What is each component used for (data, signal or power)?**

- 5. What would be the size of each of the components (in AWG)?**

- 6. Are there any electrical shielding (EMI) requirements? If so, please list specifics (ex: component shielding, cable shielding)?**

- 7. Are there specific flexibility, mechanical, or fluid resistance requirements? If so, please list specifics and rank the order of importance.**

- 8. Do you require special lengths?**

- 9. Is there a customer specification involved? If so, please provide a copy.**

- 10. Please list any timelines and annual usage estimates.**

Computer Aided Design

Custom Design Capability



Applications

Every year, TE designs and builds several thousand custom, high-performance, multiconductor cables that meet unique product needs.

Design staff can draw on an extensive range of high-performance cable components and jacket materials, while incorporating both color-coding and alphanumeric marking techniques for component identification. These options, combined with a full range of EMI shields, lead to a huge variety of construction possibilities.

TE developed computer-aided design tools to provide a fast response to design requests. The software, used by factory engineers or product specialists in the field, can generate cable design proposals with drawings and quotations in minutes. A design drawing details all the cable data and can be used as the input to harness or cable splice (joint) design. The resulting cable is tailored to customers' exact needs in an efficient design that is superior to the competitor's cable selected from a product catalog.

Quality Assurance

Raychem WCD and WSD cable specifications ensure that performance and quality standards are maintained to the highest level. TE manufacturing sites have obtained the highest available quality system approvals, including ISO 9000 and QS9000. Raychem cables are manufactured to meet the requirements of several major specifications.

Available in:	
Americas	■
Europe	■
Asia Pacific	■

Custom Shipboard Cables

Product Facts

- Waterblocked cables are available using tapes and yarns vs. silicone, which improves size and flexibility
- Low smoke, zero halogen jackets compliant with current MIL Spec applications
- Small order quantities available on most designs
- Lightweight state-of-the-art cable insulation technology
- TE design specialists work directly with customers
- RoHS products available



Applications

TE offers a full range of customized shipboard cables that can save users time, money and weight by packaging multiple cables into a single zero-halogen jacket per MIL-DTL-24640 specification.

Cables can be used for a variety of applications including control, lighting, signal and power.

Consolidation of individual cables for various applications including weapons and communications systems.

Data and power cables can be combined in the same bundle to decrease weight and size on cable runs.

Available in:

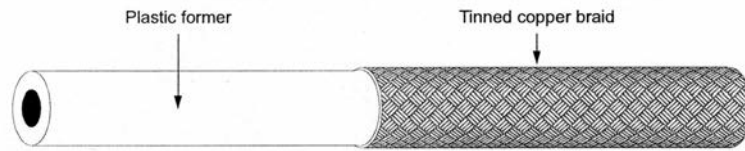
Americas	■
Europe	■
Asia Pacific	■

RayBraid Tubular Braiding

Tubular Braiding for the Electrical Screening of Wire Bundles

Product Facts

- Screening for military harnesses
- Easy removal from former
- Minimum 90% optical coverage
- Ray 101 and Ray 103 super flexible with high expansion ratios



To ease the assembly of hand built harnesses, TE manufactures a range of braids for the electrical screening of wire bundles.

RayBraid is supplied on a tube former which facilitates assembly and is more robust than braid supplied in flattened form.

TE also supplies connectors suitable for braid terminations.

Applications

When stored under typical conditions of less than 30°C and less than 70% relative humidity, the shelf life of the wire is effectively unlimited. Where the product contains a standard tin plated or bare copper conductor or braid there will be a progressive reduction in the solderability with increasing storage time. Under the conditions mentioned above, excellent solderability should be retained for about one year from manufacturing date, but if this is an important property, it should be checked before use. The suitability of the tin plated or bare copper conductor for use with crimped or welded termination techniques will not be affected by storage time.

Silver and nickel plated conductors are essentially unaltered by normal storage.

Types

Ray 90 (Tinned Copper Braid):

- Minimum 90% optical coverage available in 10 different sizes from 3.0 to 30.0 mm supplied diameter.

Ray 101 (Tinned Copper Braid):

- Minimum 93% maximum 100% optical coverage possess high usable expansion ratio (minimum 2:1).
- Available in a wide range of sizes to cover 2.5 to 38.0 mm diameters.
- Fully compatible with Tinel-Lock adapters for termination of the braid to associated connectors.

Ray 103 (Nickel Copper Braid):

- Minimum 93% maximum 100% optical coverage possess high usable expansion ratio (minimum 2:1).
- Available in a wide range of sizes to cover 2.5 to 38.0 mm diameters.
- Fully compatible with Tinel-Lock adapters for termination of the braid to associated connectors.

Operating Temperature Range

Ray 90:
up to 150°C [302°F]

Ray 101:
up to 150°C [302°F]

Ray 103:
above 150°C [302°F]

RayBraid Tubular Braiding (Continued)

Characteristics

Part Number	Diameter of former (mm)	Tinned Copper Wire						
		No. of Carriers	No. of Ends per Carrier	Individual Strand Size (AWG/mm)	Minimum Coverage (%)	Cable Bundle Tolerance		
						Maximum (mm)	Minimum (mm)	
Ray 90	-3.0	3.0 ± 0.13	16	5	36/0.13	90	3.5	2.0
	-4.0	4.0 ± 0.25	16	7	36/0.13	90	5.0	3.0
	-5.0	5.0 ± 0.25	24	6	36/0.13	90	6.0	4.0
	-6.0	6.0 ± 0.25	24	7	36/0.13	90	7.0	5.0
	-10.0	10.0 ± 0.25	24	9	34/0.16	90	12.0	7.0
	-12.5	12.5 ± 0.25	24	10	34/0.16	90	13.0	11.0
	-15.0	15.0 ± 0.38	24	11	32/0.20	90	18.0	13.0
	-20.0	20.0 ± 0.38	36	7	32/0.20	90	23.0	17.0
	-25.0	25.0 ± 0.38	36	9	30/0.25	90	28.0	22.0
	-30.0	30.0 ± 0.38	36	9	28/0.32	90	36.0	27.0
Ray 10X	-3.0	3.0 ± 0.13	16	10	38/0.10	93	5.0	2.5
	-4.0	4.0 ± 0.25	24	7	36/0.13	93	7.5	3.5
	-6.0	6.0 ± 0.25	24	9	36/0.13	93	9.5	4.5
	-7.5	7.5 ± 0.25	24	14	36/0.13	93	14.0	7.0
	-10.0	10.0 ± 0.25	36	12	36/0.13	93	22.0	8.0
	-12.5	12.5 ± 0.25	36	15	36/0.13	93	24.0	11.0
	-20.0	20.0 ± 0.38	48	16	36/0.13	93	38.0	16.0

The X in the part number shall be replaced with the plating type.

Weight

Part Number	Ray -90	Ray -101
	Weight (excluding former) kg/km (nom)	Weight (excluding former) kg/km (nom)
-3.0	13	10.3
-4.0	17	17.0
-5.0	21	—
-6.0	25	25.0
-7.5	52	31.0
-10.0	52	41.0
-12.5	65	51.0
-15.0	100	—
-20.0	165	81.0
-25.0	207	—
-30.0	310	—

Resistance

The following current ratings are to be used as general guidelines. Ratings based on an ambient temperature of 20°C and a temperature rise above ambient of 40°C.

Part Number	Ray -90			Ray 101			Ray 103
	CSA mm ²	Resistance @ 20°C in ohms/km	Current (amps)	CSA mm ²	Resistance @ 20°C in ohms/km	Current (amps)	Resistance @ 20°C in ohms/km
-3.0	1.0	28.0	17	1.3	17.0	18	17.3
-4.0	1.4	18.3	21	2.1	10.3	28	10.5
-5.0	1.8	13.8	25	—	—	—	—
-6.0	2.1	12.2	28	2.7	8.0	34	8.1
-7.5	—	—	—	4.3	5.2	42	5.23
-10.0	4.3	6.0	42	5.5	3.96	52	4.02
-12.5	4.8	6.1	48	6.8	3.23	57	3.28
-15.0	8.3	3.0	67	—	—	—	—
-20.0	12.8	2.2	81	9.7	2.32	69	2.35
-25.0	16.4	1.6	98	—	—	—	—
-30.0	26.0	1.0	125	—	—	—	—

Properties and Specifications

Properties and Specifications

Specifications and Approvals (Components and Jacket Materials)

Specifications UK Designation	FDR 25	Zerohal	Fluoro- elastomer	Thermorad	Rayolin	Raythane C	AFR	NT	44 Wire	55 Wire	100 Wire	99 Wire	Hytrel
US Designation	FDR 25	Zerohal	Thermorad HTF	Thermorad F		Raythane FR		Thermorad NTFR	44 Wire	55 Wire	100 Wire		
Def Stan 61-12 Part 31		X											
Def Stan 61-12 Part 25		X							X				X
Def Stan 61-12 Part 18 type 1 (issue in effect)		X											X
Def Stan 61-12 Part 26									X				
34435, 34436		X							X				
VG 95218 Part 20, 21, 22 and 23									X	X	X		
VG 95218 Part 24, 25 and 26	X												
VG 95218 Part 27 and 28	X	X							X		X		
VG 95218 Part 1000									X				
VG 95218 Part 1001 and 1002										X			
MIL-DTL-24640 (PMS 400/MII-C-915)		X							X				
SAE-AS-81044/NEMA WC27500									X				
SAE-AS-22759/NEMA WC27500										X			
A014000		X											X
O2-517		X				X			X				
MIL-DTL-24643		X											
Approvals													
Lloyds Register of Shipping		X		X		X			X				X
Bureau Veritas	X	X	X	X		X	X	X	X	X			
UL				X		X (FR)	X		X	X			
CSA									X	X			
BWB	X			X					X	X			
VDE	X			X					X	X			
Germanischer Lloyd		X										X	
American Bureau of Shipping		X										X	

* Please check with your TE representative to ensure the product required has the correct approval.

Properties and Specifications (Continued)

Major Cable Specifications

Country	Cable Specification	Specification Description	Approved Jacket
UK	Def Stan 61-12 Part 25	Royal Navy specification covering limited fire hazard thin-wall insulated electric cables using Def-Stan 61-12 Part 18 approved wire. Signal, control and light power circuits.	Zerohal
Germany	VG 95218 (parts 27 and 28)	Military ground systems specification for signal, control and power cables. Wire to VG 95218 Parts 20-23 and 1000.	FDR-25
USA	MIL-C-24640 (PMS 400/MIL-C-915)	Navy specification covering limited fire hazard thin-wall insulated electric cables for signal, control and light power circuits. Wire to SAE-AS81044.	Zerohal
USA	MIL-DTL-24643	Navy specification covering low smoke, watertight, and non-watertight electric cables for signal, control, and light power circuits for shipboard applications.	Zerohal

Summary of Typical Cable Jacket Properties

UK Designation	US Designation	Property					Chemical Resistance			
		Temperature Range °C*	Abrasion Resistance	Flexibility	Tensile Strength (MPa)	Elongation %	Flame Resistance	Acid	Alkaline	Hydrocarbon
FDR25	FDR25	-40 to 105	Fair	Very Good	20	500	Self-ext;ing	Good	Good	Very Good
Zerohal	Zerohal UK & US	-30 to 105	Good	Good	10	200	Self-ext;ing	Good	Good	Good
Fluoroelastomer	Thermorad HTF	-20 to 200	Good	Good	12	400	Nonburning	Excellent	Excellent	Excellent
Thermorad	Thermorad F	-55 to 125	Good	Good	22	400	Self-ext;ing	Good	Good	Good
Raythane C	—	-25 to 80	Excellent	Excellent	40	500	Self-ext;ing	Fair	Fair	Excellent
—	Raythane FR	-65 to 90	Excellent	Excellent	28	500	Self-ext;ing	Fair	Fair	Excellent
NT	Thermorad NTFR	-55 to 110	Very Good	Excellent	17	300	Self-ext;ing	Good	Good	Good
Rayolin	—	-55 to 95	Very Good	Fair	19	250	Self-ext;ing	Good	Good	Good
AFR	—	-40 to 105	Excellent	Good	10	150	Self-ext;ing	Good	Good	Good
—	Thermorad O	-55 to 125	Good	Good	15	400	Self-ext;ing	Good	Good	Good
—	Thermorad 770	-55 to 175	Very Good	Good	35	500	Nonburning	Excellent	Excellent	Excellent
—	Thermorad 780	-55 to 200	Very Good	Good	24	350	Nonburning	Excellent	Excellent	Excellent
—	Thermorad 790	-55 to 250	Very Good	Good	30	350	Nonburning	Excellent	Excellent	Excellent
Modified PVDF	Thermorad K	-65 to 150	Very Good	Fair	20	400	Nonburning	Excellent	Excellent	Excellent
Modified ETFE	Thermorad HT	-65 to 200	Very Good	Fair	34	100	Self-ext;ing	Excellent	Excellent	Excellent
Modified Flexible ETFE	Thermorad FL	-55 to 200	Very Good	Excellent	20	100	Self-ext;ing	Excellent	Excellent	Excellent
—	Thermorad HTOS	-65 to 200	Very Good	Very Good	34	100	Self-ext;ing	Excellent	Excellent	Excellent
—	Thermorad HTLF	-65 to 200	Very Good	Very Good	34	100	Self-ext;ing	Excellent	Excellent	Excellent
—	Thermorad HTASLF	-65 to 200	Very Good	Very Good	34	100	Self-ext;ing	Excellent	Excellent	Excellent
—	Thermorad VPB	-65 to 200	Very Good	Very Good	23	500	Self-ext;ing	Excellent	Excellent	Excellent

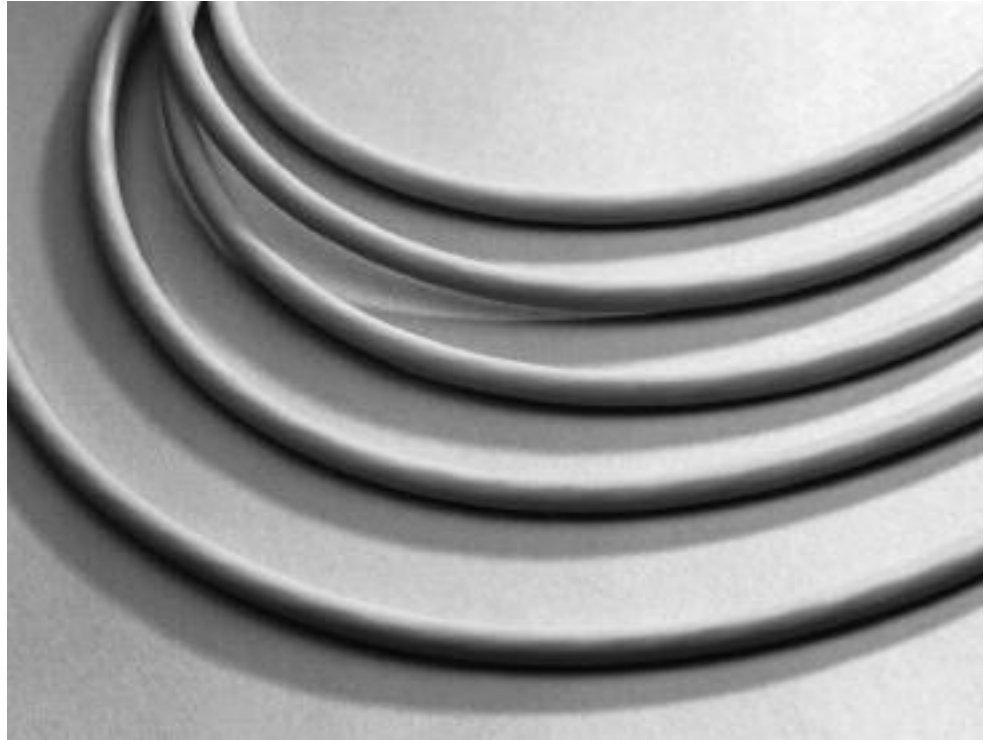
*Operating temperatures for cables are application dependent. Figures shown are for guidance only. In many cases the limits shown may be extended at both ends of the temperature range. Consult TE for guidance.

FDR25

Flexible, Diesel Resistant Wire and Cable Jacket Material

Product Facts

- Highly flame retardant
- Compatible with Raychem System 25 tubing, molded parts and adhesives
- Qualified to VG standards



Applications

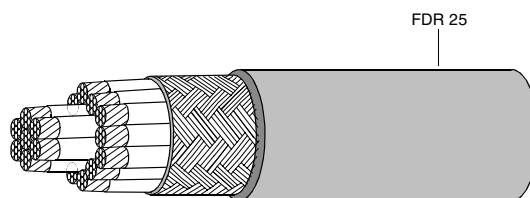
FDR 25 cable jacket was originally developed for the Leopard II main battle tank to provide an exceptional range of properties. Used in compartments exposed to hot diesel fuels and vibration, FDR 25 resists a wide range of aggressive fluids and offers excellent low temperature flexibility. These properties have also led to a widespread use of FDR 25 on other military vehicles and in many applications such as test and communications equipment. FDR 25 is fully compatible with the Raychem System 25 high performance harnessing system.

Operating Temperature Range

-40°C to 150°C
[-40°F to 302°F]

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■



Cable Jacket Materials

FDR25 (Continued)

Typical Characteristics when Tested in Accordance with TE Specification WCD 2002 (UK) and WCD 3304 (US)

Mechanical	Tensile strength (MPa)	20	
	Elongation (%)	500	
	Tear strength (N/mm)	5	
	Abrasion resistance (1.6 kg load) Cold bend	40 scrapes min. -40°C [-40°F]	
Thermal aging	Endurance IEC 60216-1	2500 h 150°C [302°F]	
	Heat aging 120h, 175°C [347°F]	TS 8 MPa (min). Eb 150% (min)	
	Heat shock 4 h at 225°C [437°F]	No cracks, drips or flowing, 6 mm total shrinkage in 300 mm	
Fluid resistance	24 h immersion	% Retention of properties Tensile strength Elongation	
	Diesel fuels 70°C [158°F]	70	70
	Hydraulic fluids 50°C [122°F]	70	70
	Lubricating oils 70°C [158°F]	70	80
	Cleaning fluids 23°C [73°F]	90	95
	Deicing fluids 23°C [73°F]	90	95
Electrical	Insulation resistance 20°C [68°F] M ohm.km min.	2	
	45° flammability	30 s (max) afterburn 100 mm (max) burn length	
Other	Vertical flammability	Self extinguishing	
	Acid gas	4% HCl equivalent (max.)	

Zerohal

Low Fire Hazard Performance Wire and Cable Jacket Material

Product Facts

- Halogen free
- Low smoke generation
- Highly flame retardant
- Low toxicity index
- Low corrosive gas emission
- Temperature rating -30°C to +105°C [-22°F to +221°F]



Available in:	
Americas	■
Europe	■
Asia Pacific	■

Applications

Cables rarely initiate fires, but they could be involved in them and can significantly increase the damage caused should they propagate the fire. Until recently the flame retarding of cables was achieved by the use of halogenated flame retardants which are effective fire suppressants, but which unfortunately produce dense smoke and corrosive acid gases when burned. These effects are highly undesirable in a fire, hindering evacuation and fire fighting, endangering life and causing corrosion damage to expensive and vital equipment.

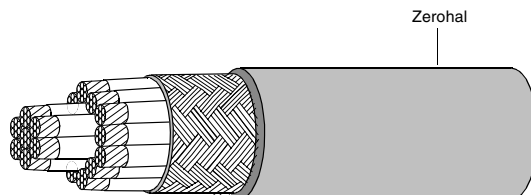
Raychem Zerohal is a halogen-free cable jacket material developed by TE and approved to the most exacting requirements for low fire hazard cables in many countries and, as such, is the most widely accepted material for these applications in the marine, process and mass transport industries. Combined with SPEC 44 wire or Type 99 and 100 wire, this jacket material provides small size, light weight cables (approximately 40% weight saving over conventional materials).

Zerohal combines the good mechanical and electrical features of some conventional cables with good flame retardancy, low smoke generation, low evolution of hazardous and corrosive gases, and good resistance to diesel fuel, lubricating oils and water.

Zerohal jacket material is fully compatible with the low fire hazard harnessing system - System 100.

System

- System 100



Zerohal (Continued)**Typical Characteristics when Tested in Accordance with TE Specification WCD 2015 and WC 2001****(Zerohal with Fungicide)**

Mechanical	Tensile strength (MPa)	9	
	Elongation (%)	200	
	Tear strength (N/mm)	5	
	Abrasion resistance (1.6 kg load)	30 scrapes min.	
	Cold bend	-30°C [-22°F]	
Thermal aging	Heat aging 120 h 130°C [266°F]	60% min retention of TS and Eb	
	Heat shock 4 h at 225°C [437°F]	No cracks, drips or flowing, 6 mm total shrinkage in 300 mm	
Retention of properties			
Fluid resistance	Tensile strength Elongation		
	Diesel fuels 20°C [68°F] /24 h	85	75
	IRM 902 24h, 100°C [212°F]	90	75
	Lubricating oils 50°C [122°F]/24 h	80	75
	Water uptake (ASTM D570) 70°C [158°F] /28 days	4% weight uptake (max)	
Electrical	Insulation resistance 20°C [68°F] M ohms km (min)	1	
	45° flammability	Self extinguishing	
Other	Vertical flammability (Swedish Chimney)	Self extinguishing	
	Acid gas	1.2% HCl equivalent (max)	
	Limiting oxygen index	32%	
	Temperature index	275°C [527°F]	
	Toxicity index	2.5 per 100 g	
	Smoke index	18	
	Halogen content	None detected	

**Low Fire Hazard Performance
Flammability**

Current thinking on fire hazard defines the term 'Fire Risk'. This description recognizes that the risk in a fire situation is influenced strongly from several factors including, ignitability, heat release, smoke evolution and toxic gas emission together with flammability.

There are several test procedures available used to assess flammability of wires and cables. Still in widespread use is Limiting Oxygen Index (LOI), but it is now generally recognized that because the test is conducted on a single specimen (of cable jacket or wire) in laboratory conditions, the results are, at best, only weakly correlated to actual fire situations. Critical Temperature Index (CTI), is a related test and assesses performance at elevated temperature but nevertheless it is still conducted on a single specimen. The most common

flammability tests for a single wire specimen is the 60° flame test as defined by AS81044 and FAR Part 25. More recent evidence and thinking places significantly greater importance on large scale flammability tests, such as IEC IEEE 383 or UL1685, in which the sample consists of a tray of wires. These tests predict more accurately the likely behavior of cables in actual fire scenarios. Raychem Zerohal cable jackets give very good results in small scale laboratory based tests (e.g. LOI, CTI) and Zerohal cables perform very well in large scale tests (e.g. IEEE 383 or UL1685). Overall Zerohal jacketed cables have been shown to exhibit excellent flammability characteristics.

Corrosivity

Under fire conditions, polymers containing halogens, sulphur and phosphorous all form corrosive acid gases or liquids. These acids can then attack items such as printed circuit

boards, connectors, control relays and metal structures, including steel reinforcement bars embedded in concrete.

Test methods to evaluate corrosivity involve direct measurement of the amount of acid gas produced during pyrolysis, eg to MIL-DTL-24640 Acid Gas Generation or measurement of pH and electrical conductivities of solutions.

Toxicity Index

The various gases given off by combustion of polymeric materials are toxic to differing degrees.

The Def Stan 02-713, assesses the concentration of each of the possible by-products and, by measuring the amounts of these materials, a Toxicity Index is assigned.

Zerohal jacket material has a typical Toxicity Index of 1.7, compared to a typical value of 6 for CSP and 20 for PVC jacketed cable. The Def. Standard 61-12

Part 31 specification requirement for a cable jacket is <5.

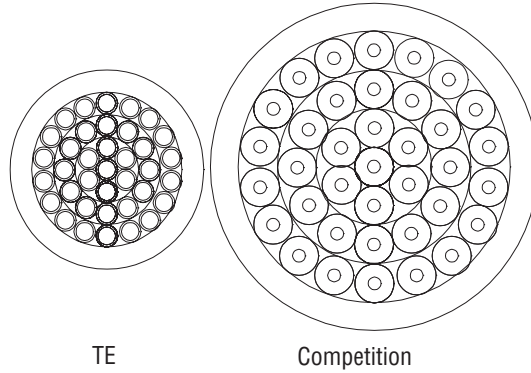
Smoke

The problems of classifying flammability and corrosive gas generation equally apply to measuring smoke generation. The method accepted by most authorities involves the use of the NBS smoke chamber where optical density of the chamber's atmosphere is constantly measured during pyrolysis.

The 10% visibility line indicates the density of smoke which would cause human disorientation and confusion. The rate of change of smoke density can be summarized to a single numerical value, as in Def. Standard 02-711, to give a smoke index for a material and thus offers simple comparison of materials performance.

Zerohal (Continued)

Navy Applications
37 Component Cable
Comparison



	TE Cable to Def Stan 61-12 Pt25	Cable to DGS 212
Diameter	12.5 mm (nom.)	21.3 mm
Weight	328 g/m (nom.)	526 g/m
Conductor	0.60 mm ² (nom.)	0.5 mm ²

Ships are becoming smaller and more sophisticated, with an ever increasing complexity of electronic systems, sensors and weapons. As technology advances shipbuilders are called upon to update and modify existing systems or fit completely new ones. The proliferation of electronic hardware requires more and more communication systems to transfer data from one place to another. To provide all the necessary interconnections, hundreds of multicore cables have to run throughout the ship. These, along with cables for power, lighting and other basic services, create a severe space problem within ducts and hangers. For the vessel to achieve maximum speed, maneuverability and range, it is vital to

keep the “top weight” to a minimum and since most of the equipment is located on the upper decks, system weight must be kept as low as possible.

The diagram shows a lightweight cable compared with a traditional shipboard cable having the same cross-sectional area of copper. Both cables have the same number of conductors. A saving in size has been made on the insulation material, but without sacrificing the mechanical or electrical characteristics of the cable. A typical saving in cable tray volume could be as high as 40%. Lightweight cables can also save in excess of twenty tons on a typical frigate and three to five tons on a fast patrol boat.

TE lightweight, small size cables are giving reliable service in frigates, corvette's, fast patrol boats, hydrofoils and submarines in many major Navies.

Due to recent improvements in manufacturing, TE can now offer an even tighter tolerance of $\pm 2.5\%$ on cable diameter. This is well within the limits imposed by specifications such as Def Stan 61-12 part 25, MIL-DTL-24640/24643, and offers significant benefits to system designers, particularly where cable glanding is involved.

Weight savings within “maxima allowed” by existing specifications are also achievable.

Other applications

The increasing awareness of many areas of industry of the need to minimize fire hazard risk is leading to a rapid growth in the use of Zerohal jacketed cables. Applications include rail and mass transit, offshore platforms and other enclosed areas where a fire would present a significant threat to people or equipment.



Thermorad HTF/ Fluoroelastomer

High Temperature Performance Wire and Cable Jacket Material

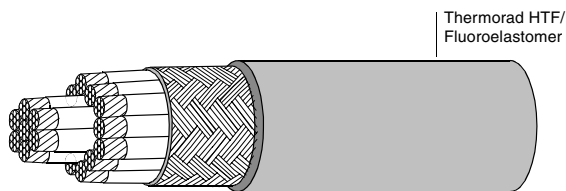
Product Facts

- High temperature capability
-20°C to +200°C [-4°F to 392°F]
- Excellent chemical resistance
- Flame retardant
- Continuous aircraft fuel immersion



Available in:

- Americas ■
- Europe ■
- Asia Pacific ■



Applications

Thermorad HTF/ Fluoroelastomer is a material specially formulated for use in applications where exceptional performance is required.

It displays excellent stability during continuous high temperature exposure to adverse chemical environments.

Thermorad HTF/ Fluoroelastomer has a continuous operating tempera-

ture of up to 200°C [392°F], and finds applications in aircraft fuel tanks and on high performance engine cables. Thermorad HTF/ Fluoroelastomer cable jackets are compatible with the Raychem high temperature harnessing systems — System 200.

System

- System 200

Typical Characteristics when Tested in Accordance with TE Specification WSD 51/1637

Mechanical	Tensile strength	12 MPa	
	Elongation	400%	
	Abrasion resistance (1.6 kg load)	40 scrapes min.	
	Cold bend -25°C ± 3°C [-13°F]	No cracking	
Thermal aging	Heat age	168 h 250°C [482°F]	
	Heat shock 4 h at 300°C ± 3°C [572°F]	No cracks, drips or flowing, 6 mm total shrinkage in 300 mm	
Fluid resistance	24 h immersion	% Retention	
	Diesel fuel 100°C [212°F]	Tensile strength	Elongation
	IRM902 oil 100°C [212°F]	60	60
Electrical	Insulation resistance 20°C [68°F] M ohms. km (min)	10	
Other	45° flammability	30 s (max) afterburn 100 mm (max) burn length	
	Vertical flammability	Self extinguishing	

Thermorad/Thermorad F

General Purpose Wire and Cable Jacket Material

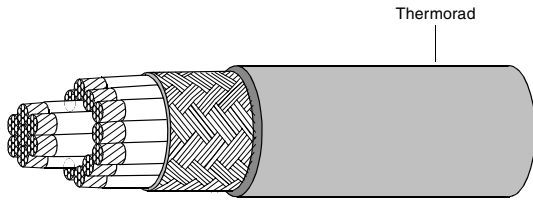
Product Facts

- Temperature rating -55°C to +125°C [-67°F to 257°F]
- Highly flame retardant
- Resistant to fuels, oils and greases
- UL approved



Available in:

- Americas ■
- Europe ■
- Asia Pacific ■



Applications

Thermorad is a general purpose jacket material which is unaffected by most common chemicals and solvents. Thermorad is highly flame retardant and has an overall balance of physical and chemical properties.

Thermorad cables find widespread use in industrial, commercial and military applications. This includes railways, commercial vehicles, medical equipment, communication equipment and commercial electronics. Thermorad cable jackets are compatible with Raychem polyolefin tubings, molded parts and adhesives.

Typical Characteristics when Tested in Accordance with TE Specification WCD 51/1602 (UK) and WCD 3310 (US)

Mechanical	Tensile strength	22 MPa	
	Elongation	400%	
	Abrasion resistance (1.6 kg load)	300 scrapes min.	
	Cold bend	-55°C [-67°F]	
Thermal aging	Heat aging 120 h, 170°C [338°F]	60% min. retention of TS and Eb	
	Heat shock 4 hours at 225°C [437°F]	No cracks, drips or flowing, 6 mm total shrinkage in 300 mm	
Fluid resistance	72 hour immersion, 50°C [122°F]	% Retention of properties	
		Tensile strength	Elongation
	IRM 902	60	60
	Skydrol®	60	60
Electrical	Insulation resistance 20°C [68°F] M ohms km (min)	20	
Other	45° flammability	30 s (max.) afterburn 75 mm (max.) burn length	
	Acid gas	4% HCl equivalent (max.)	

Raythane, NT/Thermorad NTFR, Rayolin and AFR

Specialized Wire and Cable Jacket Material

Product Facts

**Modified Polyurethanes
Raythane C**

- -25°C to +80°C
[-13°F to +176°F]

and Raythane FR

- -65°C to +90°C
[-85°F to +194°F]

- Mechanically tough
- Can be overmolded

Rayolin

- -55°C to +95°C
[-67°F to +203°F]
- XL or U-XL are available
- Excellent long term water immersion
- Can be overmolded
- Compatible with TE under-water cable splices

NT (US designation Thermorad NTFR)

- -55°C to +90°C
[-67°F to +194°F]
- Extreme flexibility
- Highly flexible at low temperatures

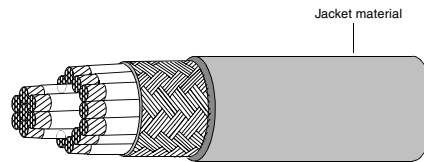
AFR

- -40°C to +105°C
[-40°F to +221°F]
- Abrasion resistant
- Fuel resistant
- Flame retardant



Applications

In addition to the preferred cable jacket materials, TE offers a variety of Raychem cable jackets for specialized applications. For example, specialized materials are available for extreme low temperature flexibility or for enhanced abrasion resistance, or non-cross-linked materials for cable splicing or overmolding.



Available in:	
Americas	■
Europe	■
Asia Pacific	■

Typical Characteristics when Tested in Accordance with TE Specification WCD

	WCD51/1625 Raythane C	WCD3310 Raythane FR	WCD51/147/WCD3314 NT/Thermorad NTFR	WCD51/1601 Rayolin	WCD51/1619 AFR	SPEC 44/ ASC 15865 Thermorad K	SPEC 55 Thermorad HT	
Mechanical	Tensile strength (MPa)	40	28	17	19	11	20	34
	Elongation (%)	500	500	300	250	150	400	100
	Abrasion resistance (1.6 kg load)	500 scrapes	500 scrapes	30 scrapes	300 scrapes	200 scrapes	Very good	Very good
	Cold bend	-25°C [-13°F]	-15°C [5°F]	-55°C [-67°F]	-55°C [-67°F]	-40°C [-40°F]	Pass	Pass
Thermal aging	Endurance (10000 h)	80°C [176°F]	90°C [194°F]	90°C [194°F]	95°C [203°F]	105°C [221°F]	N/A	N/A
	Fluid resistance	24 h immersion Diesel fuels 50°C [122°F]	Excellent	Excellent	Good	—	Good	Excellent
Skydrol® 50°C [122°F]		—	—	Excellent	Excellent	Excellent	—	—
Lubricating Oil 50°C [122°F]		—	—	—	—	—	Excellent	Excellent
IRM 902 100°C [212°F]		Excellent	Excellent	Good	Good	Good	—	—
Electrical	Insulation resistance 20°C [68°F] M ohms. km (min)	1	1	5	100	100	—	—
Other	45° flammability	Pass	Pass	Pass	—	Pass	Pass	Pass

NBC

Product Facts

- **Temperature rating:**
 Thermorad 770:
 -55°C to 150°C
 Thermorad 780:
 -55°C to 175°C
 Thermorad 790:
 -65°C to 200°C
- **Tested in live agent test with HD, VX and TGD for interior and exterior exposure**
- **Tested in accordance with Army TOP 8-2-510 for NBC contamination survivability**
- **Tested to SC-X15111 and SC-X15112 fluid resistance requirements for commonly used military vehicle fluids**
- **Super Tropical Bleach (STB) and Decontamination Standard #2 (DS2), were used per TOP 8-2-511 to decontaminate specimens at interior (1 g/m²) and exterior (10 g/m²) exposure levels, respectively**



Applications

Thermorad 770/780/790 Jacket Material for applications requiring Nuclear Biological and Chemical contamination survivability (NBCCS).

Thermorad 770/780/790 is a revolutionary new fluoroelastomer material that is resistant to nuclear, chemical, and biological threats. This material has undergone testing and show resistance to levels as listed above.

Thermorad 770/780/790 cables are ideal for military ground vehicle applications, communication equipment, and any other equipment that may be at risk of exposure while in theater.

They are ideal for use in NBC decontamination stations. Thermorad 770/780/790 jackets are compatible with TE Raychem brand tubing and molded parts.

System

System 700

Cable Jacket Materials

NBC (Continued)

Typical Characteristics when Tested in Accordance with:

		RT 770 Thermorad 770	RT 780 Thermorad 780	RT 790 Thermorad 790
Mechanical	Tensile strength (MPa)	35	24	30
	Elongation (%)	500	350	350
	Abrasion resistance	Very Good	Very Good	Very Good
	Cold bend -55°C [122°F]	Pass	Pass	Pass
Thermal aging	Endurance 250°C [482°F] for 336 hrs. 24 h immersion	Pass	Pass	Pass
Fluid resistance	Diesel fuels 23°C [73°F]	Excellent	Excellent	Excellent
	Lubricating oils 50°C [122°F]	Excellent	Excellent	Excellent
	Decontaminating agent 23°C [73°F]	Excellent	Excellent	Excellent
	JP-8 23°C [73°F]	Excellent	Excellent	Excellent
Electrical	Volume Resistivity (ohms-cm)	21.50E+15	6.20E+15	1.20E+16
Other	45° flammability	Pass	Pass	Pass

Electrical Shielding

Interference — Designing for the Threat



Applications

In many applications, shielding of cables is important, whether it be to minimize cross-talk within the cable, to prevent interference from external sources, or to eliminate radiation from the cable itself.

The design of cables to provide effective shielding over a broad frequency spectrum is complex, and cables must be tailored to

specific electromagnetic environments. From simple aluminized polyester film that provides electrostatic shielding to progressively more complex shielding that can be designed incorporating plated copper braids and Mu metal wraps.

Optimization






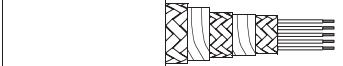
Performance of conventional braiding can be significantly improved by computer optimization. This tightly controlled

process can give many times the shielding performance of a basic braided shield with minimal weight penalty or increase in optical coverage. Supershielded cables combine Mu metal wraps with optimized braids to provide even further enhanced performance, especially at low frequencies.

Available in:

- Americas ■
- Europe ■
- Asia Pacific ■

Available Shields

Shield type	Construction	Typical Application
Aluminized Polyester		Electrostatic shielding
Single Braid		Low level EMI Low sensitivity
Single Optimized Braid		Sensitive lines High EMI
Double Optimized Braid		Highly sensitive lines Severe EMI
Supershielded		EMP/Tempest
Double Supershielded		Severest of applications

Electrical Shielding (Continued)**Measuring Shielding Efficiency****Surface Transfer Impedance (Zt)**

To assess the effectiveness of a shield, TE has adopted the line injection method as described in IEC 1196-1 to measure the surface transfer impedance (Zt) of a cable shield. This relates the open circuit voltage generated on a component wire inside the cable to the current injected on the overall shield. The unit of Zt is Ohms per meter, thus the voltage coupling is length dependent and long cables exhibit more leakage than similar but shorter length ones. To determine the surface transfer impedance across a range of frequencies, a drive signal is generated by the internal tracking generator of a spectrum analyzer, and amplified. The voltage is induced on the center conductor of the sample which is amplified and returned to the signal generator for measurement. The understanding of leakage mechanisms has enabled TE to design cables with guaranteed minimum Zt values for the desired operating environment.

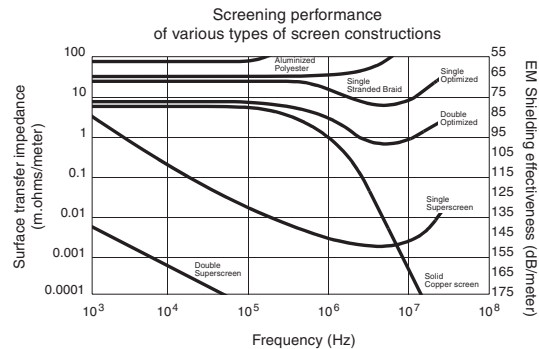
Supershielding**EMP Hardened Cables**

The requirements for nuclear hardened cables present the engineer with a range of problems. The waveform of the EMP is such that the majority of power is dissipated in a frequency band between 1 KHz and 5 MHz, where little protection is given by conventionally shielded cables. TE has solved this problem with a range of super-

shielded cables which give shielding performance at these frequencies by incorporating materials which change the inductance of the shield and lower the transfer impedance. TE supershielded cables have a sandwich construction of Mu metal tapes between optimized braids. Mu metal is a ferro-magnetic material which has a high permeability over a wide range of field strengths. It is applied to the cable in a way which maintains cable flexibility and minimizes work hardening and any consequent reduction in permeability. Supershielded cables not only give protection against EMP but also other major interference modes.

Design and Manufacturing Expertise

The problems of shielding cables are complex. However, with the introduction of optimized braids and supershielded cables, TE has the capability to solve the most difficult shielding problems. Shielding of cables without degrading cable flexibility can be provided for coaxial and multi-conductor cables for all EMC and EMP conditions. To complement this range of cables, TE manufactures Raychem cable terminations and connector back fittings to give total interconnection system shielding performance.

Shielded Cables Controlling the Threat**Testing**

TE EMC test facilities have the capability for bulk current injection testing in addition to surface transfer impedance measurements. The installation is a proven facility in characterizing new design parameters.

Power Cables

Product Facts

- Choice of jacket materials
- -65°C to +260°C
[-85°F to +500°F]
- Size and weight savings
- Excellent flexibility
- Resistance to solvents and chemicals
- Corona resistance
- Increased flexibility in installation
- Arc-resistance of materials



Each power cable offers particular advantages for specific applications and is also available in multiconductor constructions and shielded and jacketed versions. Cables offer size and weight savings, good resistance to abrasion and cut-through, and the ability to operate in difficult environments.

Applications

TE offers a range of flexible Raychem power cables that are insulated and jacketed using materials that provide improved performance over other materials, such as CSP/EPR, silicone, or PCP/Butyl. Five different types of cable are available:

Type TR is a general purpose, single-wall, 125°C [257°F] construction normally specified for use inside cabinets in protected areas.

Type ZHI is a halogen-free 105°C [221°F] cable with good oil resistance. It is particularly suitable for use in offshore, ship, and mass transit applications where low-fire-hazard performance is required. Refer to TE specification WCD 2015.

Type AFR is a 105°C [221°F], single-extrusion, abrasion-resistant, flame- and fuel-resistant, radiation-crosslinked polyolefin.

Type FTR is a dual-wall, 125°C [257°F], diesel-oil-resistant cable originally developed for tank engine compartment applications. It meets the German BWB VG 95218 specification. Refer to TE specification WCD 2002. (US Alternative Type 10603)

Type ZHPCG is a halogen-free, 115°C [239°F] cable with good oil resistance and resistance to water. It is particularly suitable to the Mass Transit, Marine and Off-Shore industries where its low fire hazard performance and flexibility are key to a successful installation. Refer to TE Specification WSD 1265. (US Alternative Type 2HPC06XT and 2HPC20XT)

Type 80 Flexible Light Weight Aluminum Power Feeders are designed with a dual wall flexible ETFE ($\pm 175^\circ\text{C}$) insulation based system to allow the cable to be bent and routed in extremely tight areas with no wrinkling or cracking of the insulation. The design has been tested to verify

that it meets key aerospace industry requirements of flexibility, corona resistance and wrinkling in high voltage applications. TE also has the facilities to test corona resistance or production wire and cable at 400 Hz and various altitudes. (Contact TE for more information)

Type Superflex is a 260°C rated fluoropolymer insulation based system. The need for a combination of high temperature and high performance in wire insulation in today's platforms. This is especially true in large diameter power feeder applications where temperature and durability are key. TE new product line offering comes rated at 200°C for 10 K hours. (Contact TE for more information)

Available in:

Americas	■
Europe	■
Asia Pacific	■

Power Cables (Continued)**Specifications/Approvals***

Series	Military	TE
TR	—	WCD 2003, WSD51/1602
ZHI	Def. Standard 61-12 Part 31 (jacket material)	WSD 2015
FTR	BWB VG 95218 Types G, H, and K	WSD 2002
AFR	—	WCD 2011, WSD51/1619
ZHPCG	—	WSD 1265
80	—	SPEC 80
Superflex	—	WCD 3111

*See specifications listed for details of performance.

Conductors (Tinned Soft Copper)

Conductor Size mm ²	Stranding		Max. Resistance at 20°C in Ω/km (Ω/1000 ft) Class 5/6
	IEC Class 5 Nom. Dia.	IEC Class 6 Nom. Dia.	
1.5	1.49 [.05]	1.53 [.06]	13.20 [4.02]
2.5	1.90 [.07]	2.40 [.09]	7.82 [2.38]
4.0	2.49 [.10]	2.90 [.11]	4.85 [1.48]
6.0	3.00 [.12]	3.60 [.14]	3.23 [0.98]
10.0	4.60 [.18]	4.55 [.18]	1.88 [0.57]
16.0	5.70 [.22]	5.50 [.22]	1.19 [0.36]
25.0	7.10 [.28]	7.30 [.29]	0.78 [0.24]
35.0	8.50 [.33]	8.55 [.34]	0.55 [0.17]
50.0	10.30 [.41]	10.15 [.40]	0.39 [0.12]
70.0	12.40 [.49]	12.00 [.47]	0.27 [0.08]
95.0	14.50 [.57]	14.05 [.55]	0.20 [0.06]
120.0	16.00 [.63]	16.30 [.64]	0.15 [0.05]
150.0	18.00 [.71]	17.40 [.68]	0.13 [0.04]
185.0	20.00 [.79]	20.00 [.79]	0.10 [0.030]
240.0	23.00 [.91]	—	0.08 [0.024]
300.0	26.00 [1.0]	—	0.06 [0.018]
400.0	30.00 [1.2]	—	0.05 [0.015]

*For Type 80 and Superflex, contact TE for conductor details.

Materials Performance Summary

Material	Tensile Strength N/mm ² typical	Abrasion Resistance	Cut Through	Temperature Rating °C 10000 h	Preferred Color
TR	20	Excellent	Good	125	Black
ZHI	9	Good	Very Good	105	Black
FTR	18	Good	Good	125	Black
AFR	18	Excellent	Very Good	105	Grey
ZHPCG	9	Good	Good	115	Black
80	-21	Very Good	Very Good	175	White
Superflex	-14	Very Good	Very Good	260	White

Note: Where a higher operating temperature is required, TE SPEC 55 wire provides outstanding performance up to 200°C continuous operating temperature. For these or other special applications, please contact TE.

Power Cables (Continued)

Table 1. Nominal Diameters and Maximum Weights

Conductor Size (mm ²)	TR 16			FTR 16		
	Part No.	Nom. OD in mm (in)	Max. weight in kg/km (lb/1000 ft)	Part No.	Nom. OD in mm (in)	Max. weight in kg/km (lb/1000 ft)
1.5	—	—	—	—	—	—
2.5	TR 16-2.5	3.9 [.15]	34.0 [22.8]	—	—	—
4.0	-4	4.5 [.17]	51.0 [34.2]	FTR 16-4	5.6 [.22]	72.0 [48.4]
6.0	-6	5.2 [.20]	73.0 [48.9]	-6	6.3 [.25]	95.0 [63.8]
10.0	-10	6.2 [.24]	117.0 [78.4]	-10	7.5 [.29]	151.0 [101.5]
16.0	-16	7.4 [.29]	182.0 [121.9]	-16	8.8 [.35]	228.0 [153.2]
25.0	-25	9.3 [.37]	274.0 [183.6]	-25	10.7 [.42]	335.0 [225.1]
35.0	-35	10.6 [.42]	383.0 [256.6]	-35	12.1 [.48]	463.0 [311.1]
50.0	-50	12.5 [.49]	542.0 [363.1]	-50	14.0 [.55]	631.0 [424.0]
70.0	-70	14.6 [.57]	765.0 [512.6]	-70	16.2 [.64]	878.0 [589.9]
95.0	-95	17.0 [.67]	1020.0 [683.4]	-95	18.8 [.74]	1170.0 [786.1]
120.0	—	—	—	-120	21.3 [.84]	1481.0 [995.1]

Table 2. Nominal Diameters and Maximum Weights

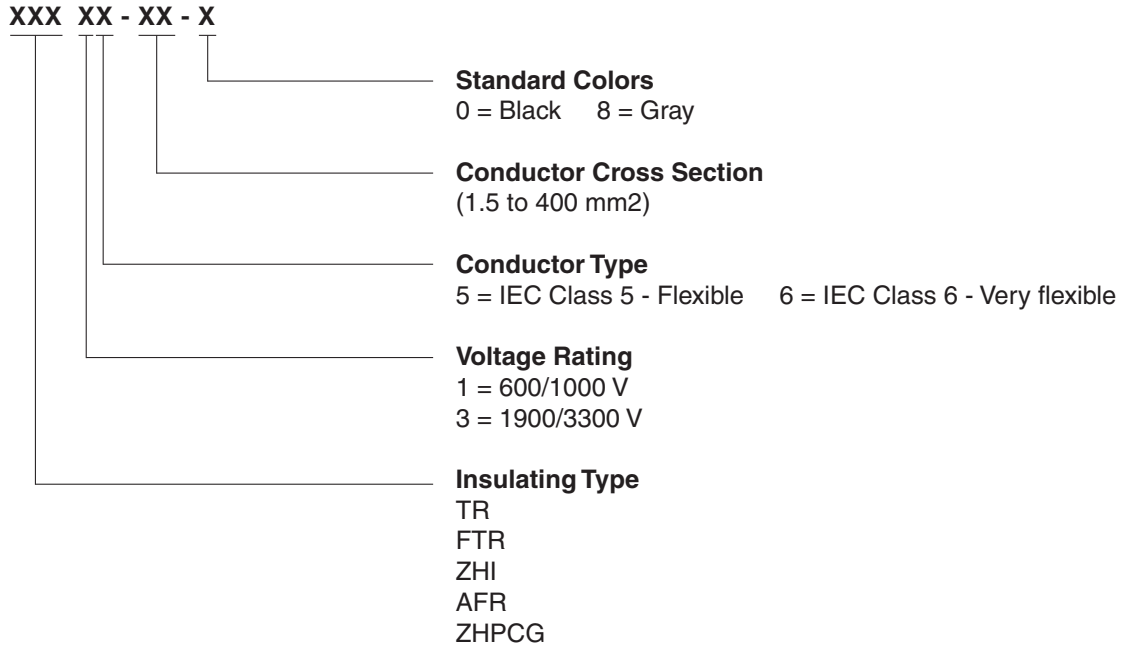
Conductor Size (mm ²)	ZHI 15			AFR 35		
	Part No.	Nom. OD in mm (in)	Max. Weight in kg/km (lb/1000 ft)	Part No.	Nom. OD in mm (in)	Max. Weight in kg/km (lb/1000 ft)
1.5	ZHI 15 -1.5	4.09 [.16]	33.5 [22.4]	AFR 35-1.5	2.7 [.11]	21.6 [14.5]
2.5	-2.5	4.69 [.18]	48.8 [32.7]	-2.5	3.7 [.15]	38.6 [25.9]
4.0	-4	5.49 [.22]	72.1 [48.3]	-4	4.7 [.18]	61.1 [41.1]
6.0	-6	6.16 [.24]	99.8 [66.9]	-6	5.6 [.22]	90.1 [60.5]
10.0	-10	8.20 [.32]	159.0 [106.5]	-10	7.0 [.28]	153.5 [103.1]
16.0	-16	9.30 [.37]	223.0 [149.4]	-16	8.1 [.32]	211.2 [141.9]
25.0	-25	10.90 [.43]	331.0 [221.8]	-25	10.4 [.41]	336.1 [225.8]
35.0	-35	12.30 [.48]	448.0 [300.2]	-35	11.6 [.46]	455.4 [305.7]
50.0	-50	14.70 [.58]	631.0 [422.8]	-50	13.7 [.54]	638.3 [428.9]
70.0	-70	16.80 [.66]	852.0 [570.8]	-70	16.0 [.63]	834.9 [561.0]
95.0	-95	19.10 [.75]	1108.0 [742.4]	-95	18.3 [.72]	1148.0 [771.4]
120.0	-120	21.00 [.83]	1438.0 [963.5]	-120	20.4 [.80]	1501.9 [1009.1]
150.0	-150	23.00 [.91]	1748.0 [1171.2]	-150	22.6 [.89]	1834.0 [1233.0]
185.0	-185	25.60 [1.01]	2088.0 [1399.0]	-185	24.8 [.98]	2177.0 [1463.0]
240.0	-240	28.60 [1.13]	2705.0 [1812.4]	-240	27.8 [1.10]	2817.0 [1892.0]
300.0	-300	32.00 [1.26]	3363.0 [2253.2]	-300	32.0 [1.20]	3579.0 [2405.0]
400.0	-400	36.40 [1.43]	4396.0 [2945.3]	-400	36.0 [1.40]	4636.0 [3115.0]

Table 3. Nominal Diameters and Maximum Weights

Conductor Size (mm ²)	ZHPCG-15			ZHPCG-35		
	Part No.	Nom. OD in mm [in]	Max. Weight in kg/km [lb/1000 ft]	Part No.	Nom. OD in mm [in]	Max. Weight in kg/km [lb/1000 ft]
1	ZHPCG-15-1	3.77 [.14]	28.0 [18.1]	ZHPCG-35 -1	—	—
1.5	-1.5	3.79 [.15]	36.0 [24.2]	-1.5	4.55 [.18]	37.9 [25.5]
2.5	-2.5	4.27 [.17]	45.0 [30.2]	-2.5	5.07 [.20]	52.9 [35.5]
4.0	-4	4.64 [.18]	60.0 [40.3]	-4	5.66 [.22]	72.7 [48.9]
6.0	-6	5.31 [.21]	85.0 [57.1]	-6	6.15 [.24]	96.7 [65.0]
10.0	-10	6.53 [.26]	135.0 [90.7]	-10	7.33 [.29]	141.0 [94.7]
16.0	-16	8.03 [.32]	195.0 [131.0]	-16	8.83 [.35]	214.0 [143.8]
25.0	-25	9.70 [.38]	300.0 [201.6]	-25	10.50 [.41]	316.0 [212.3]
35.0	-35	11.30 [.44]	443.0 [297.7]	-35	11.70 [.46]	425.0 [285.6]
50.0	-50	13.50 [.53]	623.0 [418.6]	-50	13.48 [.53]	582.0 [391.0]
70.0	-70	15.60 [.61]	847.0 [569.1]	-70	15.33 [.60]	802.0 [538.9]
95.0	-95	18.10 [.71]	1119.0 [751.9]	-95	17.93 [.71]	1051.0 [706.2]
120.0	-120	19.80 [.78]	1445.0 [970.9]	-120	19.80 [.78]	1308.0 [878.8]
150.0	-150	22.00 [.87]	1775.0 [1192.7]	-150	21.44 [.84]	1601.0 [1075.7]
185.0	-185	24.40 [.96]	2115.0 [1421.2]	-184	23.28 [.92]	1966.0 [1321.0]
240.0	-240	27.80 [1.09]	2762.0 [1856.0]	-240	27.33 [1.08]	2542.0 [1708.0]
300.0	-300	31.20 [1.23]	3452.0 [2320.0]	-300	32.50 [1.28]	3568.0 [2397.3]
400.0	-400	35.20 [1.39]	4474.0 [3006.4]	-400	37.00 [1.46]	4652.0 [3125.7]

Power Cables (Continued)

Part Numbering System



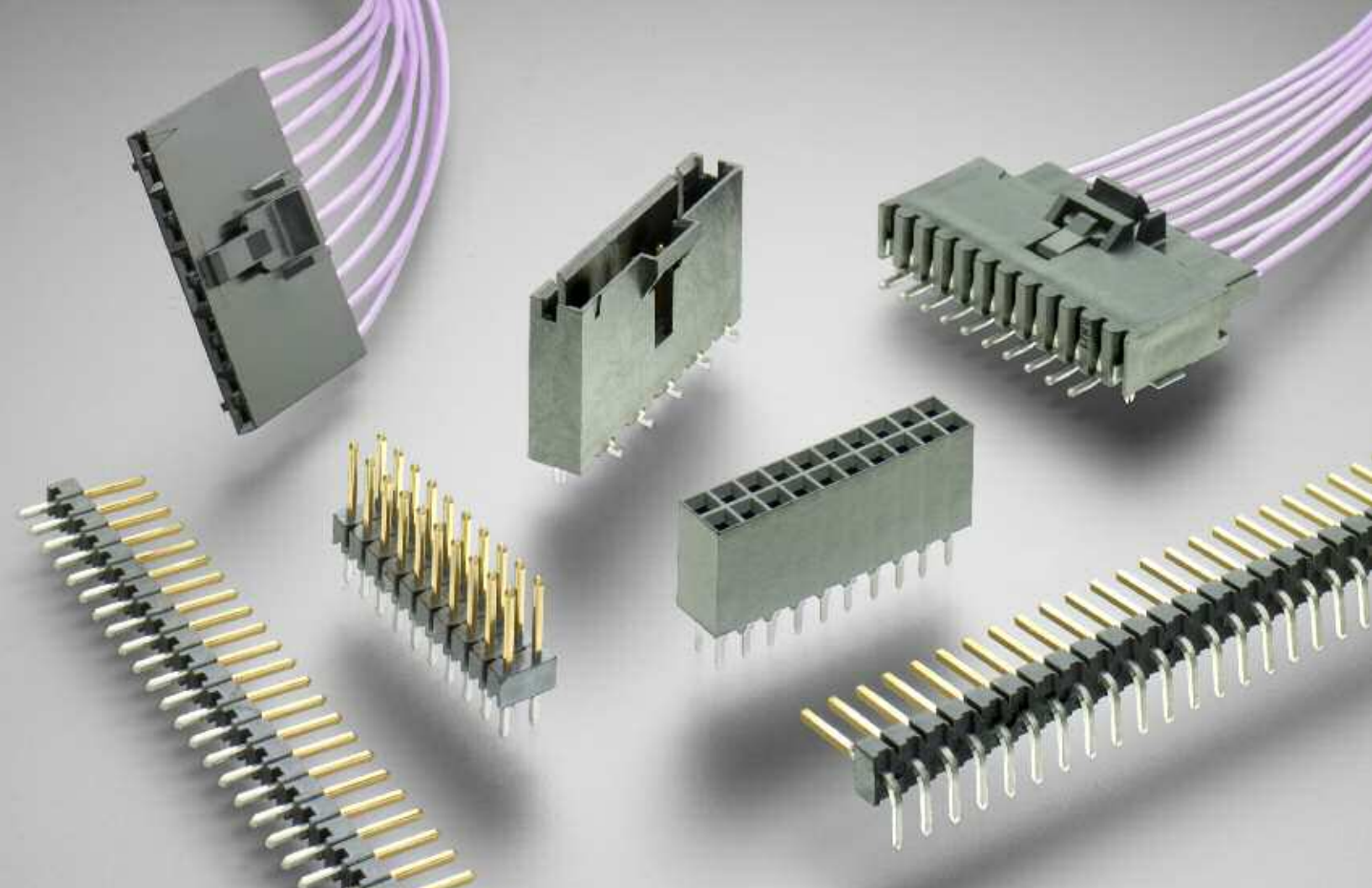
*For Type 80 and Superflex, contact TE for conductor details.

Part Numbering System is a cross reference only and not meant for part creation.

HARSH, RUGGED RELIABILITY

AMPMODU INTERCONNECTION SYSTEM CATALOG

Browse Products: <http://www.te.com/usa-en/solutions/reliability.html>



AMPMODU Interconnection System

RoHS
Ready 

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1	PC/104 and PC/104-Plus Connectors
2	.050 x .050 [1.27 x 1.27] Centerline
3	.050 x .100 [1.27 x 2.54] Centerline
4	AMPMODU 2mm Connectors
5	.100 x .100 [2.54 x 2.54] Centerline
6	.125 x .125 [3.18 x 3.18] Centerline
7	.156 [3.96] Centerline
8	Shunts

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.050 x .050 [1.27 x 1.27] Centerline **2**

.050 x .100 [1.27 x 2.54] Centerline **3**

AMPMODU 2mm Connectors **4**

.100 x .100 [2.54 x 2.54] Centerline **5**

.125 x .125 [3.18 x 3.18] Centerline **6**

.156 [3.96] Centerline **7**

Shunts **8**

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Restriction on the use of Hazardous Substances (RoHS)

At TE Connectivity (TE), we're ready to support your RoHS requirements. We've assessed more than 1.5 million end items/components for RoHS compliance, and issued new part numbers where any change was required to eliminate the restricted materials. Part numbers in this catalog are identified as:

RoHS Compliant — Part numbers in this catalog are RoHS Compliant, unless marked otherwise. These products comply with European Union Directive 2002/95/EC as amended 1 January 2006 that restricts the use of lead, mercury, cadmium, hexavalent chromium, PBB, and PBDE in certain electrical and electronic products sold into the EU as of 1 July 2006.

NOTE: For purposes of this catalog, included within the definition of RoHS Compliant are products that are clearly "Out of Scope" of the RoHS Directive such as hand tools and other non-electrical accessories.

NOTE: Information regarding RoHS compliance is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information provided by our suppliers. This information is subject to change. For latest compliance status, refer to our website referenced at right.

Getting the Information You Need

Our comprehensive on-line RoHS Customer Support Center provides a forum to answer your questions and support your RoHS needs. A RoHS FAQ (Frequently Asked Questions) is available with links to more detailed information. You can also submit RoHS questions and receive a response within 24 hours during a normal work week. The Support Center also provides:

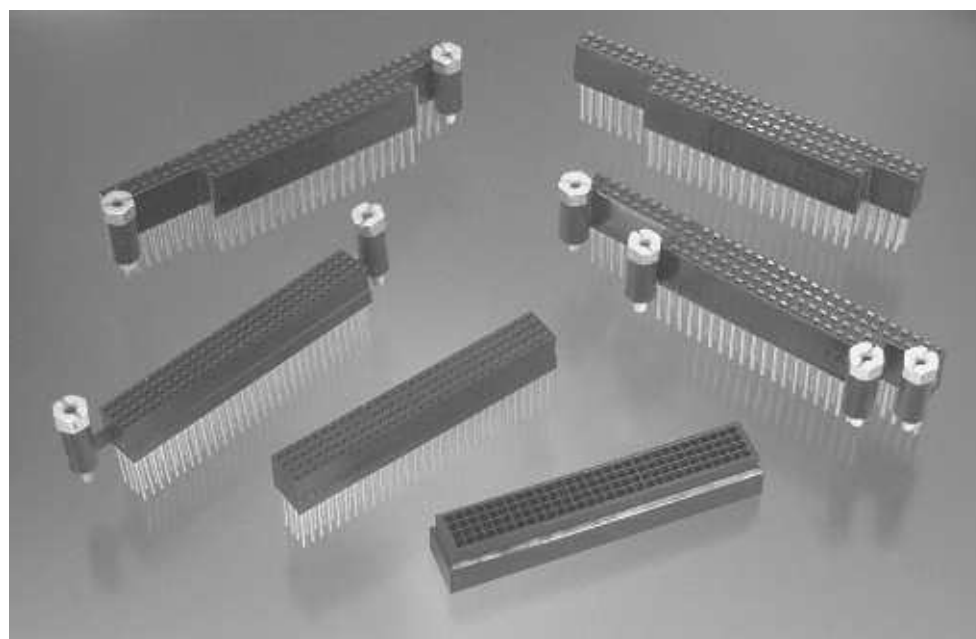
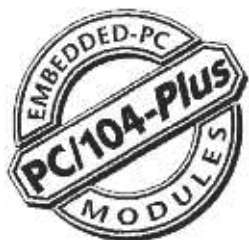
- Cross-Reference from Non-compliant to Compliant Products
- Ability to browse RoHS Compliant Products in our on-line catalog
- Downloadable Technical Data Customer Information Presentation
- More detailed information regarding the definitions used above
- So whatever your questions when it comes to RoHS, we have the answers at www.te.com/leadfree



PC/104 and PC/104-Plus Connectors

Product Facts

- Press fit design — eliminates hand soldering
- Unitized PC/104 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
- Recognized by Underwriters' Laboratories to US and Canadian standards  file No. E28476
- Fully compliant with PC104 & PC104-Plus standards
- Solutions available for lead free processes (ie. ENIG and silver immersion plated PCB's)



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 TE 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 or Tin-lead on PCB tail all over Nickel (non-stackthrough)

Need more information?

Call Technical Support 1-800-522-6752:

Technical Support is staffed with specialists well versed in all TE products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- TE 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. Other options available.

**One circuit plugged per PC/104-Plus specification. Other options available.

PC/104, Press-Fit

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

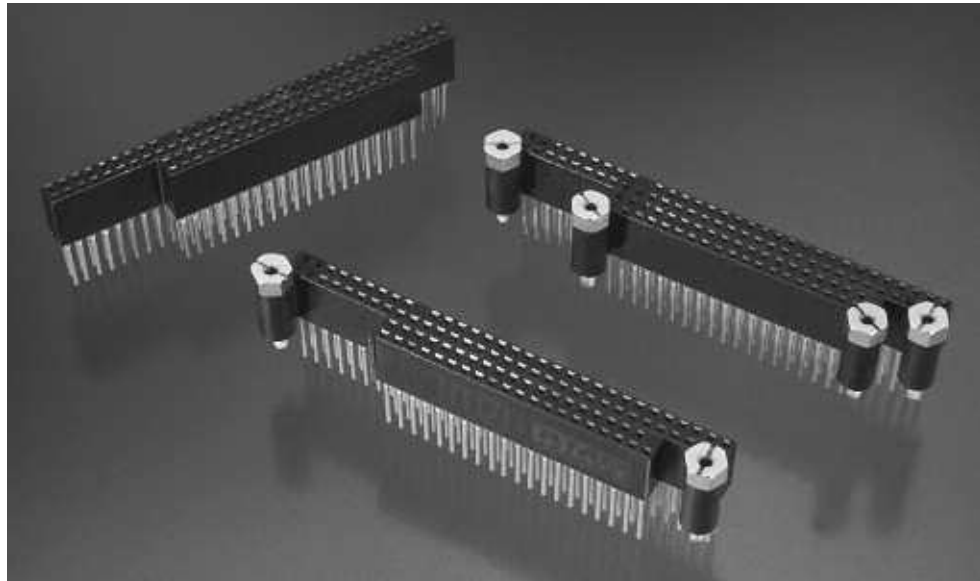
Contacts

Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000005 [0.000130] min. Gold on remainder, all over .000050 [0.00127] Nickel

or
Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100-.000200 [0.00254-.00508] matte tin on compliant section, .000005 [0.000130] min. Gold on remainder of post, all over .000050 [0.00127] Nickel

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin or tin-lead on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc



Stackthrough, No Standoffs

Gold plated contacts*

Part No. 1375795-1 (keyed), **Part No. 1375795-2** (unkeyed)

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375795-3 (keyed), **Part No. 1375795-4** (unkeyed)

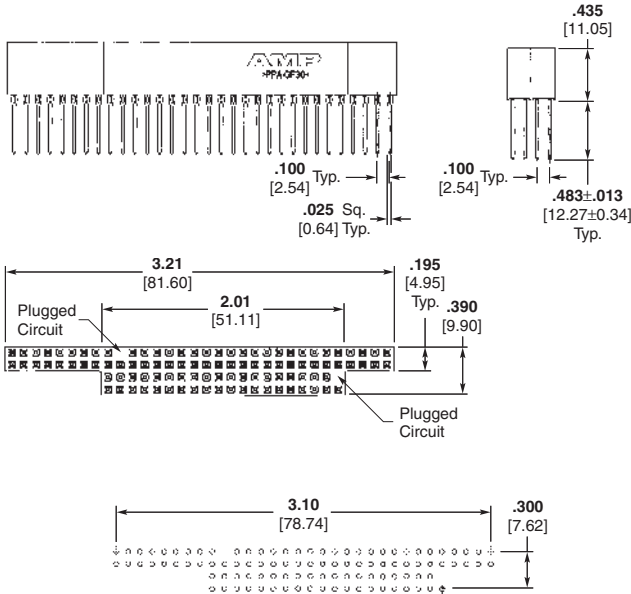
Non-Stackthrough, No Standoffs

Tin-lead plated tails*

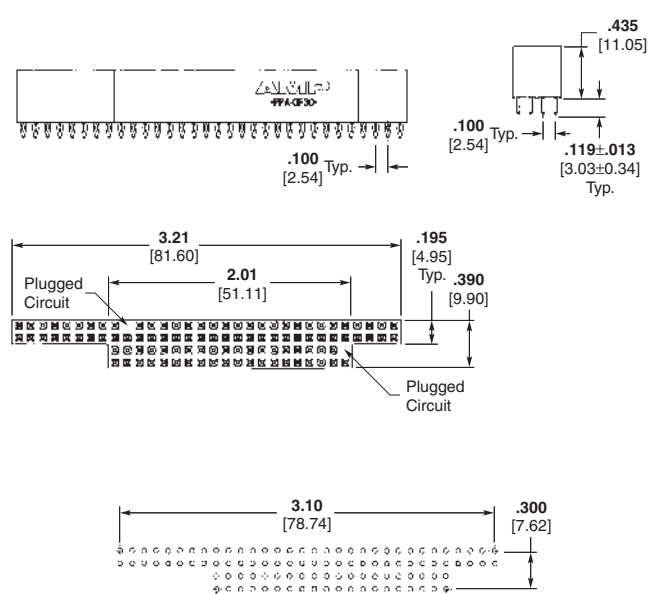
Part No. 1375796-1 (keyed), **Part No. 1375796-2** (unkeyed)

Matte tin plated tails**

Part No. 1375796-3 (keyed), **Part No. 1375796-4** (unkeyed)



Keyed



Unkeyed

Recommended PC Board Layout
See Customer Drawing for
Hole Geometry and Recommended Plating.

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104, Press-Fit (Continued)

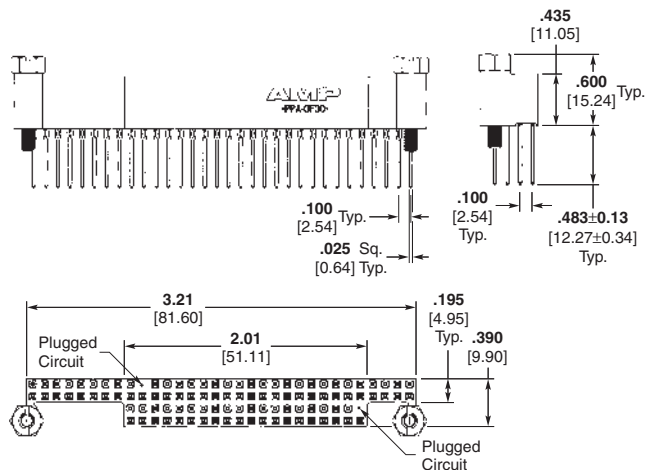
Stackthrough, 2 Standoffs

Gold plated contacts*

Part No. 1375793-1 (keyed), Part No. 1375793-2 (unkeyed)

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375793-3 (keyed), Part No. 1375793-4 (unkeyed)



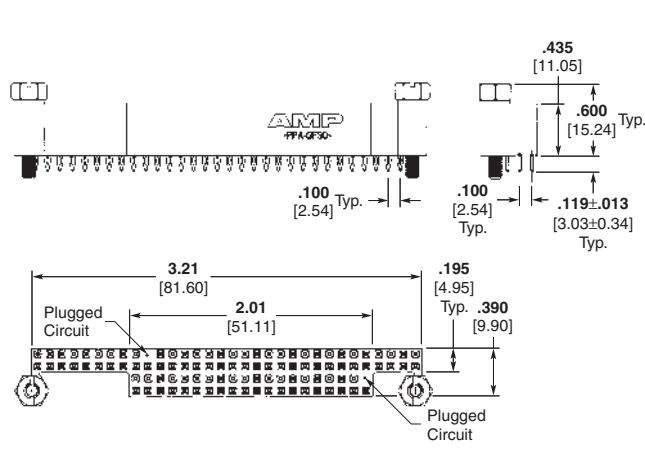
Non-Stackthrough, 2 Standoffs

Tin-lead plated tails*

Part No. 1375794-1 (keyed), Part No. 1375794-2 (unkeyed)

Matte tin plated tails**

Part No. 1375794-3 (keyed), Part No. 1375794-4 (unkeyed)



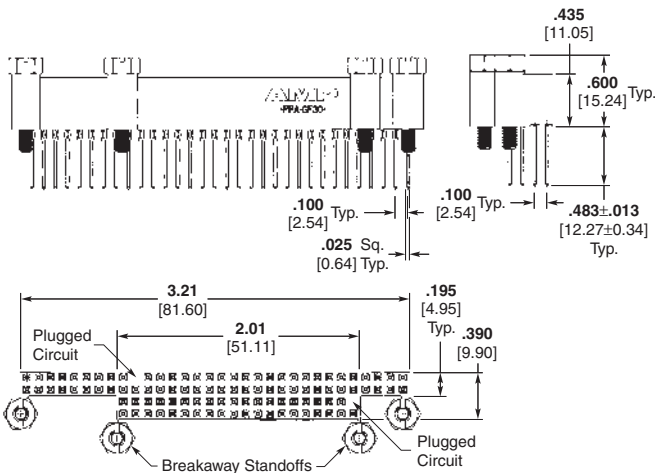
Stackthrough, 4 Standoffs

Gold plated contacts*

Part No. 1375791-1 (keyed), Part No. 1375791-2 (unkeyed)

Gold plated contacts with Tin plated compliant pin section**

Part No. 1375791-3 (keyed), Part No. 1375791-4 (unkeyed)



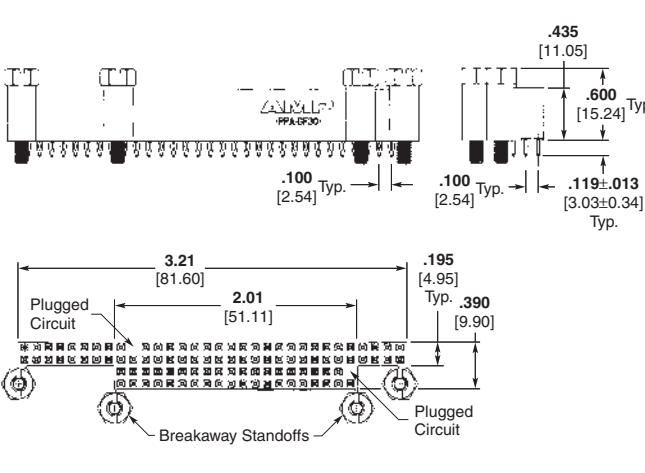
Non-Stackthrough, 4 Standoffs

Tin-lead plated tails*

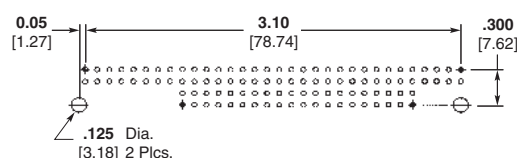
Part No. 1375792-1 (keyed), Part No. 1375792-2 (unkeyed)

Matte tin plated tails**

Part No. 1375792-3 (keyed), Part No. 1375792-4 (unkeyed)



Keyed



Unkeyed

Recommended PC Board Layout
See Customer Drawing for
Hole Geometry and Recommended Plating.

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104-Plus, Press-Fit

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

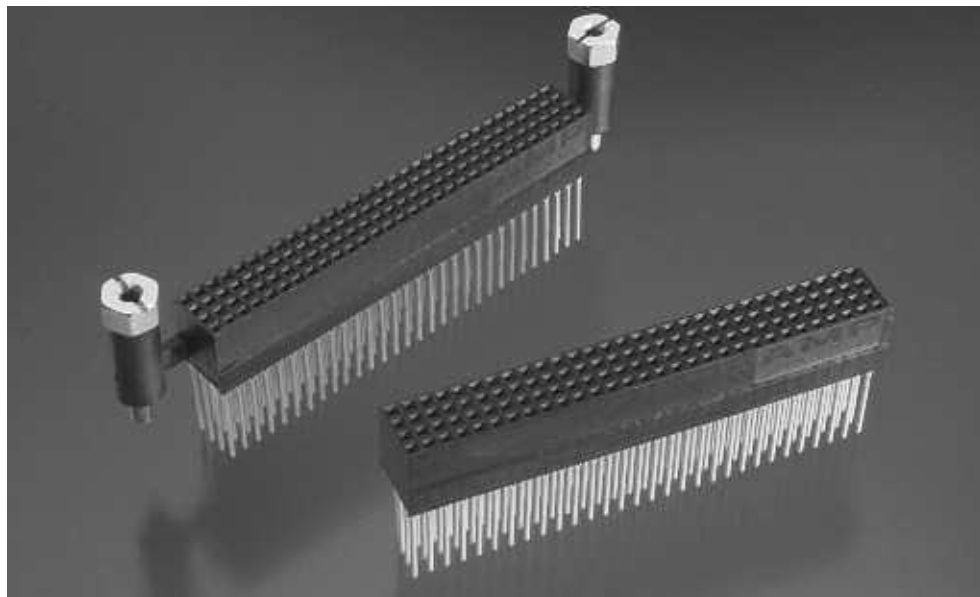
Contacts

Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000005 [0.000130] min. Gold on remainder, all over .000050 [0.00127] Nickel

or
Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100-.000200 [0.000254-.00508] matte tin on compliant section, .000005 [0.000130] min. Gold on remainder of post, all over .000050 [0.00127] Nickel

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin or tin-lead on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc



Stackthrough, No Standoffs

Gold plated contacts*

- Part No. 1375799-1 (unkeyed)
- Part No. 1375799-2 (keyed-A1) per PC/104-Plus specification
- Part No. 1375799-3 (keyed-D30) per PC/104-Plus specification

Gold plated contacts with Tin plated compliant pin section**

- Part No. 1375799-4 (unkeyed)
- Part No. 1375799-5 (keyed-A1) per PC/104-Plus specification
- Part No. 1375799-6 (keyed-D30) per PC/104-Plus specification

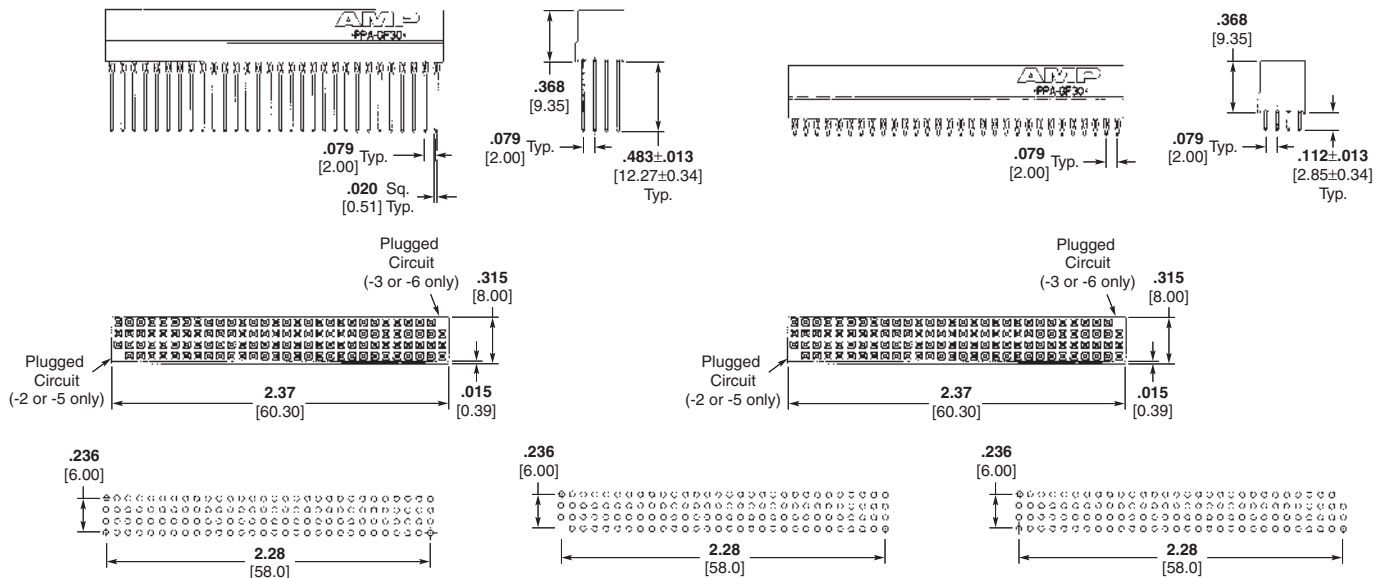
Non-Stackthrough, No Standoffs

Tin-lead plated tails*

- Part No. 1375800-1 (unkeyed)
- Part No. 1375800-2 (keyed-A1) per PC/104-Plus specification
- Part No. 1375800-3 (keyed-D30) per PC/104-Plus specification

Matte tin plated tails**

- Part No. 1375800-4 (unkeyed)
- Part No. 1375800-5 (keyed-A1) per PC/104-Plus specification
- Part No. 1375800-6 (keyed-D30) per PC/104-Plus specification



Recommended PC Board Layout
for 1375799-1, 1375799-4,
1375800-1, 1375800-4

Recommended PC Board Layout
for 1375799-2, 1375799-5,
1375800-2, 1375800-5

Recommended PC Board Layout
for 1375799-3, 1375799-6,
1375800-3, 1375800-6

See Customer Drawing for Hole Geometry and Recommended Plating.
(Including ENIG plated PCB's)

Note: All part numbers are RoHS compliant.

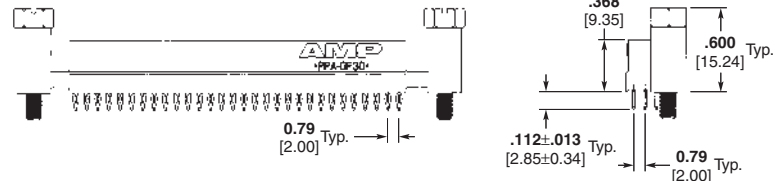
* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104-Plus, Press-Fit (Continued)

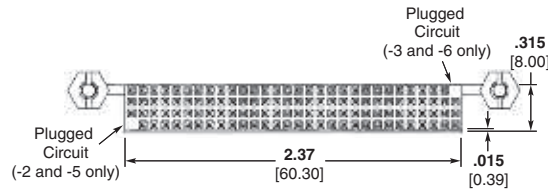
Non-Stackthrough, 2 Standoffs

- Tin-lead plated tails*
- Part No. 1375798-1** (unkeyed)
- Part No. 1375798-2** (keyed-A1)
per PC/104-Plus specification
- Part No. 1375798-3** (keyed-D30)
per PC/104-Plus specification



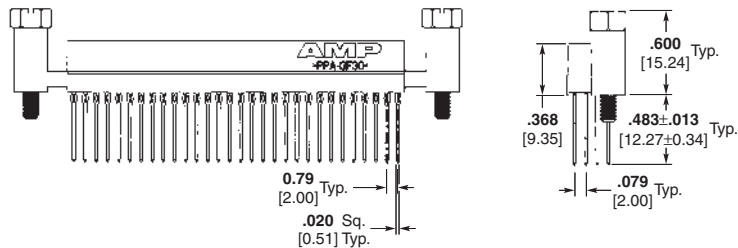
Matte tin plated tails**

- Part No. 1375798-4** (unkeyed),
- Part No. 1375798-5** (keyed-A1)
per PC/104-Plus specification
- Part No. 1375798-6** (keyed-D30)
per PC/104-Plus specification



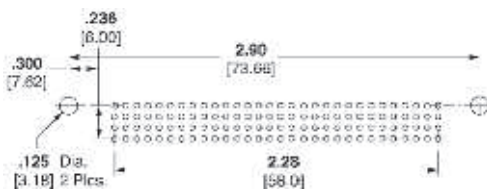
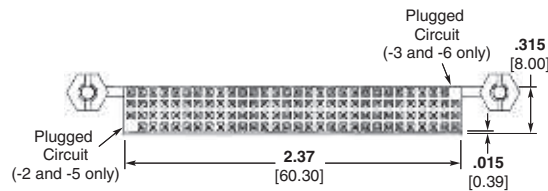
Stackthrough, 2 Standoffs

- Gold plated contacts*
- Part No. 1375797-1** (unkeyed)
- Part No. 1375797-2** (keyed-A1)
per PC/104-Plus specification
- Part No. 1375797-3** (keyed-D30)
per PC/104-Plus specification

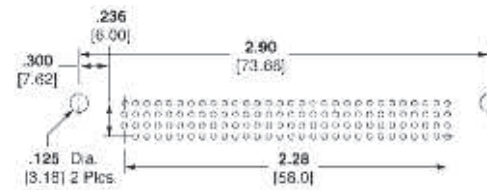


Gold plated contacts with Tin plated compliant pin section**

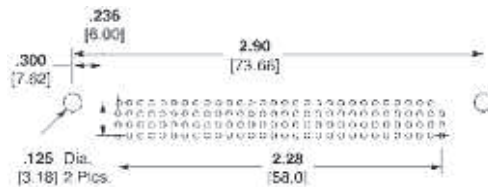
- Part No. 1375797-4** (unkeyed)
- Part No. 1375797-5** (keyed-A1)
per PC/104-Plus specification
- Part No. 1375797-6** (keyed-D30)
per PC/104-Plus specification



Recommended PC Board Layout
for 1375797-1, 1375797-4,
1375798-1, 1375798-4



Recommended PC Board Layout
for 1375797-2, 1375797-5,
1375798-2, 1375798-5



Recommended PC Board Layout
for 1375797-3, 1375797-6,
1375798-3, 1375798-6

See Customer Drawing for
Hole Geometry and Recommended Plating.

Note: All part numbers are RoHS compliant.

* For RoHS exempt Tin-lead processes (including ENIG Plated PCB's)

** for Silver Immersion processes or where a total lead free solution is desired

PC/104, Solder

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

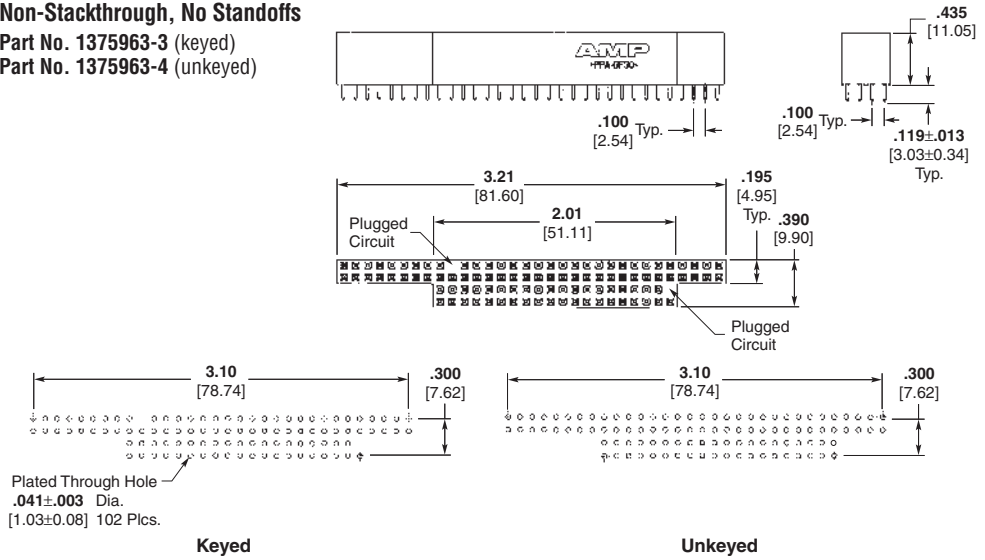
Contacts

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc

Non-Stackthrough, No Standoffs

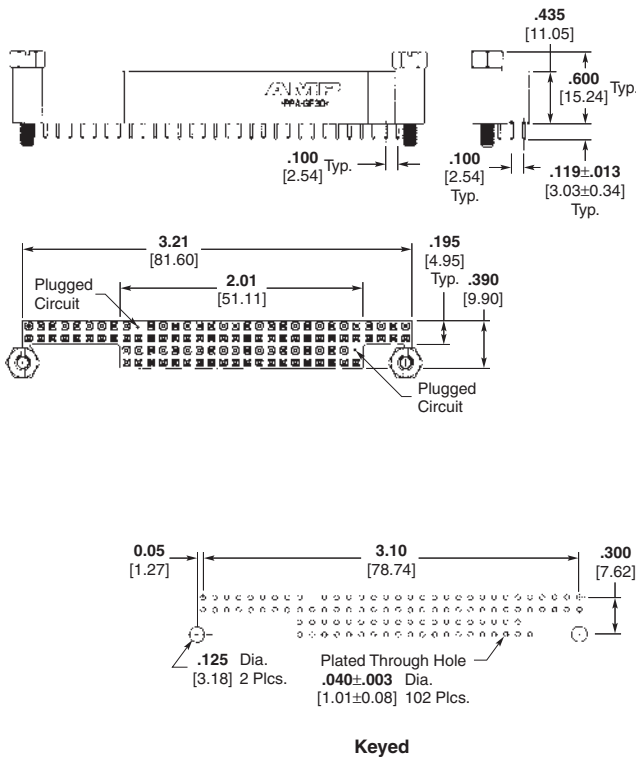
Part No. 1375963-3 (keyed)
Part No. 1375963-4 (unkeyed)



Recommended PC Board Layout

Non-Stackthrough, 2 Standoffs

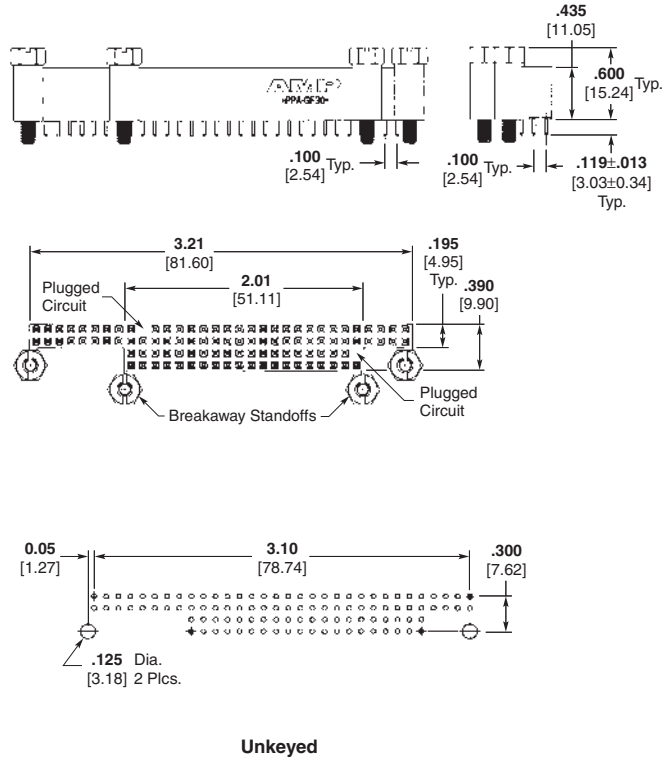
Part No. 1375961-3 (keyed)
Part No. 1375961-4 (unkeyed)



Recommended PC Board Layout

Non-Stackthrough, 4 Standoffs

Part No. 1375959-3 (keyed)
Part No. 1375959-4 (unkeyed)



Note: All part numbers are RoHS compliant.

PC/104-Plus, Solder

Material and Finish

Housing — Glass filled thermoplastic, Black, 94V-0 rated

Contacts

Non-Stackthrough — Phosphor Bronze; plated .000015 [0.00038] min. Gold on mating receptacle end, .000100 [0.00254] matte tin on remainder, all over .000050 [0.00127] Nickel

Screwlocks — Steel, Clear Chromate over Zinc

Non-Stackthrough, No Standoffs

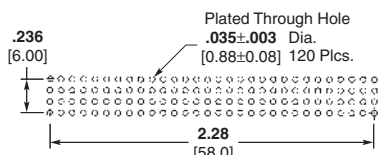
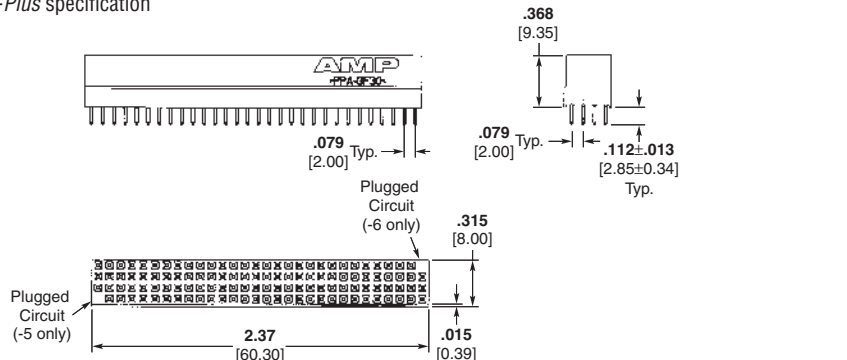
Part No. 1375967-4 (unkeyed)

Part No. 1375967-5 (keyed-A1)

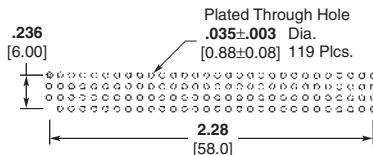
per PC/104-Plus specification

Part No. 1375967-6 (keyed-D30)

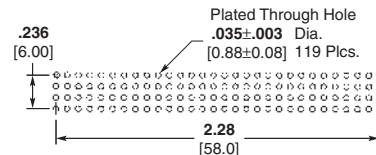
per PC/104-Plus specification



Recommended PC Board Layout for 1375967-4



Recommended PC Board Layout for 1375967-5



Recommended PC Board Layout for 1375967-6

Non-Stackthrough, 2 Standoffs

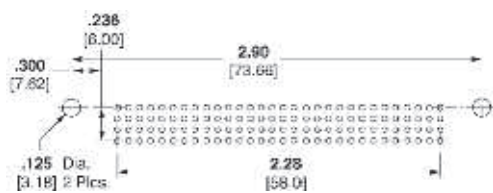
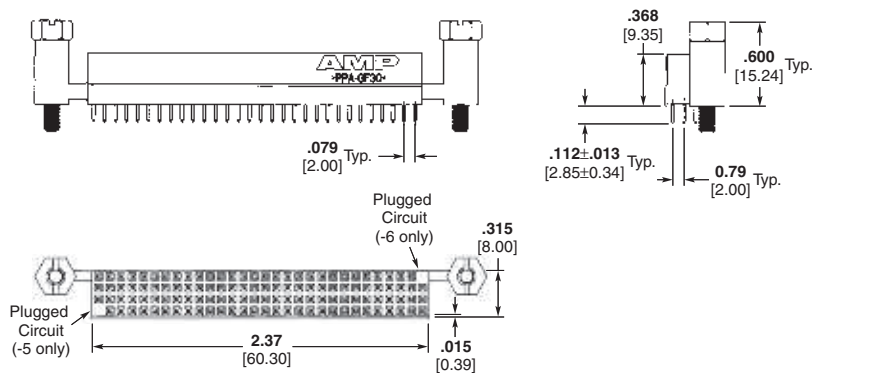
Part No. 1375965-4 (unkeyed)

Part No. 1375965-5 (keyed-A1)

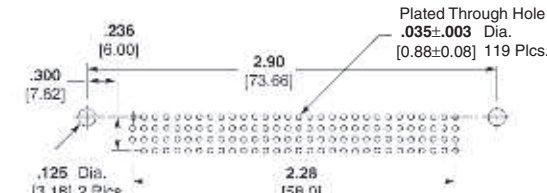
per PC/104-Plus specification

Part No. 1375965-6 (keyed-D30)

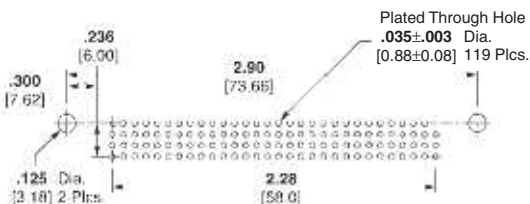
per PC/104-Plus specification



Recommended PC Board Layout for 1375965-4



Recommended PC Board Layout for 1375965-5



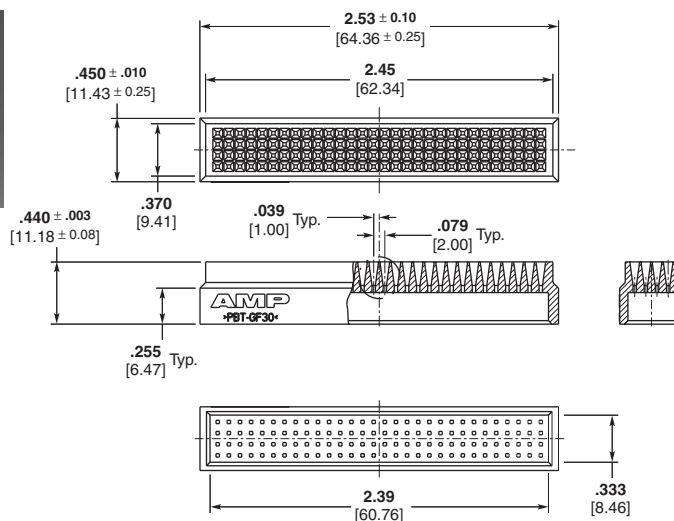
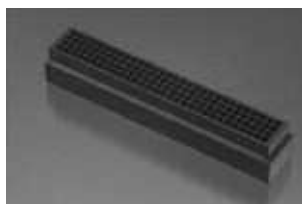
Recommended PC Board Layout for 1375965-6

Note: All part numbers are RoHS compliant.

Accessories

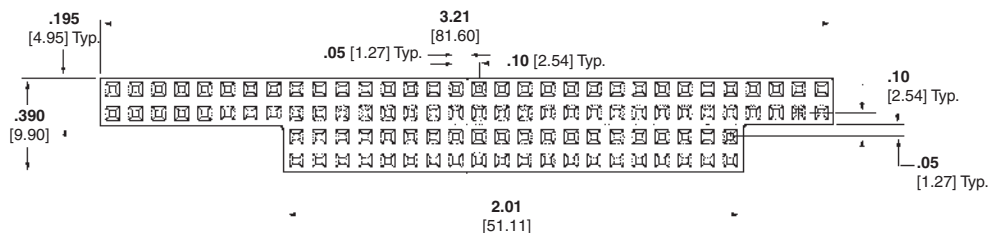
Shroud, PC/104-Plus
Part No. 1375801-1

Material — PBT, Black



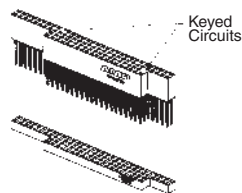
Organizer, PC/104
Part Number 1445251-1

Material — Polyester, PBT, Black

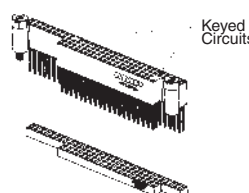


Kit Packaging
Part Numbers

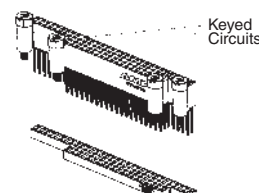
Part Number	Component Part Number		Style
	Connector Assembly	Organizer	
1445441-3	1375795-3	1445251-1	Keyed
1445441-4	1375795-4	1445251-1	Unkeyed
1445440-3	1375793-3	1445251-1	Keyed
1445440-4	1375793-4	1445251-1	Unkeyed
1445439-3	1375791-3	1445251-1	Keyed
1445439-4	1375791-4	1445251-1	Unkeyed



Part No. 1445441-3



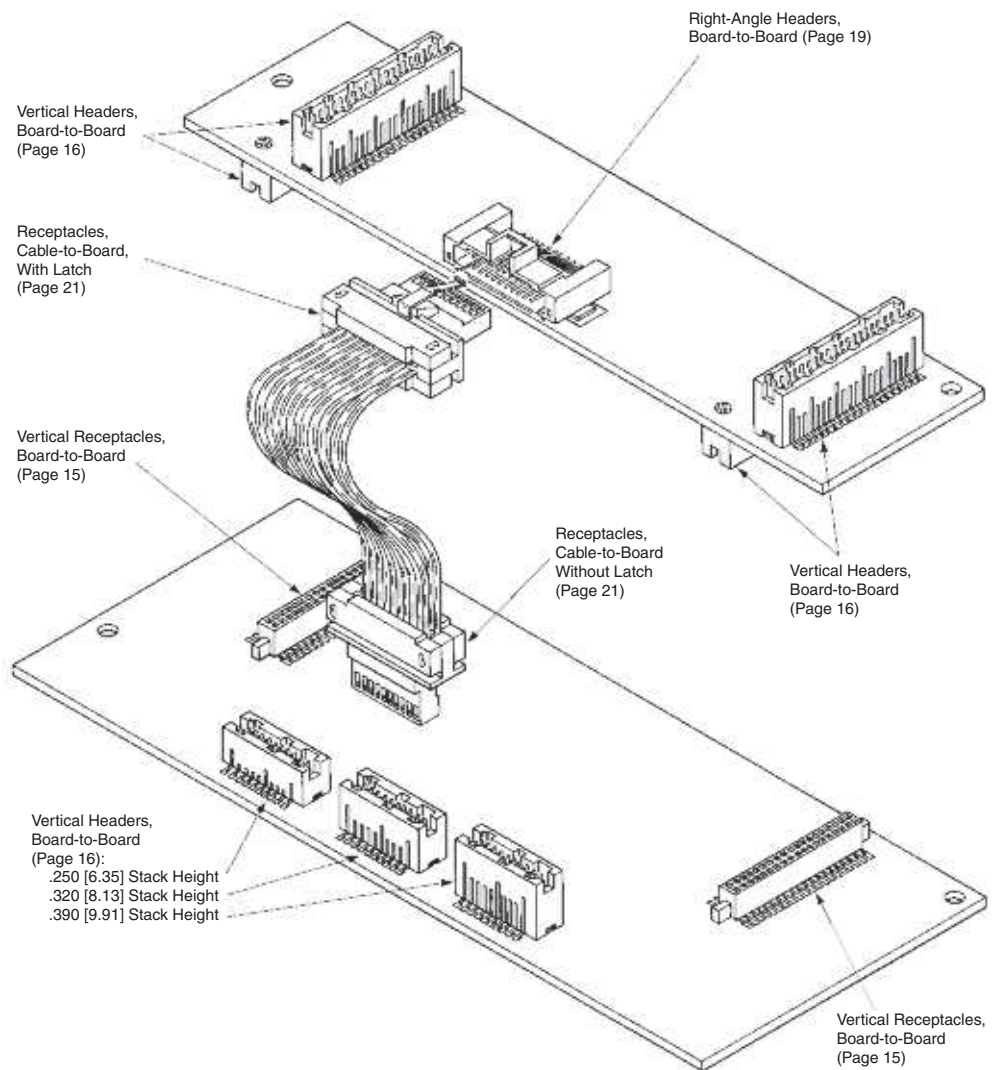
Part No. 1445440-3



Part No. 1445439-3

Note: All part numbers are RoHS compliant.

AMPMODU 50/50 Grid Connector System





Produced under a Quality Management System certified to ISO 9001

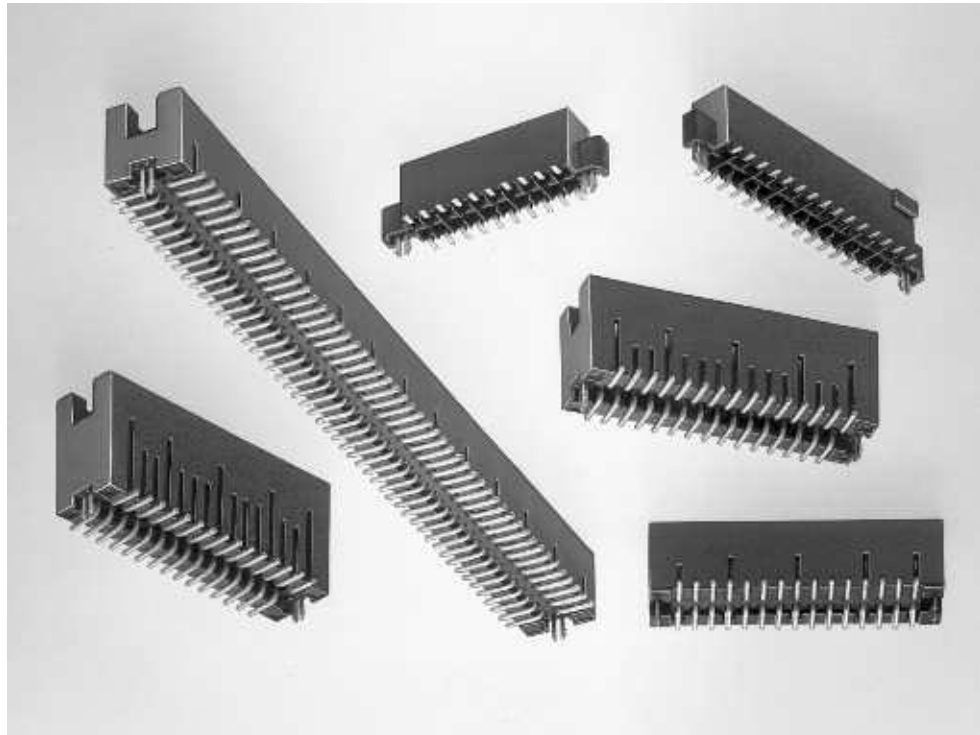
A copy of the certificate is available upon request.



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 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 TE 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 19) 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

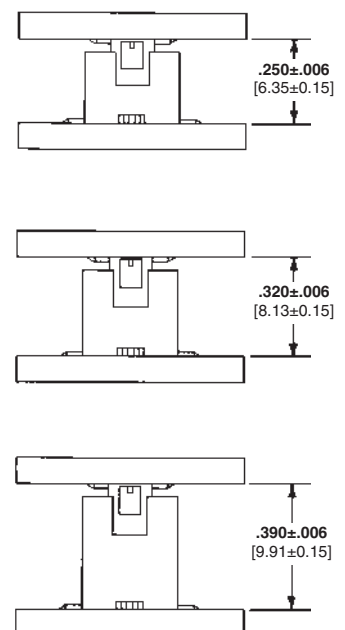
PC boards and allow surface mounting to both sides of the board. In addition to providing retention during processing, the holddowns are soldered during reflow and therefore provide long-term strain relief for the solder joints.

AMPMODU 50/50 Grid Vertical Headers and Receptacles are designed to be 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

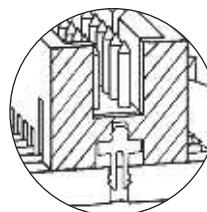
and packaging methods result in a system that is compatible with robotic assembly.

The headers and receptacles feature polarization to prevent misalignment.

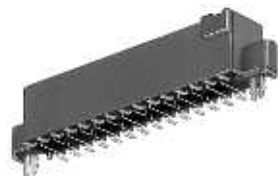
Three Board Stack Heights



Non-Protrusive Metallic Holddowns



Board-to-Board Vertical Receptacles, Double Row, .050 x .050 [1.27 x 1.27] Centerline

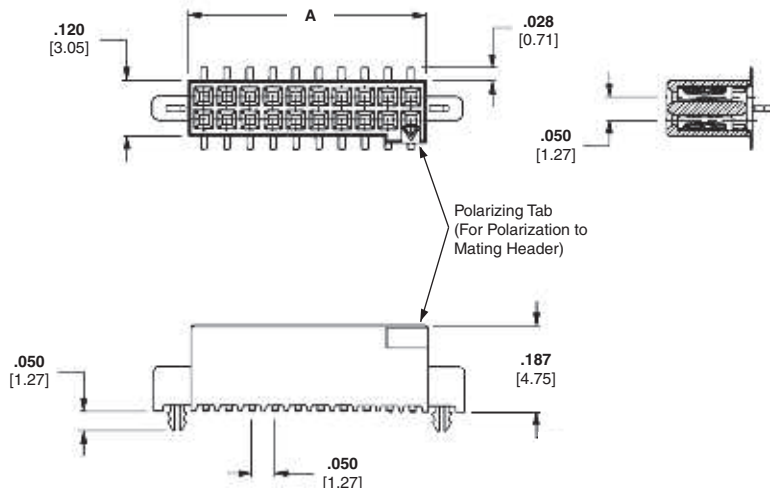


Material and Finish

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

Contacts—Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin over .000050 [0.00127] nickel



Related Product Data

Mating Headers — pages 16, 19

PC Board Layouts — page 17

Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1332

Application Specification 114-7010

Packaging: Tube or Tape and Reel

No. of Pos.	Dimension A	Receptacle Part Numbers		
		Tube	Tape and Reel*	No Hold Down w/Vacuum Cover
10	.266 [6.75]	5-104652-1	5-147384-1	5-147413-1
20	.516 [13.11]	5-104652-2	5-147384-2	5-147413-3
30	.766 [19.46]	5-104652-3	5-147384-3	5-147413-4
40	1.016 [25.81]	5-104652-4	5-147384-4	—
50	1.266 [32.16]	5-104652-5	5-147384-5	5-147413-2
60	1.516 [38.51]	5-104652-6	5-147384-6	—
70	1.766 [44.86]	5-104652-7	5-147384-7	—
80	2.016 [51.21]	5-104652-8	5-147384-8	—
100	2.516 [63.91]	6-104652-0	5-147384-9	—

* Parts packaged in tape and reel have vacuum pick and place cover. See PC Board Layout on page 17.

Note: All part numbers are RoHS compliant.

Board-to-Board Vertical Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline



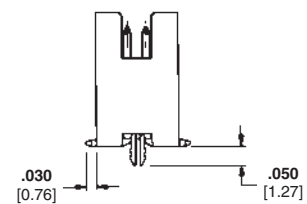
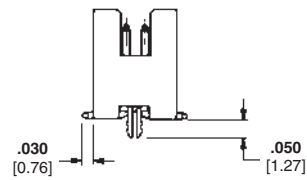
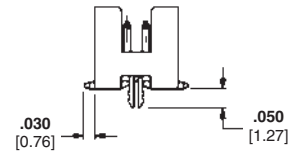
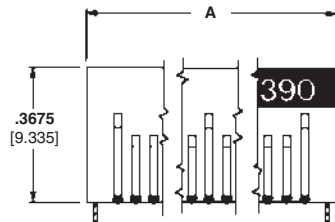
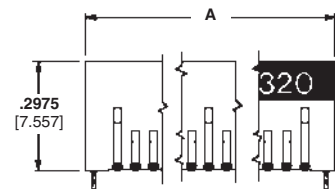
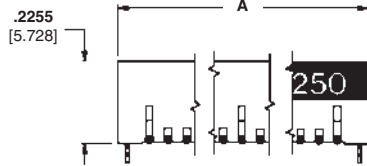
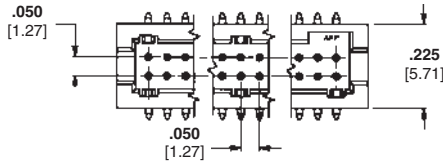
For .250 [6.35] Mated Height



For .320 [8.13] Mated Height



For .390 [9.91] Mated Height



Material and Finish

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

Contacts—Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown—Copper alloy; plated .000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Mating Receptacles — page 15, 21 (without latch only)

PC Board Layouts — page 17

Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1332

Application Specification 114-7010

Packaging: Tube or Tape and Reel

No. of Pos.	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*	
		Hold Down	No Hold Down			Hold Down	No Hold Down			
10	.372 [9.44]	5-104655-1	5-147381-1	5-147121-1	5-104656-1	5-147382-1	5-104693-1	—	5-147383-1	
20	.622 [15.79]	5-104655-3	5-147381-2	5-147121-2	5-104656-2	5-147382-2	5-104693-2	—	5-147383-2	
30	.872 [22.14]	5-104655-4	5-147381-3	—	5-104656-3	5-147382-3	5-104693-3	—	5-147383-3	
40	1.122 [28.49]	5-104655-5	5-147381-4	—	5-104656-4	5-147382-4	5-104693-4	—	5-147383-4	
50	1.372 [34.84]	5-104655-6	5-147381-5	—	5-104656-5	5-147382-5	5-104693-5	—	5-147383-5	
60	1.622 [41.19]	5-104655-7	5-147381-6	—	5-104656-6	5-147382-6	5-104693-6	—	5-147383-6	
70	1.872 [47.54]	5-104655-8	5-147381-7	—	5-104656-7	5-147382-7	5-104693-7	—	5-147383-7	
80	2.122 [53.89]	5-104655-9	5-147381-8	—	5-104656-8	5-147382-8	5-104693-8	—	5-147383-8	
90	2.372 [60.24]	—	—	—	5-104656-9	—	5-104693-9	—	—	
100	2.622 [66.59]	6-104655-1	5-147381-9	—	6-104656-0	5-147382-9	6-104693-0	5-147503-1	5-147383-9	

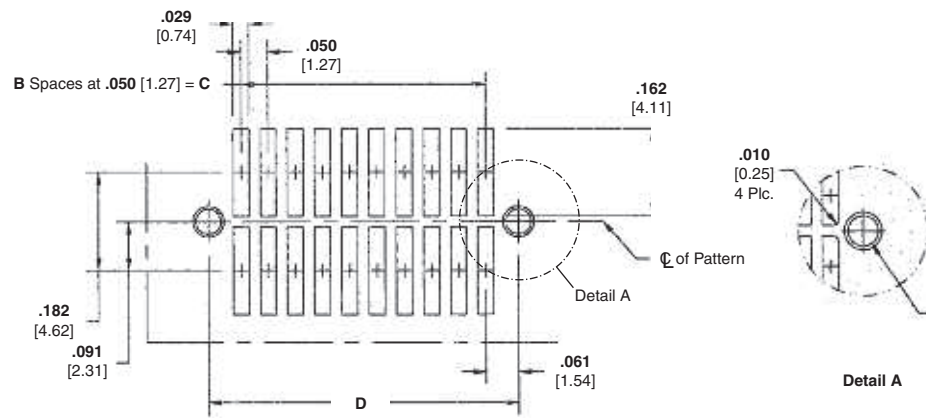
*Parts packaged in tape and reel have vacuum pick and place cover. See PC Board Layout on page 17.

Note: All part numbers are RoHS compliant.

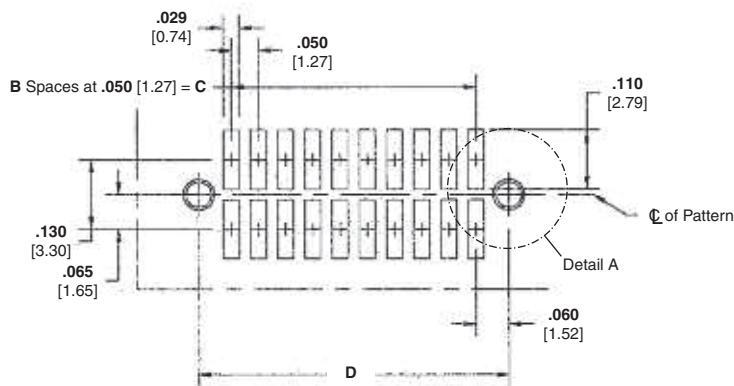
Vertical Headers, Double Row
2

Recommended PC Board Layouts for Vertical Connectors

Headers



Receptacles



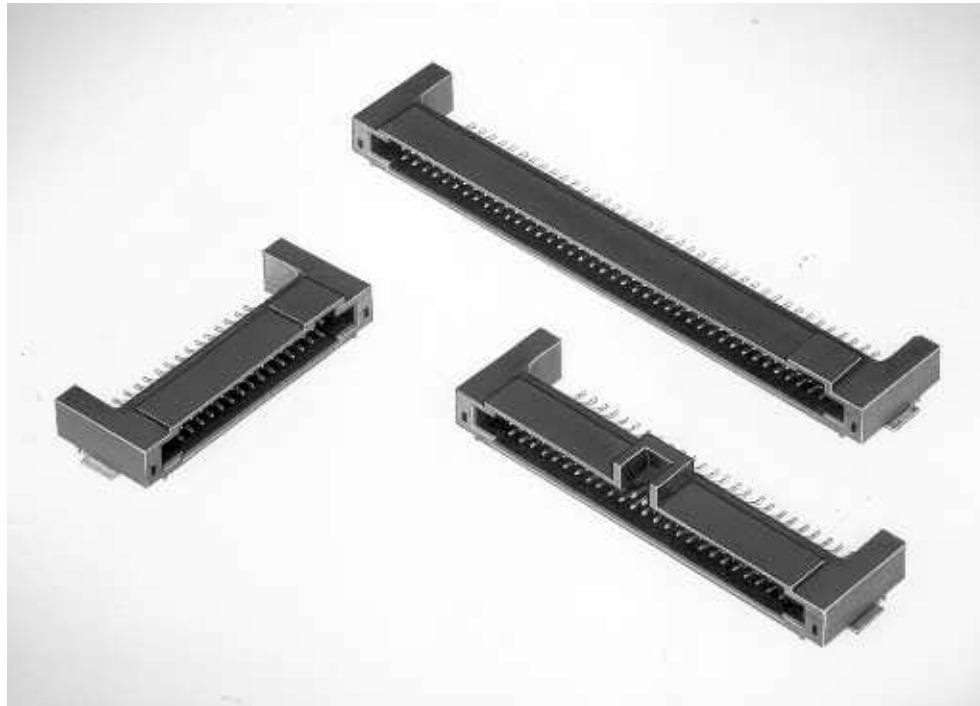
No. of Pos.	Receptacle Dimensions			Header Dimensions		
	B	C	D	B	C	D
10	4	.200 [5.08]	.320 [8.12]	4	.200 [5.08]	.322 [8.17]
20	9	.450 [11.43]	.570 [14.48]	9	.450 [11.43]	.572 [14.52]
30	14	.700 [17.78]	.820 [20.83]	14	.700 [17.78]	.822 [20.87]
40	19	.950 [24.13]	1.070 [27.19]	19	.950 [24.13]	1.072 [27.22]
50	24	1.200 [30.48]	1.320 [33.53]	24	1.200 [30.48]	1.322 [33.57]
60	29	1.450 [36.83]	1.570 [39.88]	29	1.450 [36.83]	1.572 [39.92]
70	34	1.700 [43.18]	1.820 [46.23]	34	1.700 [43.18]	1.822 [46.27]
80	39	1.950 [49.53]	2.070 [52.58]	39	1.950 [49.53]	2.072 [52.62]
90	44	2.200 [55.88]	2.320 [58.93]	44	2.200 [55.88]	2.322 [58.97]
100	49	2.450 [62.23]	2.570 [65.28]	49	2.450 [62.23]	2.572 [65.32]

Note: Refer to TE Customer Drawings for additional PC board layout information and dimensional tolerances.

Note: All part numbers are RoHS compliant.

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

**Board-to-Board Right-Angle Headers**

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 15) and right-angle cable-to-board applications when mated with cable connectors (page 21). 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 16) and receptacles (page 15). There are also metallic tabs that are soldered to the surfaces of the PC board pads for added support.

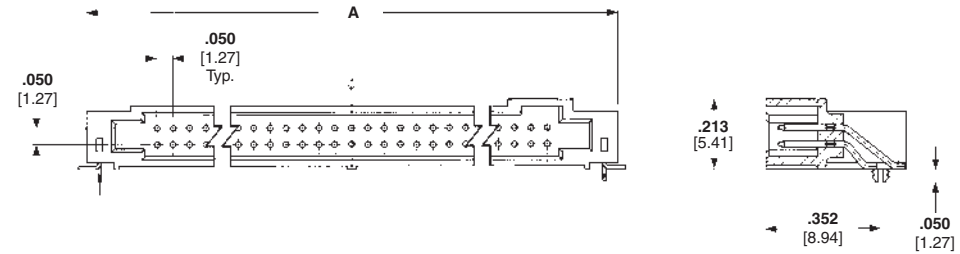
AMPMODU 50/50 Grid Right-Angle Headers are available in double-row, in either latching or non-latching versions, and in sizes ranging from 10 through 100 positions (in 10 position increments). The latching version provides positive retention when mated with the latching cable connector (page 21). All headers feature polarization to help prevent misalignment during mating.

Board-to-Board Right-Angle Headers, Double Row, .050 x .050 [1.27 x 1.27] Centerline

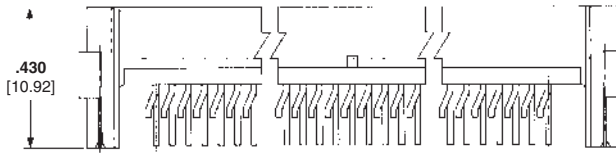
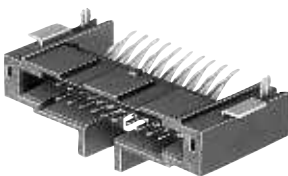
Right-Angle Headers, Double Row, Latching and Non-Latching

2

Non-Latching Header



Latching Header



Material and Finish

Housing — Liquid crystal polymer, black, 94V-0 rated

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.000381] tin on solder tail, with entire contact under-plated .000050 [0.00127] nickel

Holddown — Copper alloy; plated .0000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Mating Receptacles — page 15, 21

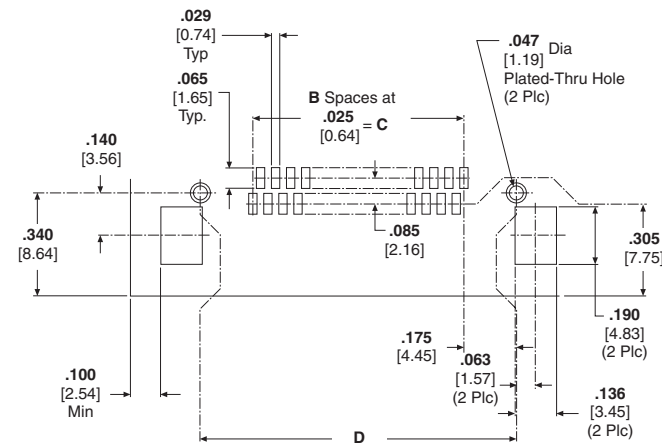
Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1443

Application Specification 114-7010

Packaging: Tube



Recommended PC Board Layout



Note: Refer to TE Customer Drawings for additional PC board layout information and dimensional tolerances.

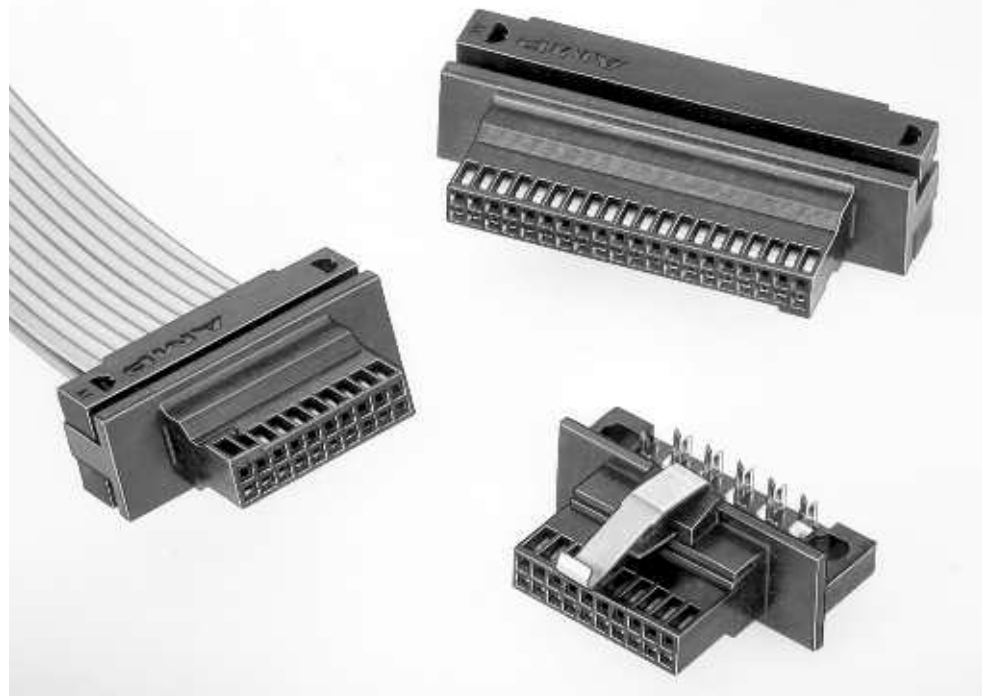
No. of Pos.	Dimensions				Header Part Numbers	
	A	B	C	D	Latching	Non-Latching
10	.630 [16.00]	9	.225 [5.72]	.550 [13.97]	5-104895-1	5-104894-1
20	.880 [22.35]	19	.475 [12.07]	.800 [20.32]	5-104895-2	5-104894-2
30	1.130 [28.70]	29	.725 [18.42]	1.050 [26.67]	5-104895-3	5-104894-3
40	1.380 [35.05]	39	.975 [24.77]	1.300 [33.02]	5-104895-4	5-104894-4
50	1.630 [41.40]	49	1.225 [31.12]	1.550 [39.37]	5-104895-5	5-104894-5
60	1.880 [47.75]	59	1.475 [37.47]	1.800 [45.72]	5-104895-6	5-104894-6
70	2.130 [54.10]	69	1.725 [43.82]	2.050 [52.07]	5-104895-7	5-104894-7
80	2.380 [60.45]	79	1.975 [50.17]	2.300 [58.42]	5-104895-8	5-104894-8
100	2.880 [73.15]	99	2.475 [62.87]	2.800 [71.12]	6-104895-0	6-104894-0

Note: All part numbers are RoHS compliant.

Cable-to-Board Connectors

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, tin 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 help 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 (page 16), while cable connectors with or without a latch can be used to mate with the right-angle headers (page 19).

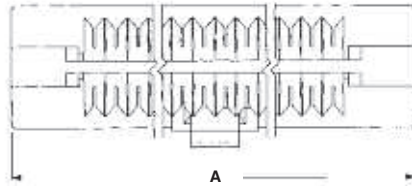
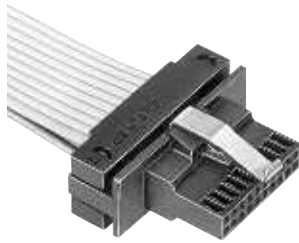
The cable connectors feature reliable single-beam IDC (insulation displacement crimp) contacts which are duplex plated with .000030 [0.00076] gold. These contacts can be mass terminated to either solid or

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 TE manual tooling shown on page 23.

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 help prevent mismatching. All connectors are available in sizes ranging from 10 through 100 positions (in 10 position increments).

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, .000150 [0.00381] minimum tin on solder tail, with entire contact underplated .000050 [0.00127] minimum nickel

Related Product Data

Mating Headers — page 16, 19 (latching)

Terminating Covers (Must be Purchased Separately, 2 Required per Connector) — page 22

Termination Tooling — page 23

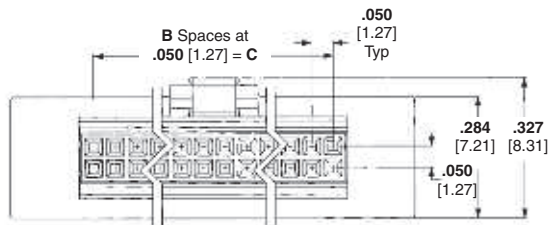
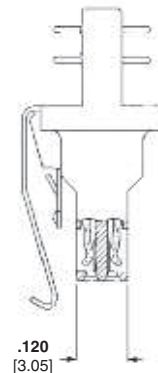
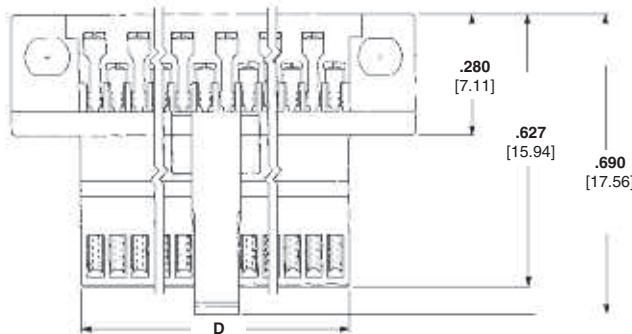
Performance Specifications — page 24

Technical Documents — page 24

Product Specification 108-1443

Application Specification
408-9817, 408-9909

Packaging: Tube



No. of Pos.	Dimensions				Receptacle Part Numbers	
	A	B	C	D	With Latch	Without Latch
10	.578 [14.68]	4	.200 [5.08]	.266 [6.76]	5-104892-1	5-104893-1
20	.828 [21.03]	9	.450 [11.43]	.516 [13.11]	5-104892-2	5-104893-2
30	1.078 [27.38]	14	.700 [17.78]	.766 [19.46]	5-104892-3	5-104893-3
40	1.328 [33.73]	19	.950 [24.13]	1.016 [25.81]	5-104892-4	5-104893-4
50	1.578 [40.08]	24	1.200 [30.48]	1.266 [32.16]	5-104892-5	5-104893-5
60	1.828 [46.43]	29	1.450 [36.83]	1.516 [38.51]	5-104892-6	5-104893-6
70	2.078 [52.78]	34	1.700 [43.18]	1.766 [44.86]	5-104892-7	5-104893-7
80	2.328 [59.13]	39	1.950 [49.53]	2.016 [51.21]	5-104892-8	5-104893-8
100	2.828 [71.83]	49	2.450 [62.23]	2.516 [63.91]	6-104892-0	6-104893-0

Note: All part numbers are RoHS compliant.

Terminating Covers for Cable Connectors



Cable Connector Terminating Cover, Double Row

Material

Glass-filled thermoplastic, black, 94V-0 rated

Related Product Data

Connectors used with Covers — page 21

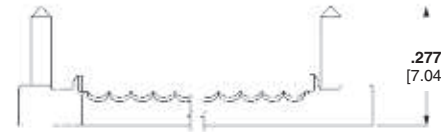
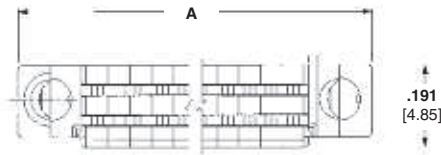
Termination Tooling — page 23

Technical Documents — page 24

Product Specification 108-1443

Application Specification 408-9817, 408-9909

Packaging: Plastic bag



No. of Pos.	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.

Note: All part numbers are RoHS compliant.

Application Tooling for Cable Connectors

The 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 21.

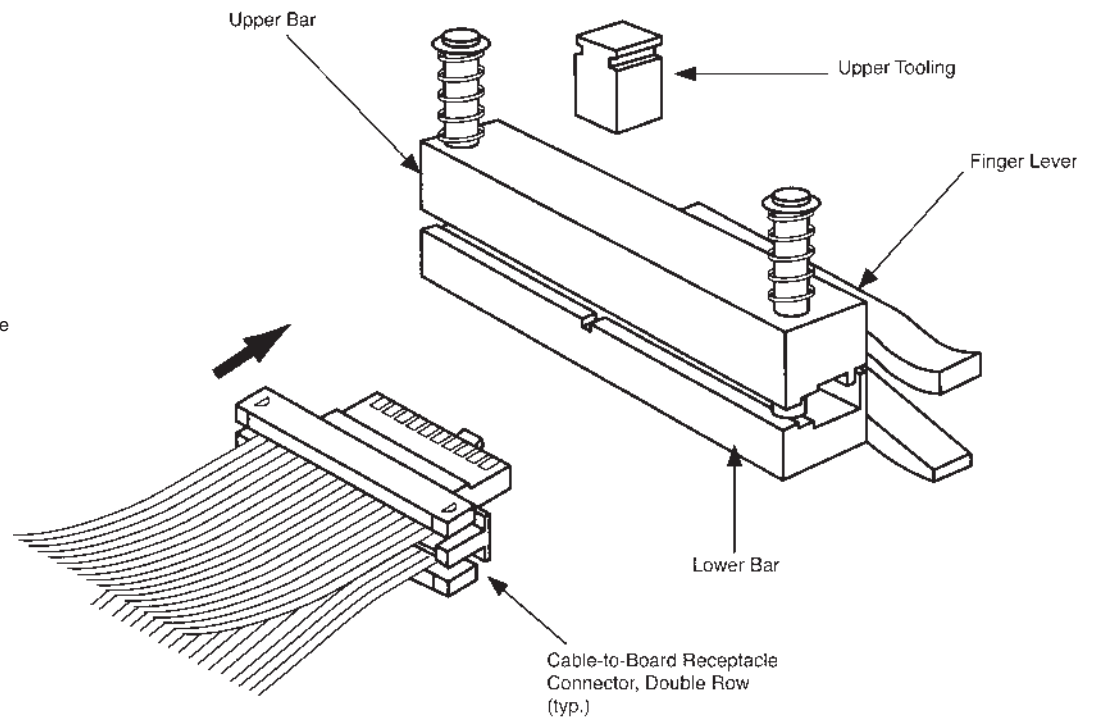
Prior to termination, the covers must be partially assembled onto a connector housing, the cable inserted between the covers and contacts and the covers preclosed by hand, clamping the cable in place.

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.



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 Tyco Electronics Instruction Sheets 408-9817 (Frame Assembly 91295-1) and 408-9909 (Cover Closing Kit 543518-1) for complete termination/tooling information.

Note: All part numbers are RoHS compliant.

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

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.

108-1332	AMPMODU 50/50 Grid Vertical Board-to-Board Connectors
108-1443	AMPMODU 50/50 Grid Right-Angle Board-to-Board and Cable 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.

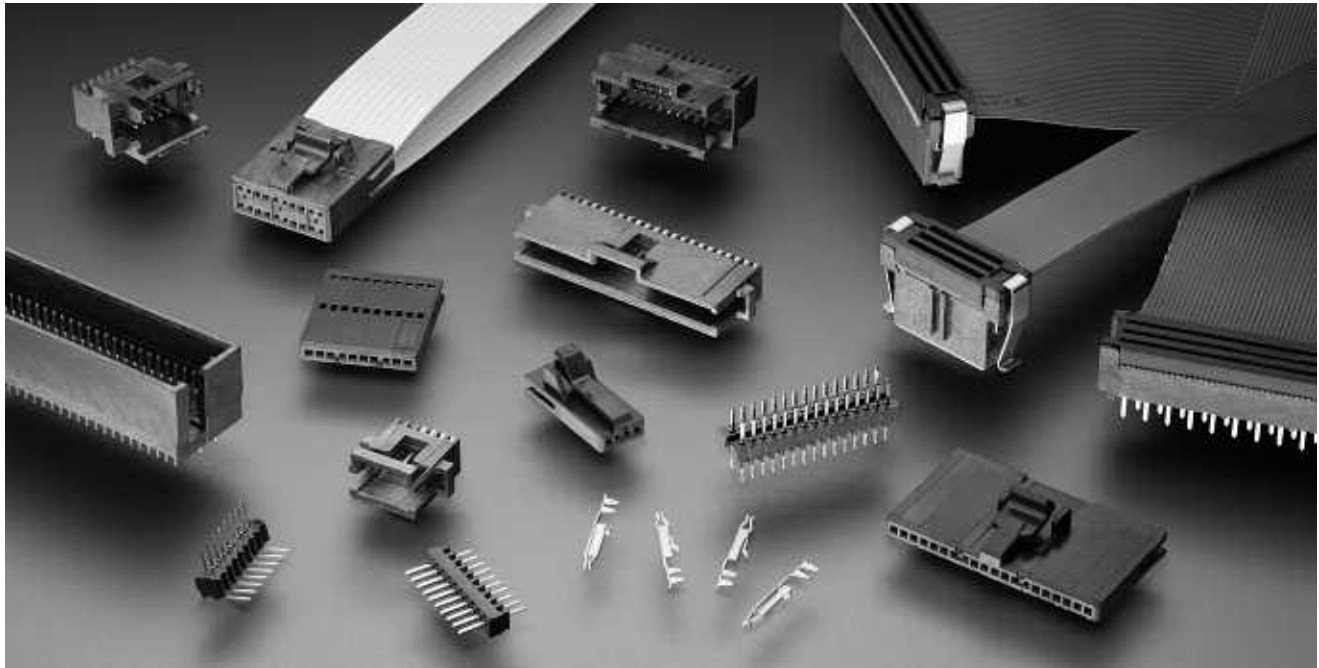
114-7010	AMPMODU 50/50 Grid Connector System
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Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-9817	Manual Miniature Application Frame Assembly 91295-1
408-9909	Cover Closing Kit 543518-1

Note: All part numbers are RoHS compliant.

AMPMODU System 50 Connectors



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. AMPMODU 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.

AMPMODU 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 to promote 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 63. 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 insulation.

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.

The variety of components and application possibilities, combined with small size and outstanding quality, make AMPMODU System 50 suitable for high density systems.

■ **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**

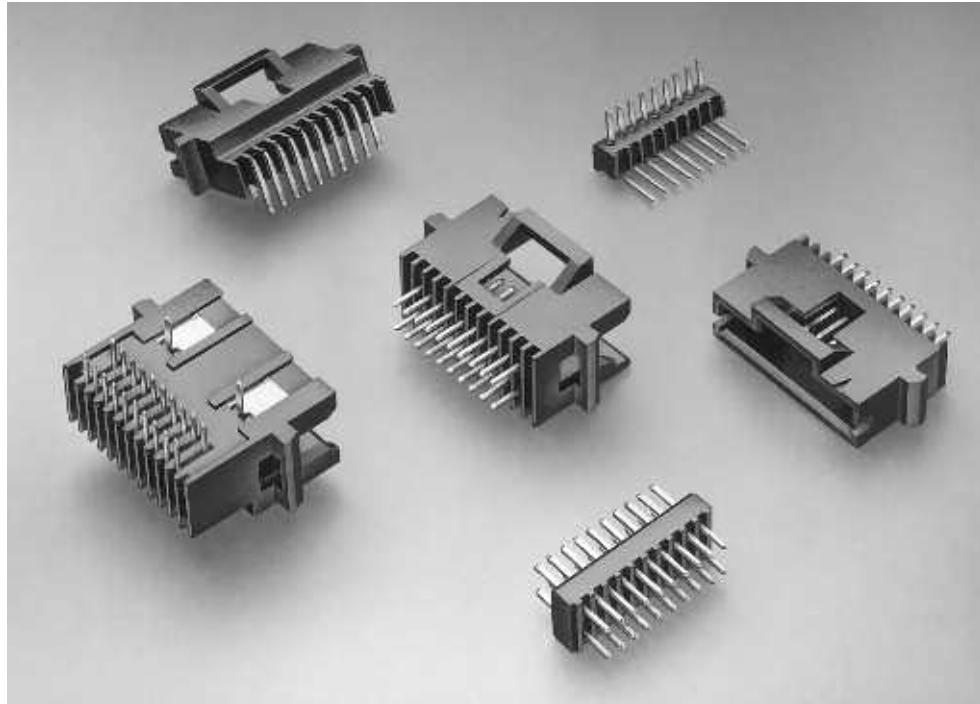
A copy of the certificate is available upon request.



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



The AMPMODU System 50 interconnection system is designed to better 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

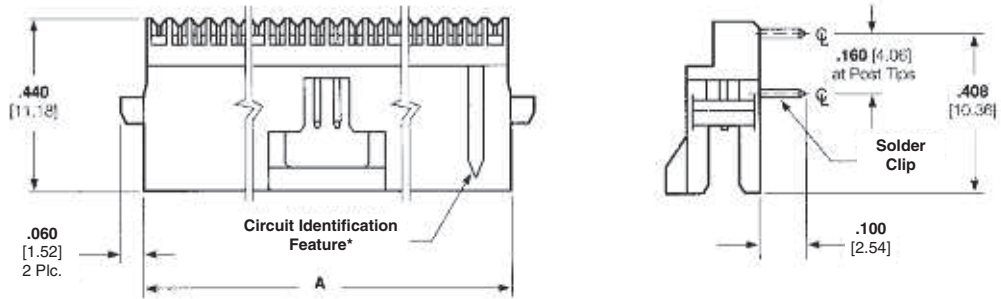
efficient use of printed circuit board area. The headers are available in 4 through 50 positions, in a single row configuration, and 10 through 100 positions, in a double row design.

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.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

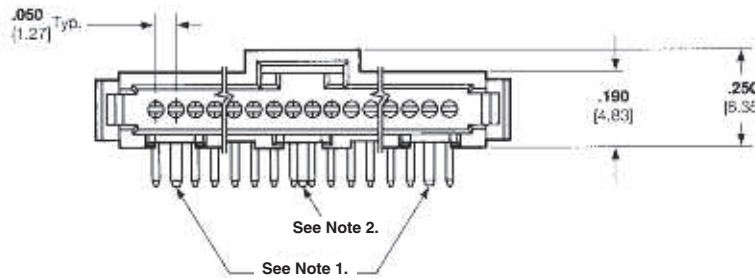
Single Row, Right-Angle with Solder Clips



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 38, 49 & 50

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
4	.330 [8.38]	5-104074-7
5	.380 [9.65]	5-104074-2
6	.430 [10.92]	5-104074-8
8	.530 [13.46]	6-104074-0
10	.630 [16.00]	5-104074-1
12	.730 [18.54]	6-104074-1
15	.880 [22.35]	5-104074-3
20	1.130 [28.70]	5-104074-4
22	1.230 [31.24]	6-104074-4
25	1.380 [35.05]	5-104074-5
28	1.530 [38.86]	7-104074-0
30	1.630 [41.40]	5-104074-6
36	1.930 [49.02]	6-104074-6
40	2.130 [54.10]	6-104074-7
45	2.380 [60.45]	6-104074-8
50	2.630 [66.80]	6-104074-9

*Circuit identification feature omitted on 4, 5 and 6 position headers.

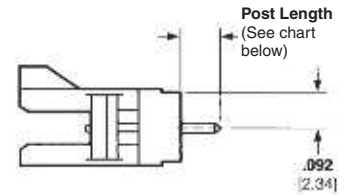
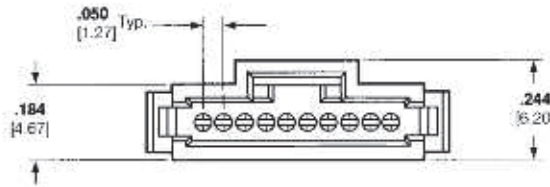
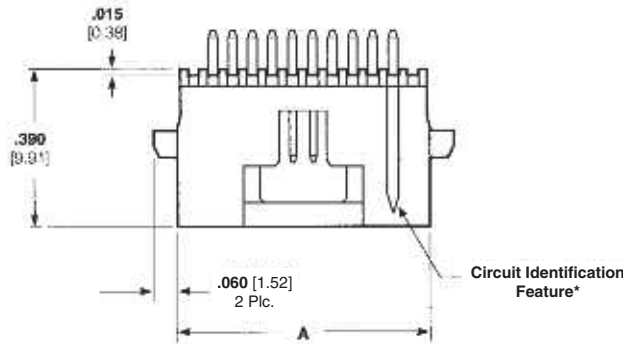
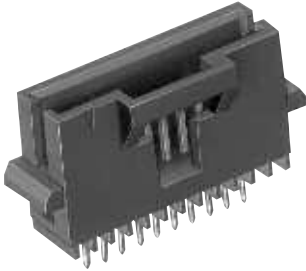
Notes:

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.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Vertical



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .00050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 38, 49 & 50

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
4	.330 [8.38]	5-104071-7	—
5	.380 [9.65]	5-104071-2	—
6	.430 [10.92]	5-104071-8	—
8	.530 [13.46]	6-104071-0	—
10	.630 [16.00]	5-104071-1	—
12	.730 [18.54]	6-104071-1	5-104804-3
13	.780 [19.81]	6-104071-2	—
15	.880 [22.35]	5-104071-3	5-104804-2
17	.980 [24.89]	6-104071-3	—
20	1.130 [28.70]	5-104071-4	—
22	1.230 [31.24]	6-104071-4	—
25	1.380 [35.05]	5-104071-5	—
30	1.630 [41.40]	5-104071-6	—
36	1.930 [49.02]	6-104071-6	—
40	2.130 [54.10]	6-104071-7	—
50	2.630 [66.80]	6-104071-9	—

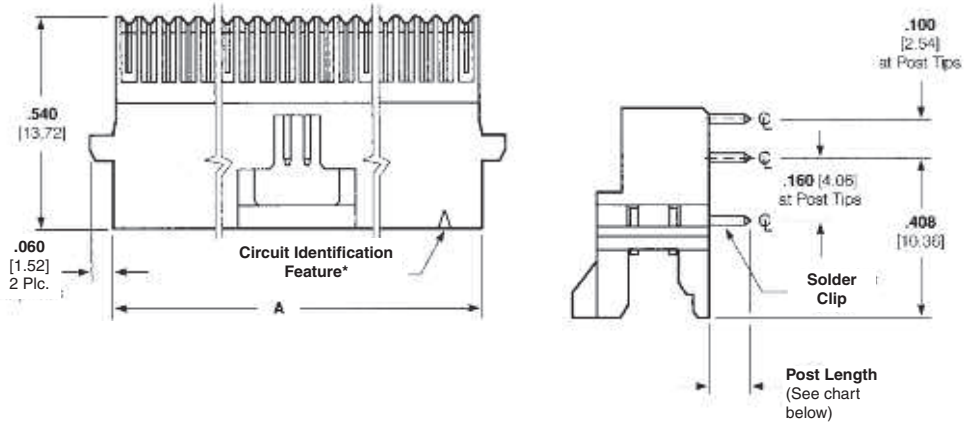
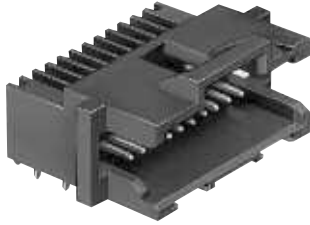
*Circuit identification feature omitted on 4, 5, and 6 position headers.

Note: All part numbers are RoHS compliant.

3 Headers, Shrouded and Unshrouded

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Right-Angle with Solder Clips



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

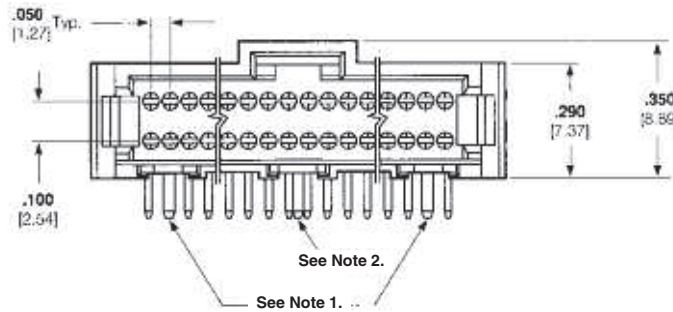
Mateable Connectors — pages 40, 45, 51, 52, & 56

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031



Headers, Shrouded and Unshrouded

3

No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
8	.330 [8.32]	5-104069-8	—
10	.380 [9.65]	5-104069-4	6-104477-2
12	.430 [10.92]	—	5-104477-8
14	.480 [12.19]	6-104069-0	—
16	.530 [13.46]	6-104069-1	—
20	.630 [16.00]	5-104069-1	5-104477-2
24	.730 [18.54]	6-104069-2	6-104477-0
26	.780 [19.81]	6-104069-3	—
30	.880 [22.35]	5-104069-5	5-104477-3
34	.980 [24.89]	6-104069-4	—
40	1.130 [28.70]	5-104069-6	5-104477-4
50	1.380 [35.05]	5-104069-2	5-104477-5
60	1.630 [41.40]	5-104069-7	5-104477-9
68	1.830 [46.48]	6-104069-8	—
72	1.930 [49.02]	6-104069-6	5-104477-1
80	2.130 [54.10]	5-104069-3	5-104477-6
100	2.630 [66.80]	6-104069-7	5-104477-7

*Circuit identification feature omitted on 8, 10 and 12 position headers.

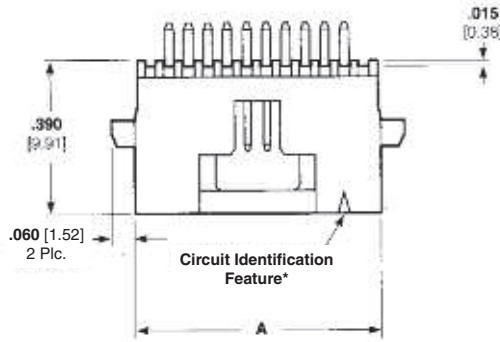
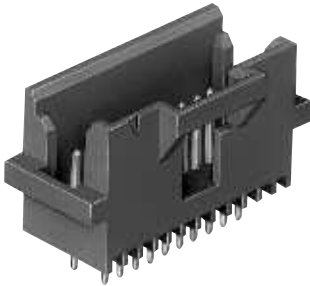
Notes:

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.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

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

Contact — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127]nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 40, 45, 51, 52, & 56

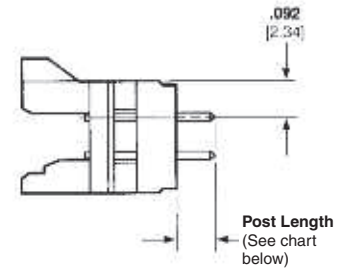
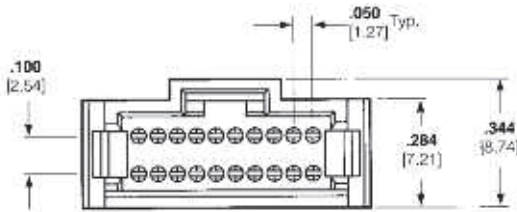
Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031



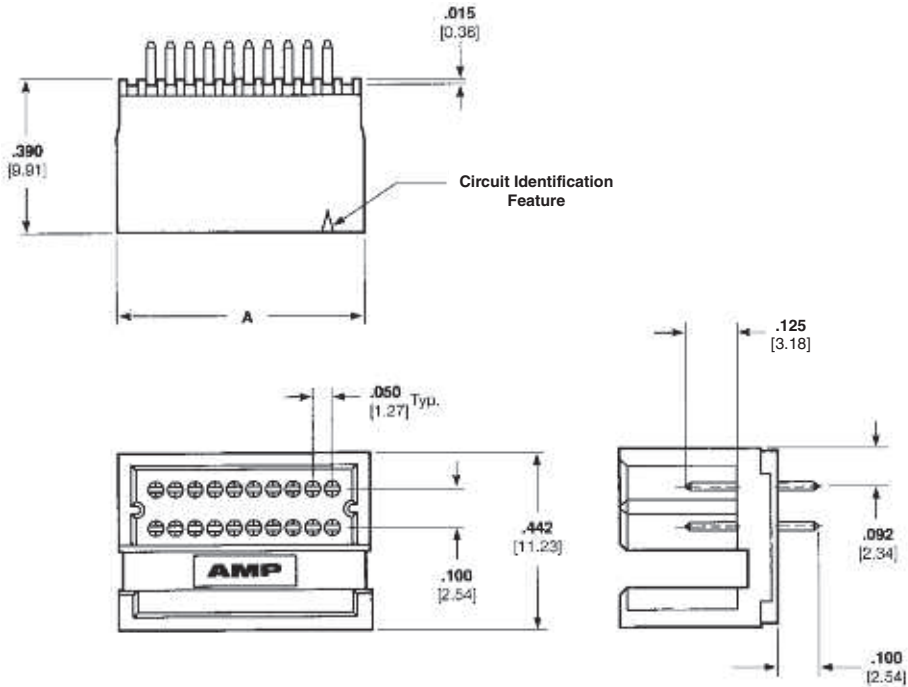
No. of Pos.	Dimension A	Part Numbers	
		Post Length	
		.100 [2.54]	.145 [3.68]
10	.380 [9.65]	5-104068-2	—
12	.430 [10.92]	5-104068-8	—
14	.480 [12.19]	5-104068-9	—
16	.530 [13.46]	6-104068-0	5-104666-9
20	.630 [16.00]	5-104068-1	5-104666-1
24	.730 [18.54]	6-104068-1	6-104666-0
26	.780 [19.81]	6-104068-2	—
30	.880 [22.35]	5-104068-3	5-104666-2
34	.980 [24.89]	6-104068-3	—
40	1.130 [28.70]	5-104068-4	5-104666-3
44	1.230 [31.24]	6-104068-4	—
50	1.380 [35.05]	5-104068-5	5-104666-4
60	1.630 [41.40]	5-104068-6	5-104666-7
68	1.830 [46.48]	6-104068-8	5-104666-8
72	1.930 [49.02]	6-104068-5	—
80	2.130 [54.10]	6-104068-6	5-104666-5
100	2.630 [66.80]	6-104068-7	5-104666-6

*Circuit identification feature omitted on 10 and 12 position headers.

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Shrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical With Card Slots



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — page 39

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

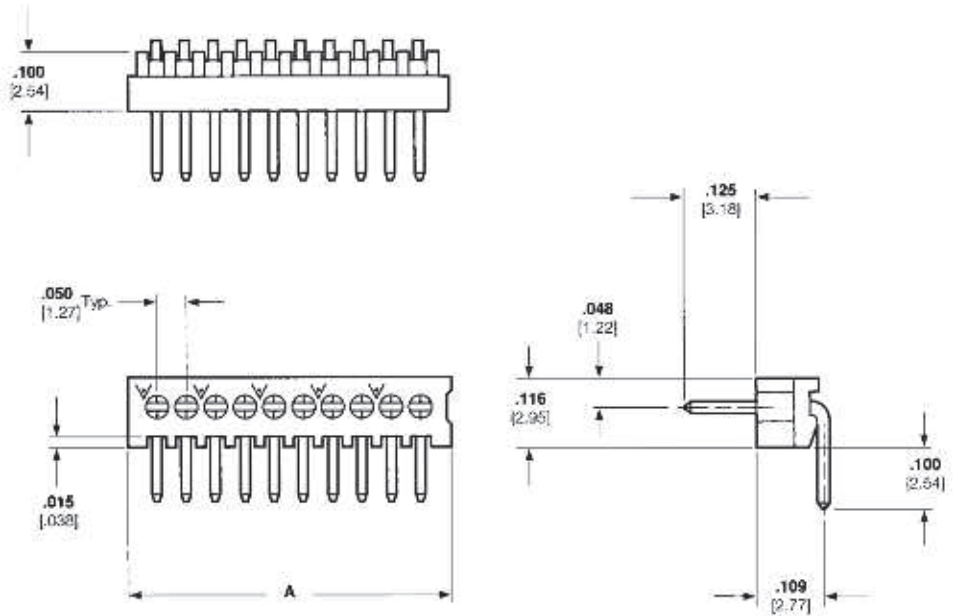
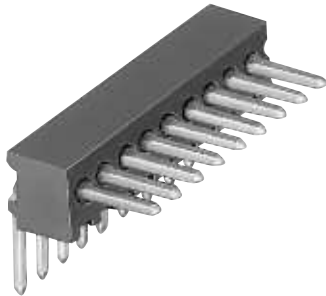
Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
10	.394 [10.01]	5-104076-5
20	.644 [16.36]	5-104076-1
30	.894 [22.71]	5-104076-6
40	1.144 [29.06]	5-104076-3
50	1.394 [35.41]	5-104076-7
60	1.644 [41.76]	5-104076-2
80	2.144 [54.46]	5-104076-4
100	2.644 [67.16]	5-104076-8

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Single Row, Right-Angle



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 37, 38, 49, & 50

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

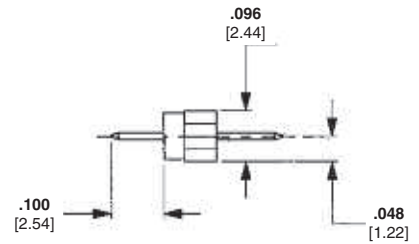
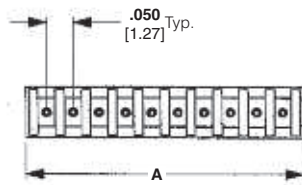
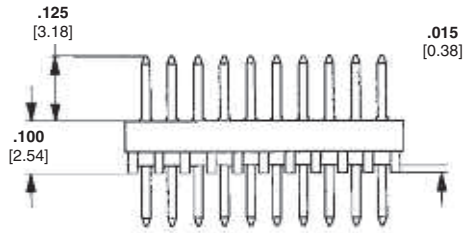
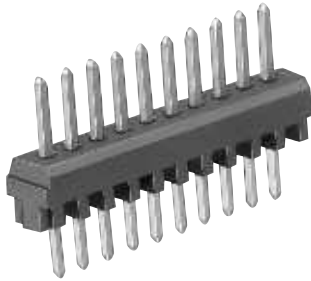
Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
4	.215 [5.46]	5-104186-1
8	.415 [10.54]	5-104186-5
12	.615 [15.62]	5-104186-7
15	.765 [19.43]	5-104186-9
17	.865 [21.97]	6-104186-0
20	1.015 [25.78]	6-104186-1
25	1.265 [32.13]	6-104186-3
30	1.515 [38.48]	6-104186-5
31	1.565 [39.75]	7-104186-0
40	2.015 [51.18]	6-104186-7

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Single Row, Vertical



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 37, 38, 49, & 50

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

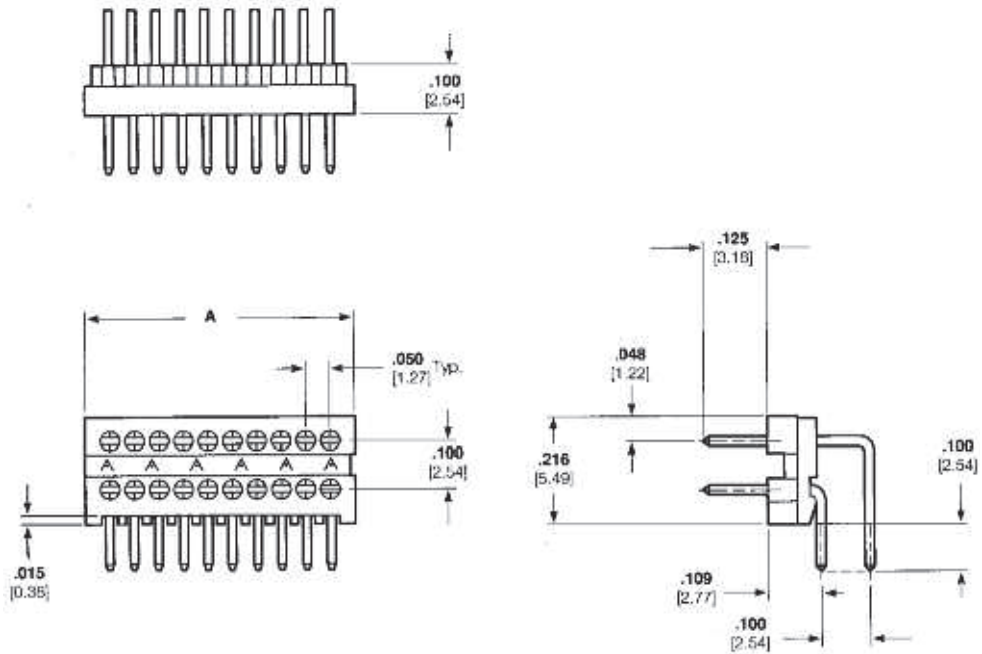
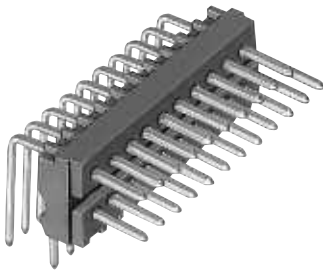
Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
4	.215 [5.46]	5-104178-1
6	.315 [8.00]	5-104178-3
8	.415 [10.54]	5-104178-5
10	.515 [13.08]	5-104178-6
20	1.015 [25.78]	6-104178-1
25	1.265 [32.13]	6-104178-3

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Right-Angle



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 39, 40, 45, 51 & 52

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

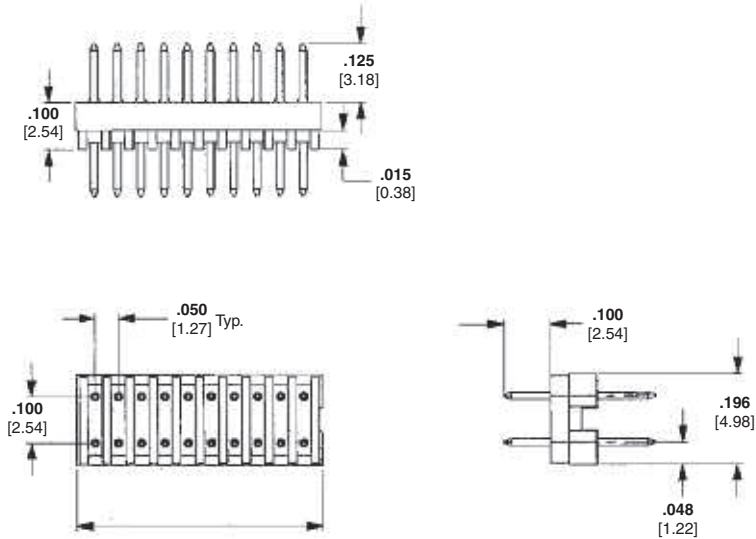
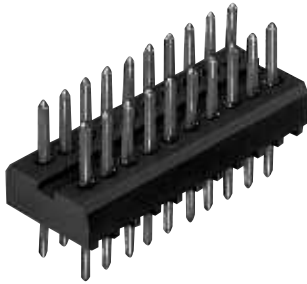
Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
10	.265 [6.73]	5-104118-3
20	.515 [13.08]	5-104118-7
30	.765 [19.43]	6-104118-0
40	1.015 [25.78]	6-104118-2
50	1.265 [32.13]	5-104118-1
60	1.515 [38.48]	6-104118-4
80	2.015 [51.18]	6-104118-6
100	2.515 [63.88]	6-104118-7

Note: All part numbers are RoHS compliant.

Thru-Hole Headers—Unshrouded, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 39, 40, 45, 51, & 52

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 42

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

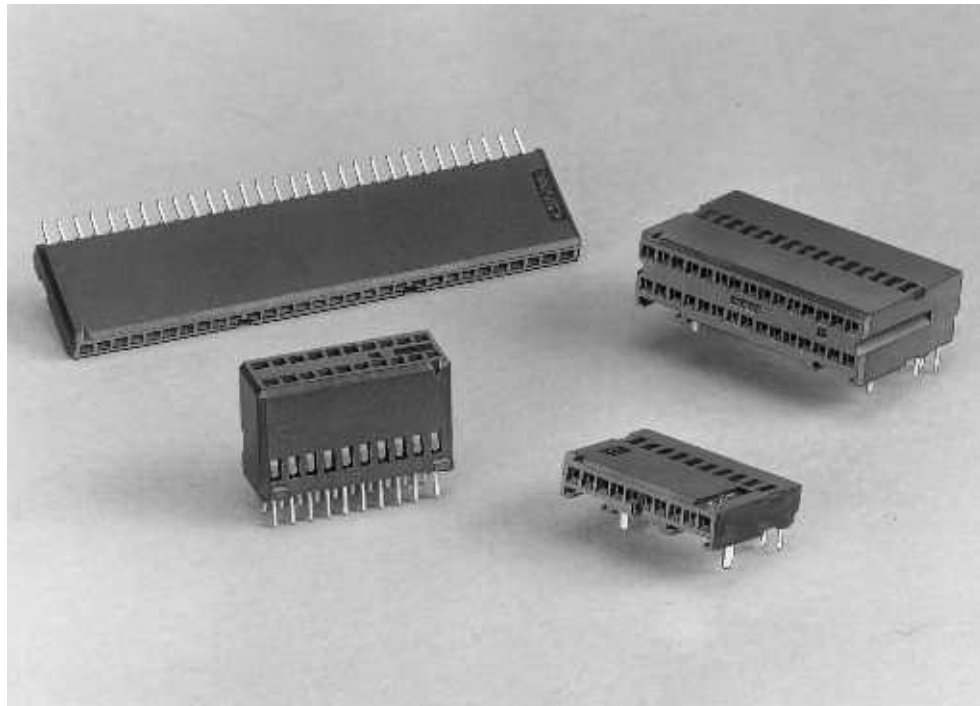
No. of Pos.	Dimension A	Part Numbers
8	.215 [5.46]	5-103916-3
20	.515 [13.08]	5-103916-2
30	.765 [19.43]	5-103916-9
36	.915 [23.24]	6-103916-8
40	1.015 [25.78]	6-103916-1
50	1.265 [32.13]	6-103916-3
60	1.515 [38.48]	6-103916-4
80	2.015 [51.18]	6-103916-6
100	2.515 [63.88]	6-103916-7

Note: All part numbers are RoHS compliant.

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



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.

**Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline,
Board-to-Board (Continued)**

**Single Row, Right-Angle
With Solder Clips**



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

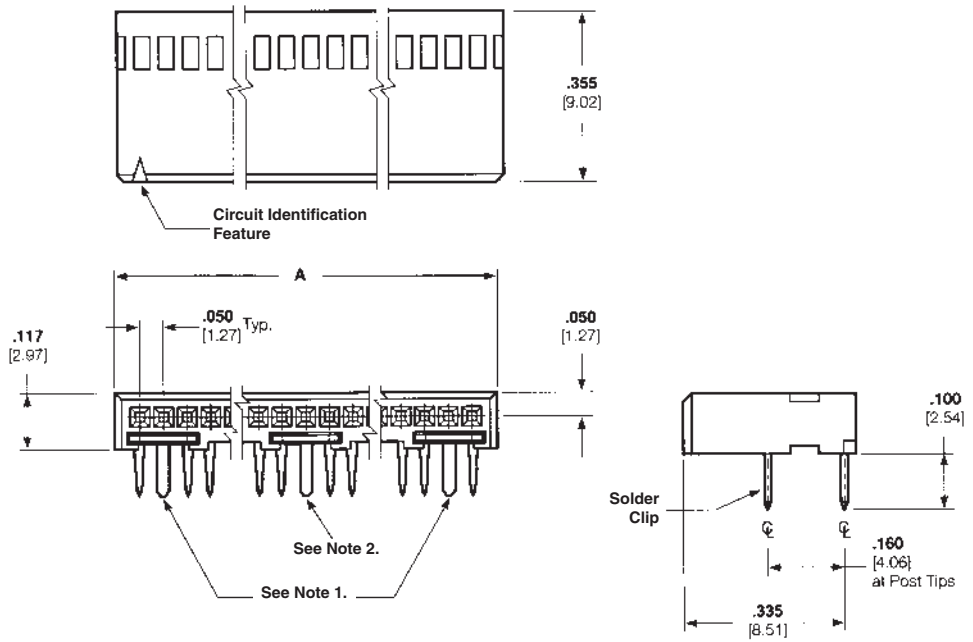
Mateable Connectors — pages 32 & 33

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031



No. of Pos.	Dimension A	Part Numbers
10	.544 [13.82]	5-104196-2
15	.794 [20.17]	5-104196-4
20	1.044 [26.52]	5-104196-5

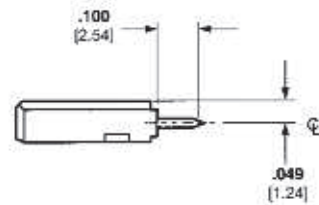
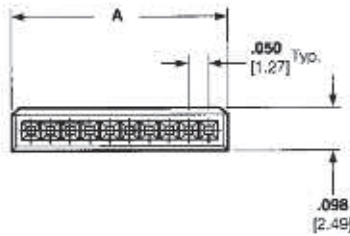
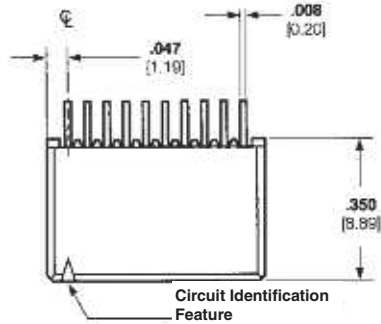
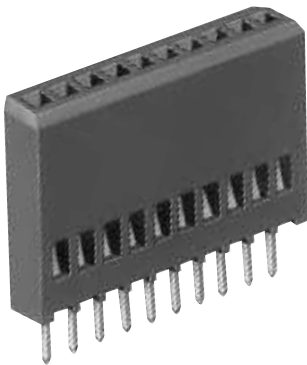
Notes:

1. Solder Clips located as shown for 10 through 25 position receptacles.
2. Solder Clips located as shown for 5 and 25 position receptacles.

Note: All part numbers are RoHS compliant.

**Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline,
Board-to-Board** (Continued)

Single Row, Vertical



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 27, 28, 32, & 33

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

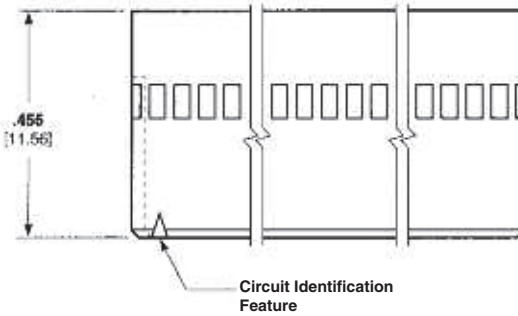
Application Specification
114-25031

No. of Pos.	Dimension A	Part Numbers
10	.544 [13.82]	5-104192-2
12	.644 [16.35]	5-104192-3
15	.794 [20.17]	5-104192-4
20	1.044 [26.52]	5-104192-5
30	1.544 [39.22]	5-104192-7

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

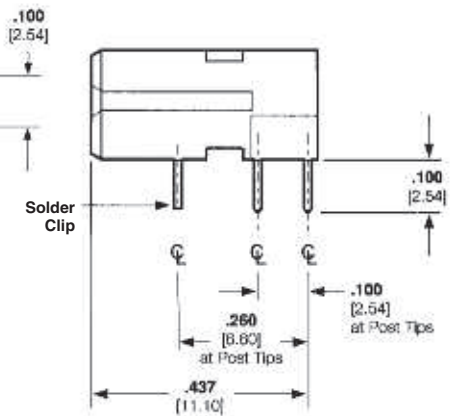
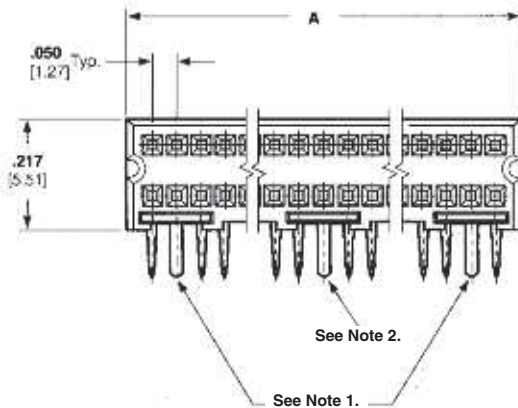
Double Row, Right-Angle



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 63

Mateable Connectors — pages 31, 34 & 35

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

No. of Pos.	Dimension A	Part Numbers
10	.294 [7.47]	5-103911-1
20	.544 [13.82]	5-103911-2
30	.794 [20.17]	5-103911-7
40	1.044 [26.52]	5-103911-5
50	1.294 [32.87]	5-103911-4
60	1.544 [39.22]	5-103911-3
80	2.044 [51.92]	5-103911-6
100	2.544 [64.62]	5-103911-8

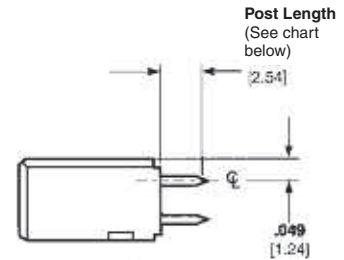
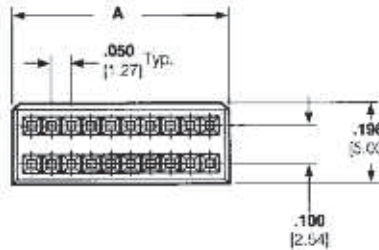
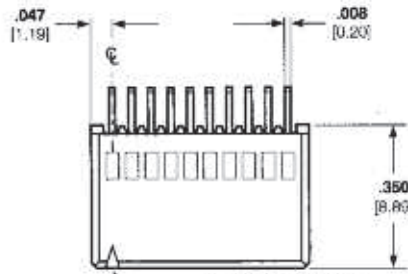
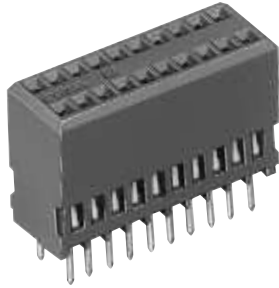
Notes:

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.

Note: All part numbers are RoHS compliant.

Thru-Hole Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board (Continued)

Double Row, Vertical



Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder posts, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Performance Specifications — page 63

Mateable Connectors — pages 29, 30, 34, 35 & 44

Board-to-Board Spacing — page 63

PC Board Hole Layout — page 41

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25031

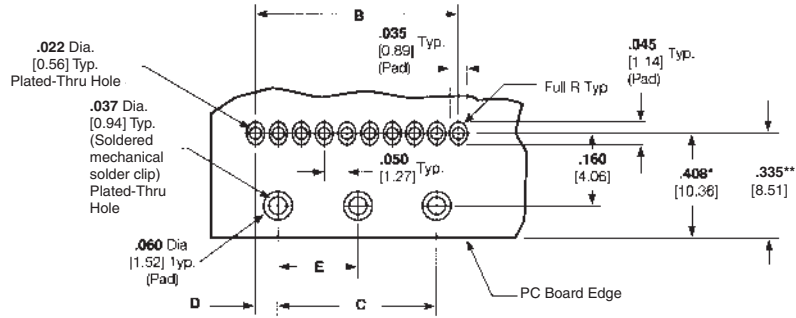
No. of Pos.	Dimension A	Part Numbers Post Length	
		.100 [2.54]	.145 [3.68]
10	.294 [7.47]	5-104078-3	—
20	.544 [13.82]	5-104078-1	—
24	.644 [16.36]	5-104078-9	—
30	.794 [20.17]	5-104078-4	—
34	.894 [22.71]	6-104078-0	—
40	1.044 [26.52]	5-104078-2	—
50	1.294 [32.87]	5-104078-5	5-104744-7
60	1.544 [39.22]	5-104078-6	—
68	1.744 [44.30]	6-104078-3	—
80	2.044 [51.92]	5-104078-7	5-104744-4
100	2.544 [64.62]	5-104078-8	5-104744-5

Note: All part numbers are RoHS compliant.

Recommended PC Board Hole Layouts, Thru-Hole Board-to-Board Connectors

Single Row, Right-Angle with Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



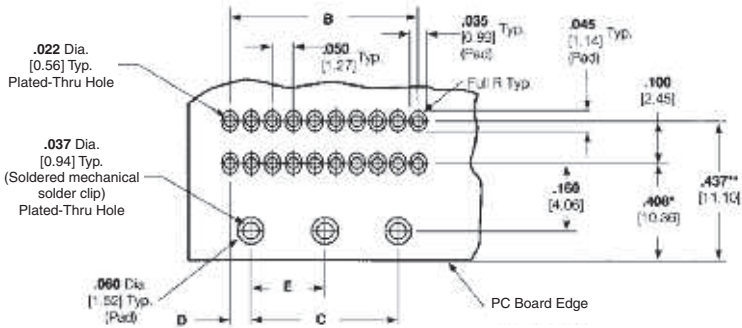
* This dimension is for Shrouded, Single Row Right-Angle Headers only.

** This dimension is for Single Row Right-Angle Receptacles only.

No. of Pos.	Dimensions			
	B	C	D	E
4	.150 [3.81]	—	.075 [1.91]	—
5	.200 [5.08]	—	.100 [2.54]	—
6	.250 [6.35]	—	.125 [3.18]	—
8	.350 [8.89]	—	.175 [4.45]	—
10	.450 [11.43]	.350 [8.89]	.050 [1.27]	—
12	.550 [13.97]	.450 [11.43]	.050 [1.27]	—
15	.700 [17.78]	.600 [15.24]	.050 [1.27]	—
20	.950 [24.13]	.850 [21.59]	.050 [1.27]	—
22	1.050 [26.67]	.950 [24.13]	.050 [1.27]	—
25	1.200 [30.48]	1.100 [27.94]	.050 [1.27]	—
28	1.350 [34.29]	1.250 [31.75]	.050 [1.27]	.625 [15.88]
30	1.450 [36.83]	1.350 [34.29]	.050 [1.27]	.675 [17.15]
36	1.750 [44.45]	1.650 [41.91]	.050 [1.27]	.825 [20.96]
40	1.950 [49.53]	1.850 [46.99]	.050 [1.27]	.925 [23.50]
45	2.200 [55.88]	2.100 [53.34]	.050 [1.27]	1.050 [26.67]
50	2.450 [62.23]	2.350 [59.69]	.050 [1.27]	1.175 [29.85]

Double Row, Right-Angle with Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



* This dimension is for Shrouded, Double Row Right-Angle Headers only.

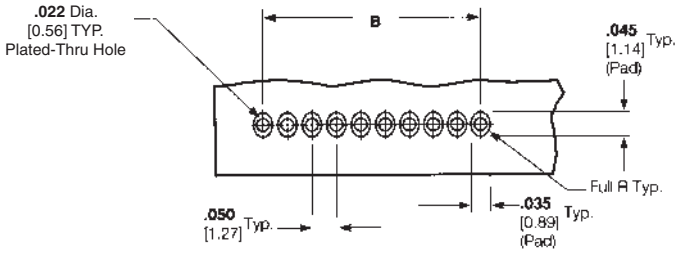
** This dimension is for Double Row Right-Angle Receptacles only.

No. of Pos.	Dimensions			
	B	C	D	E
10	.200 [5.08]	—	.100 [2.54]	—
20	.450 [11.43]	.350 [8.89]	.050 [1.27]	—
24	.550 [13.97]	.450 [11.43]	.050 [1.27]	—
26	.600 [15.24]	.500 [12.70]	.050 [1.27]	—
30	.700 [17.78]	.600 [15.24]	.050 [1.27]	—
34	.800 [20.32]	.700 [17.78]	.050 [1.27]	—
40	.950 [24.13]	.850 [21.59]	.050 [1.27]	—
50	1.200 [30.48]	1.100 [27.94]	.050 [1.27]	—
60	1.450 [36.83]	1.350 [34.29]	.050 [1.27]	.675 [17.15]
68	1.650 [41.91]	1.550 [39.37]	.050 [1.27]	.775 [19.69]
72	1.750 [44.45]	1.650 [41.91]	.050 [1.27]	.825 [20.96]
80	1.950 [49.53]	1.850 [46.99]	.050 [1.27]	.925 [23.50]
100	2.450 [62.23]	2.350 [59.69]	.050 [1.27]	1.175 [29.85]

Recommended PC Board Hole Layouts, Thru-Hole Board-to-Board Connectors (Continued)

Single Row Without Solder Clips

Note: Consult TE for customer drawings detailing tolerances.

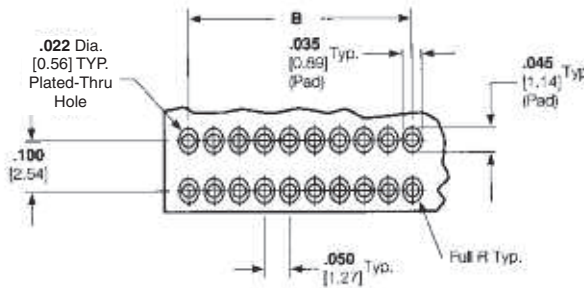


No. of Pos.	Dimension B
4	.150 [3.81]
5	.200 [5.08]
6	.250 [6.35]
8	.350 [8.89]
10	.450 [11.43]
12	.550 [13.97]
13	.600 [15.24]
15	.700 [17.78]

No. of Pos.	Dimension B
17	.800 [20.32]
20	.950 [24.13]
22	1.050 [26.67]
25	1.200 [30.48]
30	1.450 [36.83]
31	1.500 [38.10]
36	1.750 [44.45]
40	1.950 [49.53]
50	2.450 [62.23]

Double Row Without Solder Clips

Note: Consult TE for customer drawings detailing tolerances.



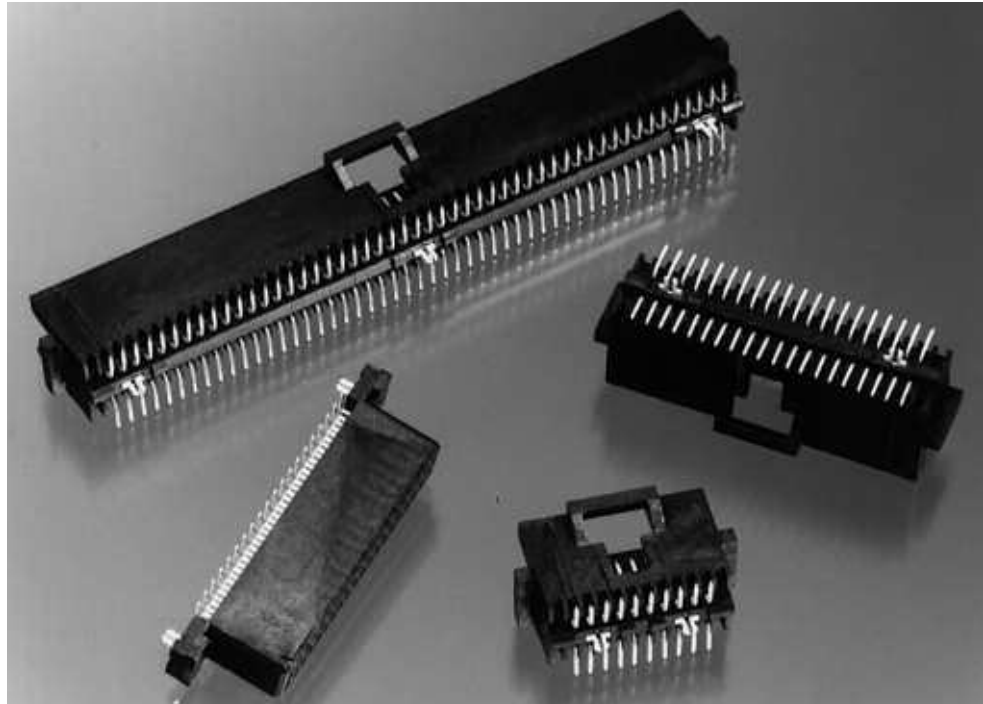
No. of Pos.	Dimension B
8	.150 [3.81]
10	.200 [5.08]
12	.250 [6.35]
14	.300 [7.62]
16	.350 [8.89]
20	.450 [11.43]
24	.550 [13.97]
26	.600 [15.24]
30	.700 [17.78]
34	.800 [20.32]

No. of Pos.	Dimension B
36	.850 [21.59]
40	.950 [24.13]
44	1.050 [26.67]
50	1.200 [30.48]
60	1.450 [36.83]
68	1.650 [41.91]
72	1.750 [44.45]
80	1.950 [49.53]
100	2.450 [62.23]

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 thru-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 hold-down 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.

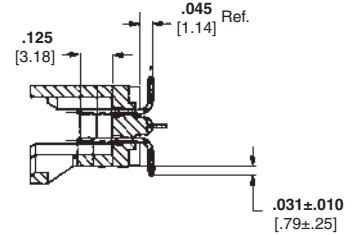
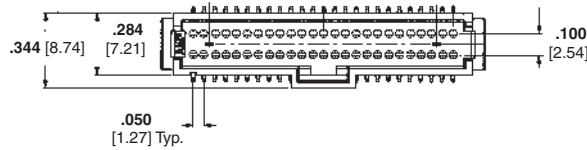
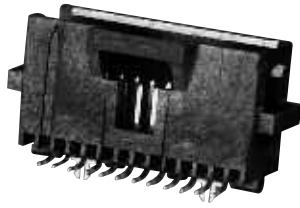
This surface-mount system is fully intermateable with the AMPMODU System 50 thru-hole and cable-to-board connectors.

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 hold-down provides both processing retention and long-term strain relief for the solder joints in the headers and receptacles.

Surface-Mount Headers, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical

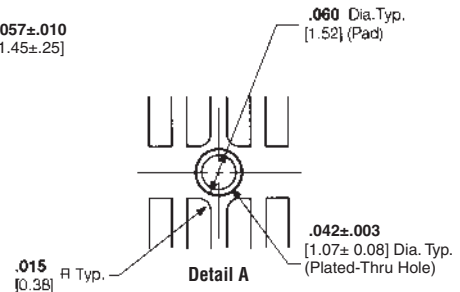
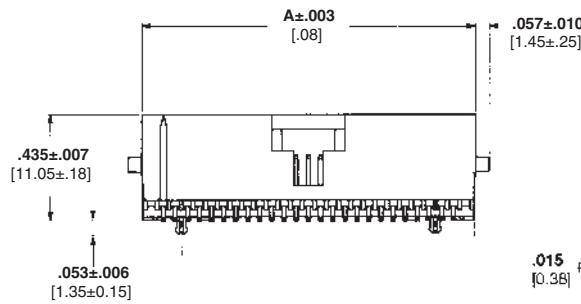


Material and Finish

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

Contacts — Copper alloy; duplex plated .000030 [0.00076] gold in mating area, .000150 [0.00381] tin on solder tail, with entire contact under-plated .000050 [0.00127] nickel

Holddown — Copper alloy, plated .000150 [0.00381] tin over .000050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 63

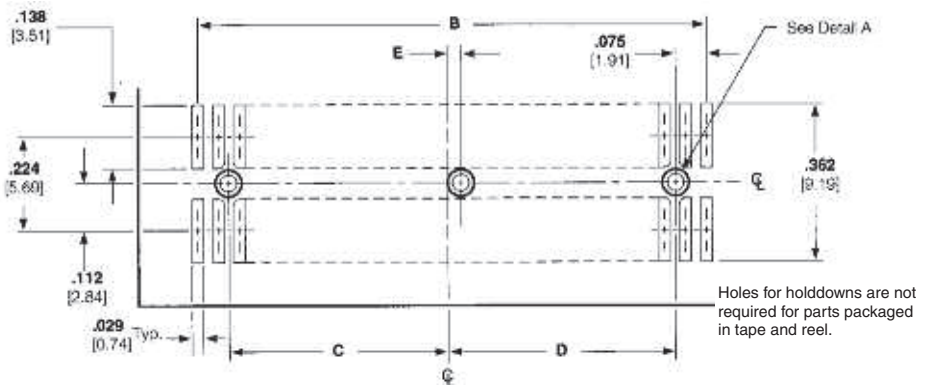
Mateable Connectors — pages 40, 45, 51, 52, & 56

Board-to-Board Spacing — page 63

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25035



Recommended PC Board Layout

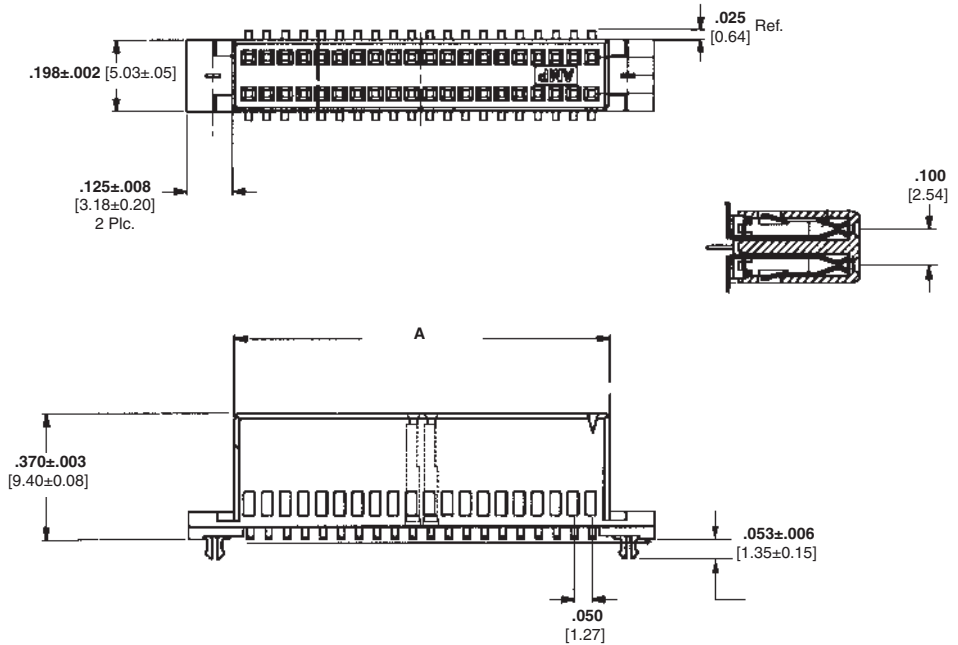
No. of Pos.	Dimensions					Part Numbers	
	A	B	C	D	E	Pkg in Tube	Pkg in Tape & Reel*
10	.380 [9.65]	.200 [5.08]	—	.025 [0.64]	—	5-104549-1	5-147377-1
12	.430 [10.92]	.250 [6.35]	—	—	—	6-104549-1	—
20	.630 [16.00]	.450 [11.43]	.150 [3.81]	.150 [3.81]	—	5-104549-2	5-147377-2
24	.730 [18.54]	.550 [13.97]	.200 [5.08]	.200 [5.08]	—	5-104549-3	5-147377-9
30	.880 [22.35]	.700 [17.78]	.275 [6.99]	.275 [6.99]	—	5-104549-5	5-147377-3
40	1.130 [28.70]	.950 [24.13]	.400 [10.16]	.400 [10.16]	—	5-104549-6	5-147377-4
50	1.380 [35.05]	1.200 [30.48]	.525 [13.34]	.525 [13.34]	.025 [0.64]	5-104549-7	5-147377-5
60	1.630 [41.40]	1.450 [36.83]	.650 [16.51]	.650 [16.51]	.000	5-104549-8	5-147377-6
80	2.130 [54.10]	1.950 [49.53]	.900 [22.86]	.900 [22.86]	.000	5-104549-9	5-147377-7
100	2.630 [66.80]	2.450 [62.23]	1.150 [29.21]	1.150 [29.21]	.000	6-104549-0	5-147377-8

*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

Note: All part numbers are RoHS compliant.

Surface-Mount Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Board-to-Board

Double Row, Vertical



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 on solder tail, with entire contact underplated .000050 [0.00127] nickel

Holddown — Copper alloy; duplex plated .000150 [0.00381] tin over .000050 [0.00127] nickel

Related Product Data

Performance Characteristics — page 63

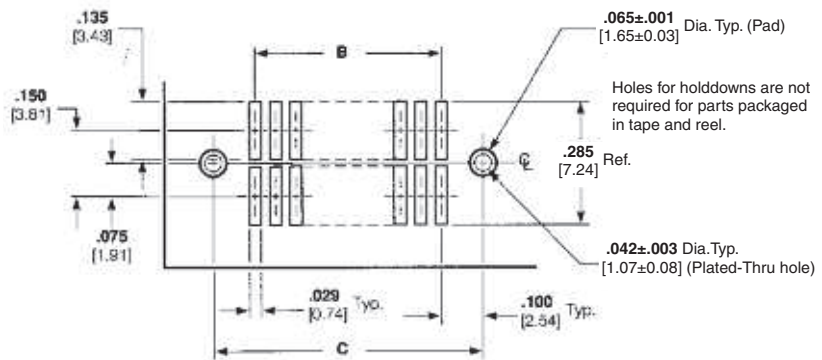
Mateable Connectors — pages 29, 30, 34, 35 & 44

Board-to-Board Spacing — page 63

Technical Documents — page 64

Product Specification 108-1093

Application Specification 114-25035



Recommended PC Board Layout

No. of Pos.	Dimensions			Part Numbers	
	A	B	C	Pkg in Tube	Pkg in Tape & Reel*
10	.294 [7.47]	.200 [5.08]	.400 [10.16]	5-104550-1	5-147378-1
20	.544 [13.82]	.450 [11.43]	.650 [16.51]	5-104550-2	5-147378-2
24	.644 [16.36]	.550 [13.97]	.750 [19.05]	5-104550-3	5-147378-9
30	.794 [20.17]	.700 [17.78]	.900 [22.86]	5-104550-4	5-147378-3
40	1.044 [26.52]	.950 [24.13]	1.150 [29.21]	5-104550-5	5-147378-4
50	1.294 [32.87]	1.200 [30.48]	1.400 [35.56]	5-104550-6	5-147378-5
60	1.544 [39.22]	1.450 [36.83]	1.650 [41.91]	5-104550-7	5-147378-6
80	2.044 [51.92]	1.950 [49.53]	2.150 [54.61]	5-104550-8	5-147378-7
100	2.544 [64.62]	2.450 [62.23]	2.650 [67.31]	5-104550-9	5-147378-8

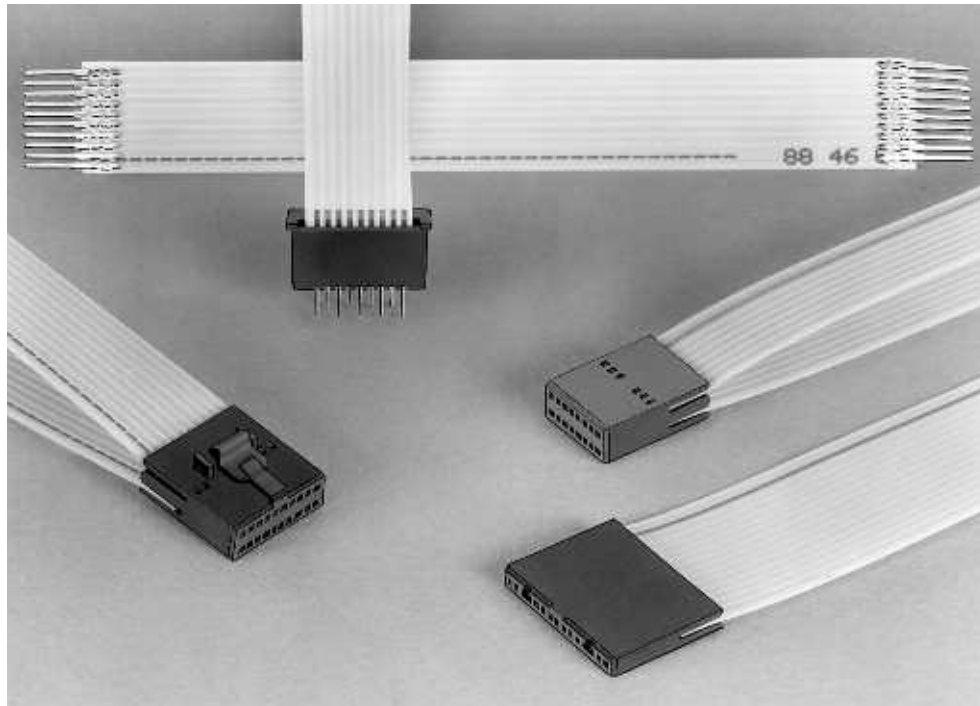
*Parts packaged in tape and reel are without hold downs and include a vacuum pick and place cover

Note: All part numbers are RoHS compliant.

Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline FFC Cable

Product Facts

- Signal application only, 1.5 amperes maximum single circuit
- Single or double row connectors
- Terminates flexible flat conductor cable and flexible etched circuitry
- 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.

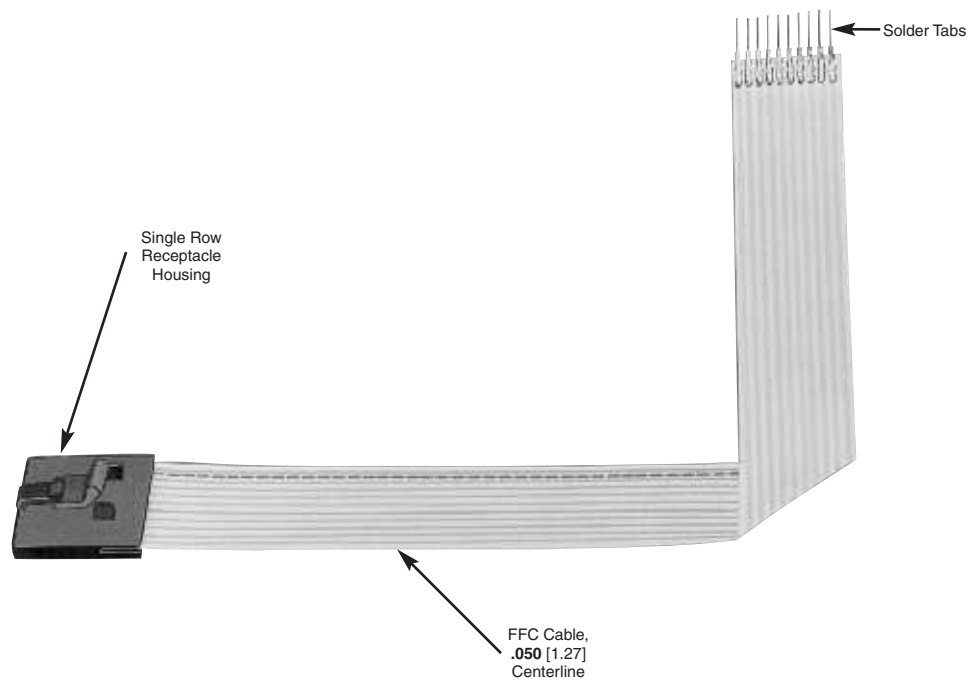
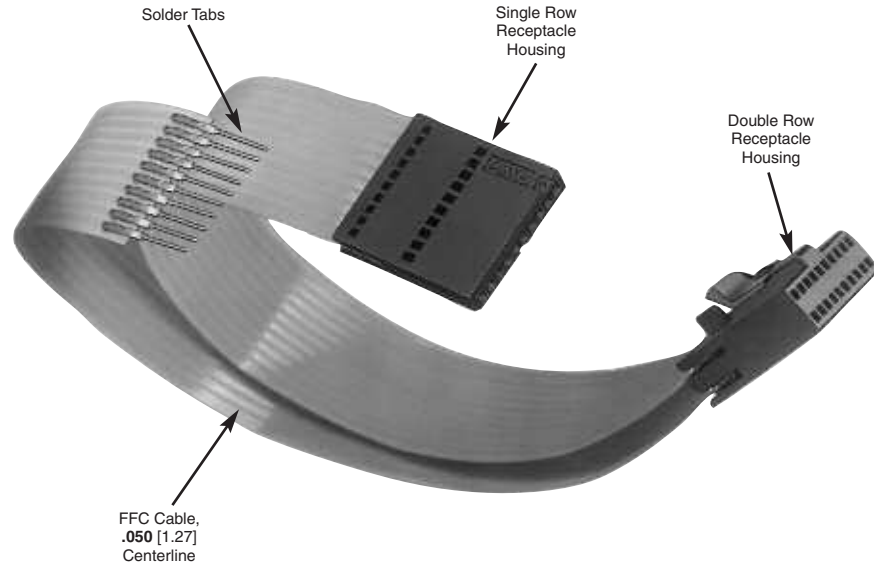
The complete product line provides solder tabs for board mounting at low cost and custom shielding of the cable.

**Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline
FFC Cable] (Continued)**

**Custom Designed
Cable Assemblies**

TE can supply customized flexible flat conductor cable assemblies using the components shown on pages 48 thru 54. Typical examples of these cable assemblies are shown to the right.

And, to meet the internal shielding requirements of today's complex electronic equipment, custom designed shielded FFC cable assemblies can be made to your specific specifications.



FFC Contacts, .050 x .100 [1.27 x 2.54] Centerline

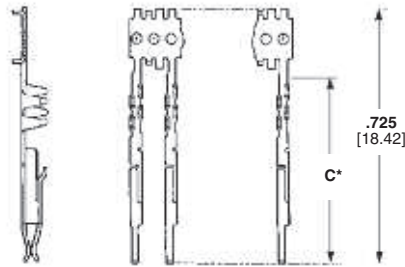


Receptacle Strip



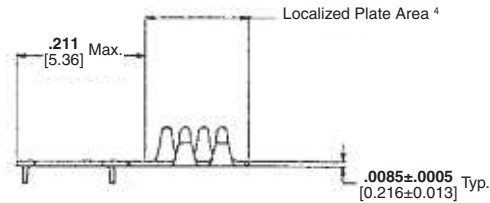
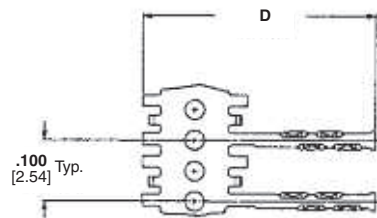
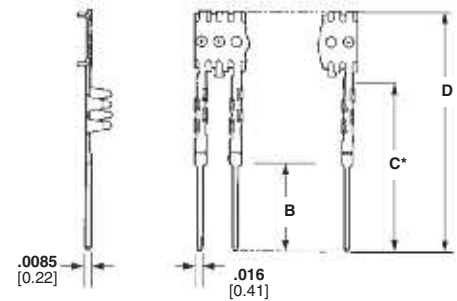
Solder Tab Strip

Receptacle



Accepts .015 [0.38] Sq. Post
.125-.350 [3.18-8.89] Long

Solder Tab



Material and Finish

Phosphor bronze; plated gold duplex or bright tin-lead overall (See chart.)

Related Product Data

- Performance Characteristics** — page 63
- Housings** — pages 49-52
- Application Tooling** — page 60-62

Technical Documents — page 64

Product Specification 108-16022

Application Specification
114-16008

Type	Config.	Contacts Part No./ Finish	Dimensions			Application Tooling Part Numbers	
			B	C*	D	Machine	Machine With Programmer
Receptacle	Strip	1-487547-1 ¹	—	.520 [13.21]	.725 [18.42]		
	Strip	487923-4 ²	.245 [6.22]	.480 [12.19]	.685 [17.40]		
Solder Tab	Strip	487923-5 ³	.245 [6.22]	.480 [12.19]	.685 [17.40]	224910-4 (120 V)	318619-4 (120 V)
	Strip	487940-4 ²	.110 [2.79]	.345 [8.76]	.550 [13.97]	224910-6 (240 V)	318619-6 (240 V)
Contact Splice	Strip	487941-4 ⁴	—	—	.385 [9.78]		
Receptacle	Strip	1-487547-2 ⁵	—	.520 [13.21]	.725 [18.42]		

¹Duplex plated .000030 [0.00076] gold on mating area, .000100 [0.00254] min. bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

²Plated .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel.

³Duplex plated .000015 [0.00038] gold on solder tab end, .000100 [0.00254] min. bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

⁴Plated .000150 [3.81µm] min. bright tin over .000050 [1.27µm] min. nickel.

⁵Duplex Plated .000150 [0.00038] gold on mating area, .000100 [0.00254] min bright tin in crimp area, with entire contact underplated .000050 [0.00127] min. nickel.

*After cut-off from carrier strip.

Note: All part numbers are RoHS compliant.

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

Related Product Data

Performance Characteristics — page 63

Receptacle Contacts — page 48

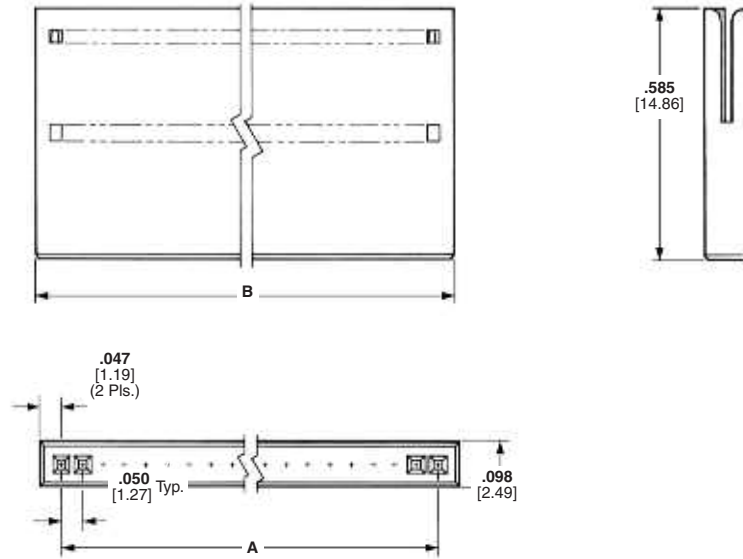
Mateable Headers — pages 27, 28, 32 & 33

Technical Documents — page 64

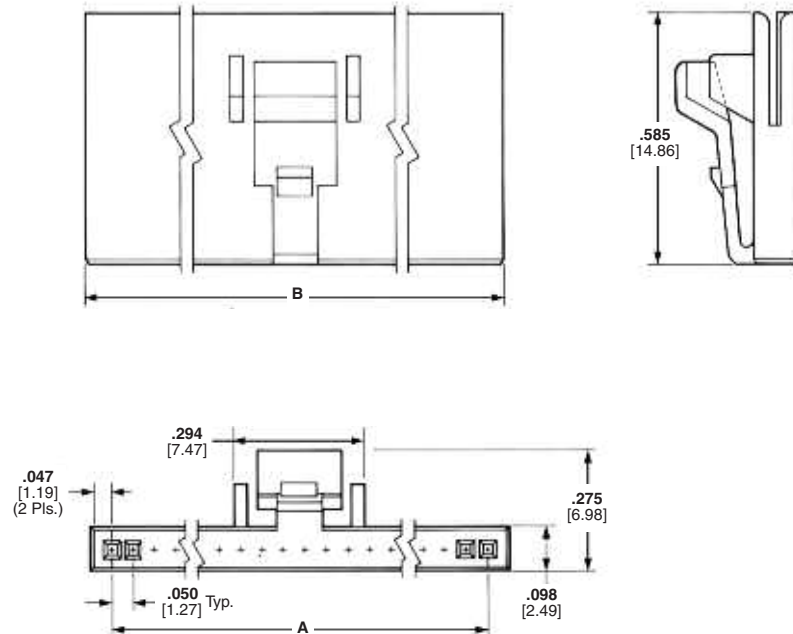
Product Specification 108-16022

Application Specification 114-16008

Plain Style Housings



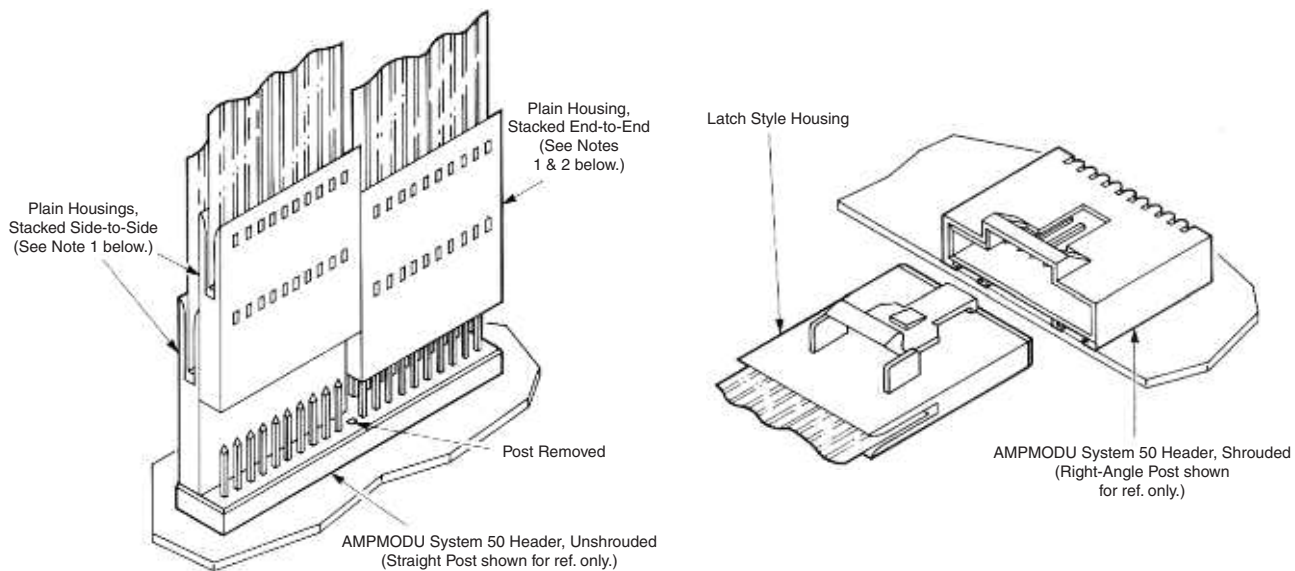
Latch Style Housings



Single Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

No. of Pos.	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 [21.44]	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 TE.



- 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

Note: All part numbers are RoHS compliant.

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board

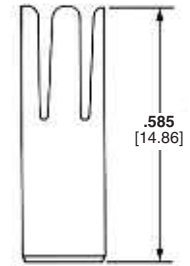
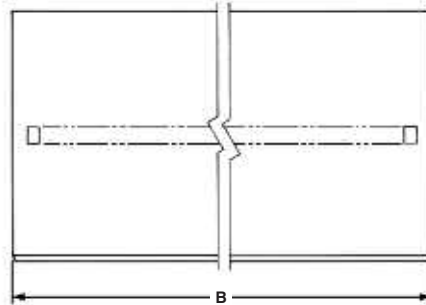


Plain Style Housings

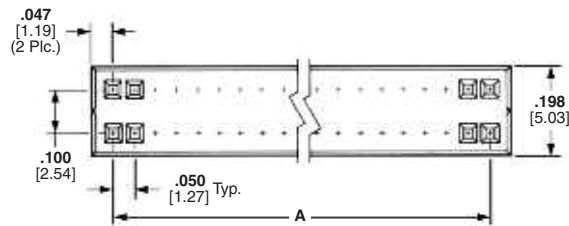


Latch Style Housings

Plain Style Housings



Plain



Material

Black thermoplastic, flame retardant, 94V-0 rated

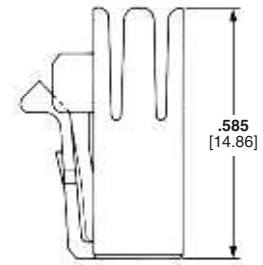
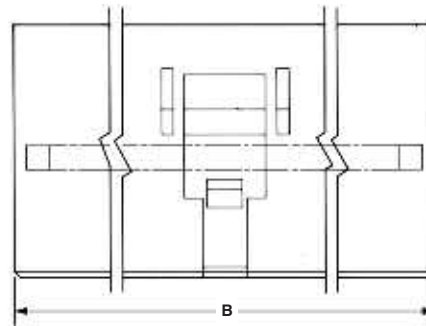
Related Product Data

Performance Characteristics — page 63

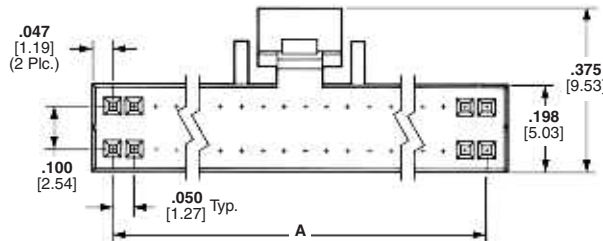
Receptacle Contacts — page 48

Mateable Headers — pages 29, 30, 34, 35, & 44

Latch Style Housings



Latch



Technical Documents — page 64

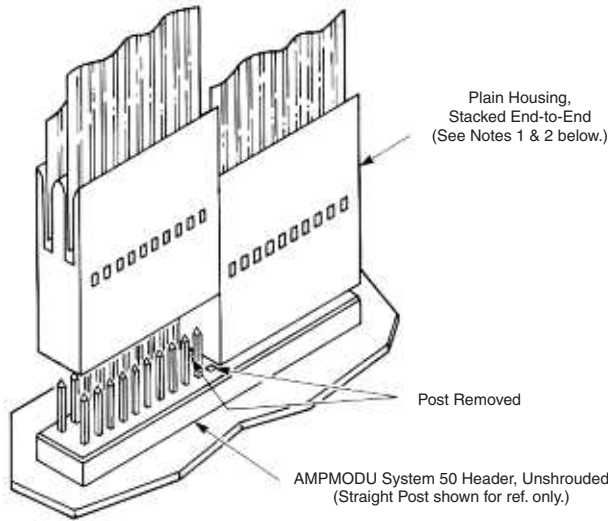
Product Specification 108-16022

Application Specification 114-16008

Double Row Receptacle Housings, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board (Continued)

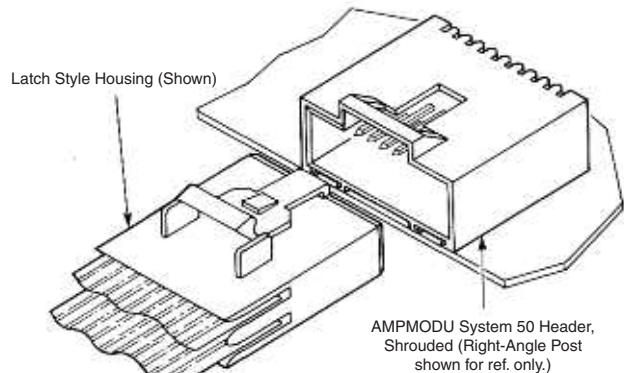
No. of Pos.	Dimensions		Plain Housing Part Numbers	Latch Style Housing Part Numbers
	A	B		
8	.150 [3.81]	.247 [6.27]	487938-8	487937-8
10	.200 [5.08]	.297 [7.54]	1-487938-0	1-487937-0
12	.250 [6.35]	.374 [8.81]	1-487938-2	1-487937-2
14	.300 [7.62]	.397 [10.08]	1-487938-4	1-487937-4
16	.350 [8.89]	.447 [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]	—	6-487937-0
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 TE.



- 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

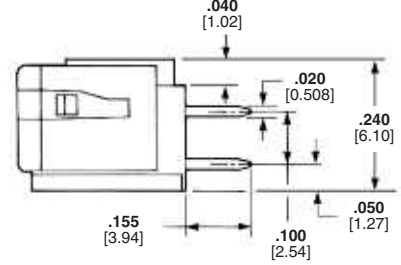
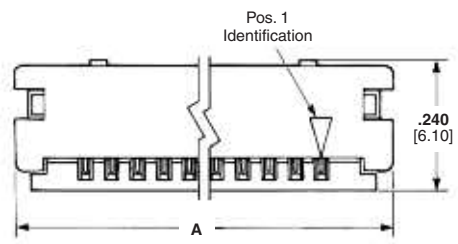


Typical Cable-to-Board Application of Latch Style Receptacle Housing

Note: All part numbers are RoHS compliant.

ZIF-Line Connectors, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board

Vertical Cable Entry



Material and Finish

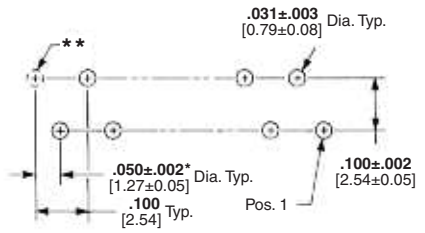
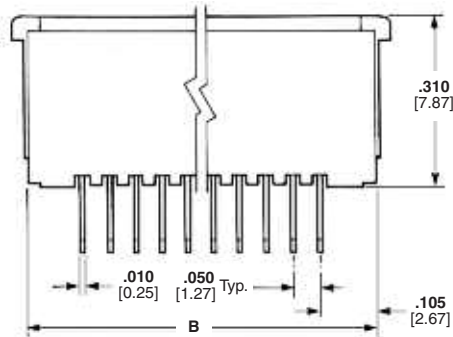
Housing and Cover — Black thermoplastic, flame retardant, 94V-0 rated

Contacts — Phosphor bronze, plated .000150 [0.00381] min. bright tin over .000050 [0.00127] min. nickel on entire contact

Performance Characteristic

Contact Current Rating — 1 ampere†

†1 ampere rating is for single circuit. Multiple circuits, ambient temperature and conductor size affect current carrying capacity.



Recommended Mounting Hole Pattern

*±.002 [±0.05] tolerance not to accumulate within one mounting hole pattern.

**This mounting hole required for even-numbered connector sizes only.

Note: ZIF-Line connector illustrated above with cover in closed position.

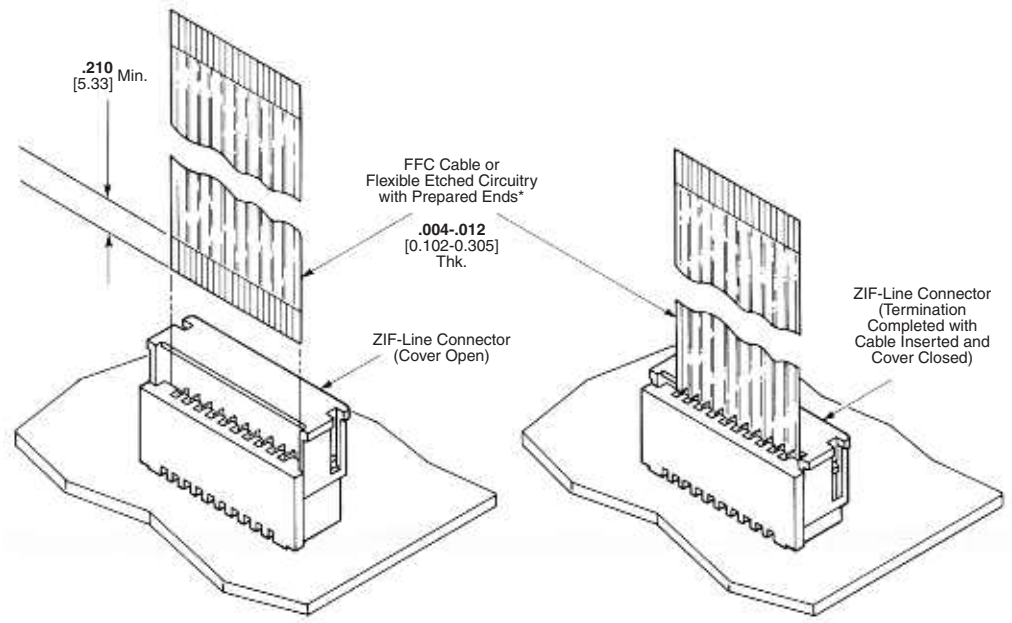
Related Product Data

FFC Cable (with Tin-Plated Prepared Ends) — Consult TE.

Technical Documents — page 64

Product Specification 108-16025

Application Specification 114-16014



*FFC cable with tin-plated prepared ends can be made available, consult TE.

Note: Special preparation of cable is required, refer to TE Application Specification No. 114-16014.

Typical Flexible Flat Conductor Cable-to-Board Application

**ZIF-Line Connectors, .050 x .100 [1.27 x 2.54] Centerline,
Cable-to-Board (Continued)**

No. of Pos.	Dimensions		Connector Part Numbers
	A	B	
5	.470 [11.94]	.410 [10.41]	5-487576-0
6	.520 [13.21]	.460 [11.68]	5-487576-1
7	.570 [14.48]	.510 [12.95]	4-487576-8
8	.620 [15.75]	.560 [14.22]	4-487576-9
9	.670 [17.02]	.610 [15.49]	487576-1
10	.720 [18.29]	.660 [16.76]	487576-2
11	.770 [19.56]	.710 [18.03]	487576-3
12	.820 [20.83]	.760 [19.30]	487576-4
13	.870 [22.10]	.810 [20.57]	487576-5
14	.920 [23.37]	.860 [21.84]	487576-6
15	.970 [24.64]	.910 [23.11]	487576-7
16	1.020 [25.91]	.960 [24.38]	487576-8
17	1.070 [27.18]	1.010 [25.65]	487576-9
18	1.120 [28.45]	1.060 [26.92]	1-487576-0
19	1.170 [29.72]	1.110 [28.19]	1-487576-1
20	1.220 [30.99]	1.160 [29.46]	1-487576-2
21	1.270 [32.26]	1.210 [30.73]	1-487576-3
22	1.320 [33.53]	1.260 [32.00]	1-487576-4
23	1.370 [34.80]	1.310 [33.27]	1-487576-5
24	1.420 [36.07]	1.360 [34.54]	1-487576-6
25	1.470 [37.34]	1.410 [35.81]	1-487576-7
26	1.520 [38.61]	1.460 [37.08]	1-487576-8
27	1.570 [39.88]	1.510 [38.35]	1-487576-9
28	1.620 [41.15]	1.560 [39.62]	2-487576-0
29	1.670 [42.42]	1.610 [40.89]	2-487576-1
30	1.720 [43.69]	1.660 [42.16]	2-487576-2

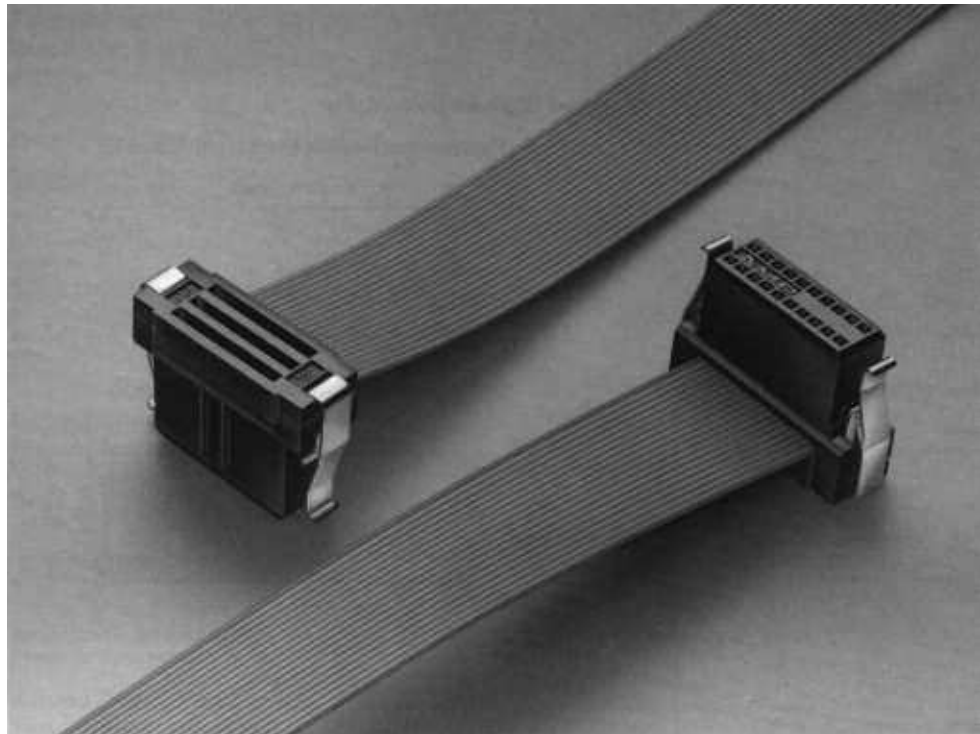
No. of Pos.	Dimensions		Connector Part Numbers
	A	B	
31	1.770 [44.96]	1.710 [43.43]	2-487576-3
32	1.820 [46.23]	1.760 [44.70]	2-487576-4
33	1.870 [47.50]	1.810 [45.97]	2-487576-5
34	1.920 [48.77]	1.860 [47.24]	2-487576-6
35	1.970 [50.04]	1.910 [48.51]	2-487576-7
36	2.020 [51.31]	1.960 [49.78]	2-487576-8
37	2.070 [52.58]	2.010 [51.05]	2-487576-9
38	2.120 [53.85]	2.060 [52.32]	3-487576-0
39	2.170 [55.12]	2.110 [53.59]	3-487576-1
40	2.220 [56.39]	2.160 [54.86]	3-487576-2
41	2.270 [57.66]	2.210 [56.13]	3-487576-3
42	2.320 [58.93]	2.260 [57.40]	3-487576-4
43	2.370 [60.20]	2.310 [58.67]	3-487576-5
44	2.420 [61.47]	2.360 [59.94]	3-487576-6
45	2.470 [62.74]	2.410 [61.21]	3-487576-7
46	2.520 [64.01]	2.460 [62.48]	3-487576-8
47	2.570 [65.28]	2.510 [63.75]	3-487576-9
48	2.620 [66.55]	2.560 [65.02]	4-487576-0
49	2.670 [67.82]	2.610 [66.29]	4-487576-1
50	2.720 [69.09]	2.660 [67.56]	4-487576-2
51	2.770 [70.36]	2.710 [68.83]	4-487576-3
52	2.820 [71.63]	2.760 [70.10]	4-487576-4
53	2.870 [72.90]	2.810 [71.37]	4-487576-5
54	2.920 [74.17]	2.860 [72.64]	4-487576-6
55	2.970 [75.44]	2.910 [73.91]	4-487576-7

Note: All part numbers are RoHS compliant.

Cable-to-Board Connectors, .050 x .100 [1.27 x 2.54] Centerline, Ribbon Cable, System 50

Product Facts

- Preassembled housing and cover
- One step termination
- End and daisy chain termination
- Positive end latching of connector to shrouded headers
- Terminates 30 AWG [0.05 mm²] solid or stranded and 32 AWG [0.03 mm²]* stranded .025 [0.64] centerline ribbon cable with PVC insulation
- 0.5 ampere current rating (limited by cable)



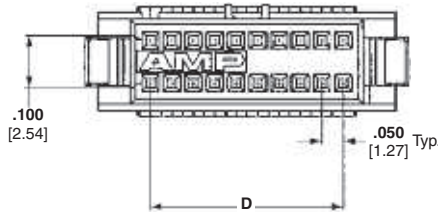
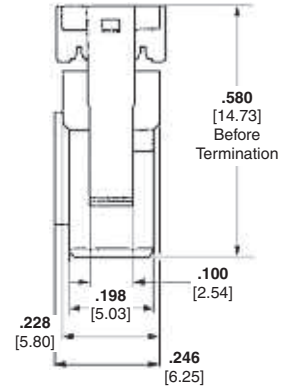
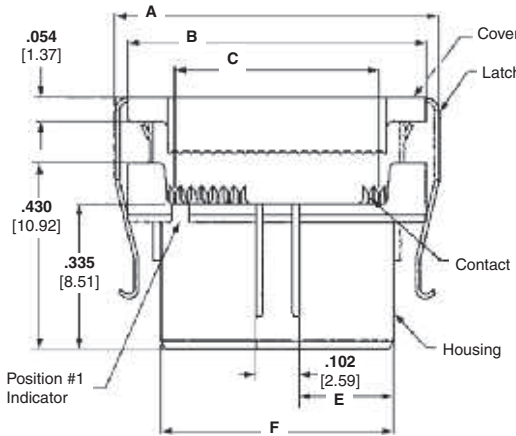
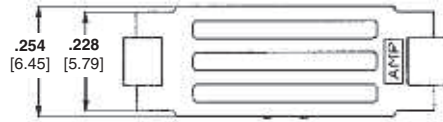
The AMP-LATCH System 50 Ribbon Cable connector is a receptacle connector that will terminate ribbon cable on .025 [0.64] centerlines. It is available in select sizes from 10 to 100 positions and will accommodate 30 AWG [0.05 mm²] solid or stranded and 32 AWG [0.03 mm²]

stranded conductors, with PVC cable insulation.

The housing and cover (black) have a 94V-0 rating. A copper alloy 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."

Double Row Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board, Ribbon Cable, System 50



Material and Finish

- Housing** — Black thermoplastic, 94V-0 rated
- Latches** — Stainless steel
- Contacts** — Copper alloy, plated gold over nickel with tin in termination area

Related Product Data

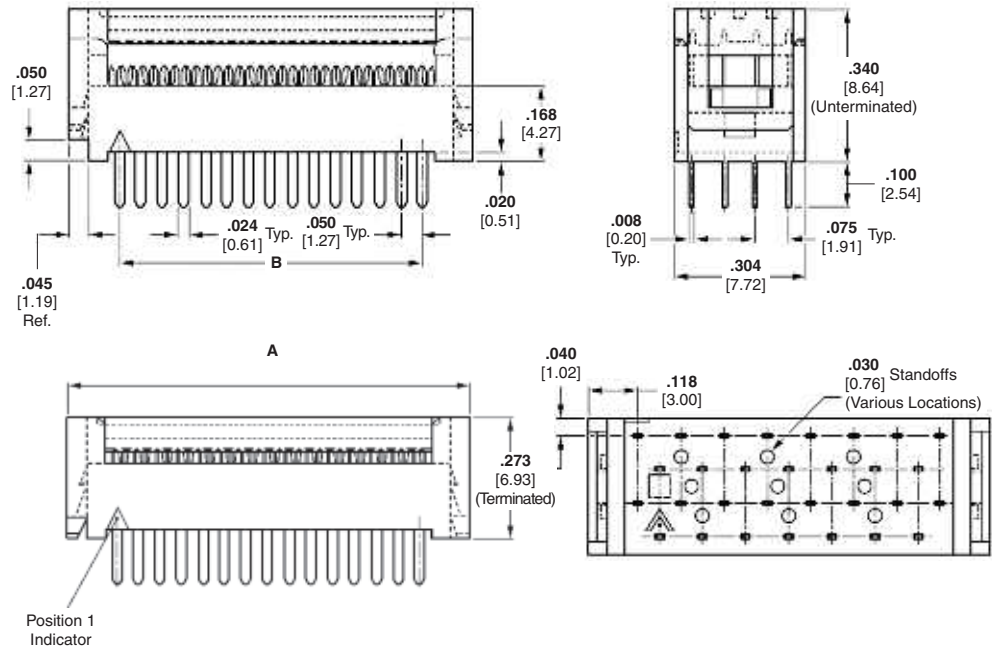
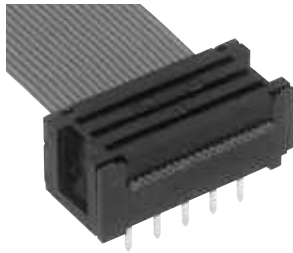
- Performance Characteristics** — page 63
- Mateable Headers** — pages 29, 30, 34, 35 & 44
- Application Tooling** — page 60-62
- Mates with Posts** — .015 [0.38] square, .125 [3.18] long, on .050 x .100 [1.27 x 2.54] grid

- Technical Documents** — page 64
- Product Specification** 108-1109
- Application Specification** 114-25029

No. of Pos.	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]	2-111196-5
14	.610 [15.49]	.545 [13.84]	.325 [8.26]	.300 [7.62]	.146 [3.71]	.394 [10.01]	2-111196-6
16	.660 [16.76]	.595 [15.11]	.375 [9.52]	.350 [8.89]	.171 [4.34]	.444 [11.28]	2-111196-7
20	.760 [19.30]	.695 [17.65]	.475 [12.07]	.450 [11.43]	.221 [5.61]	.544 [13.82]	1-111196-8
24	.860 [20.32]	.795 [20.19]	.575 [14.61]	.550 [13.97]	.271 [6.88]	.644 [16.36]	2-111196-8
26	.910 [23.11]	.845 [21.46]	.625 [15.88]	.600 [15.24]	.296 [7.52]	.694 [17.63]	2-111196-9
30	1.010 [25.65]	.945 [24.00]	.725 [18.42]	.700 [17.78]	.346 [8.79]	.794 [20.17]	1-111196-9
34	1.110 [28.19]	1.045 [26.54]	.825 [20.96]	.800 [20.32]	.396 [10.06]	.894 [22.71]	3-111196-0
40	1.260 [32.00]	1.195 [30.35]	.975 [24.81]	.950 [24.13]	.471 [11.96]	1.044 [26.52]	2-111196-0
44	1.360 [34.54]	1.295 [32.89]	1.075 [27.31]	1.050 [26.67]	.521 [13.23]	1.144 [29.06]	3-111196-1
50	1.510 [38.35]	1.445 [36.70]	1.225 [31.12]	1.200 [30.48]	.596 [15.14]	1.294 [32.87]	2-111196-1
60	1.760 [44.70]	1.695 [43.05]	1.475 [37.47]	1.450 [36.83]	.721 [18.31]	1.544 [39.22]	2-111196-2
64	1.860 [47.24]	1.795 [45.59]	1.575 [40.00]	1.550 [39.37]	.771 [19.58]	1.644 [41.76]	3-111196-2
68	1.960 [49.78]	1.895 [48.13]	1.675 [42.55]	1.650 [41.91]	.821 [20.85]	1.744 [44.30]	3-111196-4
72	2.060 [52.32]	1.995 [50.67]	1.775 [45.08]	1.750 [44.45]	.871 [22.12]	1.844 [46.84]	2-111196-3
80	2.260 [57.40]	2.195 [55.75]	1.975 [50.17]	1.950 [49.53]	.971 [24.66]	2.044 [51.92]	3-111196-3
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]	2-111196-4

Note: All part numbers are RoHS compliant.

Paddleboard Receptacles, .050 x .100 [1.27 x 2.54] Centerline, Cable-to-Board, Ribbon Cable, System 50



Material and Finish

Housing — Black LCP thermoplastic, 94V-0 rated

Cover — Black polyester, 94V-0 rated

Contacts — Copper alloy, plated .000100-.000200 [0.00245-0.00508] bright tin over .000050-.000100 [0.00127-0.00254] nickel

Related Product Data

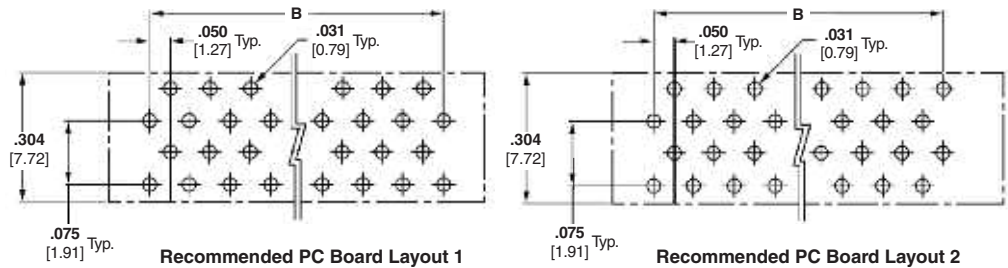
Performance Characteristics — page 63

Application Tooling — pages 60-62

Technical Documents — page 64

Product Specification 108-1109

Application Specification 114-25040



No. of Pos.	PCB Hole Layout	Dimensions		Part Numbers
		A	B	
10	1	.436 [11.07]	.200 [5.08]	5111595-1
14	1	.536 [13.61]	.300 [7.62]	5111595-2
16	2	.586 [14.88]	.350 [8.89]	5111595-3
20	2	.686 [17.42]	.450 [11.43]	5111595-4
24	2	.786 [19.96]	.550 [13.97]	5111595-5
26	1	.836 [21.23]	.600 [15.24]	5111595-6
28	2	.886 [22.50]	.650 [16.51]	2-5111595-0
30	1	.936 [23.77]	.700 [17.78]	5111595-7
34	1	1.036 [26.31]	.800 [20.32]	5111595-8
40	2	1.186 [30.12]	.950 [24.13]	5111595-9

No. of Pos.	PCB Hole Layout	Dimensions		Part Numbers
		A	B	
44	2	1.286 [32.66]	1.050 [26.67]	1-5111595-0
46	1	1.336 [33.93]	1.100 [27.94]	1-5111595-7
50	1	1.436 [36.47]	1.200 [30.48]	1-5111595-1
60	2	1.686 [42.82]	1.450 [36.83]	1-5111595-2
64	2	1.786 [45.36]	1.550 [39.37]	1-5111595-3
68	2	1.886 [47.90]	1.650 [41.91]	1-5111595-9
72	2	1.986 [50.44]	1.750 [44.45]	1-5111595-4
80	2	2.186 [55.52]	1.950 [49.53]	1-5111595-5
100	2	2.686 [68.22]	2.450 [62.23]	1-5111595-6

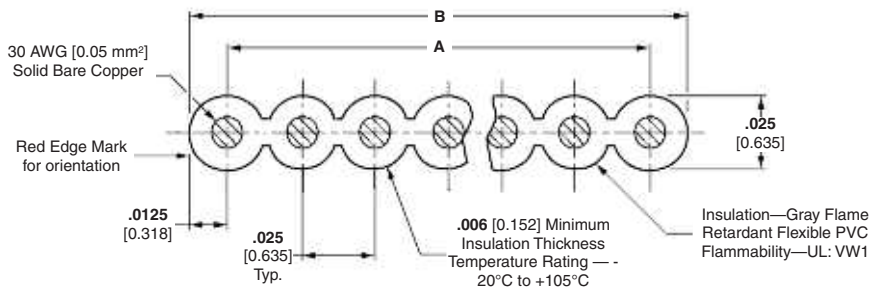
Note: All part numbers are RoHS compliant.

Flat Ribbon Cable, PVC Insulation

30 AWG [0.05 mm²], Solid Bare Copper

Product Specifications

Voltage — 150 Volts
Impedance — 80 Ohms Nominal (GND, SIG, GND, applies to 30AWG Solid Bare Copper)
Capacitance — 19.2 pf/ft at 1 MHz nom.
Propagation Delay — 1.51 ns/ft nom.
Crosstalk —
 10 ft sample 5 ns rise time:
 Near End — 4.0% max.
 Far End — 6.0% max.
UL Listing — STYLE 2678



No. of Conductors	Dimensions		Part Numbers	
	A	B	Length Per Reel*	
			100 ft. [30.48 m]	500 ft. [152.4 m]
16	.375 [9.52]	.400 [10.16]	5-57013-1	5-57013-2
20	.475 [12.07]	.500 [12.70]	1-57013-3	57013-1
24	.575 [14.61]	.600 [15.24]	1-57013-4	57013-8
26	.625 [15.88]	.650 [16.51]	2-57013-5	2-57013-6
28	.675 [17.14]	.700 [17.78]	4-57013-6	4-57013-7
30	.725 [18.42]	.750 [19.05]	1-57013-5	57013-6
34	.825 [20.95]	.850 [21.59]	4-57013-9	5-57013-0
36	.875 [22.23]	.900 [22.86]	1-57013-6	57013-7
40	.975 [24.77]	1.000 [25.40]	1-57013-7	57013-2
44	1.075 [27.31]	1.100 [27.94]	1-57013-8	57013-9
50	1.225 [27.94]	1.250 [31.75]	1-57013-9	1-57013-0
60	1.475 [37.47]	1.500 [38.10]	2-57013-0	57013-3
68	1.675 [42.55]	1.700 [43.18]	2-57013-1	1-57013-1
72	1.775 [45.09]	1.800 [45.72]	2-57013-2	1-57013-2
80	1.975 [50.17]	2.000 [50.80]	2-57013-3	57013-4
100	2.475 [62.87]	2.500 [63.50]	2-57013-4	57013-5

*Reel may contain separate lengths, 20 ft. [6.1 m] min. per length.

Recognized under the Component Program of Underwriters Laboratories Inc., File No. E53793



Certified by Canadian Standards Association, (CSA File No. LL83498)



Electrical Characteristics of .025 [0.64] Centerline IDC Ribbon Cable

Base Part No.	Insulation	AWG	Voltage	Impedance Single Ended G-S-G	Capacitance Nominal G-S-G	Inductance Nominal	Nominal Prop. Delay	NEXT 10 Ft 5ns Rise Time	FEXT 10 Ft 5ns Rise Time
57013	PVC	30 Solid	150 Vac	80 Ohms Nom	19.2 pf/ft	.160 mh/ft	1.51 ns/ft	4.0% Max	6.0% Max
219054, 219137	TPE	30 Solid	150 Vac	90+/- 6 Ohms	15.3 pf/ft	.124 mh/ft	1.382 ns/ft	2.39% Nom	2.99% Nom
57119, 57139, 57145	FEP	30 Solid	300 Vac	93 Ohms Nom	13.6 pf/ft	.120 mn/ft	1.34 ns/ft	2.6% Nom	2.8% Nom
57131	PVC	30 Stranded	150 VAC	66 Ohms Nom	23.0 pf/ft	.100 mh/ft	1.55 ns/ft	2.8% Max	4.5% Max
219055	TPE	30 Stranded	150 VAC	78 Ohms Nom	19.4 pf/ft	.118 mh/ft	1.510 ns/fr	1.37% Nom	2.37% Nom
57288, 57289, 57290	FEP	30 Stranded	300 Vac	85 Ohms Nom	15.4 pf/ft	.110 mh/ft	1.36 ns/ft	2.5% Nom	2.8% Nom
219253	TPE	31 Stranded	150 Vac	90+/- 6 Ohms	15.4 pf/ft	.125 mh/ft	1.527 ns/ft	1.97% Nom	2.51% Nom
57038	PVC	32 Stranded	150 Vac	80 Ohms Nom	19.2 pf/ft	.147 mh/ft	1.51 ns/ft	4.0% Max	6.0% Max
219138	TPE	32 Stranded	150 Vac	104 Ohms Nom	12.8 pf/ft	.138 mh/ft	1.664 ns/ft	2.10% Nom	2.57% Nom
57118, 57138, 57144	FEP	32 Stranded	300 Vac	105 Ohms Nom	13.0 pf/ft	.120 mh/ft	1.36 ns/ft	2.6% Nom	2.8% Nom

Note: All part numbers are RoHS compliant.

Centerline IDC Ribbon Cable, PVC Insulation

30 AWG 7/38 Stranded Tinned Copper

For use with:
AMP-LATCH System 50,
AMPLIMITE .050 Series and
AMPMODU System 50
Connectors

Compatible with:
AMP R-CAM Ribbon Cable
Assembly Machine

Product Specifications

Voltage Rating — 150 Volts

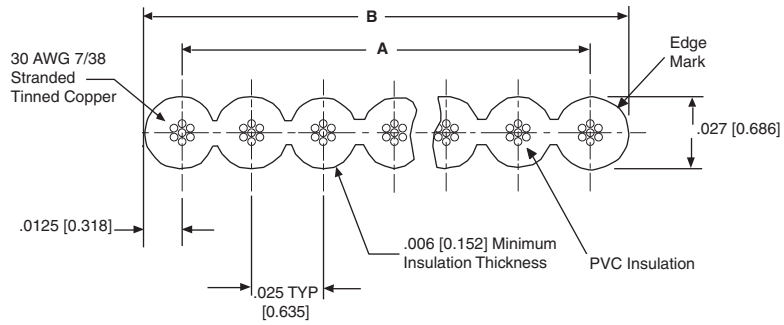
Impedance — 66 ohms (GND, SIG,
GND)

Capacitance — 23 pf/ft. at
1 KHz

Propagation Delay —
1.55 ns/ft. [5.6 ns/m]

Crosstalk —
10 Ft. sample 5 ns rise time
Near End — 2.8% max
Near End — 4.5% max

UL AWM Style 2678



No. of Conductors	Dimensions		Part Numbers	
	A	B	Length Per Reel	
			100 ft. [30.5 m]	500 ft. [152.4 m]
20	.475 [12.07]	.500 [12.70]	1-57131-3	57131-1
40	.975 [24.77]	1.000 [25.40]	1-57131-7	57131-2
50	1.225 [31.12]	1.250 [31.75]	1-57131-9	1-57131-0
68	1.675 [42.55]	1.700 [43.18]	2-57131-1	1-57131-1
80	1.975 [50.17]	2.000 [50.80]	2-57131-3	57131-4
100	2.475 [62.87]	2.500 [63.50]	2-57131-4	57131-5

Note: All part numbers are RoHS compliant.

Application Tooling for Flexible Film Contacts

Hand Crimping Tool Assemblies (for repair purposes)



Part No. 90273-5—for .100 C Multi-Crimp Contacts (408-9564)

Extraction Tools for .100 C Contacts

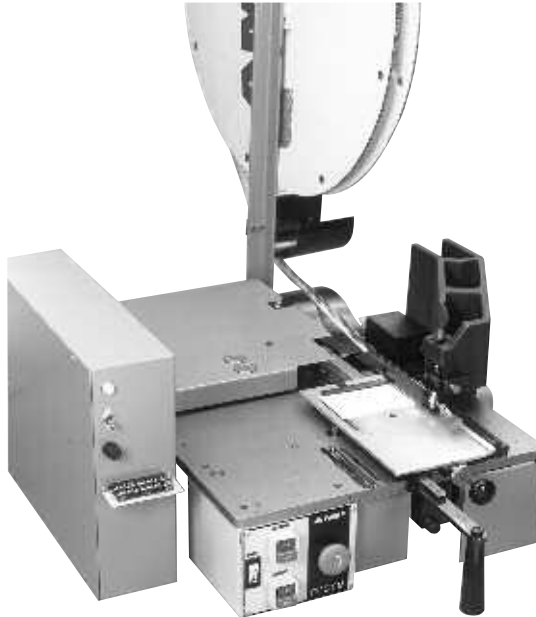
Tool No. 91200-□*— for Receptacle Housings with **Side Locking Lance Slot** (408-7916)

Tool No. 91047-□*— for Receptacle and Pin Housings with **End Locking Lance Slot** (408-7384)

*Consult TE for specific dash nos.

For tooling information, contact the Technical Support Center: **1-800-522-6752**.

Flexible Film Termination Machine (Terminates Continuous Strip Contacts Sequentially)



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.

Description	Machine Part Numbers	
	Machine	Machine With Programmer*
.100 [2.54] C , Multi-Crimp, 120 V	224910-1	318619-1
.100 [2.54] C , Multi-Crimp, 240 V	224910-2	318619-2
.100 [2.54] C , ARINC, 120 V	224910-3	318619-3
.050 [1.27] C , Multi-Crimp, 120 V	224910-4	318619-4
.050 [1.27] C , Multi-Crimp, 240 V	224910-6	318619-6

*The Programmer Kit (**Part No. 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)

Specifications

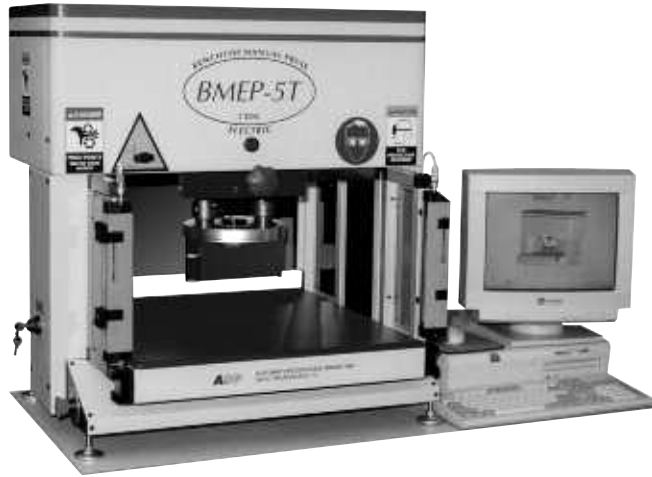
Width — 20.5 [520]
Depth — 27.5 [700]
Height — 18 [460] (with reel support)
Reel Size — 24 [610] (max.)
Weight — 100 lb. [45.4 kg]
Electrical Source —
 120 VAC, 50/60 Hz, 7.0 A;
 240 VAC, 50/60 Hz, 3.5 A

Note: All part numbers are RoHS compliant.

Application Tooling for Compliant Pin Connectors

ASG Servo Electric Presses for Compliant Pin Connectors

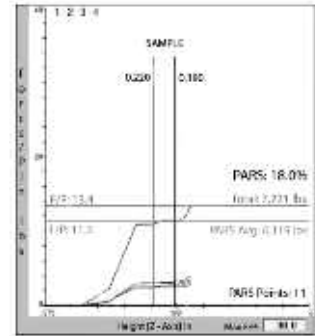
TE offers the ASG line of servo electric presses for the application of compliant pin products. Systems are available in a wide range of pressing forces, board size capabilities and automation levels to meet almost any applications requirements. Each system utilizes a servo electric motor with PC control. Coupled with force and distance monitoring and control, the entire line provides 100% quality assurance in real-time with SPC data collection capabilities. Automatic set up and a graphical operator interface help provide intuitive operation to help reduce common and costly operator errors.



Press Force Monitoring for Scrap Avoidance

Every TE ASG servo press utilizes real-time force and distance monitoring and control. This allows the press to identify an error and react throughout the press stroke. Common problems such as PCB holes above/below specification and sometimes bent pins can be detected by monitoring both minimum

and maximum force parameters. Common operator error such as improperly placed connectors, missing\incorrect connector or tooling can also be found by monitoring premature or missing force parameters. In each case, the system can stop during the press cycle to avoid costly scrap and rework.



Product Line Overview



	BMEP	MEP	AEP 6T	AEP 12T
System Type	Benchtop Semi-Automatic Press	Stand-Alone Semi-Automatic Press	Stand-Alone Automatic Press	Stand-Alone or Inline Automatic Press
Force Capability	Up to 5 Tons [44 kN]	Up to 12 Tons [107 kN]	Up to 6 Tons [53 kN]	Up to 12 Tons [107 kN]
Board Size Capability	Up to 18" x 24" [460x610 mm]	Up to 30" x 36" [760x915 mm]	Up to 30" x 36" [760x915 mm]	Up to 36" x 48" [915x1220 mm]

Please contact the Tyco Tooling Assistance Center at 1-800-722-1111 for help with choosing the correct press and tooling to meet your application needs. See Catalog 1309329 for more information on this equipment.

Note: All part numbers are RoHS compliant.

Application Tooling for Ribbon Cable Connectors

These application tools are designed for one-step termination of ribbon cable connectors to planar, ground plane and shielded/jacketed ribbon cable on .025 [0.64] centers. A complete set of tooling consists of an Arbor Tool (manual, Part No. 91085-2 or pneumatic, Part No. 91112-3), a Base Assembly, Part No. 768338-4 and a Connector Specific Kit, Part No. 679167-1 (receptacle).



Pneumatic Auto-Cycle Tool Part No. 91112-3



Manual Arbor Tool Part No. 91085-2

Technical Documents

Instruction Sheets

- 408-7777 — Manual Arbor Frame Assembly
- 408-6732 — Pneumatic Auto-Cycle Assembly
- 408-9827 — Universal Base Assembly, Arbor Tool
- 408-9872 — Connector Specific Kit for Receptacle Connectors (.025 [0.64] Centerline Cable)
- 408-9928 — Connector Specific Kit for Paddleboard Connectors (.025 [0.64] Centerline Cable)

Note: Tooling is available for other manufacturers' manual arbor tools. For information contact the TE Technical Support Center: 1-800-522-6752

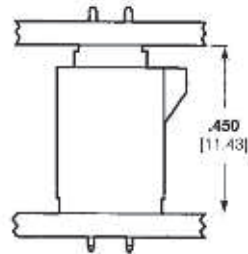
Note: All part numbers are RoHS compliant.

Performance Specifications

Board-to-Board Spacing for Thru-Hole and Surface-Mount Connector Combinations

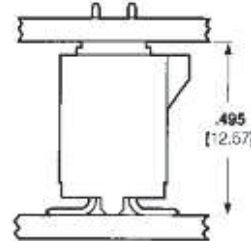
Thru-Hole Receptacle-Thru-Hole Header

(Single and Double Row, Shrouded and Unshrouded)



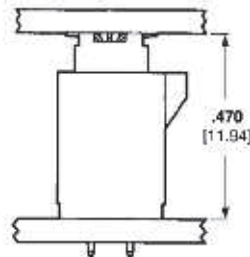
Thru-Hole Receptacle-Surface-Mount Header

(Double Row, Shrouded)



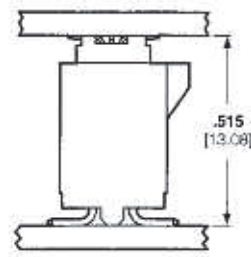
Surface-Mount Receptacle-Thru-Hole Header

(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 TE products. The Center can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- TE 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 Double Row	4 thru 50 10 thru 100	— 10 thru 100	4 thru 50 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

*With latches depressed.

Technical Documents

The following is a list of technical documents covering the application, performance and maintenance of AMPMODU System 50 connectors.

Product Specifications describe technical performance characteristics and verification tests. They are intended for the Design, Component and Quality Engineer.

- 108-1093—AMPMODU System 50 Interconnection System, Board-to-Board
- 108-1109—AMPLATCH System 50 Receptacle and Paddleboard Connector
- 108-16022—Connector System, .050 [1.27] Centerline FFC Cable
- 108-16025—Connector, ZIF-Line 50
- 108-16029—Shielded Flexible Flat Conductor Cable
- 108-40002—Flexible Flat Conductor Cable

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.

- 114-16008—Multiple Crimp Contact for .050 [1.27] Centerline FFC and FEC Cable
- 114-16014—AMP ZIF-Line 50 & 100 PCB Connectors
- 114-25029—AMPMODU System 50 Ribbon Cable Connectors
- 114-25031—AMPMODU System 50 Thru-Hole Connectors
- 114-25035—AMPMODU Surface-Mount Connectors
- 114-25040—AMPMODU System 50 Paddleboard Connectors

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

- 408-6732—Pneumatic Arbor Tool, Part Number 91112-3 (Auto-Cycle)
- 408-7384—Extraction Tool, Part Number 91047
- 408-7763—Pneumatic Arbor Tool, Part Number 91112-2
- 408-7777—Manual Arbor Tool, Part Number 91085-2
- 408-7916—Extraction Tool, Part Number 91200
- 408-9827—Universal Base Assembly, Arbor Tool, Part Number 768338-1
- 408-9872—Connector Specific Kit, Part Number 679167-1, AMPMODU System 50 Receptacle Connectors (.025 [0.64] Centerline Cable)
- 408-9928—Connector Specific Kit, Part Number 679176-1, AMPMODU System 50 Paddleboard Connectors (.025 [0.64] Centerline Cable)
- 408-9564—Hand Crimping Tool Assembly, Part Number 90273-5
- 408-9719—FFC Contact Positioning Hand Tool Kit, Part Number 91292-1

Note: All part numbers are RoHS compliant.

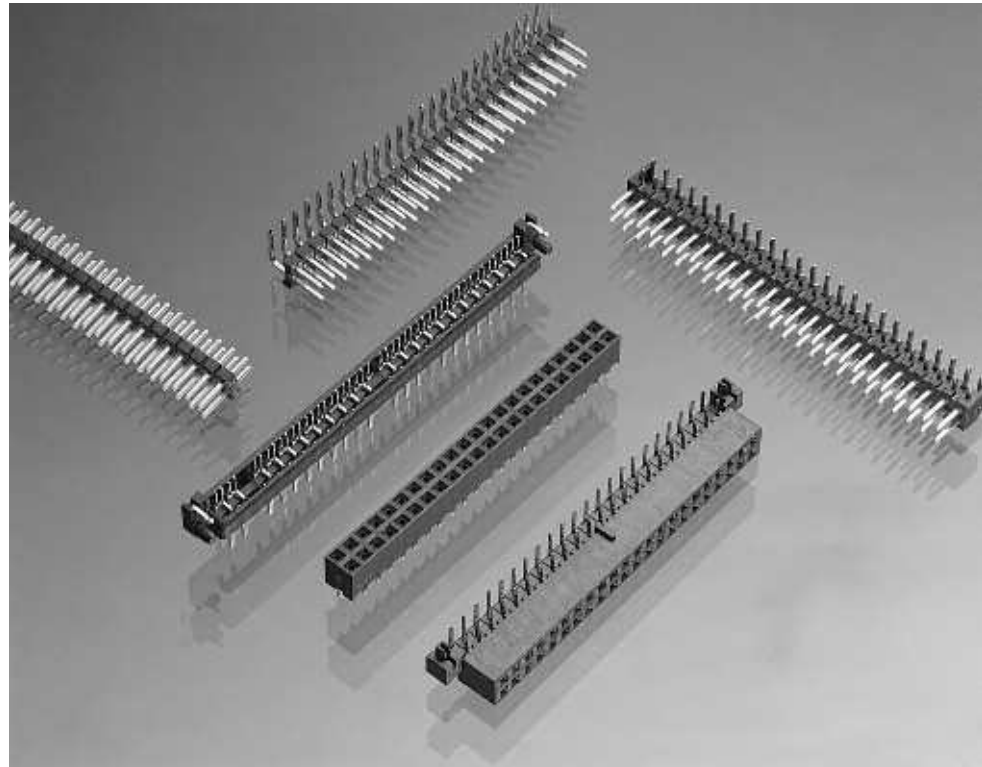
AMPMODU 2mm Connectors (Board to Board)

Product Facts

- 2.0 x 2.0 [.08 x .08] centerline spacing
- Two-piece, double-row connector system
- Unshrouded header styles include; breakaway and surface-mount
- All headers with 0.5 [.02] square posted contacts
- Surface-mount connectors compatible with standard surface-mount processing (VPR, IR)
- Closed top-entry receptacle assemblies include; vertical mount and right-angle
- Receptacle contacts employ dual cantilever beams for two-point electrical stability
- Duplex (gold/tin-lead) plated posted contacts and receptacle contacts
- Thermoplastic housing material, UL 94V-0 rated
- 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



A copy of the certificate is available upon request.



AMPMODU 2mm connectors reliably and economically meet the packaging and inter-connection requirements of today's miniature sophisticated electronics. They are ideal for mobile and portable personal computers and disk drive applications. In today's marketplace, 2mm is expanding over many other industry segments due to space constraints.

This versatile double-row connector system is comprised of various straight and right-angle posted headers for thru-hole and surface mounting and several closed top-entry receptacle assemblies for vertical and horizontal mounting. Headers and receptacle assemblies are available in selected sizes ranging from 4 through 80 positions.

Thru-hole breakaway headers feature brass straight or right-angle posts with a post length of 4.0 [.16] and a lead length of 2.6 [.10].

The receptacle assemblies employ phosphor bronze contacts with dual cantilever beams and built-in anti-overstress. This feature, coupled with duplex (gold/tin-lead) plating of the header posts and receptacle contacts, provide superior electrical performance as well as excellent solderability.

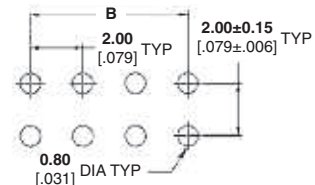
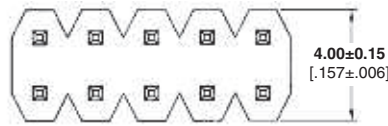
2mm Headers, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

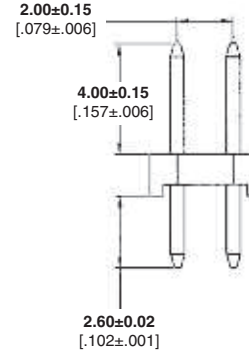
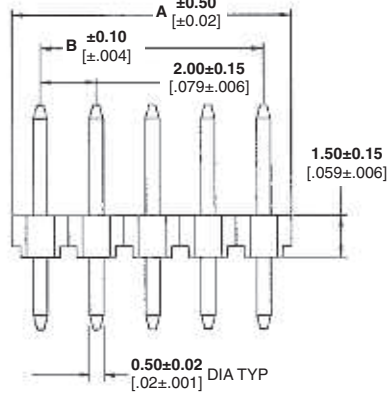
Material and Finish

Housing — Black thermoplastic, UL 94V-0 Rated

Posted Contacts — Copper alloy, duplex plated as follows: 0.00020 [.000008] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel



Recommended Solder Pad Layout



Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-57197

Packaging Method — Loose piece, bag

Position	Dimensions		Part Numbers	
	A	B	Reflow	
			240°C	265°C
4	4.0 [.16]	2.0 [.08]	1470213-4	1734508-4
6	6.0 [.24]	4.0 [.16]	1470213-6	1734508-6
8	8.0 [.32]	6.0 [.24]	1470213-8	1734508-8
10	10.0 [.39]	8.0 [.32]	1-1470213-0	1-1734508-0
12	12.0 [.47]	10.0 [.39]	1-1470213-2	1-1734508-2
14	14.0 [.55]	12.0 [.47]	1-1470213-4	1-1734508-4
16	16.0 [.63]	14.0 [.55]	1-1470213-6	1-1734508-6
18	18.0 [.71]	16.0 [.63]	1-1470213-8	1-1734508-8
20	20.0 [.79]	18.0 [.71]	2-1470213-0	2-1734508-0
22	22.0 [.87]	20.0 [.79]	2-1470213-2	2-1734508-2
24	24.0 [.94]	22.0 [.87]	2-1470213-4	2-1734508-4
26	26.0 [1.02]	24.0 [.94]	2-1470213-6	2-1734508-6
28	28.0 [1.10]	26.0 [1.02]	2-1470213-8	2-1734508-8
30	30.0 [1.18]	28.0 [1.10]	3-1470213-0	3-1734508-0
32	32.0 [1.26]	30.0 [1.18]	3-1470213-2	3-1734508-2
34	34.0 [1.34]	32.0 [1.26]	3-1470213-4	3-1734508-4
36	36.0 [1.42]	34.0 [1.34]	3-1470213-6	3-1734508-6
38	38.0 [1.50]	36.0 [1.42]	3-1470213-8	3-1734508-8
40	40.0 [1.57]	38.0 [1.50]	4-1470213-0	4-1734508-0
42	42.0 [1.65]	40.0 [1.57]	4-1470213-2	4-1734508-2
44	44.0 [1.73]	42.0 [1.65]	4-1470213-4	4-1734508-4
46	46.0 [1.81]	44.0 [1.73]	4-1470213-6	4-1734508-6
48	48.0 [1.89]	46.0 [1.81]	4-1470213-8	4-1734508-8
50	50.0 [1.97]	48.0 [1.89]	5-1470213-0	5-1734508-0
52	52.0 [2.05]	50.0 [1.97]	5-1470213-2	5-1734508-2
54	54.0 [2.13]	52.0 [2.05]	5-1470213-4	5-1734508-4
56	56.0 [2.20]	54.0 [2.13]	5-1470213-6	5-1734508-6
58	58.0 [2.28]	56.0 [2.20]	5-1470213-8	5-1734508-8
60	60.0 [2.36]	58.0 [2.28]	6-1470213-0	6-1734508-0
62	62.0 [2.44]	60.0 [2.36]	6-1470213-2	6-1734508-2
64	64.0 [2.52]	62.0 [2.44]	6-1470213-4	6-1734508-4
66	66.0 [2.60]	64.0 [2.52]	6-1470213-6	6-1734508-6
68	68.0 [2.68]	66.0 [2.60]	6-1470213-8	6-1734508-8
70	70.0 [2.76]	68.0 [2.68]	7-1470213-0	7-1734508-0
72	72.0 [2.83]	70.0 [2.76]	7-1470213-2	7-1734508-2
74	74.0 [2.91]	72.0 [2.83]	7-1470213-4	7-1734508-4
76	76.0 [2.99]	74.0 [2.91]	7-1470213-6	7-1734508-6
78	78.0 [3.07]	76.0 [2.99]	7-1470213-8	7-1734508-8
80	80.0 [3.15]	78.0 [3.07]	8-1470213-0	8-1734508-0

Note: All part numbers are RoHS compliant.

2mm Headers, Unshrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-0 Rated, 265°C Process Capable

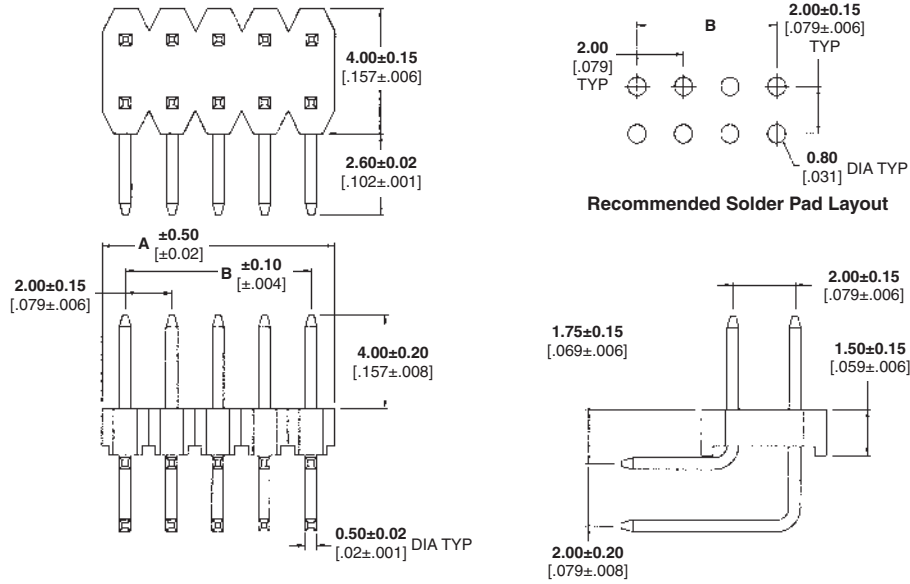
Posted Contacts — Copper alloy, duplex plated as follows: 0.00020 [.000008] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-57197

Packaging Method — Loose piece, bag



Position	Dimensions		Part Numbers
	A	B	
4	4.0 [0.16]	2.0 [0.08]	1734507-4
6	6.0 [0.24]	4.0 [0.16]	1734507-6
8	8.0 [0.31]	6.0 [0.24]	1734507-8
10	10.0 [0.39]	8.0 [0.31]	1-1734507-0
12	12.0 [0.47]	10.0 [0.39]	1-1734507-2
14	14.0 [0.55]	12.0 [0.47]	1-1734507-4
16	16.0 [0.63]	14.0 [0.55]	1-1734507-6
18	18.0 [0.71]	16.0 [0.63]	1-1734507-8
20	20.0 [0.79]	18.0 [0.71]	2-1734507-0
22	22.0 [0.87]	20.0 [0.79]	2-1734507-2
24	24.0 [0.94]	22.0 [0.87]	2-1734507-4
26	26.0 [1.02]	24.0 [0.94]	2-1734507-6
28	28.0 [1.10]	26.0 [1.02]	2-1734507-8
30	30.0 [1.18]	28.0 [1.10]	3-1734507-0
32	32.0 [1.26]	30.0 [1.18]	3-1734507-2
34	34.0 [1.34]	32.0 [1.26]	3-1734507-4
36	36.0 [1.42]	34.0 [1.34]	3-1734507-6
38	38.0 [1.50]	36.0 [1.42]	3-1734507-8
40	40.0 [1.57]	38.0 [1.50]	4-1734507-0
42	42.0 [1.65]	40.0 [1.57]	4-1734507-2
44	44.0 [1.73]	42.0 [1.65]	4-1734507-4
46	46.0 [1.81]	44.0 [1.73]	4-1734507-6
48	48.0 [1.89]	46.0 [1.81]	4-1734507-8
50	50.0 [1.97]	48.0 [1.89]	5-1734507-0
52	52.0 [2.05]	50.0 [1.97]	5-1734507-2
54	54.0 [2.13]	52.0 [2.05]	5-1734507-4
56	56.0 [2.20]	54.0 [2.13]	5-1734507-6
58	58.0 [2.28]	56.0 [2.20]	5-1734507-8
60	60.0 [2.36]	58.0 [2.28]	6-1734507-0
62	62.0 [2.44]	60.0 [2.36]	6-1734507-2
64	64.0 [2.52]	62.0 [2.44]	6-1734507-4
66	66.0 [2.60]	64.0 [2.52]	6-1734507-6
68	68.0 [2.68]	66.0 [2.60]	6-1734507-8
70	70.0 [2.76]	68.0 [2.68]	7-1734507-0
72	72.0 [2.83]	70.0 [2.76]	7-1734507-2
74	74.0 [2.91]	72.0 [2.83]	7-1734507-4
76	76.0 [2.99]	74.0 [2.91]	7-1734507-6
78	78.0 [3.07]	76.0 [2.99]	7-1734507-8
80	80.0 [3.15]	78.0 [3.07]	8-1734507-0

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts

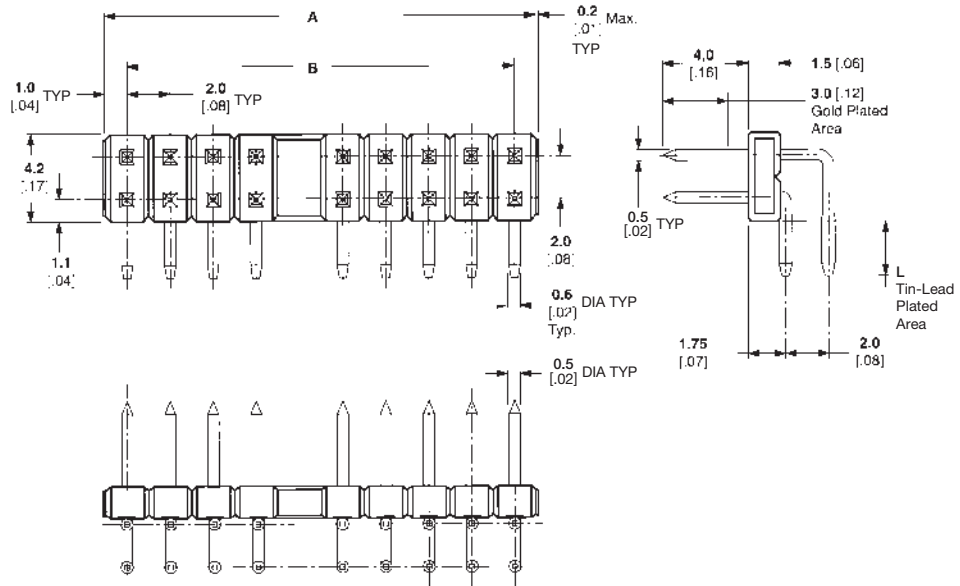
Material and Finish

Housing — Black thermoplastic, UL 94V-0 rated

Posted Contacts — Brass, duplex plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

B — 0.00076 [.000030] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

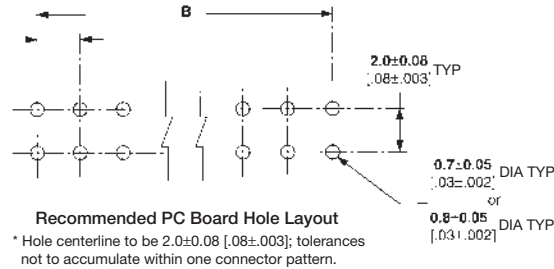


Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-5296

Packaging Method — Loose piece, bag



No. of Positions	Dimensions		Contact Plating Lead Length L = 2.6[.10]**	
	A	B	A	B
4	4.0 [0.16]	2.0 [0.08]	5176837-1	2-5176837-5
6	6.0 [0.24]	4.0 [0.16]	5176837-2	2-5176837-6
8	8.0 [0.31]	6.0 [0.24]	5176837-3	—
10	10.0 [0.39]	8.0 [0.31]	5176837-4	—
12	12.0 [0.47]	10.0 [0.39]	5176837-5	—
14	14.0 [0.55]	12.0 [0.47]	5176837-6	3-5176837-0
16	16.0 [0.63]	14.0 [0.55]	5176837-7	—
18	18.0 [0.71]	16.0 [0.63]	—	3-5176837-2
20	20.0 [0.79]	18.0 [0.71]	—	3-5176837-3
22	22.0 [0.87]	20.0 [0.79]	—	3-5176837-4
26	26.0 [1.02]	24.0 [0.94]	1-5176837-2	—
30	30.0 [1.18]	28.0 [1.10]	1-5176837-4	—
32	32.0 [1.26]	30.0 [1.18]	1-5176837-5	3-5176837-9
34	34.0 [1.34]	32.0 [1.26]	—	4-5176837-0
36	36.0 [1.42]	34.0 [1.34]	—	4-5176837-1
38	38.0 [1.50]	36.0 [1.42]	1-5176837-8	4-5176837-2
40	40.0 [1.57]	38.0 [1.50]	1-5176837-9	5-5176837-2
42	42.0 [1.65]	40.0 [1.57]	2-5176837-0	4-5176837-4
44	44.0 [1.73]	42.0 [1.65]	2-5176837-1	—
46	46.0 [1.81]	44.0 [1.73]	2-5176837-2	4-5176837-6
48	48.0 [1.89]	46.0 [1.81]	2-5176837-3	4-5176837-7
50	50.0 [1.97]	48.0 [1.89]	2-5176837-4	4-5176837-8

2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black thermoplastic, UL 94V-0 rated

Posted Contacts — Brass, duplex plated as follows:

Plating A — 0.00020 [.000008] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

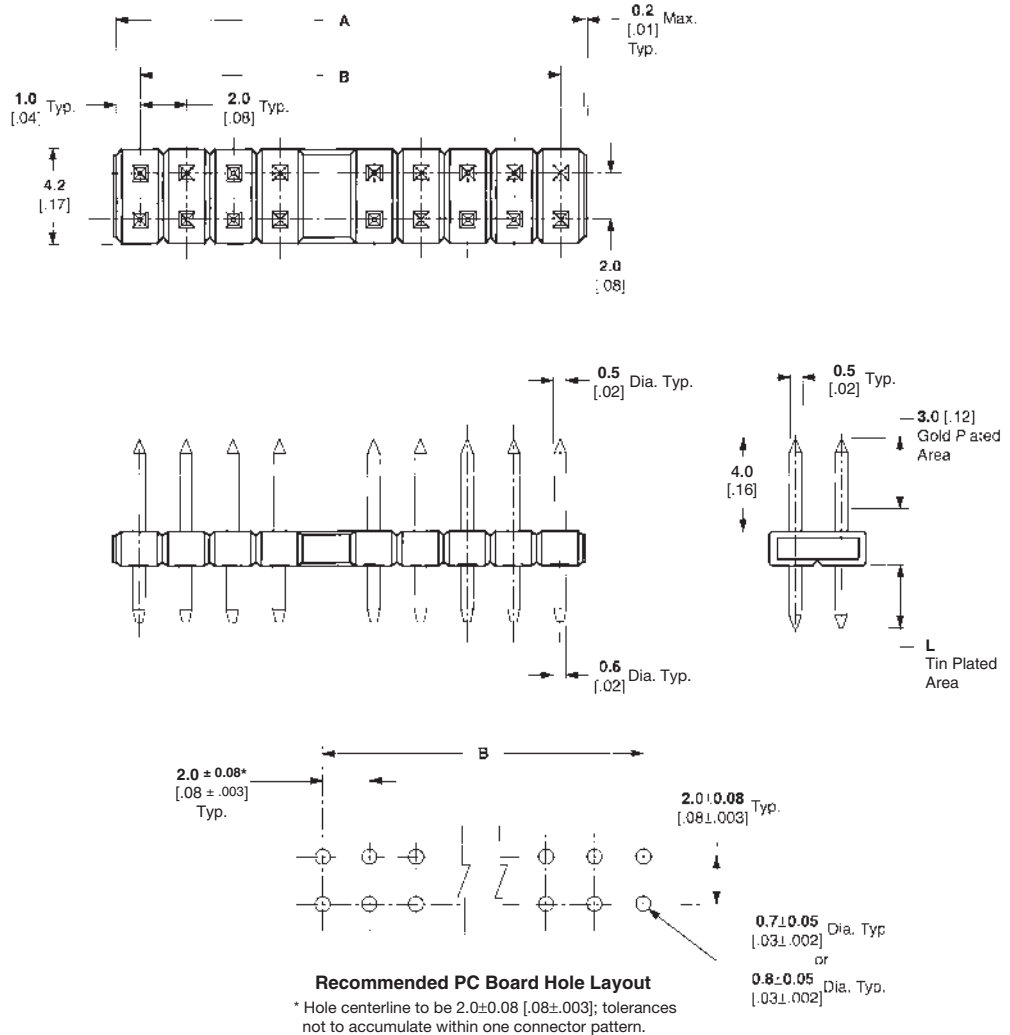
Plating B — 0.00076 [.000030] min. gold on contact area, 0.00100 [.000039] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-5296

Packaging Method — Loose piece, bag



Breakaway Headers, Unshrouded,
Double Row, Thru-Hole Mount

4

**2mm Breakaway Headers, Unshrouded, Double Row, Thru-Hole,
 Vertical Mount** (Continued)

**0.5 [.02] Square
 Straight Posts**

No. of Positions	Dimensions		Contact Plating			
			Lead Length L = 1.5 [.06]		Lead Length L = 2.6 [.10]	
	A	B	Plating A	Plating B	Plating A	Plating B
4	4.0 [0.16]	2.0 [0.08]	5178751-1	2-5178751-5	5176264-1	1-5176264-6
6	6.0 [0.24]	4.0 [0.16]	—	2-5178751-6	5176264-2	1-5176264-7
8	8.0 [0.31]	6.0 [0.24]	—	2-5178751-7	5176264-3	1-5176264-8
10	10.0 [0.39]	8.0 [0.31]	5178751-4	2-5178751-8	5176264-4	1-5176264-9
12	12.0 [0.47]	10.0 [0.39]	—	2-5178751-9	5176264-5	2-5176264-0
14	14.0 [0.55]	12.0 [0.47]	5178751-6	3-5178751-0	5176264-6	2-5176264-1
16	16.0 [0.63]	14.0 [0.55]	—	3-5178751-1	5176264-7	2-5176264-2
18	18.0 [0.71]	16.0 [0.63]	5178751-8	3-5178751-2	5176264-8	2-5176264-3
20	20.0 [0.79]	18.0 [0.71]	5178751-9	3-5178751-3	5176264-9	2-5176264-4
22	22.0 [0.87]	20.0 [0.79]	1-5178751-0	3-5178751-4	1-5176264-0	2-5176264-5
24	24.0 [0.94]	22.0 [0.87]	1-5178751-1	3-5178751-5	1-5176264-1	2-5176264-6
26	26.0 [1.02]	24.0 [0.94]	1-5178751-2	3-5178751-6	—	—
28	28.0 [1.10]	26.0 [1.02]	—	3-5178751-7	1-5176264-3	—
30	30.0 [1.18]	28.0 [1.10]	1-5178751-4	3-5178751-8	1-5176264-4	2-5176264-9
32	32.0 [1.26]	30.0 [1.18]	1-5178751-5	3-5178751-9	1-5176264-5	—
34	34.0 [1.34]	32.0 [1.26]	1-5178751-6	4-5178751-0	—	4-5176264-0
36	36.0 [1.42]	34.0 [1.34]	1-5178751-7	4-5178751-1	3-5176264-2	4-5176264-1
38	38.0 [1.50]	36.0 [1.42]	1-5178751-8	4-5178751-2	3-5176264-3	—
40	40.0 [1.57]	38.0 [1.50]	1-5178751-9	4-5178751-3	3-5176264-4	—
42	42.0 [1.65]	40.0 [1.57]	2-5178751-0	4-5178751-4	—	—
44	44.0 [1.73]	42.0 [1.65]	2-5178751-1	4-5178751-5	3-5176264-6	4-5176264-5
46	46.0 [1.81]	44.0 [1.73]	2-5178751-2	4-5178751-6	—	4-5176264-6
48	48.0 [1.89]	46.0 [1.81]	2-5178751-3	4-5178751-7	—	4-5176264-7
50	50.0 [1.97]	48.0 [1.89]	2-5178751-4	4-5178751-8	3-5176264-9	4-5176264-8

4 Breakaway Headers, Unshrouded,
 Double Row, Thru-Hole Mount

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Surface Mount, Vertical Mount

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black polyphenylene sulfide, UL 94V-0 rated

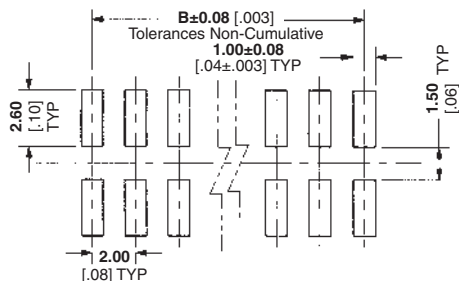
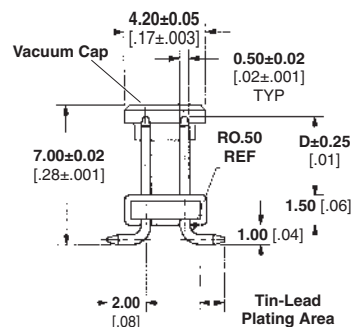
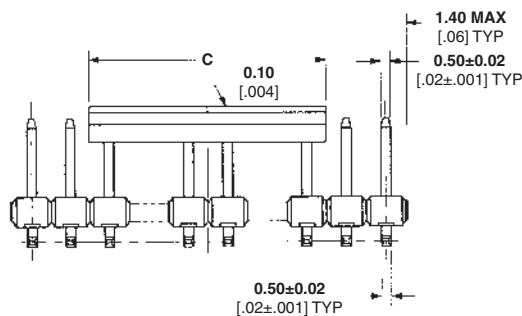
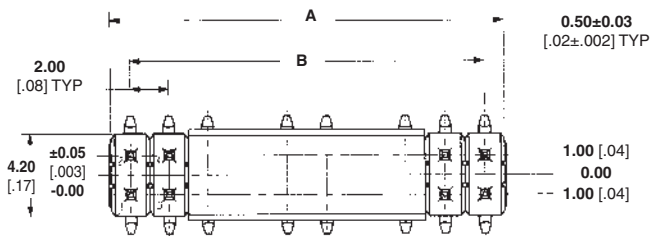
Posted Contacts — Phosphor bronze, plated as follows, Duplex plated 0.00020 [.000008] min. gold on contact area, 0.00200 [.000079] min. tin on solder area, with entire contact underplated 0.00130 [.000051] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-51001

Packaging Method — Tape & Reel



Recommended Solder Pad Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
4	4.0 [0.16]	2.0 [0.08]	4.0 [0.16]	5084476-1
6	6.0 [0.24]	4.0 [0.16]	6.0 [0.24]	5084476-2
12	12.0 [0.47]	10.0 [0.39]	5.0 [0.20]	5084476-7
16	16.0 [0.63]	14.0 [0.55]	8.0 [0.31]	5084476-3

Note: All part numbers are RoHS compliant.

2mm Breakaway Headers, Unshrouded, Double Row, Surface Mount, Vertical Mount (Continued)

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black polyphenylene sulfide, UL 94V-0 rated

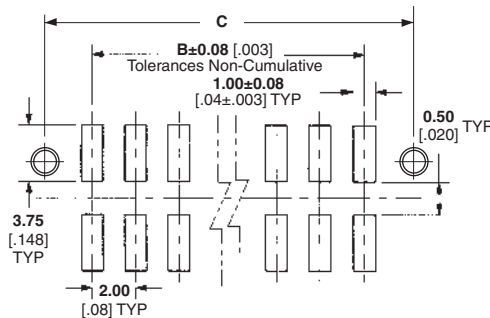
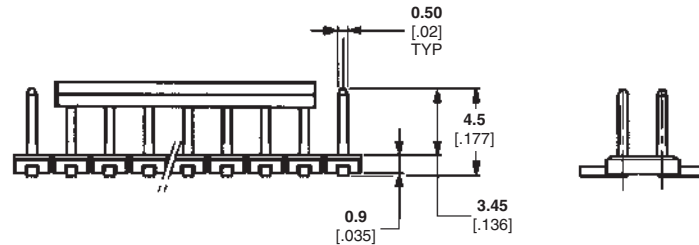
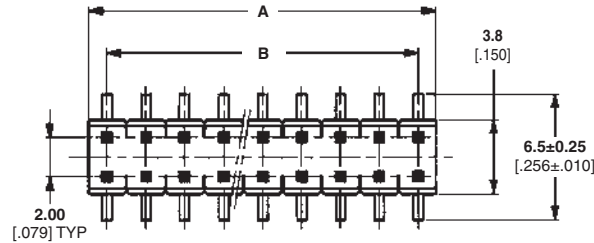
Posted Contacts — Phosphor bronze, plated as follows, Duplex plated 0.0076 [.000030] min. gold on contact area, 0.00254-0.00406 [.000100-.000160] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification 108-18544

Packaging Method — Tape & Reel



Recommended Solder Pad Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
4	4.0 [0.16]	2.0 [0.08]	7.60 [0.30]	966926-2
6	6.0 [0.24]	4.0 [0.16]	9.60 [0.38]	966926-3
8	8.0 [0.31]	6.0 [0.24]	11.60 [0.46]	966926-4
10	10.0 [0.39]	8.0 [0.31]	13.60 [0.53]	966926-5
12	12.0 [0.47]	10.0 [0.39]	15.60 [0.61]	966926-6
14	14.0 [0.55]	12.0 [0.47]	17.60 [0.69]	966926-7
16	16.0 [0.63]	14.0 [0.55]	19.60 [0.77]	966926-8
18	18.0 [0.71]	16.0 [0.63]	21.60 [0.85]	966926-9
20	20.0 [0.79]	18.0 [0.71]	23.60 [0.93]	1-966926-0
22	22.0 [0.87]	20.0 [0.79]	25.60 [1.01]	1-966926-1
24	24.0 [0.94]	22.0 [0.87]	27.60 [1.09]	1-966926-2

Note: All part numbers are RoHS compliant.

2mm Stacking Header, Unshrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts

**12 Position
Part Number 1734770-1**

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

Posted Contacts — Copper alloy, duplex plated as follows:

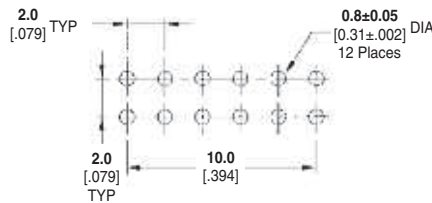
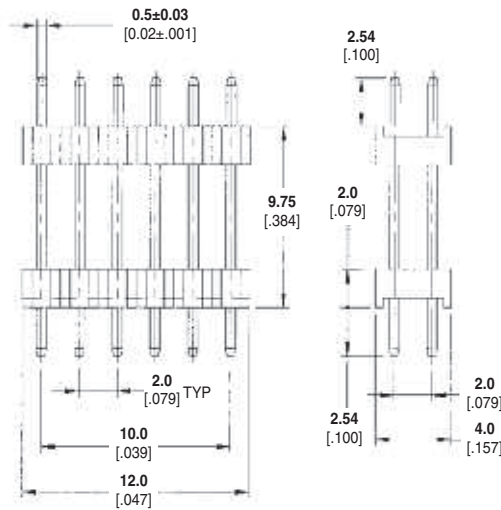
Gold flash all over contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80-84

Product Specification
108-57331

Packaging Method — Loose piece, bag



2.0 Pitch Vertical

4

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts

26 Position
Part Number 5084780-1

Material and Finish

Housing — High temperature, black thermoplastic, UL 94 V-O Rated

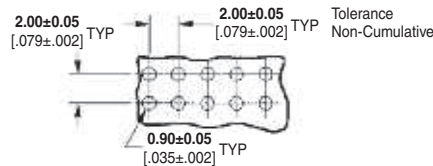
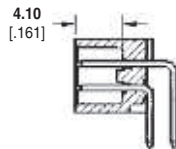
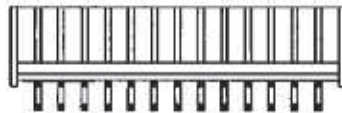
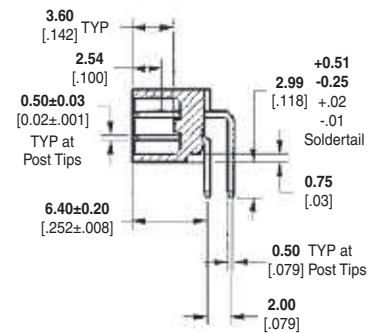
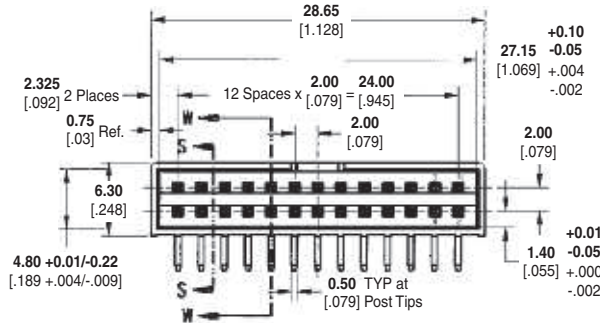
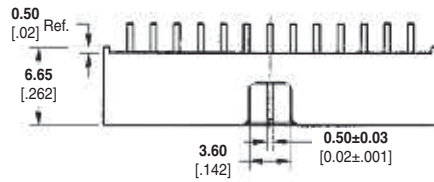
Posted Contacts — Copper alloy, duplex plated as follows: 0.00038 [.00015] min. gold on contact area, 0.00254 [.000100] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80 and 84

Product Specification
108-5296

Packaging Method — Tube



Recommended PCB Layout

Note: All part numbers are RoHS compliant.

2.0 Pitch Right-Angle

4

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

(Continued)

0.5 [0.02] Square Right-Angle Posts

Material and Finish

Housing — Natural color thermoplastic, UL 94 V-0 Rated

Posted Contacts — Brass, plated as follows:

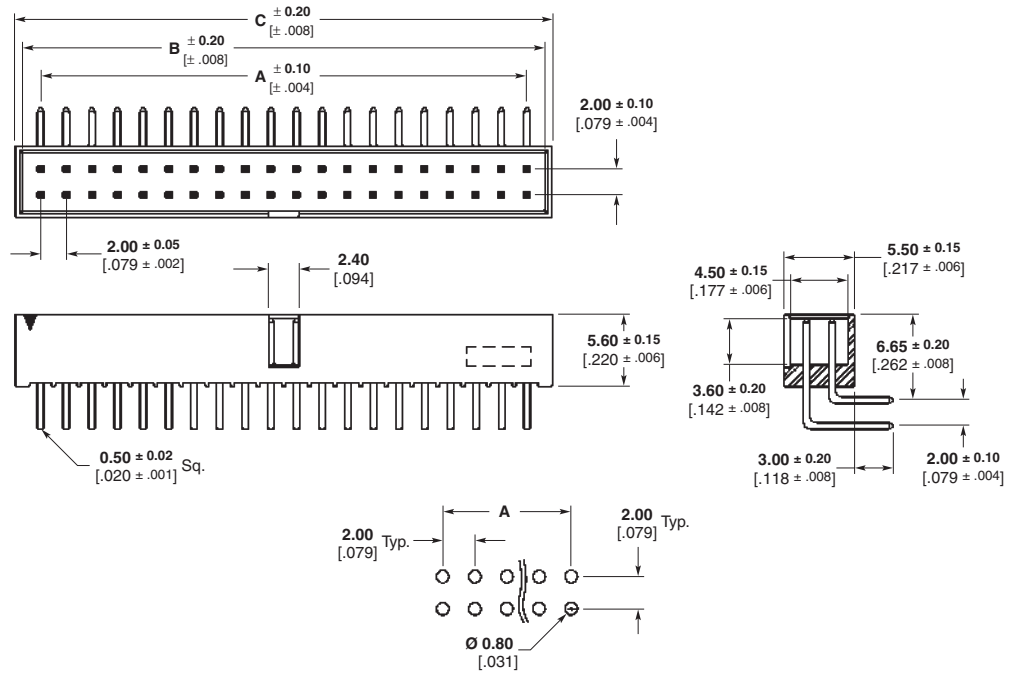
0.00020 [0.00008] min. gold on contact area, with 0.00254 [0.00010] tin on soldertails, with entire contact underplated 0.00127 [0.00050] min. nickel

Related Product Data

Mateable Receptacles — pages 80 and 84

Product Specification 108-57197

Packaging Method — Tubes



Recommended PCB Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
8	6.0 [0.24]	8.85 [0.35]	9.95 [0.39]	1734493-8
10	8.0 [0.31]	10.85 [0.43]	11.95 [0.47]	1-1734493-0
12	10.0 [0.39]	12.85 [0.51]	13.95 [0.55]	1-1734493-2
14	12.0 [0.47]	14.85 [0.58]	15.95 [0.63]	1-1734493-4
16	14.0 [0.55]	16.85 [0.66]	17.95 [0.71]	1-1734493-6
18	16.0 [0.63]	18.85 [0.74]	19.95 [0.79]	1-1734493-8
20	18.0 [0.71]	20.85 [0.82]	21.95 [0.86]	2-1734493-0
22	20.0 [0.79]	22.85 [0.90]	23.95 [0.94]	2-1734493-2
24	22.0 [0.87]	24.85 [0.98]	25.95 [1.02]	2-1734493-4
26	24.0 [0.94]	26.85 [1.06]	27.95 [1.10]	2-1734493-6
28	26.0 [1.02]	28.85 [1.14]	29.95 [1.18]	2-1734493-8
30	28.0 [1.10]	30.85 [1.21]	31.95 [1.26]	3-1734493-0
32	30.0 [1.18]	32.85 [1.29]	33.95 [1.34]	3-1734493-2
34	32.0 [1.26]	34.85 [1.37]	35.95 [1.42]	3-1734493-4
36	34.0 [1.34]	36.85 [1.45]	37.95 [1.49]	3-1734493-6
38	36.0 [1.42]	38.85 [1.53]	39.95 [1.57]	3-1734493-8
40	38.0 [1.50]	40.85 [1.61]	41.95 [1.65]	4-1734493-0
42	40.0 [1.57]	42.85 [1.69]	43.95 [1.73]	4-1734493-2
44	42.0 [1.65]	44.85 [1.77]	45.95 [1.81]	4-1734493-4
46	44.0 [1.73]	46.85 [1.84]	47.95 [1.89]	4-1734493-6
48	46.0 [1.81]	48.85 [1.92]	49.95 [1.97]	4-1734493-8
50	48.0 [1.89]	50.85 [2.00]	51.95 [2.05]	5-1734493-0
52	50.0 [1.97]	52.85 [2.08]	53.95 [2.12]	5-1734493-2
54	52.0 [2.05]	54.85 [2.16]	55.95 [2.20]	5-1734493-4
56	54.0 [2.13]	56.85 [2.34]	57.95 [2.28]	5-1734493-6
58	56.0 [2.20]	58.85 [2.32]	59.95 [2.36]	5-1734493-8
60	58.0 [2.28]	60.85 [2.40]	61.95 [2.44]	6-1734493-0
62	60.0 [2.36]	62.85 [2.47]	63.95 [2.52]	6-1734493-2
64	62.0 [2.44]	64.85 [2.55]	65.95 [2.60]	6-1734493-4

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Surface Mount, Vertical Mount

0.5 [0.02] Square Posts

Material and Finish

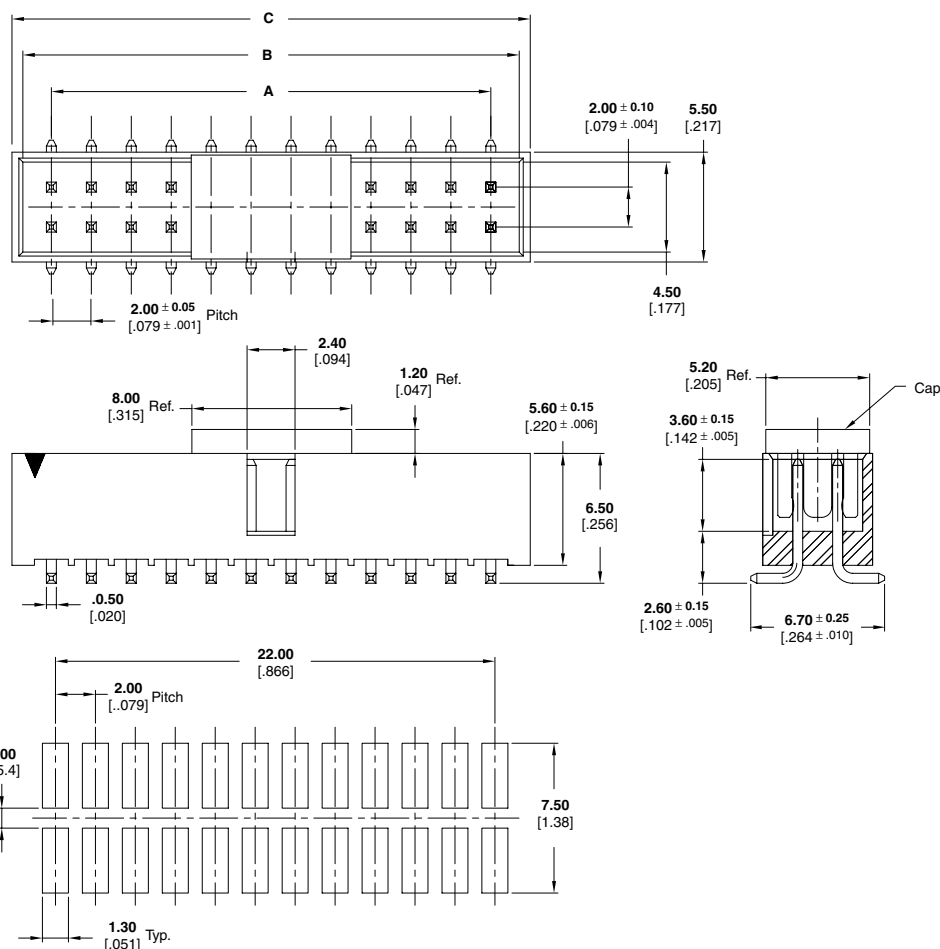
Housing — Black color, PA9T (Nylon 9T), UL 94 V-0 Rated

Posted Contacts — Brass, plated as follows:

0.00076 [0.00003] min. gold on contact area, with 0.00254 [0.00010] matte tin on soldertails, with entire contact underplated 0.00127 [0.000050] min. nickel

Related Product Data

Mateable Receptacles — pages 80, 81, and 84



Recommended PCB Layout

No. of Positions	Dimensions			Part Numbers
	A	B	C	
8	6.0 [0.24]	8.85 [0.35]	9.95 [0.39]	2041068-8
10	8.0 [0.31]	10.85 [0.43]	11.95 [0.47]	1-2041068-0
12	10.0 [0.39]	12.85 [0.51]	13.95 [0.55]	1-2041068-2
14	12.0 [0.47]	14.85 [0.58]	15.95 [0.63]	1-2041068-4
16	14.0 [0.55]	16.85 [0.66]	17.95 [0.71]	1-2041068-6
18	16.0 [0.63]	18.85 [0.74]	19.95 [0.79]	1-2041068-8
20	18.0 [0.71]	20.85 [0.82]	21.95 [0.86]	2-2041068-0
22	20.0 [0.79]	22.85 [0.90]	23.95 [0.94]	2-2041068-2
24	22.0 [0.87]	24.85 [0.98]	25.95 [1.02]	2-2041068-4
26	24.0 [0.94]	26.85 [1.06]	27.95 [1.10]	2-2041068-6
28	26.0 [1.02]	28.85 [1.14]	29.95 [1.18]	2-2041068-8
30	28.0 [1.10]	30.85 [1.21]	31.95 [1.26]	3-2041068-0
32	30.0 [1.18]	32.85 [1.29]	33.95 [1.34]	3-2041068-2
34	32.0 [1.26]	34.85 [1.37]	35.95 [1.42]	3-2041068-4
36	34.0 [1.34]	36.85 [1.45]	37.95 [1.49]	3-2041068-6
38	36.0 [1.42]	38.85 [1.53]	39.95 [1.57]	3-2041068-8
40	38.0 [1.50]	40.85 [1.61]	41.95 [1.65]	4-2041068-0
42	40.0 [1.57]	42.85 [1.69]	43.95 [1.73]	4-2041068-2
44	42.0 [1.65]	44.85 [1.77]	45.95 [1.81]	4-2041068-4
46	44.0 [1.73]	46.85 [1.84]	47.95 [1.89]	4-2041068-6
48	46.0 [1.81]	48.85 [1.92]	49.95 [1.97]	4-2041068-8
50	48.0 [1.89]	50.85 [2.00]	51.95 [2.05]	5-2041068-0

Note: All part numbers are RoHS compliant.

2.0 Pitch Vertical

4

2mm Headers, Shrouded, Double Row, Surface Mount, Vertical Mount

(Continued)

0.5 [.02] Square Straight Posts

Material and Finish

Housing — Black high temperature thermoplastic, UL 94 V-O Rated

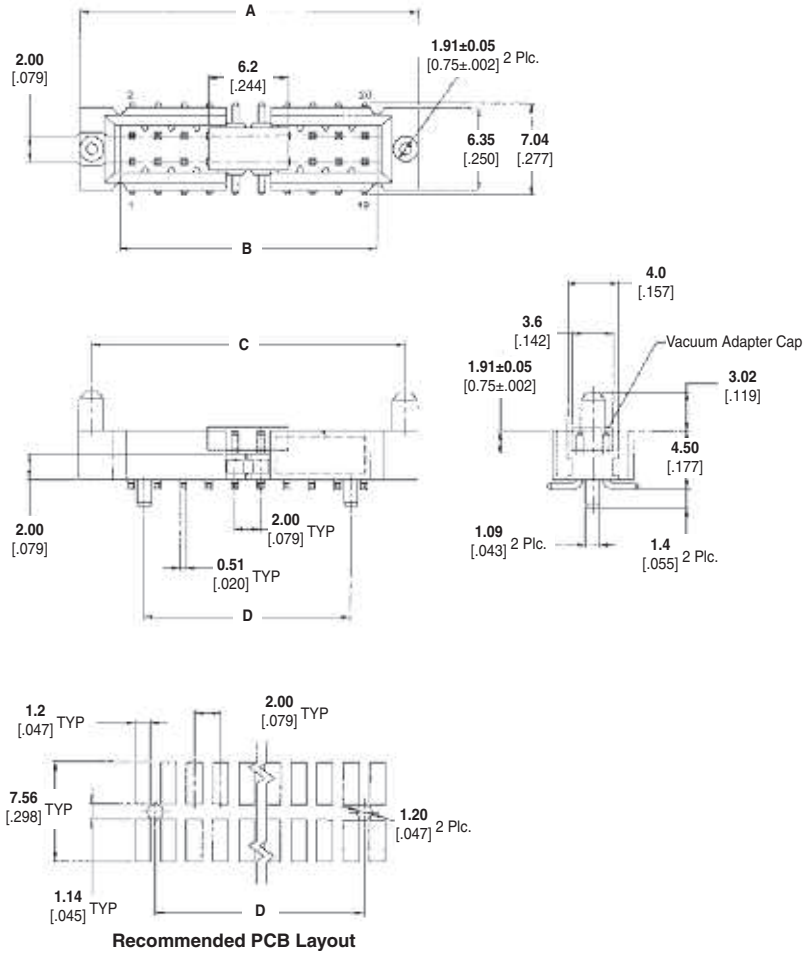
Posted Contacts — Phosphor Bronze, duplex plated as follows:

0.00076[0.000030] min. gold on contact area, 0.00381[.000150] min. tin on solder area, with entire contact underplated 0.00127[.000050] min. nickel

Product Specification

108-57328

Packaging Method — Tape and reel



Receptacle Assemblies,
Double Row, Vertical Mount with
Vacuum Adapter Cap

4

No. of Positions	Dimensions				Part Numbers
	A	B	C	D	
20	26.2 [1.03]	20.0 [0.79]	24.3 [0.96]	16.0 [.63]	2-1734569-0
30	36.2 [1.43]	30.0 [1.18]	34.3 [1.35]	26.0 [1.02]	3-1734569-0

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Vertical Mount

0.5 [.02] Square Straight Posts with Cable Shroud

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

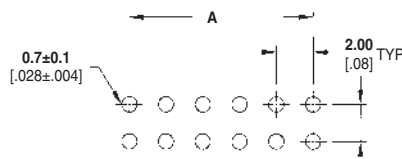
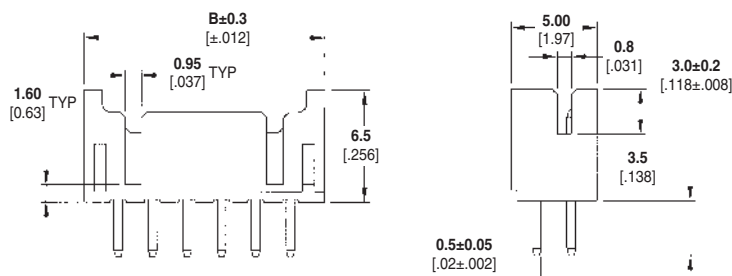
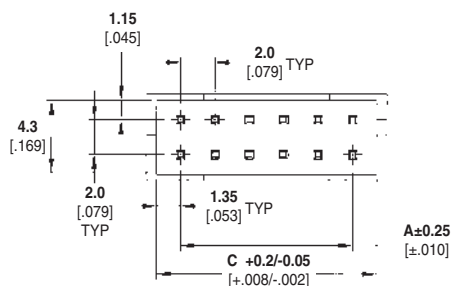
Posted Contacts — Brass, duplex plated as follows:
0.00254 [.000100] min. tin on contact area, with entire contact underplated
0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles —
See Drawings 1470106 Contacts and 1470107 Housing

Product Specification
108-57217

Packaging Method — Loose piece, bag



Recommended PCB Layout

No. of Position	Dimensions			Part Numbers
	A	B	C	
6	4.0 [0.16]	8.0 [0.31]	6.74 [0.26]	1470109-6
8	6.0 [0.24]	10.0 [0.39]	8.74 [0.34]	1470109-8
10	8.0 [0.31]	12.0 [0.47]	10.74 [0.42]	1-1470109-0
12	10.0 [0.39]	14.0 [0.55]	12.74 [0.50]	1-1470109-2
14	12.0 [0.47]	16.0 [0.63]	14.74 [0.58]	1-1470109-4
16	14.0 [0.55]	18.0 [0.71]	16.74 [0.66]	1-1470109-6
18	16.0 [0.63]	20.0 [0.79]	18.74 [0.74]	1-1470109-8
20	18.0 [0.71]	22.0 [0.87]	20.74 [0.82]	2-1470109-0
22	20.0 [0.79]	24.0 [0.94]	22.74 [0.89]	2-1470109-2
24	22.0 [0.87]	26.0 [1.02]	24.74 [0.97]	2-1470109-4
26	24.0 [0.94]	28.0 [1.10]	26.74 [1.05]	2-1470109-6
28	26.0 [1.02]	30.0 [1.18]	28.74 [1.13]	2-1470109-8
30	28.0 [1.10]	32.0 [1.26]	30.74 [1.21]	3-1470109-0
32	30.0 [1.18]	34.0 [1.34]	32.74 [1.29]	3-1470109-2

Note: All part numbers are RoHS compliant.

2mm Headers, Shrouded, Double Row, Thru-Hole, Right-Angle Mount

0.5 [.02] Square Right-Angle Posts with Cable Shroud

Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated

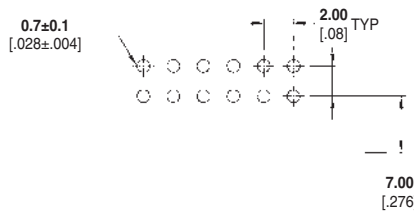
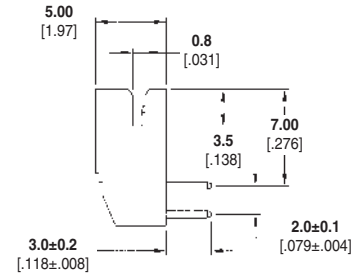
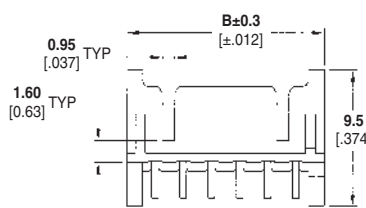
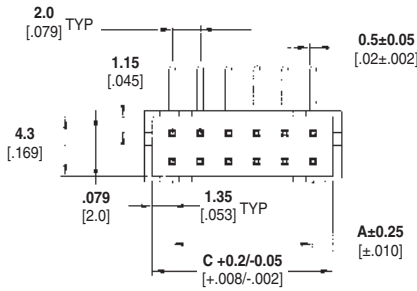
Posted Contacts — Brass, duplex plated as follows:
0.00254 [.000100] min. tin on contact area, with entire contact underplated
0.00127 [.000050] min. nickel

Related Product Data

Mateable Receptacles — See Drawings 1470106 Contacts and 1470107 Housing

Product Specification
108-57217

Packaging Method — Loose piece, bag



Recommended PCB Layout

No. of Position	Dimensions			Part Numbers
	A	B	C	
6	4.0 [0.16]	8.00 [0.31]	6.74 [0.26]	1470108-6
8	6.0 [0.24]	10.00 [0.39]	8.74 [0.34]	1470108-8
10	8.0 [0.32]	12.00 [0.47]	10.74 [0.42]	1-1470108-0
12	10.0 [0.39]	14.00 [0.55]	12.74 [0.50]	1-1470108-2
14	12.0 [0.47]	16.00 [0.63]	14.74 [0.58]	1-1470108-4
16	18.0 [0.71]	18.00 [0.71]	16.74 [0.66]	1-1470108-6
18	14.0 [0.55]	20.00 [0.79]	18.74 [0.74]	1-1470108-8
20	16.0 [0.63]	22.00 [0.87]	20.74 [0.82]	2-1470108-0
22	22.0 [0.87]	24.00 [0.94]	22.74 [0.89]	2-1470108-2
24	20.0 [0.79]	26.00 [1.02]	24.74 [0.97]	2-1470108-4
26	24.0 [0.94]	28.00 [1.10]	26.74 [1.05]	2-1470108-6
28	28.0 [1.10]	30.00 [1.18]	28.74 [1.13]	2-1470108-8
30	26.0 [1.02]	32.00 [1.26]	30.74 [1.21]	3-1470108-0
32	30.0 [1.18]	34.00 [1.34]	32.74 [1.29]	3-1470108-2

Note: All part numbers are RoHS compliant.

2mm Centerline Receptacles, Double Row, Thru-Hole, Vertical Mount

Receptacle, Thru-Hole, Vertical

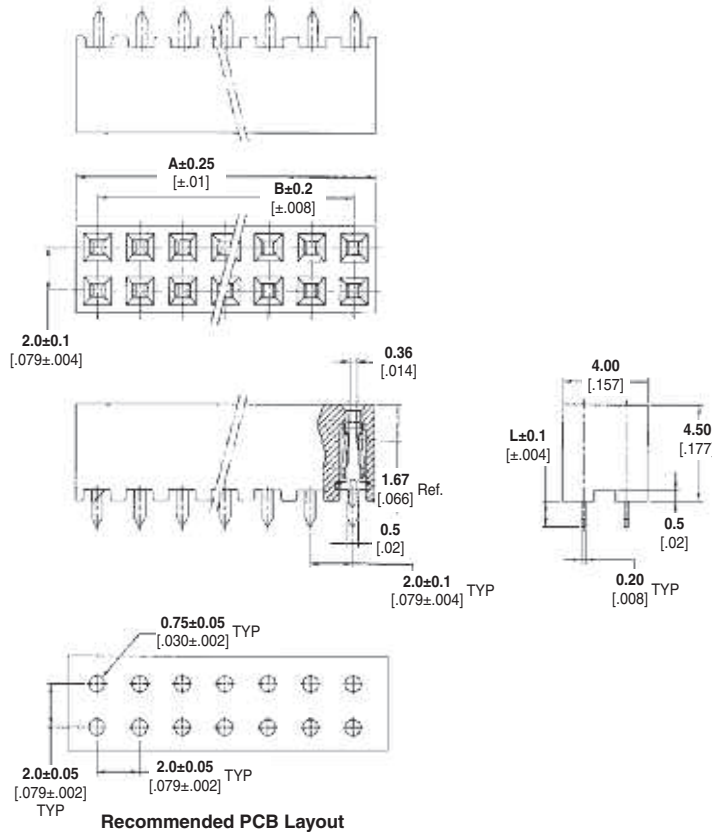
Material and Finish

Housing — Black thermoplastic, UL 94 V-0 Rated, 245°C Reflow

Contacts — Copper alloy, plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

B — 0.00076 [.000030] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel



Related Product Data

Mateable Headers — pages 66-76, 78, 79

Product Specification 108-57197

Packaging Method — Tray

2.0 Mount Type w/PickUp

4

No. of Positions	Dimensions		Part Numbers			
			Plating A		Plating B	
			Dim. L 1.2+/-0.1 (.047+/-0.004)	Dim. L 2.6+/-0.1 (.102+/-0.004)	Dim. L 1.2+/-0.1 (.047+/-0.004)	Dim. L 2.6+/-0.1 (.102+/-0.004)
4	4.0 [.157]	2.0 [.079]	1470209-1	2-1470209-5	5-1470209-1	7-1470209-5
6	6.0 [.236]	4.0 [.157]	1470209-2	2-1470209-6	5-1470209-2	7-1470209-6
8	8.0 [.315]	6.0 [.236]	1470209-3	2-1470209-7	5-1470209-3	7-1470209-7
10	10.0 [.394]	8.0 [.315]	1470209-4	2-1470209-8	5-1470209-4	7-1470209-8
12	12.0 [.472]	10.0 [.394]	1470209-5	2-1470209-9	5-1470209-5	7-1470209-9
14	14.0 [.551]	12.0 [.472]	1470209-6	3-1470209-0	5-1470209-6	8-1470209-0
16	16.0 [.630]	14.0 [.551]	1470209-7	3-1470209-1	5-1470209-7	8-1470209-1
18	18.0 [.709]	16.0 [.630]	1470209-8	3-1470209-2	5-1470209-8	8-1470209-2
20	20.0 [.787]	18.0 [.709]	1470209-9	3-1470209-3	5-1470209-9	8-1470209-3
22	22.0 [.866]	20.0 [.787]	1-1470209-0	3-1470209-4	6-1470209-0	8-1470209-4
24	24.0 [.945]	22.0 [.866]	1-1470209-1	3-1470209-5	6-1470209-1	8-1470209-5
26	26.0 [1.024]	24.0 [.945]	1-1470209-2	3-1470209-6	6-1470209-2	8-1470209-6
28	28.0 [1.102]	26.0 [1.024]	1-1470209-3	3-1470209-7	6-1470209-3	8-1470209-7
30	30.0 [1.181]	28.0 [1.102]	1-1470209-4	3-1470209-8	6-1470209-4	8-1470209-8
32	32.0 [1.260]	30.0 [1.181]	1-1470209-5	3-1470209-9	6-1470209-5	8-1470209-9
34	34.0 [1.339]	32.0 [1.260]	1-1470209-6	4-1470209-0	6-1470209-6	9-1470209-0
36	36.0 [1.417]	34.0 [1.339]	1-1470209-7	4-1470209-1	6-1470209-7	9-1470209-1
38	38.0 [1.496]	36.0 [1.417]	1-1470209-8	4-1470209-2	6-1470209-8	9-1470209-2
40	40.0 [1.575]	38.0 [1.496]	1-1470209-9	4-1470209-3	6-1470209-9	9-1470209-3
42	42.0 [1.654]	40.0 [1.575]	2-1470209-0	4-1470209-4	7-1470209-0	9-1470209-4
44	44.0 [1.732]	42.0 [1.654]	2-1470209-1	4-1470209-5	7-1470209-1	9-1470209-5
46	46.0 [1.811]	44.0 [1.732]	2-1470209-2	4-1470209-6	7-1470209-2	9-1470209-6
48	48.0 [1.890]	46.0 [1.811]	2-1470209-3	4-1470209-7	7-1470209-3	9-1470209-7
50	50.0 [1.969]	48.0 [1.890]	2-1470209-4	4-1470209-8	7-1470209-4	9-1470209-8

Note: All part numbers are RoHS compliant.

2mm Centerline Receptacles, Double Row, Thru-Hole, Vertical Mount (Continued)

Receptacle, Thru-Hole, Vertical

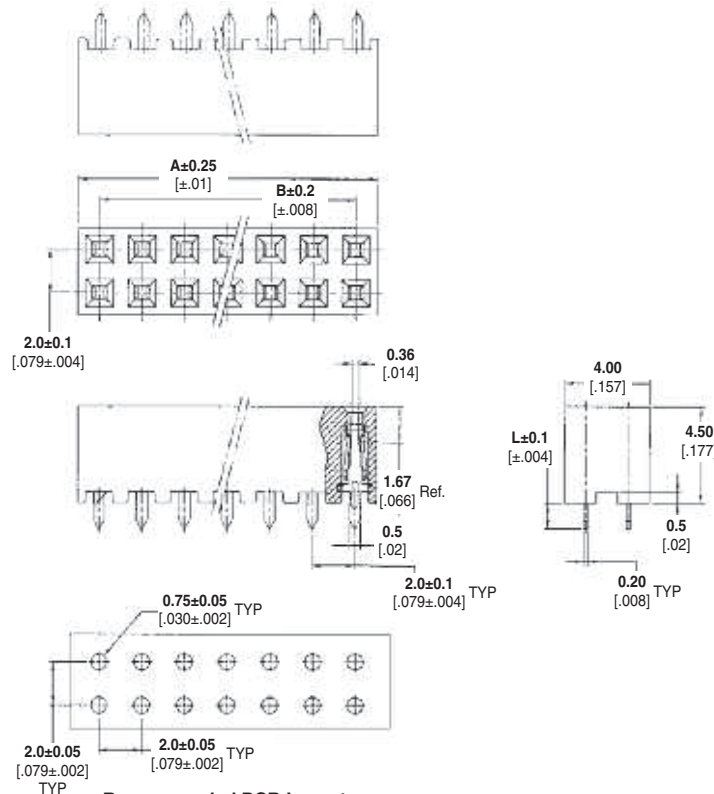
Material and Finish

Housing — Black thermoplastic, UL 94 V-O Rated, 265°C Process Capable

Contacts — Copper alloy, plated as follows:

A — 0.00020 [.000008] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel

B — 0.00076 [.000030] min. gold on contact area, 0.00203 [.000080] min. tin on solder area, with entire contact underplated 0.00127 [.000050] min. nickel



Recommended PCB Layout

Related Product Data

Mateable Headers — pages 66-76, 78, 79

Product Specification 108-57197

Packaging Method — Tray

No. of Positions	Dimensions		Part Numbers			
			Plating A		Plating B	
			Dim. L 1.2+/-0.1 (.047+/- .004)	Dim. L 2.6+/-0.1 (.102+/- .004)	Dim. L 1.2+/-0.1 (.047+/- .004)	Dim. L 2.6+/-0.1 (.102+/- .004)
4	4.0 [.157]	2.0 [.079]	1734506-1	2-1734506-5	5-1734506-1	7-1734506-5
6	6.0 [.236]	4.0 [.157]	1734506-2	2-1734506-6	5-1734506-2	7-1734506-6
8	8.0 [.315]	6.0 [.236]	1734506-3	2-1734506-7	5-1734506-3	7-1734506-7
10	10.0 [.394]	8.0 [.315]	1734506-4	2-1734506-8	5-1734506-4	7-1734506-8
12	12.0 [.472]	10.0 [.394]	1734506-5	2-1734506-9	5-1734506-5	7-1734506-9
14	14.0 [.551]	12.0 [.472]	1734506-6	3-1734506-0	5-1734506-6	8-1734506-0
16	16.0 [.630]	14.0 [.551]	1734506-7	3-1734506-1	5-1734506-7	8-1734506-1
18	18.0 [.709]	16.0 [.630]	1734506-8	3-1734506-2	5-1734506-8	8-1734506-2
20	20.0 [.787]	18.0 [.709]	1734506-9	3-1734506-3	5-1734506-9	8-1734506-3
22	22.0 [.866]	20.0 [.787]	1-1734506-0	3-1734506-4	6-1734506-0	8-1734506-4
24	24.0 [.945]	22.0 [.866]	1-1734506-1	3-1734506-5	6-1734506-1	8-1734506-5
26	26.0 [1.024]	24.0 [.945]	1-1734506-2	3-1734506-6	6-1734506-2	8-1734506-6
28	28.0 [1.102]	26.0 [1.024]	1-1734506-3	3-1734506-7	6-1734506-3	8-1734506-7
30	30.0 [1.181]	28.0 [1.102]	1-1734506-4	3-1734506-8	6-1734506-4	8-1734506-8
32	32.0 [1.260]	30.0 [1.181]	1-1734506-5	3-1734506-9	6-1734506-5	8-1734506-9
34	34.0 [1.339]	32.0 [1.260]	1-1734506-6	4-1734506-0	6-1734506-6	9-1734506-0
36	36.0 [1.417]	34.0 [1.339]	1-1734506-7	4-1734506-1	6-1734506-7	9-1734506-1
38	38.0 [1.496]	36.0 [1.417]	1-1734506-8	4-1734506-2	6-1734506-8	9-1734506-2
40	40.0 [1.575]	38.0 [1.496]	1-1734506-9	4-1734506-3	6-1734506-9	9-1734506-3
42	42.0 [1.654]	40.0 [1.575]	2-1734506-0	4-1734506-4	7-1734506-0	9-1734506-4
44	44.0 [1.732]	42.0 [1.654]	2-1734506-1	4-1734506-5	7-1734506-1	9-1734506-5
46	46.0 [1.811]	44.0 [1.732]	2-1734506-2	4-1734506-6	7-1734506-2	9-1734506-6
48	48.0 [1.890]	46.0 [1.811]	2-1734506-3	4-1734506-7	7-1734506-3	9-1734506-7
50	50.0 [1.969]	48.0 [1.890]	2-1734506-4	4-1734506-8	7-1734506-4	9-1734506-8
40*	40.0 [1.575]	38.0 [1.496]	—	4-1734506-9	—	9-1734506-9

*Keying position 6.

Note: All part numbers are RoHS compliant.

2.0 Mount Type w/PickUp

4

2mm Receptacle, Double Row, Surface Mount, Right-Angle Mount

Receptacle, Surface Mount, Right-Angle

Material and Finish

Housing — Black Thermoplastic, UL 94V-0 Rated

Contact — Phosphor Bronze

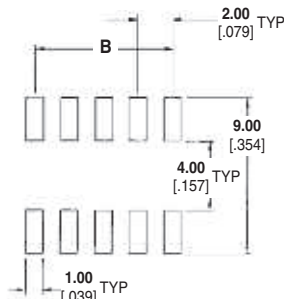
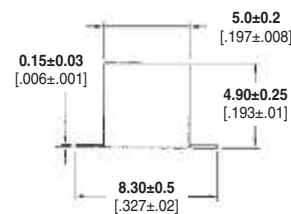
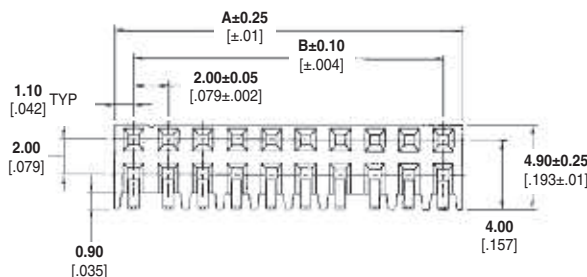
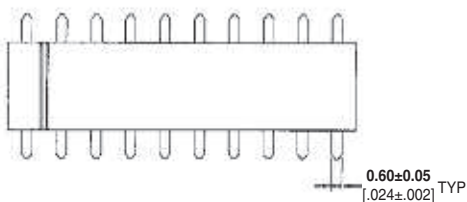
Contact Finish — 0.00020 [.000008] Min. Gold Plated on Contact Area, 0.00229 [.000090] Min. Tin Plated on Solder Tail, 0.00127 [.000050] Min. Nickel Underplated Over All

Related Product Data

Mateable Headers — pages 66-73

Product Specification 108-57197

Packaging Method — Tape and reel



Recommended PCB Layout

Position	Dimensions		Part Numbers
	A	B	
6	6.20 [.244]	4.0 [.157]	1734606-6
8	8.20 [.323]	6.0 [.236]	1734606-8
10	10.20 [.402]	8.0 [.315]	1-1734606-0
12	12.20 [.480]	10.0 [.394]	1-1734606-2
14	14.20 [.559]	12.0 [.472]	1-1734606-4
16	16.20 [.638]	14.0 [.551]	1-1734606-6
18	18.20 [.717]	16.0 [.630]	1-1734606-8
20	20.20 [.795]	18.0 [.709]	2-1734606-0
22	22.20 [.874]	20.0 [.787]	2-1734606-2
24	24.20 [.953]	22.0 [.866]	2-1734606-4
26	26.20 [1.031]	24.0 [.945]	2-1734606-6
28	28.20 [1.110]	26.0 [1.024]	2-1734606-8
30	30.20 [1.189]	28.0 [1.102]	3-1734606-0
32	32.20 [1.268]	30.0 [1.181]	3-1734606-2
34	34.20 [1.346]	32.0 [1.260]	3-1734606-4
36	36.20 [1.425]	34.0 [1.339]	3-1734606-6
38	38.20 [1.504]	36.0 [1.417]	3-1734606-8
40	40.20 [1.583]	38.0 [1.496]	4-1734606-0
42	42.20 [1.661]	40.0 [1.575]	4-1734606-2
44	44.20 [1.740]	42.0 [1.654]	4-1734606-4
46	46.20 [1.819]	44.0 [1.732]	4-1734606-6
48	48.20 [1.898]	46.0 [1.811]	4-1734606-8
50	50.20 [1.976]	48.0 [1.890]	5-1734606-0

Note: All part numbers are RoHS compliant.

2mm Receptacle, Double Row, Thru-Hole, Right-Angle Mount

Receptacle, Thru-Hole, Right-Angle

Material and Finish

Housing — Black Thermoplastic, UL 94V-0 Rated

Contact — Phosphor Bronze

Contact Finish — 0.00020 [.000008]

Min. Gold Plated on Contact Area, 0.00254 [.000100] Min. Tin Plated on Solder Tail, 0.00127 [.000050] Min. Nickel Underplated Over All

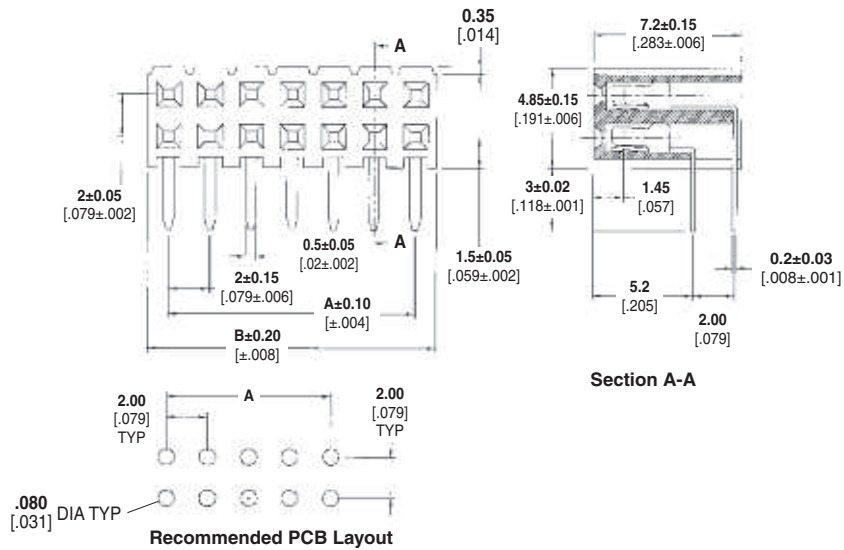
Related Product Data

Mateable Headers — pages 66-73

Product Specification

108-57197

Packaging Method — Tube



Position	Dimensions		Part Numbers
	A	B	
8	6.0 [.236]	8.50 [.335]	1734531-8
10	8.0 [.315]	10.50 [.413]	1-1734531-0
12	10.0 [.394]	12.50 [.492]	1-1734531-2
14	12.0 [.472]	14.50 [.571]	1-1734531-4
16	14.0 [.551]	16.50 [.650]	1-1734531-6
18	16.0 [.630]	18.50 [.728]	1-1734531-8
20	18.0 [.709]	20.50 [.807]	2-1734531-0
22	20.0 [.787]	22.50 [.886]	2-1734531-2
24	22.0 [.866]	24.50 [.965]	2-1734531-4
26	24.0 [.945]	26.50 [1.043]	2-1734531-6
28	26.0 [1.024]	28.50 [1.122]	2-1734531-8
30	28.0 [1.102]	30.50 [1.201]	3-1734531-0
32	30.0 [1.181]	32.50 [1.280]	3-1734531-2
34	32.0 [1.260]	34.50 [1.358]	3-1734531-4
36	34.0 [1.339]	36.50 [1.437]	3-1734531-6
38	36.0 [1.417]	38.50 [1.516]	3-1734531-8
40	38.0 [1.496]	40.50 [1.594]	4-1734531-0
42	40.0 [1.575]	42.50 [1.673]	4-1734531-2
44	42.0 [1.654]	44.50 [1.752]	4-1734531-4
46	44.0 [1.732]	46.50 [1.831]	4-1734531-6
48	46.0 [1.811]	48.50 [1.909]	4-1734531-8
50	48.0 [1.890]	50.50 [1.988]	5-1734531-0
52	50.0 [1.969]	52.50 [2.067]	5-1734531-2
54	52.0 [2.047]	54.50 [2.146]	5-1734531-4
56	54.0 [2.123]	56.50 [2.224]	5-1734531-6
58	56.0 [2.205]	58.50 [2.303]	5-1734531-8
60	58.0 [2.283]	60.50 [2.381]	6-1734531-0
62	60.0 [2.362]	62.50 [2.461]	6-1734531-2
64	62.0 [2.441]	64.50 [2.539]	6-1734531-4
66	64.0 [2.520]	66.50 [2.618]	6-1734531-6
68	66.0 [2.598]	68.50 [2.697]	6-1734531-8
70	68.0 [2.677]	70.50 [2.776]	7-1734531-0
72	70.0 [2.756]	72.50 [2.854]	7-1734531-2
74	72.0 [2.834]	74.50 [2.933]	7-1734531-4
76	74.0 [2.913]	76.50 [3.012]	7-1734531-6
78	76.0 [2.992]	78.50 [3.091]	7-1734531-8
80	78.0 [3.071]	80.50 [3.169]	8-1734531-0

Note: All part numbers are RoHS compliant.

2mm Receptacle, Double Row, Surface Mount, Vertical Mount

Receptacle, Top Entry, Surface Mount

Material and Finish

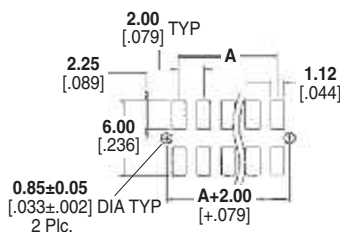
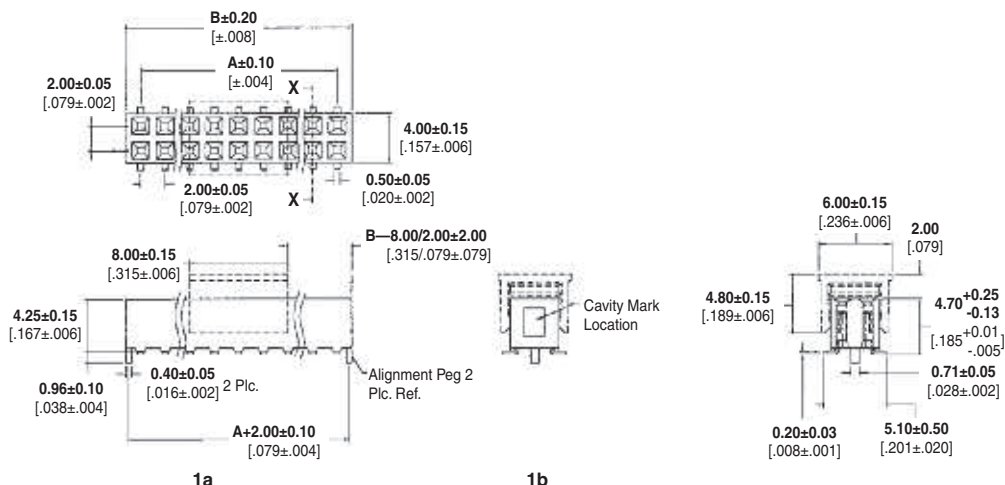
Housing—Black Thermoplastic, UL 94V-0 Rated
Contact—Copper Alloy, plated 0.00076 [.000030] Min. Gold Plated on Contact Area, 0.00254 [.000100] Tin Plated on Solder Tail, Underplated 0.00127 [.000050] Nickel
Cap—Thermoplastic

Related Product Data

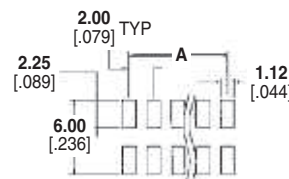
Mateable Headers—pages 66-75, 78, 79

Product Specification
108-57227

Packaging Method—Tape and reel



Recommended PCB Layout



Recommended PCB Layout (Without Alignment Peg)

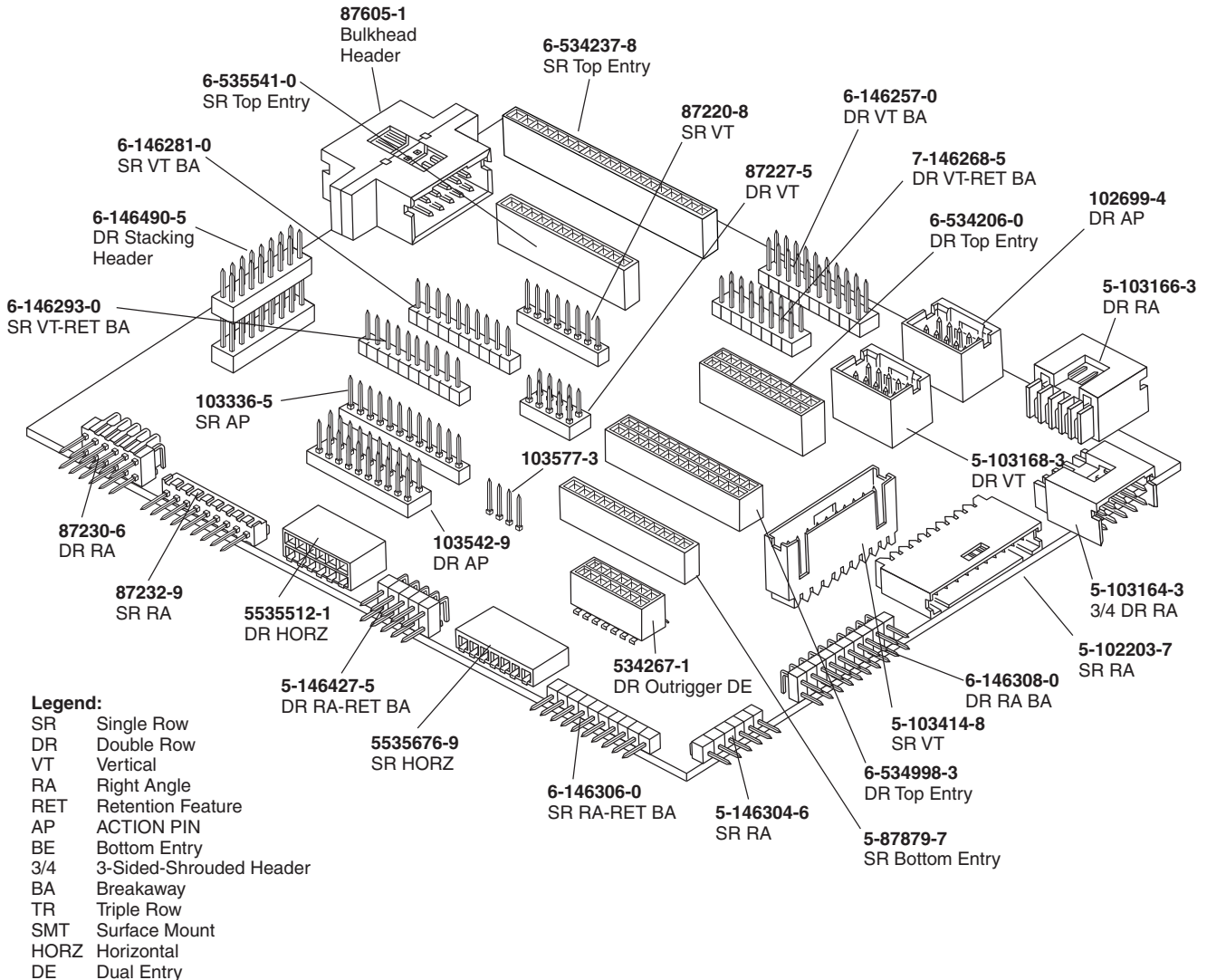
Position	Dimensions		245C Reflow Part Numbers		265C Reflow Part Numbers	
	A	B	with Alignment Peg*	without Alignment Peg	with Alignment Peg*	without Alignment Peg
8	6.0 [.236]	8.40 [.331]	1734516-8	5-1734516-8	2041069-8	5-2041069-8
10	8.0 [.315]	10.40 [.409]	1-1734516-0	6-1734516-0	1-2041069-0	6-2041069-0
12	10.0 [.394]	12.40 [.488]	1-1734516-2	6-1734516-2	1-2041069-2	6-2041069-2
14	12.0 [.472]	14.40 [.567]	1-1734516-4	6-1734516-4	1-2041069-4	6-2041069-4
16	14.0 [.551]	16.40 [.646]	1-1734516-6	6-1734516-6	1-2041069-6	6-2041069-6
18	16.0 [.630]	18.40 [.724]	1-1734516-8	6-1734516-8	1-2041069-8	6-2041069-8
20	18.0 [.709]	20.40 [.803]	2-1734516-0	7-1734516-0	2-2041069-0	7-2041069-0
22	20.0 [.787]	22.40 [.881]	2-1734516-2	7-1734516-2	2-2041069-2	7-2041069-2
24	22.0 [.866]	24.40 [.961]	2-1734516-4	7-1734516-4	2-2041069-4	7-2041069-4
26	24.0 [.945]	26.40 [1.039]	2-1734516-6	7-1734516-6	2-2041069-6	7-2041069-6
28	26.0 [1.024]	28.40 [1.118]	2-1734516-8	7-1734516-8	2-2041069-8	7-2041069-8
30	28.0 [1.102]	30.40 [1.197]	3-1734516-0	8-1734516-0	3-2041069-0	8-2041069-0
32	30.0 [1.181]	32.40 [1.276]	3-1734516-2	8-1734516-2	3-2041069-2	8-2041069-2
34	32.0 [1.260]	34.40 [1.354]	3-1734516-4	8-1734516-4	3-2041069-4	8-2041069-4
36	34.0 [1.339]	36.40 [1.433]	3-1734516-6	8-1734516-6	3-2041069-6	8-2041069-6
38	36.0 [1.417]	38.40 [1.512]	3-1734516-8	8-1734516-8	3-2041069-8	8-2041069-7
40	38.0 [1.496]	40.40 [1.591]	4-1734516-0	9-1734516-0	4-2041069-0	9-2041069-0

*See views 1a and 1b

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System

AMPMODU Headers and Receptacles, .100 [2.54] Centerline

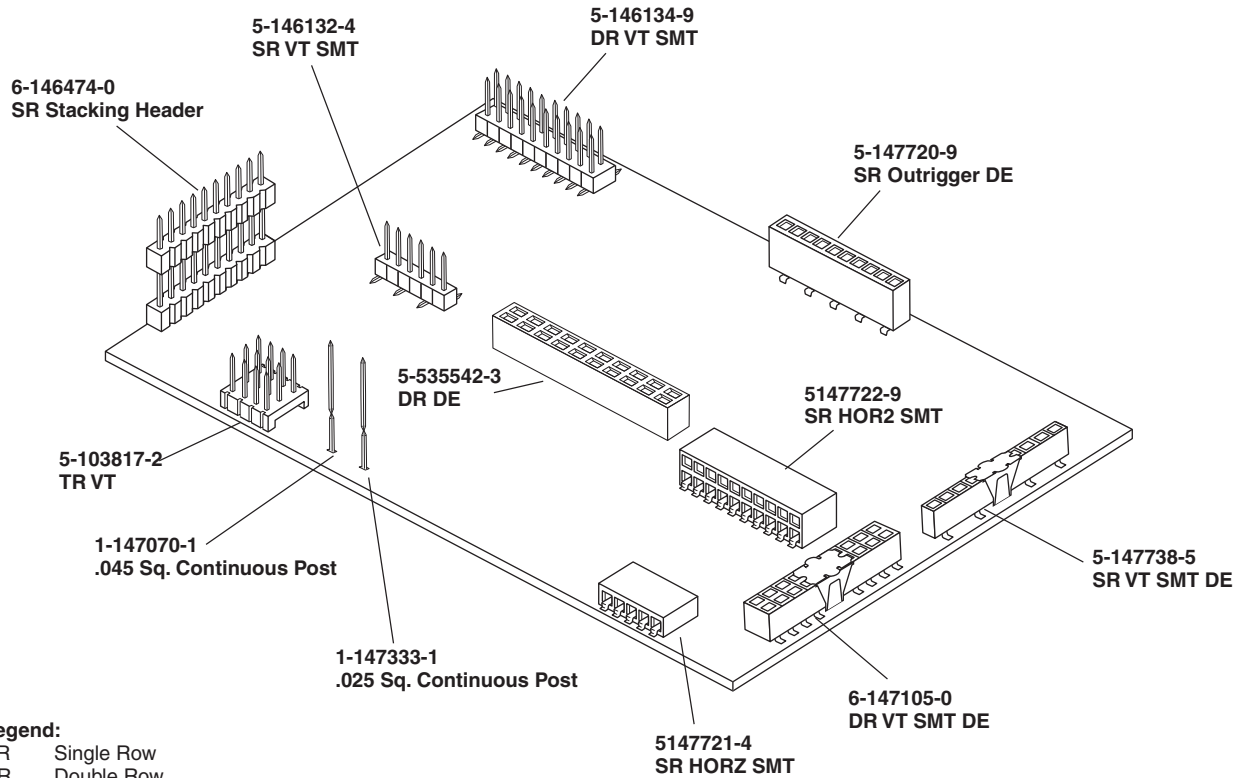


For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System (Continued)

AMPMODU Headers and Receptacles, .100 [2.54] Centerline



Legend:

- SR Single Row
- DR Double Row
- VT Vertical
- RA Right Angle
- RET Retention Feature
- AP ACTION PIN
- BE Bottom Entry
- 3/4 3-Sided-Shrouded Header
- BA Breakaway
- TR Triple Row
- SMT Surface Mount
- HORZ Horizontal
- DE Dual Entry

For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Interconnection System

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 the lowest possible applied cost.

AMPMODU mating posts are supplied typically as headers. They are available in various populations to meet the interconnection and packaging requirements of most systems. However, in instances where packaging configurations do not lend themselves to the economies of headers, TE 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.

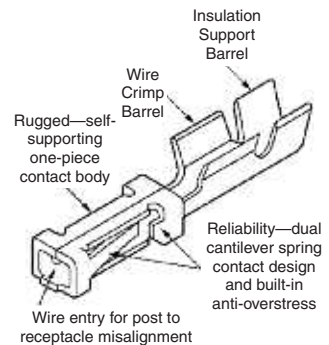
Terms Explained

Receptacle Contacts

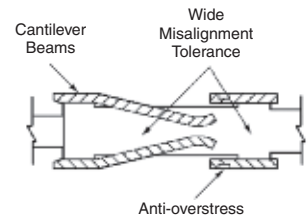
The AMPMODU receptacle cross-section is primarily rectangular, with rounded corners. Two integral cantilever beams contact the mating square or round male posts. Deflection of these spring members is limited by anti-overstress stops, and excessive permanent deformation is prevented. This feature allows a wide range for tolerance of misalignment of mating contacts.

The configuration of the receptacle completely encloses the spring members preventing 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, TE recommends that customers use contact lubricant. See the TE web page for further information.

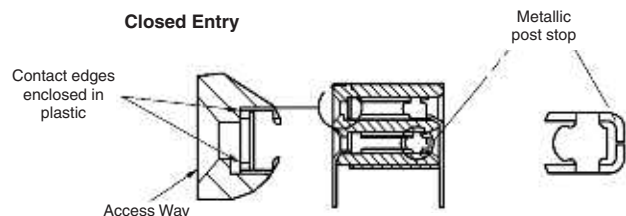
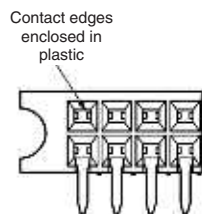


Offers standard, intermediate and high pressure contact forces



Receptacle-Closed Entry Housing Design

The closed entry housing style better eliminates the chance of a mating post stubbing on the edges of the receptacle contact.



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
.000015 [0.00038] Gold	Mod. IV, IV.v, V, MTE, MT, Short Point
.000030 [0.00076] Gold	Locking Clip, Mod. IV, IV.v, V, MTE, MT, Short Point
.000050 [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)
.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		•				•

Board-to-Board Solutions Guide, .100 [2.54] Centerline Products

Problem or Concern	TE's Potential 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	102 —	103 —	198 104, 199	199 105, 200
Header Contacts Damaged During Manufacturing Operation or In-Field Use	Shrouded HEADERS : Standard Profile	115	116	117-121	122-128
Board/Backplane Requires High Temperature Surface-Mount Compatibility	Press-Fit ACTION PIN POST				
	HEADERS : Unshrouded Shrouded	146 —	— —	147 148, 149, 199	— —
	Machine Applied Posts	163, 164			
Application Requires Board Guidance, Polarization and/or Blind-Mate Capability	Surface-Mount Compatible Thru-Hole: HEADERS : Unshrouded Shrouded (Low Profile) RECEPTACLES	102* —	103* —	104* 130*, 137*	105* 138*
	Surface-Mount: HEADERS RECEPTACLES	109* 187, 188	— 172	110 189-192	— 173
Reduction in Parallel Board-to-Board Stack Height Necessary (Refer to Parallel Stack Guide on Page 62.)	Two-Piece Family: w/Guide Posts: HEADERS RECEPTACLES	— —	— —	198, 199 196*	200 195*
	Mod IV Low Profile RECEPTACLES : TOP ENTRY : Thru-Hole Surface-Mount BOTTOM ENTRY : Thru-Hole Surface-Mount DUAL ENTRY : Thru-Hole Surface Mount	178 — — 177 — 181 187, 188	— — — — — —	179, 180* — — — 182-184 189-192	— — — — — —
	RECEPTACLES : Bottom Entry Outrigger (Separate Holes for Receptacle Leads and Mating Leads)	181	—	182	—
Soldering Problems with Thru-Hole Bottom Entry Receptacles (Must Mask Post Holes in Board During Soldering Operation)	RECEPTACLES : Bottom Entry Outrigger (Separate Holes for Receptacle Leads and Mating Leads)	181	—	182	—
Application Requires Connectors to be End-to-End Stackable on .100 [2.54] Grid	End-to-End Stackable: HEADERS (Unshrouded): Thru-Hole Thru-Hole* Surface-Mount RECEPTACLES : Thru-Hole Surface Mount	93, 102 102* 109*	94, 95, 103* 103* —	96, 97, 104* 104* 110*	98, 99, 105 108* —
		175, 177, 178, 181	169* 172	176, 179, 180*, 182*, 183, 184 191, 192	170 173
		188			

*High temperature compatible version, refer to page ref. listed.

Wire-to-Board Solutions Guide, .100 [2.54] Centerline Products

Customer Requirement	TE's Potential Solution	Catalog Page(s)
Application Requires Guidance, Polarization	Mod IV Polarized Housing	220
	MTE Latched Receptacle and Header	230, 231, 244-250
	MT with Polarizing Covers	256-258
Wire-to-Wire Application	Short Point Polarized Housing	224
	Mod IV Receptacle Contacts and Pins	211-213
Wire-to-Wire Application (Latched)	MTE Latched Receptacle and Shrouded Pin Assembly	230, 231, 236, 237
Wire-to-Wire Application (Through Panel)	MTE Panel Mount	242
High Vibration and Shock Applications	Locking Clip Contacts and Housings	207-209
Printed Circuit Board Polarization	MTE Header with PC Board Orientation Peg	248, 249
Board Requires Surface Mount Capability	MTE Surface Mount Headers	251, 252
	MTE High Temperature Compatible Headers	249, 250
Need to mate to AMP-LATCH Eject Headers	Mod IV Ejection Housing	220
Need to Minimize Strain to Cable	MT with Eject Covers	256-259
	Mod IV Housing with Strain Relief	218, 219
Application Requires Self-Retaining Contacts	Locking Clip Contacts	207, 298
Header Secured to Board During/Prior to Soldering	MTE Headers with Post Retention or Holddowns	244-250
Mate to Unshrouded Header with Retention Requirements	Mod IV plain Housing with Mod V Contacts	213, 214, 216
	MTE with High Pressure Contacts	234, 235
Multiple Cables to be Common to One Header	MTE Coupling Shroud, Double- or Single-Row	240, 241
Right-Angle Cable Dress	MT with Hermaphroditic Covers	229, 256, 257, 259
Application Requires Crimp Contacts and MTE Housings	Short Point Contacts	222
Housings and End-to-End and Side-to-Side Stackable	Short Point Double-Row Housing, MTE Plain Housing	223, 228, 229
Connector Must Mate to Post Lengths of .169 [4.29] Min.	Short Point Contacts	222

Mating Post Selection Guide

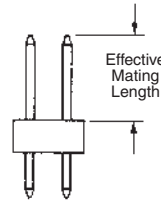
The following selection guide is provided to help in choosing a mating product after a receptacle, header or post has been selected.

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 TE for further recommendations.

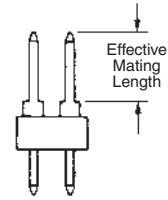
Posts Without Shoulders

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.



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 169, 170, 172, 173	.230 [5.84]	.280 [7.11]
AMPMODU Mod II Vertical Board Mount Receptacle, Single Row, Standard Profile, Top Entry—page 175	.183 [4.65]	.330 [8.38]
AMPMODU Mod II Vertical Board Mount Receptacle, Standard Profile, Double Row, Top Entry, 100 x .100 mt.—page 176	.183 [4.65]	.330 [8.38]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Top Entry, Single Tine—page 178	.183 [4.65]	.255 [6.48]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Bottom Entry—page 177	.280 [7.11]	*
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Top Entry—pages 179, 180	.183 [4.65]	.255 [6.48]
AMPMODU Surface-Mount Receptacle, Vertical Board Mount, Single Row, Dual Entry—page 187, 188	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Double Row, Dual Entry—page 182	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *
AMPMODU Surface-Mount Receptacle, Vertical Board Mount, Double Row, Dual Entry—page 189-192	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *
AMPMODU .600 [15.24] Mod IV Housing with Standard Pressure Contacts—pages 211-220	.210 [5.33]	.283 [7.19]
AMPMODU .600 [15.24] Mod IV Housing with Intermediate Pressure Contacts—pages 211-220	.205 [5.21]	.283 [7.19]
AMPMODU .600 [15.24] Mod IV Housing with High Pressure Contacts—pages 211-220	.185 [4.70]	.283 [7.19]
AMPMODU Mod IV Vertical Board Mount Receptacle, Low Profile, Single Row, Dual Entry—page 181	Top Entry .183 [4.65] Bottom Entry .204 [5.18]	* *

Receptacle Type	Recommended Effective Mating Posts Lengths		
	Minimum	Maximum	
Short Point Housing with Contacts—pages 222-224	.169 [4.29]	.259 [6.58]	
AMPMODU MTE Unloaded Housing with Short Point Contacts—pages 222, 229, 231, 233	.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 256	.222 [5.64]	.273 [6.93]	
AMPMODU MT IDC Assembly with High Pressure Contacts—page 257	.200 [5.08]	.273 [6.93]	
Locking Clip Housing with Contacts—pages 207-209	.273 [6.93]	.350 [8.89]	
Locking Clip Contact without Housing—page 207	.200 [5.08]	.277 [7.04]	
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]

*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 or below vertical receptacle assemblies used in pass through applications).

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.)
	.060 [1.52]	Bandolier Posts	163	NA	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
1	.090 [2.29]	Breakaway** (Unshrouded)	102**	104**	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
	.153 [3.89]	Surface Mount** Breakaway (Unshrouded)	NA	110	Dual Entry, Mod IV	177, 181, 187, 188	182-184, 189-192
	.265 [6.73]	Bandolier Posts	163	137**	Top Entry, Mod IV	178, 181, 187, 188	179, 180, 182-184, 189-192
2	.355 [9.02]	Breakaway** (Unshrouded)	102**	104**	Top Entry, Mod IV	178, 181, 187, 188	179, 180, 182-184, 189-192
	.385 [9.78]	Low Profile Shrouded	NA	135, 137**	Top Entry, Mod IV	NA	179, 180
3	.418 [10.6]	Surface Mount** Breakaway (Unshrouded)	109	110	Surface Mount**, Mod IV, Top Entry	187, 188	189-192
2*	.430 [10.92]	Breakaway** (Unshrouded)	102**	104**	Top Entry, Mod II	175	176
4*	.440 [11.18]	Shrouded, Mod II	115, 116	117, 119	Top Entry, Mod II or Mod IV	175, 178	176, 179, 180
	.528 [13.41]	Stacking Shroud (See Note 2.)	NA	156 (Hood)	Inner Board Receptacle (See Note 2.)	NA	157
	.547 [13.89]	Stacking Shroud (See Note 2.)	NA	160	Outer Board Receptacle (See Note 2.)	NA	158
4	.550 [13.97]	Two-Piece Header Connector System	NA	198, 199	Two-Piece Receptacle** Connector System	NA	196**
	.748 [19.00]	Stacking Shroud (See Note 2.)	NA	156 (Hood)	Inner Board Receptacle (See Note 2.)	NA	157
	.768 [19.51]	Stacking Shroud (See Note 2.)	NA	161	Outer Board Receptacle (See Note 2.)	NA	158
	Various	Stacking Unshrouded	112	113	Mod II/IV Receptacles, Top/Bottom Entry	Various	Various

**High temperature version available, see page ref. listed.

Notes: 1. Headers listed are standard thru-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)

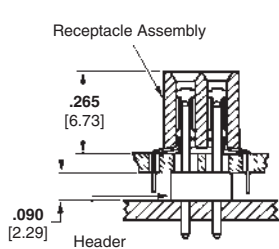


Figure 1
Double-Row, Mod IV, Bottom Entry, Breakaway Header

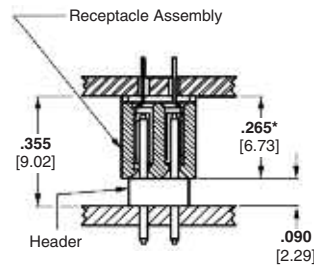


Figure 2
Double-Row, Mod IV, Top Entry, Breakaway Header
*Mod II Receptacle Height is .340 [8.64] for a total stack height of .430 [10.92]

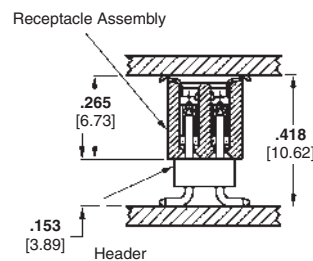


Figure 3
Double-Row, Mod IV, Surface-Mount, Top Entry, Receptacle and Surface-Mount Breakaway Header

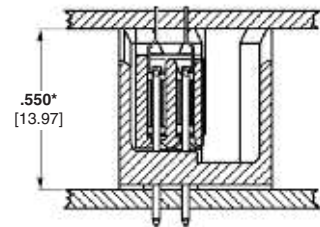
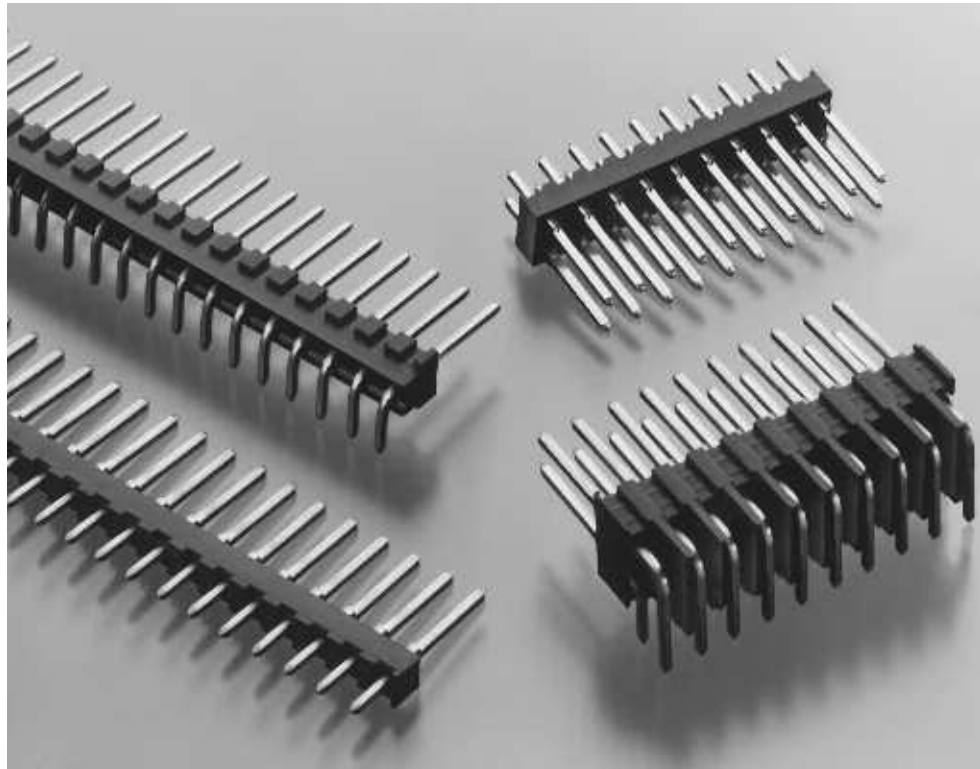


Figure 4
Double-Row, Two-Piece Receptacle and Two-Piece Shrouded Header
*Mod II Shrouded Header Height is .440 [11.18] for a total stack height of .440 [11.18]

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 plated posts
- Mating length for single and double row is .318 [8.08] (.278 [7.06] effective mating length—see page 90)
- 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

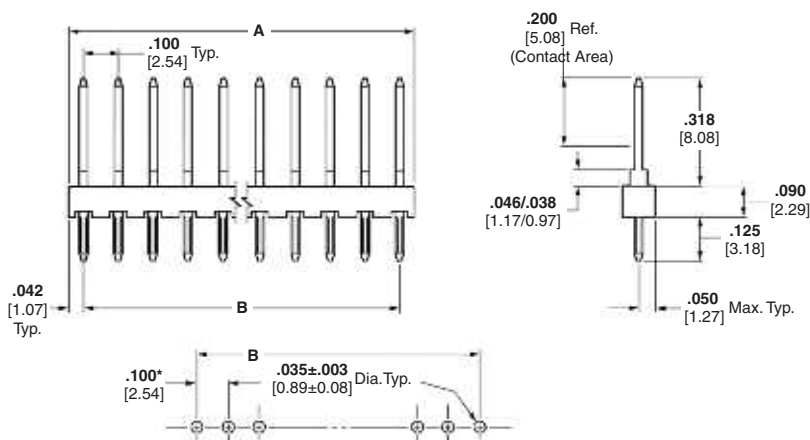
Environmental

Operating Temperature — -65°C to +105°C (black thermoplastic housings)

Current — 3 amperes maximum per contact (dependent upon mating connector)

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Post



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

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/Nickel — Plating option available; minimum order quantities may apply. Consult TE.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

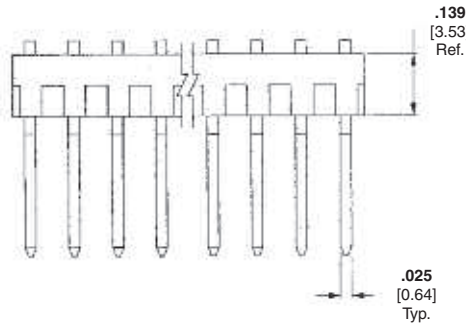
See mating connector for applicable product and application specifications.

Note: All part numbers are RoHS compliant.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	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	87224-7
8	.784 [19.91]	.700 [17.78]	87220-8	87224-8
9	.884 [22.45]	.800 [20.32]	87220-9	87224-9
10	.984 [24.99]	.900 [22.86]	1-87220-0	1-87224-0
11	1.084 [27.53]	1.000 [25.40]	1-87220-1	1-87224-1
12	1.184 [30.07]	1.100 [27.94]	1-87220-2	1-87224-2
13	1.284 [32.61]	1.200 [30.48]	1-87220-3	1-87224-3
14	1.384 [35.15]	1.300 [33.02]	1-87220-4	1-87224-4
15	1.484 [37.69]	1.400 [35.56]	1-87220-5	1-87224-5
16	1.584 [40.23]	1.500 [38.10]	1-87220-6	1-87224-6
17	1.684 [42.77]	1.600 [40.64]	1-87220-7	1-87224-7
18	1.784 [45.31]	1.700 [43.18]	1-87220-8	1-87224-8
19	1.884 [47.85]	1.800 [45.72]	1-87220-9	1-87224-9
20	1.984 [50.39]	1.900 [48.26]	2-87220-0	2-87224-0
21	2.084 [52.93]	2.000 [50.80]	2-87220-1	2-87224-1
22	2.184 [55.47]	2.100 [53.34]	2-87220-2	2-87224-2
23	2.284 [58.01]	2.200 [55.88]	2-87220-3	2-87224-3
24	2.384 [60.55]	2.300 [58.42]	2-87220-4	2-87224-4
25	2.484 [63.09]	2.400 [60.96]	2-87220-5	2-87224-5
26	2.584 [65.63]	2.500 [63.50]	2-87220-6	2-87224-6
27	2.684 [68.17]	2.600 [66.04]	2-87220-7	2-87224-7
28	2.784 [70.71]	2.700 [68.58]	2-87220-8	2-87224-8
29	2.884 [73.25]	2.800 [71.12]	2-87220-9	2-87224-9
30	2.984 [75.79]	2.900 [73.66]	3-87220-0	3-87224-0
31	3.084 [78.33]	3.000 [76.20]	3-87220-1	3-87224-1
32	3.184 [80.87]	3.100 [78.74]	3-87220-2	3-87224-2
33	3.284 [83.41]	3.200 [81.28]	3-87220-3	3-87224-3
34	3.384 [85.95]	3.300 [83.82]	3-87220-4	3-87224-4
35	3.484 [88.49]	3.400 [86.36]	3-87220-5	3-87224-5
36	3.584 [91.03]	3.500 [88.90]	3-87220-6	3-87224-6
37	3.684 [93.57]	3.600 [91.44]	3-87220-7	3-87224-7
38	3.784 [96.11]	3.700 [93.98]	3-87220-8	3-87224-8
39	3.884 [98.65]	3.800 [96.52]	3-87220-9	3-87224-9
40	3.984 [101.19]	3.900 [99.06]	4-87220-0	4-87224-0

Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post



Material and Finish

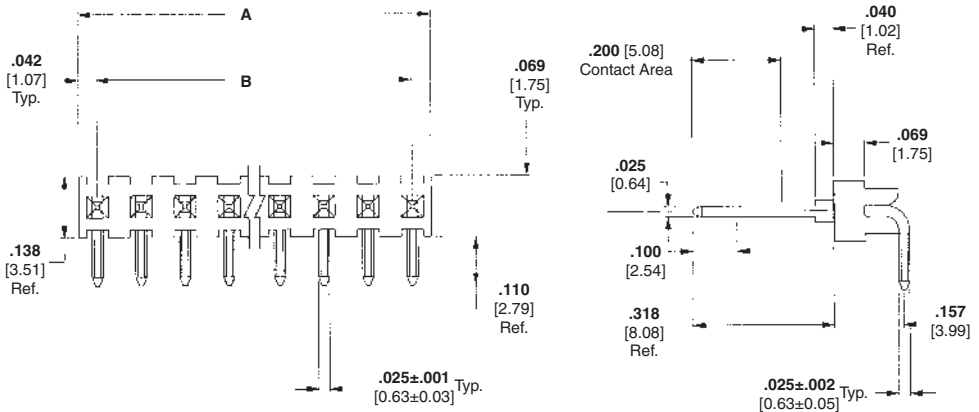
Housing — Black thermoplastic, 94V-0 rated

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/Nickel — Plating option available; minimum order quantities may apply. Consult TE.



Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
1	.084 [2.13]	—	87232-1	87233-1
2	.184 [4.67]	.100 [2.54]	87232-2	87233-2
3	.284 [7.21]	.200 [5.08]	87232-3	87233-3
4	.384 [9.75]	.300 [7.62]	87232-4	87233-4
5	.484 [12.29]	.400 [10.16]	87232-5	87233-5
6	.584 [14.83]	.500 [12.70]	87232-6	87233-6
7	.684 [17.37]	.600 [15.24]	87232-7	87233-7
8	.784 [19.91]	.700 [17.78]	87232-8	87233-8
9	.884 [22.45]	.800 [20.32]	87232-9	87233-9
10	.984 [24.99]	.900 [22.86]	1-87232-0	1-87233-0
11	1.084 [27.53]	1.000 [25.40]	1-87232-1	1-87233-1
12	1.184 [30.07]	1.100 [27.94]	1-87232-2	1-87233-2
13	1.284 [32.61]	1.200 [30.48]	1-87232-3	1-87233-3
14	1.384 [35.15]	1.300 [33.02]	1-87232-4	1-87233-4
15	1.484 [37.69]	1.400 [35.56]	1-87232-5	1-87233-5
16	1.584 [40.23]	1.500 [38.10]	1-87232-6	1-87233-6
17	1.684 [42.77]	1.600 [40.64]	1-87232-7	1-87233-7
18	1.784 [45.31]	1.700 [43.18]	1-87232-8	1-87233-8
19	1.884 [47.85]	1.800 [45.72]	1-87232-9	1-87233-9
20	1.984 [50.39]	1.900 [48.26]	2-87232-0	2-87233-0

Note: All part numbers are RoHS compliant.

Unshrouded Headers

5

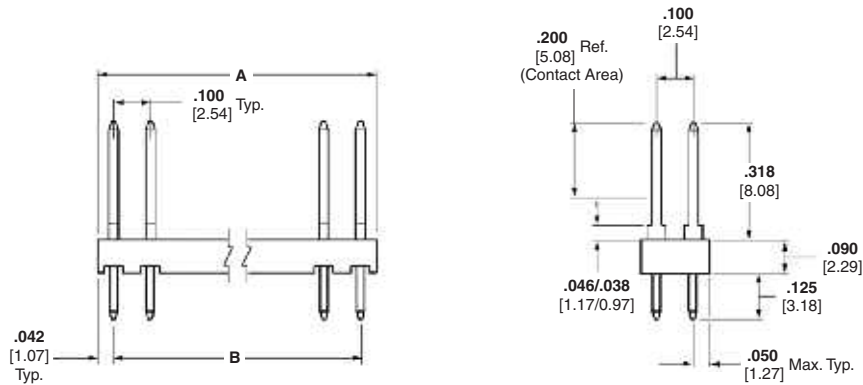
Standard Headers—Unshrouded, Single Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
21	2.084 [52.93]	2.000 [50.80]	2-87232-1	2-87233-1
22	2.184 [55.47]	2.100 [53.34]	2-87232-2	2-87233-2
23	2.284 [58.01]	2.200 [55.88]	2-87232-3	2-87233-3
24	2.384 [60.55]	2.300 [58.42]	2-87232-4	2-87233-4
25	2.484 [63.09]	2.400 [60.96]	2-87232-5	2-87233-5
26	2.584 [65.63]	2.500 [63.50]	2-87232-6	2-87233-6
27	2.684 [68.17]	2.600 [66.04]	2-87232-7	2-87233-7
28	2.784 [70.71]	2.700 [68.58]	2-87232-8	2-87233-8
29	2.884 [73.25]	2.800 [71.12]	2-87232-9	2-87233-9
30	2.984 [75.79]	2.900 [73.66]	3-87232-0	3-87233-0
31	3.084 [78.33]	3.000 [76.20]	3-87232-1	3-87233-1
32	3.184 [80.87]	3.100 [78.74]	3-87232-2	3-87233-2
33	3.284 [83.41]	3.200 [81.28]	3-87232-3	3-87233-3
34	3.385 [85.95]	3.300 [83.82]	3-87232-4	3-87233-4
35	3.484 [88.49]	3.400 [86.36]	3-87232-5	3-87233-5
36	3.584 [91.03]	3.500 [88.90]	3-87232-6	3-87233-6
37	3.684 [93.57]	3.600 [91.44]	3-87232-7	3-87233-7
38	3.784 [96.11]	3.700 [93.98]	3-87232-8	3-87233-8
39	3.884 [98.65]	3.800 [96.52]	3-87232-9	3-87233-9
40	3.984 [101.19]	3.900 [99.06]	4-87232-0	4-87233-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Post



Material and Finish

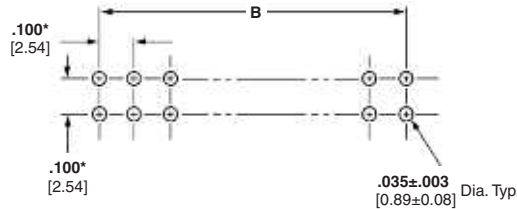
Housing — Black thermoplastic, 94V-0 rated

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/Nickel — Plating option available; minimum order quantities may apply. Consult TE.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
2	.084 [2.13]	—	1-87215-0	87227-1
4	.184 [4.67]	.100 [2.54]	1-87215-1	87227-2
6	.284 [7.21]	.200 [5.08]	1-87215-2	87227-3
8	.384 [9.75]	.300 [7.62]	87215-1	87227-4
10	.484 [12.29]	.400 [10.16]	87215-2	87227-5
12	.584 [14.83]	.500 [12.70]	87215-3	87227-6
14	.684 [17.37]	.600 [15.24]	87215-4	87227-7
16	.784 [19.91]	.700 [17.78]	87215-5	87227-8
18	.884 [22.45]	.800 [20.32]	87215-6	87227-9
20	.984 [24.99]	.900 [22.86]	87215-7	1-87227-0
22	1.084 [27.53]	1.000 [25.40]	1-87215-3	1-87227-1
24	1.184 [30.07]	1.100 [27.94]	87215-8	1-87227-2
26	1.284 [32.61]	1.200 [30.48]	87215-9	1-87227-3
28	1.384 [35.15]	1.300 [33.02]	1-87215-4	1-87227-4
30	1.484 [37.69]	1.400 [35.56]	1-87215-5	1-87227-5
32	1.584 [40.23]	1.500 [38.10]	1-87215-6	1-87227-6
34	1.684 [42.77]	1.600 [40.64]	1-87215-7	1-87227-7
36	1.784 [45.31]	1.700 [43.18]	1-87215-8	1-87227-8
38	1.884 [47.85]	1.800 [45.72]	1-87215-9	1-87227-9
40	1.984 [50.39]	1.900 [48.26]	2-87215-0	2-87227-0

Note: All part numbers are RoHS compliant.

**Standard Headers—Unshrouded, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
42	2.084 [52.93]	2.000 [50.80]	2-87215-1	2-87227-1
44	2.184 [55.47]	2.100 [53.34]	2-87215-2	2-87227-2
46	2.284 [58.01]	2.200 [55.88]	2-87215-3	2-87227-3
48	2.384 [60.55]	2.300 [58.42]	2-87215-4	2-87227-4
50	2.484 [63.09]	2.400 [60.96]	2-87215-5	2-87227-5
52	2.584 [65.63]	2.500 [63.50]	2-87215-6	2-87227-6
54	2.684 [68.17]	2.600 [66.04]	2-87215-7	2-87227-7
56	2.784 [70.71]	2.700 [68.58]	2-87215-8	2-87227-8
58	2.884 [73.25]	2.800 [71.12]	2-87215-9	2-87227-9
60	2.984 [75.79]	2.900 [73.66]	3-87215-0	3-87227-0
62	3.084 [78.33]	3.000 [76.20]	3-87215-1	3-87227-1
64	3.184 [80.87]	3.100 [78.74]	3-87215-2	3-87227-2
66	3.284 [83.41]	3.200 [81.28]	3-87215-3	3-87227-3
68	3.384 [85.95]	3.300 [83.82]	3-87215-4	3-87227-4
70	3.484 [88.49]	3.400 [86.36]	3-87215-5	3-87227-5
72	3.584 [91.03]	3.500 [88.90]	3-87215-6	3-87227-6
74	3.684 [93.57]	3.600 [91.44]	3-87215-7	3-87227-7
76	3.784 [96.11]	3.700 [93.98]	3-87215-8	3-87227-8
78	3.884 [98.65]	3.800 [96.52]	3-87215-9	3-87227-9
80	3.984 [101.19]	3.900 [99.06]	4-87215-0	4-87227-0

Note: All part numbers are RoHS compliant.

**Standard Headers—Unshrouded, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

**.025 [0.64] Square
Right-Angle Post**



Material and Finish

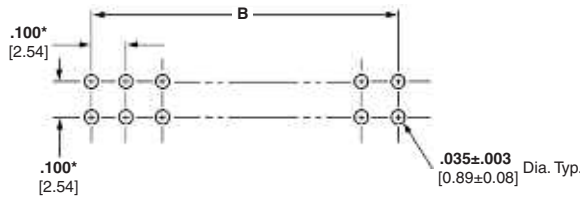
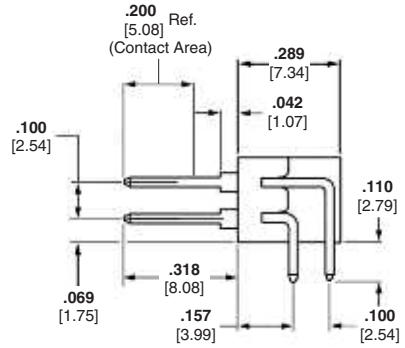
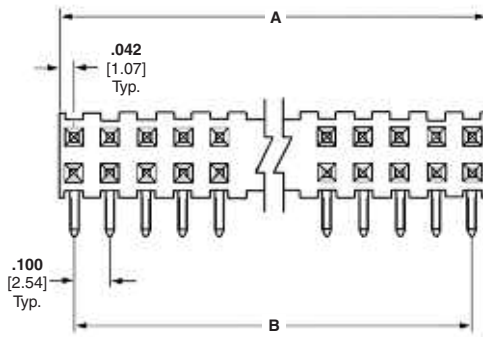
Housing — Black thermoplastic, 94V-0 rated

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/Nickel — Plating option available; minimum order quantities may apply. Consult TE.



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
2	.084 [2.13]	—	1-86479-3	87230-1
4	.184 [4.67]	.100 [2.54]	1-86479-4	87230-2
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	87230-6
14	.684 [17.37]	.600 [15.24]	86479-5	87230-7
16	.784 [19.91]	.700 [17.78]	86479-2	87230-8
18	.884 [22.45]	.800 [20.32]	86479-6	87230-9
20	.984 [24.99]	.900 [22.86]	86479-1	1-87230-0
22	1.084 [27.53]	1.000 [25.40]	1-86479-7	1-87230-1
24	1.184 [30.07]	1.100 [27.94]	86479-7	1-87230-2
26	1.284 [32.61]	1.200 [30.48]	1-86479-0	1-87230-3
28	1.384 [35.15]	1.300 [33.02]	1-86479-8	1-87230-4
30	1.484 [37.69]	1.400 [35.56]	1-86479-9	1-87230-5
32	1.584 [40.23]	1.500 [38.10]	2-86479-0	1-87230-6
34	1.684 [42.77]	1.600 [40.64]	2-86479-1	1-87230-7
36	1.784 [45.31]	1.700 [43.18]	2-86479-2	1-87230-8
38	1.884 [47.85]	1.800 [45.72]	2-86479-3	1-87230-9
40	1.984 [50.39]	1.900 [48.26]	2-86479-4	2-87230-0

Note: All part numbers are RoHS compliant.

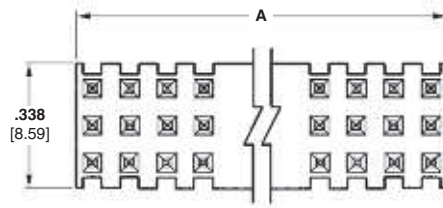
**Standard Headers—Unshrouded, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
42	2.084 [52.93]	2.000 [50.80]	2-86479-5	2-87230-1
44	2.184 [55.47]	2.100 [53.34]	2-86479-6	2-87230-2
46	2.284 [58.01]	2.200 [55.88]	2-86479-7	2-87230-3
48	2.384 [60.55]	2.300 [58.42]	2-86479-8	2-87230-4
50	2.484 [63.09]	2.400 [60.96]	2-86479-9	2-87230-5
52	2.584 [65.63]	2.500 [63.50]	3-86479-0	2-87230-6
54	2.684 [68.17]	2.600 [66.04]	3-86479-1	2-87230-7
56	2.784 [70.71]	2.700 [68.58]	3-86479-2	2-87230-8
58	2.884 [73.25]	2.800 [71.12]	3-86479-3	2-87230-9
60	2.984 [75.79]	2.900 [73.66]	3-86479-4	3-87230-0
62	3.084 [78.33]	3.000 [76.20]	3-86479-5	3-87230-1
64	3.184 [80.87]	3.100 [78.74]	3-86479-6	3-87230-2
66	3.284 [83.41]	3.200 [81.28]	3-86479-7	3-87230-3
68	3.384 [85.95]	3.300 [83.82]	3-86479-8	3-87230-4
70	3.484 [88.49]	3.400 [86.36]	3-86479-9	3-87230-5
72	3.584 [91.03]	3.500 [88.90]	4-86479-0	3-87230-6
74	3.684 [93.57]	3.600 [91.44]	4-86479-1	3-87230-7
76	3.784 [96.11]	3.700 [93.98]	4-86479-2	3-87230-8
78	3.884 [98.65]	3.800 [96.52]	4-86479-3	3-87230-9
80	3.984 [101.19]	3.900 [99.06]	4-86479-4	4-87230-0

Note: All part numbers are RoHS compliant.

Standard Headers—Unshrouded, Triple-Row, .100 [2.54] Centerline

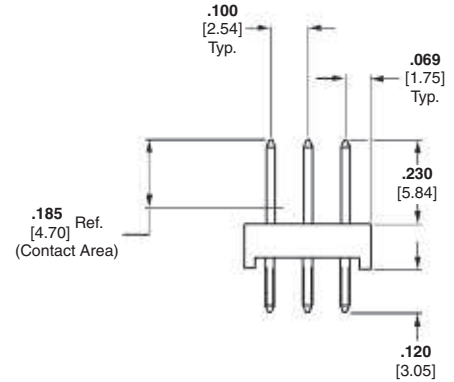
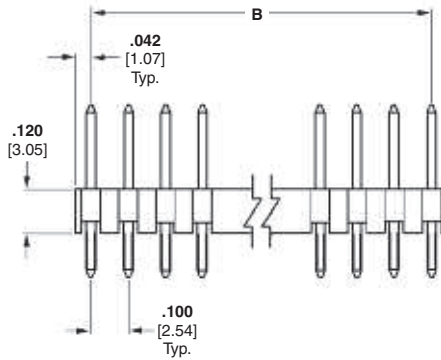
.025 [0.64] Square Straight Post



Material and Finish

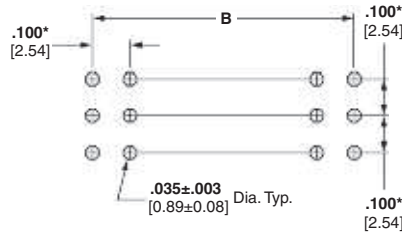
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated 000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel



Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Unshrouded Headers



5

No. of Pos.	Dimensions		Part Nos.
	A	B	
9	.284 [7.21]	.200 [5.08]	5-103817-1
12	.384 [9.75]	.300 [7.62]	5-103817-2
15	.484 [12.29]	.400 [10.16]	5-103817-3
18	.584 [14.83]	.500 [12.70]	5-103817-4
21	.684 [17.37]	.600 [15.24]	5-103817-5
24	.784 [19.91]	.700 [17.78]	5-103817-6
27	.884 [22.45]	.800 [20.32]	5-103817-7
30	.984 [24.99]	.900 [22.86]	5-103817-8
33	1.084 [27.53]	1.000 [25.40]	5-103817-9
42	1.384 [35.15]	1.300 [33.02]	6-103817-2
45	1.484 [37.69]	1.400 [35.56]	6-103817-3
60	1.984 [50.39]	1.900 [48.26]	6-103817-8
69	2.284 [58.01]	2.200 [55.88]	7-103817-1
72	2.384 [60.55]	2.300 [58.42]	7-103817-2
96	3.184 [80.87]	3.100 [78.74]	8-103817-0
120	3.984 [101.19]	3.900 [99.06]	8-103817-8

Note: All part numbers are RoHS compliant.

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 can 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 plated posts
- Post lengths include .230 [5.84] and .318 [8.08] for connector mating
- Board retention feature available
- Black, glass-filled thermoplastic housings; high temperature compatible
- 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 (dependent upon mating receptacle)

Breakaway Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

.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 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 on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

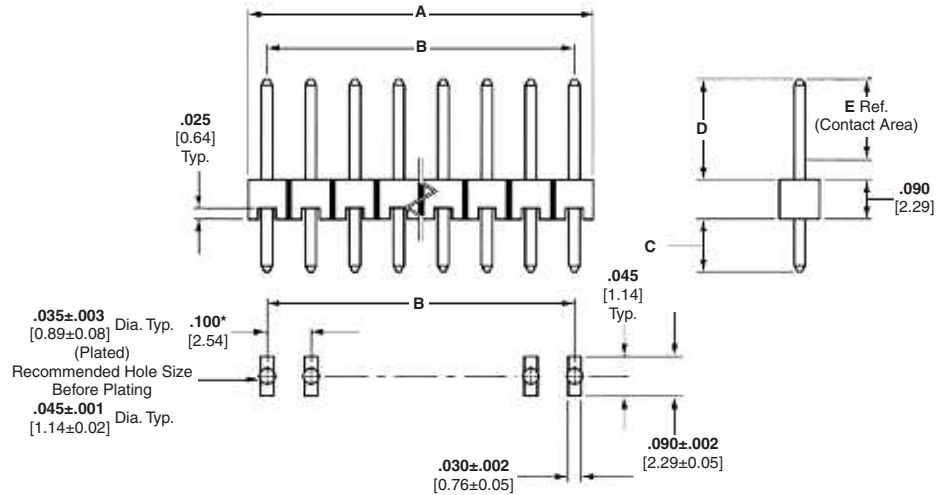
Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.

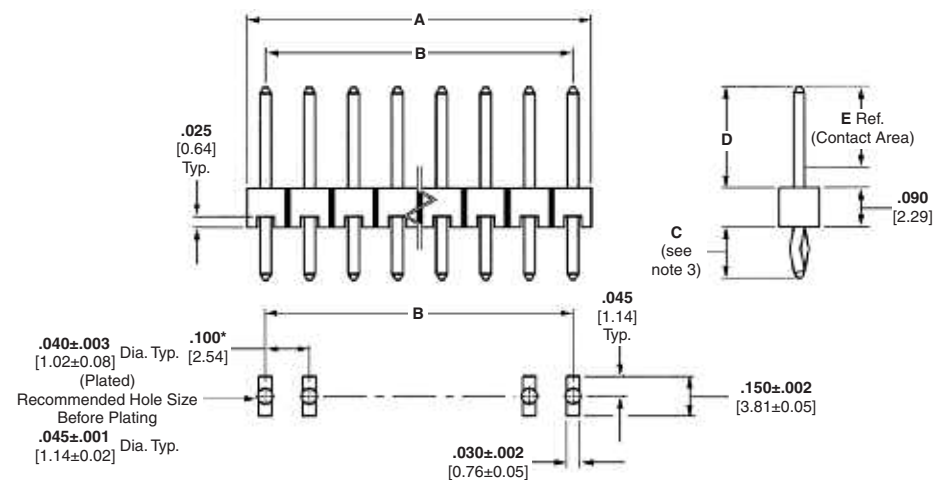
Headers with Solder Tails



Recommended PC Board Mounting Pattern (for .062 [1.57] thick PC board; .008 [2.03] thick stencil)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Recommended PC Board Mounting Pattern (for .062 [1.57] thick PC board; .008 [2.03] thick stencil)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Header Style	No. of Pos.	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 Nos.			Post Plating/Part Nos.			Post Plating/Part Nos.		
				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]	—	5-146285-1	5-146284-1	5-146282-1	5-146281-1	5-146280-1	5-146278-1	5-146277-1	5-146276-1	5-146274-1
	40	3.984 [101.19]	3.900 [99.06]	9-146285-0	9-146284-0	9-146282-0	9-146281-0	9-146280-0	9-146278-0	9-146277-0	9-146276-0	9-146274-0
With Board Retention Tails (See Notes 2 and 3.)	3	.284 [7.21]	.200 [5.08]	5-146297-3	5-146296-3	5-146294-3	5-146293-3	5-146292-3	5-146290-3	5-146289-3	5-146288-3	5-146286-3
	40	3.984 [101.19]	3.900 [99.06]	9-146297-0	9-146296-0	9-146294-0	9-146293-0	9-146292-0	9-146290-0	9-146289-0	9-146288-0	9-146286-0

- 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 plus 5- -0 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 5-146285-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 7-146292-6. This part numbering system applies only to this page.
 3. 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.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Single-Row, .100 [2.54] Centerline (Continued)

.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 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.

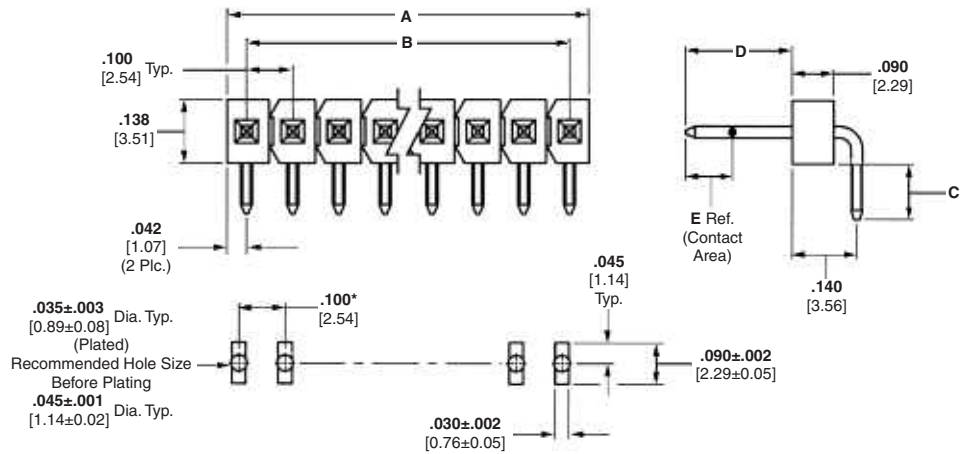
Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

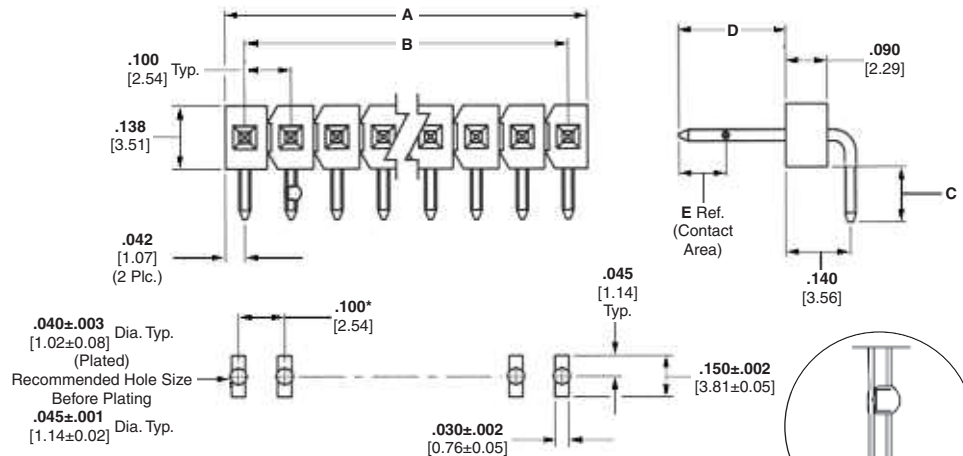
See mating connector for applicable product and application specifications.

Headers with Solder Tails

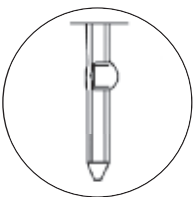


Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.



Board Retention Tail using Swaged Tails (All Header Sizes)

Header Style	No. of Pos.	Dimensions		Part Nos.	
		A	B	C = .120 [3.05] D = .230 [5.84] E = .185 [4.70]	C = .110 [2.79] D = .318 [8.08] E = .200 [5.08]
With Solder Tails (See Notes 1 and 2.)	1	.084 [2.13]	—	5-146304-1	5-146305-1
	40	3.984 [101.19]	3.900 [99.06]	9-146304-0	9-146305-0
With Board Retention Tails (See Note 2.)	3	.084 [2.13]	—	5-146306-3	5-146307-3
	40	3.984 [101.19]	3.900 [99.06]	9-146306-0	9-146307-0

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 plus 5- -0 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 5-146304-8. The complete part number for a 26-position header with board retention tails (C dimension .120 [3.05]) would be 7-146306-6. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.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 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 on solder tail, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel

Performance Characteristics (Board Retention Tails)

Insertion Force — 12 lb [53.4N] max.

Retention Force — .25 lb [1.11N] min.

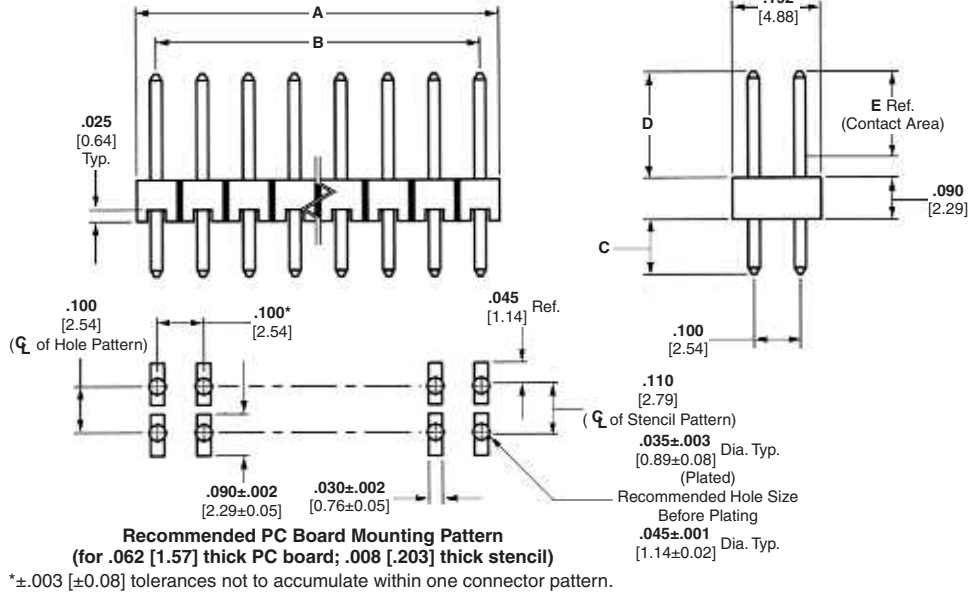
Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

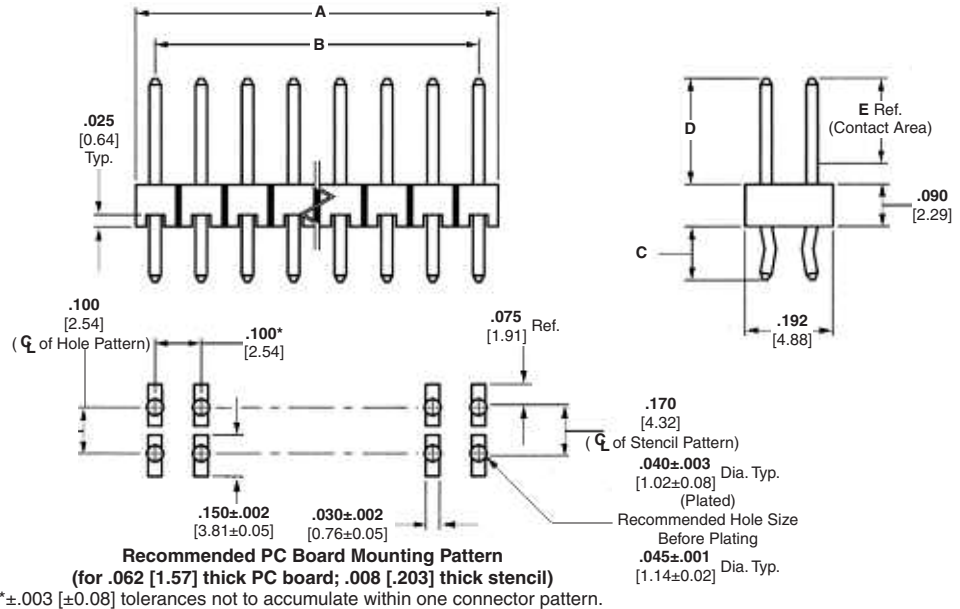
Technical Documents — page 276

See mating connector for applicable product and application specifications.

Headers with Solder Tails



Headers with Board Retention Tails



Header Style	No. of Pos.	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 Nos.			Post Plating/Part Nos.			Post Plating/Part Nos.		
				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]	—	5-146261-1	5-146260-1	5-146258-1	5-146257-1	5-146256-1	5-146254-1	5-146253-1	5-146252-1	5-146250-1
	80	3.984 [101.19]	3.900 [99.06]	9-146261-0	9-146260-0	9-146258-0	9-146257-0	9-146256-0	9-146254-0	9-146253-0	9-146252-0	9-146250-0
With Board Retention Tails (See Note 2.)	2	.084 [2.13]	—	5-146273-1	5-146272-1	5-146270-1	5-146269-1	5-146268-1	5-146266-1	5-146265-1	5-146264-1	5-146262-1
	80	3.984 [101.19]	3.900 [99.06]	9-146273-0	9-146272-0	9-146270-0	9-146269-0	9-146268-0	9-146266-0	9-146265-0	9-146264-0	9-146262-0

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 plus 5-0 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 5-146261-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05], post plating B) would be 7-146268-0. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

Breakaway Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.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] tin 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.

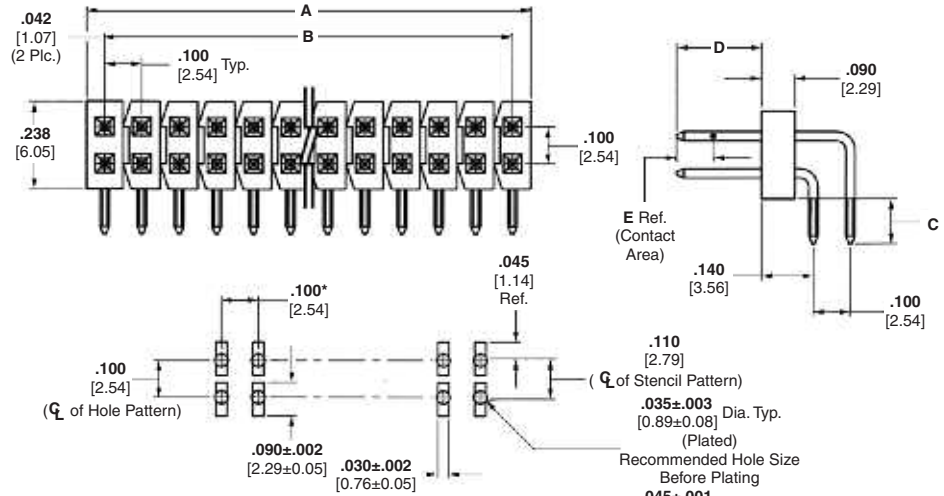
Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Technical Documents — page 276

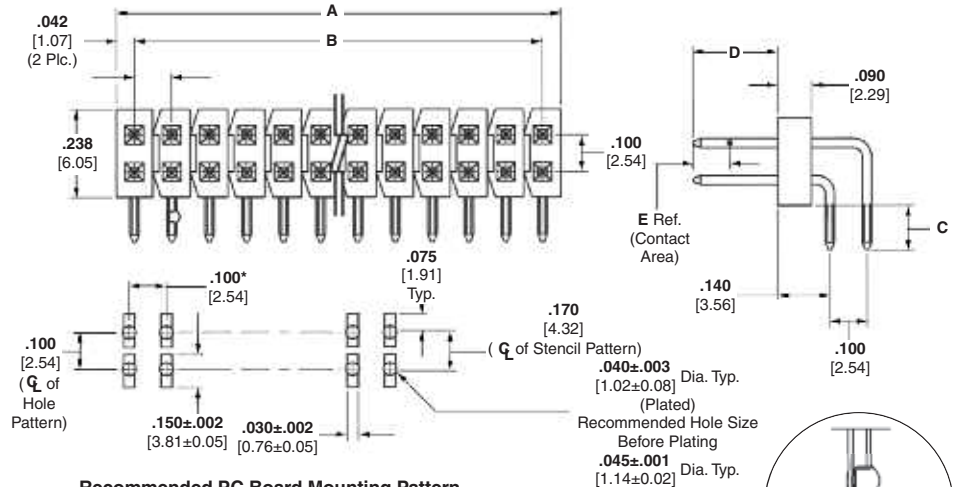
See mating connector for applicable product and application specifications.

Headers with Solder Tails

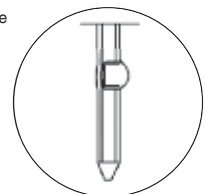


Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Headers with Board Retention Tails



Recommended PC Board Mounting Pattern
(for .062 [1.57] thick PC board; .008 [.203] thick stencil)
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.



Board Retention using Swaged Tails (All Header Sizes)

Header Style	No. of Pos.	Dimensions		C = .120 [3.05]	
		A	B	D = .230 [5.84]	E = .185 [4.70]
With Solder Tails (See Notes 1 and 2.)	2	.084 [2.13]	—	Part Nos.	5-146308-1
	80	3.984 [101.19]	3.900 [99.06]	Part Nos.	9-146308-0
With Board Retention Tails (See Note 2.)	2	.084 [2.13]	—	C = .110 [2.79]	5-146310-1
	80	3.984 [101.19]	3.900 [99.06]	D = .318 [8.08]	9-146310-0

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 plus 5-0 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 5-146308-8. The complete part number for a 40-position header with board retention tails (C dimension .120 [3.05]) would be 7-146310-0. This part numbering system applies only to this page.

Note: All part numbers are RoHS compliant.

AMPMODU Reeled Breakaway Headers

Features of Breakaway Headers

- Design and inventory versatility — headers can easily be made into a variety of sizes
- 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



TE 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 TE is known for in the connector industry.

Reeled breakaway headers provide the flexibility 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, 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)

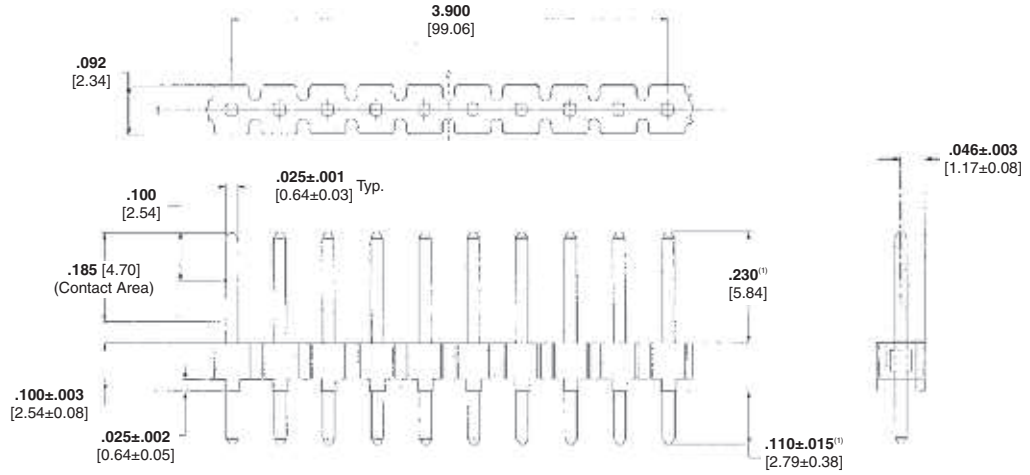
Potential industries include: computer peripherals, telecommunications equipment, consumer, automotive, medical and test equipment.

Tooling available from:
Robo-Pak, Inc.
814 Lakeshore Drive
East Bethel, MN 55902

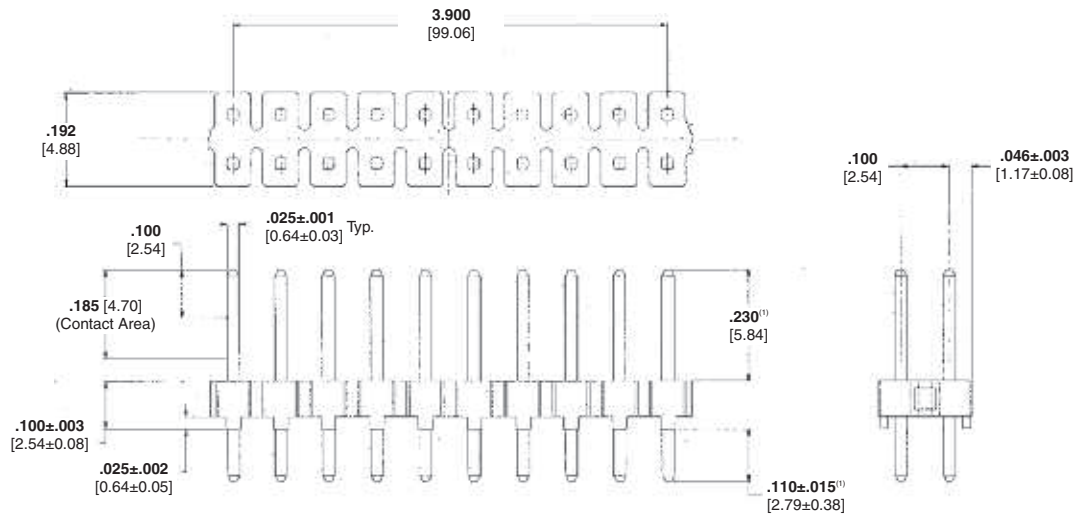
A pin retention and pin removal tooling option is also available in addition to cutting.

AMPMODU Reeled Breakaway Headers (Continued)

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 TE P/N	Make From Reeled P/N	Existing TE P/N	Make From Reeled P/N	Existing TE P/N	Make From Reeled P/N	Existing TE 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	103322	5-146853-1	103328	5-146851-1	103321	5-146852-1	103327	5-146850-1
	146250		146254		146274		146278	
15 Au Duplex	102973	5-146861-1	103186	5-146859-1	102972	5-146860-1	103185	5-146858-1
	146252		146256		146276		146280	
30 Au Duplex	102977	5-146871-1	103240	5-146869-1	102976	5-146870-1	103239	5-146868-1
	146253		146257		146277		146281	

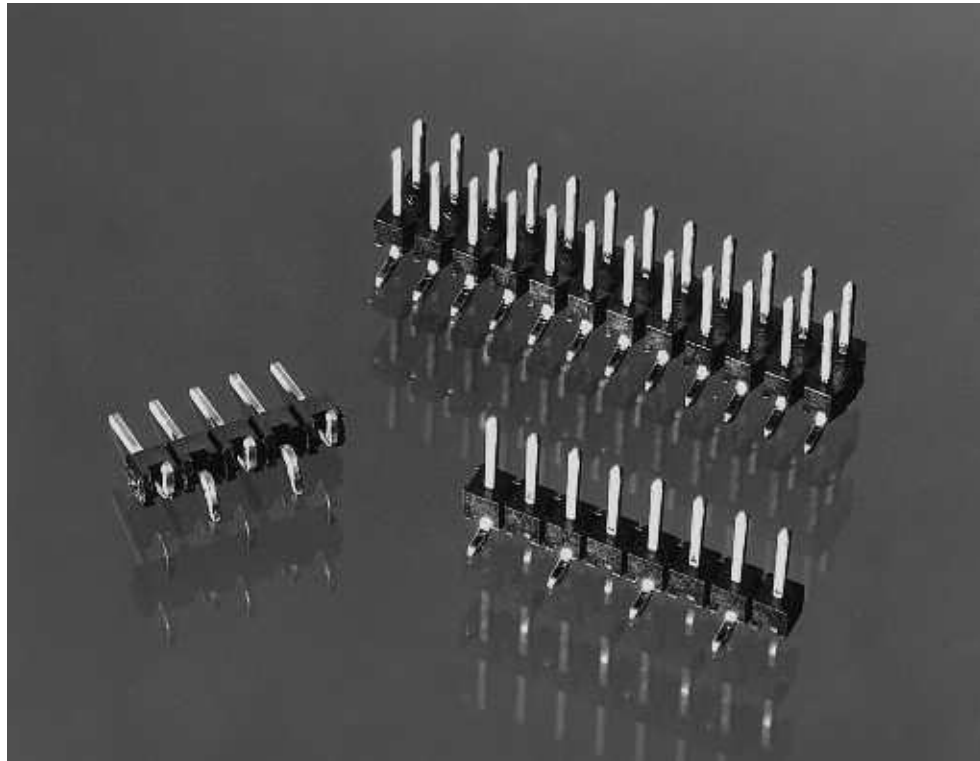
Note: Reeled Headers are a functional substitute for standard breakaways, however there are visual differences (i.e. housing appearance and bow due to reeling requirement).

Note: All part numbers are RoHS compliant.

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 plated posts
- Posts coplanar within .006 [0.15]
- Tape and reel packaging available in addition to single tube packaging. Contact TE.
- Pick-and-place cap available for vacuum placement. Contact TE.



An extension of the AMPMODU Breakaway Header product family are 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 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.

Breakaway Surface Mount 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 on solder area, with entire post underplated .000050 [0.00127] nickel

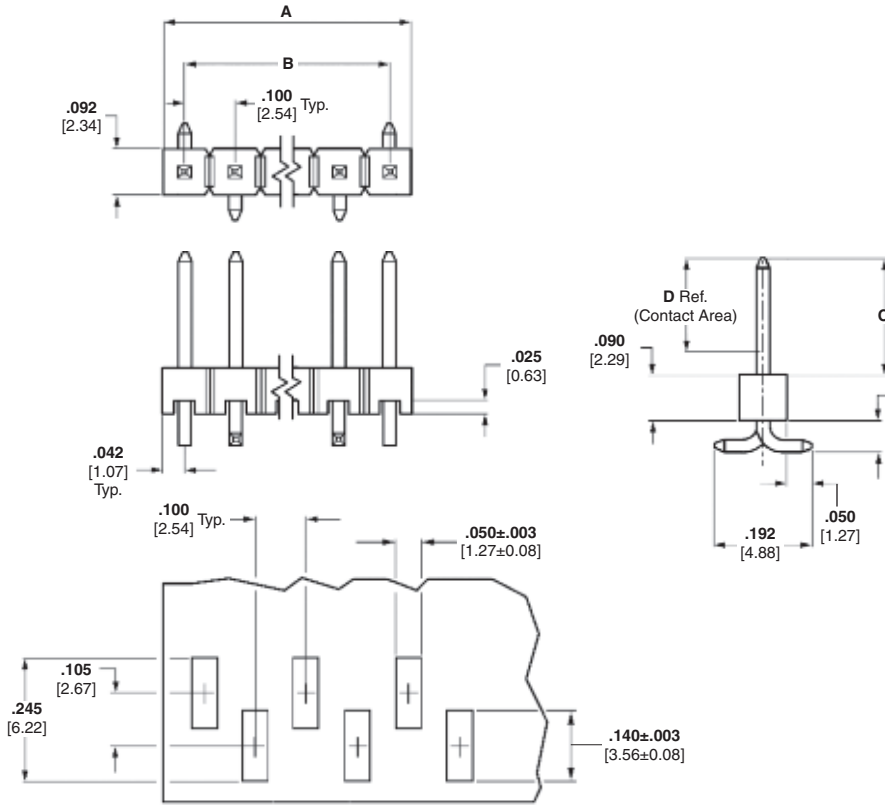
Plating B — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Receptacle — Refer to Mating Post Selection Guide — page 90

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended Etched Circuit Layout
(Using .008 [0.20] thick stencil)

Surface Mount Breakaway Headers

5

No. of Pos.	Dimensions		C = .230 [5.84] D = .185 [4.70]		C = .320 [8.13] D = .200 [5.08]	
	A	B	Post Plating/Part Nos.		Post Plating/Part Nos.	
			Plating A	Plating B	Plating A	Plating B
3	.284 [7.21]	.200 [5.08]	5-146128-1	5-146132-1	5-146129-1	5-146133-1
4	.384 [9.75]	.300 [7.62]	5-146128-2	5-146132-2	5-146129-2	5-146133-2
5	.484 [12.29]	.400 [10.16]	5-146128-3	5-146132-3	5-146129-3	5-146133-3
6	.584 [14.83]	.500 [12.70]	5-146128-4	5-146132-4	5-146129-4	5-146133-4
7	.684 [17.37]	.600 [15.24]	5-146128-5	5-146132-5	5-146129-5	5-146133-5
8	.784 [19.91]	.700 [17.78]	5-146128-6	5-146132-6	5-146129-6	5-146133-6
9	.884 [22.45]	.800 [20.32]	5-146128-7	5-146132-7	5-146129-7	5-146133-7
10	.984 [24.99]	.900 [22.86]	5-146128-8	5-146132-8	5-146129-8	5-146133-8
11	1.084 [27.53]	1.000 [25.40]	5-146128-9	5-146132-9	5-146129-9	5-146133-9
12	1.184 [30.07]	1.100 [27.94]	6-146128-0	6-146132-0	6-146129-0	6-146133-0
13	1.284 [32.61]	1.200 [30.48]	6-146128-1	6-146132-1	6-146129-1	6-146133-1
14	1.384 [35.15]	1.300 [33.02]	6-146128-2	6-146132-2	6-146129-2	6-146133-2
15	1.484 [37.69]	1.400 [35.56]	6-146128-3	6-146132-3	6-146129-3	6-146133-3

Note: All part numbers are RoHS compliant.

Breakaway Surface Mount 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

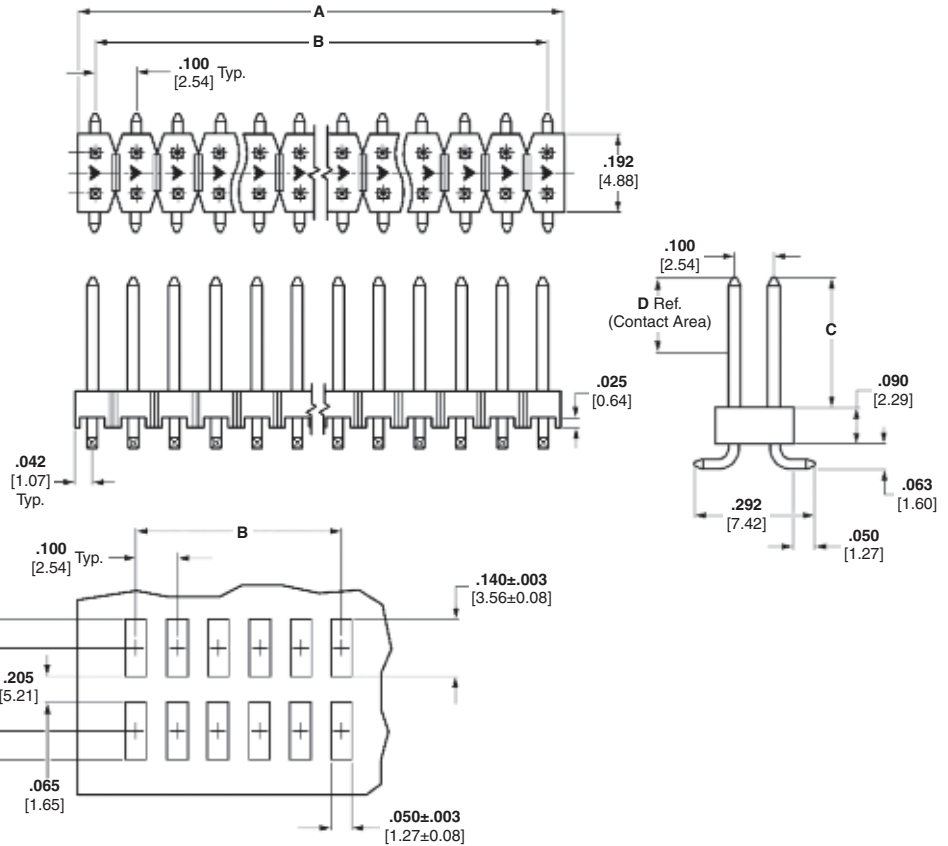
Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Receptacles — Refer to Mating Post Selection Guide — page 90



Recommended Etched Circuit Layout
(Using .008 [0.20] thick stencil)

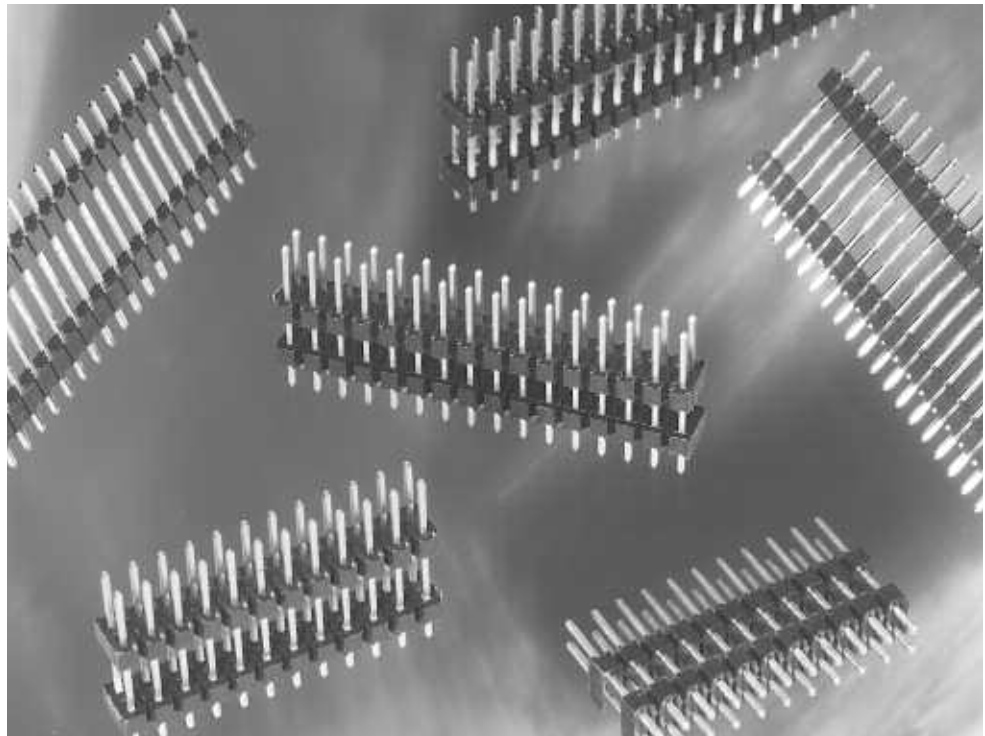
No. of Pos.	Dimensions		C = .230 [5.84] D = .185 [4.70]		C = .320 [8.13] D = .200 [5.08]	
	A	B	Post Plating/Part Nos.		Post Plating/Part Nos.	
			Plating A	Plating B	Plating A	Plating B
4	.184 [4.67]	.100 [2.54]	5-146130-1	5-146134-1	5-146131-1	5-146135-1
6	.284 [7.21]	.200 [5.08]	5-146130-2	5-146134-2	5-146131-2	5-146135-6
8	.384 [9.75]	.300 [7.62]	5-146130-3	5-146134-3	5-146131-3	5-146135-3
10	.484 [12.29]	.400 [10.16]	5-146130-4	1-146134-7	5-146131-4	5-146135-4
12	.584 [14.83]	.500 [12.70]	5-146130-5	5-146134-5	5-146131-5	5-146135-5
14	.684 [17.37]	.600 [15.24]	5-146130-6	5-146134-6	5-146131-6	5-146135-6
16	.784 [19.91]	.700 [17.78]	5-146130-7	1-146134-9	5-146131-7	5-146135-7
18	.884 [22.45]	.800 [20.32]	5-146130-8	5-146134-8	5-146131-8	5-146135-8
20	.984 [24.99]	.900 [22.86]	5-146130-9	5-146134-9	5-146131-9	5-146135-9
22	1.084 [27.53]	1.000 [25.40]	6-146130-0	6-146134-0	6-146131-0	6-146135-0
24	1.184 [30.07]	1.100 [27.94]	6-146130-1	6-146134-1	6-146131-1	6-146135-1
26	1.284 [32.61]	1.200 [30.48]	6-146130-2	6-146134-2	6-146131-2	6-146135-2
28	1.384 [35.15]	1.300 [33.02]	6-146130-3	6-146134-3	6-146131-3	6-146135-3
30	1.484 [37.69]	1.400 [35.56]	6-146130-4	2-146134-1	6-146131-4	6-146135-4

Note: All part numbers are RoHS compliant.

Unshrouded Stacking Headers—Breakaway .100 x .100 [2.54 x 2.54] Centerline

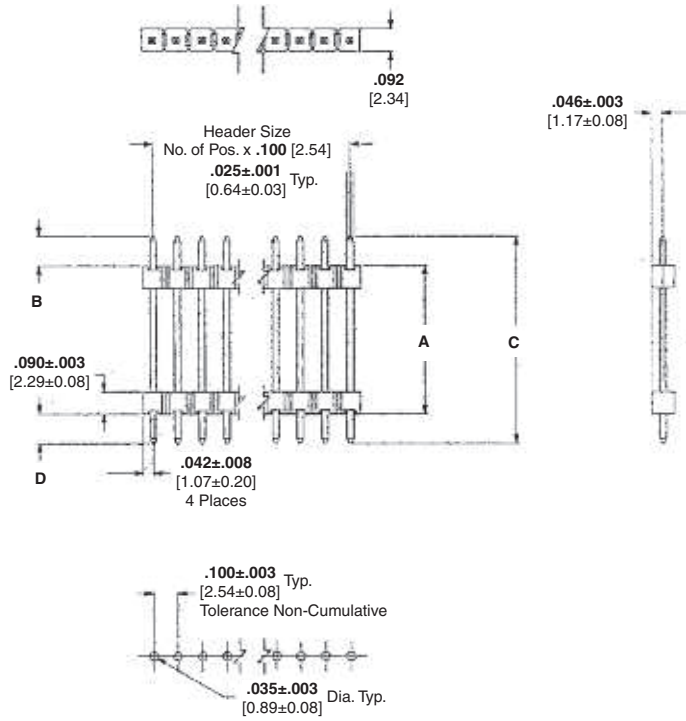
Product Facts

- Available in single and double row
- Parallel PC board stacking with numerous stack heights available
- Drawn wire posts allow 4 side mateability
- May eliminate the need for additional board spacers
- Can be used in conjunction with bottom entry receptacles
- Gold or tin plated
- Up to 1.430 [36.32] overall post length
- Retention and surface mount features available upon request
- Other header sizes can be made upon request
- Tape and reel packaging available. Contact TE.
- Pick-and-place cap available for vacuum placement. Contact TE.



Unshrouded Stacking Headers — Breakaway, Single-Row, .100 [2.54] Centerline

.025 [0.64] Square Straight Posts



Recommended PC Board Hole Layout

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating — As noted in chart:

Tin — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

15Au — .000015 [0.00038] gold over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Receptacles — Refer to the Mating Post Selection Guide — page 88

Technical Documents — page 276

See mating connector for applicable product and application specifications.

Retention and surface mount features available upon request. Other header sizes can be made upon request.

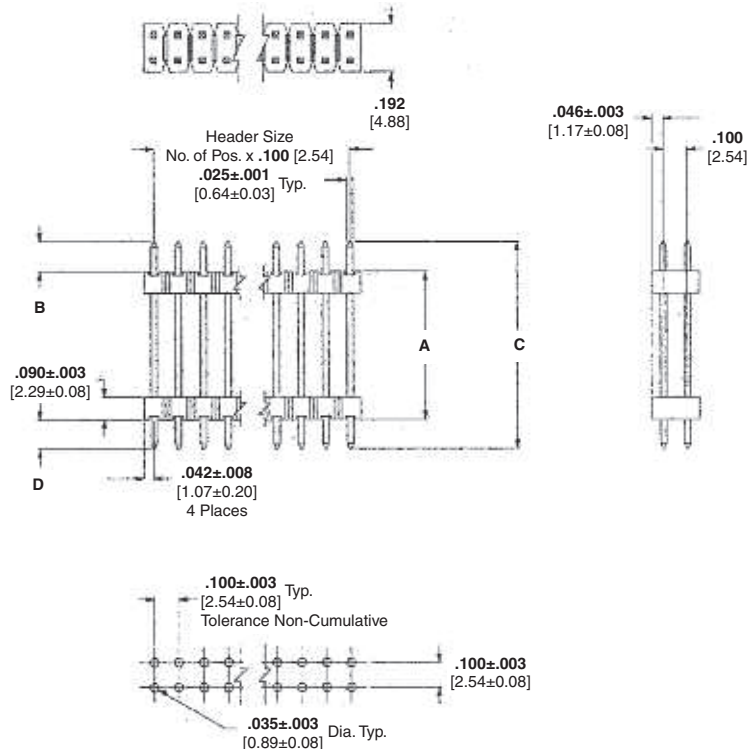
***Note:** Headers are available in sizes 1 thru 40. When ordering, add the prefix and/or suffix (dash) numbers plus 5- -0 to the base part number that corresponds with the number of positions per row. For example, the complete part number for an 8-position header is 5-146455-8. The complete part number for a 16-position of the same series would be 6-146455-6.

Base Number (see note)	A Stack Height	B Tail Length	C Post Length	D Mating Length	B End Plating	D End Plating
146455	.200 [5.08]	.130 [3.30]	.440 [11.17]	.110 [2.79]	TIN	TIN
146456	.250 [6.35]	.080 [2.03]	.440 [11.17]	.110 [2.79]	TIN	TIN
146457	.250 [6.35]	.114 [2.89]	.474 [12.03]	.110 [2.79]	TIN	TIN
146458	.300 [7.62]	.123 [3.12]	.533 [13.53]	.110 [2.79]	TIN	TIN
146459	.400 [10.16]	.107 [2.71]	.617 [15.67]	.110 [2.79]	TIN	TIN
146460	.450 [11.43]	.057 [1.45]	.617 [15.67]	.110 [2.79]	TIN	TIN
146461	.500 [12.70]	.129 [3.27]	.739 [18.77]	.110 [2.79]	TIN	TIN
146462	.300 [7.62]	.109 [2.77]	.739 [18.77]	.330 [8.38]	TIN	15 AU
146463	.600 [15.24]	.107 [2.71]	.817 [20.75]	.110 [2.79]	TIN	TIN
146464	.400 [10.16]	.087 [2.20]	.817 [20.75]	.330 [8.38]	TIN	15 AU
146465	.700 [17.78]	.120 [3.05]	.930 [23.62]	.110 [2.79]	TIN	TIN
146466	.500 [12.70]	.100 [2.54]	.930 [23.62]	.330 [8.38]	TIN	15 AU
146467	.270 [6.86]	.330 [8.38]	.930 [23.62]	.330 [8.38]	15 AU	15 AU
146468	.800 [20.32]	.120 [3.05]	1.030 [26.16]	.110 [2.79]	TIN	TIN
146469	.600 [15.24]	.100 [2.54]	1.030 [26.16]	.330 [8.38]	TIN	15 AU
146470	.370 [9.39]	.330 [8.38]	1.030 [26.16]	.330 [8.38]	15 AU	15 AU
146471	.900 [22.86]	.120 [3.05]	1.130 [28.70]	.110 [2.79]	TIN	TIN
146472	.700 [17.78]	.100 [2.54]	1.130 [28.70]	.330 [8.38]	TIN	15 AU
146473	.470 [11.39]	.330 [8.38]	1.130 [28.70]	.330 [8.38]	15 AU	15 AU
146474	1.000 [25.40]	.120 [3.05]	1.230 [31.24]	.110 [2.79]	TIN	TIN
146475	.800 [20.32]	.100 [2.54]	1.230 [31.24]	.330 [8.38]	TIN	15 AU
146476	.570 [14.47]	.330 [8.38]	1.230 [31.24]	.330 [8.38]	15 AU	15 AU
146477	1.100 [27.94]	.120 [3.05]	1.330 [33.78]	.110 [2.79]	TIN	TIN
146478	.900 [22.68]	.100 [2.54]	1.330 [33.78]	.330 [8.38]	TIN	15 AU
146479	.670 [17.01]	.330 [8.38]	1.330 [33.78]	.330 [8.38]	15 AU	15 AU
146480	1.200 [30.48]	.120 [3.05]	1.430 [36.32]	.110 [2.79]	TIN	TIN
146481	1.000 [25.40]	.100 [2.54]	1.430 [36.32]	.330 [8.38]	TIN	15 AU
146482	.770 [19.55]	.330 [8.38]	1.430 [36.32]	.330 [8.38]	15 AU	15 AU

Note: All part numbers are RoHS compliant.

Unshrouded Stacking Headers — Breakaway, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

.025 [0.64] Square Straight Posts



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating — As noted in chart:

Tin — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel entire post

15Au — .000015 [0.00038] gold over .000050 [0.00127] nickel entire post

Related Product Data

Mateable Connectors

Refer to the Mating Post Selection Guide — page 90

Technical Documents

See mating connector for applicable product and application specifications.

Retention and surface mount features available upon request. Other header sizes can be made upon request.

***Note:** Headers are available in sizes 2 thru 80. When ordering, add the prefix and/or suffix (dash) numbers plus 5- -0 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 is 5-146283-8. The complete part number for a 32-position of the same series would be 6-146283-6.

Recommended PC Board Hole Layout

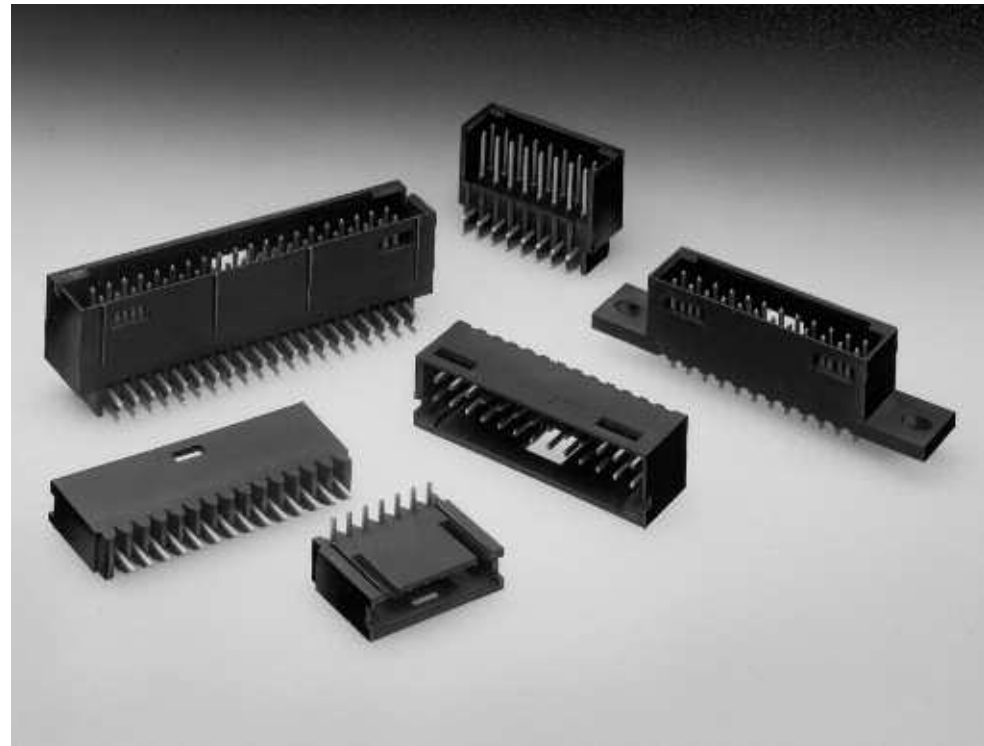
Base Number (see note)	A Stack Height	B Tail Length	C Post Length	D Mating Length	B End Plating	D End Plating
146483	.200 [5.08]	.130 [3.30]	.440 [11.17]	.110 [2.79]	TIN	TIN
146484	.250 [6.35]	.080 [2.03]	.440 [11.17]	.110 [2.79]	TIN	TIN
146485	.250 [6.35]	.114 [2.89]	.474 [12.03]	.110 [2.79]	TIN	TIN
146486	.300 [7.62]	.123 [3.12]	.533 [13.53]	.110 [2.79]	TIN	TIN
146487	.400 [10.16]	.107 [2.71]	.617 [15.67]	.110 [2.79]	TIN	TIN
146488	.450 [11.43]	.057 [1.45]	.617 [15.67]	.110 [2.79]	TIN	TIN
146489	.500 [12.70]	.129 [3.27]	.739 [18.77]	.110 [2.79]	TIN	TIN
146490	.300 [7.62]	.109 [2.77]	.739 [18.77]	.330 [8.38]	TIN	15 AU
146491	.600 [15.24]	.107 [2.71]	.817 [20.75]	.110 [2.79]	TIN	TIN
146492	.400 [10.16]	.087 [2.20]	.817 [20.75]	.330 [8.38]	TIN	15 AU
146493	.700 [17.78]	.120 [3.05]	.930 [23.62]	.110 [2.79]	TIN	TIN
146494	.500 [12.70]	.100 [2.54]	.930 [23.62]	.330 [8.38]	TIN	15 AU
146495	.270 [6.86]	.330 [8.38]	.930 [23.62]	.330 [8.38]	15 AU	15 AU
146496	.800 [20.32]	.120 [3.05]	1.030 [26.16]	.110 [2.79]	TIN	TIN
146497	.600 [15.24]	.100 [2.54]	1.030 [26.16]	.330 [8.38]	TIN	15 AU
146498	.370 [9.39]	.330 [8.38]	1.030 [26.16]	.330 [8.38]	15 AU	15 AU
146499	.900 [22.86]	.120 [3.05]	1.130 [28.70]	.110 [2.79]	TIN	TIN
146500	.700 [17.78]	.100 [2.54]	1.130 [28.70]	.330 [8.38]	TIN	15 AU
146501	.470 [11.93]	.330 [8.38]	1.130 [28.70]	.330 [8.38]	15 AU	15 AU
146502	1.000 [25.40]	.120 [3.05]	1.230 [31.24]	.110 [2.79]	TIN	TIN
146503	.800 [20.32]	.100 [2.54]	1.230 [31.24]	.330 [8.38]	TIN	15 AU
146504	.570 [14.74]	.330 [8.38]	1.230 [31.24]	.330 [8.38]	15 AU	15 AU
146505	1.100 [27.94]	.120 [3.05]	1.330 [33.78]	.110 [2.79]	TIN	TIN
146506	.900 [22.86]	.100 [2.54]	1.330 [33.78]	.330 [8.38]	TIN	15 AU
146507	.670 [17.01]	.330 [8.38]	1.330 [33.78]	.330 [8.38]	15 AU	15 AU
146508	1.200 [30.48]	.120 [3.05]	1.430 [36.32]	.110 [2.79]	TIN	TIN
146509	1.000 [25.40]	.100 [2.54]	1.430 [36.32]	.330 [8.38]	TIN	15 AU
146510	.770 [19.55]	.330 [8.38]	1.430 [36.32]	.330 [8.38]	15 AU	15 AU

Note: All part numbers are RoHS compliant.

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 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 TE
- 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

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 — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post under-plated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post under-plated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors —

AMPMODU Wire-Applied

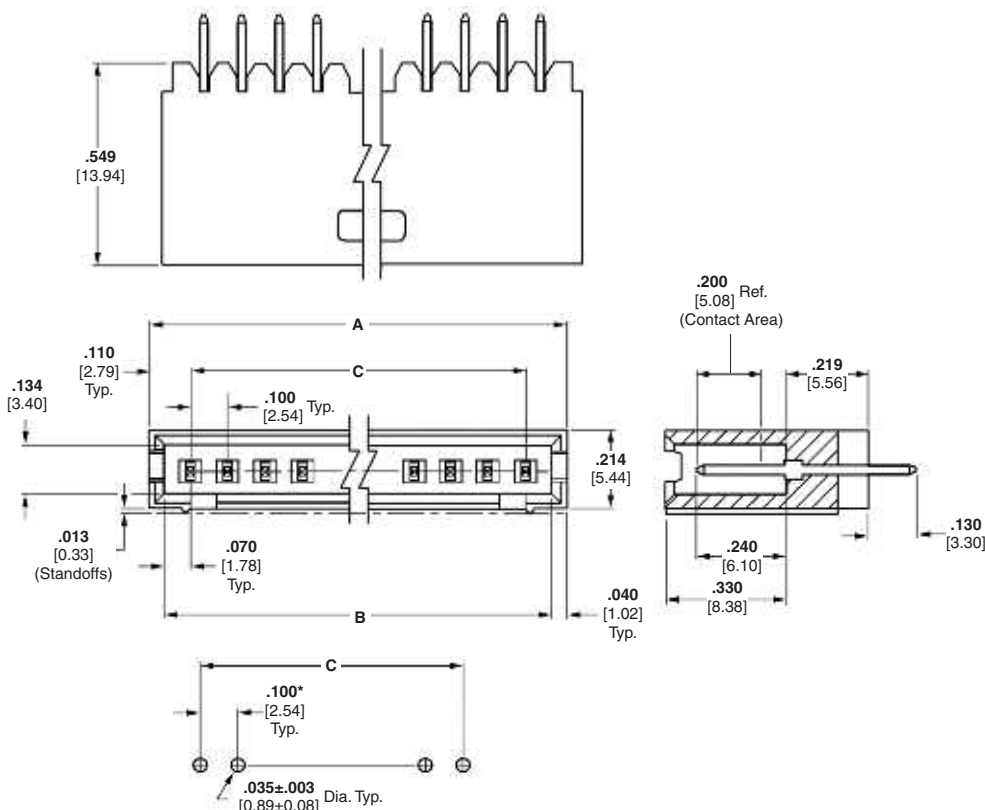
Receptacles — page 215

AMPMODU MTE Receptacles —

pages 228, 229, 234

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

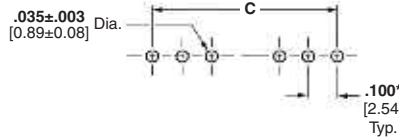
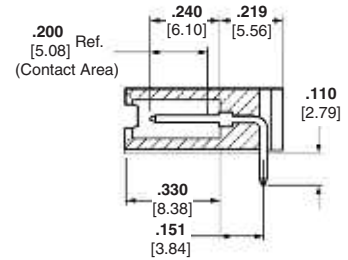
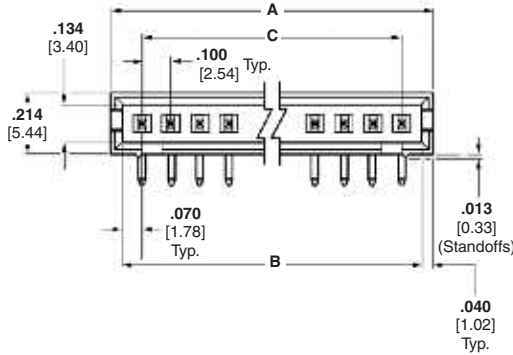
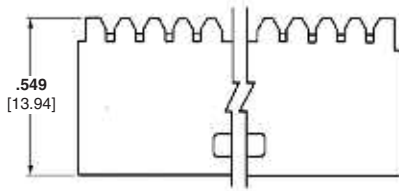
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
3	.420 [10.67]	.340 [8.64]	.200 [5.08]	5-103414-1	8-102202-4	5-103080-1
4	.520 [13.21]	.440 [11.18]	.300 [7.62]	5-103414-2	5-102202-1	5-103080-2
5	.620 [15.75]	.540 [13.72]	.400 [10.16]	5-103414-3	5-102202-2	5-103080-3
6	.720 [18.29]	.640 [16.26]	.500 [12.70]	5-103414-4	5-102202-3	5-103080-4
7	.820 [20.83]	.740 [18.80]	.600 [15.24]	5-103414-5	5-102202-4	5-103080-5
8	.920 [23.37]	.840 [21.34]	.700 [17.78]	5-103414-6	5-102202-5	5-103080-6
9	1.020 [25.91]	.940 [23.88]	.800 [20.32]	5-103414-7	5-102202-6	5-103080-7
10	1.120 [28.45]	1.040 [26.42]	.900 [22.86]	5-103414-8	5-102202-7	5-103080-8
11	1.220 [30.99]	1.140 [28.96]	1.000 [25.40]	5-103414-9	5-102202-8	5-103080-9
12	1.320 [33.53]	1.240 [31.50]	1.100 [27.94]	6-103414-0	5-102202-9	6-103080-0
13	1.420 [36.07]	1.340 [34.04]	1.200 [30.48]	6-103414-1	6-102202-0	6-103080-1
14	1.520 [38.61]	1.440 [36.58]	1.300 [33.02]	6-103414-2	6-102202-1	6-103080-2
15	1.620 [41.15]	1.540 [39.12]	1.400 [35.56]	6-103414-3	6-102202-2	6-103080-3
16	1.720 [43.69]	1.640 [41.66]	1.500 [38.10]	6-103414-4	6-102202-3	6-103080-4
17	1.820 [46.23]	1.740 [44.20]	1.600 [40.64]	6-103414-5	6-102202-4	6-103080-5
18	1.920 [48.77]	1.840 [46.74]	1.700 [43.18]	6-103414-6	6-102202-5	6-103080-6
19	2.020 [51.31]	1.940 [49.28]	1.800 [45.72]	6-103414-7	6-102202-6	6-103080-7
20	2.120 [53.85]	2.040 [51.82]	1.900 [48.26]	6-103414-8	6-102202-7	6-103080-8
21	2.220 [56.39]	2.140 [54.36]	2.000 [50.80]	6-103414-9	6-102202-8	6-103080-9
22	2.320 [58.93]	2.240 [56.90]	2.100 [53.34]	7-103414-0	6-102202-9	7-103080-0
23	2.420 [61.47]	2.340 [59.44]	2.200 [55.88]	7-103414-1	7-102202-0	7-103080-1
24	2.520 [64.01]	2.440 [61.98]	2.300 [58.42]	7-103414-2	7-102202-1	7-103080-2
25	2.620 [66.55]	2.540 [64.52]	2.400 [60.96]	7-103414-3	7-102202-2	7-103080-3

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, Single-Row, .100 [2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post (with Standoffs)



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

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 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 215

AMPMODU MTE Receptacles — pages 228, 229, 234

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
3	.420 [10.67]	.340 [8.64]	.200 [5.08]	5-103361-1	8-102203-4	5-102523-1
4	.520 [13.21]	.440 [11.18]	.300 [7.62]	5-103361-2	5-102203-1	5-102523-2
5	.620 [15.75]	.540 [13.72]	.400 [10.16]	5-103361-3	5-102203-2	5-102523-3
6	.720 [18.29]	.640 [16.26]	.500 [12.70]	5-103361-4	5-102203-3	5-102523-4
7	.820 [20.83]	.740 [18.80]	.600 [15.24]	5-103361-5	5-102203-4	5-102523-5
8	.920 [23.37]	.840 [21.34]	.700 [17.78]	5-103361-6	5-102203-5	5-102523-6
9	1.020 [25.91]	.940 [23.88]	.800 [20.32]	5-103361-7	5-102203-6	5-102523-7
10	1.120 [28.45]	1.040 [26.42]	.900 [22.86]	5-103361-8	5-102203-7	5-102523-8
11	1.220 [30.99]	1.140 [28.96]	1.000 [25.40]	5-103361-9	5-102203-8	5-102523-9
12	1.320 [33.53]	1.240 [31.50]	1.100 [27.94]	6-103361-0	5-102203-9	6-102523-0
13	1.420 [36.07]	1.340 [34.04]	1.200 [30.48]	6-103361-1	6-102203-0	6-102523-1
14	1.520 [38.61]	1.440 [36.58]	1.300 [33.02]	6-103361-2	6-102203-1	6-102523-2
15	1.620 [41.15]	1.540 [39.12]	1.400 [35.56]	6-103361-3	6-102203-2	6-102523-3
16	1.720 [43.69]	1.640 [41.66]	1.500 [38.10]	6-103361-4	6-102203-3	6-102523-4
17	1.820 [46.23]	1.740 [44.20]	1.600 [40.64]	6-103361-5	6-102203-4	6-102523-5
18	1.920 [48.77]	1.840 [46.74]	1.700 [43.18]	6-103361-6	6-102203-5	6-102523-6
19	2.020 [51.31]	1.940 [49.28]	1.800 [45.72]	6-103361-7	6-102203-6	6-102523-7
20	2.120 [53.85]	2.040 [51.82]	1.900 [48.26]	6-103361-8	6-102203-7	6-102523-8
21	2.220 [56.39]	2.140 [54.36]	2.000 [50.80]	6-103361-9	6-102203-8	6-102523-9
22	2.320 [58.93]	2.240 [56.90]	2.100 [53.34]	7-103361-0	6-102203-9	7-102523-0
23	2.420 [61.47]	2.340 [59.44]	2.200 [55.88]	7-103361-1	7-102203-0	7-102523-1
24	2.520 [64.01]	2.440 [61.98]	2.300 [58.42]	7-103361-2	7-102203-1	7-102523-2
25	2.620 [66.55]	2.540 [64.52]	2.400 [60.96]	7-103361-3	7-102203-2	7-102523-3

Note: All part numbers are RoHS compliant.

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

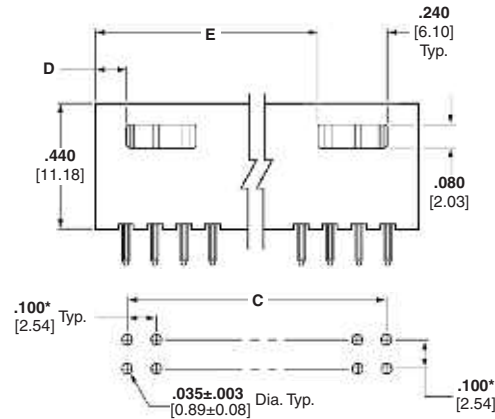
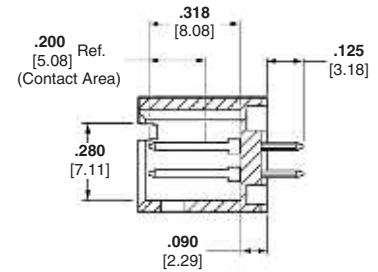
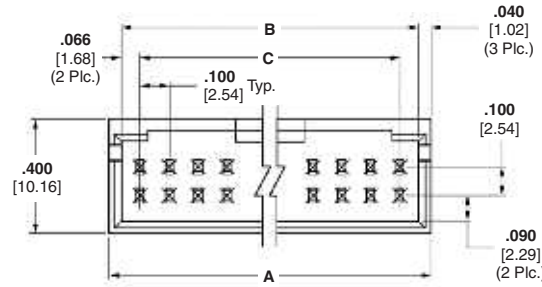
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors —

AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 216-219

AMPMODU MTE Receptacles — pages 228, 229, 234

AMPMODU MT Receptacles — pages 256, 257

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-103168-1	5-102618-1	8-87589-6
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-103168-2	5-102618-2	8-87589-5
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-103168-3	5-102618-3	5-87589-1
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-103168-4	5-102618-4	5-87589-2
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-103168-5	5-102618-5	5-87589-3
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-103168-6	5-102618-6	5-87589-4
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-103168-7	5-102618-7	5-87589-5
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-103168-8	5-102618-8	5-87589-6
22	1.212 [30.78]	1.132 [28.75]	1.000 [25.40]	.106 [2.69]	.906 [23.01]	5-103168-9	5-102618-9	5-87589-7
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	.106 [2.69]	1.006 [25.55]	6-103168-0	6-102618-0	5-87589-8
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-103168-1	6-102618-1	5-87589-9
28	1.512 [38.40]	1.432 [36.37]	1.300 [33.02]	.106 [2.69]	1.206 [30.63]	6-103168-2	6-102618-2	6-87589-0
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-103168-3	6-102618-3	6-87589-1

Note: All part numbers are RoHS compliant.

**Standard Profile Headers—Shrouded, with .066 [1.68]
End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Positions	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.712 [43.48]	1.632 [41.45]	1.500 [38.10]	.106 [2.69]	1.406 [35.71]	6-103168-4	6-102618-4	6-87589-2
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-103168-5	6-102618-5	6-87589-3
36	1.912 [48.56]	1.832 [46.53]	1.700 [43.18]	.106 [2.69]	1.606 [40.79]	6-103168-6	6-102618-6	6-87589-4
38	2.012 [51.10]	1.932 [49.07]	1.800 [45.72]	.106 [2.69]	1.706 [43.33]	6-103168-7	6-102618-7	6-87589-5
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-103168-8	6-102618-8	6-87589-6
42	2.212 [56.18]	2.132 [54.15]	2.000 [50.80]	.106 [2.69]	1.906 [48.41]	6-103168-9	6-102618-9	6-87589-7
44	2.312 [58.72]	2.232 [56.69]	2.100 [53.34]	.106 [2.69]	2.006 [50.95]	7-103168-0	7-102618-0	6-87589-8
46	2.412 [61.26]	2.332 [59.23]	2.200 [55.88]	.106 [2.69]	2.106 [53.49]	7-103168-1	7-102618-1	6-87589-9
48	2.512 [63.80]	2.432 [61.77]	2.300 [58.42]	.106 [2.69]	2.206 [56.03]	7-103168-2	7-102618-2	7-87589-0
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-103168-3	7-102618-3	7-87589-1
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	.106 [2.69]	2.406 [61.11]	7-103168-4	7-102618-4	7-87589-2
54	2.812 [71.42]	2.732 [69.39]	2.600 [66.04]	.106 [2.69]	2.506 [63.65]	7-103168-5	7-102618-5	7-87589-3
56	2.912 [73.96]	2.832 [71.93]	2.700 [68.58]	.106 [2.69]	2.606 [66.19]	7-103168-6	7-102618-6	7-87589-4
58	3.012 [76.50]	2.932 [74.47]	2.800 [71.12]	.106 [2.69]	2.706 [68.73]	7-103168-7	7-102618-7	7-87589-5
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-103168-8	7-102618-8	7-87589-6
62	3.212 [81.58]	3.132 [79.55]	3.000 [76.20]	.106 [2.69]	2.906 [73.81]	7-103168-9	7-102618-9	7-87589-7
64	3.312 [84.12]	3.232 [82.09]	3.100 [78.74]	.106 [2.69]	3.006 [76.35]	8-103168-0	8-102618-0	7-87589-8
66	3.412 [86.66]	3.332 [84.63]	3.200 [81.28]	.106 [2.69]	3.106 [78.89]	8-103168-1	8-102618-1	7-87589-9
68	3.512 [89.20]	3.432 [87.17]	3.300 [83.82]	.106 [2.69]	3.206 [81.43]	8-103168-2	8-102618-2	8-87589-0
70	3.612 [91.74]	3.532 [89.71]	3.400 [86.36]	.106 [2.69]	3.306 [83.97]	8-103168-3	8-102618-3	8-87589-1
72	3.712 [94.28]	3.632 [92.25]	3.500 [88.90]	.106 [2.69]	3.406 [86.51]	8-103168-4	8-102618-4	8-87589-2
74	3.812 [96.82]	3.732 [94.79]	3.600 [91.44]	.106 [2.69]	3.506 [89.05]	8-103168-5	8-102618-5	8-87589-3

Standard Profile Headers,
Shrouded

5

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

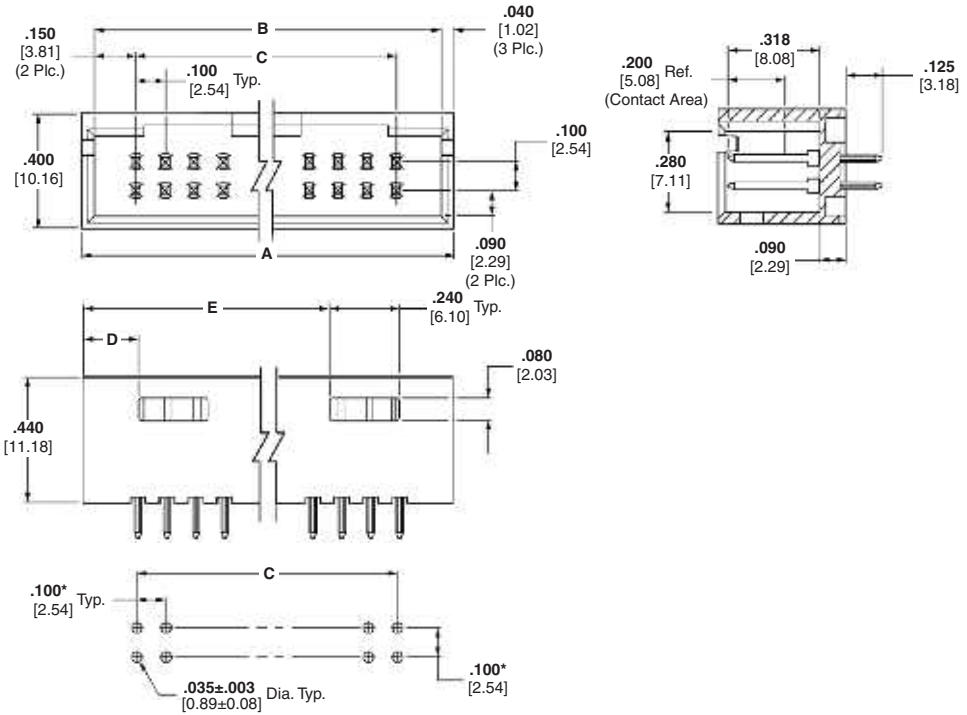
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.580 [14.73]	.500 [12.70]	.200 [5.08]	.190 [4.83]	—	5-103169-1	5-102619-1	8-87587-3
8	.680 [17.27]	.600 [15.24]	.300 [7.62]	.190 [4.83]	—	5-103169-2	5-102619-2	8-87587-4
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-103169-3	5-102619-3	5-87587-1
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	5-103169-4	5-102619-4	5-87587-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	5-103169-5	5-102619-5	5-87587-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	5-103169-6	5-102619-6	5-87587-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [12.45]	—	5-103169-7	5-102619-7	5-87587-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-103169-8	5-102619-8	5-87587-6
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	.190 [4.83]	.990 [25.15]	5-103169-9	5-102619-9	5-87587-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	6-103169-0	6-102619-0	5-87587-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	6-103169-1	6-102619-1	5-87587-9
28	1.680 [42.67]	1.600 [40.64]	1.300 [33.02]	.190 [4.83]	1.290 [32.77]	6-103169-2	6-102619-2	6-87587-0
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	6-103169-3	6-102619-3	6-87587-1

Note: All part numbers are RoHS compliant.

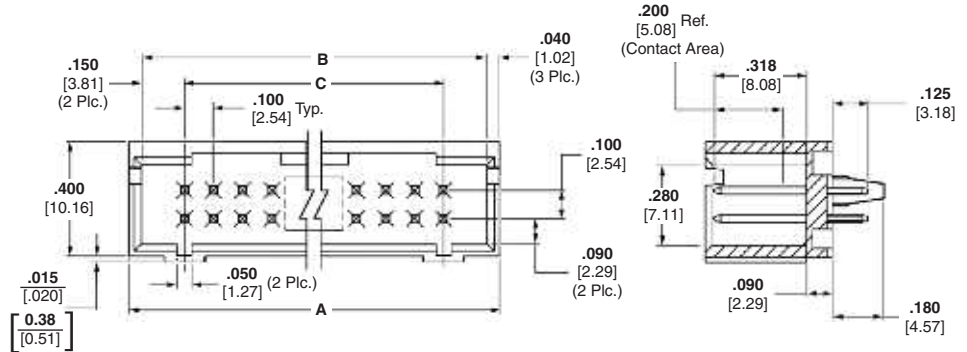
Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	.190 [4.83]	1.490 [37.85]	6-103169-4	6-102619-4	6-87587-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	6-103169-5	6-102619-5	6-87587-3
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	.190 [4.83]	1.690 [42.93]	6-103169-6	6-102619-6	6-87587-4
38	2.180 [55.37]	2.100 [53.34]	1.800 [45.72]	.190 [4.83]	1.790 [45.47]	6-103169-7	6-102619-7	6-87587-5
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	6-103169-8	6-102619-8	6-87587-6
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	.190 [4.83]	1.990 [50.55]	6-103169-9	6-102619-9	6-87587-7
44	2.480 [62.99]	2.400 [60.96]	2.100 [53.34]	.190 [4.83]	2.090 [53.09]	7-103169-0	7-102619-0	6-87587-8
46	2.580 [65.53]	2.500 [63.50]	2.200 [55.88]	.190 [4.83]	2.190 [55.63]	7-103169-1	7-102619-1	6-87587-9
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	.190 [4.83]	2.290 [58.17]	7-103169-2	7-102619-2	7-87587-0
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	7-103169-3	7-102619-3	7-87587-1
52	2.880 [73.15]	2.800 [71.12]	2.500 [63.50]	.190 [4.83]	2.490 [63.25]	7-103169-4	7-102619-4	7-87587-2
54	2.980 [75.69]	2.900 [73.66]	2.600 [66.04]	.190 [4.83]	2.590 [65.79]	7-103169-5	7-102619-5	7-87587-3
56	3.080 [78.23]	3.000 [76.20]	2.700 [68.58]	.190 [4.83]	2.690 [68.33]	7-103169-6	7-102619-6	7-87587-4
58	3.180 [80.77]	3.100 [78.74]	2.800 [71.12]	.190 [4.83]	2.790 [70.87]	7-103169-7	7-102619-7	7-87587-5
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	7-103169-8	7-102619-8	7-87587-6
62	3.380 [85.85]	3.300 [83.82]	3.000 [76.20]	.190 [4.83]	2.990 [75.95]	7-103169-9	7-102619-9	7-87587-7
64	3.480 [88.39]	3.400 [86.36]	3.100 [78.74]	.190 [4.83]	3.090 [78.49]	8-103169-0	8-102619-0	7-87587-8
66	3.580 [90.93]	3.500 [88.90]	3.200 [81.28]	.190 [4.83]	3.190 [81.03]	8-103169-1	8-102619-1	7-87587-9
68	3.680 [93.47]	3.600 [91.44]	3.300 [83.82]	.190 [4.83]	3.290 [83.57]	8-103169-2	8-102619-2	8-87587-0
70	3.780 [96.01]	3.700 [93.98]	3.400 [86.36]	.190 [4.83]	3.390 [86.11]	8-103169-3	8-102619-3	8-87587-1
72	3.880 [98.55]	3.800 [96.52]	3.500 [88.90]	.190 [4.83]	3.490 [88.65]	8-103169-4	8-102619-4	8-87587-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

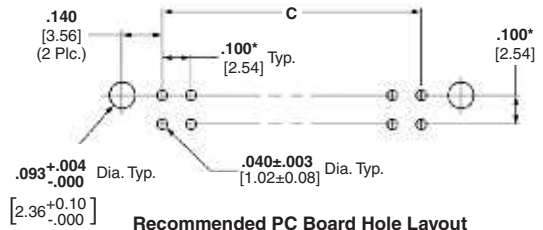
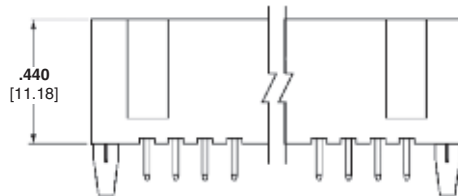
.025 [0.64] Square Straight Post (with Plastic Holddowns)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219

Accessories

Barrier Insert — page 204

Technical Documents — page 276

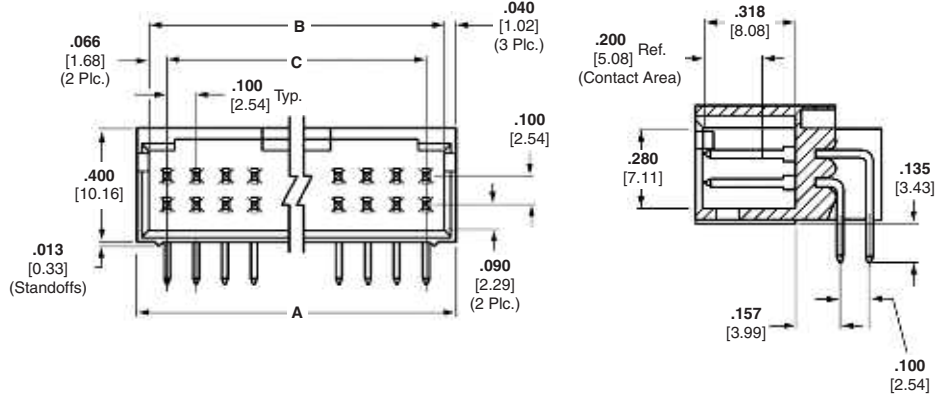
See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Part Nos. Plating A
	A	B	C	
6	.580 [14.73]	.500 [12.70]	.200 [5.08]	5-104317-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-104317-2
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-104317-3
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-104317-4
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	6-104317-6
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	5-104317-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	5-104317-6
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	5-104317-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	5-104317-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	5-104317-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	6-104317-0
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	6-104317-1
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	6-104317-8
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	6-104317-7
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	6-104317-2
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	6-104317-5
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	6-104317-3
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	6-104317-4

Note: All part numbers are RoHS compliant.

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

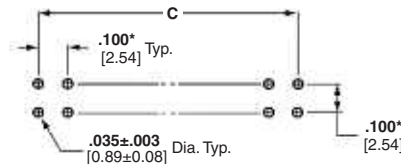
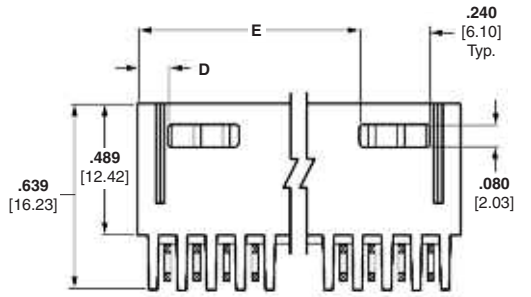
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU Board Mount Receptacles

— pages 176, 179, 180

AMPMODU Wire-Applied Receptacles

— pages 216-219

AMPMODU MTE Receptacles

— pages 228, 229, 234

AMPMODU MT Receptacles

— pages 256, 257

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-103166-1	5-102617-1	8-87579-5
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-103166-2	5-102617-2	5-87579-1
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-103166-3	5-102617-3	5-87579-2
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-103166-4	5-102617-4	5-87579-3
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-103166-5	5-102617-5	5-87579-4
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-103166-6	5-102617-6	5-87579-5
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-103166-7	5-102617-7	5-87579-6
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-103166-8	5-102617-8	5-87579-7
22	1.212 [30.78]	1.132 [28.75]	1.000 [25.40]	.106 [2.69]	.906 [23.01]	5-103166-9	5-102617-9	5-87579-8
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	.106 [2.69]	1.006 [25.55]	6-103166-0	6-102617-0	5-87579-9
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-103166-1	6-102617-1	6-87579-0
28	1.512 [38.40]	1.432 [36.37]	1.300 [33.02]	.106 [2.69]	1.206 [30.63]	6-103166-2	6-102617-2	6-87579-1
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-103166-3	6-102617-3	6-87579-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.712 [43.48]	1.632 [41.45]	1.500 [38.10]	.106 [2.69]	1.406 [35.71]	6-103166-4	6-102617-4	6-87579-3
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-103166-5	6-102617-5	6-87579-4
36	1.912 [48.56]	1.832 [46.53]	1.700 [43.18]	.106 [2.69]	1.606 [40.79]	6-103166-6	6-102617-6	6-87579-5
38	2.012 [51.10]	1.932 [49.07]	1.800 [45.72]	.106 [2.69]	1.706 [43.33]	6-103166-7	6-102617-7	6-87579-6
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-103166-8	6-102617-8	6-87579-7
42	2.212 [56.18]	2.132 [54.15]	2.000 [50.80]	.106 [2.69]	1.906 [48.41]	6-103166-9	6-102617-9	6-87579-8
44	2.312 [58.72]	2.232 [56.69]	2.100 [53.34]	.106 [2.69]	2.006 [50.95]	7-103166-0	7-102617-0	6-87579-9
46	2.412 [61.26]	2.332 [59.23]	2.200 [55.88]	.106 [2.69]	2.106 [53.49]	7-103166-1	7-102617-1	7-87579-0
48	2.512 [63.80]	2.432 [61.77]	2.300 [58.42]	.106 [2.69]	2.206 [56.03]	7-103166-2	7-102617-2	7-87579-1
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-103166-3	7-102617-3	7-87579-2
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	.106 [2.69]	2.406 [61.11]	7-103166-4	7-102617-4	7-87579-3
54	2.812 [71.42]	2.732 [69.39]	2.600 [66.04]	.106 [2.69]	2.506 [63.65]	7-103166-5	7-102617-5	7-87579-4
56	2.912 [73.96]	2.832 [71.93]	2.700 [68.58]	.106 [2.69]	2.606 [66.19]	7-103166-6	7-102617-6	7-87579-5
58	3.012 [76.50]	2.932 [74.47]	2.800 [71.12]	.106 [2.69]	2.706 [68.73]	7-103166-7	7-102617-7	7-87579-6
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-103166-8	7-102617-8	7-87579-7
62	3.212 [81.58]	3.132 [79.55]	3.000 [76.20]	.106 [2.69]	2.906 [73.81]	7-103166-9	7-102617-9	7-87579-8
64	3.312 [84.12]	3.232 [82.09]	3.100 [78.74]	.106 [2.69]	3.006 [76.35]	8-103166-0	8-102617-0	7-87579-9
66	3.412 [86.66]	3.332 [84.63]	3.200 [81.28]	.106 [2.69]	3.106 [78.89]	8-103166-1	8-102617-1	8-87579-0
68	3.512 [89.20]	3.432 [87.17]	3.300 [83.82]	.106 [2.69]	3.206 [81.43]	8-103166-2	8-102617-2	8-87579-1
70	3.612 [91.74]	3.532 [89.71]	3.400 [86.36]	.106 [2.69]	3.306 [83.97]	8-103166-3	8-102617-3	8-87579-2
72	3.712 [94.28]	3.632 [92.25]	3.500 [88.90]	.106 [2.69]	3.406 [86.51]	8-103166-4	8-102617-4	8-87579-3
74	3.812 [96.82]	3.732 [94.79]	3.600 [91.44]	.106 [2.69]	3.506 [89.05]	8-103166-5	8-102617-5	8-87579-4

Standard Profile Headers,
Shrouded

5

Note: All part numbers are RoHS compliant.

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 — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

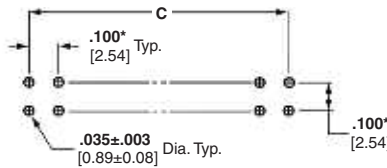
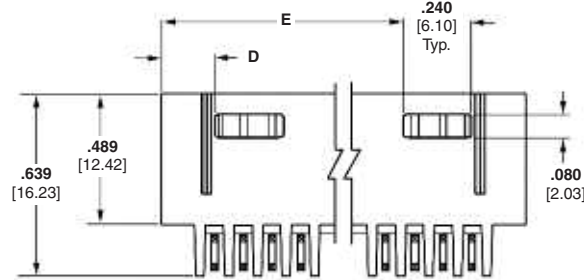
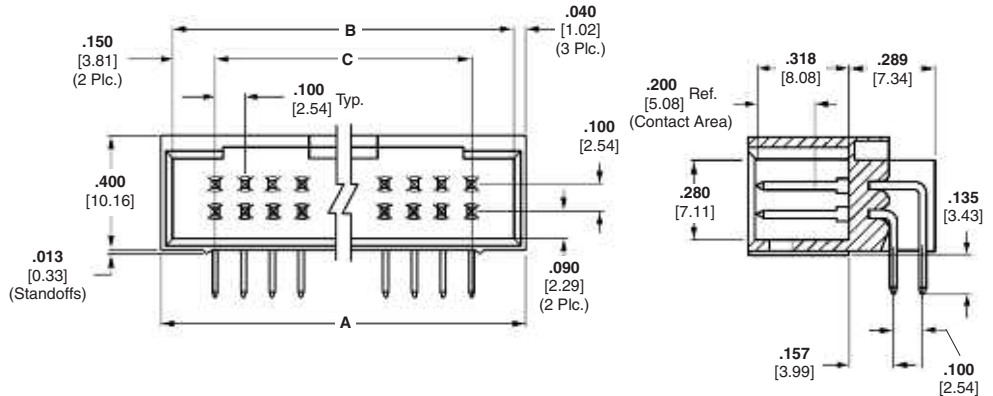
Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
8	.680 [17.27]	.600 [15.24]	.300 [7.62]	.190 [4.83]	—	5-103167-1	5-102570-2	5-87577-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-103167-2	5-102570-3	5-87577-2
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	5-103167-3	5-102570-4	5-87577-3
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	5-103167-4	5-102570-5	5-87577-4
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	5-103167-5	5-102570-6	5-87577-5
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [12.45]	—	5-103167-6	5-102570-7	5-87577-6
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-103167-7	5-102570-8	5-87577-7
22	1.380 [35.05]	1.300 [33.02]	1.000 [25.40]	.190 [4.83]	.990 [25.15]	5-103167-8	5-102570-9	5-87577-8
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	5-103167-9	6-102570-0	5-87577-9
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	6-103167-0	6-102570-1	6-87577-0
28	1.680 [42.67]	1.600 [40.64]	1.300 [33.02]	.190 [4.83]	1.290 [32.77]	6-103167-1	6-102570-2	6-87577-1
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	6-103167-2	6-102570-3	6-87577-2

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

No. of Pos.	Dimensions					Post Plating/Part Nos.		
	A	B	C	D	E	Plating A	Plating B	Plating C
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	.190 [4.83]	1.490 [37.85]	6-103167-3	6-102570-4	6-87577-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	6-103167-4	6-102570-5	6-87577-4
36	2.080 [52.83]	2.000 [50.80]	1.700 [43.18]	.190 [4.83]	1.690 [42.93]	6-103167-5	6-102570-6	6-87577-5
38	2.180 [55.37]	2.100 [53.34]	1.800 [45.72]	.190 [4.83]	1.790 [45.47]	6-103167-6	6-102570-7	6-87577-6
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	6-103167-7	5-102570-1	6-87577-7
42	2.380 [60.45]	2.300 [58.42]	2.000 [50.80]	.190 [4.83]	1.990 [50.55]	6-103167-8	6-102570-8	6-87577-8
44	2.480 [62.99]	2.400 [60.96]	2.100 [53.34]	.190 [4.83]	2.090 [53.09]	6-103167-9	6-102570-9	6-87577-9
46	2.580 [65.53]	2.500 [63.50]	2.200 [55.88]	.190 [4.83]	2.190 [55.63]	7-103167-0	7-102570-0	7-87577-0
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	.190 [4.83]	2.290 [58.17]	7-103167-1	7-102570-1	7-87577-1
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	7-103167-2	7-102570-2	7-87577-2
52	2.880 [73.15]	2.800 [71.12]	2.500 [63.50]	.190 [4.83]	2.490 [63.25]	7-103167-3	7-102570-3	7-87577-3
54	2.980 [75.69]	2.900 [73.66]	2.600 [66.04]	.190 [4.83]	2.590 [65.79]	7-103167-4	7-102570-4	7-87577-4
56	3.080 [78.23]	3.000 [76.20]	2.700 [68.58]	.190 [4.83]	2.690 [68.33]	7-103167-5	7-102570-5	7-87577-5
58	3.180 [80.77]	3.100 [78.74]	2.800 [71.12]	.190 [4.83]	2.790 [70.87]	7-103167-6	7-102570-6	7-87577-6
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	7-103167-7	7-102570-7	7-87577-7
62	3.380 [85.85]	3.300 [83.82]	3.000 [76.20]	.190 [4.83]	2.990 [75.95]	7-103167-8	7-102570-8	7-87577-8
64	3.480 [88.39]	3.400 [86.36]	3.100 [78.74]	.190 [4.83]	3.090 [78.49]	7-103167-9	7-102570-9	7-87577-9
66	3.580 [90.93]	3.500 [88.90]	3.200 [81.28]	.190 [4.83]	3.190 [81.03]	8-103167-0	8-102570-0	8-87577-0
68	3.680 [93.47]	3.600 [91.44]	3.300 [83.82]	.190 [4.83]	3.290 [83.57]	8-103167-1	8-102570-1	8-87577-1
70	3.780 [96.01]	3.700 [93.98]	3.400 [86.36]	.190 [4.83]	3.390 [86.11]	8-103167-2	8-102570-2	8-87577-2
72	3.880 [98.55]	3.800 [96.52]	3.500 [88.90]	.190 [4.83]	3.490 [88.65]	8-103167-3	8-102570-3	8-87577-3

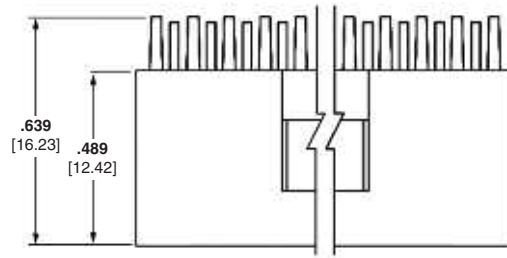
Standard Profile Headers, Shrouded

5

Note: All part numbers are RoHS compliant.

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

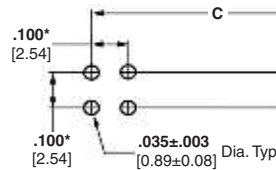
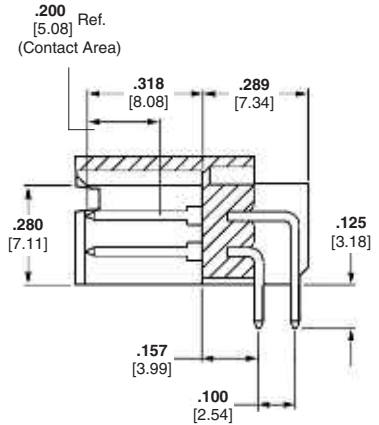
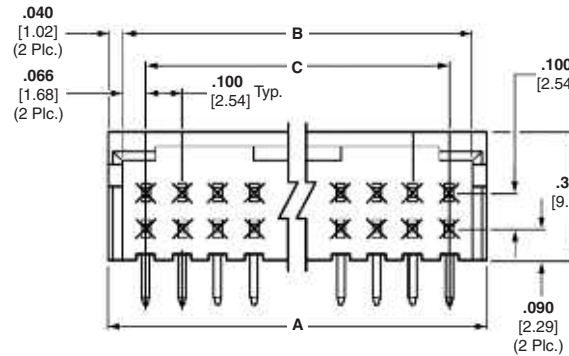
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors

AMPMODU Board Mount

Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied

Receptacles — pages 216, 217

AMPMODU MTE Receptacles

— pages 228, 229, 234

AMPMODU MT Receptacles

— pages 256, 257

Technical Documents — page 276

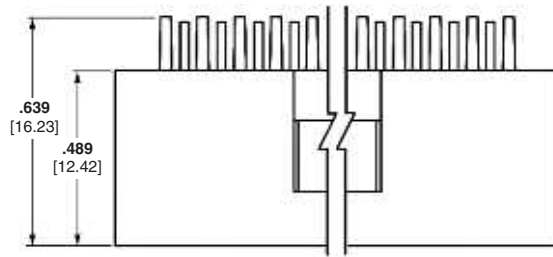
See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	5-103164-1	5-102055-2	8-87572-5
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	5-103164-2	5-102055-3	5-87572-1
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	5-103164-3	5-102055-4	5-87572-2
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	5-103164-4	5-102055-5	5-87572-3
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	5-103164-5	5-102055-6	5-87572-4
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	5-103164-6	5-102055-7	5-87572-5
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	5-103164-7	5-102055-8	5-87572-6
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	5-103164-8	5-102055-1	5-87572-7
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	6-103164-0	6-102055-0	—
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	6-103164-1	—	6-87572-0
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	6-103164-3	6-102055-3	—
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	6-103164-5	6-102055-5	6-87572-4
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	6-103164-8	6-102055-8	6-87572-7
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	7-103164-3	7-102055-3	7-87572-2
52	2.712 [68.88]	2.632 [66.85]	2.500 [63.50]	7-103164-4	—	—
54	2.812 [71.42]	2.732 [69.36]	2.600 [66.04]	—	7-102055-5	—
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	7-103164-8	7-102055-8	7-87572-7

Note: All part numbers are RoHS compliant.

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 Pin Protection on 3 Sides)



Material and Finish

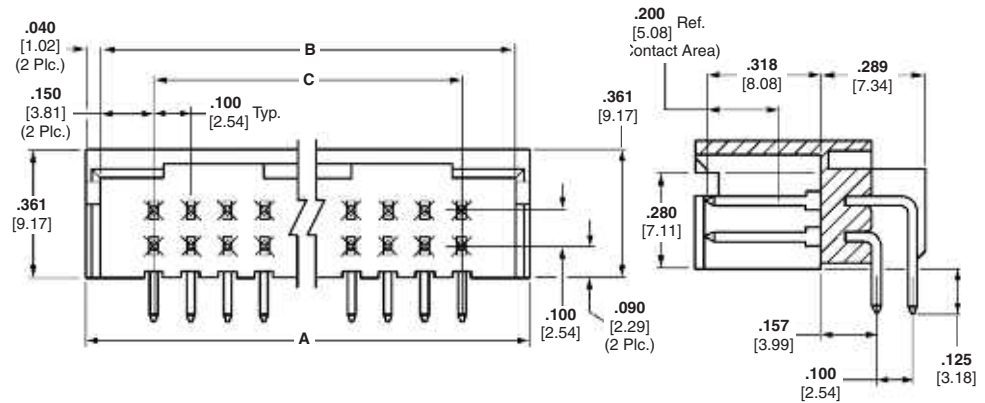
Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

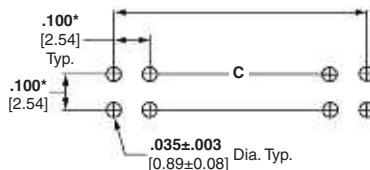
Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Related Product Data

Mateable Connectors

AMPMODU Wire-Applied Receptacles — pages 216, 217



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Post Plating/Part Nos.		
	A	B	C	Plating A	Plating B	Plating C
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-103165-1	5-102620-1	5-87568-1
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-103165-2	5-102620-2	5-87568-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-103165-3	5-102620-3	5-87568-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	5-103165-4	5-102620-4	5-87568-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	5-103165-5	5-102620-5	5-87568-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	5-103165-6	5-102620-6	5-87568-6
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	5-103165-8	5-102620-8	—
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	5-103165-9	5-102620-9	5-87568-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	6-103165-1	6-102620-1	—
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	6-103165-3	6-102620-3	6-87568-3
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	6-103165-6	6-102620-6	6-87568-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	7-103165-1	7-102620-1	7-87568-1
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	7-103165-6	7-102620-6	7-87568-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

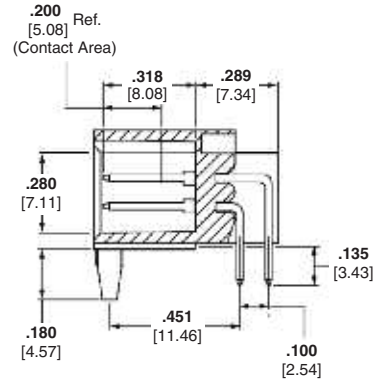
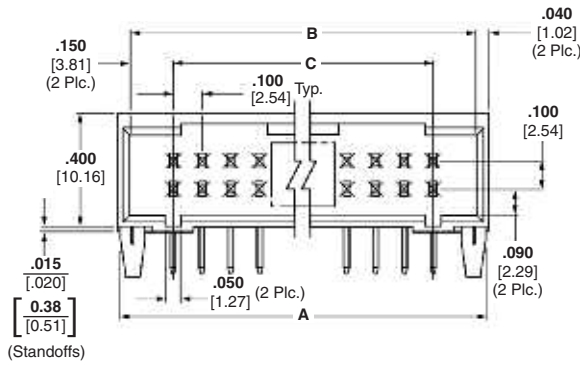
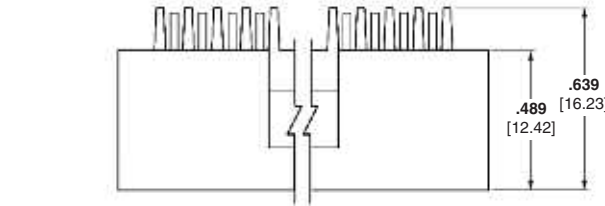
.025 [0.64] Square Right-Angle Post (with Plastic Holddowns)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Phosphor bronze, duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on solder area, with entire post underplated .000050 [0.00127] nickel

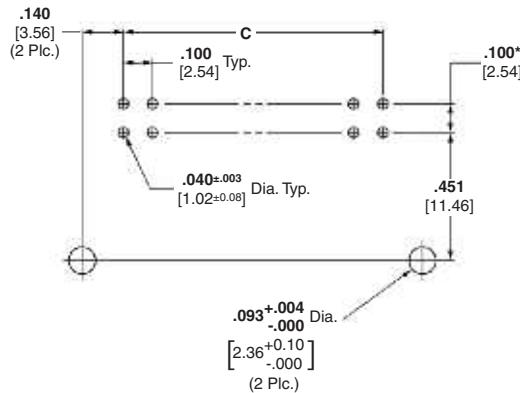


Related Product Data

Mateable Connectors

AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Technical Documents — page 276

See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions			Part Nos.
	A	B	C	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	5-104319-7
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	5-104319-8
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	5-104319-5
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	5-104319-1
20	1.280 [32.51]	1.200 [30.48]	.900 [20.86]	5-104319-2
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	5-104319-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	5-104319-6
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	5-104319-4
48	2.680 [68.07]	2.600 [66.04]	2.300 [58.42]	5-104319-9

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.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 216-219

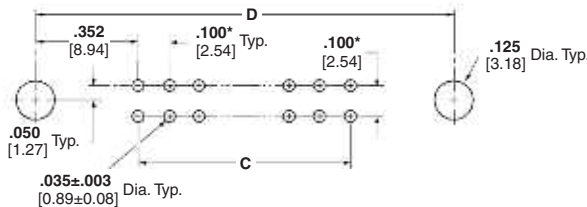
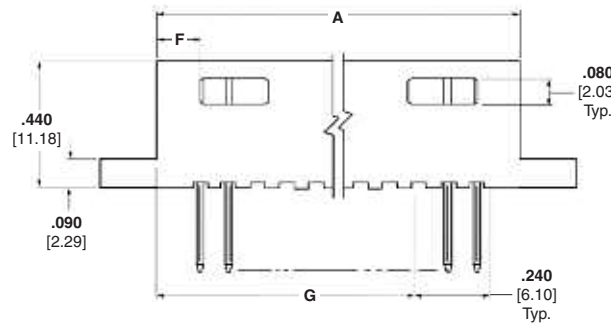
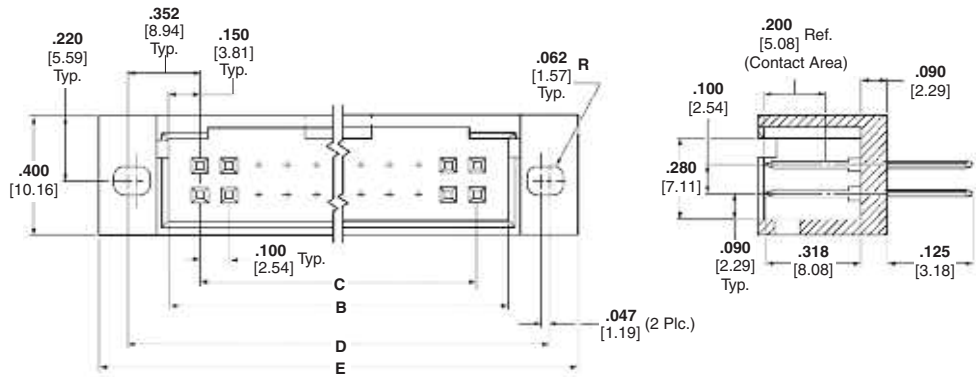
AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

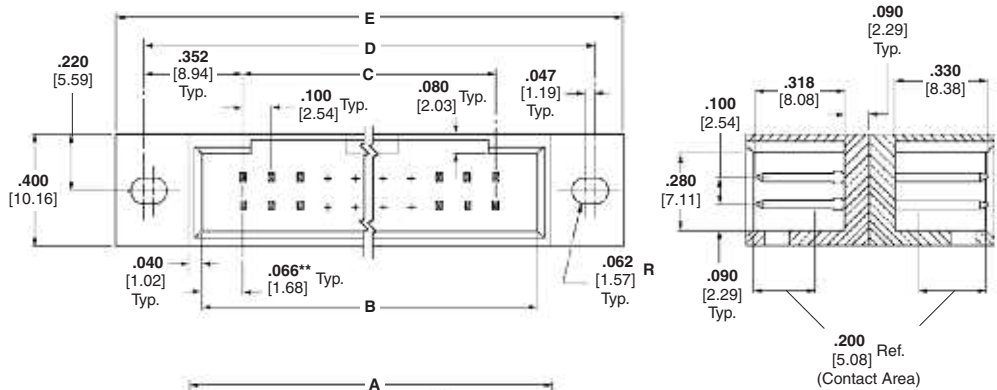
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions							Part Nos.
	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
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	1.304 [33.12]	1.504 [38.20]	.190 [4.83]	—	87474-9
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
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	1.090 [27.69]	1-87474-3
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1.190 [30.23]	87474-3
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1.590 [40.39]	87474-4
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1.890 [48.01]	87474-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.104 [78.84]	3.304 [83.92]	.190 [4.83]	2.390 [60.71]	87474-7
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2.890 [73.41]	2-87474-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded Bulkhead Type; with .066 [1.68] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] 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

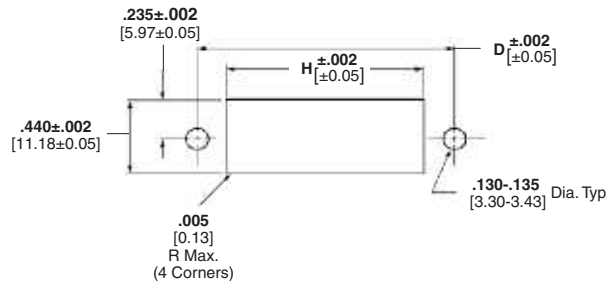
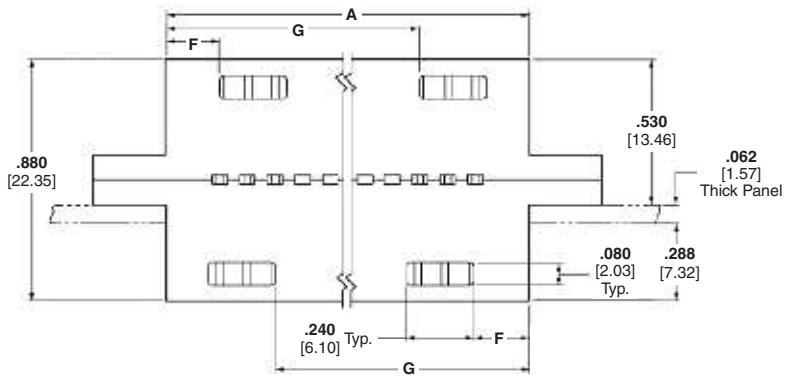
Mateable Connectors

AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 216-219

AMPMODU MTE Receptacles — pages 228, 229, 234

AMPMODU MT Receptacles — pages 256, 257



Recommended Panel Cutout

**Both mating faces have same end dimension.

Accessories

Barrier Insert — page 204

Technical Documents — page 276

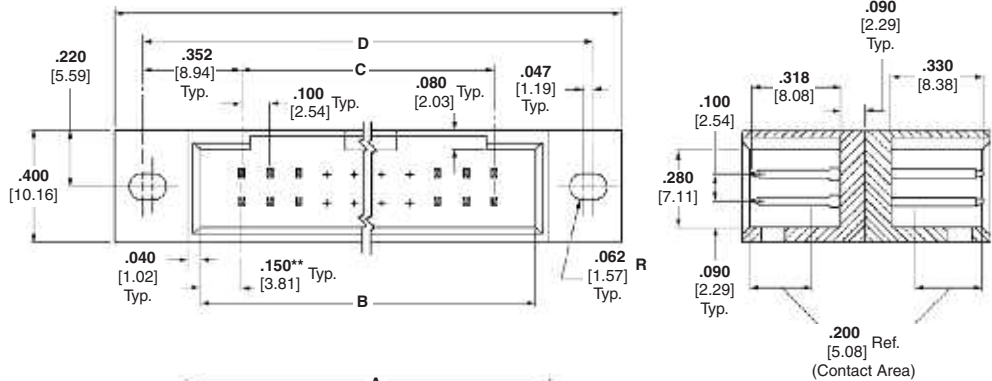
See mating connector for applicable product and application specifications.

No. of Pos.	Dimensions								Part Nos.
	A	B	C	D	E	F	G	H	
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.206 [5.23]	—	.632 [16.05]	87608-1
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	1.204 [30.58]	1.404 [35.66]	.206 [5.23]	—	.732 [18.59]	87608-2
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	1.604 [40.74]	1.804 [45.82]	.106 [2.69]	.806 [20.47]	1.132 [28.75]	87608-6
24	1.312 [33.32]	1.232 [31.29]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.106 [2.69]	1.006 [25.55]	1.332 [33.83]	87608-8
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.106 [2.69]	1.106 [28.09]	1.432 [36.37]	87608-9
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.106 [2.69]	1.506 [38.25]	1.832 [46.53]	1-87608-3
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.106 [2.69]	1.806 [45.87]	2.132 [54.15]	1-87608-6
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	3.104 [78.84]	3.304 [83.92]	.106 [2.69]	2.306 [58.57]	2.632 [66.85]	2-87608-1
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.106 [2.69]	2.806 [71.27]	3.132 [79.55]	2-87608-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded Bulkhead Type; with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] Centerline

.025 [0.64] Square Straight Post (with Detent Windows and Mounting Ears)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

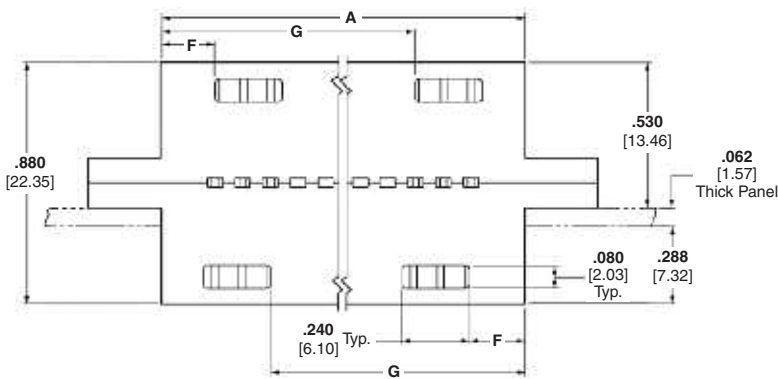
Posts — Copper alloy, plated .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors

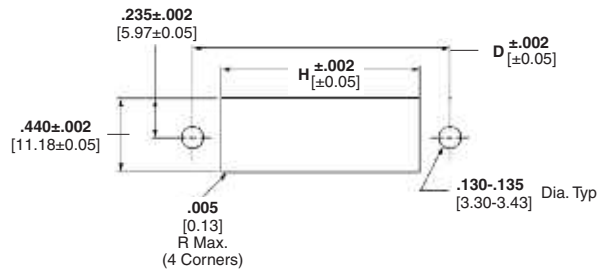
AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

AMPMODU Wire-Applied Receptacles — pages 216-219



Accessories

Barrier Insert — page 204



Technical Documents — page 276

See mating connector for applicable product and application specifications.

Recommended Panel Cutout

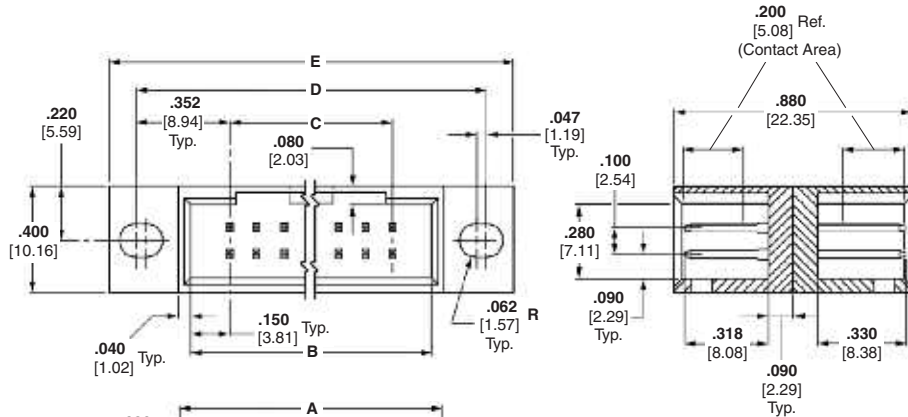
**Both mating faces have same end dimension.

No. of Pos.	Dimensions								Part Nos.
	A	B	C	D	E	F	G	H	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.290 [7.37]	—	.800 [20.32]	87605-1
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]	1.300 [33.02]	87605-6
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	1.090 [27.69]	1.500 [38.10]	87605-8
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1.190 [30.23]	1.600 [40.64]	87605-9
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	2.104 [53.44]	2.304 [58.52]	.190 [4.83]	1.390 [35.31]	1.800 [45.72]	1-87605-1
32	1.880 [47.75]	1.800 [45.72]	1.500 [38.10]	2.204 [55.98]	2.404 [61.06]	.190 [4.83]	1.490 [37.85]	1.900 [48.26]	1-87605-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1.590 [40.39]	2.000 [50.80]	1-87605-3
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1.890 [48.01]	2.300 [58.42]	1-87605-6
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.104 [78.84]	3.304 [83.92]	.190 [4.83]	2.390 [60.71]	2.800 [71.12]	2-87605-1
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2.890 [73.41]	3.300 [83.82]	2-87605-6

Note: All part numbers are RoHS compliant.

Standard Profile Headers—Shrouded Bulkhead Type; with .066/.150 [1.68/3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] 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 with .066 [1.68] End Dimension** — AMPMODU Board Mount Receptacles — pages 176, 179, 180
- AMPMODU Wire-Applied Receptacles** — pages 216-219
- AMPMODU MTE Receptacles** — pages 228, 229, 234
- AMPMODU MT Receptacles** — pages 256, 257

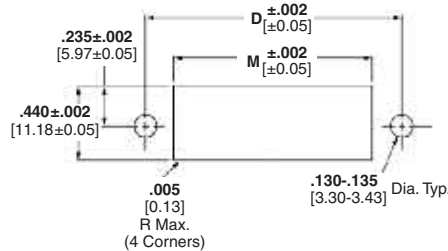
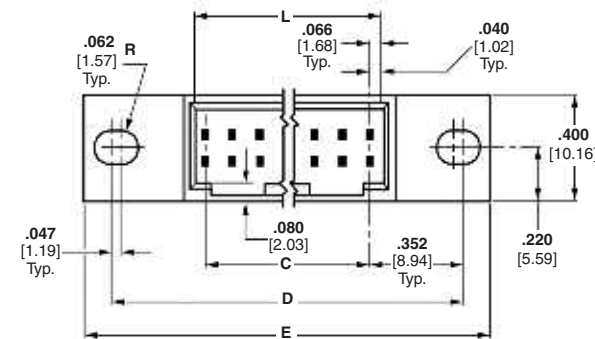
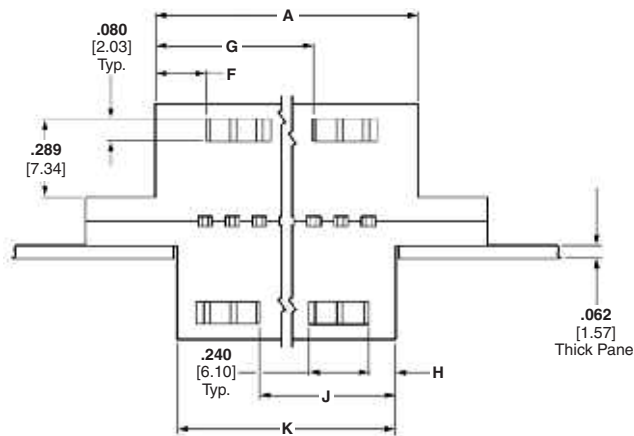
- Mateable Connectors with .150 [3.81] End Dimension** — AMPMODU MTE Receptacles — pages 232, 233, 235 (used with coupling shroud on page 241)

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications.



Recommended Panel Cutout

Standard Profile Headers, Shrouded

5

Standard Profile Headers—Shrouded Bulkhead Type; with .066/.150 [1.68/3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.45] Centerline (Continued)



No. of Pos.	Dimensions						Part Nos.
	A	B	C	D	E	F	
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	1.104 [28.04]	1.304 [33.12]	.290 [7.37]	87496-2
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	1.604 [40.74]	1.804 [45.82]	.190 [4.83]	87496-7
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	1.804 [45.82]	2.004 [50.90]	.190 [4.83]	87496-9
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	1.904 [48.36]	2.104 [53.44]	.190 [4.83]	1-87496-0
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	2.104 [53.44]	2.304 [58.52]	.190 [4.83]	1-87496-2
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	2.304 [58.52]	2.504 [63.60]	.190 [4.83]	1-87496-4
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	2.604 [66.14]	2.804 [71.22]	.190 [4.83]	1-87496-7
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	3.304 [83.92]	3.304 [83.92]	.190 [4.83]	87496-1
60	3.280 [83.31]	3.200 [81.38]	2.900 [73.66]	3.604 [91.54]	3.804 [96.62]	.190 [4.83]	2-87496-6

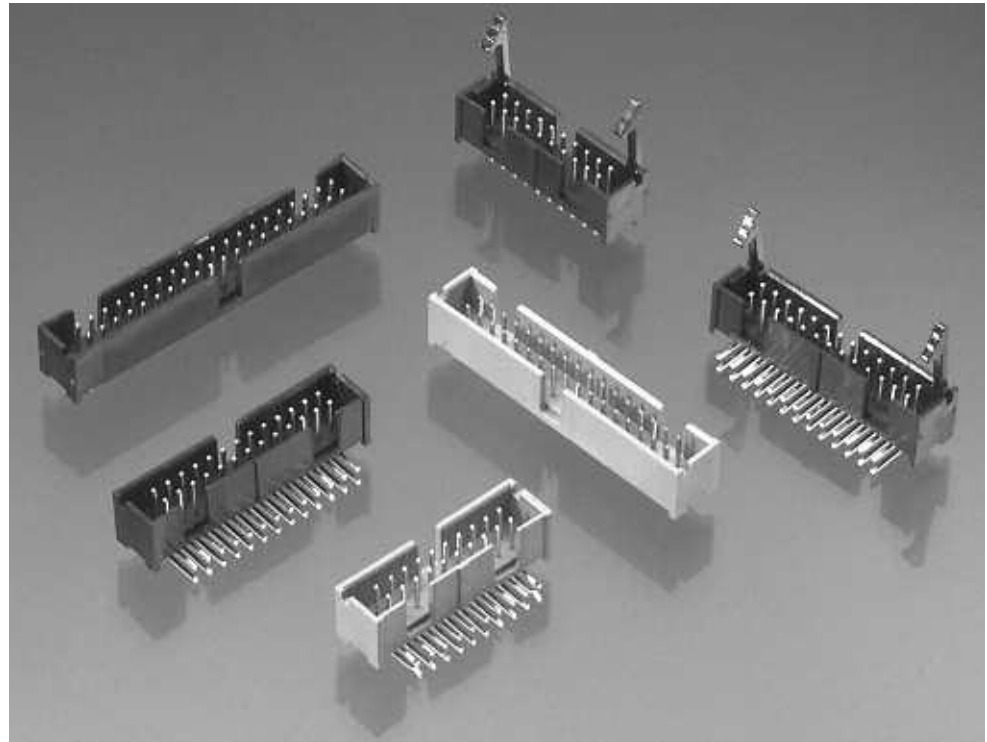
No. of Pos.	Dimensions						Part Nos.
	G	H	J	K	L	M	
10	—	.206 [5.23]	—	.612 [15.54]	.532 [13.51]	.632 [16.05]	87496-2
20	.890 [22.61]	.106 [2.69]	.806 [20.47]	1.112 [28.24]	1.032 [26.21]	1.132 [28.75]	87496-7
24	1.090 [27.69]	.106 [2.69]	1.006 [25.55]	1.312 [33.32]	1.232 [31.29]	1.332 [33.83]	87496-9
26	1.190 [30.23]	.106 [2.69]	1.106 [28.09]	1.412 [35.86]	1.332 [33.83]	1.432 [36.37]	1-87496-0
30	1.390 [35.31]	.106 [2.69]	1.306 [33.17]	1.612 [40.94]	1.532 [38.91]	1.632 [41.45]	1-87496-2
34	1.590 [40.39]	.106 [2.69]	1.506 [38.25]	1.812 [46.02]	1.732 [43.99]	1.832 [46.53]	1-87496-4
40	1.890 [48.01]	.106 [2.69]	1.806 [45.87]	2.112 [53.64]	2.032 [51.61]	2.132 [54.15]	1-87496-7
50	2.390 [60.71]	.106 [2.69]	2.306 [58.57]	2.612 [66.34]	2.532 [64.31]	2.632 [66.85]	87496-1
60	2.890 [73.41]	.106 [2.69]	2.806 [71.27]	3.112 [79.04]	3.032 [77.01]	3.132 [79.55]	2-87496-6

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded

Product Facts

- Available in selected positions 10 thru 60
- Flame retardant, thermoplastic housings, 94V-0 rated
- Vertical and right-angle versions available in double row configurations
- Available in .025 [0.64] square drawn wire posts
- Wash out clearance for flux removal
- Mates with AMP-LATCH Ribbon Cable Connectors
- Available with and without eject latches
- Available with and without kinked soldertails for PCB retention
- 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 — 1,000 V rms at sea level

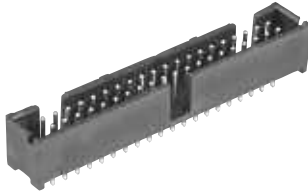
Environmental

Operating Temperature — -65°C to +105°C

Current — 1 ampere maximum per contact

AMP-LATCH Low 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



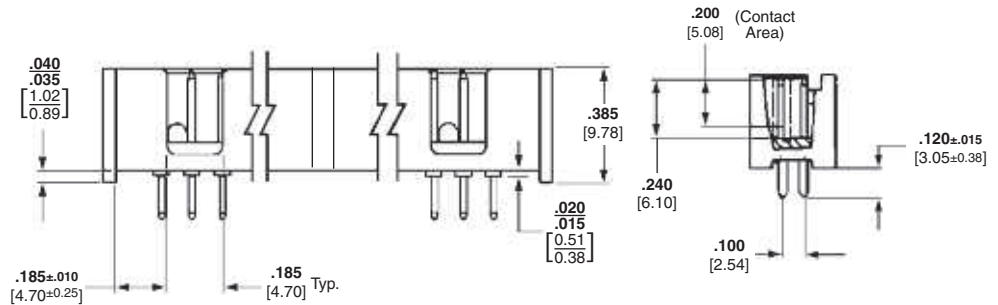
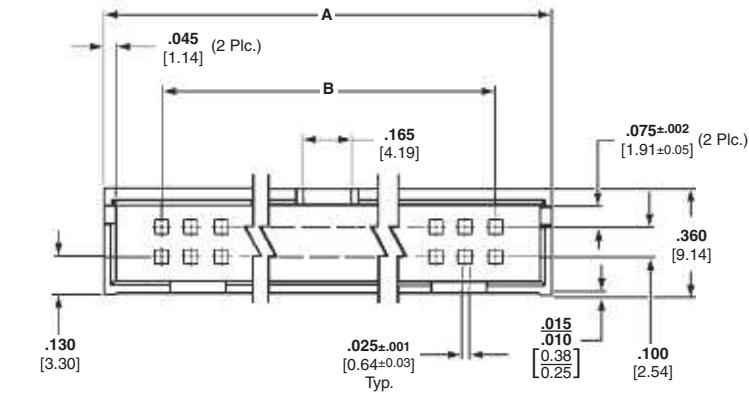
Material and Finish

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

Posts — Copper alloy, plated as follows:

Plating A — Gold flash over .000030 [0.00076] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel

Plating B — Gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel



Related Product Data

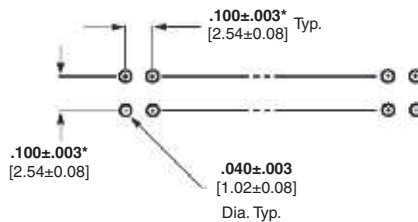
Electrical Characteristics — page 134

Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 220

AMPMODU Board Mount Receptacles — pages 179, 180

Short Point Wire-Applied Connectors — page 224



Recommended PC Board Hole Layout For Manual Insertion

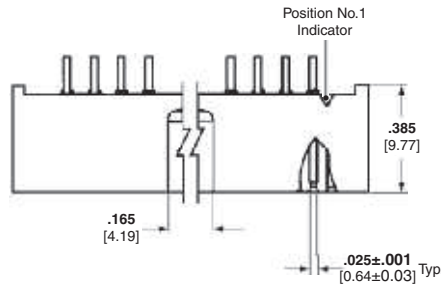
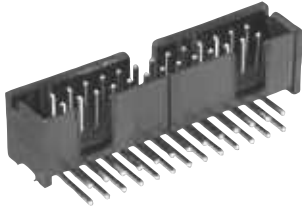
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
10	.800 [20.32]	.400 [10.16]	5103309-1	5103308-1
14	1.000 [25.40]	.600 [15.24]	5103309-2	5103308-2
16	1.100 [27.94]	.700 [17.78]	5103309-3	5103308-3
20	1.300 [33.02]	.900 [22.86]	5103309-5	5103308-5
24	1.400 [35.56]	1.100 [27.94]	—	1-5103308-3
26	1.600 [40.64]	1.200 [30.48]	5103309-6	5103308-6
34	2.000 [50.80]	1.600 [40.64]	5103309-7	5103308-7
40	2.300 [58.42]	1.900 [48.26]	5103309-8	5103308-8
50	2.800 [71.12]	2.400 [60.96]	1-5103309-0	1-5103308-0
60	3.300 [83.82]	2.900 [73.66]	—	1-5103308-2

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

.025 [0.64] Square Right-Angle Post



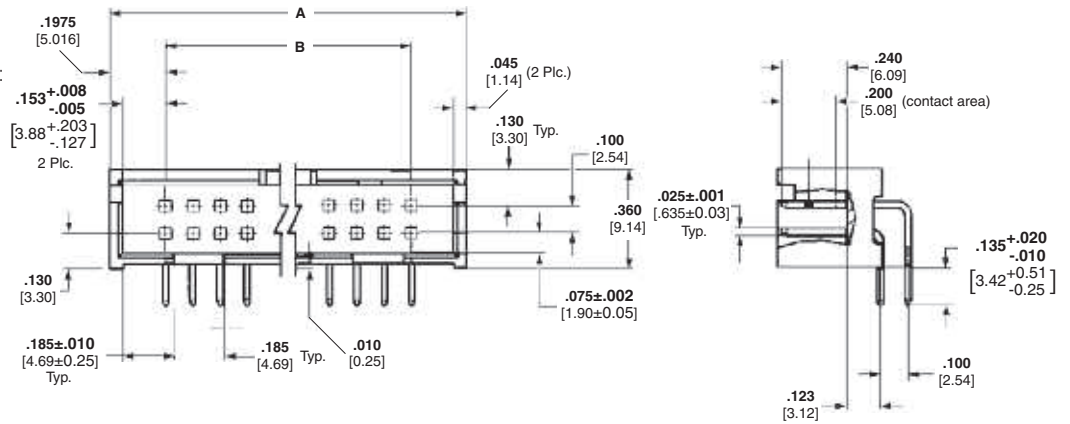
Material and Finish

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

Posts — Copper alloy, plated as follows:

Plating A — Gold flash over .000030 [0.00076] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel

Plating B — Gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on soldertails, with entire post underplated .000050 [0.00127] min. nickel

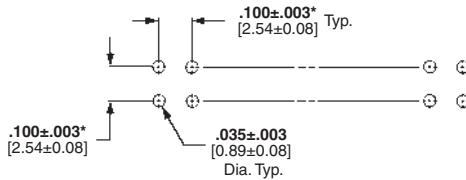


Related Product Data

Electrical Characteristics — page 134

Mateable Connectors — AMPMODU Wire-Applied Receptacles — page 220

Short Point Wire-Applied Connectors — page 224



Recommended PC Board Hole Layout For Manual Insertion

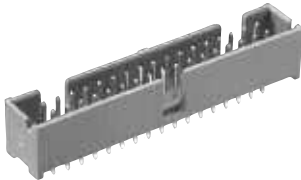
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating/Part Nos.	
	A	B	Plating A	Plating B
10	.800 [20.32]	.400 [10.16]	5103311-1	5103310-1
14	1.000 [25.40]	.600 [15.24]	5103311-2	5103310-2
16	1.100 [27.94]	.700 [17.78]	5103311-3	5103310-3
20	1.300 [33.02]	.900 [22.86]	5103311-5	5103310-5
26	1.600 [40.64]	1.200 [30.48]	5103311-6	5103310-6
34	2.000 [50.80]	1.600 [40.64]	5103311-7	5103310-7
40	2.300 [58.42]	1.900 [48.26]	5103311-8	5103310-8
50	2.800 [71.12]	2.400 [60.96]	1-5103311-0	1-5103310-0
60	3.300 [83.82]	2.900 [73.66]	1-5103311-2	—

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline & “Kinked” Solderetails for PCB Retention

.025 [0.64] Square Straight Post (with Board Retention Feature)



Material and Finish

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

Posts — Copper alloy, plated with gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solderetails, with entire post underplated .000050 [0.00127] min. nickel

Related Product Data

Electrical Characteristics — page 134

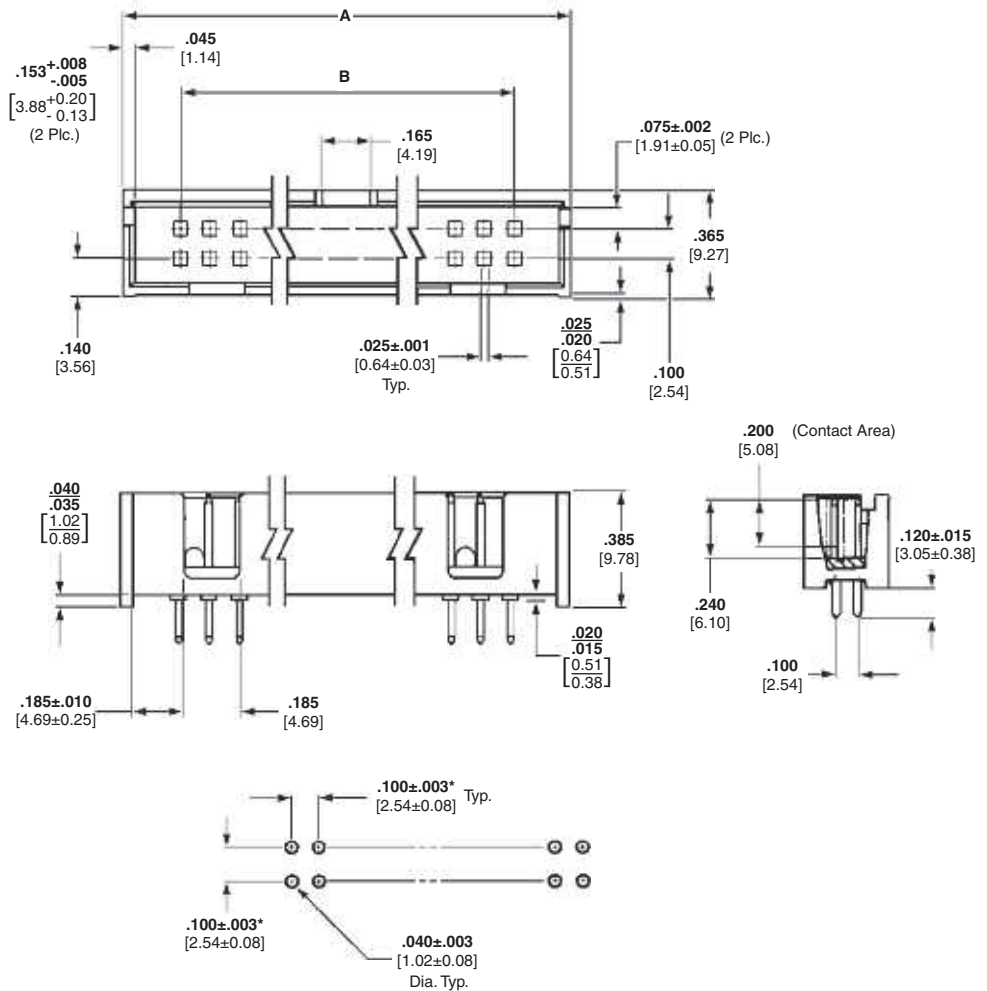
Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 220

AMPMODU Board Mount Receptacles — pages 179, 180

Short Point Wire-Applied Connectors — page 224

*Reflow solder process compatible



Recommended PC Board Hole Layout For Manual Insertion

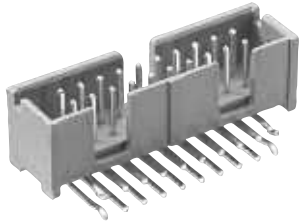
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating Part Nos.
	A	B	
10	.800 [20.32]	.400 [10.16]	5104338-1
14	1.000 [25.40]	.600 [15.24]	5104338-2
16	1.100 [27.94]	.700 [17.78]	5104338-3
20	1.300 [33.02]	.900 [22.86]	5104338-4
24	1.400 [35.56]	1.100 [27.94]	5104338-5
34	2.000 [50.80]	1.600 [40.64]	5104338-7
40	2.300 [58.42]	1.900 [48.26]	5104338-8
50	2.800 [71.12]	2.400 [60.96]	5104338-9
60	3.300 [83.82]	2.900 [73.66]	1-5104338-0

Note: All part numbers are RoHS compliant.

AMP-LATCH Low Profile Headers—Shrouded, with .150 [3.81] End Dimension, Double-Row, .100 x .100 [2.54 x 2.54] Centerline & “Kinked” Solderetails for PCB Retention (Continued)

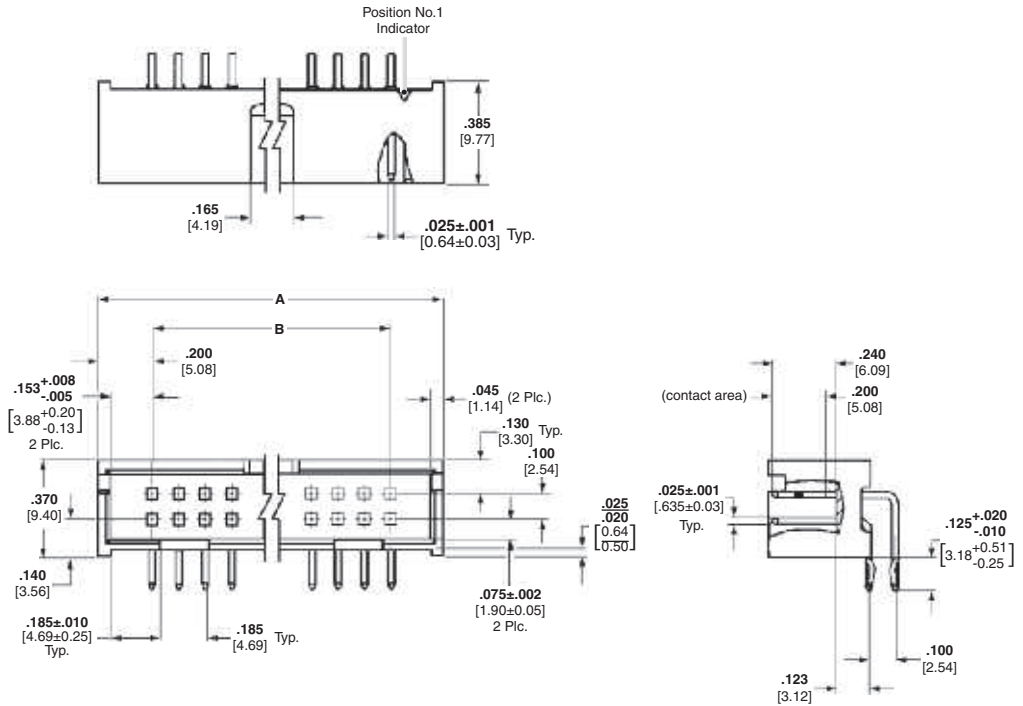
.025 [0.64] Square Right-Angle Post (with Board Retention Feature)



Material and Finish

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

Posts — Copper alloy, plated with gold flash over .000015 [0.00038] min. palladium-nickel plate on the mating surfaces, .000100 [0.00254] min. tin plate on solderetails, with entire post underplated .000050 [0.00127] min. nickel



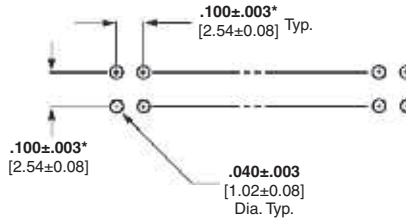
Related Product Data

Electrical Characteristics — page 134

Mateable Connectors —

AMPMODU Wire-Applied Receptacles — page 220

Short Point Wire-Applied Connectors — page 224



Recommended PC Board Hole Layout For Manual Insertion

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Post Plating Part Nos.
	A	B	
10	.800 [20.32]	.400 [10.16]	5104340-1
14	1.000 [25.40]	.600 [15.24]	5104340-2
16	1.100 [27.94]	.700 [17.78]	5104340-3
20	1.300 [33.02]	.900 [22.86]	5104340-4
40	2.300 [58.42]	1.900 [48.26]	5104340-8
50	2.800 [71.12]	2.400 [60.96]	5104340-9

Note: All part numbers are RoHS compliant.

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized, .100 x .100 [2.54 x 2.54] Centers

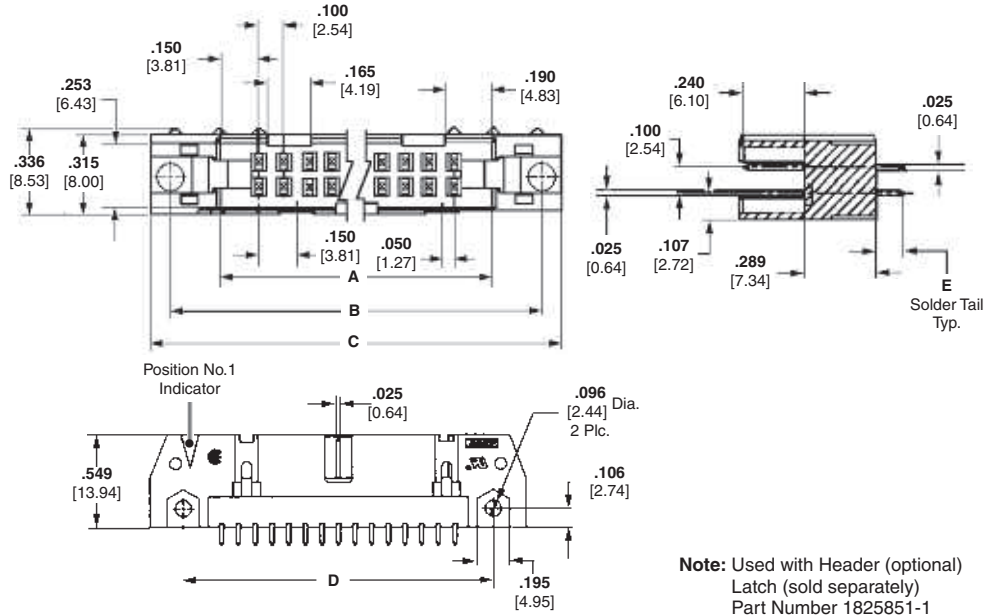
Straight-Thru, 4-Sided .025 [0.64] Sq. Posts



Pin Header with Latches



Pin Header without Latches



Note: Used with Header (optional) Latch (sold separately) Part Number 1825851-1

Material and Finish

Housing & Latches — Black thermoplastic, 94V-0 rated

Contacts — Brass or phosphor bronze (at TE's option); Duplex .000030 [0.00076] gold on mating end, .000100 [0.00254] min. tin on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Electrical Characteristics — page 134

Mateable Connectors — AMPMODU Wire-Applied Receptacles — page 220

Mounting Information

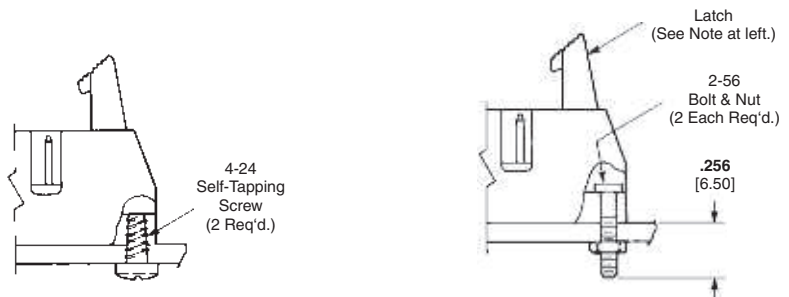
4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers of pc boards. Typical applications and part nos. for ordering this hardware are presented below.

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.

Note: All part numbers are RoHS compliant.

No. of Positions	Dimensions					Part Number (Without Latches)
	A	B	C	D	E	
10	.700	1.100	1.260	.860	.110 [2.79]	5102154-1
	17.78	27.94	32.00	21.84	.155 [3.94]	5102156-1
14	.900	1.300	1.460	1.060	.110 [2.79]	5102154-2
	22.86	33.02	37.08	26.92	.155 [3.94]	5102156-2
16	1.000	1.400	1.560	1.180	.110 [2.79]	5102154-3
	25.40	35.56	39.62	29.46	.155 [3.94]	5102156-3
20	1.200	1.600	1.760	1.360	.110 [2.79]	5102154-4
	30.48	40.64	44.70	34.54	.155 [3.94]	5102156-4
24	1.400	1.800	1.960	1.560	.110 [2.79]	5102154-5
	35.56	45.72	49.78	39.62	.155 [3.94]	5102156-5
26	1.500	1.900	2.060	1.660	.110 [2.79]	5102154-6
	38.10	48.26	52.32	42.16	.155 [3.94]	5102156-6
34	1.900	2.300	2.460	2.060	.110 [2.79]	5102154-8
	48.26	58.42	62.48	52.32	.155 [3.94]	5102156-8
40	2.200	2.600	2.760	2.360	.110 [2.79]	5102154-9
	55.88	66.04	70.10	59.94	.155 [3.94]	5102156-9
50	2.700	3.100	3.260	2.860	.110 [2.79]	1-5102154-0
	68.58	78.74	82.80	72.64	.155 [3.94]	1-5102156-0

- 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.



Pin Header Mounting using 4-24 Self-Tapping Screws:
Part No. 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 No. 746383-1 (Bolt Only)
Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

Universal Ejection Style Pin Headers, Military, Center and Dual Polarized, .100 x .100 [2.54 x 2.54] Centers (Continued)

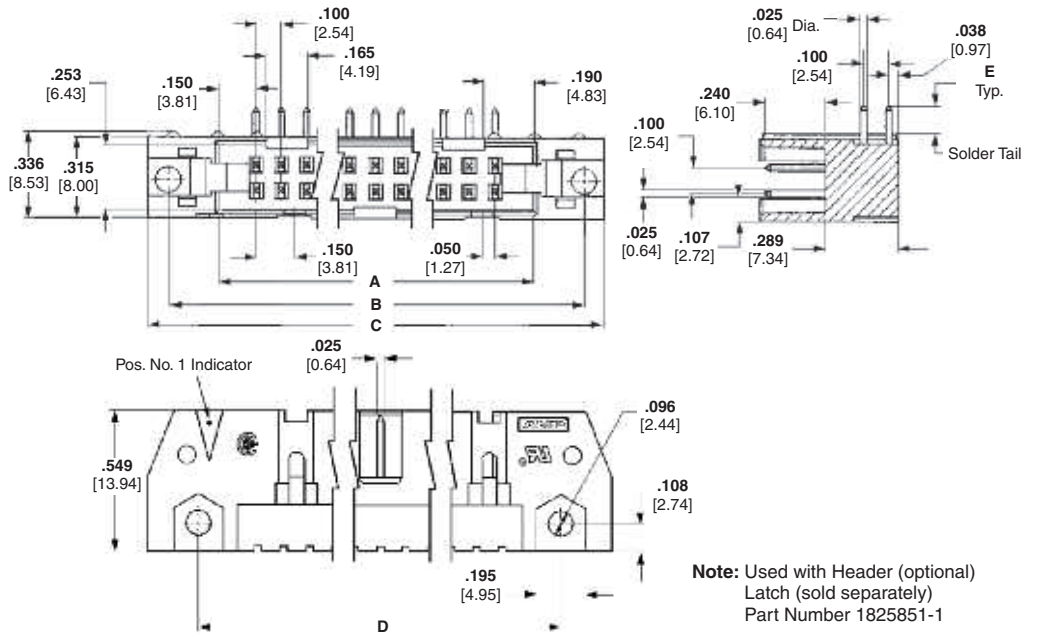
Right-Angle, 4-Sided .025 [0.64] Sq. Posts



Pin Header with Latches



Pin Header without Latches



Material and Finish

Housing & Latches — Black thermoplastic, 94V-0 rated

Contacts — Brass or phosphor bronze (at TE's option); Duplex .000030 [0.00076] gold on mating end, .000100 [0.00254] min. tin on termination end, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Electrical Characteristics — page 134

Mateable Connectors — AMPMODU Wire-Applied Receptacles — page 220

Mounting Information

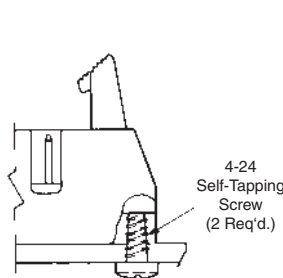
4-24 self-tapping screws and 2-56 bolts and nuts are available for mounting straight-thru pin headers of pc boards. Typical applications and part nos. for ordering this hardware are presented below.

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.

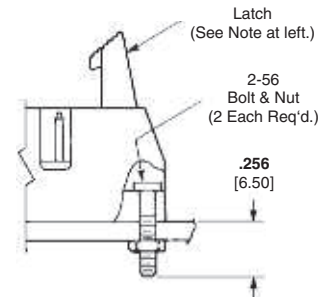
Note: All part numbers are RoHS compliant.

No. of Positions	Dimensions					Part Number (Without Latches)
	A	B	C	D	E	
10	.700	1.100	1.260	.860	.110 [2.79]	5102160-1
	17.78	27.94	32.00	21.84	.155 [3.94]	5102162-1
14	.900	1.300	1.460	1.060	.110 [2.79]	2-5102160-2*
	22.86	33.02	37.08	26.92	.155 [3.94]	2-5102162-2*
16	1.000	1.400	1.560	1.180	.110 [2.79]	5102160-3
	25.40	35.56	39.62	29.46	.155 [3.94]	—
20	1.200	1.600	1.760	1.360	.110 [2.79]	5102160-4
	30.48	40.64	44.70	34.54	.155 [3.94]	—
24	1.400	1.800	1.960	1.560	.110 [2.79]	5102160-5
	35.56	45.72	49.78	39.62	.155 [3.94]	—
26	1.500	1.900	2.060	1.660	.110 [2.79]	5102160-6
	38.10	48.26	52.32	42.16	.155 [3.94]	2-5102162-6*
34	1.900	2.300	2.460	2.060	.110 [2.79]	5102160-8
	48.26	58.42	62.48	52.32	.155 [3.94]	5102162-8
40	2.200	2.600	2.760	2.360	.110 [2.79]	5102160-9
	55.88	66.04	70.10	59.94	.155 [3.94]	—
50	2.700	3.100	3.260	2.860	.110 [2.79]	1-5102160-0
	68.58	78.74	82.80	72.64	.155 [3.94]	1-5102162-0

- 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.
*Blue housing.



Pin Header Mounting using 4-24 Self-Tapping Screws:
Part No. 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 No. 746383-1 (Bolt Only)
Kit No. 102198-1 (Bolt and Nut, 2 Each per Kit)

AMPMODU Stacking Connectors—Shrouded, .025 x .025 [0.64 x 0.64] Posts

Product Facts

- Parallel PC board stacking without use of mother boards
- Provides space between boards for interference-free routing of wire-to-board connections
- Two header heights available: .785 [19.94] and 1.200 [30.48]
- Vertical mount headers are fully shrouded
- Receptacle contacts have dual cantilever beams with built-in overstress protection
- .025 [0.64] sq. posts and receptacle contacts on double-row, .100 x .100 [2.54 x 2.54] centers
- Header posts and receptacle contacts are phosphor bronze, duplex plated
- Housings are made of flame retardant, glass-filled thermoplastic



AMPMODU stacking connectors are a two-piece interconnection system designed for parallel stacking printed circuit boards, without the use of mother boards.

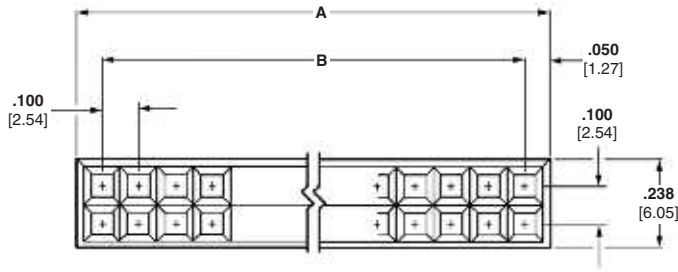
Vertical mount headers and receptacle assemblies feature duplex plated posts and receptacle contacts on a double-row, .100 x .100 [2.54 x 2.54] grid. The .025 [0.64] sq. header posts are more protected, and the top-entry receptacle contacts utilize the proven

AMPMODU receptacle contact design; dual cantilever beams with built-in overstress protection.

Headers are available in two heights: .785 [19.94] and 1.200 [30.48]. This allows the customer to use the height of the header to keep wire-to-board connections up and away from other board components, particularly if the components are densely packaged around the header.

Receptacle Assemblies, Double-Row Board Mounted

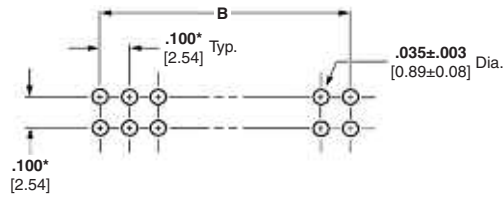
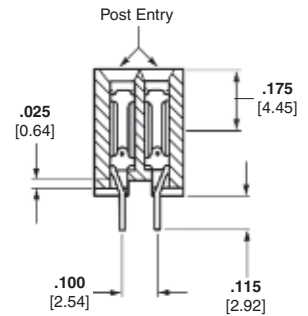
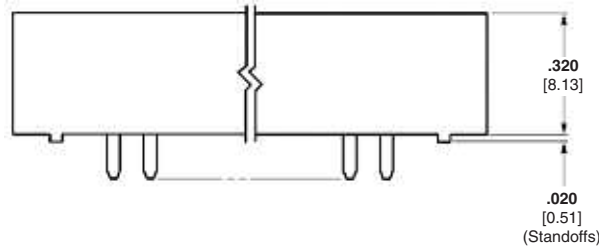
Vertical Mount, Top Entry, High Profile, Selectively Loaded (with Standoffs)



Material and Finish

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

Contacts — Phosphor bronze, plated .000010 [0.000254] min. gold on mating area, .000150-.000300 [0.00381-0.00762] matte tin on solder area, with entire contact underplated .000050-.000100 [0.00127-0.00254] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Receptacle Assembly Part No.
	A	B	
48* (40 Active)	2.400 [60.96]	2.300 [58.42]	5-102766-1
60* (52 Active)	3.000 [76.2]	2.900 [73.66]	5-102766-4

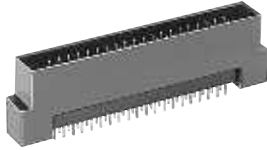
*In addition to the *active* positions, each receptacle has four cavities on each end that are not loaded with contacts. These empty cavities aid in aligning the receptacle with header posts during mating.

- Notes:**
1. Part no. and date code stamped on housing where size permits.
 2. These receptacle assemblies mate with headers of the same size as the *active* positions listed above. Refer to pages 143 and 144.

Note: All part numbers are RoHS compliant.

Headers, Double-Row, .785 [19.94] Height

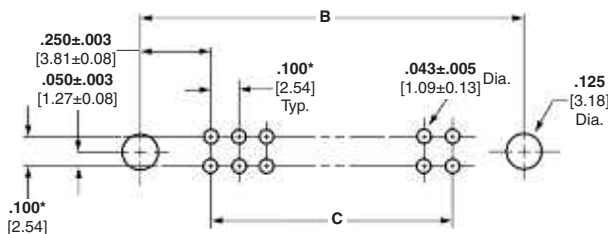
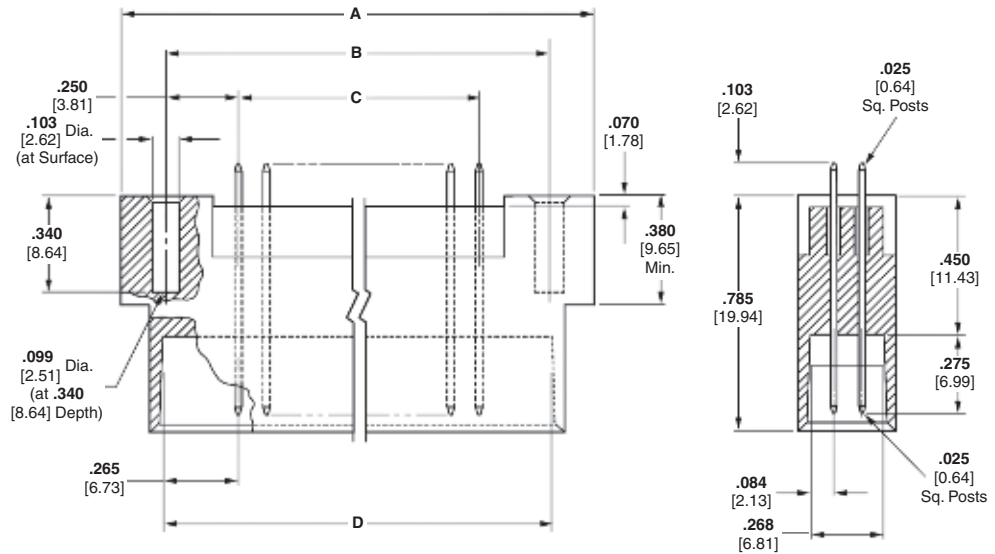
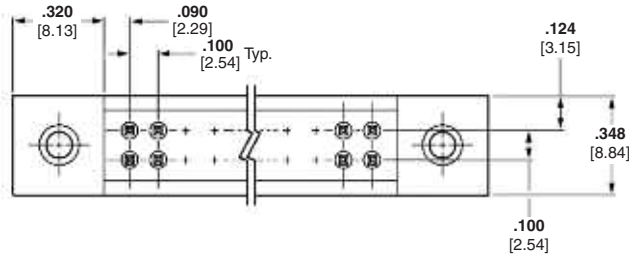
**.025 x .025 [0.64 x 0.64]
Straight Post (with
Pin Protection)**



Material and Finish

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

Contacts — Phosphor bronze, plated .000015 [0.000381] min. gold on mating area, .000100-.000200 [0.00254-.00508] matte tin on solder area, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions				Header Part No.
	A	B	C	D	
40	2.720 [69.09]	2.400 [60.96]	1.900 [48.26]	2.430 [61.27]	5-102871-2
52	3.320 [84.33]	3.000 [76.2]	2.500 [63.5]	3.030 [76.96]	5-102871-1

Note: These headers mate with receptacle assemblies having the same number of active positions. See page 142.

Note: All part numbers are RoHS compliant.

Headers, Double-Row, 1.200 [30.48] Height

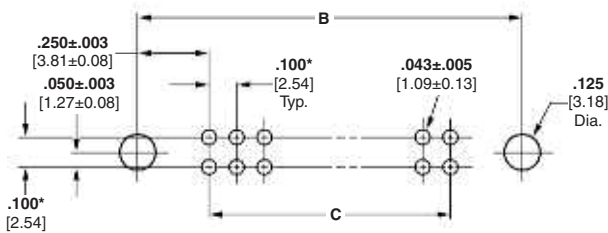
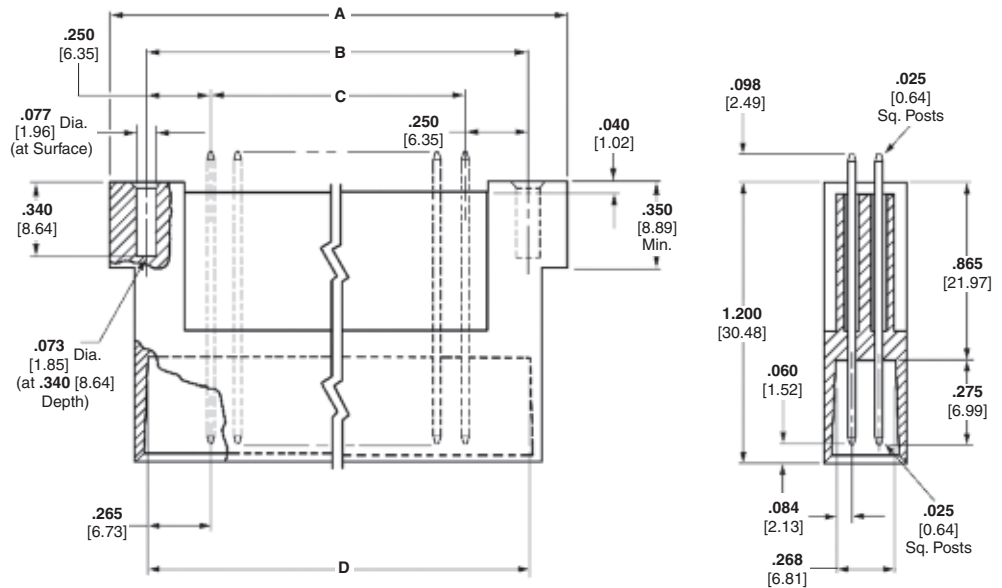
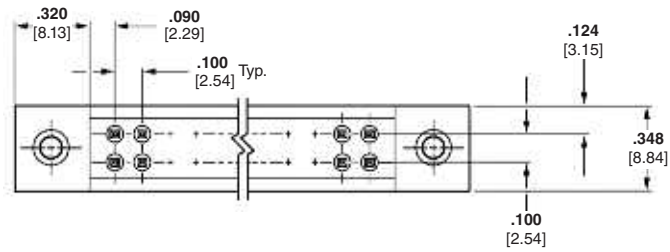
**.025 x .025 [0.64 x 0.64]
Straight Post (with
Pin Protection)**



Material and Finish

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

Contacts — Phosphor bronze, plated .000015 [0.000381] min. gold on mating area, .000100-.000200 [0.00254-0.00508] matte tin on solder area, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.



No. of Pos.	Dimensions				Header Part No.
	A	B	C	D	
52	3.320 [84.33]	3.000 [76.2]	2.500 [63.5]	3.030 [76.96]	5-102826-1

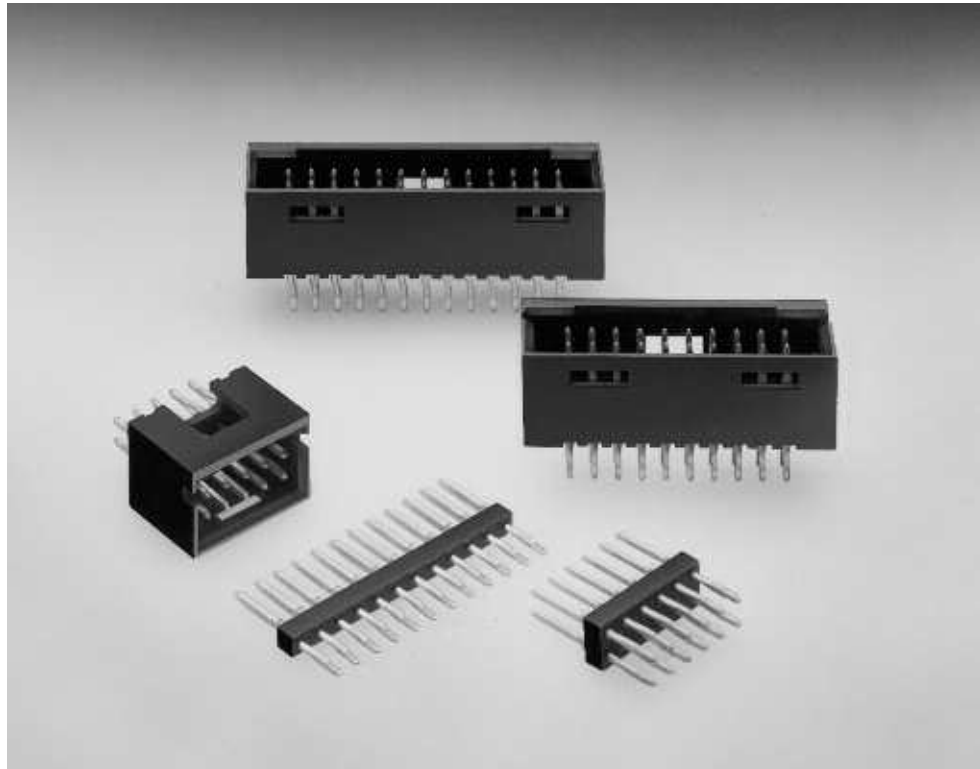
Note: This header mates with receptacle assembly having the same number of active positions. See page 142.

Note: All part numbers are RoHS compliant.

ACTION PIN Headers—Shrouded and Unshrouded

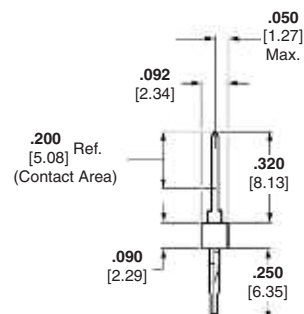
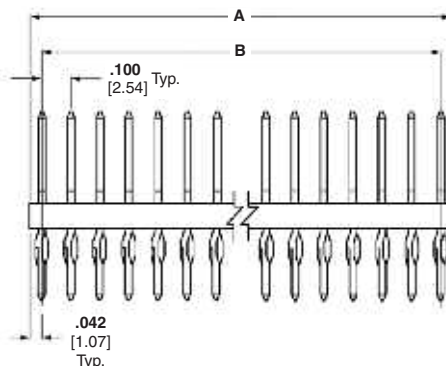
Product Facts

- Straight posted unshrouded and shrouded versions
- .025 [0.64] square ACTION PIN posts
- ACTION PIN posts make a gas-tight, press-fit connection in plated-through holes
- Designed not to 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
- .100 [2.54] Centerline spacing
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 16455



ACTION PIN Headers—Unshrouded, Single-Row, .100 [2.54] Centerline

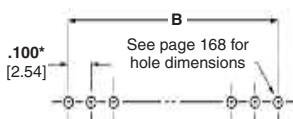
.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel



Recommended PC Board Hole Layout
*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90
ACTION PIN Posts — pages 150, 151
Application Tooling — page 152

Technical Documents

See mating connector for applicable product and application specifications

No. of Pos.	Dimensions		Part Nos.	
	A	B	For .062 [1.57] Thick PC Boards	For .093-.125 [2.36-3.18] Thick PC Boards
1	.084 [2.13]	—	8-103336-5	8-102898-5
2	.184 [4.67]	.100 [2.54]	8-103336-4	8-102898-4
3	.284 [7.21]	.200 [5.08]	9-103336-0	9-102898-0
4	.384 [9.75]	.300 [7.62]	8-103336-6	8-102898-6
5	.484 [12.29]	.400 [10.16]	8-103336-8	8-102898-8
6	.584 [14.83]	.500 [12.70]	8-103336-7	8-102898-7
7	.684 [17.37]	.600 [15.24]	8-103336-9	8-102898-9
8	.784 [19.91]	.700 [17.78]	5-103336-1	5-102898-1
9	.884 [22.45]	.800 [20.32]	5-103336-2	5-102898-2
10	.984 [24.99]	.900 [22.86]	5-103336-3	5-102898-3
11	1.084 [27.53]	1.000 [25.40]	5-103336-4	5-102898-4
12	1.184 [30.07]	1.100 [27.94]	5-103336-5	5-102898-5
13	1.284 [32.61]	1.200 [30.48]	5-103336-6	5-102898-6
14	1.384 [35.15]	1.300 [33.02]	5-103336-7	5-102898-7
15	1.484 [37.69]	1.400 [35.56]	5-103336-8	5-102898-8
16	1.584 [40.23]	1.500 [38.10]	5-103336-9	5-102898-9
17	1.684 [42.77]	1.600 [40.64]	6-103336-0	6-102898-0
18	1.784 [45.31]	1.700 [43.18]	6-103336-1	6-102898-1
19	1.884 [47.85]	1.800 [45.72]	6-103336-2	6-102898-2
20	1.984 [50.39]	1.900 [48.26]	6-103336-3	6-102898-3
21	2.084 [52.93]	2.000 [50.80]	—	6-102898-4
22	2.184 [55.47]	2.100 [53.34]	—	6-102898-5
23	2.284 [58.01]	2.200 [55.88]	—	6-102898-6
24	2.384 [60.55]	2.300 [58.42]	—	6-102898-7
25	2.484 [63.09]	2.400 [60.96]	6-103336-8	6-102898-8
26	2.584 [65.63]	2.500 [63.50]	—	6-102898-9
27	2.684 [68.17]	2.600 [66.04]	—	7-102898-0
28	2.784 [70.71]	2.700 [68.58]	—	7-102898-1
29	2.884 [73.25]	2.800 [71.12]	—	7-102898-2
30	2.984 [75.79]	2.900 [73.66]	7-103336-3	7-102898-3
32	3.184 [80.87]	3.100 [78.74]	7-103336-5	7-102898-5
36	3.584 [91.03]	3.500 [88.90]	7-103336-9	7-102898-9
40	3.984 [101.19]	3.900 [99.06]	8-103336-3	8-102898-3

Note: To insert header into PC board, use seating tool with arbor tool or air powered machine—page 152.

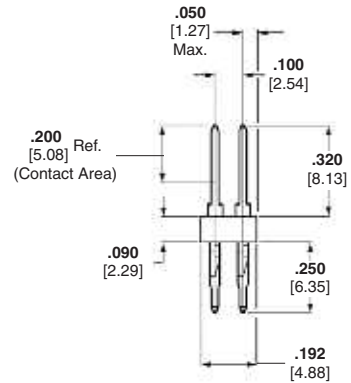
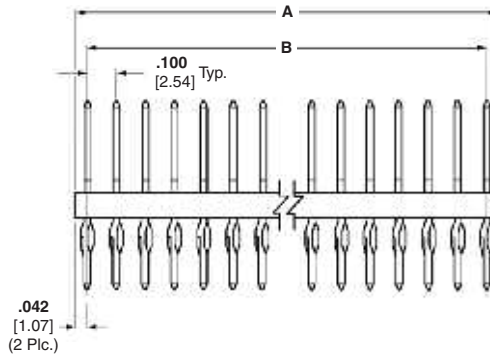
Note: All part numbers are RoHS compliant.

ACTION PIN Headers, Unshrouded

5

ACTION PIN Headers—Unshrouded, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

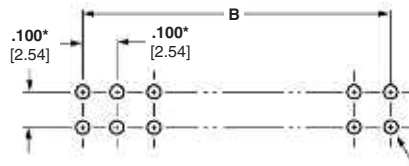
.025 [0.64] Square Straight Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel



See page 151 for hole dimensions

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Accessories

Barrier Insert — page 204

Technical Documents

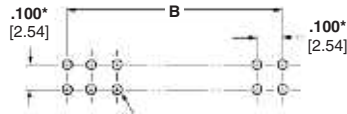
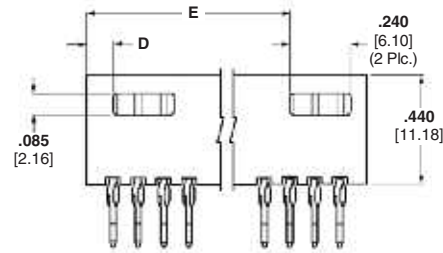
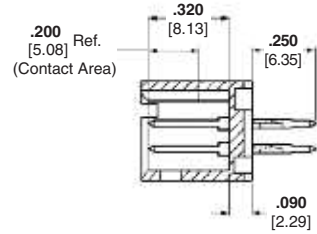
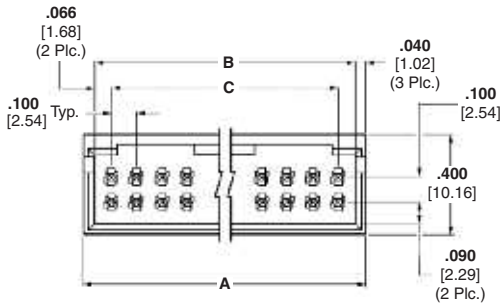
See mating connector for applicable product and application specifications

No. of Pos.	Dimensions		Part Nos.	
	A	B	For .062 [1.57] Thick PC Boards	For .093-.125 [.236-3.18] Thick PC Boards
4	.184 [4.67]	.100 [2.54]	5-103542-1	5-103233-1
6	.284 [7.21]	.200 [5.08]	5-103542-2	5-103233-2
8	.384 [9.75]	.300 [7.62]	5-103542-3	5-103233-3
10	.484 [12.29]	.400 [10.16]	5-103542-4	5-103233-4
12	.584 [14.83]	.500 [12.70]	5-103542-5	5-103233-5
14	.684 [17.37]	.600 [15.24]	5-103542-6	5-103233-6
16	.784 [19.91]	.700 [17.78]	5-103542-7	5-103233-7
18	.884 [22.45]	.800 [20.32]	5-103542-8	5-103233-8
20	.984 [24.99]	.900 [22.86]	5-103542-9	5-103233-9
22	1.084 [27.53]	1.000 [25.40]	6-103542-0	6-103233-0
24	1.184 [30.07]	1.100 [27.94]	6-103542-1	6-103233-1
26	1.284 [32.61]	1.200 [30.48]	6-103542-2	6-103233-2
28	1.384 [35.15]	1.300 [33.02]	6-103542-3	6-103233-3
30	1.484 [37.69]	1.400 [35.56]	6-103542-4	6-103233-4
32	1.584 [40.23]	1.500 [38.10]	6-103542-5	6-103233-5
34	1.684 [42.77]	1.600 [40.64]	6-103542-6	6-103233-6
36	1.784 [45.31]	1.700 [43.18]	6-103542-7	6-103233-7
38	1.884 [47.85]	1.800 [45.72]	6-103542-8	6-103233-8
40	1.984 [50.39]	1.900 [48.26]	6-103542-9	6-103233-9
42	2.084 [52.93]	2.000 [50.80]	7-103542-0	7-103233-0
46	2.284 [58.01]	2.200 [55.88]	7-103542-2	—
50	2.484 [63.09]	2.400 [60.96]	7-103542-4	7-103233-4
60	2.984 [75.79]	2.900 [73.66]	7-103542-9	7-103233-9
66	3.284 [83.41]	3.200 [81.28]	8-103542-2	—
80	3.984 [101.19]	3.900 [99.06]	8-103542-9	8-103233-9

Note: All part numbers are RoHS compliant.

ACTION PIN 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, for .093-.125 [2.36-3.18] Thick PC Board)



See page 151 for hole dimensions

Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

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] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors —

AMPMODU Board Mount Receptacles — pages 176, 179, 180

AMPMODU Wire-Applied Receptacles — pages 217-219

AMPMODU MT Receptacles — pages 256, 257

ACTION PIN Posts — pages 150, 151

Application Tooling — page 152

Accessories

Barrier Insert — page 204

Technical Documents — page 276

See mating connector for applicable product and application specifications

No. of Pos.	Dimensions					Header Part Nos.
	A	B	C	D	E	
6	.412 [10.46]	.332 [8.43]	.200 [5.08]	.106 [2.69]	—	5-102699-2
8	.512 [13.00]	.432 [10.97]	.300 [7.62]	.106 [2.69]	—	5-102699-3
10	.612 [15.54]	.532 [13.51]	.400 [10.16]	.206 [5.23]	—	5-102699-4
12	.712 [18.08]	.632 [16.05]	.500 [12.70]	.206 [5.23]	—	5-102699-5
14	.812 [20.62]	.732 [18.59]	.600 [15.24]	.306 [7.77]	—	5-102699-6
16	.912 [23.16]	.832 [21.13]	.700 [17.78]	.306 [7.77]	—	5-102699-7
18	1.012 [25.70]	.932 [23.67]	.800 [20.32]	.406 [10.31]	—	5-102699-8
20	1.112 [28.24]	1.032 [26.21]	.900 [22.86]	.106 [2.69]	.806 [20.47]	5-102699-9
26	1.412 [35.86]	1.332 [33.83]	1.200 [30.48]	.106 [2.69]	1.106 [28.09]	6-102699-2
30	1.612 [40.94]	1.532 [38.91]	1.400 [35.56]	.106 [2.69]	1.306 [33.17]	6-102699-4
34	1.812 [46.02]	1.732 [43.99]	1.600 [40.64]	.106 [2.69]	1.506 [38.25]	6-102699-6
40	2.112 [53.64]	2.032 [51.61]	1.900 [48.26]	.106 [2.69]	1.806 [45.87]	6-102699-9
50	2.612 [66.34]	2.532 [64.31]	2.400 [60.96]	.106 [2.69]	2.306 [58.57]	7-102699-3
60	3.112 [79.04]	3.032 [77.01]	2.900 [73.66]	.106 [2.69]	2.806 [71.27]	7-102699-8

Note: All part numbers are RoHS compliant.

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 [2.36-3.18] Thick PC Board)



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] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors —

AMPMODU MTE Receptacles — pages 232, 233

ACTION PIN Posts — pages 150, 151

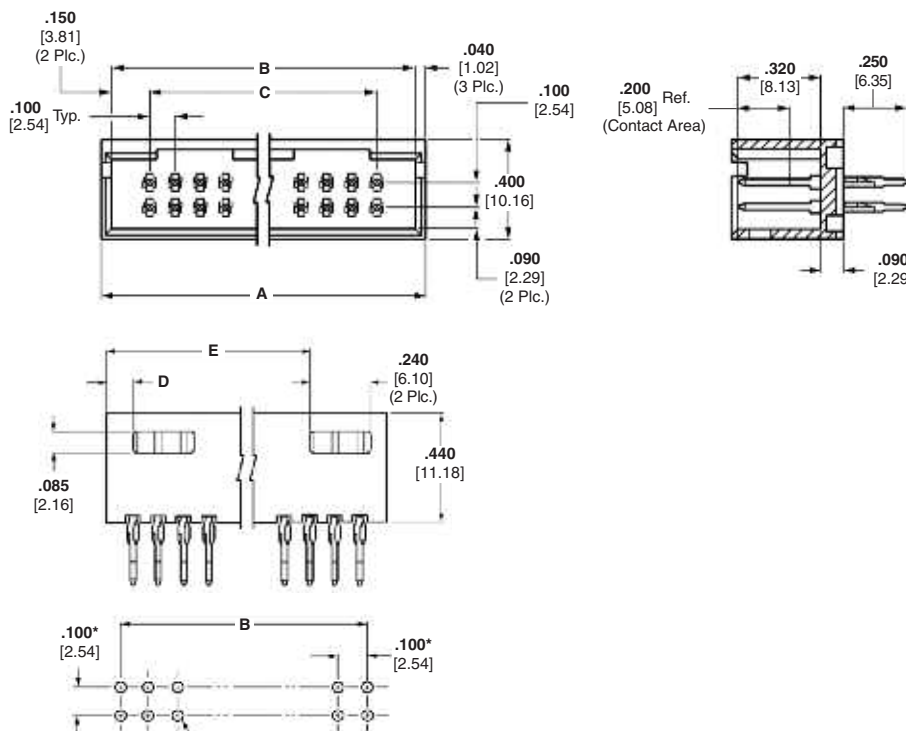
Application Tooling — page 152

Accessories

Barrier Insert — page 204

Technical Documents

See mating connector for applicable product and application specifications



See page 151 for hole dimensions

Recommended PC Board Hole Layout

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions					Header Part Nos.
	A	B	C	D	E	
6	.580 [14.73]	.500 [8.43]	.200 [5.08]	.190 [4.83]	—	6-102557-0
8	.680 [17.27]	.600 [10.97]	.300 [7.62]	.190 [4.83]	—	6-102557-1
10	.780 [19.81]	.700 [17.78]	.400 [10.16]	.290 [7.37]	—	5-102557-9
12	.880 [22.35]	.800 [20.32]	.500 [12.70]	.290 [7.37]	—	6-102557-2
14	.980 [24.89]	.900 [22.86]	.600 [15.24]	.390 [9.91]	—	6-102557-3
16	1.080 [27.43]	1.000 [25.40]	.700 [17.78]	.390 [9.91]	—	6-102557-4
18	1.180 [29.97]	1.100 [27.94]	.800 [20.32]	.490 [10.31]	—	6-102557-5
20	1.280 [32.51]	1.200 [30.48]	.900 [22.86]	.190 [4.83]	.890 [22.61]	5-102557-2
24	1.480 [37.59]	1.400 [35.56]	1.100 [27.94]	.190 [4.83]	1.090 [27.69]	6-102557-7
26	1.580 [40.13]	1.500 [38.10]	1.200 [30.48]	.190 [4.83]	1.190 [30.23]	5-102557-3
30	1.780 [45.21]	1.700 [43.18]	1.400 [35.56]	.190 [4.83]	1.390 [35.31]	5-102557-4
34	1.980 [50.29]	1.900 [48.26]	1.600 [40.64]	.190 [4.83]	1.590 [40.39]	5-102557-5
40	2.280 [57.91]	2.200 [55.88]	1.900 [48.26]	.190 [4.83]	1.890 [48.01]	5-102557-1
50	2.780 [70.61]	2.700 [68.58]	2.400 [60.96]	.190 [4.83]	2.390 [60.71]	5-102557-6
60	3.280 [83.31]	3.200 [81.28]	2.900 [73.66]	.190 [4.83]	2.890 [73.41]	5-102557-7

Note: All part numbers are RoHS compliant.

ACTION PIN Press-Fit Posts

The Reliable Plated-Through Hole Interconnect

Solderless interconnections have been popular in electrical and electronic applications with world-wide success for decades. They provide reliable electrical and mechanical stability and offer applied-cost savings across the board. For PC board applications, compliant ACTION PIN posts provide these features:

- Large gas-tight contact zone
- High reliability due to stored energy
- More resistant to damage to plated-through holes during installation
- Especially suited for multilayer PC boards
- Less costly board manufacturing due to larger hole tolerances compared to use of solid pins
- Application can be made by end-user
- Repairability—contact can be replaced in the same pin location (two repairs)
- Installation with no heat cycling of board
- Permits mass insertion by minimizing forces needed to insert pins as compared to solid pin press-fit application
- Significant applied-cost savings in many applications

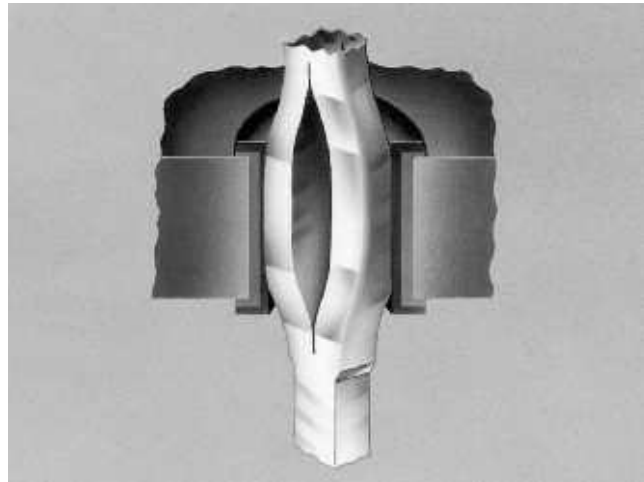
Since compliant ACTION PIN posts do not have to be soldered, problems associated with solder are eliminated, such as:

- Faulty solder joints
- Solder fumes; contaminants are deposited on the contacts
- Solder spots; short circuits between printed circuits
- Flux residuals
- Thermal strain on printed circuit boards and components
- Degassing of plated-through holes

Solderless press-fit interconnections using compliant pins are primarily integrated in, but not limited to, backplanes.

Solderless press-fit interconnections are used in racks, especially where connectors must be fixed on the solder side of the PC board and/or component side. In these applications, the holes for ACTION PIN post connectors are covered during the soldering process and press-fitting is performed after soldering.

Other applications for ACTION PIN post interconnections include PC boards that incorporate components using surface mount technology (SMT). Here, too, press-fit interconnections can be applied after soldering, thus eliminating complications associated with connectors suitable for surface mounting.



Principle of the Compliant ACTION PIN Post

When a compliant ACTION PIN post is inserted into a plated-through hole, two spring members are compressed, exerting force against the hole for a gas-tight connection. The diameter of the hole is smaller than the diagonal size of the pin (see cross-section illustration below).

The beam characteristics of the pin are designed so that a plastic, as well as an elastic, deformation takes place during insertion. The two spring members compress to different degrees to accommodate hole tolerances. The compliant pin also reduces strain on the board. With a rigid pin, the elastic strain energy is stored entirely in the board, leading to damage of the plated-through holes. With the compliant ACTION PIN post, the residual force of the elastic deformation maintains stored energy to produce a tight contact zone between the pin and the plated-through hole. This maintains long-term electrical and mechanical reliability of the interconnection.



**Minimum
Hole Dia.**
.037 [0.94]

**Maximum
Hole Dia.**
.043 [1.09]

Cross-Section Area of ACTION PIN Press-Fit Post in Printed Circuit Board Holes

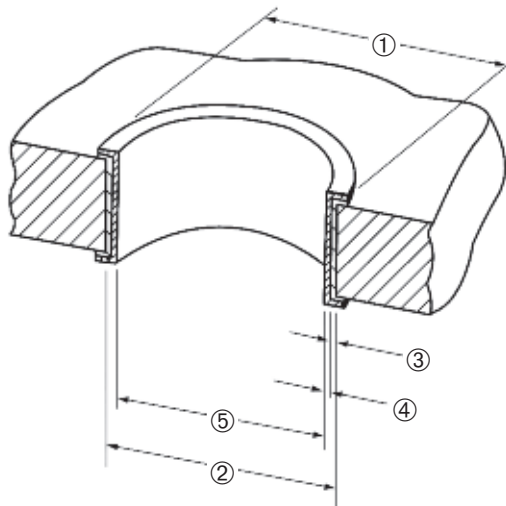
ACTION PIN Press-Fit Posts (Continued)



ACTION PIN posts provide a more reliable press-fit connection. Localized pressure in the interface area provides oxide break-through and prevents corrosion better in many of the harshest environments to help provide a reliable connection. Also, radial and axial distortion are controlled to meet today's standards for multilayer board applications.

PC Board Thickness

ACTION PIN posts are designed for use in a variety of PC board thicknesses. However, certain ACTION PIN posts are to be used in specific ranges of board thicknesses. To promote optimum performance, the recommended board thicknesses provided with the connector being used must be followed.



- ① Annular Ring (See Note)
- ② Drilled Hole
- ③ Copper Thickness
- ④ Tin-lead Thickness
- ⑤ Plated-Through Hole

ACTION PIN Post/PC Board Applications

ACTION PIN Contact Material Thickness	Drilled Hole Diameter ^②	Plating Thicknesses		Plated-Through Hole Diameter ^⑤	Distortion Specification*	
		Copper ^{③*}	Tin-lead ^④		Average	Maximum
.025 [0.64]	.0453 ^{+0.001} [1.151 ^{+0.03}]	.001-.003 [0.03-0.08]	.0003 [0.008]Min.	.037-.043 [0.94-1.09]	.0015 [0.038]	.002 [0.05]

*Maximum hardness of copper layer is 150 Knoop.
 **Radial hole distortion.

Note: Recommended annular ring diameter is hole diameter plus .020 [0.51].

Application Tooling for AMPMODU Headers with ACTION PIN Posts

ACTION PIN Post Replacement Tooling



Rear Insertion/Extraction Tool
No. 265871-7 (Ref. 408-2636)

Includes:

- Impact Tool No. 380392-8
- Removal Tool No. 265964-1
- Replacement Tip No. 308554-1

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.

Pin headers with ACTION PIN posts allow high speed, solderless back-plane construction through 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 TE seating machines shown on this page.

For tooling information, call the TE Automation Group 1-800-722-1111.

Double-Row Connector Seating Tools

Header Size (No. of Pos.)	Tool Assembly No.
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 (No. of Pos.)	Tool Assembly No.
96	91169-8
105	91169-6
120	91169-7
150	91169-3
195	91169-2
204	91169-1
210	91169-5
300	91169-9

Application Tooling for ACTION PIN Posts

5



BMEP 5T



AEP 6T

ASG Servo Electric Presses

TE offers a wide range of servo-electric presses for the application of press-fit connectors. Systems are available with varying force capacity, board size capacity and process capability. Each system features real-time force feedback and PC control to allow the highest level of control and traceability. Every connector

pressed is monitored to confirm that maximum force is not exceeded and minimum force is met. Each system controls force, height and speed to allow termination of the pressing cycle by force or height parameters. Complete SPC data is available as each connector press cycle is monitored and stored.

Please see the matrix below and contact TE Automation Group at 1-800-722-1111 for assistance in understanding which system will best meet your needs.

Press Model	Description	Max Pressing Force tons [kN]	Max Board Size (L x W) in [mm]
BMEP 3T	Semi-automatic, benchtop servo-electric press	3 [26.7]	18 x 24 [460 x 610]
BMEP 5T	Semi-automatic, benchtop servo-electric press	5 [44.5]	18 x 24 [460 x 610]
MEP 6T	Semi-automatic, stand-alone servo-electric press	6 [53.4]	24 x 36 [610 x 914]
MEP 12T	Semi-automatic, stand-alone servo-electric press	12 [106.8]	30 x 36 [762 x 914]
AEP 12T	Automatic, inline servo-electric press	12 [106.8]	36 x 48 [914 x 1219]
AEP 6T	Automatic, stand alone servo-electric press	6 [53.4]	30 x 36 [762 x 914]

Note: All part numbers are RoHS compliant.

Application Tooling for Post Insertion

TE offers a wide range of application tooling solutions ranging from stand alone manual insertion systems through fully automatic inline systems. Please contact your local TE representative or the TE Tooling Assistance Center at 1-800-722-1111 for help in finding the right solution to meet your particular requirements.

Modular Insertion System Bench Machine No. 217600-1

This machine uses TE 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 TE for further information on this machine and the insertion heads.



P300 and P350 Automatic Insertion Machines

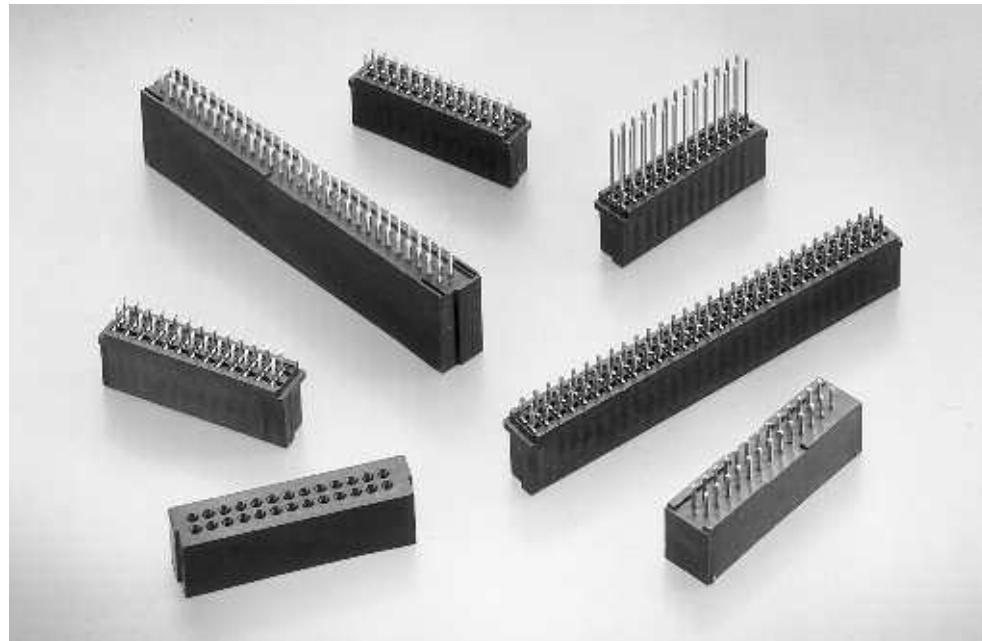
The P300 and P350 are automatic insertion machines for the application of reeled compliant pin and thru-hole products. Systems are available as stand alone or fully inline with SMEMA compatible conveyor system. Up to 3 different insertion heads can be mounted on a system allowing one machine to apply up to 3 different products. Insertion rates of up to 3 insertions per second on the P300 and up to 5 insertions per second on a P350 are possible (application dependent). PCBs up to 15.5" x 23.5" [400x600mm] on the P300 and up to 17.5" x 17.5" [450x450mm] on the P350 can be processed by high speed XY positioning tables. A wide range of options, including force monitoring, PCB vision correct, and PCB thickness measurement are available to meet your performance and production flexibility requirements.

Note: All part numbers are RoHS compliant.

ACTION PIN Stacking Connector System (Non-Intermateable with AMPMODU Connectors)

Product Facts

- Can stack multiple printed circuit boards without the need of a mother board
- Connect bus lines in the shortest possible distance
- Receptacle assembly has ACTION PIN posts for solderless board mounting
- Can be mounted onto the board simply by press fitting with Mini-Press
- Receptacle assembly is easy to service and replace (up to 2 times)
- Receptacle contacts are of fork design to mate with posts at two points. Virtually eliminates danger of scooping at mating/unmating
- Stacking dimensions are 13.4 [.528] or 19.0 [.748] when using receptacle assemblies together, and 13.9 [.547] or 19.5 [.768] when using a combination of receptacle and post header assemblies
- Accepts 1.6 [.062] thick boards
- Housing provided with polarization to help prevent mismatching
- Housing made of chemical-resistant glass-filled PBT, black in color
- Contacts are of copper alloy material with high spring characteristics, gold-over-nickel plated
- Post hood available to protect the post portion of receptacle contacts. Can be selected depending on stacking dimensions
- Connectors available in sizes of 26, 30, 34, 40, 50 and 60 positions
- Product specification: 108-5197



ACTION PIN Stacking Connectors are a family of two-piece connectors used to stack multiple printed circuit boards in parallel. They have been developed to provide a more reliable and economical means of compact wiring and high-density packaging inside a variety of electronic equipment.

The connectors have many advanced features: they can be used to connect

bus lines in the shortest possible distance without the need of a mother board, thus permitting effective utilization of space above the board; compared with other methods of jumper connection using cable connectors, they make the overall board layout more clean and straight for compact packaging.

Contacts are on 2.54 x 2.54 [.100 x .100] grid. The connectors are available in

sizes of 26, 30, 34, 40, 50 and 60 positions. ACTION PIN Stacking Connectors consist of a receptacle assembly, a mating post header and a post hood to protect the post portion of the receptacle assembly.

A complete description of the ACTION PIN Stacking Connectors is presented on the following page (155).

**ACTION PIN Stacking Connector System
(Non-Intermateable with AMPMODU Connectors)** (Continued)

Receptacle Assembly

The receptacle assembly features reliability and economy characteristic of this product line.

The mating portion of its built-in receptacle contacts is a fork design, highly resilient and helps prevent damage to contacts by scooping at mating/unmating.

On the board mount side of the assembly are 0.55 [.022] square ACTION PIN posts.

No soldering is required to mount the assembly on the board, the posts being simply, press fit into the board's 0.825 [.032] diameter holes.

Two types of receptacle assemblies are available;

one is used with an outermost board and the other with intermediary boards. A solder version is also available for the outer board mount assembly.

Post Hood

When using the intermediary board mount receptacle assembly, this post hood is used to protect the post portion of the assembly. The post hood is available in two types: one with the housing height of 10.0 [.394] and the other with the housing height of 15.7 [.618]. They can be selected, depending on stacking dimensions.

Post Header

The post header is mounted onto the outer board on the other side of the board to

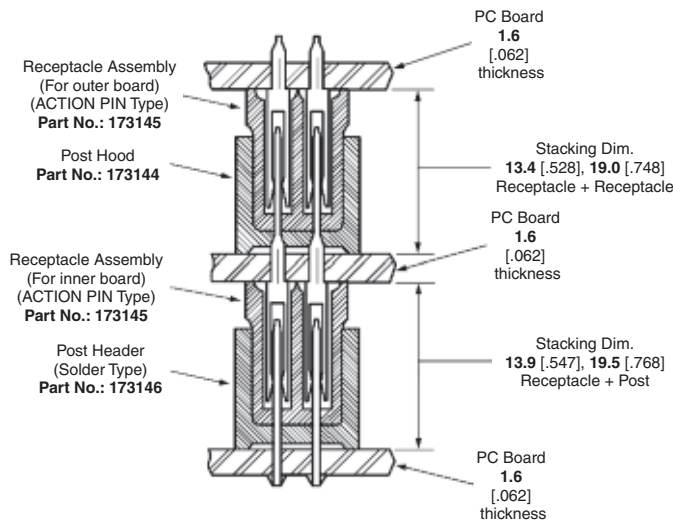
which an outer board mount receptacle assembly is applied. The post header is preloaded with 0.50 [.022] square soldering posts. These posts are protected by the side walls of the housing.

Stacking dimensions provided by this connector line are as follows:

When the outer board receptacle and intermediary board receptacle assemblies are used 13.4 [.528] or 19.0 [.748].

When the intermediary board receptacle assembly and the post header assembly are used 13.9 [.547] or 19.5 [.768].

Typical Application



Note: All part numbers are RoHS compliant.

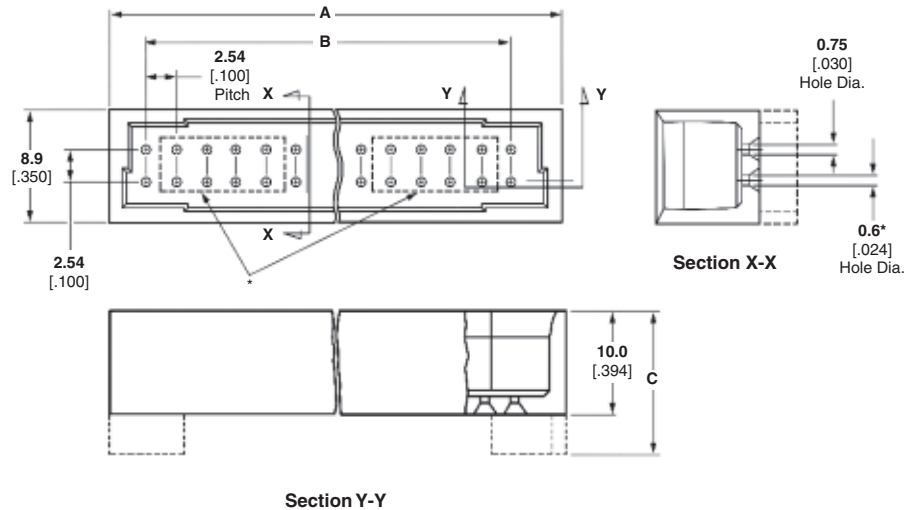
Post Hood (Non-Intermateable with AMPMODU Connectors)



The post hood, mounted onto the post of the intermediary receptacle assembly, protects the post and serves as a header assembly when stacking several boards.

Material

Black glass-filled PBT, 94V-0 rated



Acceptable Post Length	No. of Pos.	Dimensions (See Note.)			Post Hood Part Nos.
		A	B	C	
For 8.9 [.350] or 10.9 [.429] (For Stacking Dimension) 13.4 [.528]	26	38.1 [1.500]	30.48 [1.200]	10.0 [.394]	1-173144-1
	30	43.2 [1.700]	33.56 [1.321]	10.0 [.394]	173144-2
	34	48.3 [1.900]	40.64 [1.600]	10.0 [.394]	1-173144-2
	40	55.9 [2.200]	48.26 [1.900]	10.0 [.394]	173144-3
	50	68.6 [2.700]	65.96 [2.597]	10.0 [.394]	173144-4
	60	81.3 [3.200]	73.66 [2.900]	10.0 [.394]	173144-5
For 14.5 [.571] or 16.5 [.650] (For Stacking Dimension) 19.0 [.748]	26	38.1 [1.500]	30.48 [1.200]	15.6 [.614]	1-173144-3
	30	43.2 [1.700]	33.56 [1.321]	15.6 [.614]	173144-7
	34	48.3 [1.900]	40.64 [1.600]	15.6 [.614]	1-173144-4
	40	55.9 [2.200]	48.26 [1.900]	15.6 [.614]	173144-8
	50	68.6 [2.700]	65.96 [2.597]	15.6 [.614]	3-173144-8*
	60	81.3 [3.200]	73.66 [2.900]	15.6 [.614]	173144-9
					1-173144-0

*0.60 [.024] dia. applies to 16 holes on both sides, except Part No. 3-173144-8.

Note: All part numbers are RoHS compliant.

**Receptacle Assemblies with ACTION PIN Posts and Solder Posts
(Non-Intermateable with AMPMODU Connectors)**

**Receptacle Assembly for
Outer Board (With 0.55
[.022] Square Post)**



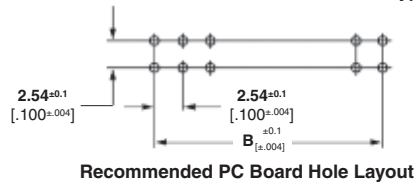
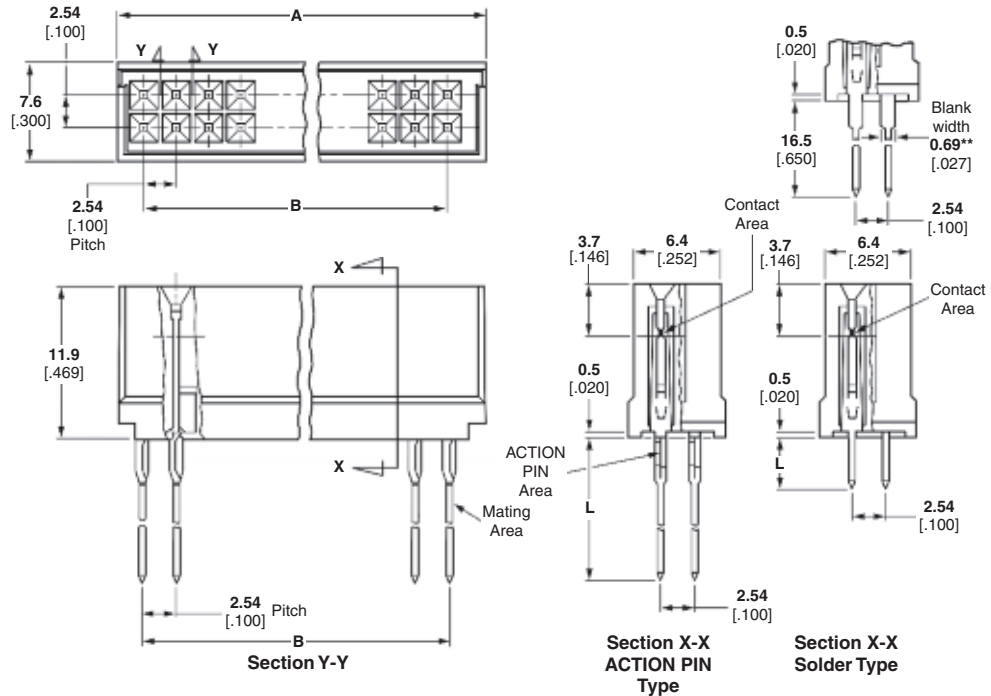
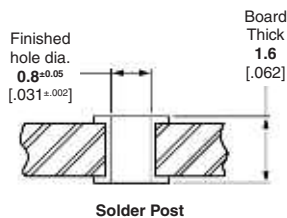
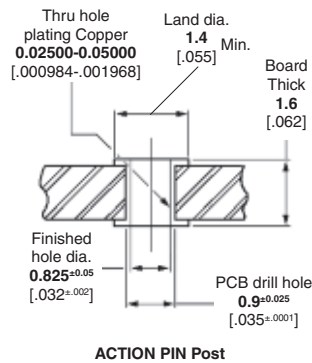
Material and Finish

Housing — Black glass-filled PBT, 94V-0 rated

Contacts — Copper alloy, plated 0.00020 [.000008] gold on contact area and post mating area, gold flash on ACTION PIN tail or 0.00070 [.0000027] tin on solder tail, with entire contact underplated 0.00130 [.000050] nickel

Application Tooling shown on page 162.

PC Board Mounting Dimensions



For Outer Board

Type	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
ACTION PIN Post	4.2*	26	35.6 [1.402]	30.48 [1.200]	1-173145-7
		30	40.6 [1.598]	35.56 [1.400]	173145-2
		34	45.7 [1.799]	40.64 [1.600]	1-173145-8
		40	53.3 [2.098]	48.26 [1.900]	173145-3
		50	66.0 [2.598]	60.96 [2.400]	173145-4
		60	78.7 [3.098]	73.66 [2.900]	173145-5
Solder Post	4.2*	26	35.6 [1.402]	30.48 [1.200]	2-173145-8
		30	40.6 [1.598]	35.56 [1.400]	2-173145-4
		34	45.7 [1.799]	40.64 [1.600]	2-173145-9
		40	53.3 [2.098]	48.26 [1.900]	2-173145-5
		50	66.0 [2.598]	60.96 [2.400]	2-173145-6
		60	78.7 [3.098]	73.66 [2.900]	2-173145-7 3-173145-0**

*After mounted receptacle assembly is on board, dimension of extrude length from board is 2.6 [.102].
**Post Length = 17.0 [.669] , Blank Width = 0.69 [.027] (see above figure) (finished hole dia. = 1.0 [.039]).

Note: All part numbers are RoHS compliant.

Receptacle Assemblies with ACTION PIN Posts (Non-Intermateable with AMPMODU Connectors)

Receptacle Assembly for Inner Board (With 0.55 [.022] Square Post)

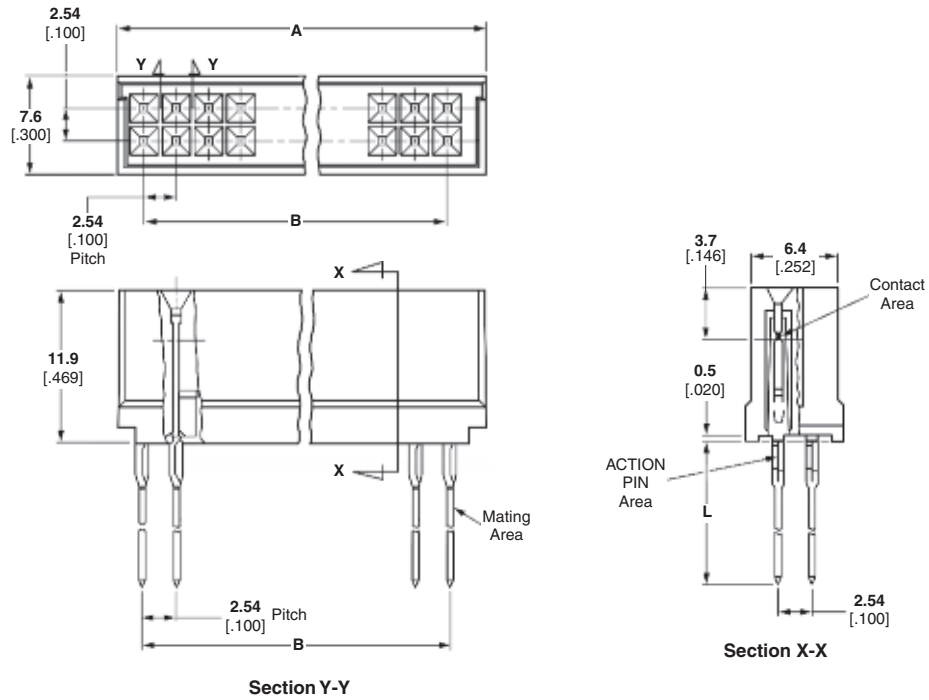


Material and Finish

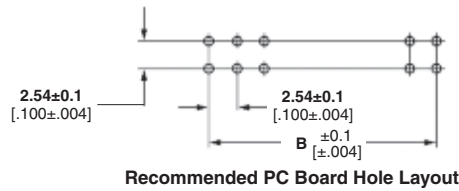
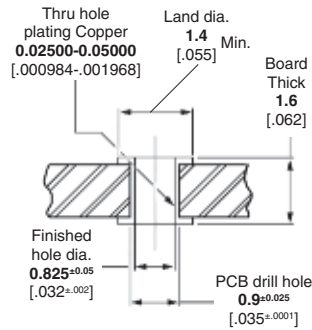
Housing — Black glass-filled PBT, 94V-0 rated

Contacts — Copper alloy, plated 0.00020 [.000008] gold on contact area and post mating area, gold flash on ACTION PIN tail or 0.000070 [.0000027] tin on solder tail, with entire contact underplated 0.00130 [.000050] nickel

Application Tooling shown on page 162.



PC Board Mounting Dimensions



For Inner Board

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
13.4 [.528]	8.9 .350	30	40.6 [1.598]	35.56 [1.400]	3-173145-2
		34	45.7 [1.799]	40.64 [1.600]	3-173145-7
		40	53.3 [2.098]	48.26 [1.900]	3-173145-3
		50	66.0 [2.598]	60.96 [2.400]	3-173145-1*
		60	78.7 [3.098]	73.66 [2.900]	3-173145-4
		60	78.7 [3.098]	73.66 [2.900]	3-173145-5
	10.9 .429	26	35.6 [1.402]	30.48 [1.200]	1-173145-9
		30	40.6 [1.598]	35.56 [1.400]	173145-7
		34	45.7 [1.799]	40.64 [1.600]	2-173145-0
		40	53.3 [2.098]	48.26 [1.900]	173145-8
		50	66.0 [2.598]	60.96 [2.400]	173145-9
		60	78.7 [3.098]	73.66 [2.900]	1-173145-0

*Contact area and post mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

**Receptacle Assemblies with ACTION PIN Posts
(Non-Intermateable with AMPMODU Connectors)** (Continued)

For Inner Board (Continued)

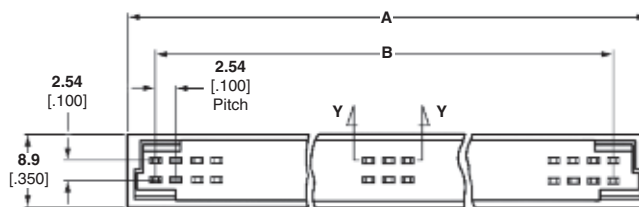
Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)		Receptacle Assembly Part Nos.
			A	B	
19.0 [.748]	14.5 [.571]	26	35.6 [1.402]	30.48 [1.200]	4-173145-2
		30	40.6 [1.598]	35.56 [1.400]	3-173145-8
		34	45.7 [1.799]	40.64 [1.600]	4-173145-3
		40	53.3 [2.098]	48.26 [1.900]	3-173145-9
		50	66.0 [2.598]	60.96 [2.400]	4-173145-0
		60	78.7 [3.098]	73.66 [2.900]	4-173145-1
	16.5 [.650]	26	35.6 [1.402]	30.48 [1.200]	2-173145-1
		30	40.6 [1.598]	35.56 [1.400]	1-173145-2
		34	45.7 [1.799]	40.64 [1.600]	2-173145-2
		40	53.3 [2.098]	48.26 [1.900]	1-173145-3
		50	66.0 [2.598]	60.96 [2.400]	1-173145-4
		60	78.7 [3.098]	73.66 [2.900]	1-173145-5

*Contact area and post mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Post Headers with Solder Posts (Non-Intermateable with AMPMODU Connectors)

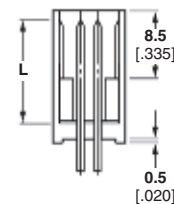
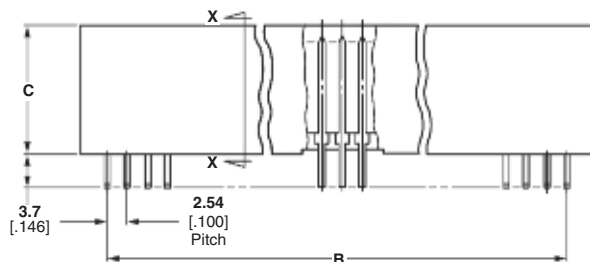
Post Header (With 0.55 [.022] Square Post)



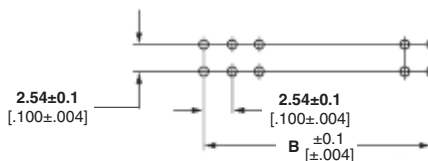
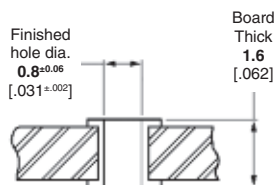
Material and Finish

Housing — Black glass-filled PBT, 94V-0 rated

Posts — Copper alloy, plated 0.00020 [.000008] gold on contact area, 0.000070 [.0000027] min. tin on solder tail, with entire post underplated 0.00130 [.000050] nickel



PC Board Mounting Dimensions



Recommended PC Board Hole Layout

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)			Part Nos. of Post Header Assembly
			A	B	C	
13.9 [.547]	5.8 [.228]	26	38.1 [1.500]	30.48 [1.200]	10.5 [.413]	3-173146-5
		30	43.2 [1.700]	35.56 [1.400]	10.5 [.413]	3-173146-1
		34	48.3 [1.900]	40.64 [1.600]	10.5 [.413]	3-173146-6
		40	55.9 [2.200]	48.26 [1.900]	10.5 [.413]	3-173146-2
		50	68.6 [2.700]	60.96 [2.400]	10.5 [.413]	3-173146-3
		60	81.3 [3.200]	73.66 [2.900]	10.5 [.413]	3-173146-4
	7.8 [.307]	26	38.1 [1.500]	30.48 [1.200]	10.5 [.413]	2-173146-1
		30	43.2 [1.700]	35.56 [1.400]	10.5 [.413]	1-173146-7
		34	48.3 [1.900]	40.64 [1.600]	10.5 [.413]	2-173146-2
		40	55.9 [2.200]	48.26 [1.900]	10.5 [.413]	1-173146-8
		50	68.6 [2.700]	60.96 [2.400]	10.5 [.413]	4-173146-3*
		60	81.3 [3.200]	73.66 [2.900]	10.5 [.413]	1-173146-9
		60	81.3 [3.200]	73.66 [2.900]	10.5 [.413]	2-173146-0

*Contact mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

**Post Headers with Solder Posts
(Non-Intermateable with AMPMODU Connectors)** (Continued)

Stacking Dimensions	Post Length L	No. of Pos.	Dimensions (See Note.)			Part Nos. of Post Header Assembly
			A	B	C	
19.5 [.768]	11.4 [.449]	26	38.1 [1.500]	30.48 [1.200]	16.1 [.634]	4-173146-1
		30	43.2 [1.700]	35.56 [1.400]	16.1 [.634]	3-173146-7
		34	48.3 [1.900]	40.64 [1.600]	16.1 [.634]	4-173146-2
		40	55.9 [2.200]	48.26 [1.900]	16.1 [.634]	3-173146-8
		50	68.6 [2.700]	60.96 [2.400]	16.1 [.634]	3-173146-9
		60	81.3 [3.200]	73.66 [2.900]	16.1 [.634]	4-173146-0
	13.4 [.528]	26	38.1 [1.500]	30.48 [1.200]	16.1 [.634]	2-173146-8
		30	43.2 [1.700]	35.56 [1.400]	16.1 [.634]	2-173146-4
		34	48.3 [1.900]	40.64 [1.600]	16.1 [.634]	2-173146-9
		40	55.9 [2.200]	48.26 [1.900]	16.1 [.634]	2-173146-5
		50	68.6 [2.700]	60.96 [2.400]	16.1 [.634]	2-173146-6
		60	81.3 [3.200]	73.66 [2.900]	16.1 [.634]	2-173146-7

*Contact mating area: 0.00050 [.000020] min. gold over 0.00130 [.000050] min. nickel plated.

Note: All part numbers are RoHS compliant.

Application Tooling for ACTION PIN Stacking Connectors

Mini-Press



No. of Pos.	Part No.
40	1-758030-1
50	1-758030-2
60	1-758030-3

The part numbers above include the Mini-Press unit, insertion support plate and press-fit jig.

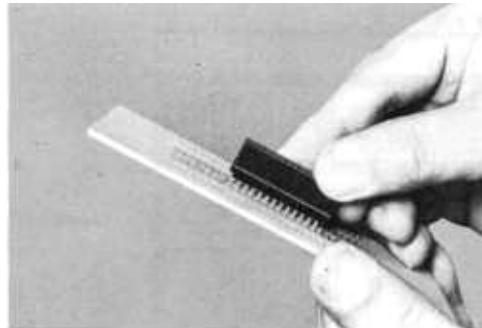
Mini-Press Unit Part No. 1-758030-3

When ordering a press-fit jig only, consult the table below.

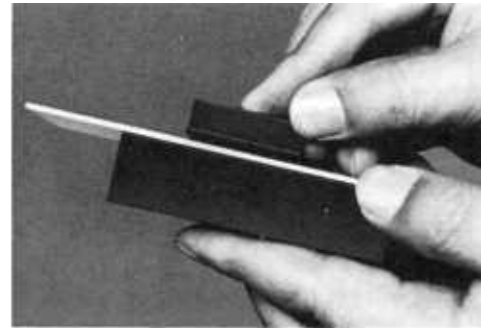
Press-fit Jig (separate order)

No. of Pos.	Part No.
26	907459-1
30	907459-2
34	907459-3
40	907459-4
50	907459-5
60	907459-6

Also, optional insertion support plates are obtainable by separate order to meet your specific requirements for improved board handling.



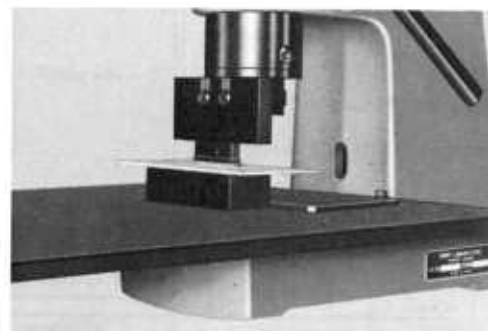
1. Insert connector into the board tentatively (Be sure that connector is in the right direction).



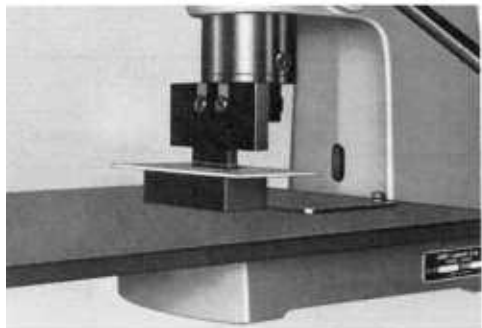
2. Attach insertion support plate to the leg portion of connector from below.



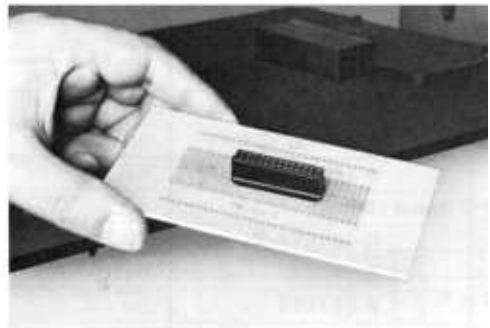
3. Set insertion support plate in place by butting it against Mini-Press platform.



4. By pressing Mini-Press handle down, rest the press-fit jig against connector.



5. Press handle down gently and insert connector into the board.



6. Now connector has been mounted to the board securely.



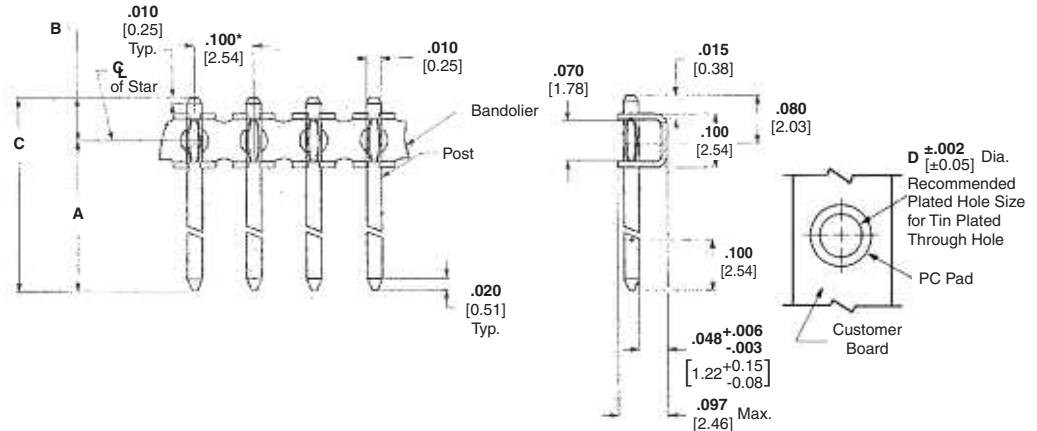
Insertion Support Unit
(Option)



Note: All part numbers are RoHS compliant.

.025 [0.64] Square Posts

Bandolier Posts (Uninsulated)



Material and Finish

Bandolier — Brass

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable Connectors — Refer to the Mating Post Selection Guide — page 90

Accessories

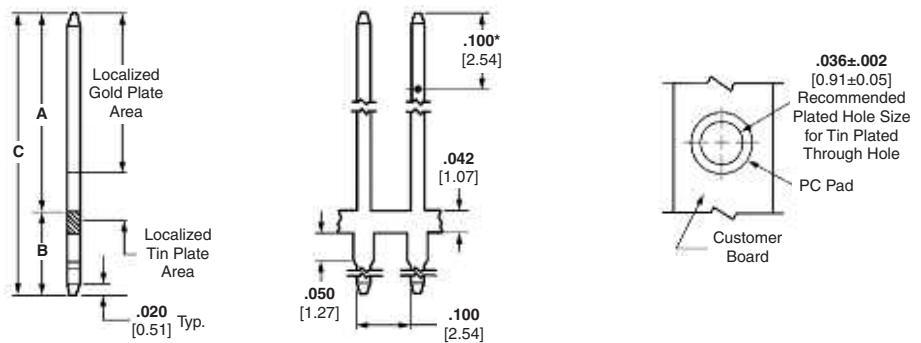
End Shrouds — page 203

Application Tooling — page 153

Technical Documents

See mating connector for applicable product and application specifications.

Strip Form Posts (Uninsulated)



Dimensions				Post Plating/Part Nos.			Bandolier Insertion Head
A	B	C	D	Plating A	Plating B	Plating C	
.353 [8.97]	.071 [1.80]	.424 [10.77]	.034 [0.86]	5-103577-1	6-103577-3	5-103577-7	904592-1
.318 [8.08]	.071 [1.80]	.389 [9.88]	.034 [0.86]	5-103577-3	6-103577-5	5-103577-9	904591-1
.270 [6.86]	.071 [1.80]	.341 [8.66]	.034 [0.86]	5-103577-5	6-103577-7	6-103577-1	904590-1
.183 [4.65]	.097 [2.46]	.280 [7.11]	.031 [0.79]	5-146079-1	—	—	—
				—	—	6-146079-3	—

- Notes:** 1. Posts can be applied using **Hand Tool 91419-1**. *Point of measurement for plating thickness.
 2. Approximate posts per reel—30,000.
 3. The Bandolier Insertion Head can be used on the Comp-U-Sertor II machine or the Modular Insertion System Bench machine (see page 153).
 4. For PCB finishes other than tin, contact TE.

Dimensions			Post Plating/Part Nos.				Post/Tab Insertion Head
A	B	C	Plating A	Plating B	Plating C	Plating D	
.210 [5.33]	.227 [5.77]	.437 [11.10]	—	—	87878-6	1-87022-4	—
.278 [7.06]	.165 [4.19]	.443 [11.25]	5-87623-1	5-87623-4	87022-1	1-87022-0	904507-1
.278 [7.06]	.284 [7.21]	.562 [14.27]	—	—	1-87022-3	—	—
.278 [7.06]	.738 [18.75]	1.016 [25.81]	—	—	87022-2	87022-4	—
.318 [8.08]	.165 [4.19]	.483 [14.27]	—	—	4-87022-1	4-87022-3	—

- Notes:** 1. Approximate Posts per reel—20,000. *Point of measurement for plating thickness.
 2. Other post lengths are available, consult TE.
 3. The Post/Tab Insertion Head can be used on the Comp-U-Sertor II machine or the Modular Insertion System Bench machine (see page 153).
 4. For PCB finishes other than tin, contact TE.

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Continuous Posts

Features of .025 [0.64] Square Continuous Posts

- Brass drawn wire for posts
- .400 to 1.000 [10.16 to 25.40] overall pin length (.010 [0.25] increments)
- Plating Options:
 - Tin
 - 15µ in. gold
 - 30µ in. gold
- Star feature also available

Benefits

- Less expensive than bandolier style posts
- Can be placed on printed circuit boards at any desired centerline
- Less scrap material (no carrier strip)

Technical Documents — page 276
Application Specification
 114-13011



TE now offers AMPMODU .025 [0.64] Square Continuous Posts. These posts can be used instead of the original posts that come on a bandolier style carrier strip. These posts are on a reel, but the posts are 'notched' at the desired length (no carrier strip is needed). This feature allows more versatility by providing post lengths from .400 to 1.000 [10.16 to 25.40], available in increments of .010 [0.25].

The posts are brass drawn wire and are inserted into a printed circuit board via application tooling at any centerline configuration. They can be used for wire wrap applications or mated to a receptacle.

The current rating is 3 amps. The posts are available plated with tin, 15µ in. gold, or 30µ in. gold. Other platings are available upon request.

TE application tooling is a modular head (Part Number 904641-1) placed on the Modular Insertion System Bench Machine (Part Number 217600-1.)

Note: All part numbers are RoHS compliant.

AMPMODU .025 [0.64] Square Continuous Posts (Continued)

Pre-Plated Tin

Part Number		Description Post Length
Square	Square with Star	
147333-1	147433-1	0.400 [10.16]
147333-2	147433-2	0.410 [10.41]
147333-3	147433-3	0.420 [10.67]
147333-4	147433-4	0.430 [10.92]
147333-5	147433-5	0.440 [11.18]
147333-6	147433-6	0.450 [11.43]
147333-7	147433-7	0.460 [11.68]
147333-8	147433-8	0.470 [11.94]
147333-9	147433-9	0.480 [12.19]
1-147333-0	1-147433-0	0.490 [12.45]
1-147333-1	1-147433-1	0.500 [12.70]
1-147333-2	1-147433-2	0.510 [12.95]
1-147333-3	1-147433-3	0.520 [13.21]
1-147333-4	1-147433-4	0.530 [13.46]
1-147333-5	1-147433-5	0.540 [13.72]
1-147333-6	1-147433-6	0.550 [13.97]
1-147333-7	1-147433-7	0.560 [14.22]
1-147333-8	1-147433-8	0.570 [14.48]
1-147333-9	1-147433-9	0.580 [14.73]
2-147333-0	2-147433-0	0.590 [14.99]
2-147333-1	2-147433-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147333-2	2-147433-2	0.610 [15.49]
2-147333-3	2-147433-3	0.620 [15.75]
2-147333-4	2-147433-4	0.630 [16.00]
2-147333-5	2-147433-5	0.640 [16.26]
2-147333-6	2-147433-6	0.650 [16.51]
2-147333-7	2-147433-7	0.660 [16.76]
2-147333-8	2-147433-8	0.670 [17.02]
2-147333-9	2-147433-9	0.680 [17.27]
3-147333-0	3-147433-0	0.690 [17.53]
3-147333-1	3-147433-1	0.700 [17.78]
3-147333-2	3-147433-2	0.710 [18.03]
3-147333-3	3-147433-3	0.720 [18.29]
3-147333-4	3-147433-4	0.730 [18.54]
3-147333-5	3-147433-5	0.740 [18.80]
3-147333-6	3-147433-6	0.750 [19.05]
3-147333-7	3-147433-7	0.760 [19.30]
3-147333-8	3-147433-8	0.770 [19.56]
3-147333-9	3-147433-9	0.780 [19.81]
4-147333-0	4-147433-0	0.790 [20.07]
4-147333-1	4-147433-1	0.800 [20.32]
4-147333-2	4-147433-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147333-3	4-147433-3	0.820 [20.83]
4-147333-4	4-147433-4	0.830 [21.08]
4-147333-5	4-147433-5	0.840 [21.34]
4-147333-6	4-147433-6	0.850 [21.59]
4-147333-7	4-147433-7	0.860 [21.84]
4-147333-8	4-147433-8	0.870 [22.10]
4-147333-9	4-147433-9	0.880 [22.35]
5-147333-0	5-147433-0	0.890 [22.61]
5-147333-1	5-147433-1	0.900 [22.86]
5-147333-2	5-147433-2	0.910 [23.11]
5-147333-3	5-147433-3	0.920 [23.37]
5-147333-4	5-147433-4	0.930 [23.62]
5-147333-5	5-147433-5	0.940 [23.88]
5-147333-6	5-147433-6	0.950 [24.13]
5-147333-7	5-147433-7	0.960 [24.38]
5-147333-8	5-147433-8	0.970 [24.64]
5-147333-9	5-147433-9	0.980 [24.89]
6-147333-0	6-147433-0	0.990 [25.15]
6-147333-1	6-147433-1	1.000 [25.40]

Pre-Plated 15µ in. Gold

Part Number		Description Post Length
Square	Square with Star	
147334-1	147434-1	0.400 [10.16]
147334-2	147434-2	0.410 [10.41]
147334-3	147434-3	0.420 [10.67]
147334-4	147434-4	0.430 [10.92]
147334-5	147434-5	0.440 [11.18]
147334-6	147434-6	0.450 [11.43]
147334-7	147434-7	0.460 [11.68]
147334-8	147434-8	0.470 [11.94]
147334-9	147434-9	0.480 [12.19]
1-147334-0	1-147434-0	0.490 [12.45]
1-147334-1	1-147434-1	0.500 [12.70]
1-147334-2	1-147434-2	0.510 [12.95]
1-147334-3	1-147434-3	0.520 [13.21]
1-147334-4	1-147434-4	0.530 [13.46]
1-147334-5	1-147434-5	0.540 [13.72]
1-147334-6	1-147434-6	0.550 [13.97]
1-147334-7	1-147434-7	0.560 [14.22]
1-147334-8	1-147434-8	0.570 [14.48]
1-147334-9	1-147434-9	0.580 [14.73]
2-147334-0	2-147434-0	0.590 [14.99]
2-147334-1	2-147434-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147334-2	2-147434-2	0.610 [15.49]
2-147334-3	2-147434-3	0.620 [15.75]
2-147334-4	2-147434-4	0.630 [16.00]
2-147334-5	2-147434-5	0.640 [16.26]
2-147334-6	2-147434-6	0.650 [16.51]
2-147334-7	2-147434-7	0.660 [16.76]
2-147334-8	2-147434-8	0.670 [17.02]
2-147334-9	2-147434-9	0.680 [17.27]
3-147334-0	3-147434-0	0.690 [17.53]
3-147334-1	3-147434-1	0.700 [17.78]
3-147334-2	3-147434-2	0.710 [18.03]
3-147334-3	3-147434-3	0.720 [18.29]
3-147334-4	3-147434-4	0.730 [18.54]
3-147334-5	3-147434-5	0.740 [18.80]
3-147334-6	3-147434-6	0.750 [19.05]
3-147334-7	3-147434-7	0.760 [19.30]
3-147334-8	3-147434-8	0.770 [19.56]
3-147334-9	3-147434-9	0.780 [19.81]
4-147334-0	4-147434-0	0.790 [20.07]
4-147334-1	4-147434-1	0.800 [20.32]
4-147334-2	4-147434-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147334-3	4-147434-3	0.820 [20.83]
4-147334-4	4-147434-4	0.830 [21.08]
4-147334-5	4-147434-5	0.840 [21.34]
4-147334-6	4-147434-6	0.850 [21.59]
4-147334-7	4-147434-7	0.860 [21.84]
4-147334-8	4-147434-8	0.870 [22.10]
4-147334-9	4-147434-9	0.880 [22.35]
5-147334-0	5-147434-0	0.890 [22.61]
5-147334-1	5-147434-1	0.900 [22.86]
5-147334-2	5-147434-2	0.910 [23.11]
5-147334-3	5-147434-3	0.920 [23.37]
5-147334-4	5-147434-4	0.930 [23.62]
5-147334-5	5-147434-5	0.940 [23.88]
5-147334-6	5-147434-6	0.950 [24.13]
5-147334-7	5-147434-7	0.960 [24.38]
5-147334-8	5-147434-8	0.970 [24.64]
5-147334-9	5-147434-9	0.980 [24.89]
6-147334-0	6-147434-0	0.990 [25.15]
6-147334-1	6-147434-1	1.000 [25.40]

Pre-Plated 30µ in. Gold

Part Number		Description Post Length
Square	Square with Star	
147335-1	147435-1	0.400 [10.16]
147335-2	147435-2	0.410 [10.41]
147335-3	147435-3	0.420 [10.67]
147335-4	147435-4	0.430 [10.92]
147335-5	147435-5	0.440 [11.18]
147335-6	147435-6	0.450 [11.43]
147335-7	147435-7	0.460 [11.68]
147335-8	147435-8	0.470 [11.94]
147335-9	147435-9	0.480 [12.19]
1-147335-0	1-147435-0	0.490 [12.45]
1-147335-1	1-147435-1	0.500 [12.70]
1-147335-2	1-147435-2	0.510 [12.95]
1-147335-3	1-147435-3	0.520 [13.21]
1-147335-4	1-147435-4	0.530 [13.46]
1-147335-5	1-147435-5	0.540 [13.72]
1-147335-6	1-147435-6	0.550 [13.97]
1-147335-7	1-147435-7	0.560 [14.22]
1-147335-8	1-147435-8	0.570 [14.48]
1-147335-9	1-147435-9	0.580 [14.73]
2-147335-0	2-147435-0	0.590 [14.99]
2-147335-1	2-147435-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147335-2	2-147435-2	0.610 [15.49]
2-147335-3	2-147435-3	0.620 [15.75]
2-147335-4	2-147435-4	0.630 [16.00]
2-147335-5	2-147435-5	0.640 [16.26]
2-147335-6	2-147435-6	0.650 [16.51]
2-147335-7	2-147435-7	0.660 [16.76]
2-147335-8	2-147435-8	0.670 [17.02]
2-147335-9	2-147435-9	0.680 [17.27]
3-147335-0	3-147435-0	0.690 [17.53]
3-147335-1	3-147435-1	0.700 [17.78]
3-147335-2	3-147435-2	0.710 [18.03]
3-147335-3	3-147435-3	0.720 [18.29]
3-147335-4	3-147435-4	0.730 [18.54]
3-147335-5	3-147435-5	0.740 [18.80]
3-147335-6	3-147435-6	0.750 [19.05]
3-147335-7	3-147435-7	0.760 [19.30]
3-147335-8	3-147435-8	0.770 [19.56]
3-147335-9	3-147435-9	0.780 [19.81]
4-147335-0	4-147435-0	0.790 [20.07]
4-147335-1	4-147435-1	0.800 [20.32]
4-147335-2	4-147435-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147335-3	4-147435-3	0.820 [20.83]
4-147335-4	4-147435-4	0.830 [21.08]
4-147335-5	4-147435-5	0.840 [21.34]
4-147335-6	4-147435-6	0.850 [21.59]
4-147335-7	4-147435-7	0.860 [21.84]
4-147335-8	4-147435-8	0.870 [22.10]
4-147335-9	4-147435-9	0.880 [22.35]
5-147335-0	5-147435-0	0.890 [22.61]
5-147335-1	5-147435-1	0.900 [22.86]
5-147335-2	5-147435-2	0.910 [23.11]
5-147335-3	5-147435-3	0.920 [23.37]
5-147335-4	5-147435-4	0.930 [23.62]
5-147335-5	5-147435-5	0.940 [23.88]
5-147335-6	5-147435-6	0.950 [24.13]
5-147335-7	5-147435-7	0.960 [24.38]
5-147335-8	5-147435-8	0.970 [24.64]
5-147335-9	5-147435-9	0.980 [24.89]
6-147335-0	6-147435-0	0.990 [25.15]
6-147335-1	6-147435-1	1.000 [25.40]

Note: All part numbers are RoHS compliant.

AMPMODU .045 [1.14] Square Continuous Posts

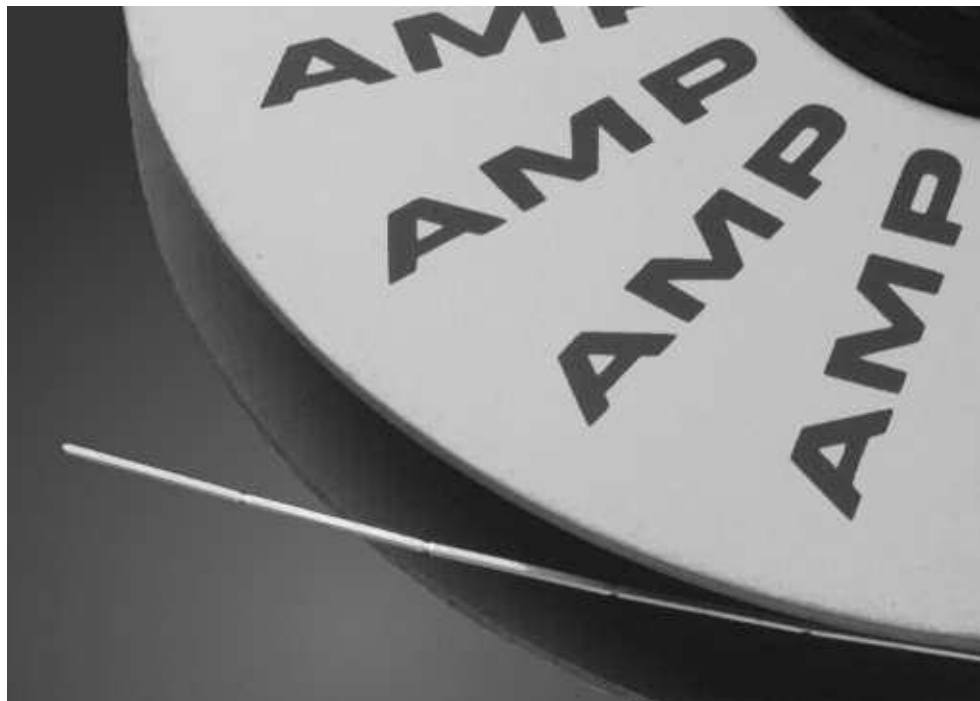
Features of .045 [1.14] Square Continuous Posts

- Brass drawn wire for posts
- .400 to 1.000 [10.16 to 25.40] overall pin length (.010 [0.25] increments)
- Plating Options:
 - Tin
 - 15µ in. gold
 - 30µ in. gold
- Star feature also available

Benefits

- Less expensive than bandolier style posts
- Can be placed on printed circuit boards at any desired centerline
- Less scrap material (no carrier strip)

Technical Documents — page 276
Application Specification
 114-13011



TE now offers AMPMODU .045 [1.14] Square Continuous Posts. These posts can be used instead of the original posts that come on a bandolier style carrier strip. These posts are on a reel, but the posts are 'notched' at the desired length (no carrier strip is needed). This feature allows more versatility by providing post lengths from .400 to 1.000 [10.16 to 25.40], available in increments of .010 [0.25].

The posts are brass drawn wire and are inserted into a printed circuit board via application tooling at any centerline configuration. They can be used for wire wrap applications or mated to a receptacle.

Potential industries include: building systems, commercial/home equipment, household appliances, home power tools and equipment.

The current rating is 7 amps. The posts are available plated with tin, 15µ in. gold, or 30µ in. gold. Other platings are available upon request.

TE application tooling is a modular head (Part Number 904640-1) placed on the Modular Insertion System Bench Machine (Part Number 217600-1.)

Note: All part numbers are RoHS compliant.

AMPMODU .045 [1.14] Square Continuous Posts (Continued)

Pre-Plated Tin

Part Number		Description Post Length
Square	Square with Star	
147070-1	147436-1	0.400 [10.16]
147070-2	147436-2	0.410 [10.41]
147070-3	147436-3	0.420 [10.67]
147070-4	147436-4	0.430 [10.92]
147070-5	147436-5	0.440 [11.18]
147070-6	147436-6	0.450 [11.43]
147070-7	147436-7	0.460 [11.68]
147070-8	147436-8	0.470 [11.94]
147070-9	147436-9	0.480 [12.19]
1-147070-0	1-147436-0	0.490 [12.45]
1-147070-1	1-147436-1	0.500 [12.70]
1-147070-2	1-147436-2	0.510 [12.95]
1-147070-3	1-147436-3	0.520 [13.21]
1-147070-4	1-147436-4	0.530 [13.46]
1-147070-5	1-147436-5	0.540 [13.72]
1-147070-6	1-147436-6	0.550 [13.97]
1-147070-7	1-147436-7	0.560 [14.22]
1-147070-8	1-147436-8	0.570 [14.48]
1-147070-9	1-147436-9	0.580 [14.73]
2-147070-0	2-147436-0	0.590 [14.99]
2-147070-1	2-147436-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147070-2	2-147436-2	0.610 [15.49]
2-147070-3	2-147436-3	0.620 [15.75]
2-147070-4	2-147436-4	0.630 [16.00]
2-147070-5	2-147436-5	0.640 [16.26]
2-147070-6	2-147436-6	0.650 [16.51]
2-147070-7	2-147436-7	0.660 [16.76]
2-147070-8	2-147436-8	0.670 [17.02]
2-147070-9	2-147436-9	0.680 [17.27]
3-147070-0	3-147436-0	0.690 [17.53]
3-147070-1	3-147436-1	0.700 [17.78]
3-147070-2	3-147436-2	0.710 [18.03]
3-147070-3	3-147436-3	0.720 [18.29]
3-147070-4	3-147436-4	0.730 [18.54]
3-147070-5	3-147436-5	0.740 [18.80]
3-147070-6	3-147436-6	0.750 [19.05]
3-147070-7	3-147436-7	0.760 [19.30]
3-147070-8	3-147436-8	0.770 [19.56]
3-147070-9	3-147436-9	0.780 [19.81]
4-147070-0	4-147436-0	0.790 [20.07]
4-147070-1	4-147436-1	0.800 [20.32]
4-147070-2	4-147436-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147070-3	4-147436-3	0.820 [20.83]
4-147070-4	4-147436-4	0.830 [21.08]
4-147070-5	4-147436-5	0.840 [21.34]
4-147070-6	4-147436-6	0.850 [21.59]
4-147070-7	4-147436-7	0.860 [21.84]
4-147070-8	4-147436-8	0.870 [22.10]
4-147070-9	4-147436-9	0.880 [22.35]
5-147070-0	5-147436-0	0.890 [22.61]
5-147070-1	5-147436-1	0.900 [22.86]
5-147070-2	5-147436-2	0.910 [23.11]
5-147070-3	5-147436-3	0.920 [23.37]
5-147070-4	5-147436-4	0.930 [23.62]
5-147070-5	5-147436-5	0.940 [23.88]
5-147070-6	5-147436-6	0.950 [24.13]
5-147070-7	5-147436-7	0.960 [24.38]
5-147070-8	5-147436-8	0.970 [24.64]
5-147070-9	5-147436-9	0.980 [24.89]
6-147070-0	6-147436-0	0.990 [25.15]
6-147070-1	6-147436-1	1.000 [25.40]

Pre-Plated 15µ in. Gold

Part Number		Description Post Length
Square	Square with Star	
147071-1	147437-1	0.400 [10.16]
147071-2	147437-2	0.410 [10.41]
147071-3	147437-3	0.420 [10.67]
147071-4	147437-4	0.430 [10.92]
147071-5	147437-5	0.440 [11.18]
147071-6	147437-6	0.450 [11.43]
147071-7	147437-7	0.460 [11.68]
147071-8	147437-8	0.470 [11.94]
147071-9	147437-9	0.480 [12.19]
1-147071-0	1-147437-0	0.490 [12.45]
1-147071-1	1-147437-1	0.500 [12.70]
1-147071-2	1-147437-2	0.510 [12.95]
1-147071-3	1-147437-3	0.520 [13.21]
1-147071-4	1-147437-4	0.530 [13.46]
1-147071-5	1-147437-5	0.540 [13.72]
1-147071-6	1-147437-6	0.550 [13.97]
1-147071-7	1-147437-7	0.560 [14.22]
1-147071-8	1-147437-8	0.570 [14.48]
1-147071-9	1-147437-9	0.580 [14.73]
2-147071-0	2-147437-0	0.590 [14.99]
2-147071-1	2-147437-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147071-2	2-147437-2	0.610 [15.49]
2-147071-3	2-147437-3	0.620 [15.75]
2-147071-4	2-147437-4	0.630 [16.00]
2-147071-5	2-147437-5	0.640 [16.26]
2-147071-6	2-147437-6	0.650 [16.51]
2-147071-7	2-147437-7	0.660 [16.76]
2-147071-8	2-147437-8	0.670 [17.02]
2-147071-9	2-147437-9	0.680 [17.27]
3-147071-0	3-147437-0	0.690 [17.53]
3-147071-1	3-147437-1	0.700 [17.78]
3-147071-2	3-147437-2	0.710 [18.03]
3-147071-3	3-147437-3	0.720 [18.29]
3-147071-4	3-147437-4	0.730 [18.54]
3-147071-5	3-147437-5	0.740 [18.80]
3-147071-6	3-147437-6	0.750 [19.05]
3-147071-7	3-147437-7	0.760 [19.30]
3-147071-8	3-147437-8	0.770 [19.56]
3-147071-9	3-147437-9	0.780 [19.81]
4-147071-0	4-147437-0	0.790 [20.07]
4-147071-1	4-147437-1	0.800 [20.32]
4-147071-2	4-147437-2	0.810 [20.57]

Part Number		Description Post Length
Square	Square with Star	
4-147071-3	4-147437-3	0.820 [20.83]
4-147071-4	4-147437-4	0.830 [21.08]
4-147071-5	4-147437-5	0.840 [21.34]
4-147071-6	4-147437-6	0.850 [21.59]
4-147071-7	4-147437-7	0.860 [21.84]
4-147071-8	4-147437-8	0.870 [22.10]
4-147071-9	4-147437-9	0.880 [22.35]
5-147071-0	5-147437-0	0.890 [22.61]
5-147071-1	5-147437-1	0.900 [22.86]
5-147071-2	5-147437-2	0.910 [23.11]
5-147071-3	5-147437-3	0.920 [23.37]
5-147071-4	5-147437-4	0.930 [23.62]
5-147071-5	5-147437-5	0.940 [23.88]
5-147071-6	5-147437-6	0.950 [24.13]
5-147071-7	5-147437-7	0.960 [24.38]
5-147071-8	5-147437-8	0.970 [24.64]
5-147071-9	5-147437-9	0.980 [24.89]
6-147071-0	6-147437-0	0.990 [25.15]
6-147071-1	6-147437-1	1.000 [25.40]

Pre-Plated 30µ in. Gold

Part Number		Description Post Length
Square	Square with Star	
147072-1	147438-1	0.400 [10.16]
147072-2	147438-2	0.410 [10.41]
147072-3	147438-3	0.420 [10.67]
147072-4	147438-4	0.430 [10.92]
147072-5	147438-5	0.440 [11.18]
147072-6	147438-6	0.450 [11.43]
147072-7	147438-7	0.460 [11.68]
147072-8	147438-8	0.470 [11.94]
147072-9	147438-9	0.480 [12.19]
1-147072-0	1-147438-0	0.490 [12.45]
1-147072-1	1-147438-1	0.500 [12.70]
1-147072-2	1-147438-2	0.510 [12.95]
1-147072-3	1-147438-3	0.520 [13.21]
1-147072-4	1-147438-4	0.530 [13.46]
1-147072-5	1-147438-5	0.540 [13.72]
1-147072-6	1-147438-6	0.550 [13.97]
1-147072-7	1-147438-7	0.560 [14.22]
1-147072-8	1-147438-8	0.570 [14.48]
1-147072-9	1-147438-9	0.580 [14.73]
2-147072-0	2-147438-0	0.590 [14.99]
2-147072-1	2-147438-1	0.600 [15.24]

Part Number		Description Post Length
Square	Square with Star	
2-147072-2	2-147438-2	0.610 [15.49]
2-147072-3	2-147438-3	0.620 [15.75]
2-147072-4	2-147438-4	0.630 [16.00]
2-147072-5	2-147438-5	0.640 [16.26]
2-147072-6	2-147438-6	0.650 [16.51]
2-147072-7	2-147438-7	0.660 [16.76]
2-147072-8	2-147438-8	0.670 [17.02]
2-147072-9	2-147438-9	0.680 [17.27]
3-147072-0	3-147438-0	0.690 [17.53]
3-147072-1	3-147438-1	0.700 [17.78]
3-147072-2	3-147438-2	0.710 [18.03]
3-147072-3	3-147438-3	0.720 [18.29]
3-147072-4	3-147438-4	0.730 [18.54]
3-147072-5	3-147438-5	0.740 [18.80]
3-147072-6	3-147438-6	0.750 [19.05]
3-147072-7	3-147438-7	0.760 [19.30]
3-147072-8	3-147438-8	0.770 [19.56]
3-147072-9	3-147438-9	0.780 [19.81]
4-147072-0	4-147438-0	0.790 [20.07]
4-147072-1	4-147438-1	0.800 [20.32]
4-147072-2	4-147438-2	0.810 [20.57]

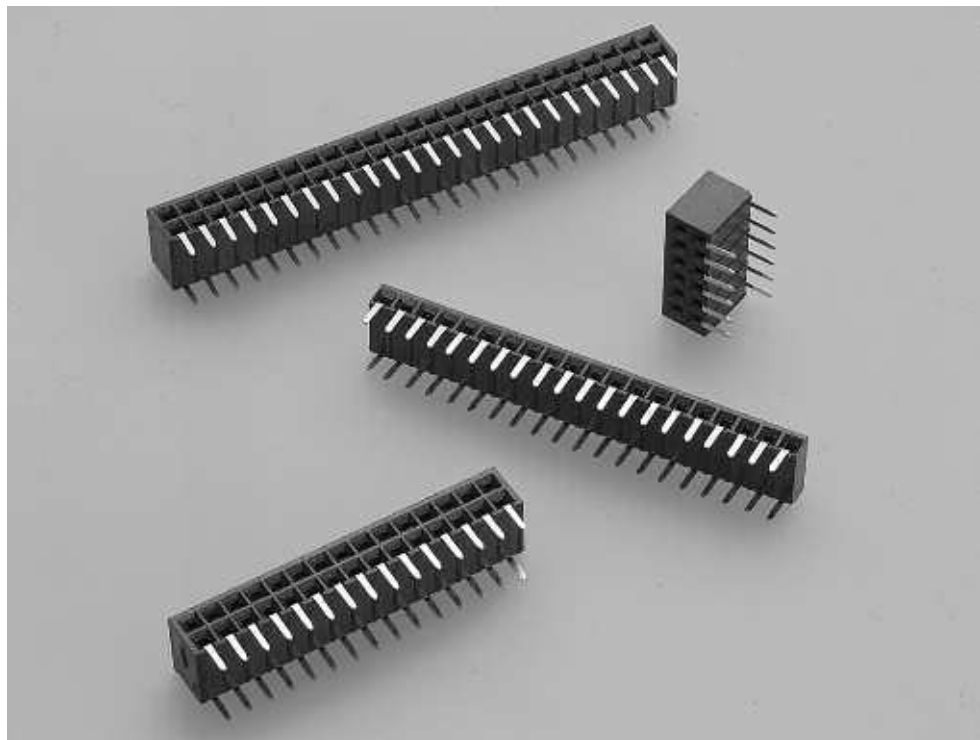
Part Number		Description Post Length
Square	Square with Star	
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4-147072-4	4-147438-4	0.830 [21.08]
4-147072-5	4-147438-5	0.840 [21.34]
4-147072-6	4-147438-6	0.850 [21.59]
4-147072-7	4-147438-7	0.860 [21.84]
4-147072-8	4-147438-8	0.870 [22.10]
4-147072-9	4-147438-9	0.880 [22.35]
5-147072-0	5-147438-0	0.890 [22.61]
5-147072-1	5-147438-1	0.900 [22.86]
5-147072-2	5-147438-2	0.910 [23.11]
5-147072-3	5-147438-3	0.920 [23.37]
5-147072-4	5-147438-4	0.930 [23.62]
5-147072-5	5-147438-5	0.940 [23.88]
5-147072-6	5-147438-6	0.950 [24.13]
5-147072-7	5-147438-7	0.960 [24.38]
5-147072-8	5-147438-8	0.970 [24.64]
5-147072-9	5-147438-9	0.980 [24.89]
6-147072-0	6-147438-0	0.990 [25.15]
6-147072-1	6-147438-1	1.000 [25.40]

Note: All part numbers are RoHS compliant.

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 matte tin 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



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 gives 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 help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven 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 — 6.0 oz. [1.67N] per contact (max.)

Unmating Force — .75 oz. [0.21N] 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

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Closed Entry, End Stackable, Short Point-of-Contact, with Standoffs



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 168

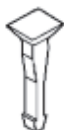
Technical Documents — page 276

Product Specification
108-25026

Application Specification
114-25018

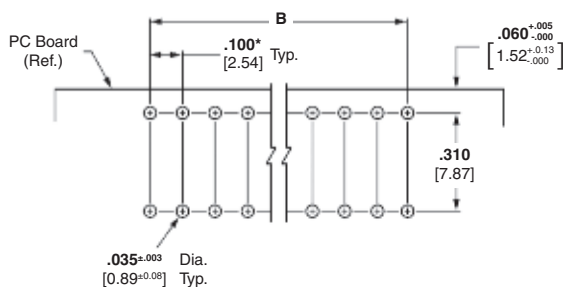
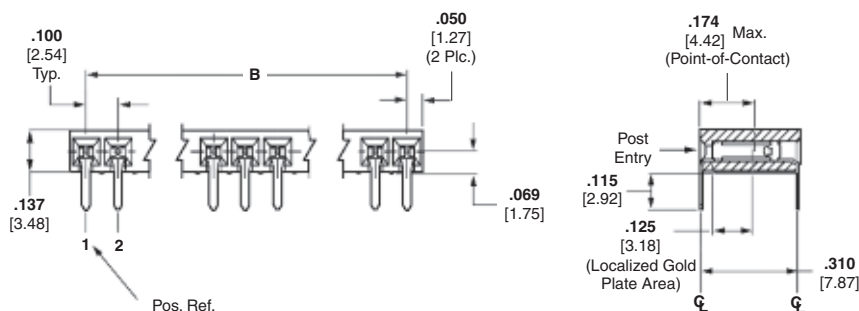
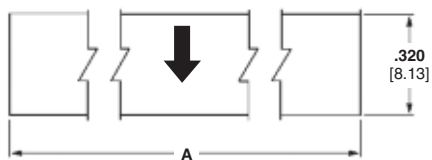
Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon



Recommended PC Board Hole Layout
(for .062 [1.57] thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

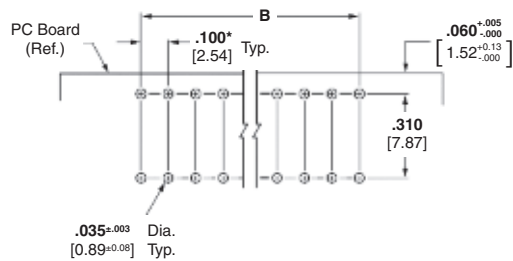
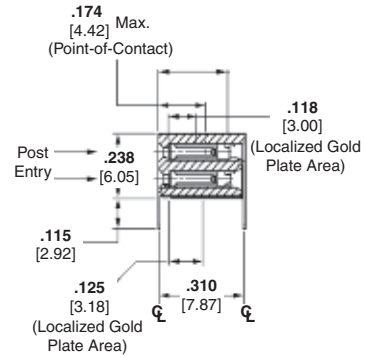
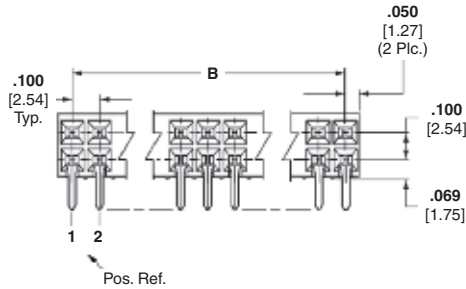
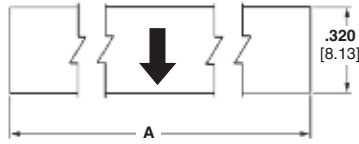
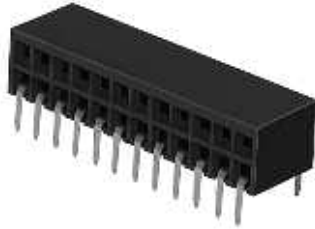
No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.200 [5.08]	.100 [2.54]	5535676-1	5146139-1	5535677-1
3	.300 [7.62]	.200 [5.08]	5535676-2	5146139-2	5535677-2
4	.400 [10.16]	.300 [7.62]	5535676-3	5146139-3	5535677-3
5	.500 [12.70]	.400 [10.16]	5535676-4	5146139-4	5535677-4
6	.600 [15.24]	.500 [12.70]	5535676-5	5146139-5	5535677-5
7	.700 [17.78]	.600 [15.24]	5535676-6	5146139-6	5535677-6
8	.800 [20.32]	.700 [17.78]	5535676-7	5146139-7	5535677-7
9	.900 [22.86]	.800 [20.32]	5535676-8	5146139-8	5535677-8
10	1.000 [25.40]	.900 [22.86]	5535676-9	5146139-9	5535677-9
11	1.100 [27.94]	1.000 [25.40]	1-5535676-0	1-5146139-0	1-5535677-0
12	1.200 [30.48]	1.100 [27.94]	1-5535676-1	1-5146139-1	1-5535677-1
13	1.300 [33.02]	1.200 [30.48]	1-5535676-2	1-5146139-2	1-5535677-2
14	1.400 [35.56]	1.300 [33.02]	1-5535676-3	1-5146139-3	1-5535677-3
15	1.500 [38.10]	1.400 [35.56]	1-5535676-4	1-5146139-4	1-5535677-4
16	1.600 [40.64]	1.500 [38.10]	1-5535676-5	1-5146139-5	1-5535677-5
17	1.700 [43.18]	1.600 [40.64]	1-5535676-6	1-5146139-6	1-5535677-6
18	1.800 [45.72]	1.700 [43.18]	1-5535676-7	1-5146139-7	1-5535677-7
19	1.900 [48.26]	1.800 [45.72]	1-5535676-8	1-5146139-8	1-5535677-8
20	2.000 [50.80]	1.900 [48.26]	1-5535676-9	1-5146139-9	1-5535677-9
30	3.000 [76.20]	2.900 [73.66]	2-5535676-9	2-5146139-9	2-5535677-9
40	4.000 [101.60]	3.900 [99.06]	3-5535676-9	3-5146139-9	3-5535677-9

Note: 1. TE recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.

Note: All part numbers are RoHS compliant.

Mod II Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerlines

Closed Entry, End Stackable, Short Point-of-Contact, with Standoffs



Recommended PC Board Hole Layout (for .062 [1.57] thick PC board)

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 168

Technical Documents — page 276

Product Specification 108-25026

Application Specification 114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
4	.200 [5.08]	.100 [2.54]	6-5535512-1	5146140-1	6-5102084-4
6	.300 [7.62]	.200 [5.08]	6-5535512-2	5146140-2	6-5102084-3
8	.400 [10.16]	.300 [7.62]	6-5535512-3	5146140-3	6-5102084-2
10	.500 [12.70]	.400 [10.16]	6-5535512-4	5146140-4	6-5102084-1
12	.600 [15.24]	.500 [12.70]	5535512-1	5146140-5	6-5102084-0
14	.700 [17.78]	.600 [15.24]	1-5535512-7	5146140-6	5-5102084-9
16	.800 [20.32]	.700 [17.78]	1-5535512-8	5146140-7	5-5102084-8
18	.900 [22.86]	.800 [20.32]	1-5535512-6	5146140-8	5-5102084-7
20	1.000 [25.40]	.900 [22.86]	5535512-2	5146140-9	5-5102084-6
22	1.100 [27.94]	1.000 [25.40]	1-5535512-9	1-5146140-0	5-5102084-5
24	1.200 [30.48]	1.100 [27.94]	5535512-3	1-5146140-1	5-5102084-4
26	1.300 [33.02]	1.200 [30.48]	2-5535512-0	1-5146140-2	5-5102084-3
28	1.400 [35.56]	1.300 [33.02]	2-5535512-1	1-5146140-3	5-5102084-2
30	1.500 [38.10]	1.400 [35.56]	2-5535512-2	1-5146140-4	5-5102084-1
32	1.600 [40.64]	1.500 [38.10]	2-5535512-3	1-5146140-5	5-5102084-0
34	1.700 [43.18]	1.600 [40.64]	5535512-4	1-5146140-6	4-5102084-9
36	1.800 [45.72]	1.700 [43.18]	5535512-5	1-5146140-7	4-5102084-8
38	1.900 [48.26]	1.800 [45.72]	2-5535512-4	1-5146140-8	4-5102084-7
40	2.000 [50.80]	1.900 [48.26]	2-5535512-5	1-5146140-9	4-5102084-6
50	2.500 [63.50]	2.400 [60.96]	5535512-7	2-5146140-0	4-5102084-1
60	3.000 [76.20]	2.900 [73.66]	3-5535512-0	2-5146140-1	3-5102084-6

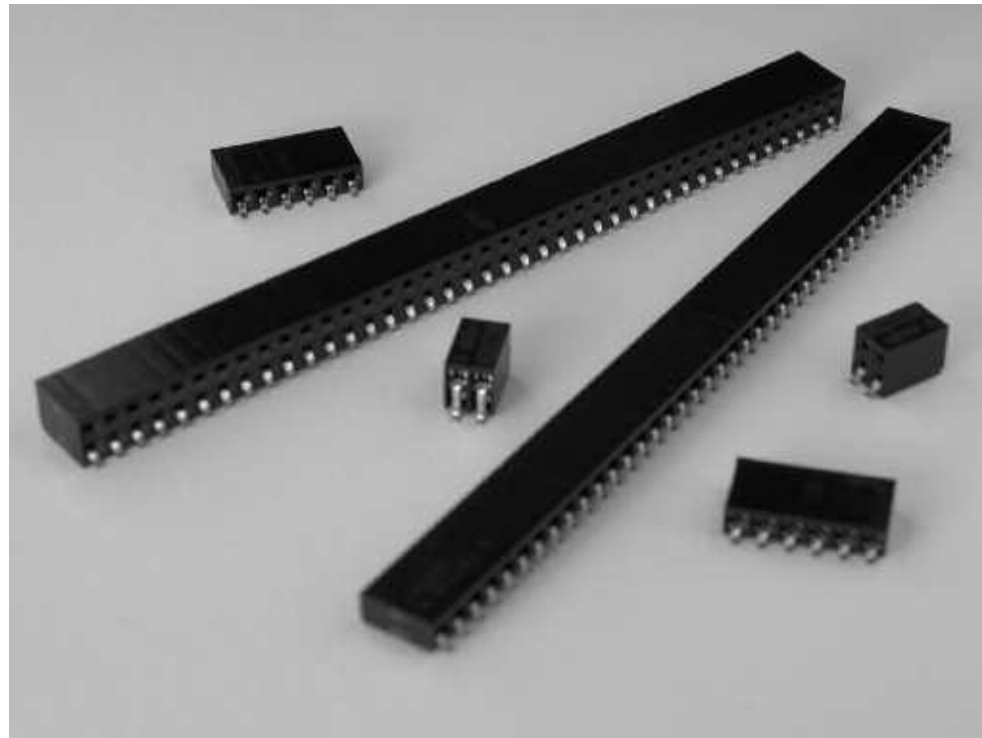
Notes: 1. TE recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
2. .256 [6.50] minimum positive pin stop to prevent shorting between row.

Note: All part numbers are RoHS compliant.

Mod II Surface Mount Horizontal Receptacle Assemblies, .100 x .100 [2.54 x 2.54] Centerline

Product Facts

- Surface mount leads
- 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
- Housings made of high temperature, surface mount compatible thermoplastic material, 94 V-0 rated
- Duplex gold and matte tin plated contacts have full nickel underplate
- Housings feature PC board standoffs
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



Horizontal surface mount receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry as process technologies evolve from wave soldering to surface mount processing.

This broad product line is offered in both single and

double row configurations. The .100 [2.54] centerline assemblies are available in 2-40 (single row) positions and 4-80 (double row) positions. Housings are end stackable, which gives the advantage of added flexibility.

The housings are made of high temperature material that is 94V-0 rated. Contacts

are phosphor bronze, fully underplated with nickel to help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven design, with a fully enclosed one-piece "box" to protect the contact beams with built-in anti-overstress feature.

Performance Characteristics

Mechanical Characteristics

Mating Force — 6.0 oz. [1.67N] per contact (max.)

Unmating Force — .75 oz. [0.21N] 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

Mod II Receptacle Assemblies, Single-Row, Surface Mount .100 [2.54] Centerline

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 171

Technical Documents — page 276

Product Specification

108-25026

Application Specification

114-25018

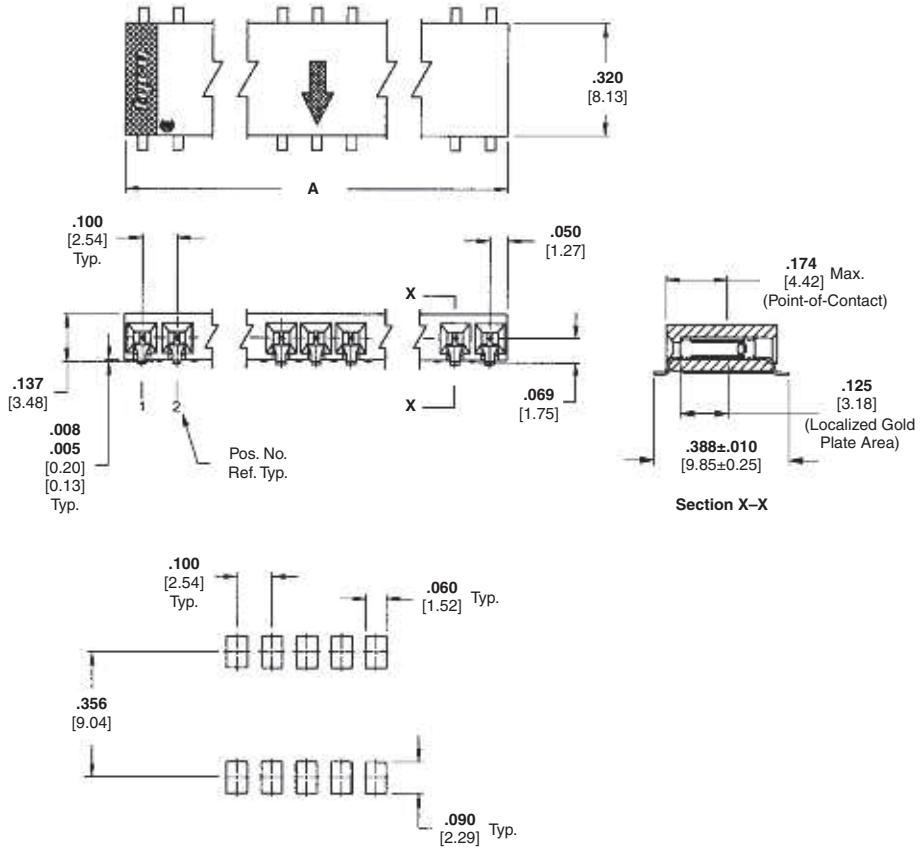
Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon



Recommended Etched Circuit Layout
(for .040 [1.02] min. thick PC Board;
.008 [0.20] thick stencil)

No. of Pos.	Dimension A	Contact Plating/Part Nos.		
		Plating A	Plating B	Plating C
2	.200 [5.08]	5147721-1	5147732-1	5147733-1
3	.300 [7.62]	5147721-2	5147732-2	5147733-2
4	.400 [10.16]	5147721-3	5147732-3	5147733-3
5	.500 [12.70]	5147721-4	5147732-4	5147733-4
6	.600 [15.24]	5147721-5	5147732-5	5147733-5
7	.700 [17.78]	5147721-6	5147732-6	5147733-6
8	.800 [20.32]	5147721-7	5147732-7	5147733-7
9	.900 [22.86]	5147721-8	5147732-8	5147733-8
10	1.000 [25.40]	5147721-9	5147732-9	5147733-9
11	1.100 [27.94]	1-5147721-0	1-5147732-0	1-5147733-0
12	1.200 [30.48]	1-5147721-1	1-5147732-1	1-5147733-1
13	1.300 [33.02]	1-5147721-2	1-5147732-2	1-5147733-2
14	1.400 [35.56]	1-5147721-3	1-5147732-3	1-5147733-3
15	1.500 [38.10]	1-5147721-4	1-5147732-4	1-5147733-4
16	1.600 [40.64]	1-5147721-5	1-5147732-5	1-5147733-5
17	1.700 [43.18]	1-5147721-6	1-5147732-6	1-5147733-6
18	1.800 [45.72]	1-5147721-7	1-5147732-7	1-5147733-7
19	1.900 [48.26]	1-5147721-8	1-5147732-8	1-5147733-8
20	2.000 [50.80]	1-5147721-9	1-5147732-9	1-5147733-9
30	3.000 [76.20]	2-5147721-9	2-5147732-9	2-5147733-9
40	4.000 [101.60]	3-5147721-9	3-5147732-9	3-5147733-9

Note: All part numbers are RoHS compliant.

Mod II Receptacle Assemblies, Double-Row, Surface Mount .100 [2.54] Centerline

**Closed Entry, End Stackable,
Short Point-of-Contact,
with Standoffs**



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 171

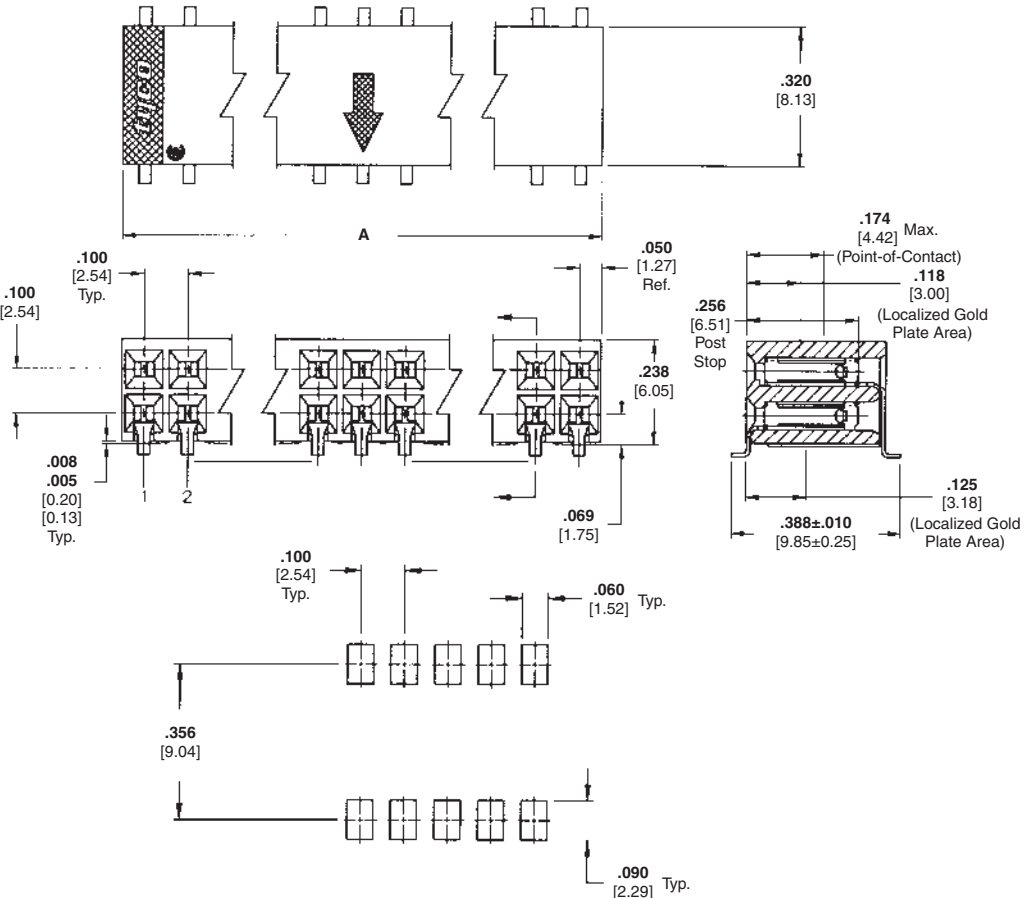
Technical Documents — page 276

Product Specification
108-25026

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Note: All part numbers are RoHS compliant.





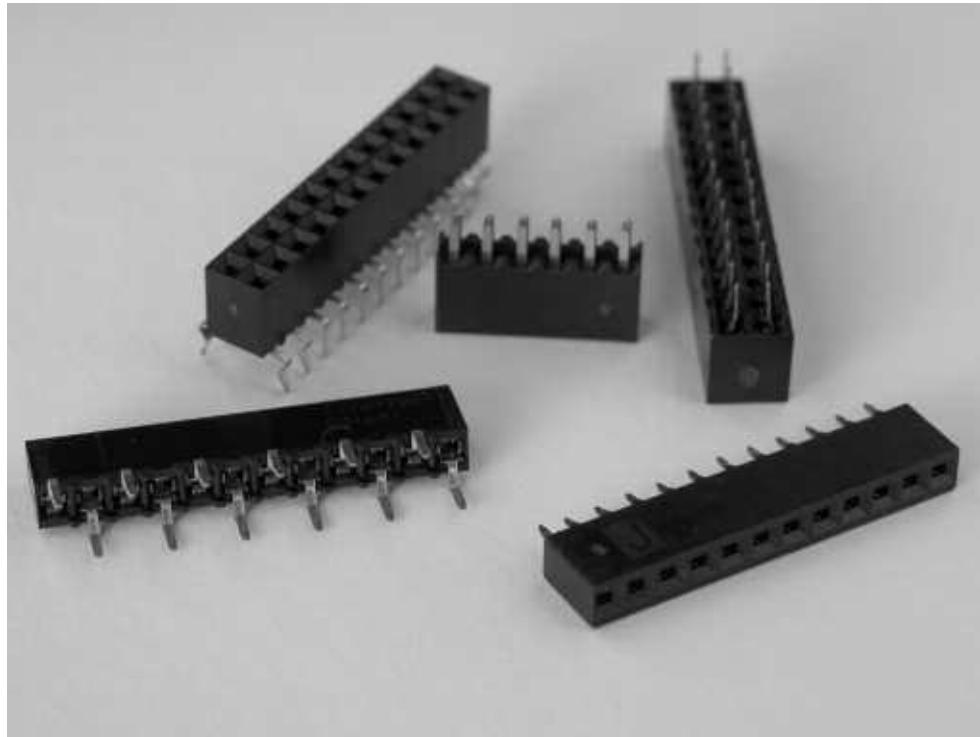
Recommended Etched Circuit Layout
(for .040 [1.02] min thick PC Board;
.008 [0.20] thick stencil)

No. of Pos.	Dimension A	Contact Plating/Part Nos.		
		Plating A	Plating B	Plating C
4	.200 [5.08]	5147722-1	5147734-1	5147735-1
6	.300 [7.62]	5147722-2	5147734-2	5147735-2
8	.400 [10.16]	5147722-3	5147734-3	5147735-3
10	.500 [12.70]	5147722-4	5147734-4	5147735-4
12	.600 [15.24]	5147722-5	5147734-5	5147735-5
14	.700 [17.78]	5147722-6	5147734-6	5147735-6
16	.800 [20.32]	5147722-7	5147734-7	5147735-7
18	.900 [22.86]	5147722-8	5147734-8	5147735-8
20	1.000 [25.40]	5147722-9	5147734-9	5147735-9
22	1.100 [27.94]	1-5147722-0	1-5147734-0	1-5147735-0
24	1.200 [30.48]	1-5147722-1	1-5147734-1	1-5147735-1
26	1.300 [33.02]	1-5147722-2	1-5147734-2	1-5147735-2
28	1.400 [35.56]	1-5147722-3	1-5147734-3	1-5147735-3
30	1.500 [38.10]	1-5147722-4	1-5147734-4	1-5147735-4
32	1.600 [40.64]	1-5147722-5	1-5147734-5	1-5147735-5
34	1.700 [43.18]	1-5147722-6	1-5147734-6	1-5147735-6
36	1.800 [45.72]	1-5147722-7	1-5147734-7	1-5147735-7
38	1.900 [48.26]	1-5147722-8	1-5147734-8	1-5147735-8
40	2.000 [50.80]	1-5147722-9	1-5147734-9	1-5147735-9
50	2.500 [63.50]	2-5147722-4	2-5147734-4	2-5147735-4
60	3.000 [76.20]	2-5147722-9	2-5147734-9	2-5147735-9

Receptacle Assemblies, Vertical Mount

Product Facts

- Dual-cantilever beam contact with box design
- 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 and Mod IV profiles available in dual entry
- Duplex gold and matte tin plated contacts have full nickel underplate
- Thermoplastic housings, 94V-0 rated
- Standoffs for easy flux cleaning
- All throughhole 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 



Vertical receptacle assemblies are designed to reliably and economically meet the packaging and interconnection requirements of today's electronics industry.

This broad product line offers a wide variety of assembly styles and features. They are available in dual entry style, 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. Standard and low profile housings which are end stackable also enhance the product line giving 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 help prevent corrosion and are available in three plating options.

The receptacle contact is an established proven design, with a fully enclosed one-piece "box" to protect the contact beams.

These assemblies are offered in .265 [6.73] (Mod IV) and .340[8.64] (Mod II) high profiles. Standard solder tails accommodate board thickness of .062 [1.57].

Product styles include single and dual tine variations. Outrigger tine styles are also available for bottom entry parallel board stacking applications.

Performance Characteristics

Mechanical Characteristics

Mating Force — 9.0 oz. [2.5N] per contact (max.)

Unmating Force — 1.5 oz. [0.42N] per contact (min.)

Durability (Tested to) — 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

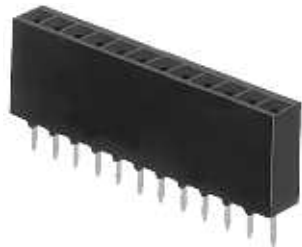
Contact Resistance — 12 milliohms (max.)

Insulation Resistance — 5000 megohms (min.) between adjacent contacts

Dielectric Withstanding Voltage (at sea level) — 750 V rms

Mod II Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Closed Top Entry, End Stackable, with Single Tine Contacts



Material and Finish

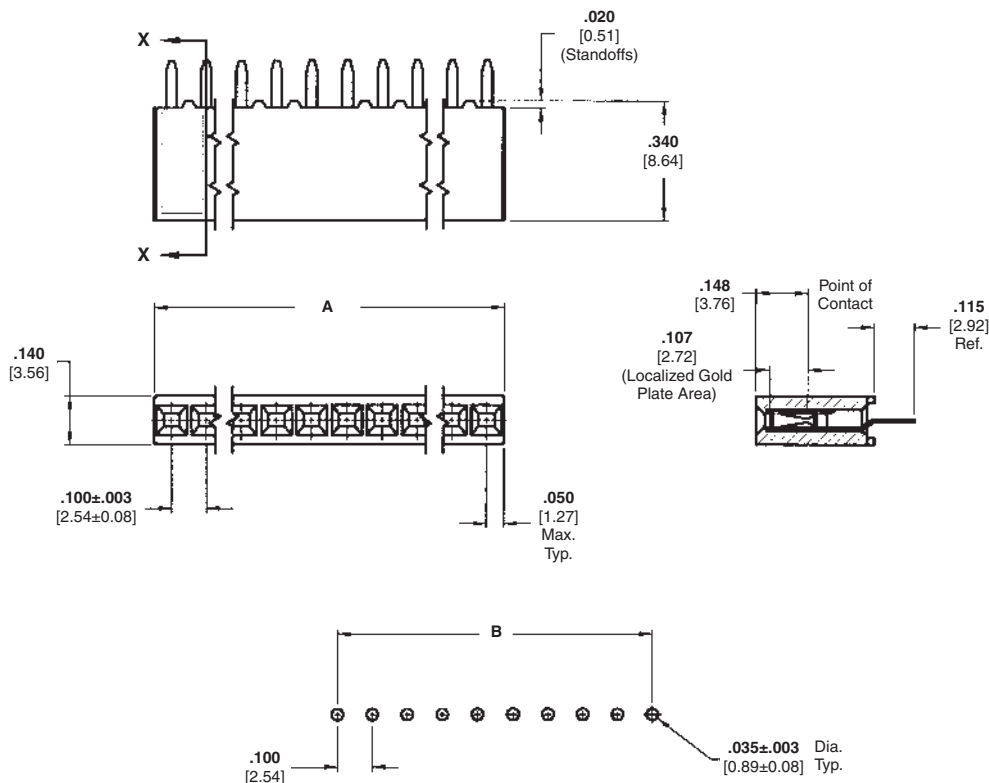
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

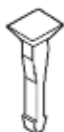
Technical Documents — page 276

Product Specification 108-25022

Application Specification 114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-534237-1	5-146386-1	5-146763-5
4	.400 [10.16]	.300 [7.62]	5-534237-2	6-146386-9	5-146763-6
5	.500 [12.70]	.400 [10.16]	5-534237-3	5-146386-2	5-146763-7
6	.600 [15.24]	.500 [12.70]	5-534237-4	5-146386-3	5-146763-8
7	.700 [17.78]	.600 [15.24]	5-534237-5	5-146386-4	5-146763-1
8	.800 [20.32]	.700 [17.78]	5-534237-6	5-146386-5	5-146763-2
9	.900 [22.86]	.800 [20.32]	5-534237-7	5-146386-6	5-146763-9
10	1.000 [25.40]	.900 [22.86]	5-534237-8	5-146386-7	5-146763-3
11	1.100 [27.94]	1.000 [25.40]	5-534237-9	5-146386-8	6-146763-0
12	1.200 [30.48]	1.100 [27.94]	6-534237-0	5-146386-9	6-146763-1
13	1.300 [33.02]	1.200 [30.48]	6-534237-1	6-146386-0	6-146763-2
14	1.400 [35.56]	1.300 [33.02]	6-534237-2	6-146386-1	6-146763-3
15	1.500 [38.10]	1.400 [35.56]	6-534237-3	7-146386-0	6-146763-4
16	1.600 [40.64]	1.500 [38.10]	6-534237-4	7-146386-1	6-146763-5
17	1.700 [43.18]	1.600 [40.64]	6-534237-5	7-146386-2	6-146763-6
18	1.800 [45.72]	1.700 [43.18]	6-534237-6	7-146386-3	6-146763-7
19	1.900 [48.26]	1.800 [45.72]	6-534237-7	7-146386-4	6-146763-8
20	2.000 [50.80]	1.900 [48.26]	6-534237-8	6-146386-2	6-146763-9
30	3.000 [76.20]	2.900 [73.66]	7-534237-8	6-146386-8	7-146763-8
40	4.000 [101.60]	3.900 [99.06]	8-534237-8	8-146386-8	8-146763-8

Notes: 1. TE 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.

Note: All part numbers are RoHS compliant.

Mod II Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

**Closed Top Entry,
Side and End Stackable
.100 x .100 [2.54 x 2.54]
Centerline, .100 [2.54]
Tine Spacing**



Material and Finish

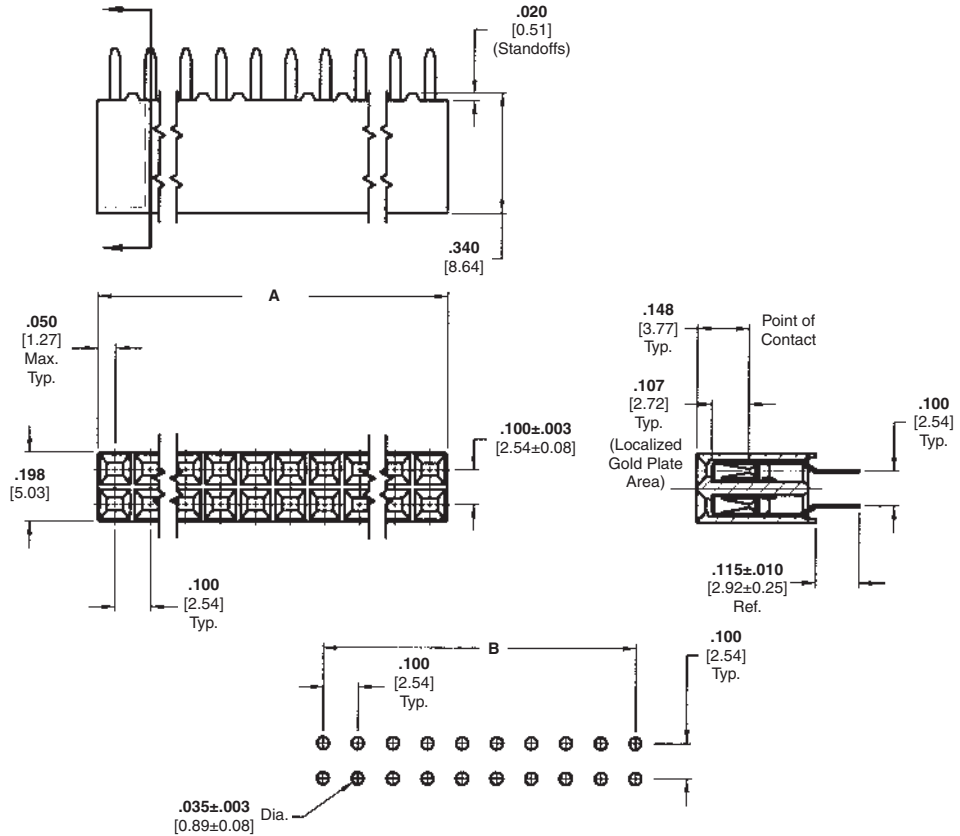
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



**Recommended PC Board Hole Layout
(for .062 [1.57] thick PC board)**

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

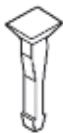
Technical Documents — page 276

Product Specification 108-25022

Application Specification 114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.100 [2.54]	—	5-534206-1	5-147424-1	5-146762-8
4	.200 [5.08]	.100 [2.54]	5-534206-2	5-147424-2	5-146762-9
6	.300 [7.62]	.200 [5.08]	5-534206-3	5-147424-3	6-146762-0
8	.400 [10.16]	.300 [7.62]	5-534206-4	5-147424-4	5-146762-1
10	.500 [12.70]	.400 [10.16]	5-534206-5	5-147424-5	5-146762-2
12	.600 [15.24]	.500 [12.70]	5-534206-6	5-147424-6	6-146762-1
14	.700 [17.78]	.600 [15.24]	5-534206-7	5-147424-7	6-146762-2
16	.800 [20.32]	.700 [17.78]	5-534206-8	5-147424-8	6-146762-3
18	.900 [22.86]	.800 [20.32]	5-534206-9	5-147424-9	5-146762-3
20	1.000 [25.40]	.900 [22.86]	6-534206-0	6-147424-0	5-146762-7
22	1.100 [27.94]	1.000 [25.40]	6-534206-1	6-147424-1	6-146762-4
24	1.200 [30.48]	1.100 [27.94]	6-534206-2	6-147424-2	6-146762-5
26	1.300 [33.02]	1.200 [30.48]	6-534206-3	6-147424-3	6-146762-6
28	1.400 [35.56]	1.300 [33.02]	6-534206-4	6-147424-4	6-146762-7
30	1.500 [38.10]	1.400 [35.56]	6-534206-5	6-147424-5	5-146762-4
32	1.600 [40.64]	1.500 [38.10]	6-534206-6	6-147424-6	6-146762-8
34	1.700 [43.18]	1.600 [40.64]	6-534206-7	6-147424-7	6-146762-9
36	1.800 [45.72]	1.700 [43.18]	6-534206-8	6-147424-8	7-146762-0
38	1.900 [48.26]	1.800 [45.72]	6-534206-9	6-147424-9	7-146762-1
40	2.000 [50.80]	1.900 [48.26]	7-534206-0	7-147424-0	5-146762-5

- Notes:** 1. TE 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.

Note: All part numbers are RoHS compliant.

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Dual Entry, End Stackable, Low Profile with Dual Tine Contacts



Material and Finish

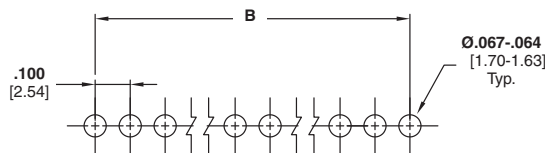
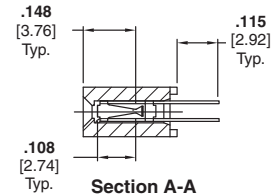
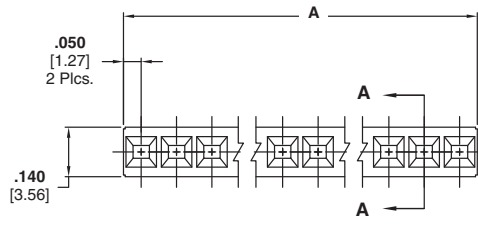
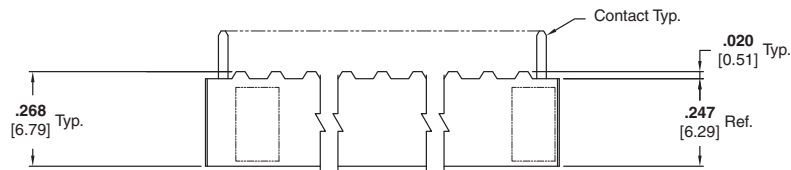
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

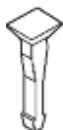
Technical Documents — page 276

Product Specification 108-25022

Application Specification 114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	8-87879-7	5-147326-1	5-102742-4
4	.400 [10.16]	.300 [7.62]	8-87879-6	5-147326-2	5-102742-8
5	.500 [12.70]	.400 [10.16]	8-87879-8	5-147326-3	5-102742-9
6	.600 [15.24]	.500 [12.70]	5-87879-3	5-147326-4	6-102742-0
7	.700 [17.78]	.600 [15.24]	5-87879-4	5-147326-5	5-102742-7
8	.800 [20.32]	.700 [17.78]	5-87879-1	5-147326-6	5-102742-3
9	.900 [22.86]	.800 [20.32]	5-87879-5	5-147326-7	5-102742-6
10	1.000 [25.40]	.900 [22.86]	5-87879-2	5-147326-8	6-102742-1
11	1.100 [27.94]	1.000 [25.40]	5-87879-6	5-147326-9	5-102742-1
12	1.200 [30.48]	1.100 [27.94]	5-87879-7	6-147326-0	5-102742-2
13	1.300 [33.02]	1.200 [30.48]	5-87879-8	6-147326-1	6-102742-2
14	1.400 [35.56]	1.300 [33.02]	5-87879-9	6-147326-2	6-102742-3
15	1.500 [38.10]	1.400 [35.56]	6-87879-0	6-147326-3	6-102742-4
16	1.600 [40.64]	1.500 [38.10]	6-87879-1	6-147326-4	5-102742-5
17	1.700 [43.18]	1.600 [40.64]	6-87879-2	6-147326-5	6-102742-5
18	1.800 [45.72]	1.700 [43.18]	6-87879-3	6-147326-6	6-102742-6
19	1.900 [48.26]	1.800 [45.72]	6-87879-4	6-147326-7	6-102742-7
20	2.000 [50.80]	1.900 [48.26]	6-87879-5	6-147326-8	6-102742-8
30	3.000 [76.20]	2.900 [73.66]	7-87879-5	7-147326-8	7-102742-8
40	4.000 [101.60]	3.900 [99.06]	8-87879-5	8-147326-8	8-102742-8

Notes: 1. TE 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.

Mod IV Receptacle Assemblies, Single-Row, .100 [2.54] Centerline

Closed Top Entry, End Stackable, Low Profile with Single Tine Contacts



Material and Finish

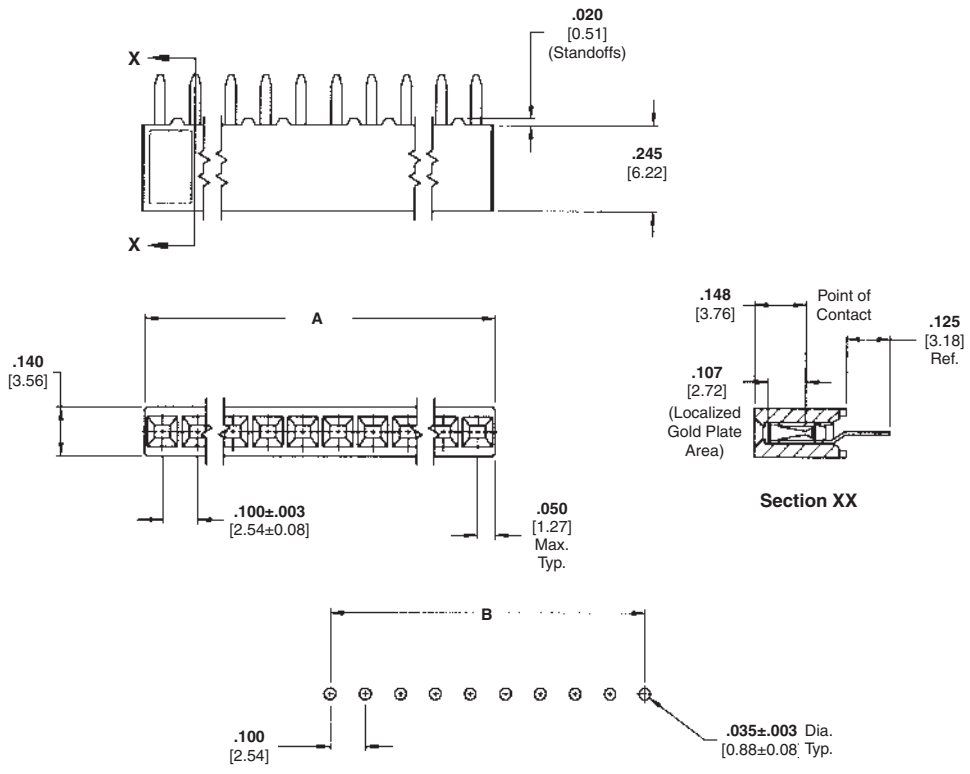
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout (for .062 [1.57] thick PC board)

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-535541-1	5-146138-1	5-535584-3
4	.400 [10.16]	.300 [7.62]	5-535541-2	5-146138-2	5-535584-4
5	.500 [12.70]	.400 [10.16]	5-535541-3	5-146138-3	5-535584-5
6	.600 [15.24]	.500 [12.70]	5-535541-4	5-146138-4	5-535584-1
7	.700 [17.78]	.600 [15.24]	5-535541-5	5-146138-5	5-535584-6
8	.800 [20.32]	.700 [17.78]	5-535541-6	5-146138-6	5-535584-7
9	.900 [22.86]	.800 [20.32]	5-535541-7	5-146138-7	5-535584-8
10	1.000 [25.40]	.900 [22.86]	5-535541-8	5-146138-8	5-535584-9
11	1.100 [27.94]	1.000 [25.40]	5-535541-9	5-146138-9	6-535584-0
12	1.200 [30.48]	1.100 [27.94]	6-535541-0	6-146138-0	6-535584-1
13	1.300 [33.02]	1.200 [30.48]	6-535541-1	6-146138-1	6-535584-2
14	1.400 [35.56]	1.300 [33.02]	6-535541-2	6-146138-2	6-535584-3
15	1.500 [38.10]	1.400 [35.56]	6-535541-3	6-146138-3	6-535584-4
16	1.600 [40.64]	1.500 [38.10]	6-535541-4	6-146138-4	6-535584-5
17	1.700 [43.18]	1.600 [40.64]	6-535541-5	6-146138-5	6-535584-6
18	1.800 [45.72]	1.700 [43.18]	6-535541-6	6-146138-6	5-535584-2
19	1.900 [48.26]	1.800 [45.72]	6-535541-7	6-146138-7	6-535584-7
20	2.000 [50.80]	1.900 [48.26]	6-535541-8	6-146138-8	6-535584-8
30	3.000 [76.20]	2.900 [73.66]	7-535541-9	7-146138-9	6-535584-9
40	4.000 [101.60]	3.900 [99.06]	8-535541-9	8-146138-9	7-535584-0

Notes: 1. TE 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.

Note: All part numbers are RoHS compliant.

Mod IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Closed Top Entry, End and Side Stackable, Low Profile, .100 x .100 [2.54 x 2.54] Centerline, .100 [2.54] Tine Spacing



Material and Finish

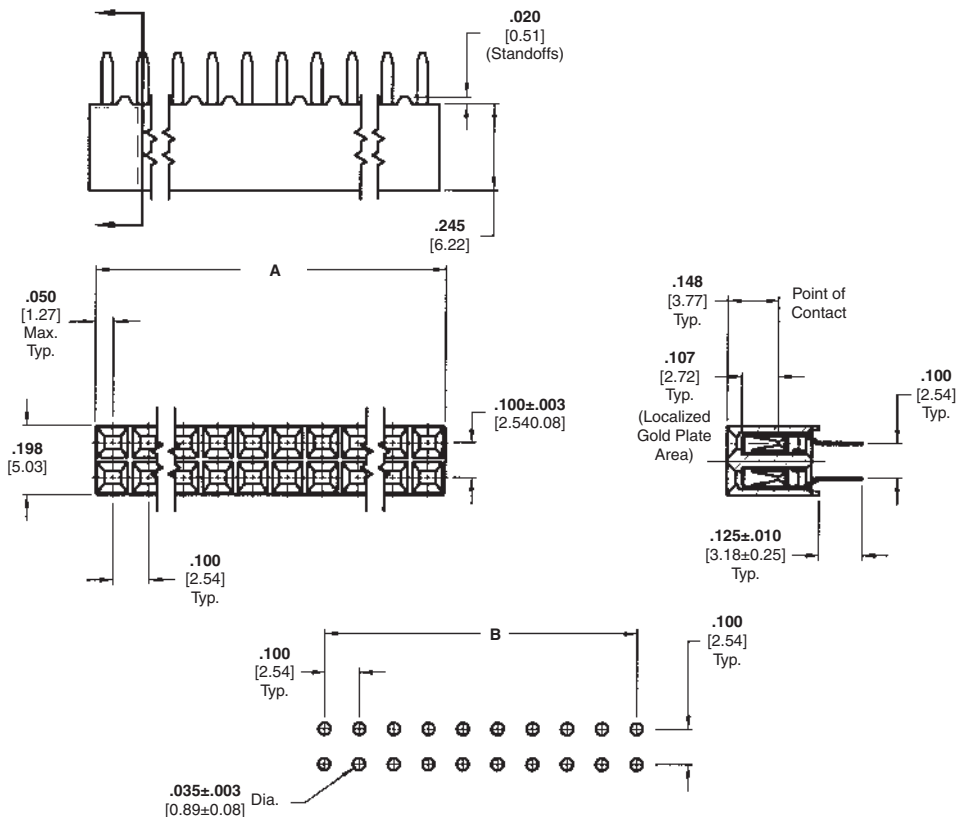
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.100 [2.54]	—	5-534998-1	5-535598-2	5-535585-3
4	.200 [5.08]	.100 [2.54]	5-534998-2	5-535598-3	5-535585-4
6	.300 [7.62]	.200 [5.08]	5-534998-3	5-535598-4	5-535585-5
8	.400 [10.16]	.300 [7.62]	5-534998-4	5-535598-5	5-535585-6
10	.500 [12.70]	.400 [10.16]	5-534998-5	5-535598-6	5-535585-1
12	.600 [15.24]	.500 [12.70]	5-534998-6	5-535598-7	5-535585-2
14	.700 [17.78]	.600 [15.24]	5-534998-7	5-535598-1	5-535585-7
16	.800 [20.32]	.700 [17.78]	5-534998-8	5-535598-8	5-535585-8
18	.900 [22.86]	.800 [20.32]	5-534998-9	5-535598-9	5-535585-9
20	1.000 [25.40]	.900 [22.86]	6-534998-0	6-535598-0	6-535585-0
22	1.100 [27.94]	1.000 [25.40]	6-534998-1	6-535598-1	6-535585-1
24	1.200 [30.48]	1.100 [27.94]	6-534998-2	6-535598-2	6-535585-2
26	1.300 [33.02]	1.200 [30.48]	6-534998-3	6-535598-3	6-535585-3
28	1.400 [35.56]	1.300 [33.02]	6-534998-4	6-535598-4	6-535585-4
30	1.500 [38.10]	1.400 [35.56]	6-534998-5	6-535598-5	6-535585-5
32	1.600 [40.64]	1.500 [38.10]	6-534998-6	6-535598-6	6-535585-6
34	1.700 [43.18]	1.600 [40.64]	6-534998-7	6-535598-7	6-535585-7
36	1.800 [45.72]	1.700 [43.18]	6-534998-8	6-535598-8	6-535585-8
38	1.900 [48.26]	1.800 [45.72]	6-534998-9	6-535598-9	6-535585-9
40	2.000 [50.80]	1.900 [48.26]	7-534998-0	7-535598-0	7-535585-0

- Notes:**
- TE recommends mating gold or duplex plated headers with duplex plated receptacle assemblies.
 - 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.

Note: All part numbers are RoHS compliant.

**Mod IV Receptacle Assemblies, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
42	2.100 [53.34]	2.000 [50.80]	7-534998-1	7-535598-4	7-535585-4
44	2.200 [55.88]	2.100 [53.34]	7-534998-2	7-535598-5	7-535585-5
46	2.300 [58.42]	2.200 [55.88]	7-534998-3	7-535598-6	7-535585-6
48	2.400 [60.96]	2.300 [58.42]	7-534998-4	7-535598-7	7-535585-7
50	2.500 [63.50]	2.400 [60.96]	7-534998-5	7-535598-1	7-535585-1
52	2.600 [66.04]	2.500 [63.50]	7-534998-6	7-535598-8	7-535585-8
54	2.700 [68.58]	2.600 [66.04]	7-534998-7	7-535598-9	7-535585-9
56	2.800 [71.12]	2.700 [68.58]	7-534998-8	8-535598-0	8-535585-0
58	2.900 [73.66]	2.800 [71.12]	7-534998-9	8-535598-1	8-535585-1
60	3.000 [76.20]	2.900 [73.66]	8-534998-0	7-535598-2	7-535585-2
62	3.100 [78.74]	3.000 [76.20]	8-534998-1	8-535598-2	8-535585-2
64	3.200 [81.28]	3.100 [78.74]	8-534998-2	8-535598-3	8-535585-3
66	3.300 [83.82]	3.200 [81.28]	8-534998-3	8-535598-4	8-535585-4
68	3.400 [86.36]	3.300 [83.82]	8-534998-4	8-535598-5	8-535585-5
70	3.500 [88.90]	3.400 [86.36]	8-534998-5	8-535598-6	8-535585-6
72	3.600 [91.44]	3.500 [88.90]	8-534998-6	8-535598-7	8-535585-7
74	3.700 [93.98]	3.600 [91.44]	8-534998-7	8-535598-8	8-535585-8
76	3.800 [96.52]	3.700 [93.98]	8-534998-8	8-535598-9	8-535585-9
78	3.900 [99.06]	3.800 [96.52]	8-534998-9	9-535598-0	9-535585-0
80	4.000 [101.60]	3.900 [99.06]	9-534998-0	7-535598-3	7-535585-3

- Notes:** 1. TE 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.

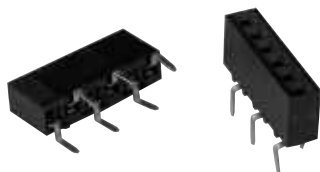
Vertical Mount Receptacle Assemblies

5

Note: All part numbers are RoHS compliant.

Mod IV Receptacle Assemblies, Single-Row, Outrigger Design .100 x .100 [2.54 x 2.54] Centerline, End To End Stackable

**Dual Entry, End Stackable,
Low Profile, .100 x .100
[2.54 x 2.54] Centerline,
.200 [5.08] Tine Spacing**



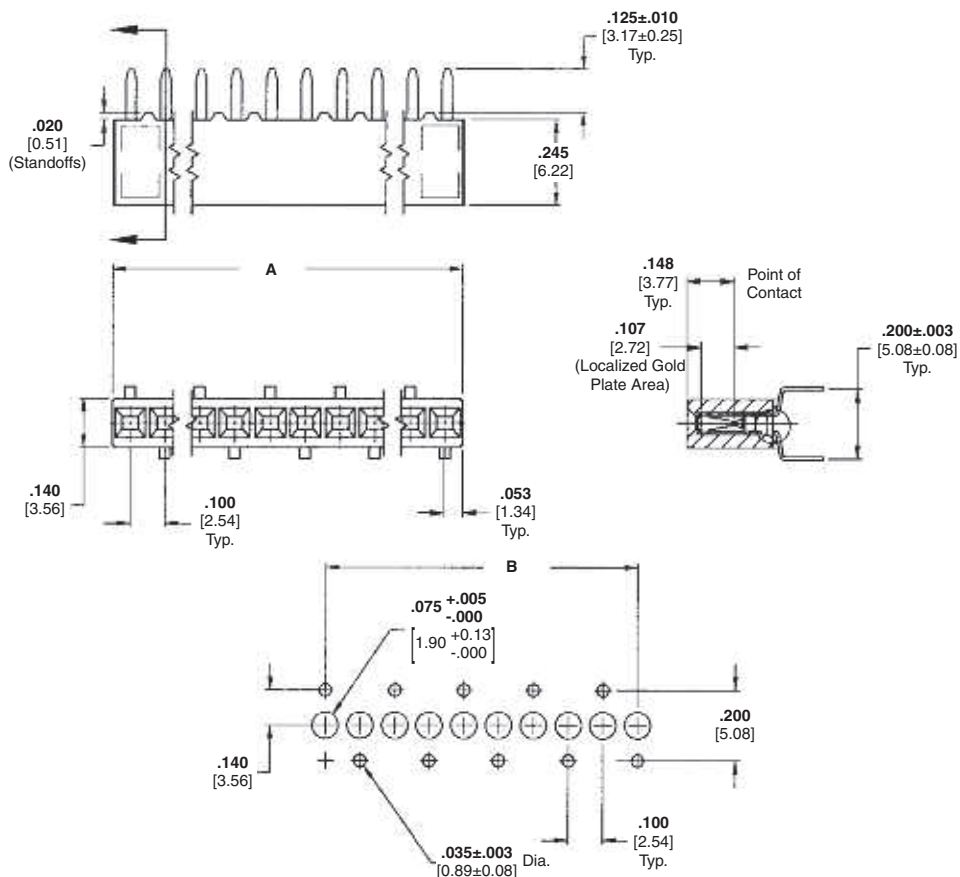
Material and Finish

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

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout

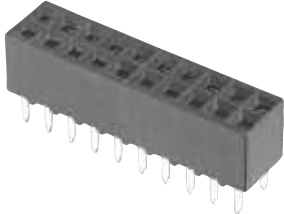
No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-147720-2	5-147726-2	5-147727-2
4	.400 [10.16]	.300 [7.62]	5-147720-3	5-147726-3	5-147727-3
5	.500 [12.70]	.400 [10.16]	5-147720-4	5-147726-4	5-147727-4
6	.600 [15.24]	.500 [12.70]	5-147720-5	5-147726-5	5-147727-5
7	.700 [17.78]	.600 [15.24]	5-147720-6	5-147726-6	5-147727-6
8	.800 [20.32]	.700 [17.78]	5-147720-7	5-147726-7	5-147727-7
9	.900 [22.86]	.800 [20.32]	5-147720-8	5-147726-8	5-147727-8
10	1.000 [25.40]	.900 [22.86]	5-147720-9	5-147726-9	5-147727-9
11	1.100 [27.94]	1.000 [25.40]	6-147720-0	6-147726-0	6-147727-0
12	1.200 [30.48]	1.100 [27.94]	6-147720-1	6-147726-1	6-147727-1
13	1.300 [33.02]	1.200 [30.48]	6-147720-2	6-147726-2	6-147727-2
14	1.400 [35.56]	1.300 [33.02]	6-147720-3	6-147726-3	6-147727-3
15	1.500 [38.10]	1.400 [35.56]	6-147720-4	6-147726-4	6-147727-4
16	1.600 [40.64]	1.500 [38.10]	6-147720-5	6-147726-5	6-147727-5
17	1.700 [43.18]	1.600 [40.64]	6-147720-6	6-147726-6	6-147727-6
18	1.800 [45.72]	1.700 [43.18]	6-147720-7	6-147726-7	6-147727-7
19	1.900 [48.26]	1.800 [45.72]	6-147720-8	6-147726-8	6-147727-8
20	2.000 [50.80]	1.900 [48.26]	7-147720-8	7-147726-8	7-147727-8
30	3.000 [76.20]	2.900 [73.66]	8-147720-8	8-147726-8	8-147727-8
40	4.000 [101.60]	3.900 [99.06]	8-147720-9	8-147726-9	8-147727-9

- Notes:** 1. TE 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 add .062 [1.57] for recommended board thickness if used in bottom entry application.

Note: All part numbers are RoHS compliant.

Mod. IV Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Closed Dual Entry, Side and End Stackable Low Profile, .100 x .100 [2.54 x 2.54] Centerline, .150 [3.81] Tine Spacing



Material and Finish

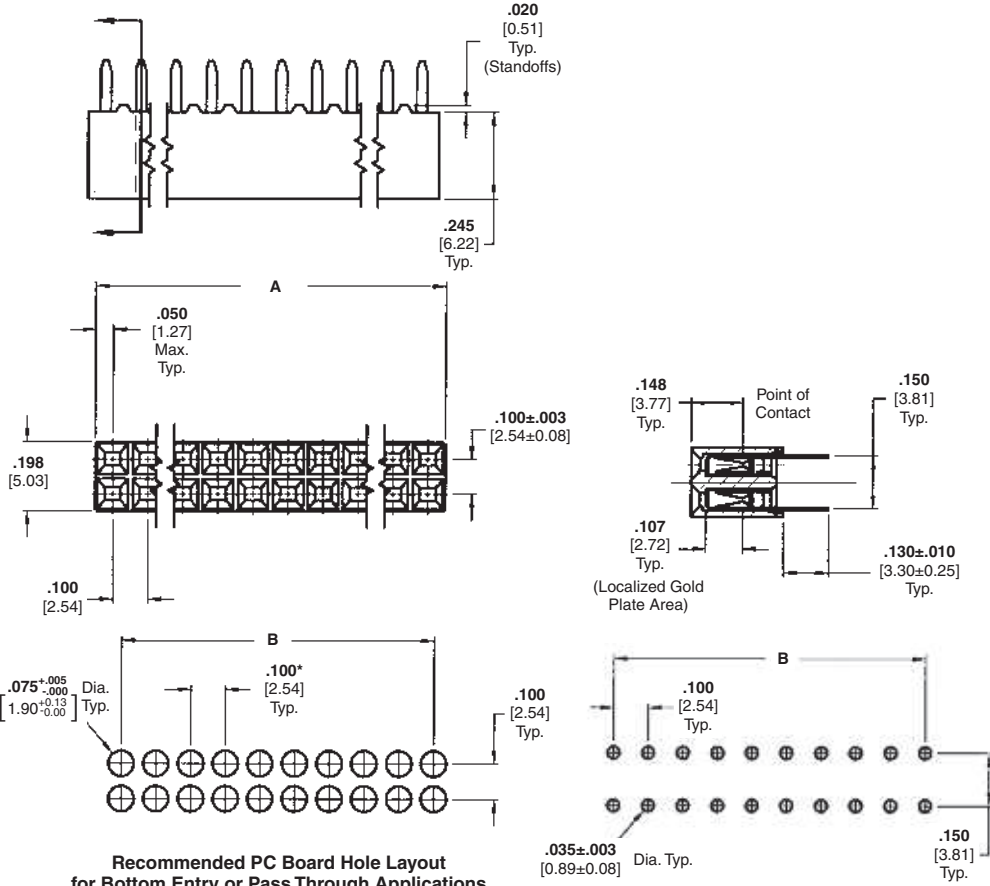
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel



Recommended PC Board Hole Layout for Bottom Entry or Pass Through Applications

*±.003 [±0.08] tolerances not to accumulate within one connector pattern.

Recommended PC Board Hole Layout for Top Entry

Related Product Data

Mateable Headers — Refer to the Mating Post Selection Guide — page 90

Performance Characteristics — page 174

Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
2	.100 [2.54]	—	5-535542-1	5-147095-1	5-147096-1
4	.200 [5.08]	.100 [2.54]	5-535542-2	5-147095-2	5-147096-2
6	.300 [7.62]	.200 [5.08]	5-535542-3	5-147095-3	5-147096-3
8	.400 [10.16]	.300 [7.62]	5-535542-4	5-147095-4	5-147096-4
10	.500 [12.70]	.400 [10.16]	5-535542-5	5-147095-5	5-147096-5
12	.600 [15.24]	.500 [12.70]	5-535542-6	5-147095-6	5-147096-6
14	.700 [17.78]	.600 [15.24]	5-535542-7	5-147095-7	5-147096-7
16	.800 [20.32]	.700 [17.78]	5-535542-8	5-147095-8	5-147096-8
18	.900 [22.86]	.800 [20.32]	5-535542-9	5-147095-9	5-147096-9
20	1.000 [25.40]	.900 [22.86]	6-535542-0	6-147095-0	6-147096-0
22	1.100 [27.94]	1.000 [25.40]	6-535542-1	6-147095-1	6-147096-1
24	1.200 [30.48]	1.100 [27.94]	6-535542-2	6-147095-2	6-147096-2
26	1.300 [33.02]	1.200 [30.48]	6-535542-3	6-147095-3	6-147096-3
28	1.400 [35.56]	1.300 [33.02]	6-535542-4	6-147095-4	6-147096-4
30	1.500 [38.10]	1.400 [35.56]	6-535542-5	6-147095-5	6-147096-5
32	1.600 [40.64]	1.500 [38.10]	6-535542-6	6-147095-6	6-147096-6
34	1.700 [43.18]	1.600 [40.64]	6-535542-7	6-147095-7	6-147096-7
36	1.800 [45.72]	1.700 [43.18]	6-535542-8	6-147095-8	6-147096-8
38	1.900 [48.26]	1.800 [45.72]	6-535542-9	6-147095-9	6-147096-9
40	2.000 [50.80]	1.900 [48.26]	7-535542-0	7-147095-0	7-147096-0

Notes: 1. TE 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 [1.57] for recommended board thickness if used in bottom entry application.

Note: All part numbers are RoHS compliant.

**Mod. IV Receptacle Assemblies, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Pos.	Dimensions		Contact Plating/Part Nos.		
	A	B	Plating A	Plating B	Plating C
42	2.100 [53.34]	2.000 [50.80]	7-535542-1	7-147095-1	7-147096-1
44	2.200 [55.88]	2.100 [53.34]	7-535542-2	7-147095-2	7-147096-2
46	2.300 [58.42]	2.200 [55.88]	7-535542-3	7-147095-3	7-147096-3
48	2.400 [60.96]	2.300 [58.42]	7-535542-4	7-147095-4	7-147096-4
50	2.500 [63.50]	2.400 [60.96]	7-535542-5	7-147095-5	7-147096-5
52	2.600 [66.04]	2.500 [63.50]	7-535542-6	7-147095-6	7-147096-6
54	2.700 [68.58]	2.600 [66.04]	7-535542-7	7-147095-7	7-147096-7
56	2.800 [71.12]	2.700 [68.58]	7-535542-8	7-147095-8	7-147096-8
58	2.900 [73.66]	2.800 [71.12]	7-535542-9	7-147095-9	7-147096-9
60	3.000 [76.20]	2.900 [73.66]	8-535542-0	8-147095-0	8-147096-0
62	3.100 [78.74]	3.000 [76.20]	8-535542-1	8-147095-1	8-147096-1
64	3.200 [81.28]	3.100 [78.74]	8-535542-2	8-147095-2	8-147096-2
66	3.300 [83.82]	3.200 [81.28]	8-535542-3	8-147095-3	8-147096-3
68	3.400 [86.36]	3.300 [83.82]	8-535542-4	8-147095-4	8-147096-4
70	3.500 [88.90]	3.400 [86.36]	8-535542-5	8-147095-5	8-147096-5
72	3.600 [91.44]	3.500 [88.90]	8-535542-6	8-147095-6	8-147096-6
74	3.700 [93.98]	3.600 [91.44]	8-535542-7	8-147095-7	8-147096-7
76	3.800 [96.52]	3.700 [93.98]	8-535542-8	8-147095-8	8-147096-8
78	3.900 [99.06]	3.800 [96.52]	8-535542-9	8-147095-9	8-147096-9
80	4.000 [101.60]	3.900 [99.06]	9-535542-0	9-147095-0	9-147096-0



Vertical Mount
Receptacle Assemblies

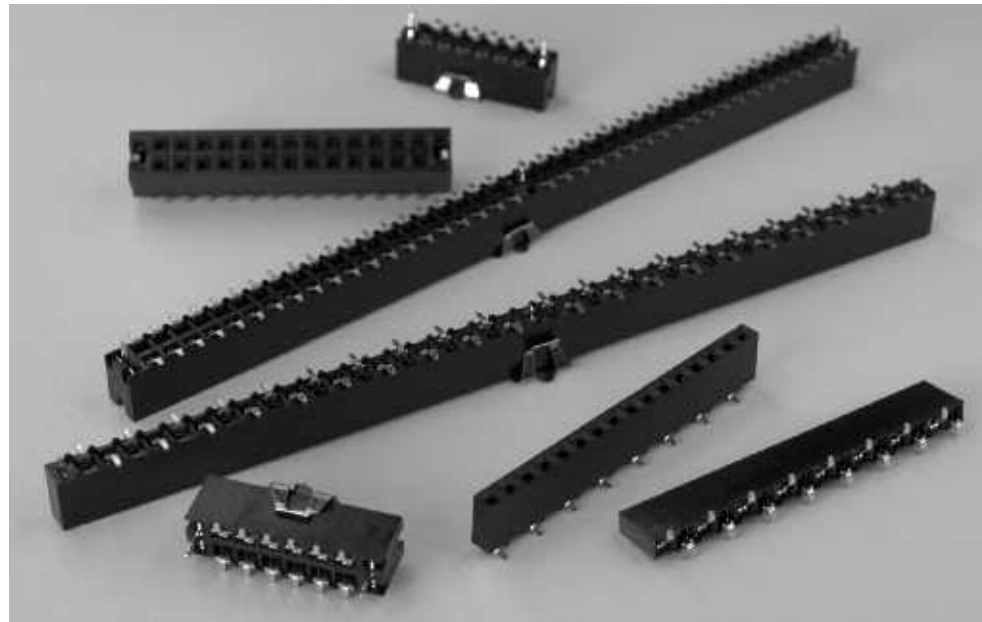
5

Note: All part numbers are RoHS compliant.

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 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 for reliable connections
- Recognized under the Component Program of Underwriters Laboratories Inc.  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189



The AMPMODU 0.025 [0.64] square interconnection system is an industry standard that has provided level III and IV thru-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 dual entry configurations. These receptacles are available in single-row and double-row configurations 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 their thru-hole counterparts in the AMPMODU product family. Closed-entry style housing design 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. Tin 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 thru-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.

**Mod IV Surface Mount Vertical Receptacle Assemblies,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

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.)

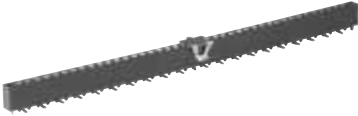
Mating Force (Receptacle Assemblies): 9.0 oz. [2.50N] (max.) per contact

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

Mod IV Receptacle Assemblies, Single-Row, Surface Mount, .100 [2.54] Centerline with Compliant Pin Hold Downs

Surface Mount, Single-Row, Dual Entry with Compliant Pin Holddowns



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

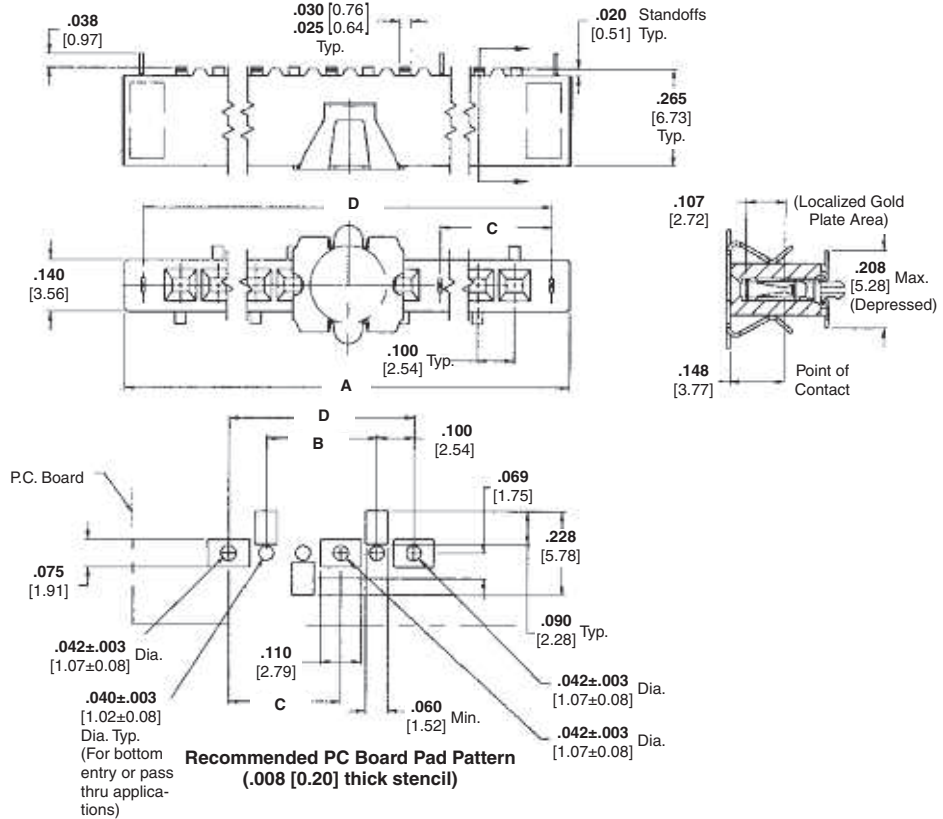
Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186



No. of Pos.	Dimensions				Packaged in Tubes			Packaged in Tape & Reel		
	A	B	C	D	Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
					Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
3	.500 [12.70]	.200 [5.08]	See note 3	.400 [10.16]	5-147744-1	5-147743-1	5-147742-1	5-147724-1	5-147730-1	5-147731-1
4	.600 [15.24]	.300 [7.62]	See note 3	.500 [12.70]	5-147744-2	5-147743-2	5-147742-2	5-147724-2	5-147730-2	5-147731-2
5	.700 [17.78]	.400 [10.16]	See note 3	.600 [15.24]	5-147744-3	5-147743-3	5-147742-3	5-147724-3	5-147730-3	5-147731-3
6	.800 [20.32]	.500 [12.70]	See note 3	.700 [17.78]	5-147744-4	5-147743-4	5-147742-4	5-147724-4	5-147730-4	5-147731-4
7	.900 [22.86]	.600 [15.24]	See note 3	.800 [20.32]	5-147744-5	5-147743-5	5-147742-5	5-147724-5	5-147730-5	5-147731-5
8	1.000 [25.40]	.700 [17.78]	See note 3	.900 [22.86]	5-147744-6	5-147743-6	5-147742-6	5-147724-6	5-147730-6	5-147731-6
9	1.100 [27.94]	.800 [20.32]	See note 3	1.000 [25.40]	5-147744-7	5-147743-7	5-147742-7	5-147724-7	5-147730-7	5-147731-7
10	1.200 [30.48]	.900 [22.86]	See note 3	1.100 [27.94]	5-147744-8	5-147743-8	5-147742-8	5-147724-8	5-147730-8	5-147731-8
11	1.300 [33.02]	1.000 [25.40]	See note 3	1.200 [30.48]	5-147744-9	5-147743-9	5-147742-9	5-147724-9	5-147730-9	5-147731-9
12	1.400 [35.56]	1.100 [27.94]	See note 3	1.300 [33.02]	6-147744-0	6-147743-0	6-147742-0	6-147724-0	6-147730-0	6-147731-0
13	1.500 [38.10]	1.200 [30.48]	See note 3	1.400 [35.56]	6-147744-1	6-147743-1	6-147742-1	6-147724-1	6-147730-1	6-147731-1
14	1.600 [40.64]	1.300 [33.02]	See note 3	1.500 [38.10]	6-147744-2	6-147743-2	6-147742-2	6-147724-2	6-147730-2	6-147731-2
15	1.700 [43.18]	1.400 [35.56]	See note 3	1.600 [40.64]	6-147744-3	6-147743-3	6-147742-3	6-147724-3	6-147730-3	6-147731-3
16	1.800 [45.72]	1.500 [38.10]	See note 3	1.700 [43.18]	6-147744-4	6-147743-4	6-147742-4	6-147724-4	6-147730-4	6-147731-4
17	1.900 [48.26]	1.600 [40.64]	See note 3	1.800 [45.72]	6-147744-5	6-147743-5	6-147742-5	6-147724-5	6-147730-5	6-147731-5
18	2.000 [50.80]	1.700 [43.18]	See note 3	1.900 [48.26]	6-147744-6	6-147743-6	6-147742-6	6-147724-6	6-147730-6	6-147731-6
19	2.100 [53.34]	1.800 [45.72]	See note 3	2.000 [50.80]	6-147744-7	6-147743-7	6-147742-7	6-147724-7	6-147730-7	6-147731-7
20	2.200 [55.88]	1.900 [48.26]	See note 3	2.100 [53.34]	6-147744-8	6-147743-8	6-147742-8	6-147724-8	6-147730-8	6-147731-8
30	3.200 [81.28]	2.900 [73.66]	See note 3	3.100 [78.74]	7-147744-8	7-147743-8	7-147742-8	7-147724-8	7-147730-8	7-147731-8
40	4.300 [109.22]	4.100 [104.14]	2.100 [53.34]	4.200 [106.68]	8-147744-8	8-147743-8	8-147742-8	8-147724-8	8-147730-8	8-147731-8

- Notes:**
1. TE 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 [1.57] for recommended board thickness if used in bottom entry application
 3. No center hold down.

Note: All part numbers are RoHS compliant.

Mod IV Receptacle Assemblies, Single-Row, Surface Mount, .100 [2.54] x .100 [2.54] Centerline End To End Stackable without Compliant Pin Holddowns

Surface Mount, Single-Row, Dual Entry, End to End Stackable



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

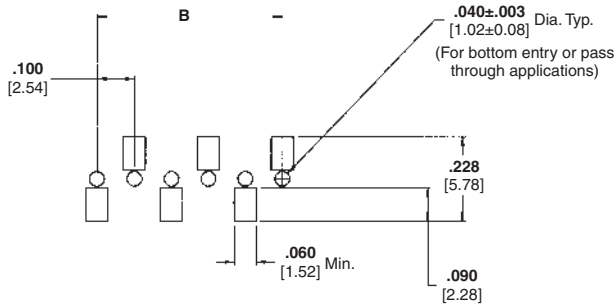
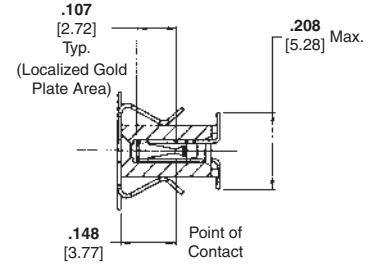
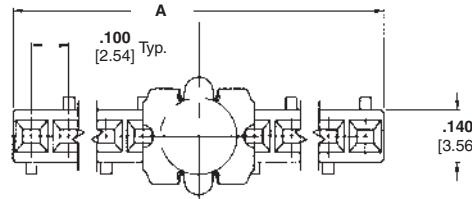
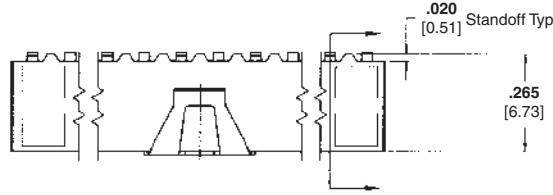
Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186



Recommended PC Board Pad Pattern (.008 [0.20] thick stencil)

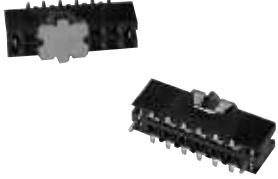
No. of Pos.	Dimensions		Packaged in Tubes			Packaged in Tape & Reel		
	A	B	Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
			Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
3	.300 [7.62]	.200 [5.08]	5-147738-2	5-147737-2	5-147736-2	5-147723-2	5-147728-2	5-147729-2
4	.400 [10.16]	.300 [7.62]	5-147738-3	5-147737-3	5-147736-3	5-147723-3	5-147728-3	5-147729-3
5	.500 [12.70]	.400 [10.16]	5-147738-4	5-147737-4	5-147736-4	5-147723-4	5-147728-4	5-147729-4
6	.600 [15.24]	.500 [12.70]	5-147738-5	5-147737-5	5-147736-5	5-147723-5	5-147728-5	5-147729-5
7	.700 [17.78]	.600 [15.24]	5-147738-6	5-147737-6	5-147736-6	5-147723-6	5-147728-6	5-147729-6
8	.800 [20.32]	.700 [17.78]	5-147738-7	5-147737-7	5-147736-7	5-147723-7	5-147728-7	5-147729-7
9	.900 [22.86]	.800 [20.32]	5-147738-8	5-147737-8	5-147736-8	5-147723-8	5-147728-8	5-147729-8
10	1.000 [25.40]	.900 [22.86]	5-147738-9	5-147737-9	5-147736-9	5-147723-9	5-147728-9	5-147729-9
11	1.100 [27.94]	1.000 [25.40]	6-147738-0	6-147737-0	6-147736-0	6-147723-0	6-147728-0	6-147729-0
12	1.200 [30.48]	1.100 [27.94]	6-147738-1	6-147737-1	6-147736-1	6-147723-1	6-147728-1	6-147729-1
13	1.300 [33.02]	1.200 [30.48]	6-147738-2	6-147737-2	6-147736-2	6-147723-2	6-147728-2	6-147729-2
14	1.400 [35.56]	1.300 [33.02]	6-147738-3	6-147737-3	6-147736-3	6-147723-3	6-147728-3	6-147729-3
15	1.500 [38.10]	1.400 [35.56]	6-147738-4	6-147737-4	6-147736-4	6-147723-4	6-147728-4	6-147729-4
16	1.600 [40.64]	1.500 [38.10]	6-147738-5	6-147737-5	6-147736-5	6-147723-5	6-147728-5	6-147729-5
17	1.700 [43.18]	1.600 [40.64]	6-147738-6	6-147737-6	6-147736-6	6-147723-6	6-147728-6	6-147729-6
18	1.800 [45.72]	1.700 [43.18]	6-147738-7	6-147737-7	6-147736-7	6-147723-7	6-147728-7	6-147729-7
19	1.900 [48.26]	1.800 [45.72]	6-147738-8	6-147737-8	6-147736-8	6-147723-8	6-147728-8	6-147729-8
20	2.000 [50.80]	1.900 [48.26]	6-147738-9	6-147737-9	6-147736-9	6-147723-9	6-147728-9	6-147729-9
30	3.000 [76.20]	2.900 [73.66]	7-147738-9	7-147737-9	7-147736-9	7-147723-9	7-147728-9	7-147729-9
40	4.000 [101.60]	3.900 [99.06]	8-147738-9	8-147737-9	8-147736-9	8-147723-9	8-147728-9	8-147729-9

- Notes:** 1. TE 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 [1.57] for recommended board thickness if used in bottom entry application.

Note: All part numbers are RoHS compliant.

Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centers

Surface Mount, Double Row, Dual Entry with Holddowns



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] matte tin on solder leads, all over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

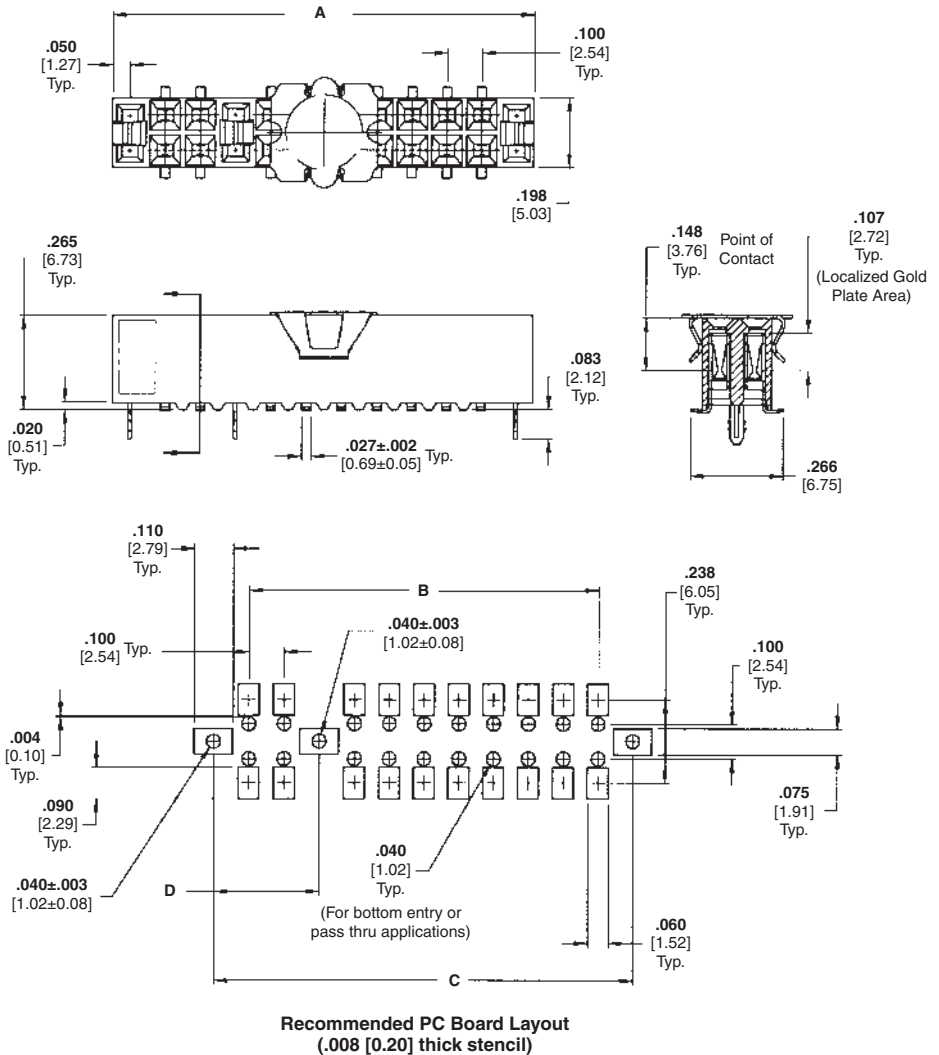
Performance Specifications — page 186

Technical Documents — page 276

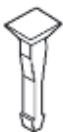
Product Specification
108-25022

Application Specification
114-25018

Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.



Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

**Mod IV Surface Mount Receptacle Assemblies, Double-Row,
.100 x .100 [2.54 x 2.54] Centers** (Continued)

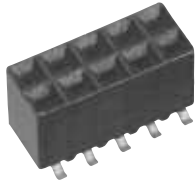
No. of Pos.	Dimensions				D	Packaged in Tubes			Packaged in Tape and Reel		
	A	B	C	See Note 1		Contact Plating/Part Nos.			Contact Plating/Part Nos.		
						Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
10	.700 [17.78]	.400 [10.16]	.600 [15.24]	See Note 1	5-147102-5	5-147101-5	5-147103-5	5-147747-5	5-147746-5	5-147745-5	
14	.900 [22.86]	.600 [15.24]	.800 [20.32]	See Note 1	5-147102-7	5-147101-7	5-147103-7	5-147747-7	5-147746-7	5-147745-7	
20	1.200 [30.48]	.900 [22.86]	1.100 [27.94]	See Note 1	6-147102-0	6-147101-0	6-147103-0	6-147747-0	6-147746-0	6-147745-0	
22	1.300 [33.02]	1.000 [25.40]	1.200 [30.48]	See Note 1	6-147102-1	6-147101-1	6-147103-1	6-147747-1	6-147746-1	6-147745-1	
26	1.500 [38.10]	1.200 [30.48]	1.400 [35.56]	See Note 1	6-147102-3	6-147101-3	6-147103-3	6-147747-3	6-147746-3	6-147745-3	
30	1.700 [43.18]	1.400 [35.56]	1.600 [40.64]	See Note 1	6-147102-5	6-147101-5	6-147103-5	6-147747-5	6-147746-5	6-147745-5	
34	1.900 [48.26]	1.600 [40.64]	1.800 [45.72]	See Note 1	6-147102-7	6-147101-7	6-147103-7	6-147747-7	6-147746-7	6-147745-7	
36	2.000 [50.08]	1.700 [43.18]	1.900 [48.26]	See Note 1	6-147102-8	6-147101-8	6-147103-8	6-147747-8	6-147746-8	6-147745-8	
40	2.200 [55.88]	1.900 [48.26]	2.100 [53.34]	See Note 1	7-147102-0	7-147101-0	7-147103-0	7-147747-0	7-147746-0	7-147745-0	
46	2.500 [63.50]	2.200 [55.88]	2.400 [60.96]	See Note 1	7-147102-3	7-147101-3	7-147103-3	7-147747-3	7-147746-3	7-147745-3	
50	2.700 [68.58]	2.400 [60.96]	2.600 [66.04]	See Note 1	7-147102-5	7-147101-5	7-147103-5	7-147747-5	7-147746-5	7-147745-5	
62	3.300 [83.82]	3.000 [76.20]	3.200 [81.28]	See Note 1	8-147102-1	8-147101-1	8-147103-1	8-147747-1	8-147746-1	8-147745-1	
64	3.400 [86.36]	3.100 [78.74]	3.300 [83.82]	See Note 1	8-147102-2	8-147101-2	8-147103-2	8-147747-2	8-147746-2	8-147745-2	
66	3.500 [88.90]	3.200 [81.28]	3.400 [86.36]	See Note 1	8-147102-3	8-147101-3	8-147103-3	8-147747-3	8-147746-3	8-147745-3	
70	3.700 [95.98]	3.400 [86.36]	3.600 [91.44]	See Note 1	8-147102-5	8-147101-5	8-147103-5	8-147747-5	8-147746-5	8-147745-5	
80	4.300 [109.22]	3.900 [99.06]	4.200 [106.68]	2.100 [53.34]	9-147102-0	9-147101-0	9-147103-0	9-147747-0	9-147746-0	9-147745-0	

- 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 and .062 [1.57] for recommended board thickness in bottom entry applications.

Note: All part numbers are RoHS compliant.

Mod IV Surface Mount Receptacle Assemblies, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Surface Mount, Double Row, Dual Entry End to End Stackable



Material and Finish

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

Contacts — Phosphor bronze, plated as follows:

Plating A — Duplex .000030 [0.00076] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating B — Duplex .000010 [0.000254] gold on contact area, .000150-.000300 [0.00381-0.00762] matte tin on solder area all over .000050 [0.00127] nickel

Plating C — .000150-.000300 [0.00381-0.00762] tin-lead over .000050 [0.00127] nickel

Related Product Data

Mateable Headers — Refer to Mating Post Selection Guide — page 90

Performance Specifications — page 186

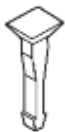
Technical Documents — page 276

Product Specification
108-25022

Application Specification
114-25018

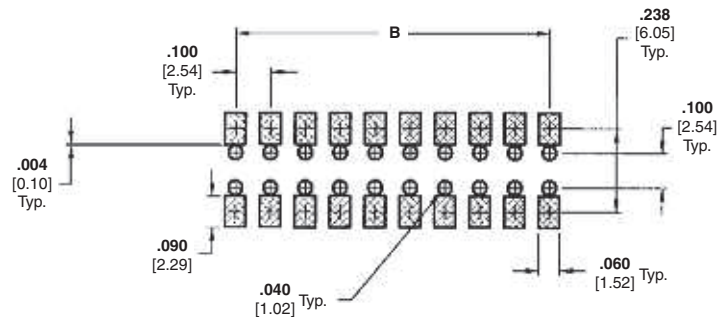
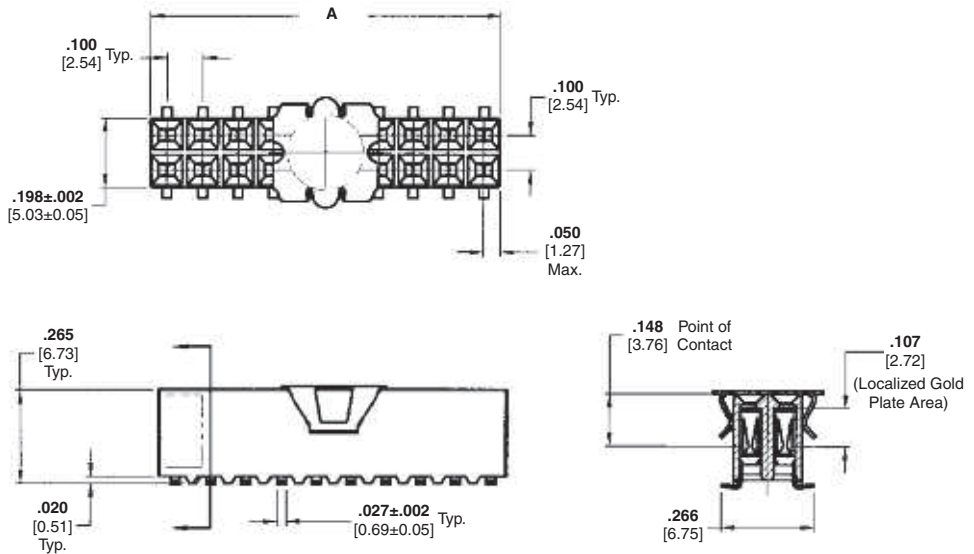
Additional receptacle assembly sizes are available; minimum order quantities may apply. Consult TE.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon



Recommended PC Board Pad Layout
(.008 [0.20] thick stencil)
(for Bottom Entry and Pass Through applications)

Surface Mount Receptacle Assemblies

5

Note: All part numbers are RoHS compliant.

**Mod IV Surface Mount Receptacle Assemblies, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Pos.	Dimensions		Packaged in Tubes			Packaged in Tape & Reel		
	A	B	Contact Plating/ Part Nos.			Contact Plating/ Part Nos.		
			Plating A	Plating B	Plating C	Plating A	Plating B	Plating C
10	.500 [12.70]	.400 [10.16]	5-147741-5	5-147740-5	5-147739-5	5-147105-5	5-147104-5	5-147106-5
14	.700 [17.78]	.600 [15.24]	5-147741-7	5-147740-7	5-147739-7	5-147105-7	5-147104-7	5-147106-7
20	1.000 [25.40]	.900 [22.86]	6-147741-0	6-147740-0	6-147739-0	6-147105-0	6-147104-0	6-147106-0
22	1.100 [27.94]	1.000 [25.40]	6-147741-1	6-147740-1	6-147739-1	6-147105-1	6-147104-1	6-147106-1
26	1.300 [33.02]	1.200 [30.48]	6-147741-3	6-147740-3	6-147739-3	6-147105-3	6-147104-3	6-147106-3
30	1.500 [38.10]	1.400 [35.56]	6-147741-5	6-147740-5	6-147739-5	6-147105-5	6-147104-5	6-147106-5
34	1.700 [43.18]	1.600 [40.64]	6-147741-7	6-147740-7	6-147739-7	6-147105-7	6-147104-7	6-147106-7
36	1.800 [45.72]	1.700 [43.18]	6-147741-8	6-147740-8	6-147739-8	6-147105-8	6-147104-8	6-147106-8
40	2.000 [50.80]	1.900 [48.26]	7-147741-0	7-147740-0	7-147739-0	7-147105-0	7-147104-0	7-147106-0
46	2.300 [58.42]	2.200 [55.88]	7-147741-3	7-147740-3	7-147739-3	7-147105-3	7-147104-3	7-147106-3
50	2.500 [63.50]	2.400 [60.96]	7-147741-5	7-147740-5	7-147739-5	7-147105-5	7-147104-5	7-147106-5
62	3.100 [78.74]	3.000 [76.20]	8-147741-1	8-147740-1	8-147739-1	8-147105-1	8-147104-1	8-147106-1
64	3.200 [81.28]	3.100 [78.74]	8-147741-2	8-147740-2	8-147739-2	8-147105-2	8-147104-2	8-147106-2
66	3.300 [83.82]	3.200 [81.28]	8-147741-3	8-147740-3	8-147739-3	8-147105-3	8-147104-3	8-147106-3
70	3.500 [88.90]	3.400 [86.36]	8-147741-5	8-147740-5	8-147739-5	8-147105-5	8-147104-5	8-147106-5
80	4.000 [101.60]	3.900 [99.06]	9-147741-0	9-147740-0	9-147739-0	9-147105-0	9-147104-0	9-147106-0

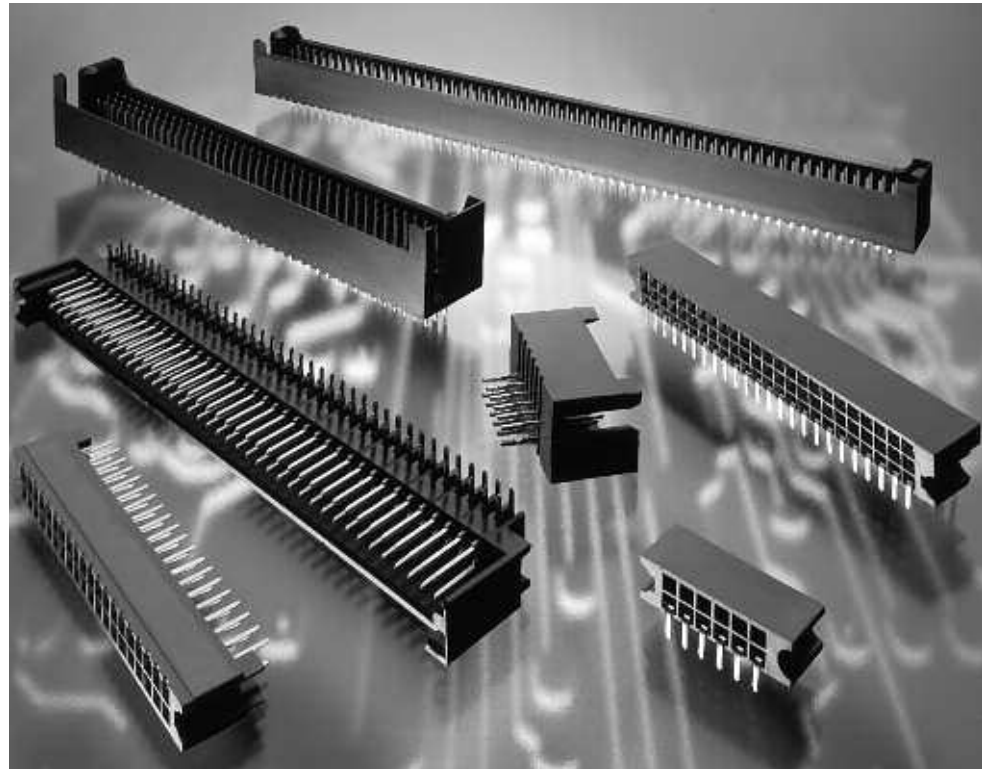
Notes: 1. To obtain the minimum mating post length, add .020 [0.51] (not including the post lead in chamfer) to the maximum point-of-contact dimension and .062 [1.57] for recommended board thickness in bottom entry applications.

Note: All part numbers are RoHS compliant.

Two-Piece Printed Circuit Board Connectors

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



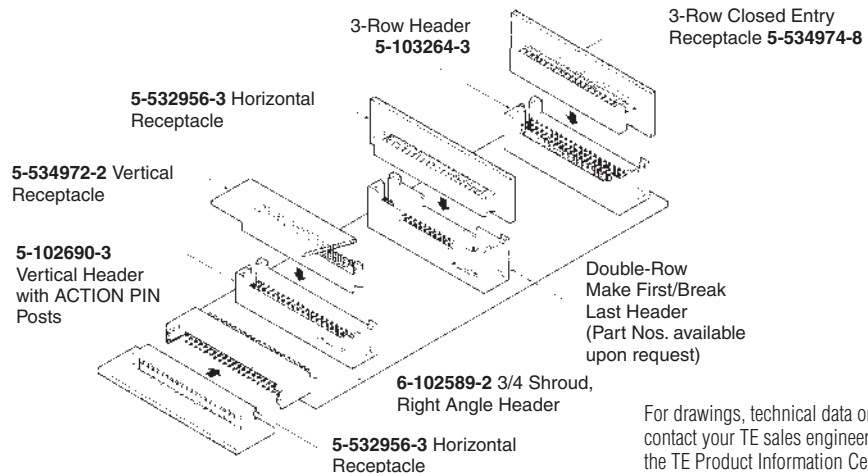
ACTION PIN Posts



Solder Posts



Receptacle Contact
(Double Beam with Anti-Overstress)
Board Retention Feature Available



Note: All part numbers are RoHS compliant.

For drawings, technical data or samples, contact your TE sales engineer or call the TE Product Information Center: 1-800-522-6752

Two-Piece Printed Circuit Board Connectors (Continued)

AMPMODU Two-Piece Printed Circuit Board connectors are designed to reliably and economically meet 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.

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

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 assure accurate header and receptacle alignment before contact engagement.

Closed entry receptacle housings provide a lead-in ramp for positive mating of contacts.

Temperature Rating —

Headers and Receptacles — -65°C to +125°C (black thermoplastic housings, 94V-0 rated)

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

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 — Glass-filled thermoplastic, black, 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] matte tin 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] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Headers — pages 198, 199

Performance Specifications — page 194

Technical Documents — page 276

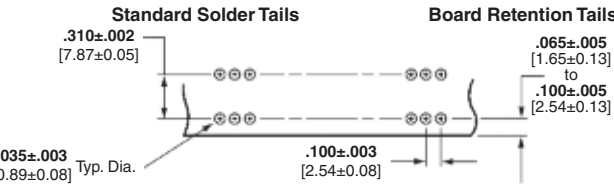
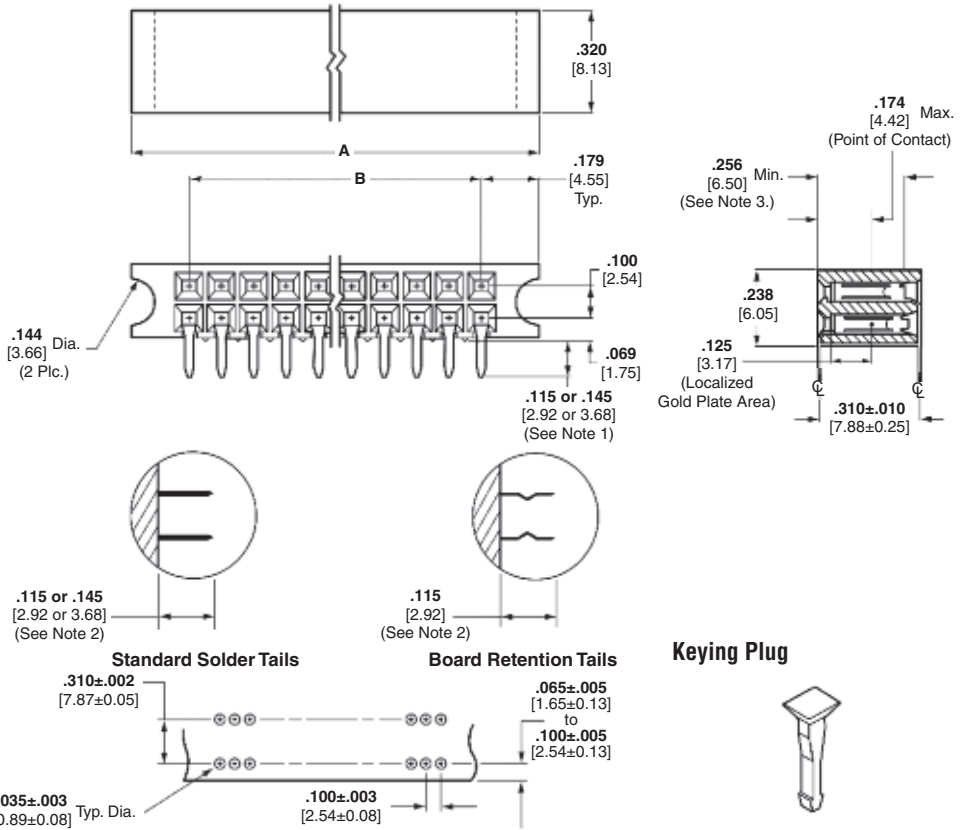
Product Specification

108-25017

Application Specification

114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.



Keying Plug



Part No. 86286-1

(Plugs into receptacle contact)

Material — Natural color nylon

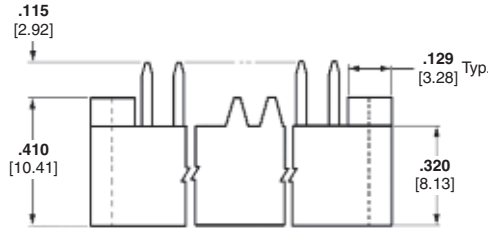
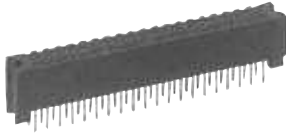
No. of Pos.	Dimensions		Receptacle Assembly Part Nos. with .115 [2.92] Solder Tail Lengths				Receptacle Assembly Part Nos. with .145 [3.68] Solder Tail Lengths
	A	B	Standard Solder Tails		Board Retention Tails		Standard Solder Tails
			Plating A	Plating B	Plating A	Plating B	
12	.858 [21.79]	.500 [12.70]	5-532956-1	5-532955-1	5-534204-2	5-534975-5	5-533009-1
14	.958 [24.33]	.600 [15.24]	—	7-532955-5	—	—	—
16	1.058 [26.87]	.700 [17.78]	5-532956-2	—	6-534204-0	6-534975-5	—
20	1.258 [31.95]	.900 [22.86]	5-532956-3	5-532955-3	5-534204-9	5-534975-6	—
24	1.458 [37.03]	1.100 [27.94]	5-532956-4	5-532955-4	6-534204-1	5-534975-7	—
30	1.758 [44.65]	1.400 [35.56]	5-532956-5	5-532955-5	5-534204-4	5-534975-8	5-533009-5
36	2.058 [52.27]	1.700 [43.18]	5-532956-6	5-532955-6	5-534204-3	5-534975-9	—
40	2.258 [57.35]	1.900 [48.26]	5-532956-7	5-532955-7	6-534204-2	6-534975-0	—
50	2.758 [70.05]	2.400 [60.96]	5-532956-8	5-532955-8	5-534204-1	6-534975-1	5-533009-8
60	3.258 [82.75]	2.900 [73.66]	5-532956-9	5-532955-9	5-534204-5	6-534975-2	5-533009-9
70	3.758 [95.45]	3.400 [86.36]	6-532956-0	6-532955-0	6-534204-3	6-534975-3	6-533009-0
72	3.858 [97.99]	3.500 [88.90]	6-532956-1	6-532955-1	6-534204-4	—	—
80	4.258 [108.15]	3.900 [99.06]	6-532956-2	6-532955-2	5-534204-8	6-534975-4	6-533009-2
86	4.558 [115.77]	4.200 [106.68]	6-532956-3	6-532955-3	—	—	6-533009-3
90	4.758 [120.85]	4.400 [111.76]	6-532956-4	6-532955-4	—	—	—
96	5.058 [128.47]	4.700 [119.38]	6-532956-5	6-532955-5	6-534204-5	—	6-533009-5
100	5.258 [133.55]	4.900 [124.46]	6-532956-6	6-532955-6	5-534204-6	5-534975-1	6-533009-6
110	5.758 [146.25]	5.400 [137.16]	6-532956-7	6-532955-7	6-534204-6	—	—
120	6.258 [158.95]	5.900 [149.86]	6-532956-8	6-532955-8	5-534204-7	5-534975-2	6-533009-8
130	6.758 [171.65]	6.400 [162.56]	7-532956-0	7-532955-0	6-534204-7	—	—
200	10.258 [260.55]	9.900 [251.46]	7-532956-3	7-532955-3	7-534204-0	5-534975-4	—

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 TE.
 3. .256 [6.50] minimum positive pin stop to prevent shorting between rows.

Note: All part numbers are RoHS compliant.

Receptacle Assemblies, Board Mount, Double-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline (Continued)

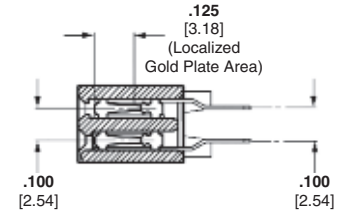
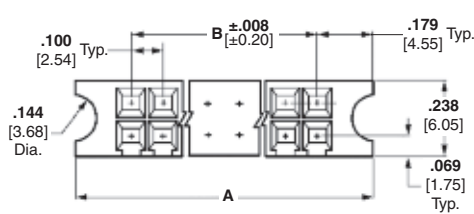
Vertical Mount (with Guide Pin Slots and Standoffs)



Material and Finish

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

Contacts — Phosphor bronze, duplex plated .000030 [0.00076] gold on contact area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Mateable Headers — pages 198, 199

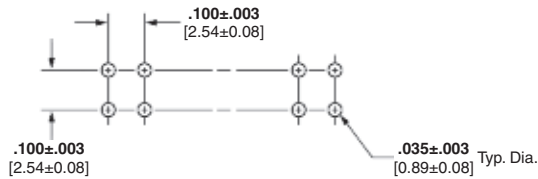
Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

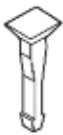
Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

Tolerances not to accumulate within one connector pattern.

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

No. of Pos.	Dimensions		Receptacle Assembly Part Nos.
	A	B	
30	1.758 [44.65]	1.400 [35.56]	5-534972-1
40	2.258 [57.35]	1.900 [48.26]	5-534972-2
50	2.758 [70.05]	2.400 [60.96]	5-534972-3
60	3.258 [82.75]	2.900 [73.66]	5-534972-4
70	3.758 [95.45]	3.400 [86.36]	5-534972-5
80	4.258 [108.15]	3.900 [99.06]	5-534972-6
90	4.758 [120.85]	4.400 [111.76]	5-534972-7
100	5.258 [133.55]	4.900 [124.46]	5-534972-8
120	6.258 [158.95]	5.900 [149.86]	6-534972-0

Note: All part numbers are RoHS compliant.

Receptacle Assemblies, Board Mount, Triple-Row, Closed Entry, .100 x .100 [2.54 x 2.54] Centerline

Horizontal Mount (with Guide Pin Slots and Standoffs)



Material and Finish

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

Contacts — Phosphor bronze, plated .000030 [0.00076] gold in mating area, .000050-.000100 [0.00127-0.00254] matte tin on solder area, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Headers — page 201

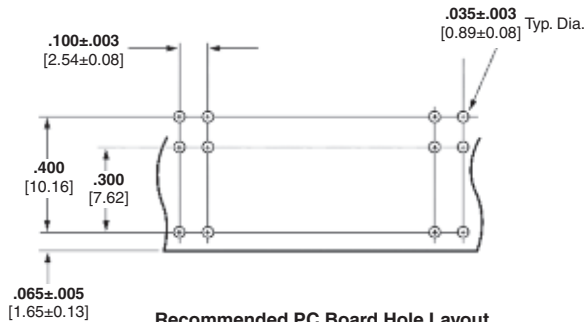
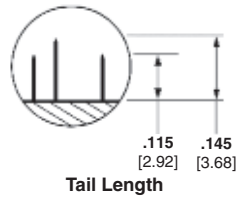
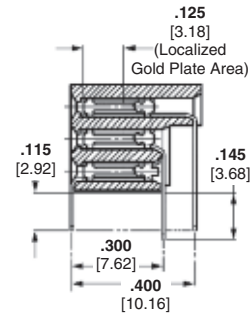
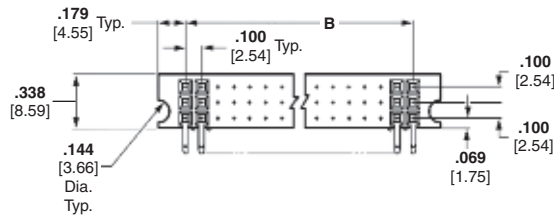
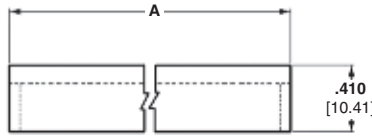
Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional receptacle assembly sizes and solder tail lengths are available; minimum order quantities may apply. Consult TE.

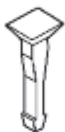


Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)

Tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Receptacle Assembly Part Nos. Plating A
	A	B	
72	2.658 [67.51]	2.300 [58.42]	5-534974-3
93	3.358 [85.29]	3.000 [76.20]	5-534974-4
96	3.458 [87.83]	3.100 [78.74]	5-534974-5
150	5.258 [133.55]	4.900 [124.46]	5-534974-8
210	7.258 [184.35]	6.900 [175.26]	6-534974-1

Keying Plug



Part No. 86286-1
(Plugs into receptacle contact)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

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

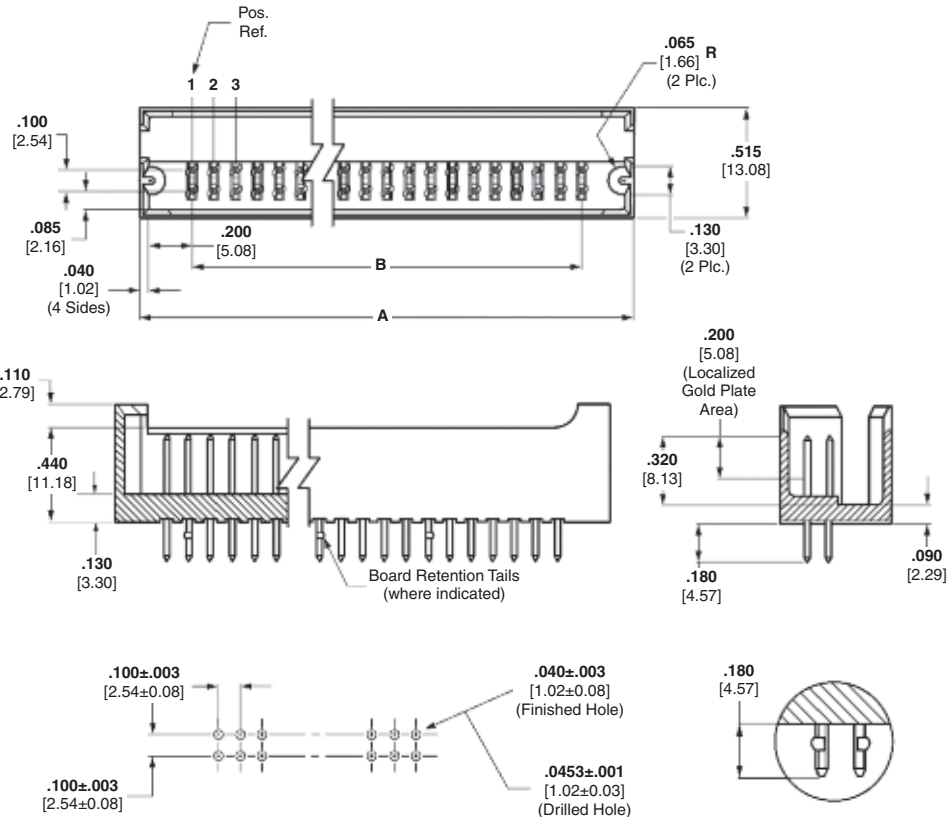
Housing — Glass-filled thermoplastic, black, 94V-0 rated

Posts — Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin 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] matte tin 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



Recommended PC Board Hole Layout (for .055 [1.40] min. thick PC board)

Tolerances not to accumulate within one connector pattern.

Related Product Data

Mateable Receptacles — pages 195, 196

Performance Specifications — page 194

ACTION PIN Posts — pages 150, 151

Application Tooling — pages 152

Technical Documents — page 276

Product Specification 108-25017

Application Specification 114-9009

Additional header sizes are available; minimum order quantities may apply. Consult TE.

No. of Pos.	Dimensions		Header Part Nos. 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]	5-102692-1	5-102567-1	6-534978-6	5-534257-5
14	1.080 [27.43]	.600 [15.24]	—	7-102567-3	—	—
16	1.180 [29.97]	.700 [17.78]	6-102692-5	—	5-534978-2	6-534257-4
20	1.380 [35.05]	.900 [22.86]	6-102692-6	6-102567-1	5-534978-3	5-534257-6
24	1.580 [40.13]	1.100 [27.94]	5-102692-2	5-102567-2	5-534978-4	5-534257-7
30	1.880 [47.75]	1.400 [35.56]	6-102692-7	6-102567-3	5-534978-5	5-534257-8
36	2.180 [55.37]	1.700 [43.18]	5-102692-3	5-102567-3	5-534978-6	5-534257-9
40	2.380 [60.45]	1.900 [48.26]	6-102692-3	6-102567-2	5-534978-7	6-534257-0
50	2.880 [73.15]	2.400 [60.96]	5-102692-4	5-102567-6	5-534978-8	6-534257-5
60	3.380 [85.85]	2.900 [73.66]	5-102692-5	5-102567-4	5-534978-9	6-534257-1
70	3.880 [98.55]	3.400 [86.36]	6-102692-4	6-102567-0	6-534978-5	6-534257-2
72	3.980 [101.09]	3.500 [88.90]	6-102692-8	6-102567-6	6-534978-0	—
80	4.380 [111.25]	3.900 [99.06]	5-102692-6	5-102567-8	6-534978-1	5-534257-1
86	4.680 [118.87]	4.200 [106.68]	6-102692-9	6-102567-7	—	—
90	4.880 [123.95]	4.400 [111.76]	6-102692-2	6-102567-4	—	—
96	5.180 [131.57]	4.700 [119.38]	5-102692-7	5-102567-5	6-534978-7	—
100	5.380 [136.65]	4.900 [124.46]	5-102692-8	5-102567-9	6-534978-8	5-534257-2
110	5.880 [149.35]	5.400 [137.16]	6-102692-0	6-102567-5	6-534978-2	—
120	6.380 [162.05]	5.900 [149.86]	5-102692-9	5-102567-7	6-534978-3	5-534257-3
130	6.880 [174.75]	6.400 [162.56]	7-102692-0	6-102567-9	6-534978-9	—
200	10.380 [263.65]	9.900 [251.46]	6-102692-1	7-102567-1	5-534978-1	6-534257-9

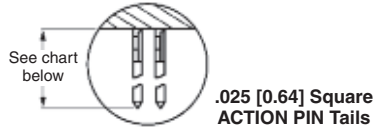
Note: Headers with make first/break last posts can be made available, consult TE.

Note: All part numbers are RoHS compliant.

Printed Circuit Board Connectors

5

Headers, Straight Post, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)



No. of Pos.	Dimensions		Header Part Nos. with ACTION PIN Posts				
	A	B	.250 [6.35] Tail Length Plating A	.250 [6.35] Tail Length Plating B	.480 [12.19] Tail Length Plating A	.480 [12.19] Tail Length Plating C	.680 [17.27] Tail Length Plating C
12	.980 [24.89]	.500 [12.70]	5-102690-1	5-103291-4	—	—	—
14	1.080 [27.43]	.600 [15.24]	—	5-103291-3	—	—	—
20	1.380 [35.05]	.900 [22.86]	6-102690-3	5-103291-6	—	—	—
24	1.580 [40.13]	1.100 [27.94]	5-102690-2	5-103291-7	—	—	—
36	2.180 [55.37]	1.700 [43.18]	5-102690-3	5-103291-9	—	—	—
40	2.380 [60.45]	1.900 [48.26]	6-102690-6	5-103291-2	—	—	—
50	2.880 [73.15]	2.400 [60.96]	5-102690-4	6-103291-0	—	—	—
60	3.380 [85.85]	2.900 [73.66]	5-102690-5	6-103291-1	—	—	—
70	3.880 [98.55]	3.400 [86.36]	6-102690-7	6-103291-2	—	—	—
80	4.380 [111.25]	3.900 [99.06]	5-102690-6	6-103291-4	—	—	—
90	4.880 [123.95]	4.400 [111.76]	6-102690-1	6-103291-6	—	—	—
96	5.180 [131.57]	4.700 [119.38]	5-102690-7	6-103291-8	—	—	—
100	5.380 [136.65]	4.900 [124.46]	5-102690-8	6-103291-9	—	—	102777-3
120	6.380 [162.05]	5.900 [149.86]	5-102690-9	7-103291-1	5-102691-9	1-102666-1	102777-1
130	6.880 [174.75]	6.400 [162.56]	—	—	—	102666-9	—

- Notes:** 1. 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.
 2. Application tooling for installing headers with ACTION PIN posts is shown on pages 152 and 153.
 3. Headers with .250 [6.35] tail length can be made available with make first/break last contacts, consult TE.
 4. Plated through holes to be prepared per recommendations found on page 151.

Note: All part numbers are RoHS compliant.

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 — Glass-filled thermoplastic, black, 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] matte tin 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] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles — pages 195, 196

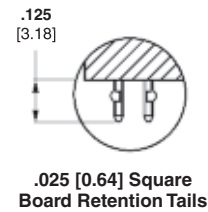
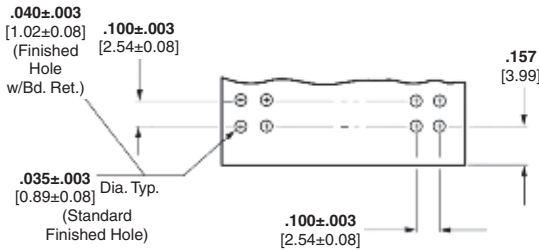
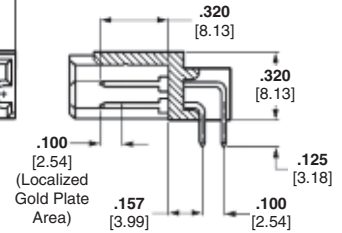
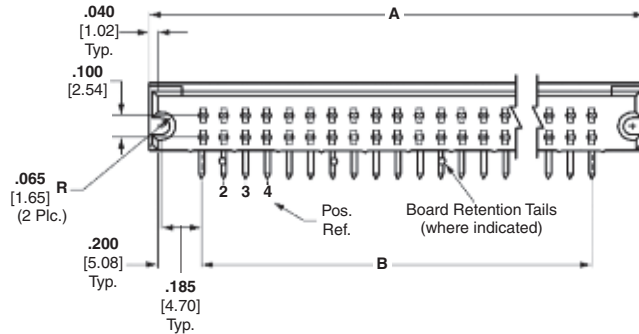
Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional header sizes are available; minimum order quantities may apply. Consult TE.



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

Tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Header Part Nos. with .125 [3.18] Tail Length		
	A	B	Standard Solder Tails		Board Retention Tails
			Plating A	Plating B	Plating A
12	.980 [24.89]	.500 [12.70]	6-102802-2	5-102589-8	5-534245-5
16	1.180 [29.97]	.700 [17.78]	6-102802-4	—	5-534245-4
20	1.380 [35.05]	.900 [22.86]	6-102802-5	6-102589-2	5-534245-6
24	1.580 [40.13]	1.100 [27.94]	6-102802-3	5-102589-6	5-534245-7
30	1.880 [47.75]	1.400 [35.56]	6-102802-6	5-102589-4	5-534245-2
36	2.180 [55.37]	1.700 [43.18]	5-102802-3	5-102589-2	5-534245-8
40	2.380 [60.45]	1.900 [48.26]	5-102802-8	6-102589-3	—
50	2.880 [73.15]	2.400 [60.96]	5-102802-4	5-102589-5	5-534245-1
60	3.380 [85.85]	2.900 [73.66]	5-102802-9	5-102589-7	—
72	3.980 [101.09]	3.500 [88.90]	6-102802-7	6-102589-7	—
80	4.380 [111.25]	3.900 [99.06]	5-102802-5	5-102589-1	6-534245-0
90	4.880 [123.95]	4.400 [111.76]	6-102802-0	6-102589-4	—
100	5.380 [136.65]	4.900 [124.46]	5-102802-6	5-102589-3	6-534245-1
120	6.380 [162.05]	5.900 [149.86]	5-102802-2	6-102589-1	5-534245-3
130	6.880 [174.75]	6.400 [162.56]	6-102802-9	6-102589-9	6-534245-3

Note: Headers with make first/break last posts can be made available, consult TE.

Note: All part numbers are RoHS compliant.

Headers, Straight Post, Triple-Row, .100 x .100 [2.54 x 2.54] Centerline

**Solder Posts
(with Pin Protection
and Guide Pins)**



Material and Finish

Housing — Glass-filled thermoplastic, black, 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] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles — page 197

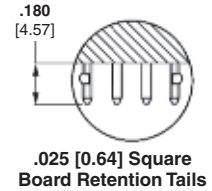
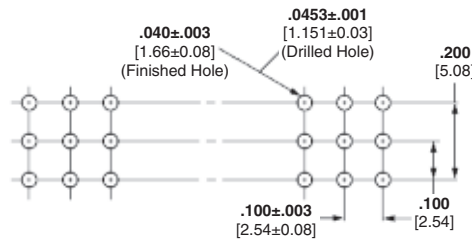
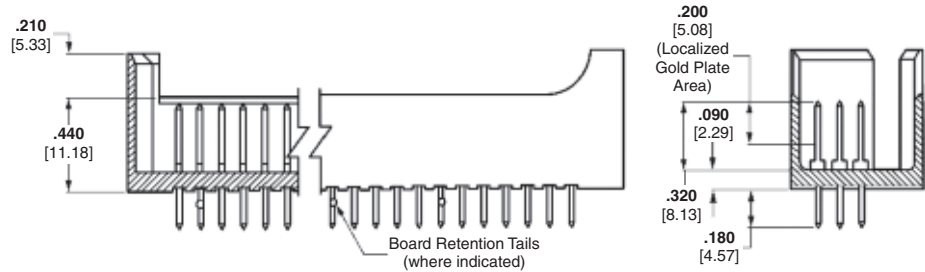
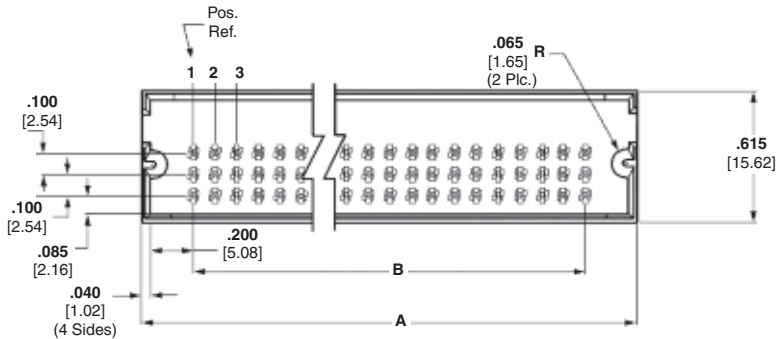
Performance Specifications — page 194

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

Additional header assembly sizes are available; minimum order quantities may apply. Consult TE.



**Recommended PC Board Hole Layout
(for .055 [1.40] min. thick PC board)**

Tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions		Header Part Nos. with .180 [4.57] Tail Length	
	A	B	Standard Solder Tails Plating A	Board Retention Tails Plating A
72	2.780 [70.61]	2.300 [58.42]	5-103264-1	5-534258-1
96	3.480 [88.39]	3.000 [76.20]	—	5-534258-3
150	5.380 [136.65]	4.900 [124.46]	5-103264-3	—
210	7.380 [187.45]	6.900 [175.26]	5-103264-4	—

Note: All part numbers are RoHS compliant.

Headers, VRM (Voltage Regulator Module), .100 x .100 [2.54 x 2.54] Centerline

Solder Posts and ACTION PIN Posts (with Pin Protection, Guide Ribs, and Latching)

Material and Finish

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

Posts — Copper alloy, duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] matte tin on termination end, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable Receptacles — pages 195, 196

Performance Specifications — page 194

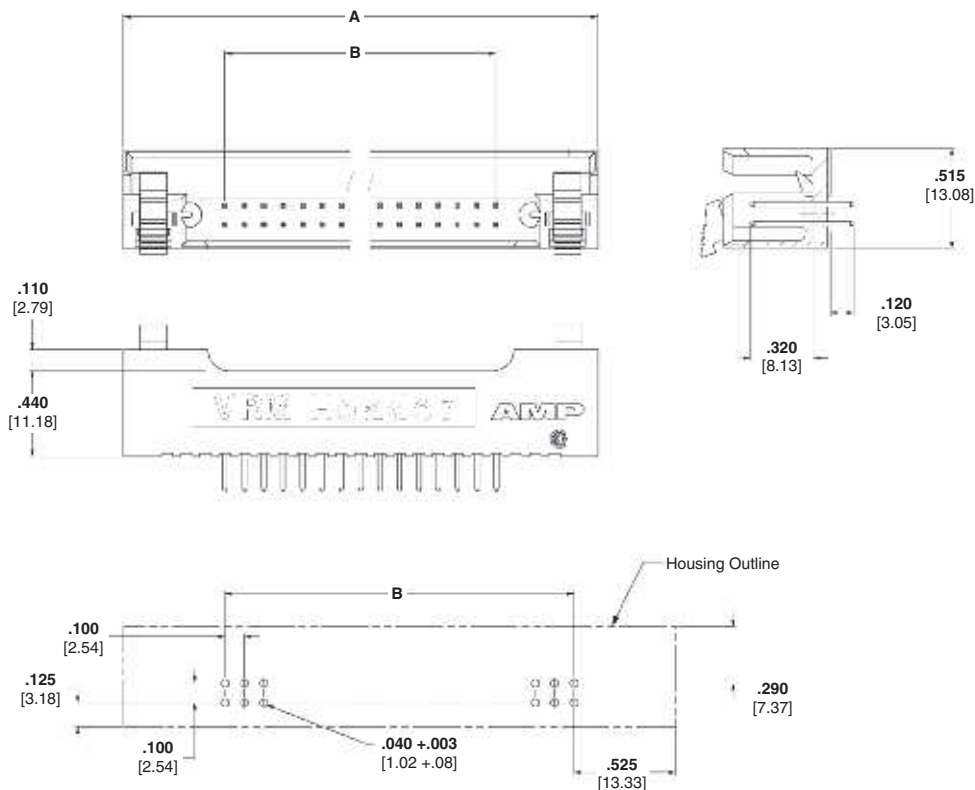
ACTION PIN Posts — page 150, 151

Application Tooling — pages 152

Technical Documents — page 276

Product Specification
108-25017

Application Specification
114-9009

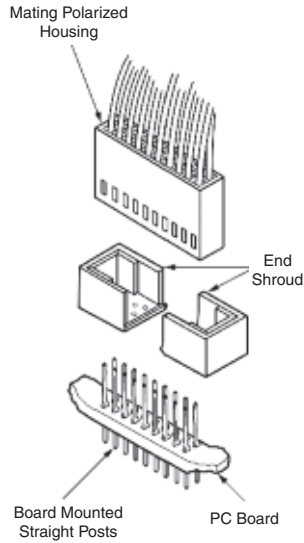


Recommended PC Board Hole Layout

No of Pos	Dimensions		Header Part No.	
	A	B	Standard Solder Tails	.250 Length ACTION PIN Tails
30	2.450 [62.23]	1.400 [35.56]	5-146205-1	—
40	3.095 [78.62]	1.900 [48.26]	—	5-147254-1
	3.100 [78.74]	1.900 [48.26]	5-146315-1	—

Note: All part numbers are RoHS compliant.

Accessories: End Shrouds for Machine-Applied Posts

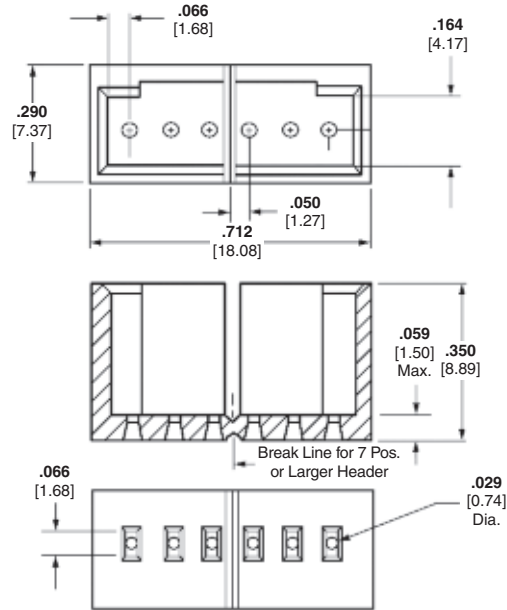


Typical Assembly

Technical Documents — page 276

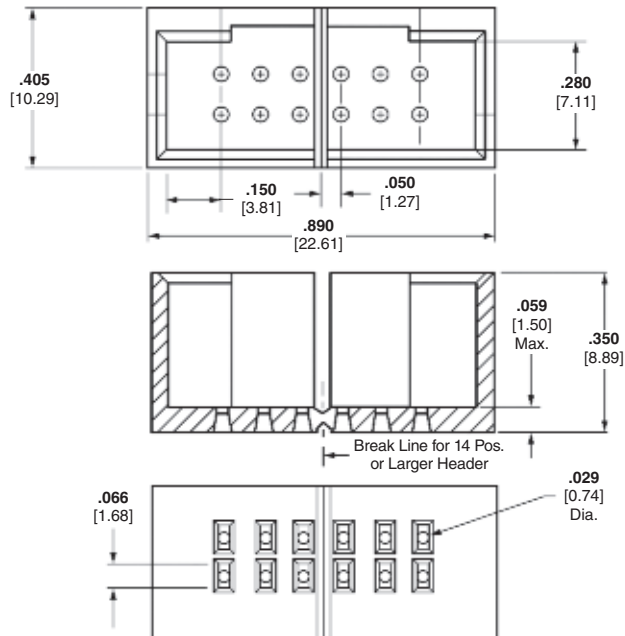
Single-Row, .100 [2.54] Centers Part No. 102338-1

Material — Black thermoplastic, flame retardant



Double-Row, .100 x .100 [2.54 x 2.54] Centers Part No. 102114-1

Material — Black glass-filled polyester



Note: All part numbers are RoHS compliant.

Accessories: Barrier Insert, Part No. 87743-1

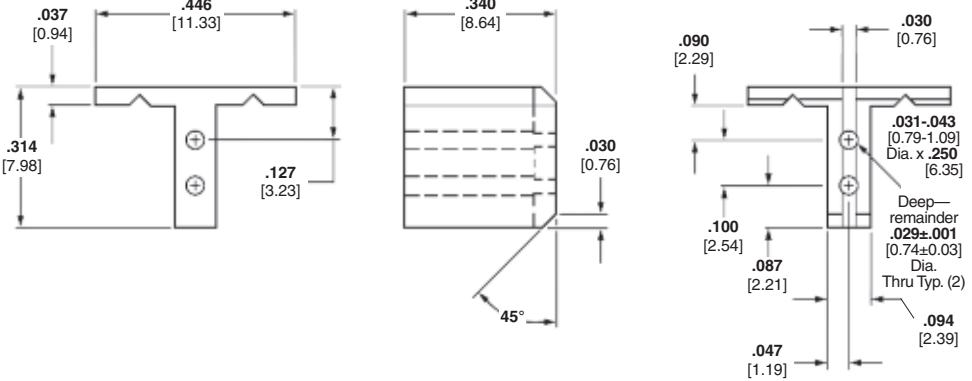
Material

Black polyester

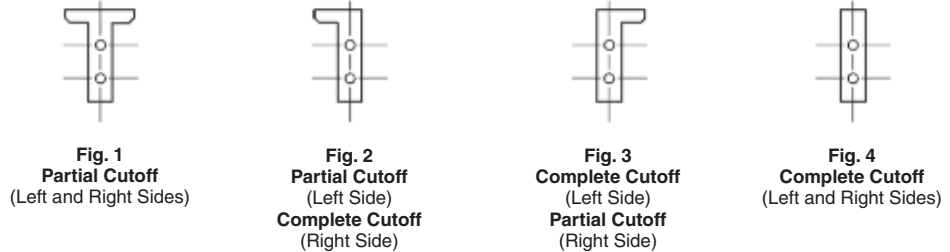
Technical Documents — page 276

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.

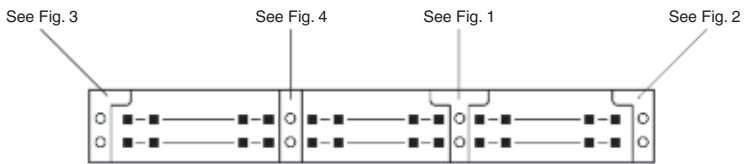


Barrier Insert Cutoffs



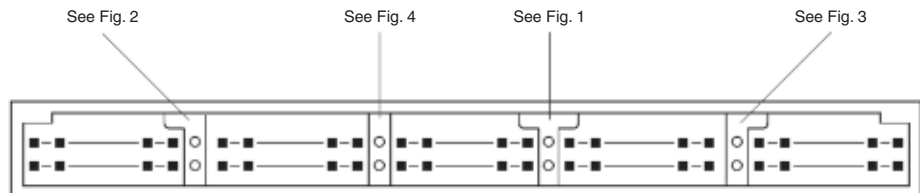
Typical Barrier Insert Applications

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.

Note: All part numbers are RoHS compliant.

Accessories: Snap-In Polarizer for Low Profile Headers

Material

Black thermoplastic, flame retardant

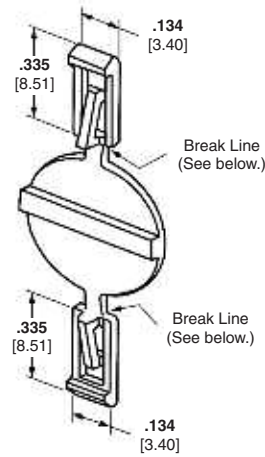
Part Numbers

499991-2 (Packaged 50 per bag)

499991-3 (Packaged 1000 per bag)

Related Product Data

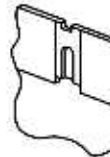
Low Profile Headers used with —
pages 135-140



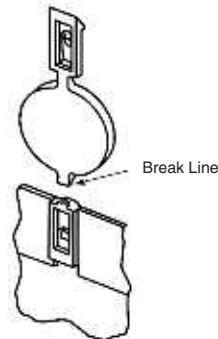
The snap-in polarizer provides military polarization for low profile headers. Installation of the polarizer is as follows:



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.





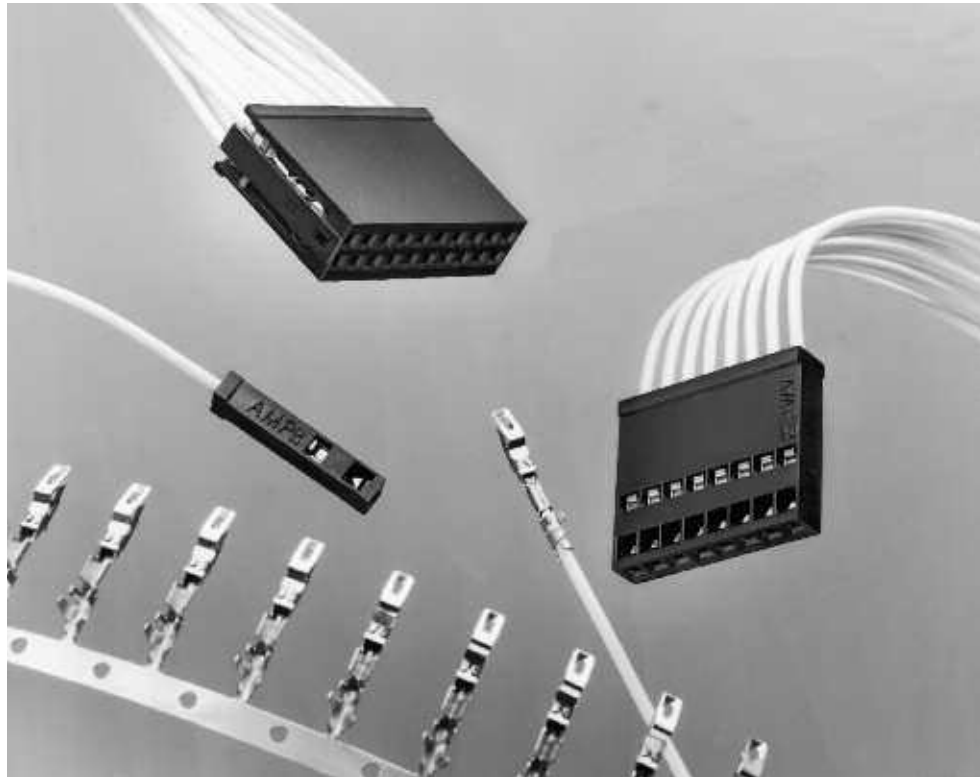
Note: For Post Shunts, contact TE.

Note: All part numbers are RoHS compliant.

Locking Clip Contacts and Housings

Product Facts

- Self-retaining contacts provide permanent connection with quick connect and disconnect
- Fast, easy installation with no additional locking hardware required
- Mates with .025 [0.64] square posts in a variety of configurations
- Single- and double-row configurations in up to 20 positions on .100 [2.54] centers
- Modular design permits end-to-end stacking (double-row only) for circuit grouping
- Choice of tin or select gold plating
- Housings made of 94V-0 rated glass-filled polyester
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476 
- Certified by Canadian Standards Association, File No. LR 7189 



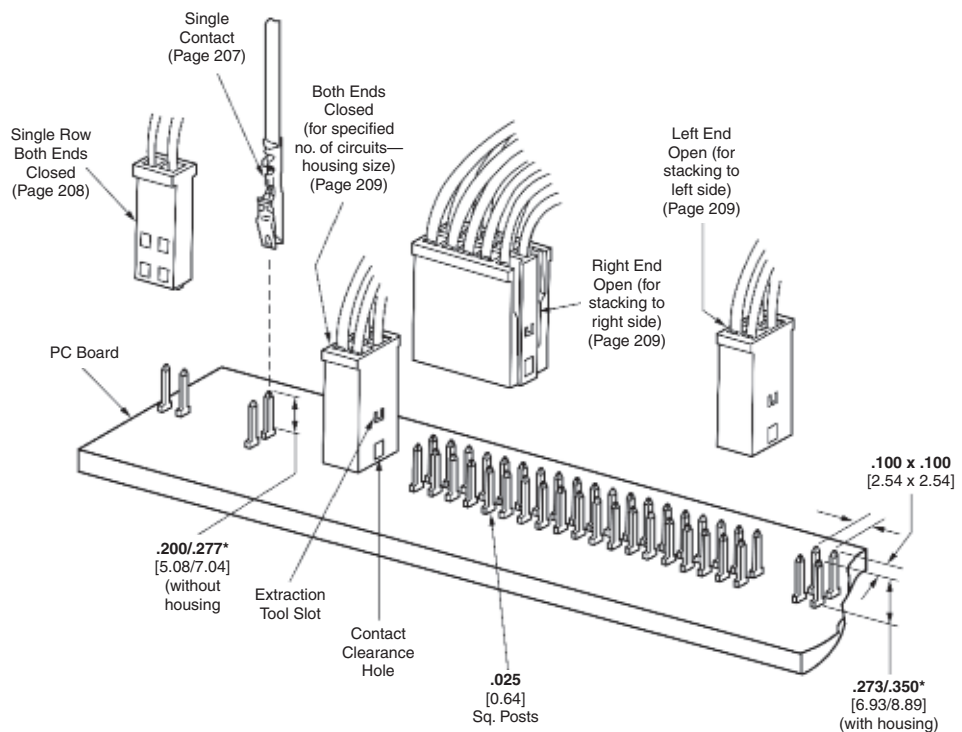
Performance Characteristics

Contact Current Rating — 3 amperes

Termination Resistance — 12 milliohms (max.) — Gold plated contacts
16 milliohms (max.) — Tin plated contacts

Durability — Ref. Product Specification 108-36028 and 108-36028-1

Typical Application



*If post is longer than maximum specified, post tip may butt against wire ends. Dimension defines .025 x .025 [0.64 x 0.64] portion of post.

Locking Clip Contacts

Wire Crimp Contacts with Insulation Support

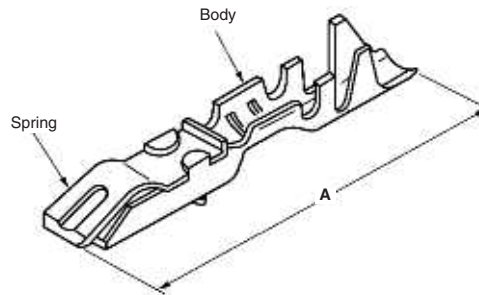
Material and Finish

Contact Spring — Stainless steel

Plating A — Selectively plated .000050 [0.00127] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

Plating B — Selectively plated .000030 [0.00076] 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 over .000050 [0.00127] nickel on entire contact



Wire Size Range		Ins. Dia. Range	Dimension A	Finish	Part Nos.		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Hand Tool No.
AWG	[mm²]				Strip Form	Loose Piece		
30-28	0.05-0.09	.029-.039 [0.74-0.99]	.550 [13.97]	Plating B	87190-1	87191-1	567310-2	90295-1
				Plating C	5-87190-2	5-87191-2		
26-22	0.12-0.4	.038-.062 [0.97-1.57]	.584 [14.83]	Plating A	87124-3	87165-3	466721-2	91533-1
				Plating B	87124-1	87165-1		
				Plating C	5-87124-2	5-87165-2		
20	0.5-0.6	.038-.062 [0.97-1.57]	.584 [14.83]	Plating B	867052-2	—	679996-2	90431-1
				Plating C	5-867052-1	—		

*For use with AMP-O-LECTRIC Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (shown on page 270), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

- Notes:** 1. These contacts must be crimped in accordance with TE Specification No. 114-25006 in order to function properly in a connector housing.
 2. **Extraction Tool No. 91084-1** is used for removing individual contacts from connector housings and for detaching contacts from mating posts.

Related Product Data

Housings Used With — pages 208, 209

Application Tooling — page 272

Technical Documents — pages 277, 278

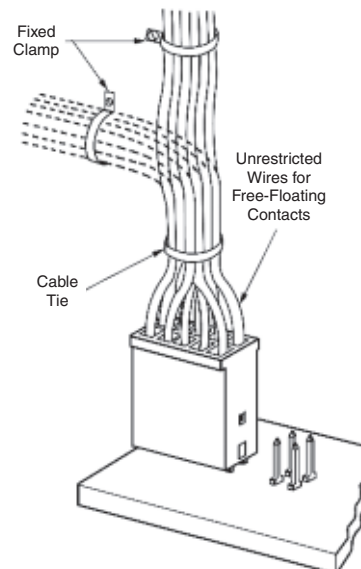
Product Specification 108-36028, 108-36028-1

Application Specification 114-25006

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 Insulation and Bundling Products Catalog 124132.



Extraction Tool No. 91084-1

Note: All part numbers are RoHS compliant.

Wire-Applied Housings for Locking Clip Contacts, Single-Row, .100 [2.54] Centerline

Single-Row



Material

Glass-filled polyester, 94V-0 rated

Related Product Data

Contacts — page 207

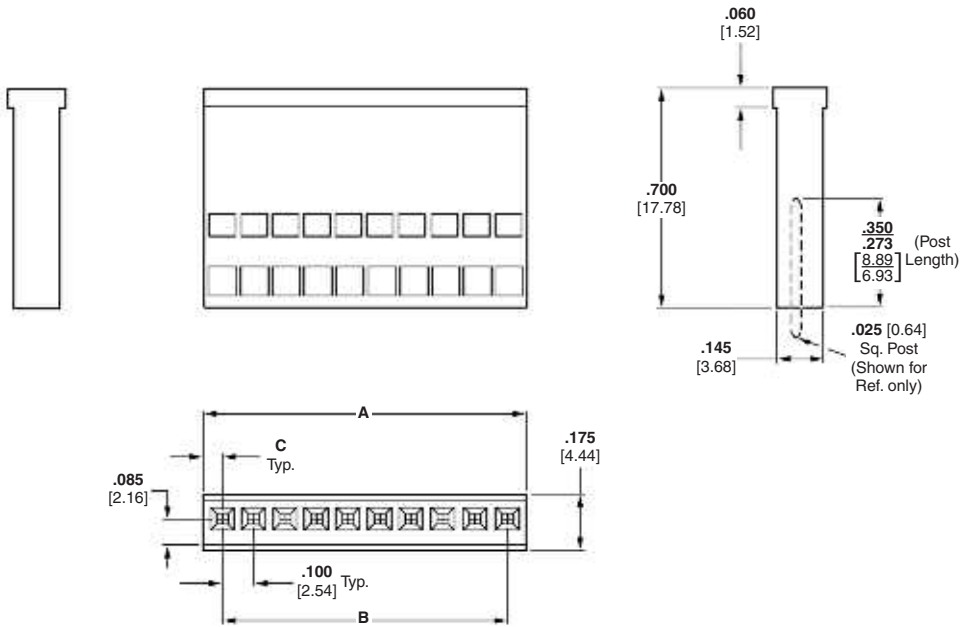
Mateable Headers and Posts — Refer to the Mating Post Selection Guide — page 90

Technical Documents — pages 277, 278

Product Specification
108-36028, 108-36028-1

Application Specification
114-25006

.125 [3.18] centerline single-row, 2 and 3 position housings are available, Base Part No. 104905. They are designed to be stackable end-to-end and side-by-side. Consult TE.



Note: Housing illustrated above is the "Both Ends Closed" version.

5 Locking Clip Contacts and Housings

Keying Plug



Part No. 87179-1

(Plugs directly into housings for .025 [0.64] square post contacts)

Material — Yellow, nylon

Note: All part numbers are RoHS compliant.

No. of Pos.	Dimensions			Housing Part No.	
	A	B	C	Unstamped	Stamped
1	.108 [2.74]	—	.054 [1.37]	87175-2	—
2	.216 [5.49]	.100 [2.54]	.058 [1.47]	87175-6	—
3	.316 [8.03]	.200 [5.08]	.058 [1.47]	87175-8	—
4	.416 [10.57]	.300 [7.62]	.058 [1.47]	1-87175-0	—
5	.516 [13.11]	.400 [10.16]	.058 [1.47]	1-87175-2	—
6	.616 [15.65]	.500 [12.70]	.058 [1.47]	1-87175-4	1-87175-3
7	.716 [18.19]	.600 [15.24]	.058 [1.47]	1-87175-6	1-87175-5
8	.816 [20.73]	.700 [17.78]	.058 [1.47]	1-87175-8	1-87175-7
9	.916 [23.27]	.800 [20.32]	.058 [1.47]	2-87175-0	1-87175-9
10	1.016 [25.81]	.900 [22.86]	.058 [1.47]	2-87175-2	2-87175-1
11	1.116 [28.35]	1.000 [25.40]	.058 [1.47]	2-87175-4	2-87175-3
12	1.216 [30.89]	1.100 [27.94]	.058 [1.47]	2-87175-6	2-87175-5
13	1.316 [33.43]	1.200 [30.48]	.058 [1.47]	2-87175-8	2-87175-7
14	1.416 [35.97]	1.300 [33.02]	.058 [1.47]	3-87175-0	2-87175-9
15	1.516 [38.51]	1.400 [35.56]	.058 [1.47]	87175-4	87175-3

Wire-Applied Housings for Locking Clip Contacts, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Double-Row



Material

Glass-filled polyester, 94V-0 rated

Related Product Data

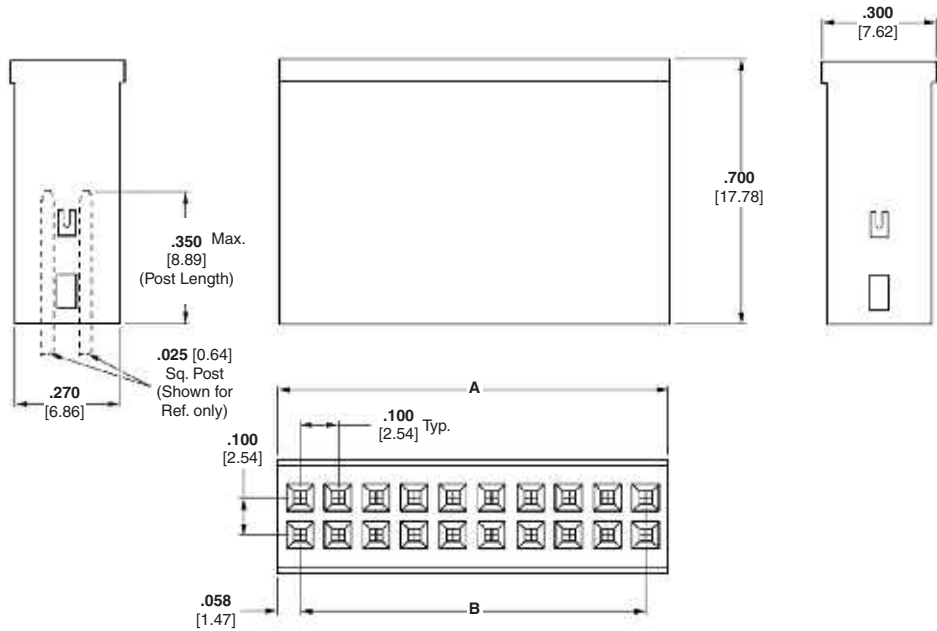
Contacts — page 207

Mateable Headers and Posts — Refer to the Mating Post Selection Guide — page 90

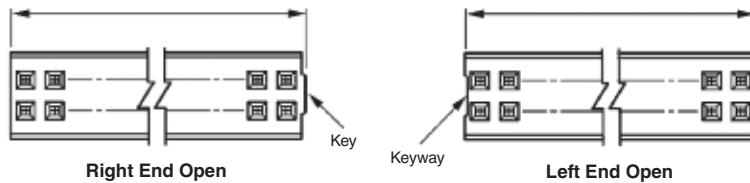
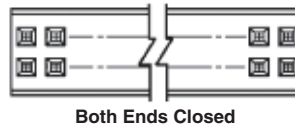
Technical Documents — pages 277, 278

Product Specification
108-36028, 108-36028-1

Application Specification
114-25006



Note: Housing illustrated above is the "Both Ends Closed" version.



Keying Plug



Part No. 87179-1

(Plugs directly into housings for .025 [0.64] square post contacts)

Material — Yellow, nylon

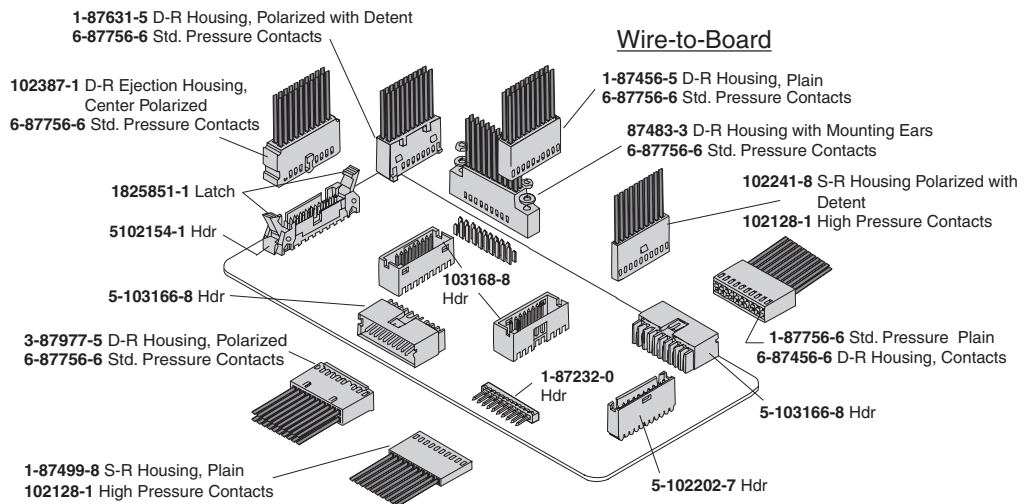
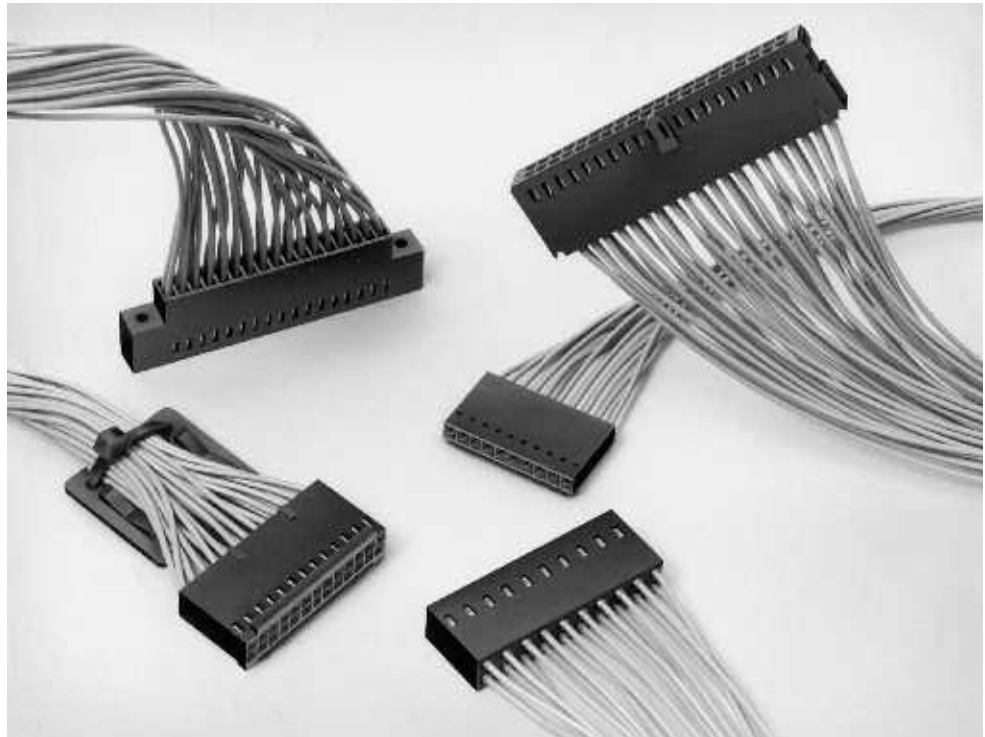
Note: All part numbers are RoHS compliant.

Housing Configuration	No. of Pos.	Dimensions		Housing Part No.	
		A	B	Unstamped	Stamped
Both Ends Closed	2	.116 [2.95]	—	87176-2	—
	4	.216 [5.49]	.100 [2.54]	87133-1	—
	6	.316 [8.03]	.200 [5.08]	87133-7	87133-8
	8	.416 [10.57]	.300 [7.62]	87133-9	1-87133-0
	10	.516 [13.11]	.400 [10.16]	87133-2	87133-5
	12	.616 [15.65]	.500 [12.70]	1-87133-1	1-87133-2
	16	.816 [20.73]	.700 [17.78]	1-87133-3	1-87133-4
	18	.916 [23.27]	.800 [20.32]	1-87133-5	1-87133-6
	20	1.016 [25.81]	.900 [22.86]	87133-3	87133-6
	Right End Open	4	.216 [5.49]	.100 [2.54]	87132-1
10		.516 [13.11]	.400 [10.16]	87132-2	87132-5
20		1.016 [25.81]	.900 [22.86]	87132-3	87132-6
Left End Open	4	.216 [5.49]	.100 [2.54]	87131-1	—
	10	.516 [13.11]	.400 [10.16]	87131-2	87131-5
	20	1.016 [25.81]	.900 [22.86]	87131-3	87131-6

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

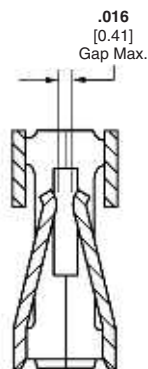
Termination Resistance — 12 milliohms (max.) — Beryllium copper contacts
20 milliohms (max.) — Copper-tin-phosphor bronze contacts

Durability — Ref. Product Specification 108-25020

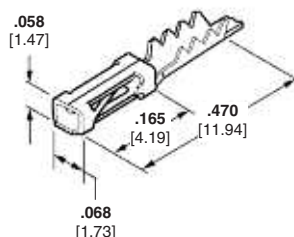
Note: All part numbers are RoHS compliant.

Mod IV Pin and Receptacle Contacts

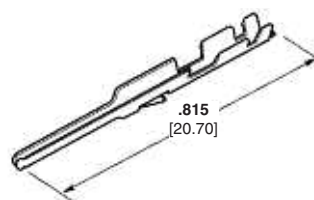
Crimp Snap-In (No-strip) Receptacles and Crimp Snap-In Pins with Insulation Support (Standard Pressure)



Standard Pressure Configuration



No-Strip Receptacle



Pin with Insulation Support

Crimp Snap-In (No-strip) Receptacles

Ins. Dia. Range	Finish	Part Nos.		Heavy Duty Miniature Applicator No. for AMP-O-LECTRIC Machine*	Hand Tool Part No.
		Strip Form	Loose Piece		
.040-.055 [1.02-1.40]	Plating A	87107-5	102348-2	567307-2	90381-1
	Plating C	87107-6	102348-3		

Crimp Snap-In Pins with Insulation Support

Wire Size Range		Ins. Dia. (Max.)	Finish	Part Nos.		Heavy Duty Miniature Applicator No. for AMP-O-LECTRIC Machine*	Hand Tool Part No.	
AWG	[mm ²]			Strip Form	Loose Piece		Premium	Commercial
26-22	0.12-0.4	.061 [1.55]	Plating A	102095-3	102107-2	466812-2	91517-1	58641-1†
			Plating B	102095-2	102107-1			
			Plating C	5-102095-4	5-102107-3			

*For use with AMP-O-LECTRIC Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (shown on page 270), 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 No. 58641-2

Material and Finish

Beryllium copper, phosphor bronze, or copper-tin-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] tin over .000030 [0.00076] nickel on entire contact

Related Product Data

Housings Used With — pages 214-220

Performance Characteristics — page 210

Application Tooling — page 270-272

Technical Documents — pages 276-278

Product Specification
108-25007, 108-25019, 108-25020, 108-25021

Application Specification
114-25003, 114-25016

Additional header sizes are available; minimum order quantities may apply. Consult TE.

Note: All part numbers are RoHS compliant.

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, on following page), plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on crimp area, with entire contact underplated .000050 [0.00127] nickel

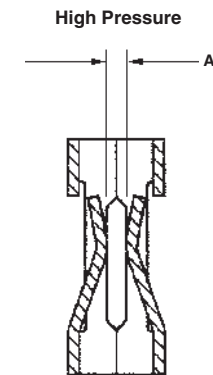
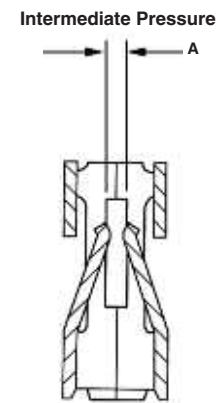
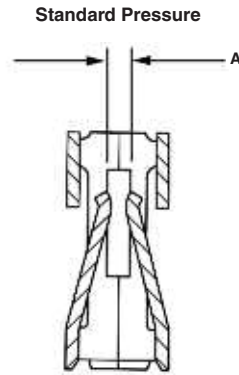
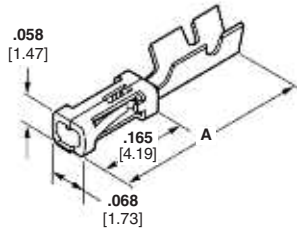
Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100-.000200 [0.00254-0.00508] tin on crimp area, with entire contact underplated .000050 [0.00127] nickel

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] tin over .000030 [0.00076] nickel on entire contact



Related Product Data

Housings Used With — pages 214-220

Performance Characteristics — page 210

Application Tooling — pages 270-272

Technical Documents — pages 277, 278

Product Specification
108-25007, 108-25019, 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

Mod IV Receptacle Contacts (Continued)

Standard Pressure (Mod IV)

Wire Size Range AWG [mm ²]	Ins. Dia. (Max.)	Dimension A	Material	Finish	Part Nos.		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for Stripper/Crimper Machine	Hand Tool Part Nos.	
					Strip Form	Loose Piece			Premium	Commercial
32-27 0.03-0.1	.040 [1.02]	.445 [11.30]	Cu-Sn-Ph Bz	Plating A	5-102316-8	6-102316-4	466655-2	466921-1	91541-1	—
			Cu-Sn-Ph Bz	Plating B	5-102316-6	6-102316-3				
			Be Cu	Plating D	1-102917-1	1-102917-2				
			Be Cu	Plating E	102917-1	102917-2				
			Be Cu	Plating F	102917-5	102917-6				
26-22 0.12-0.4	.061 [1.55]	.445 [11.30]	Cu-Sn-Ph Bz	Plating G	102316-5	1-102316-2	466571-2	466918-1	91517-1	58641-1†
			Cu-Sn-Ph Bz	Plating A	6-87756-7	6-87756-8				
			Cu-Sn-Ph Bz	Plating B	6-87756-2	6-87756-6				
			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				
			Be Cu	Plating F	87666-5	87667-5				
24-20 0.2-0.6	.069 [1.75]	.470 [11.94]	Cu-Sn-Ph Bz	Plating G	87666-3	87667-3	466562-2	466905-1	91516-1	—
			Cu-Sn-Ph Bz	Plating A	6-87523-8	6-87523-9				
			Cu-Sn-Ph Bz	Plating B	2-87523-3	2-87523-4				
			Be Cu	Plating E	85969-8	86016-2				
			Be Cu	Plating F	85969-6	86016-5				
			Cu-Sn-Ph Br	Plating G	87523-5	87523-6				
			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 Nos.		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for Stripper/Crimper Machine	Hand Tool Part Nos.	
					Strip Form	Loose Piece			Premium	Commercial
32-27 0.03-0.1	.040 [1.02]	.445 [11.30]	Cu-Sn-Ph Bz	Plating A	5-102920-1	5-102920-2	466655-2	466921-1	91541-1	—
			Be Cu	Plating E	102918-1	102918-2				
26-22 0.12-0.4	.061 [1.55]	.445 [11.30]	Cu-Sn-Ph Bz	Plating A	5-103171-4	5-103171-5	466571-2	466918-1	91517-1	58641-1†
			Cu-Sn-Ph Bz	Plating B	5-103171-1	5-103171-2				
			Be Cu	Plating E	102548-5	102548-6				
24-20 0.2-0.6	.069 [1.75]	.470 [11.94]	Be Cu	Plating F	102548-1	102548-3	466562-2	466905-1	91516-1	—
			Cu-Sn-Ph Bz	Plating A	2-87195-3	2-87195-6				
			Cu-Sn-Ph Bz	Plating B	2-87195-4	2-87195-5				
			Be Cu	Plating E	86492-6	87046-3				
			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 Nos.		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Part Nos.
					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	91541-1
26-22 0.12-0.4	.061 [1.55]	.445 [11.30]	Ph Bz	Plating E	87809-1	102128-1	466571-2	466918-1	91517-1
			Ph Bz	Plating G	87809-2	102128-2			
24-20 0.2-0.6	.069 [1.75]	.470 [11.94]	Ph Bz	Plating E	87309-9	1-87309-4	466562-2	466905-1	91516-1
			Ph Bz	Plating G	87309-8	1-87309-3			

*For use with AMP-O-LECTRIC Model "K" machines. Call the Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (shown on page 270), 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 No. 58641-2

Note: All part numbers are RoHS compliant.

Mod IV Wire-Applied Housings, Single-Row, .100 [2.54] Centerline

Non-Polarized



Material

Black thermoplastic, flame retardant

Related Product Data

Contacts — pages 211-213

Mateable Headers and Posts — pages 93-95, 101-103

Technical Documents —

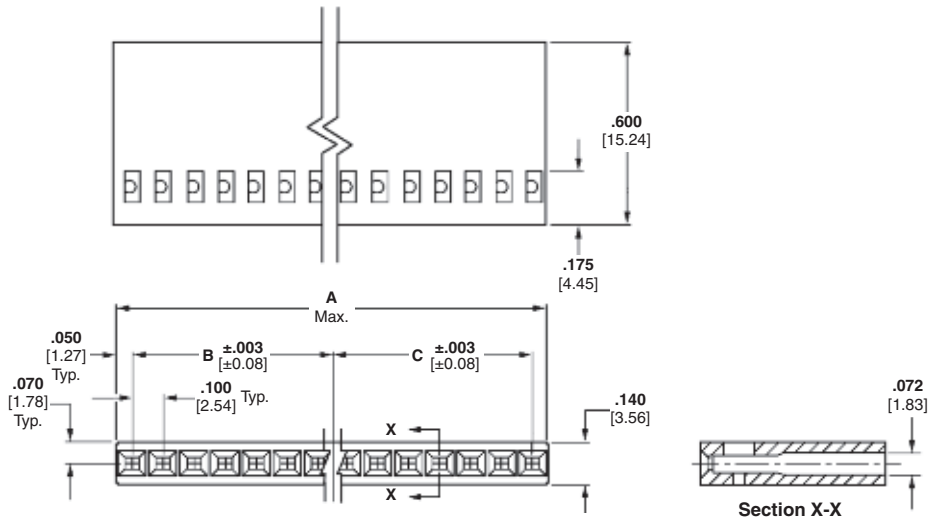
pages 277, 278

Product Specification

108-25007, 108-25019, 108-25020, 108-25021

Application Specification

114-25003, 114-25016



No. of Pos.	Dimensions			Part No.	
	A	B	C	Stamped*	Unstamped**
1	.105 [2.67]	—	—	—	7-87499-2
2	.205 [5.21]	.100 [2.54]	—	87499-3	87499-4
3	.305 [7.75]	.100 [2.54]	.100 [2.54]	87499-5	87499-6
4	.405 [10.29]	.200 [5.08]	.100 [2.54]	87499-7	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	1-87499-2
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	1-87499-4
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	2-87499-0
12	1.205 [30.61]	.600 [15.24]	.500 [12.70]	2-87499-1	2-87499-2
13	1.305 [33.15]	.600 [15.24]	.600 [15.24]	2-87499-3	2-87499-4
14	1.405 [35.69]	.700 [17.78]	.600 [15.24]	2-87499-5	2-87499-6
15	1.505 [38.23]	.700 [17.78]	.700 [17.78]	2-87499-7	2-87499-8
16	1.605 [40.77]	.800 [20.32]	.700 [17.78]	2-87499-9	3-87499-0
17	1.700 [43.18]	.800 [20.32]	.800 [20.32]	—	3-87499-2
18	1.805 [45.85]	.900 [22.86]	.800 [20.32]	—	3-87499-4
19	1.900 [48.26]	.900 [22.86]	.900 [22.86]	—	3-87499-6
20	2.005 [50.93]	1.000 [25.40]	.900 [22.86]	3-87499-7	3-87499-8
21	2.100 [53.34]	1.000 [25.40]	1.000 [25.40]	—	4-87499-0
22	2.205 [56.01]	1.100 [27.94]	1.000 [25.40]	—	4-87499-2
23	2.300 [58.42]	1.100 [27.94]	1.100 [27.94]	—	4-87499-4
24	2.400 [60.96]	1.200 [30.48]	1.100 [27.94]	—	4-87499-6
25	2.500 [63.50]	1.200 [30.48]	1.200 [30.48]	—	4-87499-8
26	2.605 [66.17]	1.300 [33.02]	1.200 [30.48]	—	5-87499-0
27	2.700 [68.58]	1.300 [33.02]	1.300 [33.02]	—	5-87499-2
28	2.800 [71.12]	1.400 [35.56]	1.300 [33.02]	—	5-87499-4
29	2.900 [73.66]	1.400 [35.56]	1.400 [35.56]	—	5-87499-6
30	3.005 [76.33]	1.500 [38.10]	1.400 [35.56]	—	5-87499-8
31	3.100 [78.74]	1.500 [38.10]	1.500 [38.10]	—	6-87499-0
32	3.200 [81.28]	1.600 [40.64]	1.500 [38.10]	—	6-87499-2
33	3.300 [83.82]	1.600 [40.64]	1.600 [40.64]	—	6-87499-4
34	3.400 [86.36]	1.700 [43.18]	1.600 [40.64]	—	6-87499-6
35	3.500 [88.98]	1.700 [43.18]	1.700 [43.18]	—	6-87499-8
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.

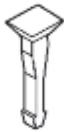
**No marking on housing.

Notes: 1. Strain reliefs are available and may be purchased separately. Consult TE.

2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

Note: All part numbers are RoHS compliant.

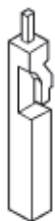
Keying Plugs



Part No. 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon

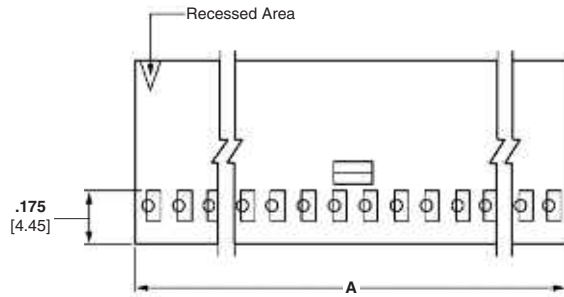


Part No. 87077-2

(Plugs directly into housing)

Mod IV Wire-Applied Housings, Single-Row, .100 [2.54] Centerline (Continued)

Polarized (with Detent Latching)



Material

Black thermoplastic, flame retardant

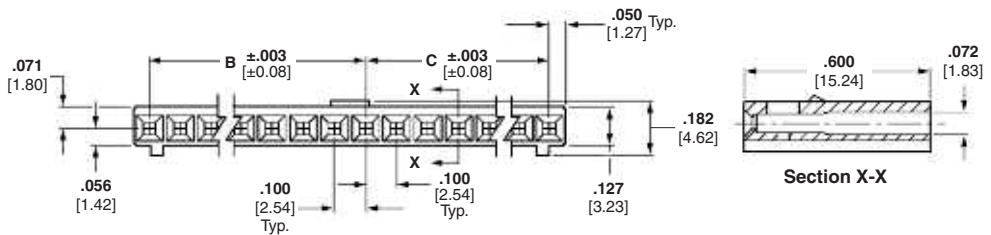
Related Product Data

- Contacts** — pages 211-213
- Mateable Headers and Posts** — pages 115, 116
- Flexible Film Connectors, Single-Row Pin Assemblies** — Catalog 82007

Technical Documents — pages 277, 278

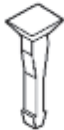
Product Specification
108-25007, 108-25019, 108-25020, 108-25021

Application Specification
114-25003, 114-25016



No. of Pos.	Dimensions			Part Nos. 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
11	1.100 [27.94]	.500 [12.70]	.500 [12.70]	102241-9
12	1.200 [30.48]	.600 [15.24]	.500 [12.70]	1-102241-0
13	1.300 [33.02]	.600 [15.24]	.600 [15.24]	1-102241-1
14	1.400 [35.56]	.700 [17.78]	.600 [15.24]	1-102241-2
15	1.500 [38.10]	.700 [17.78]	.700 [17.78]	1-102241-3
16	1.600 [40.64]	.800 [20.32]	.700 [17.78]	1-102241-4
17	1.700 [43.18]	.800 [20.32]	.800 [20.32]	1-102241-5
18	1.800 [45.72]	.900 [22.86]	.800 [20.32]	1-102241-6
19	1.900 [48.26]	.900 [22.86]	.900 [22.86]	1-102241-7
20	2.000 [50.80]	1.000 [25.40]	.900 [22.86]	1-102241-8
21	2.100 [53.34]	1.000 [25.40]	1.000 [25.40]	1-102241-9
22	2.200 [55.88]	1.100 [27.94]	1.000 [25.40]	2-102241-0
23	2.300 [58.42]	1.100 [27.94]	1.100 [27.94]	2-102241-1
24	2.400 [60.96]	1.200 [30.48]	1.100 [27.94]	2-102241-2
25	2.500 [63.50]	1.200 [30.48]	1.200 [30.48]	2-102241-3
26	2.600 [66.04]	1.300 [33.02]	1.200 [30.48]	2-102241-4
27	2.700 [68.58]	1.300 [33.02]	1.300 [33.02]	2-102241-5
28	2.800 [71.12]	1.400 [35.56]	1.300 [33.02]	2-102241-6
29	2.900 [73.66]	1.400 [35.56]	1.400 [35.56]	2-102241-7
30	3.000 [76.20]	1.500 [38.10]	1.400 [35.56]	2-102241-8
31	3.100 [78.74]	1.500 [38.10]	1.500 [38.10]	2-102241-9
32	3.200 [81.28]	1.600 [40.64]	1.500 [38.10]	3-102241-0
33	3.300 [83.82]	1.600 [40.64]	1.600 [40.64]	3-102241-1
34	3.400 [86.36]	1.700 [43.18]	1.600 [40.64]	3-102242-2
35	3.500 [88.90]	1.700 [43.18]	1.700 [43.18]	3-102241-3
36	3.600 [91.44]	1.800 [45.72]	1.700 [43.18]	3-102241-4

Keying Plugs



Part No. 86286-1
(Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon



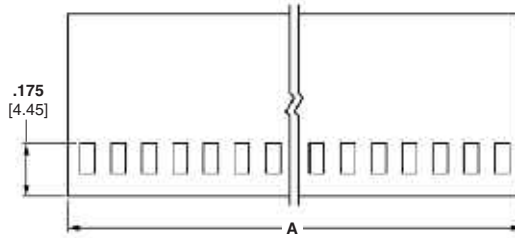
Part No. 87077-2
(Plugs directly into housing)

*No marking on housing.
Note: Contact Extraction/Lance Reset Tool No. 843996-3.

Note: All part numbers are RoHS compliant.

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline

Non-Polarized



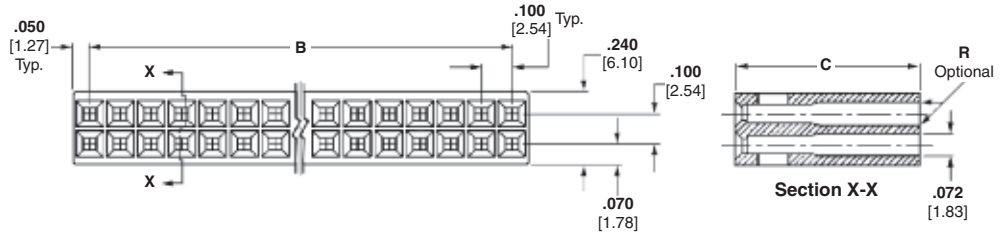
Material

Black thermoplastic, flame retardant

Related Product Data

Contacts — pages 211-213

Mateable Headers and Posts — pages 96-99, 104, 105, 117-120



Technical Documents — pages 277, 278

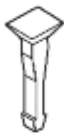
Product Specification

108-25007, 108-25019, 108-25020, 108-25021

Application Specification

114-25003, 114-25016

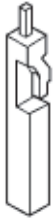
Keying Plugs



Part No. 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon



Part No. 87077-1

(for .645 high housings)

Part No. 87077-2

(for .600 high housings)

(Plugs directly into housing)

No. of Pos.	Dimensions		Part Nos.		
	A	B	C = .600 [15.24]		C = .645 [16.38]
			Stamped*	Unstamped**	Unstamped**
2	.100 [2.54]	—	—	5-87456-3	—
4	.200 [5.08]	.100 [2.54]	5-87456-0	4-87456-9	2-86177-5
6	.300 [7.62]	.200 [5.08]	87456-2	87456-1	1-86177-8
8	.400 [10.16]	.300 [7.62]	87456-4	87456-3	2-86177-0
10	.500 [12.70]	.400 [10.16]	87456-6	87456-5	1-86177-2
12	.600 [15.24]	.500 [12.70]	87456-8	87456-7	1-86177-3
14	.700 [17.78]	.600 [15.24]	1-87456-0	87456-9	1-86177-4
16	.800 [20.32]	.700 [17.78]	1-87456-2	1-87456-1	1-86177-5
18	.900 [22.86]	.800 [20.32]	1-87456-4	1-87456-3	1-86177-6
20	1.000 [25.40]	.900 [22.86]	1-87456-6	1-87456-5	86177-1
22	1.100 [27.94]	1.000 [25.40]	—	1-87456-7	86177-2
24	1.200 [30.48]	1.100 [27.94]	2-87456-0	1-87456-9	86177-3
26	1.300 [33.02]	1.200 [30.48]	2-87456-2	2-87456-1	86177-4
28	1.400 [35.56]	1.300 [33.02]	2-87456-4	2-87456-3	86177-5
30	1.500 [38.10]	1.400 [35.56]	2-87456-6	2-87456-5	86177-6
32	1.600 [40.64]	1.500 [38.10]	2-87456-8	2-87456-7	86177-7
34	1.700 [43.18]	1.600 [40.64]	3-87456-0	2-87456-9	86177-8
36	1.800 [45.72]	1.700 [43.18]	3-87456-2	3-87456-1	86177-9
38	1.900 [48.26]	1.800 [45.72]	—	3-87456-3	1-86177-0
40	2.000 [50.80]	1.900 [48.26]	3-87456-6	3-87456-5	1-86177-1
42	2.100 [53.34]	2.000 [50.80]	4-87456-4	4-87456-3	—
44	2.200 [55.88]	2.100 [53.34]	3-87456-8	3-87456-7	1-86177-7
48	2.400 [60.96]	2.300 [58.42]	6-87456-0	5-87456-9	2-86177-3
50	2.500 [63.50]	2.400 [60.96]	4-87456-0	3-87456-9	2-86177-1
52	2.600 [66.04]	2.500 [63.50]	4-87456-2	4-87456-1	1-86177-9
54	2.700 [68.58]	2.600 [66.04]	—	4-87456-5	—
56	2.800 [71.12]	2.700 [68.58]	—	6-87456-1	—
58	2.900 [73.66]	2.800 [71.12]	—	6-87456-3	—
60	3.000 [76.20]	2.900 [73.66]	5-87456-2	5-87456-1	—
64	3.200 [81.28]	3.100 [78.74]	6-87456-6	6-87456-5	—
66	3.300 [83.82]	3.200 [81.28]	5-87456-4	5-87456-7	—
70	3.500 [88.90]	3.400 [86.36]	—	5-87456-5	2-86177-4
72	3.600 [91.44]	3.500 [88.90]	4-87456-8	4-87456-7	—

*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 TE.

2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

Note: All part numbers are RoHS compliant.

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

Polarized



Material

Black thermoplastic, flame retardant

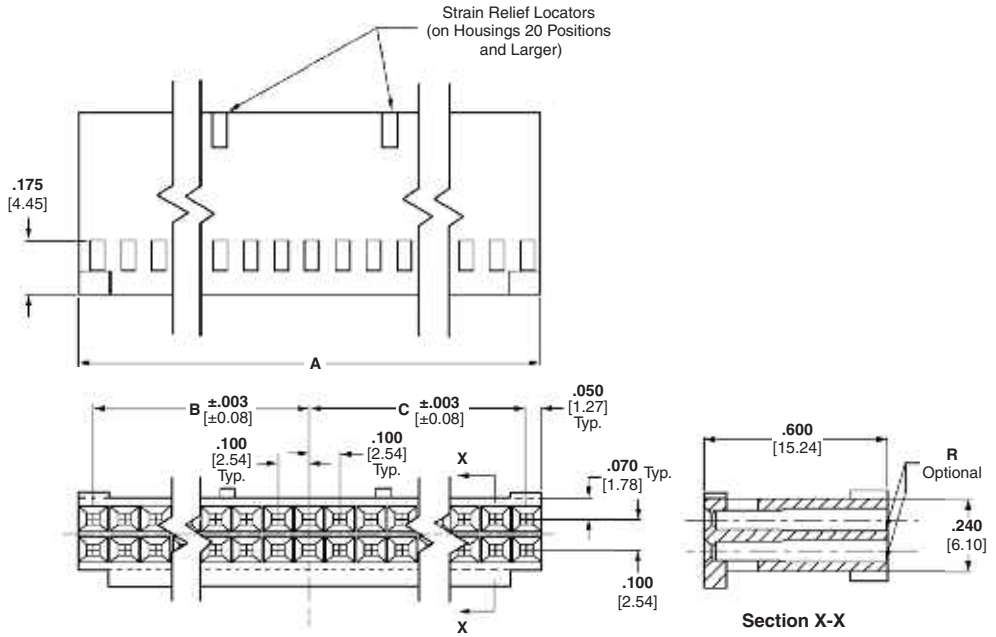
Related Product Data

Contacts — pages 211-213
Mateable Headers and Posts — pages 117-131

Technical Documents — pages 277, 278

Product Specification
 108-25007, 108-25019, 108-25020, 108-25021

Application Specification
 114-25003, 114-25016



No. of Pos.	Dimensions			Part Nos.	
	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]	87977-2	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	3-87977-1
14	.700 [17.78]	.300 [7.62]	.300 [7.62]	87977-5	3-87977-2
16	.800 [20.32]	.400 [10.16]	.300 [7.62]	87977-6	3-87977-3
18	.900 [22.86]	.400 [10.16]	.400 [10.16]	—	3-87977-4
20	1.000 [25.40]	.500 [12.70]	.400 [10.16]	87977-8	3-87977-5
22	1.100 [27.94]	.500 [12.70]	.500 [12.70]	—	3-87977-6
24	1.200 [30.48]	.600 [15.24]	.500 [12.70]	1-87977-0	3-87977-7
26	1.300 [33.02]	.600 [15.24]	.600 [15.24]	1-87977-1	3-87977-8
28	1.400 [35.56]	.700 [17.78]	.600 [15.24]	—	3-87977-9
30	1.500 [38.10]	.700 [17.78]	.700 [17.78]	—	4-87977-0
32	1.600 [40.64]	.800 [20.32]	.700 [17.78]	—	4-87977-1
34	1.700 [43.18]	.800 [20.32]	.800 [20.32]	—	4-87977-2
36	1.800 [45.72]	.900 [22.86]	.800 [20.32]	—	4-87977-3
38	1.900 [48.26]	.900 [22.86]	.900 [22.86]	—	4-87977-4
40	2.000 [50.80]	1.000 [25.40]	.900 [22.86]	1-87977-8	4-87977-5
42	2.100 [53.34]	1.000 [25.40]	1.000 [25.40]	—	4-87977-6
44	2.200 [55.88]	1.100 [27.94]	1.000 [25.40]	—	4-87977-7
48	2.400 [60.96]	1.200 [30.48]	1.100 [27.94]	—	5-87977-6
50	2.500 [63.50]	1.200 [30.48]	1.200 [30.48]	2-87977-1	4-87977-8
52	2.600 [66.04]	1.300 [33.02]	1.200 [30.48]	—	4-87977-9
54	2.700 [68.58]	1.300 [33.02]	1.300 [33.02]	—	5-87977-0
56	2.800 [71.12]	1.400 [35.56]	1.300 [33.02]	—	5-87977-8
58	2.900 [73.66]	1.400 [35.56]	1.400 [35.56]	—	6-87977-0
60	3.000 [76.20]	1.500 [38.10]	1.400 [35.56]	2-87977-4	5-87977-1
64	3.200 [81.28]	1.600 [40.64]	1.500 [38.10]	—	6-87977-2
66	3.300 [83.82]	1.600 [40.64]	1.600 [40.64]	—	5-87977-2
70	3.500 [88.90]	1.700 [43.18]	1.700 [43.18]	—	5-87977-3
72	3.600 [91.44]	1.800 [45.72]	1.700 [43.18]	—	5-87977-4

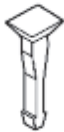
*Cavity identification, part number and date code stamped on housing where size permits.

**No marking on housing or strain relief.

Notes: 1. Strain reliefs are available and may be purchased separately. Consult TE.
 2. Contact **Extraction/Lance Reset Tool No. 843996-3**.

Note: All part numbers are RoHS compliant.

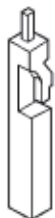
Keying Plugs



Part No. 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon



Part No. 87077-2

(Plugs directly into housing)

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

Polarized (with Detent Latching, with and without Strain Relief/Pull Tab)



Material

Black thermoplastic, flame retardant

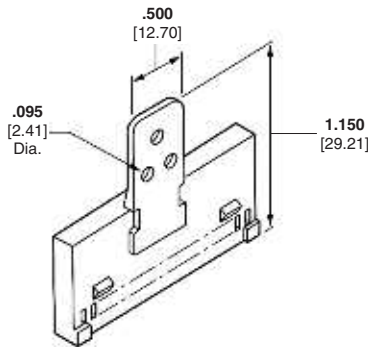
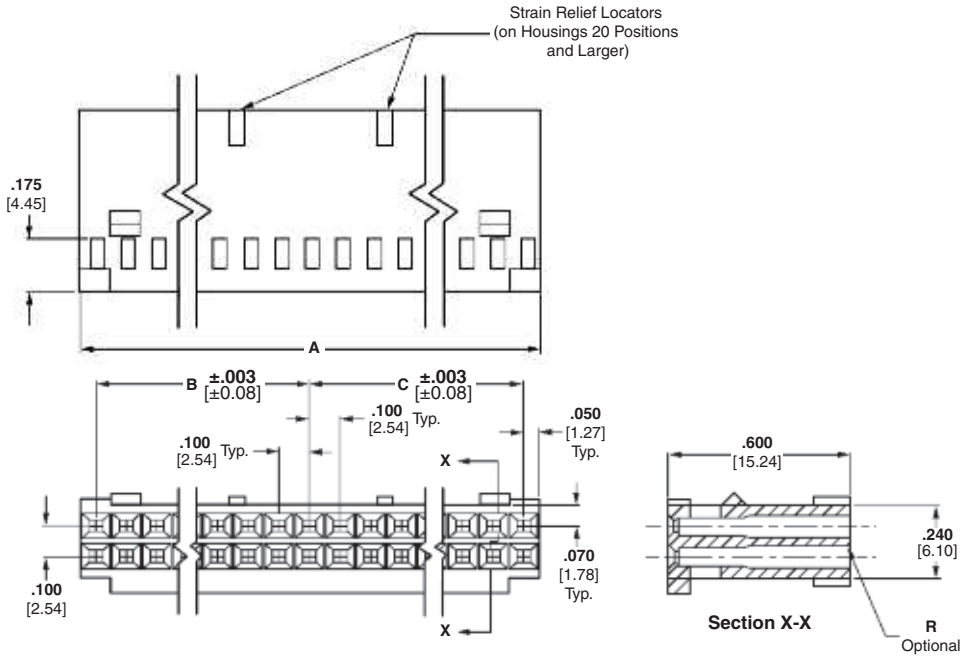
Related Product Data

Contacts — pages 211-213
Mateable Headers and Posts — pages 117-125, 127-133

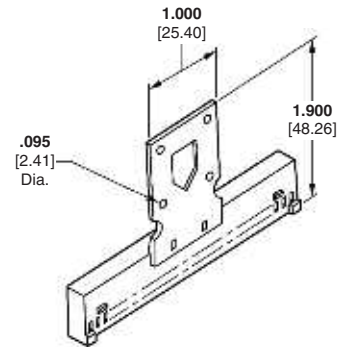
Technical Documents — pages 277, 278

Product Specification
 108-25007, 108-25019, 108-25020, 108-25021

Application Specification
 114-25003, 114-25016

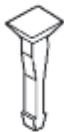


Housing with Strain Relief/Pull Tab
 Strain Relief Part No. 87921-1
 (10 thru 18 positions)



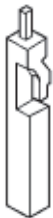
Housing with Strain Relief/Pull Tab
 Strain Relief Part No. 87710-1
 (20 positions and larger)

Keying Plugs



Part No. 86286-1
 (Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon



Part No. 87077-2
 (Plugs directly into housing)

No. of Pos.	Dimensions			No. of Detents	Part Nos.		
	A	B	C		Without Strain Relief		With Strain Relief
					Stamped*	Unstamped**	
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

*Cavity identification, 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**.

Note: All part numbers are RoHS compliant.

**Mod IV Wire-Applied Housings, Double-Row,
.100 x .100 [2.54 x 2.54] Centerline** (Continued)

No. of Pos.	Dimensions			No. of Detents	Part Nos.		
	A	B	C		Without Strain Relief		With Strain Relief
					Stamped*	Unstamped**	Stamped*
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	1-87631-6	1-87631-5	87733-1
22	1.100 [27.94]	.500 [12.70]	.500 [12.70]	2	1-87631-8	1-87631-7	—
24	1.200 [30.48]	.600 [15.24]	.500 [12.70]	2	2-87631-0	1-87631-9	87733-3
26	1.300 [33.02]	.600 [15.24]	.600 [15.24]	2	2-87631-2	2-87631-1	87733-4
28	1.400 [35.56]	.700 [17.78]	.600 [15.24]	2	2-87631-4	2-87631-3	—
30	1.500 [38.10]	.700 [17.78]	.700 [17.78]	2	2-87631-6	2-87631-5	87733-6
32	1.600 [40.64]	.800 [20.32]	.700 [17.78]	2	2-87631-8	2-87631-7	87733-7
34	1.700 [43.18]	.800 [20.32]	.800 [20.32]	2	3-87631-0	2-87631-9	87733-8
36	1.800 [45.72]	.900 [22.86]	.800 [20.32]	2	3-87631-2	3-87631-1	—
38	1.900 [48.26]	.900 [22.86]	.900 [22.86]	2	—	3-87631-3	—
40	2.000 [50.80]	1.000 [25.40]	.900 [22.86]	2	3-87631-6	3-87631-5	1-87733-1
42	2.100 [53.34]	1.000 [25.40]	1.000 [25.40]	2	3-87631-8	3-87631-7	—
44	2.200 [55.88]	1.100 [27.94]	1.000 [25.40]	2	4-87631-0	3-87631-9	—
48	2.400 [60.96]	1.200 [30.48]	1.100 [27.94]	2	—	5-87631-9	—
50	2.500 [63.50]	1.200 [30.48]	1.200 [30.48]	2	4-87631-2	4-87631-1	1-87733-4
52	2.600 [66.04]	1.300 [33.02]	1.200 [30.48]	2	—	4-87631-3	—
54	2.700 [68.58]	1.300 [33.02]	1.300 [33.02]	2	4-87631-6	4-87631-5	—
58	2.900 [73.66]	1.400 [35.56]	1.400 [35.56]	2	—	6-87631-3	—
60	3.000 [76.20]	1.500 [38.10]	1.400 [35.56]	2	5-87631-2	5-87631-1	1-87733-7
64	3.200 [81.28]	1.600 [40.64]	1.500 [38.10]	2	6-87631-6	6-87631-5	—
66	3.300 [83.82]	1.600 [40.64]	1.600 [40.64]	2	—	5-87631-3	—
70	3.500 [88.90]	1.700 [43.18]	1.700 [43.18]	2	—	5-87631-5	—
72	3.800 [96.52]	1.800 [45.72]	1.700 [43.18]	2	5-87631-8	5-87631-7	—

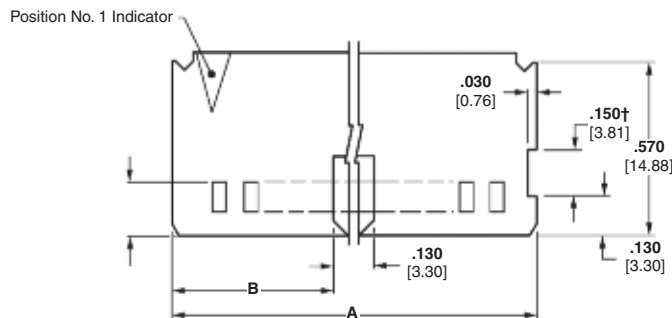
*Cavity identification, part number and date code stamped on housing and/or strain relief where size permits.
**No marking on housing or strain relief.

- 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**.

Note: All part numbers are RoHS compliant.

Mod IV Wire-Applied Housings, Double-Row, .100 x .100 [2.54 x 2.54] Centerline (Continued)

Center Polarized



Material

Black thermoplastic, flame retardant

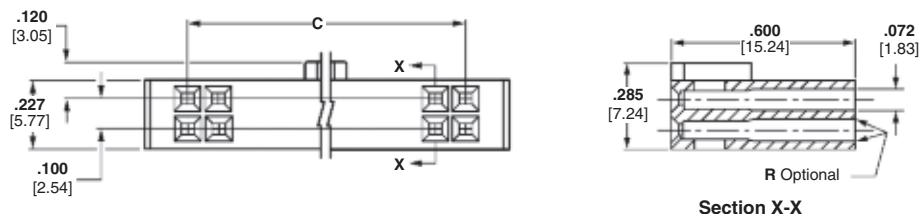
Related Product Data

Contacts — pages 211-213
Mateable Headers and Posts — AMP-LATCH Low Profile Headers, Shrouded — pages 135-140

Technical Documents — pages 277, 278

Product Specification
 108-25007, 108-25019, 108-25020, 108-25021

Application Specification
 114-25003, 114-25016



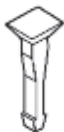
No. of Pos.	Dimensions			Part Nos. (Stamped*)
	A	B	C	
8	.580 [14.73]	.225 [5.72]	.300 [7.62]	1-102387-4
10	.680 [17.27]	.275 [6.98]	.400 [10.16]	102387-1
14	.880 [22.35]	.375 [9.53]	.600 [15.24]	102387-2
16	.980 [24.89]	.425 [10.80]	.700 [17.78]	102387-3
20	1.180 [29.97]	.525 [13.34]	.900 [22.86]	102387-4
22	1.280 [32.51]	.575 [14.61]	1.000 [25.40]	1-102387-5
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 TE 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.

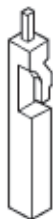
Keying Plugs



Part No. 86286-1

(Plugs into standard or intermediate pressure receptacle contact)

Material — Natural color nylon



Part No. 87077-2

(Plugs directly into housing)

Note: All part numbers are RoHS compliant.

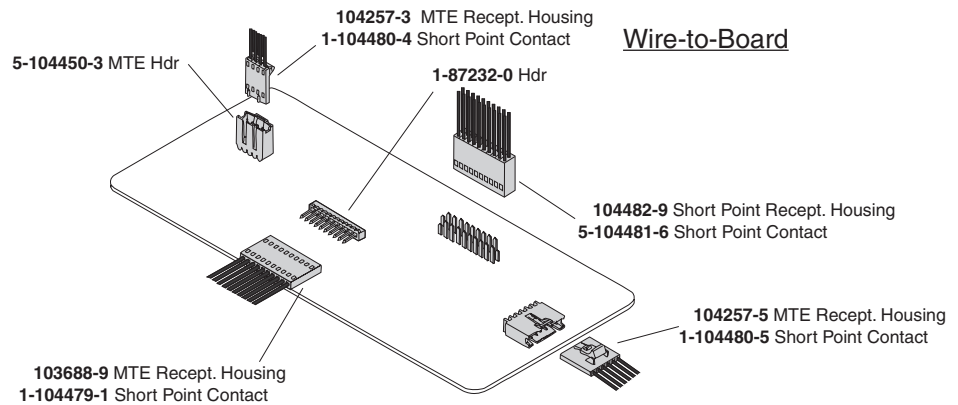
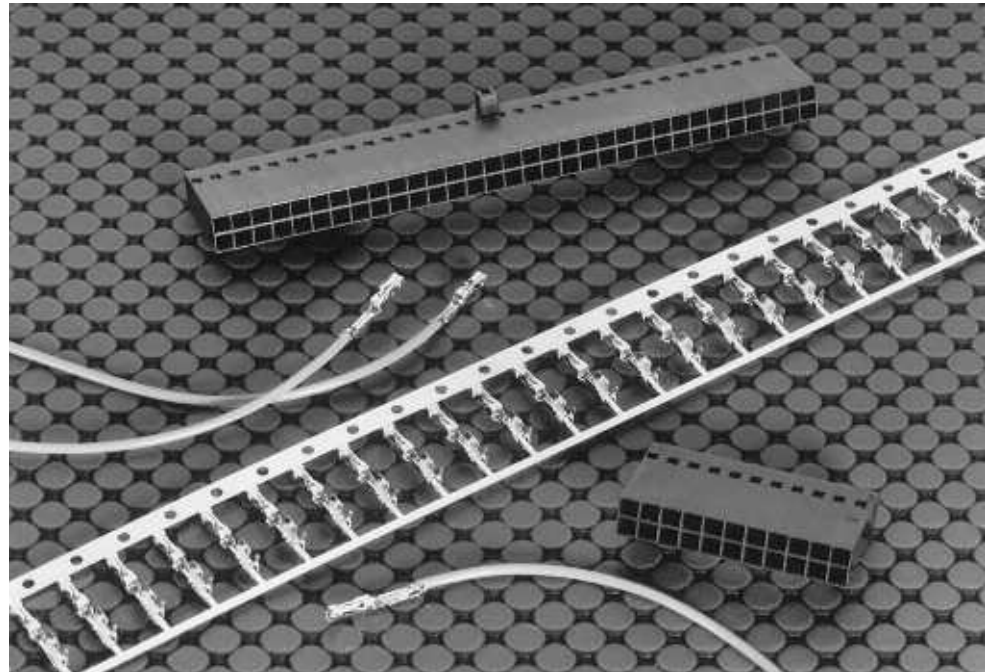
Short Point, Crimp Snap-In Wire-Applied Contacts and Housings

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 tin plating
- Mates with .025 [0.64] square posts
- Dual cantilever contact beams for reliable matings
- Locking retention latch provides approximately 3 lb [13.34 N] of retention force
- Unique locking latch design helps prevent 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



A copy of the certificate is available upon request



AMPMODU 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. Product Specification 108-1472

Note: All part numbers are RoHS compliant.

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 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 in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel on entire contact

Related Product Data

Performance Characteristics — page 221

Housings used in — Short Point—pages 223, 224

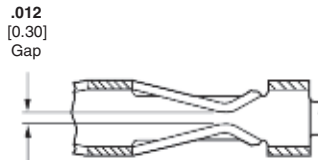
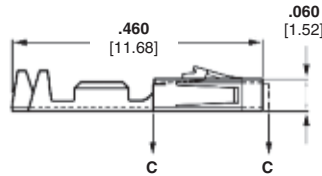
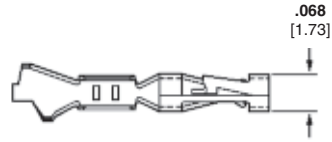
AMPMODU MTE Unloaded Housings — pages 228-233

Application Tooling — page 270-272

Technical Documents — pages 276-278

Product Specification 108-1472

Application Specification 114-25038



Section C - C



Keying Plug
Part No. 104072-1

Ten plugs are supplied per strip. Order quantity reflects the number of strips required.



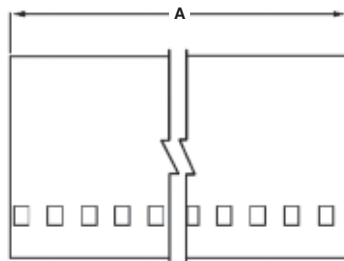
Extraction/Lance Reset
Tool No. 843477-1

Wire Size Range		Ins. Dia. Range	Finish	Contact Part No. (Standard Pressure)		Quick-Change Applicator for AMP-O-LECTRIC 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	1-104481-1	1-104481-3	567296-2	466980-1	91518-1
			Plating B	1-104481-0	1-104481-2			
			Plating C	5-104481-2	5-104481-6			
26-22	0.13-0.3	.025-.060 [0.64-1.52]	Plating A	1-104480-3	1-104480-6	567297-2	466981-1	91518-1
			Plating B	1-104480-2	1-104480-5			
			Plating C	1-104480-7	1-104480-4			
24-20	0.2-0.5	.025-.060 [0.64-1.52]	Plating A	1-104479-0	1-104479-3	567298-2	466982-1	91551-1
			Plating B	104479-9	1-104479-2			
			Plating C	104479-8	1-104479-1			

*For use with Model "K" machines. Call the Tooling/Technical Assistance Center (1-800-722-1111) for part nos. of applicators for use with the Model "G" machines (shown on page 288), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

Note: All part numbers are RoHS compliant.

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 221

Contacts — page 222

Mateable Headers — pages 104, 105

Technical Documents

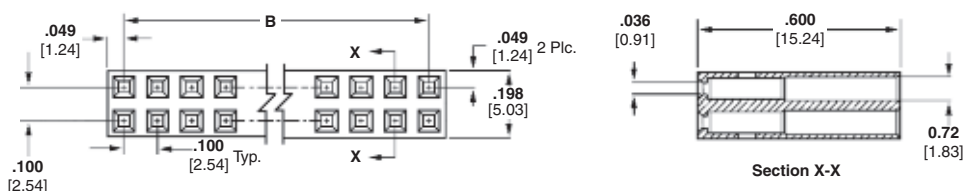
— pages 276-278

Product Specification

108-1472

Application Specification

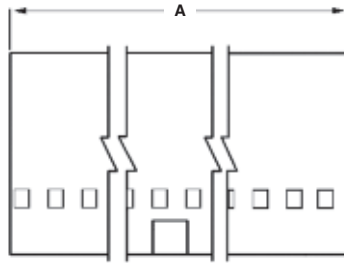
114-25038



No. of Pos.	Dimensions		Housing Part No.
	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

Note: All part numbers are RoHS compliant.

Short Point Wire-Applied Housings, Double-Row, Polarized, .100 x .100 [2.54 x 2.54] Centerline



Material

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data

Performance Characteristics — page 221

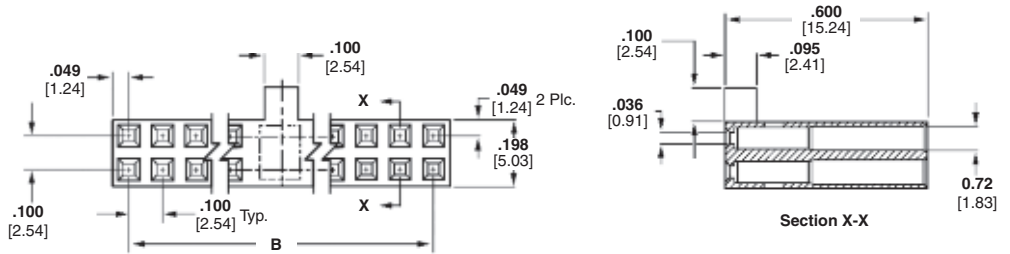
Contacts — page 222

Mateable Headers — pages 104, 105, 135-138

Technical Documents — pages 276-278

Product Specification 108-1472

Application Specification 114-25038



No. of Pos.	Dimensions		Housing Part No.
	A	B	
8	.398 [10.11]	.300 [7.62]	104483-1
10	.498 [12.65]	.400 [10.16]	1-104483-1
12	.598 [15.19]	.500 [12.70]	1-104483-2
14	.698 [17.73]	.600 [15.24]	104483-9
18	.898 [22.81]	.800 [20.32]	104483-2
20	.998 [25.35]	.900 [22.86]	104483-3
26	1.298 [32.97]	1.200 [30.48]	104483-4
30	1.498 [38.05]	1.400 [35.56]	104483-5
38	1.898 [48.21]	1.800 [45.72]	104483-6
50	2.498 [63.45]	2.400 [60.96]	1-104483-3
52	2.598 [65.99]	2.500 [63.50]	1-104483-0
54	2.698 [68.53]	2.600 [66.04]	104483-7
64	3.198 [81.23]	3.100 [78.74]	104483-8

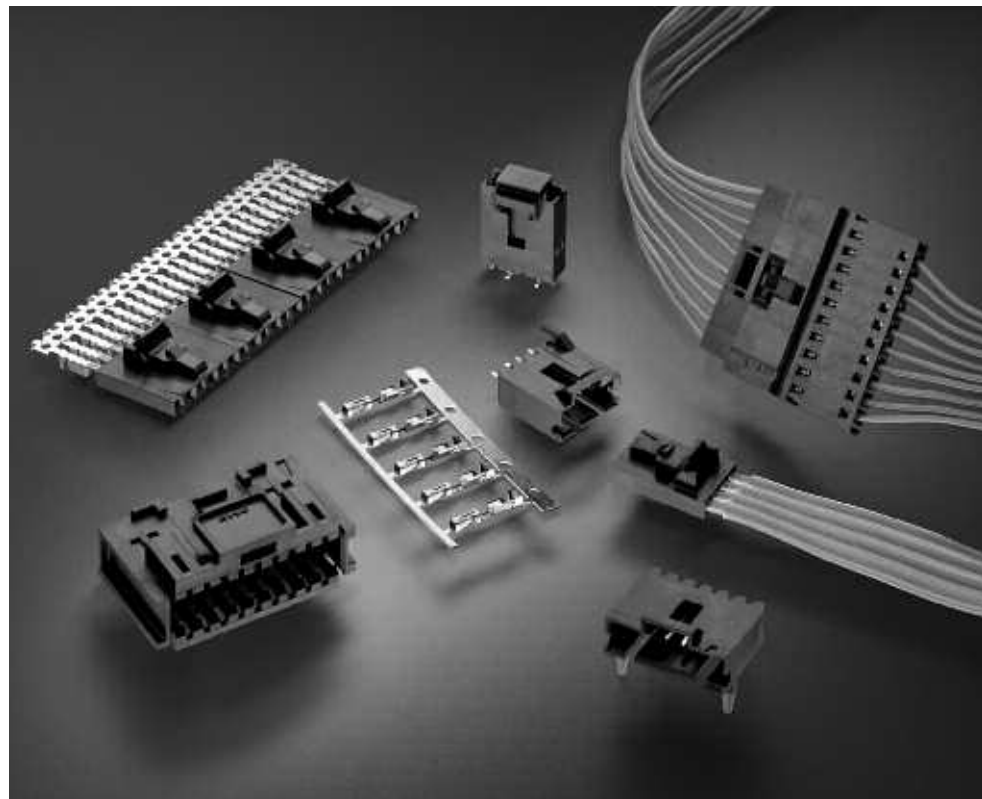
Note: Other sizes can be made available on request.

Note: All part numbers are RoHS compliant.

MTE Interconnection System

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
- Plain housings are end-to-end and/or back-to-back stackable for open pin field applications
- Optional header with "swaged tail" feature helps prevent 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 can be accomplished automatically with TE application equipment, and manually when terminated with the TE 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 helps prevent 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

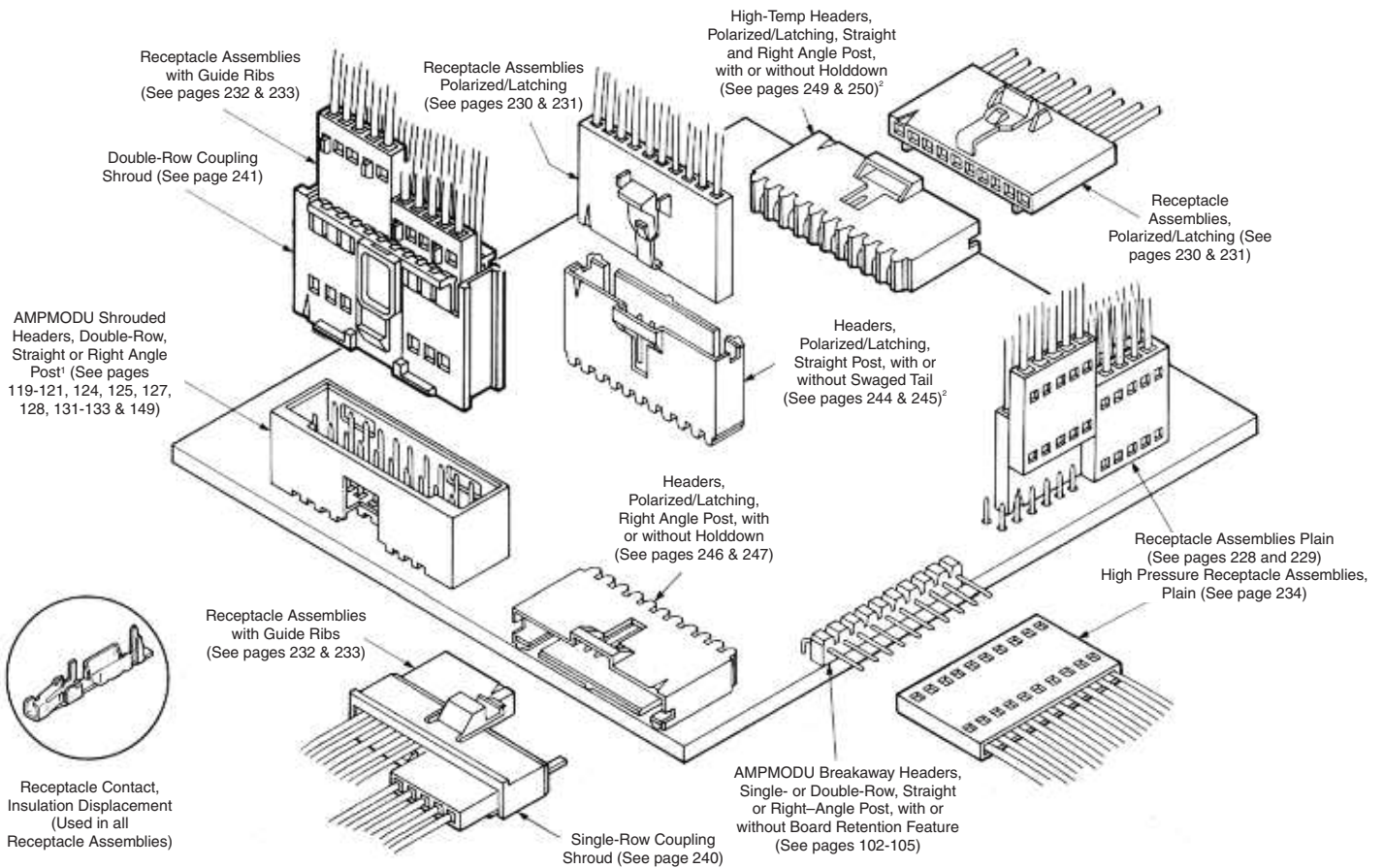
108-25034

Application Specification

114-25026

MTE Interconnection System (Continued)

Wire-to-Board



*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.

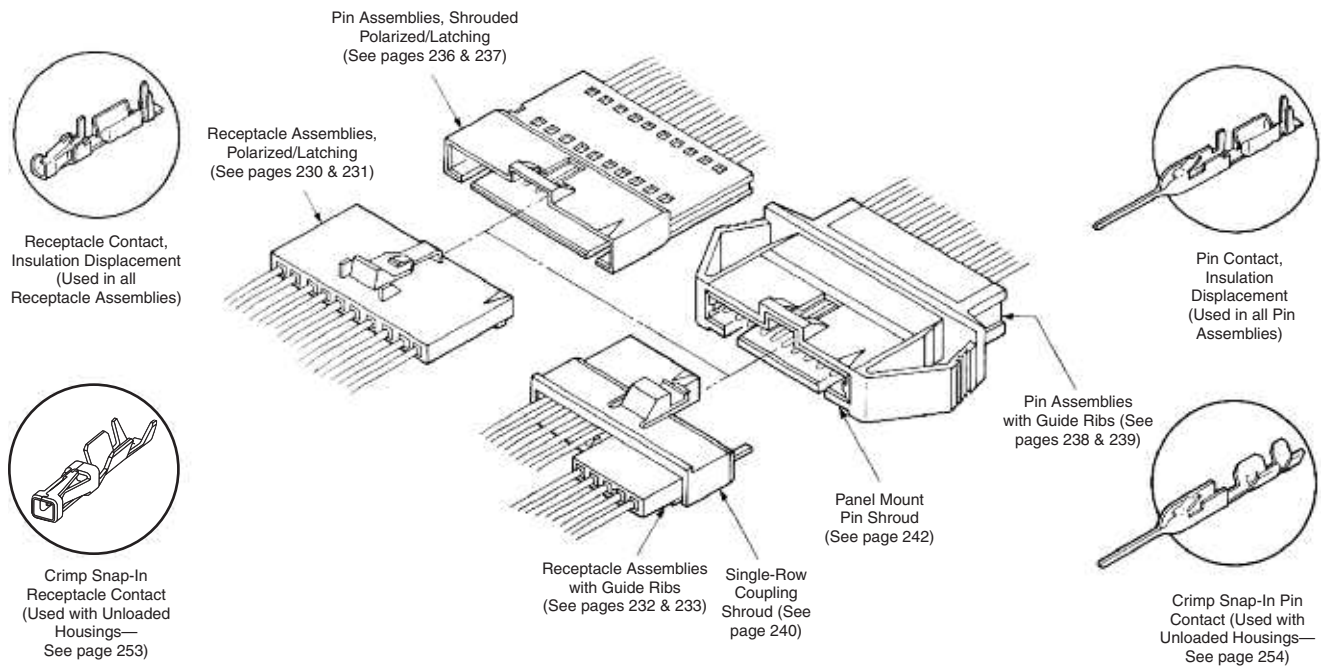
²Surface Mount Right-Angle and Vertical Headers are also available (see pages 251 and 252)

MTE Interconnection System

5

MTE Interconnection System (Continued)

Wire-to-Wire



Note: For wire-to-wire applications shown above, all pin and receptacle assembly combinations are intermateable.

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 TE 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 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 in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin 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 102-110 (with .230 mating length)

Reeled Breakaway Headers — pages 106, 107 (with .230 mating length)

Machine Applied Bandolier Posts — page 163

Single-Row Shrouded Headers with .066 [1.68] End Dimension — pages 115, 116

Interchangeable Crimp Contacts (Short Point) — page 253

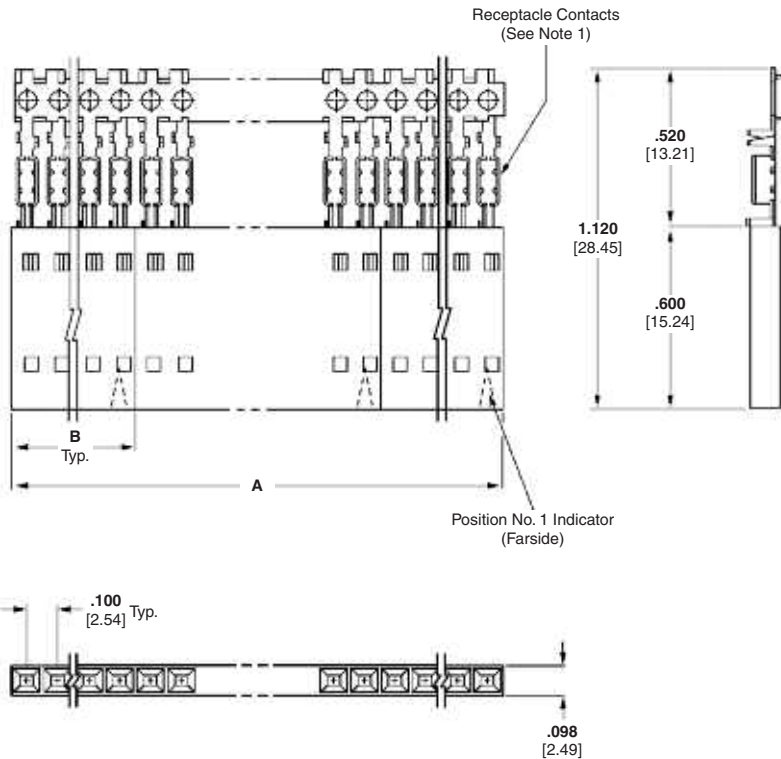
Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification 108-25034

Application Specification 114-25026



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.

MTE Receptacle Assemblies

5

MTE Receptacle Assemblies—Strip Form Plain, Single-Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Housing Quantities Per Strip Segment	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
	A	B		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	2.000 [50.80]	.198 [5.03]	10	5-103979-1	5-103978-1	5-103977-1	5-103976-1	5-103975-1	5-103974-1	103688-1
3	2.400 [60.96]	.298 [7.57]	8	5-103979-2	5-103978-2	5-103977-2	5-103976-2	5-103975-2	5-103974-2	103688-2
4	1.990 [50.55]	.398 [10.11]	5	5-103979-3	5-103978-3	5-103977-3	5-103976-3	5-103975-3	5-103974-3	103688-3
5	1.990 [50.55]	.498 [12.65]	4	5-103979-4	5-103978-4	5-103977-4	5-103976-4	5-103975-4	5-103974-4	103688-4
6	2.390 [60.71]	.598 [15.19]	4	5-103979-5	5-103978-5	5-103977-5	5-103976-5	5-103975-5	5-103974-5	103688-5
7	1.400 [35.56]	.698 [17.73]	2	5-103979-6	5-103978-6	5-103977-6	5-103976-6	5-103975-6	5-103974-6	103688-6
8	1.600 [40.64]	.798 [20.27]	2	5-103979-7	5-103978-7	5-103977-7	5-103976-7	5-103975-7	5-103974-7	103688-7
9	1.800 [45.72]	.898 [22.81]	2	5-103979-8	5-103978-8	5-103977-8	5-103976-8	5-103975-8	5-103974-8	103688-8
10	2.000 [50.80]	.998 [23.35]	2	5-103979-9	5-103978-9	5-103977-9	5-103976-9	5-103975-9	5-103974-9	103688-9
11	2.200 [55.88]	1.098 [27.89]	2	6-103979-0	6-103978-0	6-103977-0	6-103976-0	6-103975-0	6-103974-0	1-103688-0
12	2.400 [60.96]	1.198 [30.43]	2	6-103979-1	6-103978-1	6-103977-1	6-103976-1	6-103975-1	6-103974-1	1-103688-1

MTE Receptacle Assemblies—Individual Form Plain, Single-Row, .100 [2.54] Centerline

No. of Pos.	Dimensions B	Individual Receptacle Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Individual 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	
13	1.298 [32.96]	6-103903-2	6-103684-2	6-103685-2	6-103902-2	6-103686-2	6-103687-2	1-103688-2
14	1.398 [35.51]	6-103903-3	6-103684-3	6-103685-3	6-103902-3	6-103686-3	6-103687-3	1-103688-3
15	1.498 [38.05]	6-103903-4	6-103684-4	6-103685-4	6-103902-4	6-103686-4	6-103687-4	1-103688-4
16	1.598 [40.59]	6-103903-5	6-103684-5	6-103685-5	6-103902-5	6-103686-5	6-103687-5	1-103688-5
17	1.698 [43.13]	6-103903-6	6-103684-6	6-103685-6	6-103902-6	6-103686-6	6-103687-6	1-103688-6
18	1.798 [45.67]	6-103903-7	6-103684-7	6-103685-7	6-103902-7	6-103686-7	6-103687-7	1-103688-7
19	1.898 [48.20]	6-103903-8	6-103684-8	6-103685-8	6-103902-8	6-103686-8	6-103687-8	1-103688-8
20	1.998 [50.75]	6-103903-9	6-103684-9	6-103685-9	6-103902-9	6-103686-9	6-103687-9	1-103688-9
21	2.098 [53.29]	7-103903-0	7-103684-0	7-103685-0	7-103902-0	7-103686-0	7-103687-0	2-103688-0
22	2.198 [55.83]	7-103903-1	7-103684-1	7-103685-1	7-103902-1	7-103686-1	7-103687-1	2-103688-1
23	2.298 [58.37]	7-103903-2	7-103684-2	7-103685-2	7-103902-2	7-103686-2	7-103687-2	2-103688-2
24	2.398 [60.91]	7-103903-3	7-103684-3	7-103685-3	7-103902-3	7-103686-3	7-103687-3	2-103688-3
25	2.498 [63.45]	7-103903-4	7-103684-4	7-103685-4	7-103902-4	7-103686-4	7-103687-4	2-103688-4

- 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 TE application machines, or manually when terminated with TE pistol grip hand tool.
 2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove receptacle contacts.
 3. Keying plugs are available, see page 253.

Note: All part numbers are RoHS compliant.

MTE Receptacle Assemblies—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 TE 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 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 in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin 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) — pages 236, 237

Pin Assemblies with Guide Ribs (installed in Panel Mount Pin Shroud) — pages 238, 239, 242

Headers (Polarized/Latching) — pages 244-252

Interchangeable Crimp Contacts (Short Point) — page 253

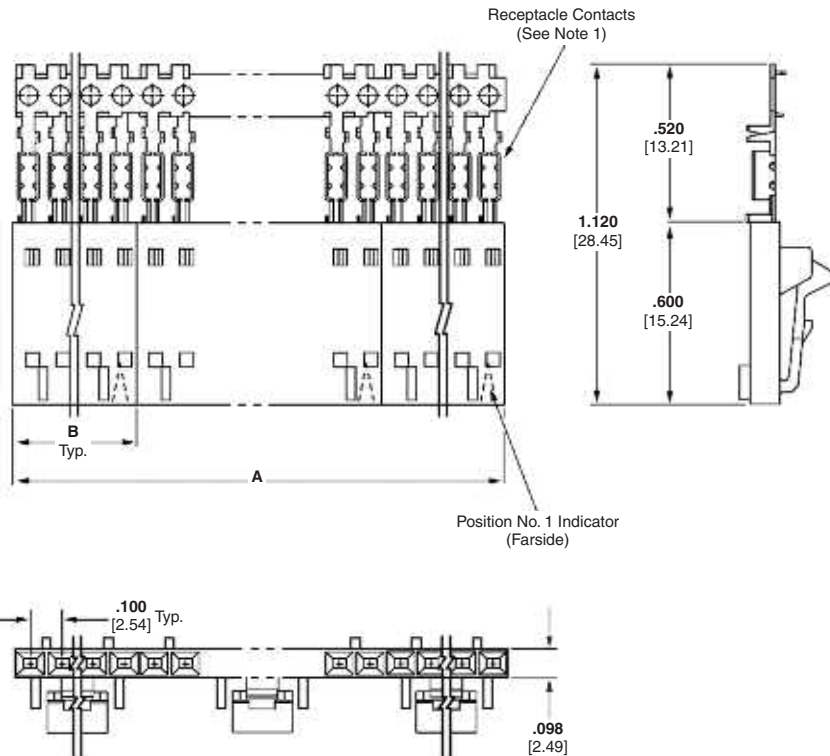
Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026



MTE Receptacle Assemblies

5

MTE Receptacle Assemblies—Strip Form Polarized/Latching, Single-Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Housing Quantities Per Strip Segment	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
	A	B		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	2.000 [50.80]	.198 [5.03]	10	5-103961-1	5-103960-1	5-103959-1	5-103958-1	5-103957-1	5-103956-1	104257-1
3	2.400 [60.96]	.298 [7.57]	8	5-103961-2	5-103960-2	5-103959-2	5-103958-2	5-103957-2	5-103956-2	104257-2
4	1.990 [50.55]	.398 [10.11]	5	5-103961-3	5-103960-3	5-103959-3	5-103958-3	5-103957-3	5-103956-3	104257-3
5	1.990 [50.55]	.498 [12.65]	4	5-103961-4	5-103960-4	5-103959-4	5-103958-4	5-103957-4	5-103956-4	104257-4
6	2.390 [60.71]	.598 [15.19]	4	5-103961-5	5-103960-5	5-103959-5	5-103958-5	5-103957-5	5-103956-5	104257-5
7	1.400 [35.56]	.698 [17.73]	2	5-103961-6	5-103960-6	5-103959-6	5-103958-6	5-103957-6	5-103956-6	104257-6
8	1.600 [40.64]	.798 [20.27]	2	5-103961-7	5-103960-7	5-103959-7	5-103958-7	5-103957-7	5-103956-7	104257-7
9	1.800 [45.72]	.898 [22.81]	2	5-103961-8	5-103960-8	5-103959-8	5-103958-8	5-103957-8	5-103956-8	104257-8
10	2.000 [50.80]	.998 [23.35]	2	5-103961-9	5-103960-9	5-103959-9	5-103958-9	5-103957-9	5-103956-9	104257-9
11	2.200 [55.88]	1.098 [27.89]	2	6-103961-0	6-103960-0	6-103959-0	6-103958-0	6-103957-0	6-103956-0	1-104257-0
12	2.400 [60.96]	1.198 [30.43]	2	6-103961-1	6-103960-1	6-103959-1	6-103958-1	6-103957-1	6-103956-1	1-104257-1

MTE Receptacle Assemblies—Individual Form Polarized/Latching, Single-Row, .100 [2.54] Centerline

No. of Pos.	Dimensions B	Individual Receptacle Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Individual 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	
13	1.298 [32.96]	6-103897-2	6-103640-2	6-103641-2	6-103734-2	6-103644-2	6-103645-2	1-104257-2
14	1.398 [35.51]	6-103897-3	6-103640-3	6-103641-3	6-103734-3	6-103644-3	6-103645-3	1-104257-3
15	1.498 [38.05]	6-103897-4	6-103640-4	6-103641-4	6-103734-4	6-103644-4	6-103645-4	1-104257-4
16	1.598 [40.59]	6-103897-5	6-103640-5	6-103641-5	6-103734-5	6-103644-5	6-103645-5	1-104257-5
17	1.698 [43.13]	6-103897-6	6-103640-6	6-103641-6	6-103734-6	6-103644-6	6-103645-6	1-104257-6
18	1.798 [45.67]	6-103897-7	6-103640-7	6-103641-7	6-103734-7	6-103644-7	6-103645-7	1-104257-7
19	1.898 [48.20]	6-103897-8	6-103640-8	6-103641-8	6-103734-8	6-103644-8	6-103645-8	1-104257-8
20	1.998 [50.75]	6-103897-9	6-103640-9	6-103641-9	6-103734-9	6-103644-9	6-103645-9	1-104257-9
21	2.098 [53.29]	7-103897-0	7-103640-0	7-103641-0	7-103734-0	7-103644-0	7-103645-0	2-104257-0
22	2.198 [55.83]	7-103897-1	7-103640-1	7-103641-1	7-103734-1	7-103644-1	7-103645-1	2-104257-1
23	2.298 [58.37]	7-103897-2	7-103640-2	7-103641-2	7-103734-2	7-103644-2	7-103645-2	2-104257-2
24	2.398 [60.91]	7-103897-3	7-103640-3	7-103641-3	7-103734-3	7-103644-3	7-103645-3	2-104257-3
25	2.498 [63.45]	7-103897-4	7-103640-4	7-103641-4	7-103734-4	7-103644-4	7-103645-4	2-104257-4

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 TE application machines, or manually when terminated with TE pistol grip hand tool.
 2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove receptacle contacts.
 3. Keying plugs are available, see page 253.

Note: All part numbers are RoHS compliant.

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 TE 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 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 in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin 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 240
Double-Row — page 241

Mateable AMPMODU Products (with Receptacle Assemblies Installed in Single-Row Coupling Shrouds) —

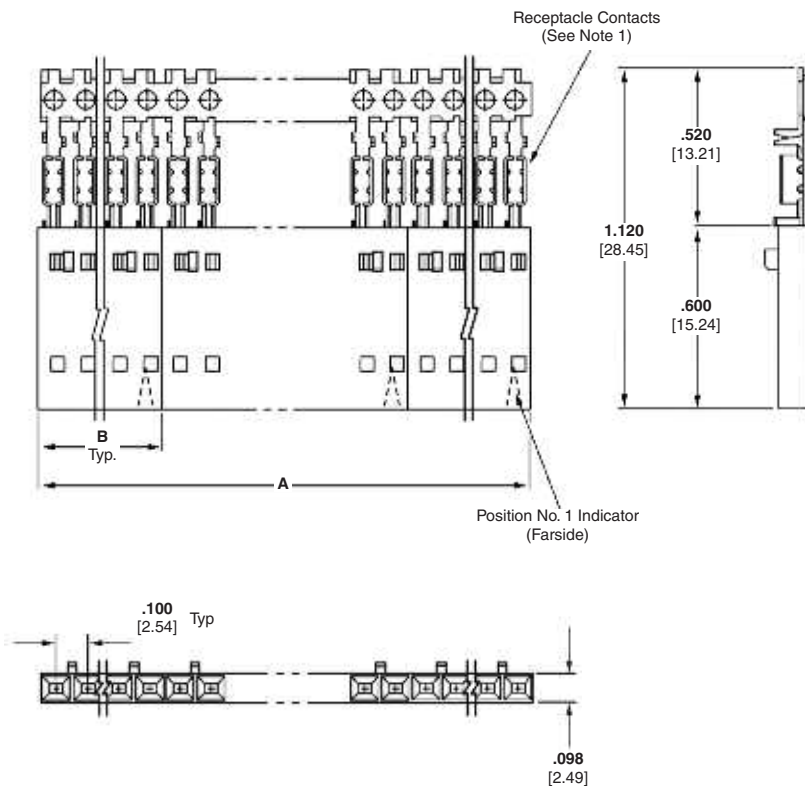
Pin Assemblies (Polarized/Latching) — pages 236, 237

Pin Assemblies with Guide Ribs (installed in Panel Mount Pin Shroud) — pages 238, 239, 242

Headers (Polarized/Latching) — pages 244-252

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 119-121, 124, 125, 128, 129, 131-133



MTE Receptacle Assemblies

5

Interchangeable Crimp Contacts—
 (Short Point) — page 253

Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification
 108-25034

Application Specification
 114-25026

MTE Receptacle Assemblies—Strip Form with Guide Ribs, Single-Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Housing Quantities Per Strip Segment	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
	A	B		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	2.000 [50.80]	.198 [5.03]	10	5-103973-1	5-103972-1	5-103971-1	5-103970-1	5-103969-1	5-103968-1	103648-1
3	2.400 [60.96]	.298 [7.57]	8	5-103973-2	5-103972-2	5-103971-2	5-103970-2	5-103969-2	5-103968-2	103648-2
4	1.990 [50.55]	.398 [10.11]	5	5-103973-3	5-103972-3	5-103971-3	5-103970-3	5-103969-3	5-103968-3	103648-3
5	1.990 [50.55]	.498 [12.65]	4	5-103973-4	5-103972-4	5-103971-4	5-103970-4	5-103969-4	5-103968-4	103648-4
6	2.390 [60.71]	.598 [15.19]	4	5-103973-5	5-103972-5	5-103971-5	5-103970-5	5-103969-5	5-103968-5	103648-5
7	1.400 [35.56]	.698 [17.73]	2	5-103973-6	5-103972-6	5-103971-6	5-103970-6	5-103969-6	5-103968-6	103648-6
8	1.600 [40.64]	.798 [20.27]	2	5-103973-7	5-103972-7	5-103971-7	5-103970-7	5-103969-7	5-103968-7	103648-7
9	1.800 [45.72]	.898 [22.81]	2	5-103973-8	5-103972-8	5-103971-8	5-103970-8	5-103969-8	5-103968-8	103648-8
10	2.000 [50.80]	.998 [23.35]	2	5-103973-9	5-103972-9	5-103971-9	5-103970-9	5-103969-9	5-103968-9	103648-9
11	2.200 [55.88]	1.098 [27.89]	2	6-103973-0	6-103972-0	6-103971-0	6-103970-0	6-103969-0	6-103968-0	1-103648-0
12	2.400 [60.96]	1.198 [30.43]	2	6-103973-1	6-103972-1	6-103971-1	6-103970-1	6-103969-1	6-103968-1	1-103648-1

MTE Receptacle Assemblies—Individual Form with Guide Ribs, Single-Row, .100 [2.54] Centerline

No. of Pos.	Dimensions B	Individual Receptacle Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Individual 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	
13	1.298 [32.96]	6-103901-2	6-103649-2	6-103650-2	6-103900-2	6-103651-2	6-103652-2	1-103648-2
14	1.398 [35.51]	6-103901-3	6-103649-3	6-103650-3	6-103900-3	6-103651-3	6-103652-3	1-103648-3
15	1.498 [38.05]	6-103901-4	6-103649-4	6-103650-4	6-103900-4	6-103651-4	6-103652-4	1-103648-4
16	1.598 [40.59]	6-103901-5	6-103649-5	6-103650-5	6-103900-5	6-103651-5	6-103652-5	1-103648-5
17	1.698 [43.13]	6-103901-6	6-103649-6	6-103650-6	6-103900-6	6-103651-6	6-103652-6	1-103648-6
18	1.798 [45.67]	6-103901-7	6-103649-7	6-103650-7	6-103900-7	6-103651-7	6-103652-7	1-103648-7
19	1.898 [48.20]	6-103901-8	6-103649-8	6-103650-8	6-103900-8	6-103651-8	6-103652-8	1-103648-8
20	1.998 [50.75]	6-103901-9	6-103649-9	6-103650-9	6-103900-9	6-103651-9	6-103652-9	1-103648-9
21	2.098 [53.29]	7-103901-0	7-103649-0	7-103650-0	7-103900-0	7-103651-0	7-103652-0	2-103648-0
22	2.198 [55.83]	7-103901-1	7-103649-1	7-103650-1	7-103900-1	7-103651-1	7-103652-1	2-103648-1
23	2.298 [58.37]	7-103901-2	7-103649-2	7-103650-2	7-103900-2	7-103651-2	7-103652-2	2-103648-2
24	2.398 [60.91]	7-103901-3	7-103649-3	7-103650-3	7-103900-3	7-103651-3	7-103652-3	2-103648-3
25	2.498 [63.45]	7-103901-4	7-103649-4	7-103650-4	7-103900-4	7-103651-4	7-103652-4	2-103648-4

- 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 TE application machines, or manually when terminated with TE pistol grip hand tool.
 2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove receptacle contacts.
 3. Keying plugs are available, see page 253.

Note: All part numbers are RoHS compliant.

MTE High Pressure Receptacle Assemblies—Plain, Single-Row, .100 [2.54] Centerline



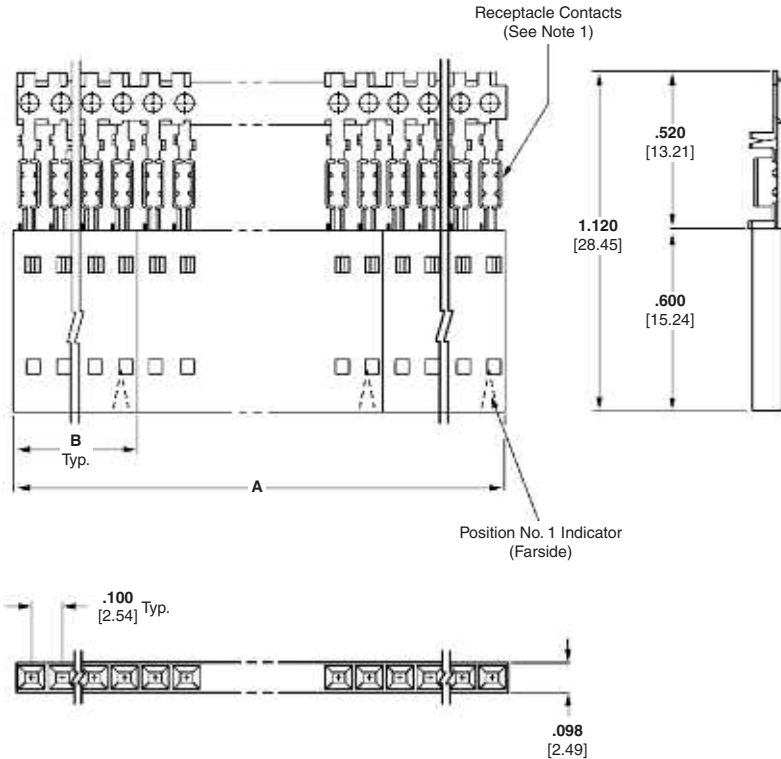
Preassembled housings in strip form are available in positions 2 thru 12. For ease of handling, positions 2 thru 5 are recommended when using the TE Manual Pistol Grip Tool.

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 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 102-110, (with .230 mating length)

Reeled Breakaway Headers — pages 106, 107 (with .230 mating length)

Machine Applied Bandolier Posts — page 163

Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278)

Product Specification
108-25034

Application Specification
114-25026

No. of Pos.	Dimensions		Housings Quantities Per Strip Segment	Strip Form Receptacle Assembly	Strip Form Receptacle Assembly
	A	B		30-26 AWG [.05-.15mm ²] Wire	26-22 AWG [.12-.30mm ²] Wire
2	1.980 [50.29]	.198 [5.03]	10	5-104438-1	5-104439-1
3	1.490 [37.85]	.298 [7.57]	5	5-104438-2	5-104439-2
4	1.990 [50.55]	.398 [10.11]	5	5-104438-3	5-104439-3
5	1.990 [50.55]	.498 [12.65]	4	5-104438-4	5-104439-4
6	2.390 [60.71]	.598 [15.19]	4	5-104438-5	5-104439-5
7	1.400 [35.56]	.698 [17.73]	2	5-104438-6	5-104439-6
8	1.600 [40.64]	.798 [20.27]	2	5-104438-7	5-104439-7
9	1.800 [45.72]	.898 [22.81]	2	5-104438-8	5-104439-8
10	2.000 [50.80]	.998 [23.35]	2	5-104438-9	5-104439-9
11	2.200 [55.88]	1.098 [27.89]	2	6-104438-0	6-104439-0
12	2.400 [60.96]	1.198 [30.43]	2	6-104438-1	6-104439-1

- 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 TE application machines, or manually when terminated with TE pistol grip hand tool.
 2. High pressure receptacle contacts can be made available in other housing styles and position sizes. Contact your TE sales representative.

Note: All part numbers are RoHS compliant.

MTE High Pressure Receptacle Assemblies – Guide Ribs



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 TE Manual Pistol Grip Tool.

Material and Finish

Housing — Thermoplastic, black, 94V-0 rated

Contacts — Phosphor Bronze, duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin on crimp area, with entire contact underplated .000050 [0.00127] nickel.

Related Product Data

Coupling Shrouds used with — Single-Row — page 240

Double-Row — page 241

Mateable AMPMODU Products (with Receptacle Assemblies Installed in Single-Row Coupling Shrouds) —

Pin Assemblies (Polarized/Latching) — pages 236, 237

Pin Assemblies with Guide Ribs (installed in Panel Mount Pin Shroud) — pages 238, 239, 242

Headers (Polarized/Latching) — pages 244-252

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 119-121, 124, 125, 128, 129, 131-133

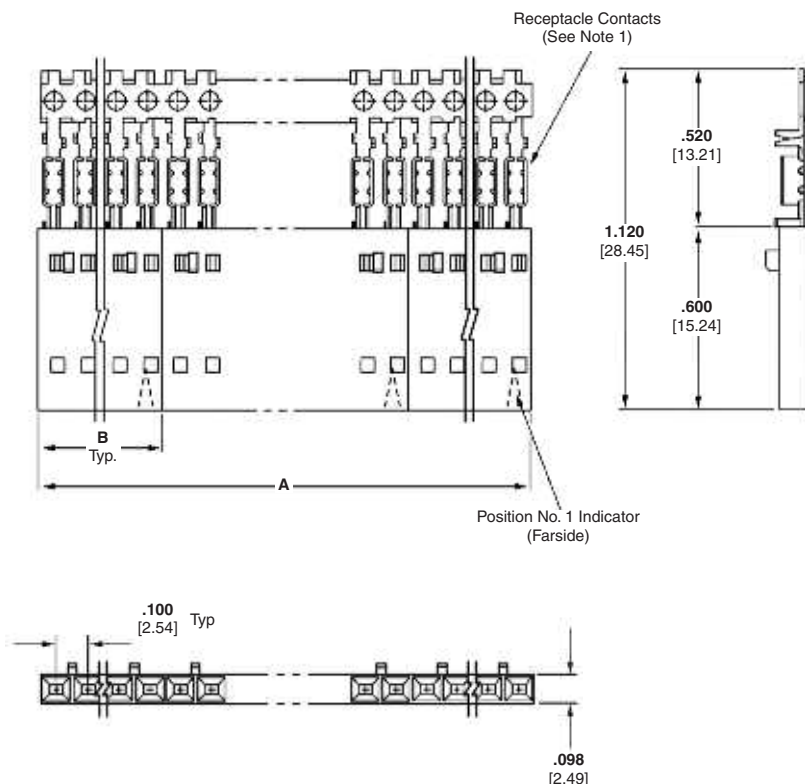
Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification
108-25034

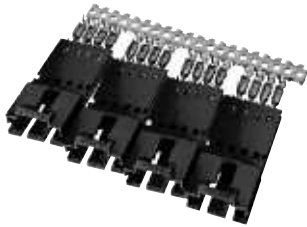
Application Specification
114-25026



No. of Pos.	Dimensions		Housings Quantities Per Strip Segment	Strip Form Receptacle Assembly 30-26 AWG [.05-.15mm ²] Wire	Strip Form Receptacle Assembly 26-22 AWG [.12-.30mm ²] Wire
	A	B			
2	1.980 [50.29]	.198 [5.03]	10	5-147396-1	5-147030-3
3	1.490 [37.85]	.298 [7.57]	5	5-147396-2	5-147030-4
4	1.990 [50.55]	.398 [10.11]	5	5-147396-3	5-147030-1
5	1.990 [50.55]	.498 [12.65]	4	5-147396-4	5-147030-2
6	2.390 [60.71]	.598 [15.19]	4	5-147396-5	5-147030-5
7	1.400 [35.56]	.698 [17.73]	2	5-147396-6	5-147030-6
8	1.600 [40.64]	.798 [20.27]	2	5-147396-7	5-147030-7
9	1.800 [45.72]	.898 [22.81]	2	5-147396-8	5-147030-8
10	2.000 [50.80]	.998 [23.35]	2	5-147396-9	5-147030-9
11	2.200 [55.88]	1.098 [27.89]	2	6-147396-0	6-147030-0
12	2.400 [60.96]	1.198 [30.43]	2	6-147396-1	6-147030-1

Note: All part numbers are RoHS compliant.

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 TE Manual Pistol Grip Tool.

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

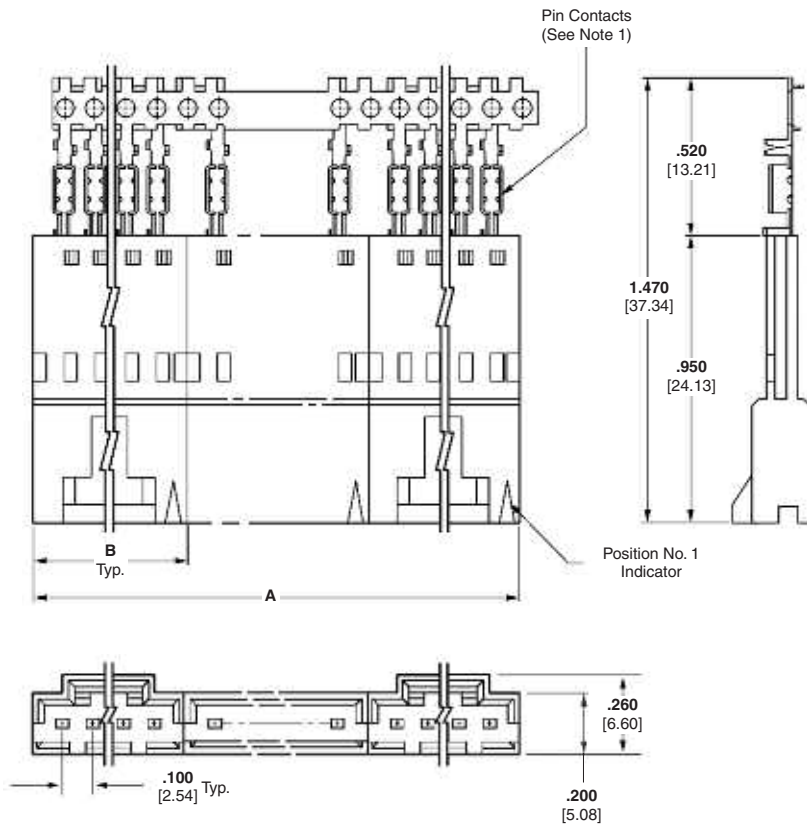
Contacts — Phosphor Bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin 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 in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin 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 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Interchangeable Crimp Contacts — page 254

Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026

MTE Pin Assemblies, Shrouded—Strip Form Polarized/Latching, Single-Row, .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions		Housing Quantities Per Strip Segment	Strip Form Pin Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Strip Form Pin Assembly 26-22 AWG [0.12-0.3mm ²] Wire			Unloaded Housings
	A	B		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	2.360 [59.94]	.295 [7.49]	8	5-103949-1	5-103948-1	5-103947-1	5-103946-1	5-103945-1	5-103944-1	103653-1
3	1.980 [50.29]	.395 [10.03]	5	5-103949-2	5-103948-2	5-103947-2	5-103946-2	5-103945-2	5-103944-2	103653-2
4	1.980 [50.29]	.495 [12.57]	4	5-103949-3	5-103948-3	5-103947-3	5-103946-3	5-103945-3	5-103944-3	103653-3
5	2.380 [60.45]	.595 [15.11]	4	5-103949-4	5-103948-4	5-103947-4	5-103946-4	5-103945-4	5-103944-4	103653-4
6	1.390 [35.31]	.695 [17.65]	2	5-103949-5	5-103948-5	5-103947-5	5-103946-5	5-103945-5	5-103944-5	103653-5
7	2.390 [60.71]	.795 [20.19]	3	5-103949-6	5-103948-6	5-103947-6	5-103946-6	5-103945-6	5-103944-6	103653-6
8	1.790 [45.47]	.895 [22.73]	2	5-103949-7	5-103948-7	5-103947-7	5-103946-7	5-103945-7	5-103944-7	103653-7
9	1.990 [50.57]	.995 [25.27]	2	5-103949-8	5-103948-8	5-103947-8	5-103946-8	5-103945-8	5-103944-8	103653-8
10	2.190 [55.63]	1.095 [27.81]	2	5-103949-9	5-103948-9	5-103947-9	5-103946-9	5-103945-9	5-103944-9	103653-9
11	2.390 [60.71]	1.195 [30.35]	2	6-103949-0	6-103948-0	6-103947-0	6-103946-0	6-103945-0	6-103944-0	1-103653-0
12	2.590 [65.79]	1.295 [32.89]	2	6-103949-1	6-103948-1	6-103947-1	6-103946-1	6-103945-1	6-103944-1	1-103653-1

MTE Pin Assemblies, Shrouded—Individual Form Polarized/Latching, Single-Row, .100 [2.54] Centerline

No. of Pos.	Dimensions B	Individual Pin Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Individual Pin Assembly 26-22 AWG [0.12-0.3mm ²] Wire			Unloaded Housings
		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
13	1.395 [35.43]	6-103894-2	6-103658-2	6-103659-2	6-103893-2	6-103660-2	6-103661-2	1-103653-2
14	1.495 [37.97]	6-103894-3	6-103658-3	6-103659-3	6-103893-3	6-103660-3	6-103661-3	1-103653-3
15	1.595 [40.51]	6-103894-4	6-103658-4	6-103659-4	6-103893-4	6-103660-4	6-103661-4	1-103653-4
16	1.695 [43.05]	6-103894-5	6-103658-5	6-103659-5	6-103893-5	6-103660-5	6-103661-5	1-103653-5
17	1.795 [45.59]	6-103894-6	6-103658-6	6-103659-6	6-103893-6	6-103660-6	6-103661-6	1-103653-6
18	1.895 [48.13]	6-103894-7	6-103658-7	6-103659-7	6-103893-7	6-103660-7	6-103661-7	1-103653-7
19	1.995 [50.67]	6-103894-8	6-103658-8	6-103659-8	6-103893-8	6-103660-8	6-103661-8	1-103653-8
20	2.095 [53.21]	6-103894-9	6-103658-9	6-103659-9	6-103893-9	6-103660-9	6-103661-9	1-103653-9
21	2.195 [55.75]	7-103894-0	7-103658-0	7-103659-0	7-103893-0	7-103660-0	7-103661-0	2-103653-0
22	2.295 [58.29]	7-103894-1	7-103658-1	7-103659-1	7-103893-1	7-103660-1	7-103661-1	2-103653-1
23	2.395 [60.83]	7-103894-2	7-103658-2	7-103659-2	7-103893-2	7-103660-2	7-103661-2	2-103653-2
24	2.495 [63.37]	7-103894-3	7-103658-3	7-103659-3	7-103893-3	7-103660-3	7-103661-3	2-103653-3
25	2.595 [65.91]	7-103894-4	7-103658-4	7-103659-4	7-103893-4	7-103660-4	7-103661-4	2-103653-4

Notes: 1. Pin 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 TE application machines, or manually when terminated with TE pistol grip hand tool.
 2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove pin contacts.

Note: All part numbers are RoHS compliant.

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 TE Manual Pistol Grip Tool.

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

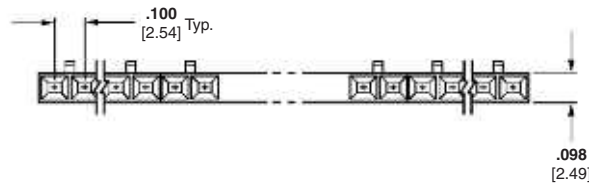
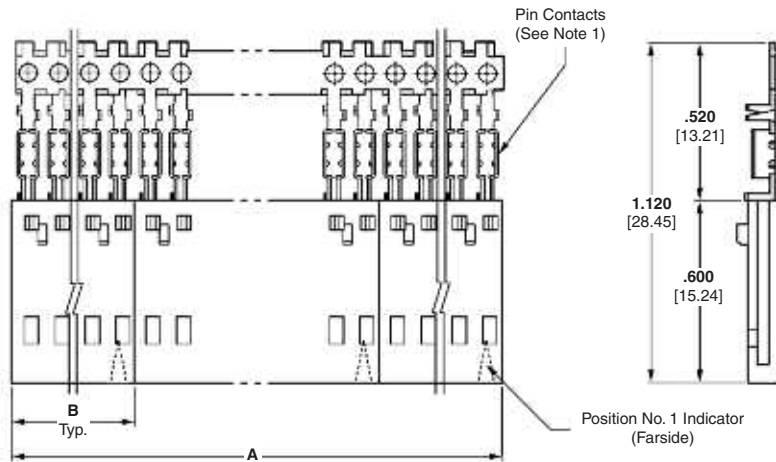
Contacts — Phosphor Bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000050 [0.00127] min. tin 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 in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin 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 MTE Products (with Pin Assembly Installed in Panel Mount Pin Shroud) — pages 242, 243

Receptacle Assemblies (Polarized/Latching) — pages 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single Row Coupling Shroud) — pages 232, 233, 235, 240

Interchangeable Crimp Contacts — page 254

Application Tooling — page 273

Performance Specifications — page 225

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026

**MTE Pin Assemblies—Strip Form with Guide Ribs,
Single-Row, .100 [2.54] Centerline** (Continued)

No. of Pos.	Dimensions		Housing Quantities Per Strip Segment	Strip Form Pin Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Strip Form Pin Assembly 26-22 AWG [0.12-0.3mm ²] Wire			Unloaded Housings
	A	B		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
2	1.980 [50.29]	0.198 [5.03]	10	5-103955-1	5-103954-1	5-103953-1	5-103952-1	5-103951-1	5-103950-1	104503-1
3	1.490 [37.85]	0.298 [7.57]	5	5-103955-2	5-103954-2	5-103953-2	5-103952-2	5-103951-2	5-103950-2	104503-2
4	1.990 [50.55]	0.398 [10.11]	5	5-103955-3	5-103954-3	5-103953-3	5-103952-3	5-103951-3	5-103950-3	104503-3
5	1.990 [50.55]	0.498 [12.65]	4	5-103955-4	5-103954-4	5-103953-4	5-103952-4	5-103951-4	5-103950-4	104503-4
6	2.390 [60.71]	0.598 [15.19]	4	5-103955-5	5-103954-5	5-103953-5	5-103952-5	5-103951-5	5-103950-5	104503-5
7	1.400 [35.56]	0.698 [17.73]	2	5-103955-6	5-103954-6	5-103953-6	5-103952-6	5-103951-6	5-103950-6	104503-6
8	1.600 [40.64]	0.798 [20.27]	2	5-103955-7	5-103954-7	5-103953-7	5-103952-7	5-103951-7	5-103950-7	104503-7
9	1.800 [45.72]	0.898 [22.81]	2	5-103955-8	5-103954-8	5-103953-8	5-103952-8	5-103951-8	5-103950-8	104503-8
10	2.000 [50.80]	0.998 [25.35]	2	5-103955-9	5-103954-9	5-103953-9	5-103952-9	5-103951-9	5-103950-9	104503-9
11	2.200 [55.88]	1.098 [27.89]	2	6-103955-0	6-103954-0	6-103953-0	6-103952-0	6-103951-0	6-103950-0	1-104503-0
12	2.400 [60.96]	1.198 [30.43]	2	6-103955-1	6-103954-1	6-103953-1	6-103952-1	6-103951-1	6-103950-1	1-104503-1

**MTE Pin Assemblies—Individual Form with Guide Ribs,
Single-Row, .100 [2.54] Centerline**

No. of Pos.	Dimensions B	Individual Pin Assembly 30-26 AWG [0.05-0.15mm ²] Wire			Individual Pin Assembly 26-22 AWG [0.12-0.3mm ²] Wire			Unloaded Housings
		Plating A	Plating B	Plating C	Plating A	Plating B	Plating C	
13	1.398 [35.51]	6-103896-2	6-103657-2	6-103656-2	6-103895-2	6-103655-2	6-103654-2	1-104503-2
14	1.498 [38.05]	6-103896-3	6-103657-3	6-103656-3	6-103895-3	6-103655-3	6-103654-3	1-104503-3
15	1.598 [40.59]	6-103896-4	6-103657-4	6-103656-4	6-103895-4	6-103655-4	6-103654-4	1-104503-4
16	1.698 [43.13]	6-103896-5	6-103657-5	6-103656-5	6-103895-5	6-103655-5	6-103654-5	1-104503-5
17	1.798 [45.67]	6-103896-6	6-103657-6	6-103656-6	6-103895-6	6-103655-6	6-103654-6	1-104503-6
18	1.898 [48.20]	6-103896-7	6-103657-7	6-103656-7	6-103895-7	6-103655-7	6-103654-7	1-104503-7
19	1.998 [50.75]	6-103896-8	6-103657-8	6-103656-8	6-103895-8	6-103655-8	6-103654-8	1-104503-8
20	2.098 [53.29]	6-103896-9	6-103657-9	6-103656-9	6-103895-9	6-103655-9	6-103654-9	1-104503-9
21	2.198 [55.83]	7-103896-0	7-103657-0	7-103656-0	7-103895-0	7-103655-0	7-103654-0	2-104503-0
22	2.298 [58.37]	7-103896-1	7-103657-1	7-103656-1	7-103895-1	7-103655-1	7-103654-1	2-104503-1
23	2.398 [60.91]	7-103896-2	7-103657-2	7-103656-2	7-103895-2	7-103655-2	7-103654-2	2-104503-2
24	2.498 [63.45]	7-103896-3	7-103657-3	7-103656-3	7-103895-3	7-103655-3	7-103654-3	2-104503-3
25	2.598 [65.99]	7-103896-4	7-103657-4	7-103656-4	7-103895-4	7-103655-4	7-103654-4	2-104503-4

Notes: 1. Pin 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 TE application machines, or manually when terminated with TE pistol grip hand tool.
2. Use **Extraction/Lance Reset Tool No. 843477-1** to remove pin contacts.

Note: All part numbers are RoHS compliant.

Coupling Shrouds for MTE Receptacle Assemblies with Guide Ribs

Single-Row

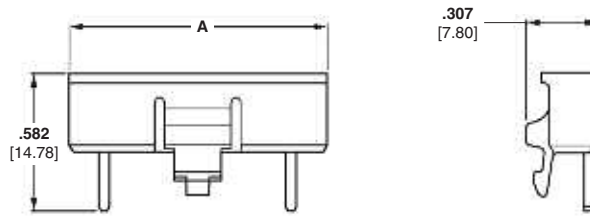
Material

Black thermoplastic, 94V-0 rated

Technical Documents —
pages 277, 278

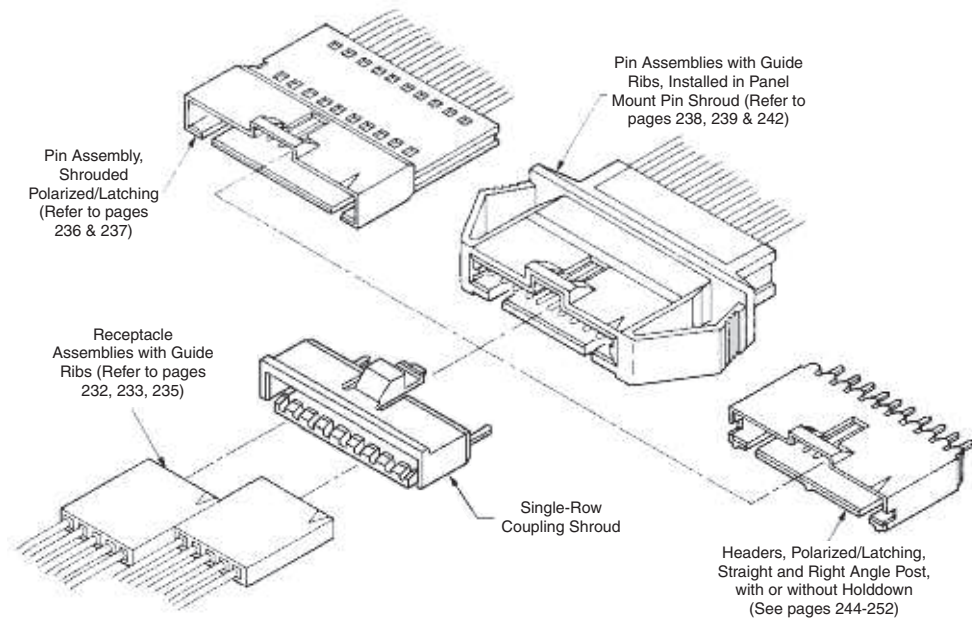
Product Specification
108-25034

Application Specification
114-25026



No. of Pos.	Dimension A	Single-Row Coupling Shroud
4	.485 [12.32]	103680-1
5	.585 [14.86]	103680-2
6	.685 [17.40]	103680-3
7	.785 [19.94]	103680-4
8	.885 [22.48]	103680-5
9	.985 [25.02]	103680-6
10	1.085 [27.56]	103680-7
11	1.185 [30.10]	103680-8
12	1.285 [32.64]	103680-9
13	1.385 [35.18]	1-103680-0
14	1.485 [37.72]	1-103680-1

No. of Pos.	Dimension A	Single-Row Coupling Shroud
15	1.585 [40.26]	1-103680-2
16	1.685 [42.80]	1-103680-3
17	1.785 [45.34]	1-103680-4
18	1.885 [47.88]	1-103680-5
19	1.985 [50.42]	1-103680-6
20	2.085 [52.96]	1-103680-7
21	2.185 [55.50]	1-103680-8
22	2.285 [58.04]	1-103680-9
23	2.385 [60.58]	2-103680-0
24	2.485 [63.12]	2-103680-1
25	2.585 [65.66]	2-103680-2



Typical Application of Single-Row Coupling Shroud and Mating AMPMODU MTE Products

Note: All part numbers are RoHS compliant.

Coupling Shrouds for MTE Receptacle Assemblies with Guide Ribs (Continued)

Double-Row

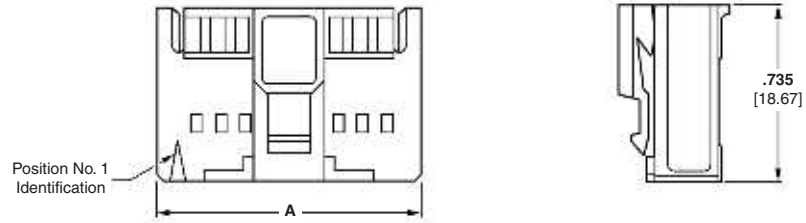
Material

Black thermoplastic, 94V-0 rated

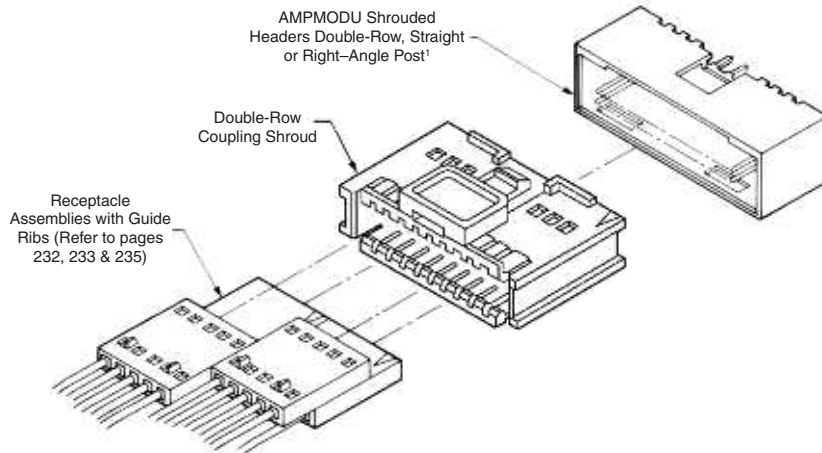
Technical Documents —
pages 277, 278

Product Specification
108-25034

Application Specification
114-25026



No. of Pos.	Dimension A	Double-Row Coupling Shroud
8	.585 [14.86]	103681-1
10	.685 [17.40]	103681-2
12	.785 [19.94]	103681-3
14	.885 [22.48]	103681-4
16	.985 [25.02]	103681-5
18	1.085 [27.56]	104500-1
20	1.185 [30.10]	104500-2
22	1.285 [32.64]	104500-3
24	1.385 [35.18]	104500-4
26	1.485 [37.72]	104500-5
28	1.585 [40.26]	104500-6
30	1.685 [42.80]	104500-7
32	1.785 [45.34]	104500-8
34	1.885 [47.88]	104500-9
40	2.185 [55.50]	1-104500-0
50	2.685 [68.20]	1-104500-1



¹Mating 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

Note: All part numbers are RoHS compliant.

Panel Mount Pin Shrouds for MTE Pin Assemblies with Guide Ribs, Single-Row

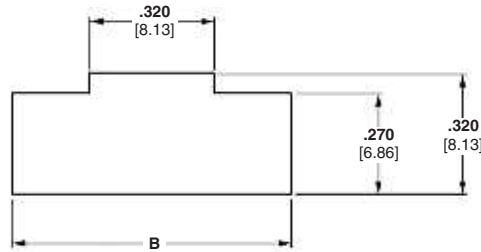
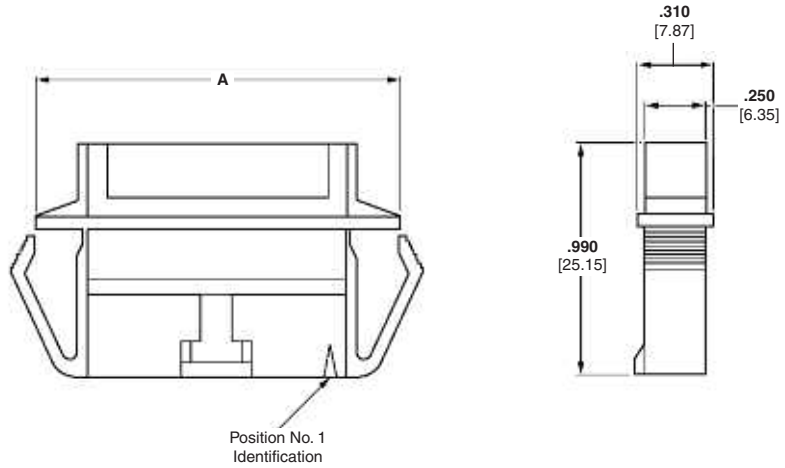
Material

Black thermoplastic, 94V-0 rated

Technical Documents —
pages 277, 278

Product Specification
108-25034

Application Specification
114-25026



No. of Pos.	Dimensions		Panel Mount Pin Shroud
	A	B	
2	.735 [18.67]	.625 [15.88]	103682-1
3	.835 [21.21]	.725 [18.42]	103682-2
4	.935 [23.75]	.825 [20.96]	103682-3
5	1.035 [26.29]	.925 [23.50]	103682-4
6	1.135 [28.83]	1.025 [26.04]	103682-5
7	1.235 [31.37]	1.125 [28.58]	103682-6
8	1.335 [33.91]	1.225 [31.12]	103682-7
9	1.435 [36.45]	1.325 [33.66]	103682-8
10	1.535 [38.99]	1.425 [36.20]	103682-9
11	1.635 [41.53]	1.525 [38.74]	1-103682-0
12	1.735 [44.07]	1.625 [41.28]	1-103682-1
13	1.835 [46.61]	1.725 [43.82]	1-103682-2

No. of Pos.	Dimensions		Panel Mount Pin Shroud
	A	B	
14	1.935 [49.15]	1.825 [46.36]	1-103682-3
15	2.035 [51.69]	1.925 [48.90]	1-103682-4
16	2.135 [54.23]	2.025 [51.44]	1-103682-5
17	2.235 [56.77]	2.125 [53.98]	1-103682-6
18	2.335 [59.31]	2.225 [56.52]	1-103682-7
19	2.435 [61.85]	2.325 [59.06]	1-103682-8
20	2.535 [64.39]	2.425 [61.60]	1-103682-9
21	2.635 [66.93]	2.525 [64.14]	2-103682-0
22	2.735 [69.47]	2.625 [66.68]	2-103682-1
23	2.835 [72.01]	2.725 [69.22]	2-103682-2
24	2.935 [74.55]	2.825 [71.76]	2-103682-3
25	3.035 [77.09]	2.925 [74.30]	2-103682-4

Note: All part numbers are RoHS compliant.

Panel Mount Pin Shrouds for MTE Pin Assemblies with Guide Ribs, Single-Row (Continued)

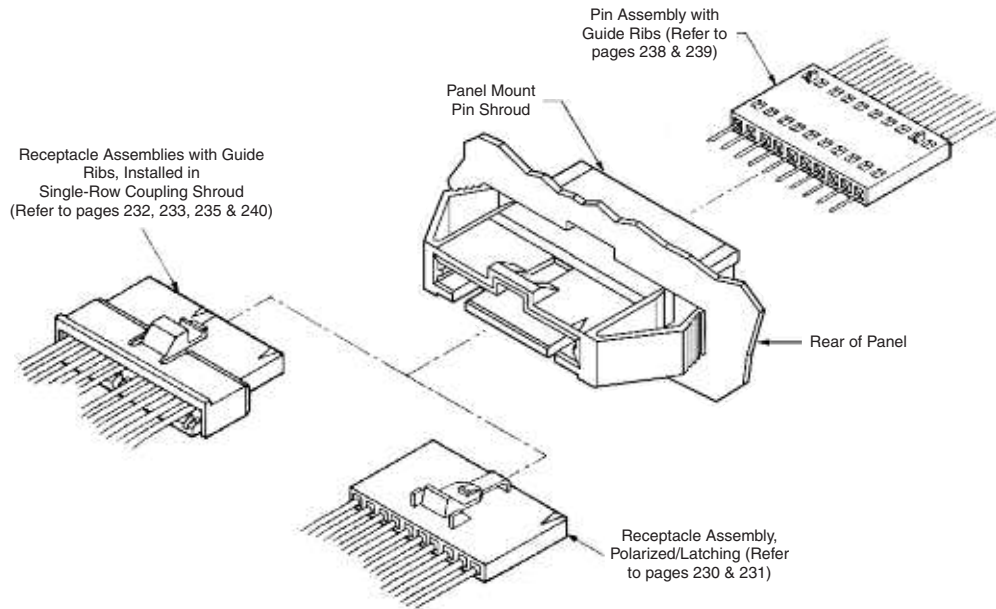
Material

Black thermoplastic, 94V-0 rated

Technical Documents —
pages 277, 278

Product Specification
108-25034

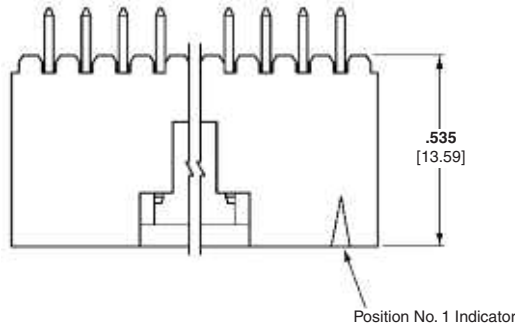
Application Specification
114-25026



Typical Application of Panel Mount Pin Shroud and Mating AMPMODU Products

MTE Headers, Shrouded Polarized/Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With or Without Swaged Tail)



Swaged Retention Tail
(See Note)

Material and Finish

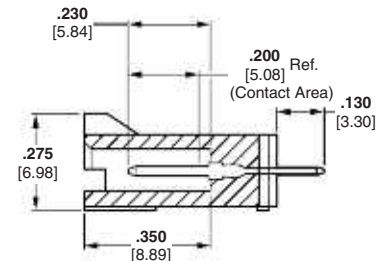
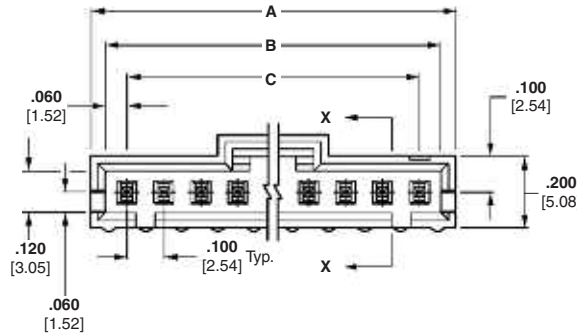
Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, plated as follows:

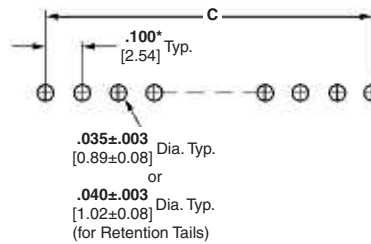
Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100 [0.00254] min. tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold on contact area, .000100 [0.00254] min. tin on solder area, with entire post underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin over .000050 [0.00127] nickel on entire post



Section X-X



Recommended PC Board Hole Layout

*±.003 [±0.08]; tolerances not to accumulate within one connector pattern.

Note: Swaged retention tails are provided in a minimum of two locations per header.

Related Product Data

Mateable AMPMODU MTE Products —

Receptacle Assemblies (Polarized/Latching) — pages 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026

**MTE Headers, Shrouded Polarized/Latching,
Single-Row .100 [2.54] Centerline** (Continued)

No. of Pos.	Dimensions			Polarized/Latching Header With Swage			Polarized/Latching Header Without Swage		
	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]	5-103908-1	5-104362-1	5-103669-1	5-103735-1	5-104363-1	5-103639-1
3	.400 [10.16]	.320 [8.13]	.200 [5.08]	5-103908-2	5-104362-2	5-103669-2	5-103735-2	5-104363-2	5-103639-2
4	.500 [12.70]	.420 [10.67]	.300 [7.62]	5-103908-3	5-104362-3	5-103669-3	5-103735-3	5-104363-3	5-103639-3
5	.600 [15.24]	.520 [13.21]	.400 [10.16]	5-103908-4	5-104362-4	5-103669-4	5-103735-4	5-104363-4	5-103639-4
6	.700 [17.78]	.620 [15.75]	.500 [12.70]	5-103908-5	5-104362-5	5-103669-5	5-103735-5	5-104363-5	5-103639-5
7	.800 [20.32]	.720 [18.29]	.600 [15.24]	5-103908-6	5-104362-6	5-103669-6	5-103735-6	5-104363-6	5-103639-6
8	.900 [22.86]	.820 [20.83]	.700 [17.78]	5-103908-7	5-104362-7	5-103669-7	5-103735-7	5-104363-7	5-103639-7
9	1.000 [25.40]	.920 [23.37]	.800 [20.32]	5-103908-8	5-104362-8	5-103669-8	5-103735-8	5-104363-8	5-103639-8
10	1.100 [27.94]	1.020 [25.91]	.900 [22.86]	5-103908-9	5-104362-9	5-103669-9	5-103735-9	5-104363-9	5-103639-9
11	1.200 [30.48]	1.120 [28.45]	1.000 [25.40]	6-103908-0	6-104362-0	6-103669-0	6-103735-0	6-104363-0	6-103639-0
12	1.300 [33.02]	1.220 [30.99]	1.100 [27.94]	6-103908-1	6-104362-1	6-103669-1	6-103735-1	6-104363-1	6-103639-1
13	1.400 [35.56]	1.320 [33.53]	1.200 [30.48]	6-103908-2	6-104909-2	6-103669-2	6-103735-2	6-104910-2	6-103639-2
14	1.500 [38.10]	1.420 [36.07]	1.300 [33.02]	6-103908-3	6-104909-3	6-103669-3	6-103735-3	6-104910-3	6-103639-3
15	1.600 [40.64]	1.520 [38.61]	1.400 [35.56]	6-103908-4	6-104909-4	6-103669-4	6-103735-4	6-104910-4	6-103639-4
16	1.700 [43.18]	1.620 [41.15]	1.500 [38.10]	6-103908-5	6-104909-5	6-103669-5	6-103735-5	6-104910-5	6-103639-5
17	1.800 [45.72]	1.720 [43.69]	1.600 [40.64]	6-103908-6	6-104909-6	6-103669-6	6-103735-6	6-104910-6	6-103639-6
18	1.900 [48.26]	1.820 [46.23]	1.700 [43.18]	6-103908-7	6-104909-7	6-103669-7	6-103735-7	6-104910-7	6-103639-7
19	2.000 [50.80]	1.920 [48.77]	1.800 [45.72]	6-103908-8	6-104909-8	6-103669-8	6-103735-8	6-104910-8	6-103639-8
20	2.100 [53.34]	2.020 [51.31]	1.900 [48.26]	6-103908-9	6-104909-9	6-103669-9	6-103735-9	6-104910-9	6-103639-9
21	2.200 [55.88]	2.120 [53.85]	2.000 [50.80]	7-103908-0	7-104909-0	7-103669-0	7-103735-0	7-104910-0	7-103639-0
22	2.300 [58.42]	2.220 [56.39]	2.100 [53.34]	7-103908-1	7-104909-1	7-103669-1	7-103735-1	7-104910-1	7-103639-1
23	2.400 [60.96]	2.320 [58.93]	2.200 [55.88]	7-103908-2	7-104909-2	7-103669-2	7-103735-2	7-104910-2	7-103639-2
24	2.500 [63.50]	2.420 [61.47]	2.300 [58.42]	7-103908-3	7-104909-3	7-103669-3	7-103735-3	7-104910-3	7-103639-3
25	2.600 [66.04]	2.520 [64.01]	2.400 [60.96]	7-103908-4	7-104909-4	7-103669-4	7-103735-4	7-104910-4	7-103639-4

Notes: 1. Selectively loaded headers are available, consult TE.
2. Use Keying Tool No. 91417-1 to remove post for keying.

Note: All part numbers are RoHS compliant.



MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Right-Angle Post



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

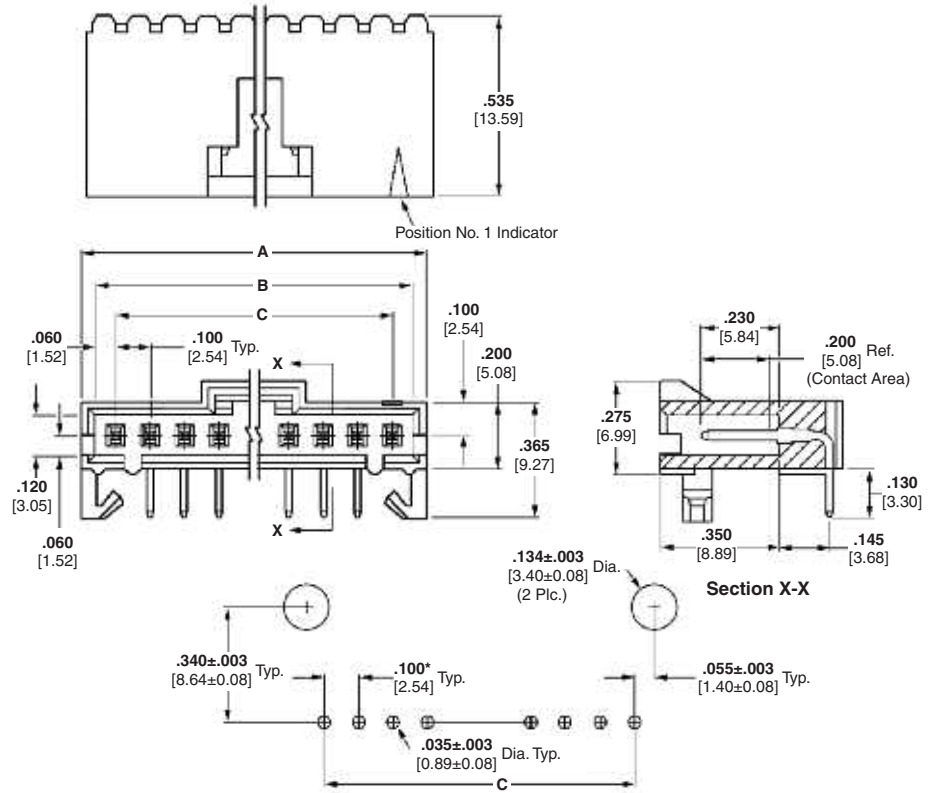
Posts — Brass, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000100 [0.00254] min. tin 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 on solder area, with entire post underplated .000050 [0.00127] nickel

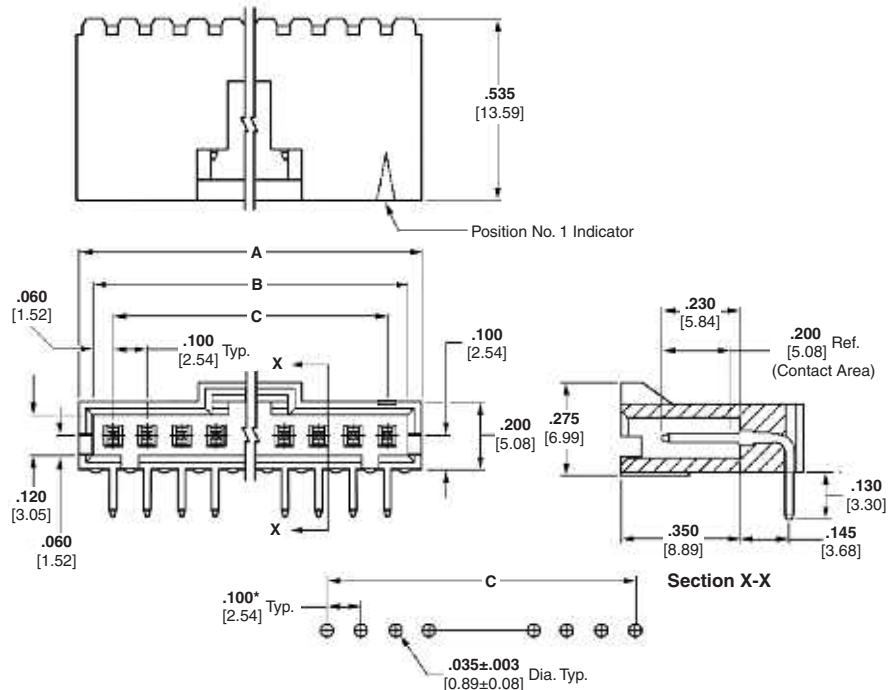
Plating C — .000100 [0.00254] tin over .000050 [0.00127] nickel on entire post

With Holddown



Recommended PC Board Hole Layout
(PC board thickness (for Holddown Feature) is .062±.008 [1.57±0.20])
*±.003 [±0.08]; tolerance not to accumulate within one connector pattern.

Without Holddown



Recommended PC Board Hole Layout
*±.003 [±0.08]; tolerance not to accumulate within one connector pattern.

Related Product Data

Mateable AMPMODU MTE Products —

Receptacle Assemblies (Latching) — pages 230, 231
Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026

5

MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline (Continued)

No. of Pos.	Dimensions			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]	5-103904-1	5-103673-1	5-103672-1	5-104935-5	5-103635-1	5-103634-1
3	.400 [10.16]	.320 [8.13]	.200 [5.08]	5-103904-2	5-103673-2	5-103672-2	5-104935-3	5-103635-2	5-103634-2
4	.500 [12.70]	.420 [10.67]	.300 [7.62]	5-103904-3	5-103673-3	5-103672-3	5-104935-1	5-103635-3	5-103634-3
5	.600 [15.24]	.520 [13.21]	.400 [10.16]	5-103904-4	5-103673-4	5-103672-4	5-104935-6	5-103635-4	5-103634-4
6	.700 [17.78]	.620 [15.75]	.500 [12.70]	5-103904-5	5-103673-5	5-103672-5	5-104935-7	5-103635-5	5-103634-5
7	.800 [20.32]	.720 [18.29]	.600 [15.24]	5-103904-6	5-103673-6	5-103672-6	5-104935-8	5-103635-6	5-103634-6
8	.900 [22.86]	.820 [20.83]	.700 [17.78]	5-103904-7	5-103673-7	5-103672-7	5-104935-2	5-103635-7	5-103634-7
9	1.000 [25.40]	.920 [23.37]	.800 [20.32]	5-103904-8	5-103673-8	5-103672-8	5-104935-9	5-103635-8	5-103634-8
10	1.100 [27.94]	1.020 [25.91]	.900 [22.86]	5-103904-9	5-103673-9	5-103672-9	6-104935-0	5-103635-9	5-103634-9
11	1.200 [30.48]	1.120 [28.45]	1.000 [25.40]	6-103904-0	6-103673-0	6-103672-0	6-104935-1	6-103635-0	6-103634-0
12	1.300 [33.02]	1.220 [30.99]	1.100 [27.94]	6-103904-1	6-103673-1	6-103672-1	5-104935-4	6-103635-1	6-103634-1
13	1.400 [35.56]	1.320 [33.53]	1.200 [30.48]	6-103904-2	6-103673-2	6-103672-2	6-104935-2	6-103635-2	6-103634-2
14	1.500 [38.10]	1.420 [36.07]	1.300 [33.02]	6-103904-3	6-103673-3	6-103672-3	6-104935-3	6-103635-3	6-103634-3
15	1.600 [40.64]	1.520 [38.61]	1.400 [35.56]	6-103904-4	6-103673-4	6-103672-4	6-104935-4	6-103635-4	6-103634-4
16	1.700 [43.18]	1.620 [41.15]	1.500 [38.10]	6-103904-5	6-103673-5	6-103672-5	6-104935-5	6-103635-5	6-103634-5
17	1.800 [45.72]	1.720 [43.69]	1.600 [40.64]	6-103904-6	6-103673-6	6-103672-6	6-104935-6	6-103635-6	6-103634-6
18	1.900 [48.26]	1.820 [46.23]	1.700 [43.18]	6-103904-7	6-103673-7	6-103672-7	6-104935-7	6-103635-7	6-103634-7
19	2.000 [50.80]	1.920 [48.77]	1.800 [45.72]	6-103904-8	6-103673-8	6-103672-8	6-104935-8	6-103635-8	6-103634-8
20	2.100 [53.34]	2.020 [51.31]	1.900 [48.26]	6-103904-9	6-103673-9	6-103672-9	6-104935-9	6-103635-9	6-103634-9
21	2.200 [55.88]	2.120 [53.85]	2.000 [50.80]	7-103904-0	7-103673-0	7-103672-0	7-104935-0	7-103635-0	7-103634-0
22	2.300 [58.42]	2.220 [56.39]	2.100 [53.34]	7-103904-1	7-103673-1	7-103672-1	7-104935-1	7-103635-1	7-103634-1
23	2.400 [60.96]	2.320 [58.93]	2.200 [55.88]	7-103904-2	7-103673-2	7-103672-2	7-104935-2	7-103635-2	7-103634-2
24	2.500 [63.50]	2.420 [61.47]	2.300 [58.42]	7-103904-3	7-103673-3	7-103672-3	7-104935-3	7-103635-3	7-103634-3
25	2.600 [66.04]	2.520 [64.01]	2.400 [60.96]	7-103904-4	7-103673-4	7-103672-4	7-104935-4	7-103635-4	7-103634-4

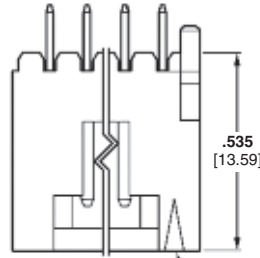
Notes: 1. Selectively loaded headers are available, consult TE.
 2. Use Keying Tool No. 91417-1 to remove post for keying.

Note: All part numbers are RoHS compliant.



MTE Headers, Shrouded Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With Swaged Tails and PC Board Orientation)



Swaged Retention Tail (See Note)

Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, plated .000100 [0.00254] tin over .000050 [0.00127] nickel on entire post

Related Product Data

Mateable AMPMODU MTE Products —

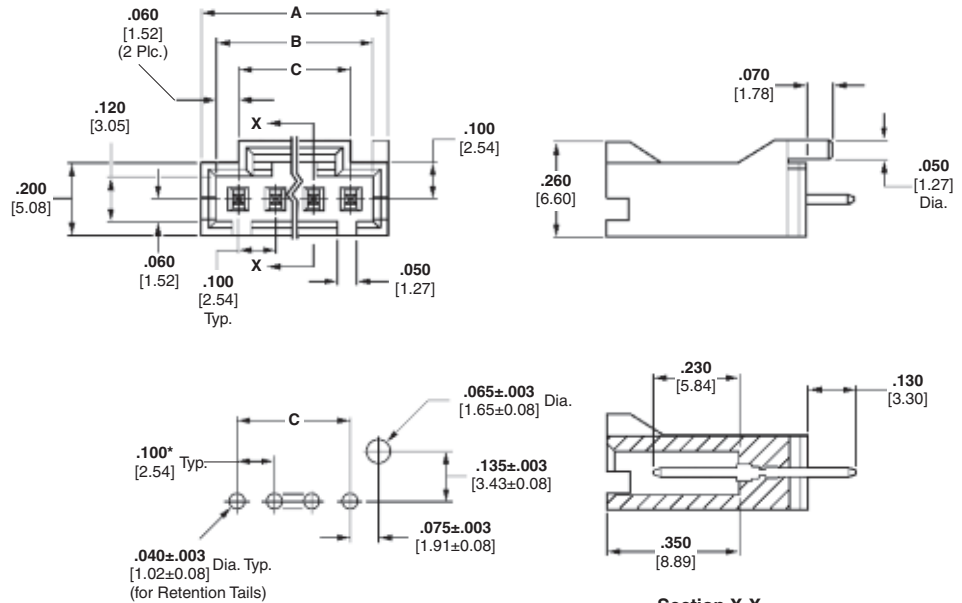
Receptacle Assemblies (Polarized/Latching) — pages 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification 108-25034

Application Specification 114-25026



Recommended PC Board Hole Layout

*±.003 [±0.08]; tolerances not to accumulate within one connector pattern.

Note: Swaged retention tails are provided in a minimum of two locations per header.

No. of Pos.	Dimensions			Latching Header
	A	B	C	
2	.300 [7.62]	.220 [5.59]	.100 [2.54]	5-104450-1
3	.400 [10.16]	.320 [8.13]	.200 [5.08]	5-104450-2
4	.500 [12.70]	.420 [10.67]	.300 [7.62]	5-104450-3
5	.600 [15.24]	.520 [13.21]	.400 [10.16]	5-104450-4
6	.700 [17.78]	.620 [15.75]	.500 [12.70]	5-104450-5
7	.800 [20.32]	.720 [18.29]	.600 [15.24]	5-104450-6
8	.900 [22.86]	.820 [20.83]	.700 [17.78]	5-104450-7
9	1.000 [25.40]	.920 [23.37]	.800 [20.32]	5-104450-8
10	1.100 [27.94]	1.020 [25.91]	.900 [22.86]	5-104450-9

Note: All part numbers are RoHS compliant.

MTE Headers, Through-hole, Surface Mount Compatible, Shrouded Polarized/Latching, Single-Row .100 [2.54] Centerline

.025 [0.64] Square Straight Post (With Swaged Tails and PC Board Orientation)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, duplex plated .000015 [0.00038] gold on contact area, .000100 [0.00254] min tin on solder tail, with entire post underplated .000050 [0.00127] nickel

Related Product Data

Mateable AMPMODU MTE Products —

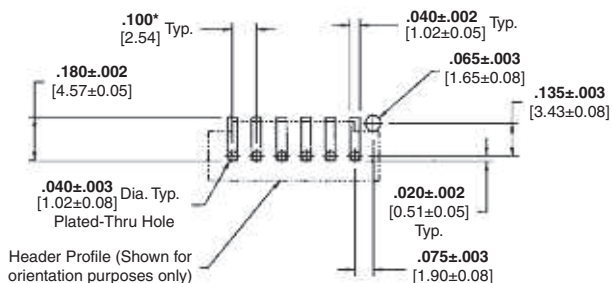
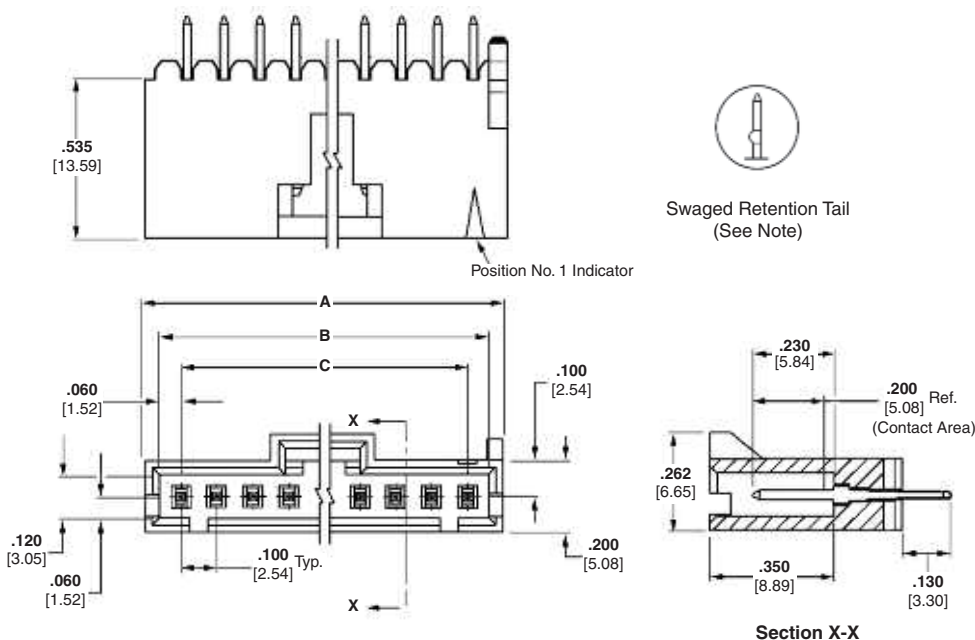
Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Receptacle Assemblies (Polarized Latching) — pages 230, 231

Technical Documents — pages 277, 278

Product Specification 108-25034

Application Specification 114-25026



Recommended PC Board Hole Layout (Stencil Thickness = .010 [0.25])

*±.003 [±0.08] tolerance not to accumulate within one connector pattern

No. of Pos.	Dimensions			Polarized/Latching Header, High-Temp
	A	B	C	
2	.300 [7.62]	.220 [5.59]	.100 [2.54]	5-104809-1
3	.400 [10.16]	.320 [8.13]	.200 [5.08]	5-104809-2
4	.500 [12.70]	.420 [10.67]	.300 [7.62]	5-104809-3
5	.600 [15.24]	.520 [13.21]	.400 [10.16]	5-104809-4
6	.700 [17.78]	.620 [15.75]	.500 [12.70]	5-104809-5
7	.800 [20.32]	.720 [18.29]	.600 [15.24]	5-104809-6
8	.900 [22.86]	.820 [20.83]	.700 [17.78]	5-104809-7
9	1.000 [25.40]	.920 [23.37]	.800 [20.32]	5-104809-8
10	1.100 [27.94]	1.020 [25.91]	.900 [22.86]	5-104809-9
11	1.200 [30.48]	1.120 [28.45]	1.000 [25.40]	6-104809-0
12	1.300 [33.02]	1.220 [30.99]	1.100 [27.94]	6-104809-1

Note: All part numbers are RoHS compliant.

MTE Headers, Polarized/Latching, Through-Hole, Surface Mount Compatible, Single-Row, .100 [2.54] Centerline

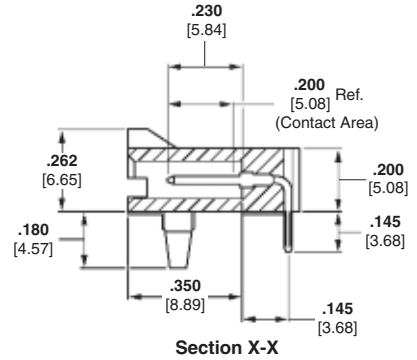
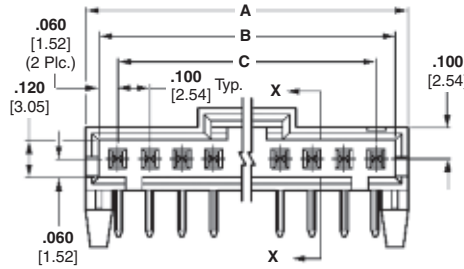
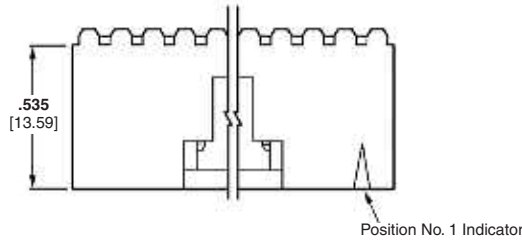
.025 [0.64] Square Right-Angle Post (With Holddown)



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, duplex plated .000015 [0.00038] gold on contact area, .000100 [0.00254] min. tin on solder tail, with entire post underplated .000050 [0.00127] nickel



Related Product Data

Mateable AMPMODU MTE Products —

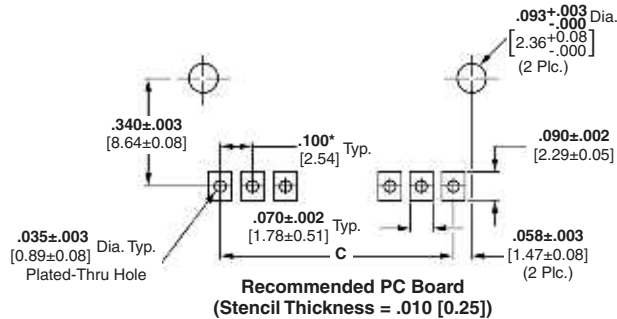
Receptacle Assemblies (Polarized/Latching) — pages 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification
108-25034

Application Specification
114-25026



Recommended PC Board
(Stencil Thickness = .010 [0.25])

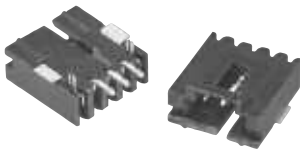
*±.003 [±0.08]; tolerance is not to accumulate within one connector pattern.

No. of Pos.	Dimensions			Right-Angle Header with Hold Down
	A	B	C	
2	.300 [7.62]	.220 [5.59]	.100 [2.54]	5-104361-1
3	.400 [10.16]	.320 [8.13]	.200 [5.08]	5-104361-2
4	.500 [12.70]	.420 [10.67]	.300 [7.62]	5-104361-3
5	.600 [15.24]	.520 [13.21]	.400 [10.16]	5-104361-4
6	.700 [17.78]	.620 [15.75]	.500 [12.70]	5-104361-5
7	.800 [20.32]	.720 [18.29]	.600 [15.24]	5-104361-6
8	.900 [22.86]	.820 [20.83]	.700 [17.78]	5-104361-7
9	1.000 [25.40]	.920 [23.37]	.800 [20.32]	5-104361-8
10	1.100 [27.94]	1.020 [25.91]	.900 [22.86]	5-104361-9
11	1.200 [30.48]	1.120 [28.44]	1.000 [25.40]	6-104361-0
12	1.300 [33.02]	1.220 [30.99]	1.100 [27.94]	6-104361-1
13	1.400 [35.56]	1.320 [33.53]	1.200 [30.48]	6-104361-2

No. of Pos.	Dimensions			Right-Angle Header with Hold Down
	A	B	C	
14	1.500 [38.10]	1.420 [36.07]	1.300 [33.02]	6-104361-3
15	1.600 [40.64]	1.520 [38.61]	1.400 [35.56]	6-104361-4
16	1.700 [43.18]	1.620 [41.15]	1.500 [38.10]	6-104361-5
17	1.800 [45.72]	1.720 [43.69]	1.600 [40.64]	6-104361-6
18	1.900 [48.26]	1.820 [46.23]	1.700 [43.18]	6-104361-7
19	2.000 [50.80]	1.920 [48.77]	1.800 [45.72]	6-104361-8
20	2.100 [53.34]	2.020 [51.31]	1.900 [48.26]	6-104361-9
21	2.200 [55.88]	2.120 [53.85]	2.000 [50.80]	7-104361-0
22	2.300 [58.42]	2.220 [56.39]	2.100 [53.34]	7-104361-1
23	2.400 [60.96]	2.320 [58.93]	2.200 [55.88]	7-104361-2
24	2.500 [63.50]	2.420 [61.47]	2.300 [58.42]	7-104361-3
25	2.600 [66.04]	2.520 [64.01]	2.400 [60.96]	7-104361-4

Note: All part numbers are RoHS compliant.

MTE Headers, Right-Angle, Polarized/Latching, Surface Mount



Material and Finish

Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, plated as follows:

Plating A — Duplex plated .000030 [.00076] gold on contact area, .000100 [.00254] min. tin on solder area, with entire post underplated .000050 [.00127] nickel.

Plating B — Duplex plated .000015 [.00038] gold on contact area, .000100 [.00254] min. tin on solder area, with entire post underplated .000050 [.00127] nickel.

Plating C — .000100 [.00254] tin 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)

Related Product Data

Mateable AMPMODU MTE Products —

Receptacle Assemblies (Polarized/Latching) — pages 230, 231

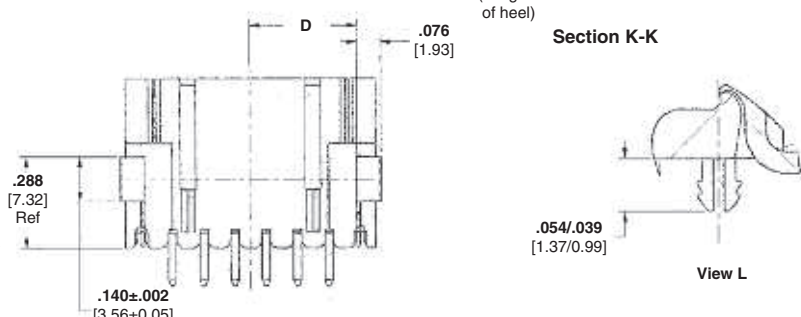
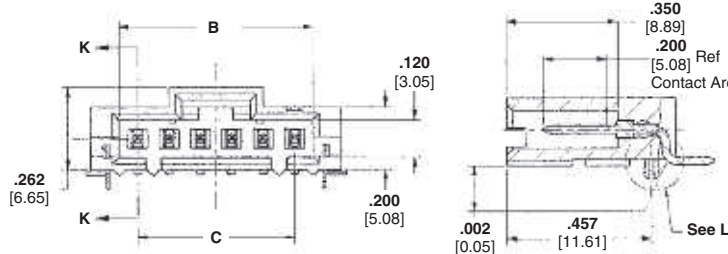
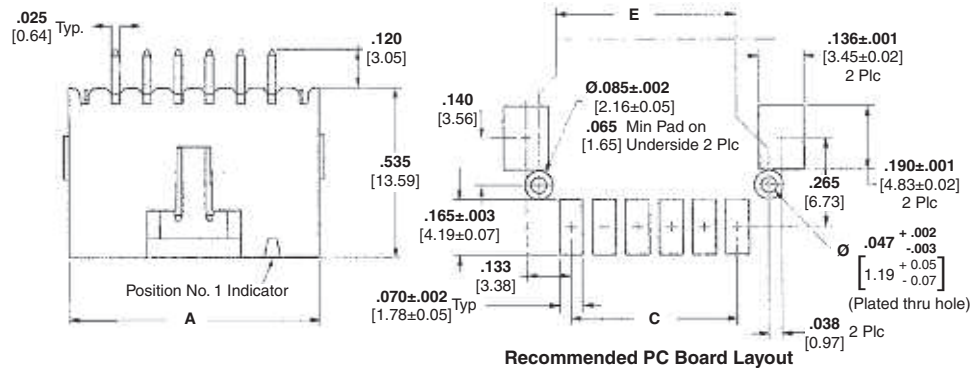
Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification
108-25034

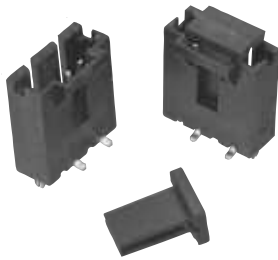
Application Specification
114-25026

Note: All part numbers are RoHS compliant.



No. of Pos.	Dimensions					Right-Angle Latching SMT Headers		
	A	B	C	D	E	Plating A	Plating B	Plating C
2	.400 [10.16]	.220 [5.59]	.100 [2.54]	.140 [3.56]	.290 [7.37]	5-147323-1	5-147278-1	5-147324-1
3	.500 [12.70]	.320 [8.13]	.200 [5.08]	.190 [4.83]	.390 [9.91]	5-147323-2	5-147278-2	5-147324-2
4	.600 [15.24]	.420 [10.67]	.300 [7.62]	.240 [6.10]	.490 [12.45]	5-147323-3	5-147278-3	5-147324-3
5	.700 [17.78]	.520 [13.21]	.400 [10.16]	.290 [7.37]	.590 [14.99]	5-147323-4	5-147278-4	5-147324-4
6	.800 [20.32]	.620 [15.75]	.500 [12.70]	.340 [8.64]	.690 [17.53]	5-147323-5	5-147278-5	5-147324-5
7	.900 [22.86]	.720 [18.29]	.600 [15.24]	.390 [9.91]	.790 [20.07]	5-147323-6	5-147278-6	5-147324-6
8	1.000 [25.40]	.820 [20.83]	.700 [17.78]	.440 [11.18]	.890 [22.61]	5-147323-7	5-147278-7	5-147324-7
9	1.100 [27.94]	.920 [23.37]	.800 [20.32]	.490 [12.45]	.990 [25.15]	5-147323-8	5-147278-8	5-147324-8
10	1.200 [30.48]	1.020 [25.91]	.900 [22.86]	.540 [13.72]	1.090 [27.69]	5-147323-9	5-147278-9	5-147324-9
11	1.300 [33.02]	1.120 [28.45]	1.000 [25.40]	.590 [14.99]	1.190 [30.23]	6-147323-0	6-147278-0	6-147324-0
12	1.400 [35.56]	1.220 [30.99]	1.100 [27.94]	.640 [16.26]	1.290 [32.77]	6-147323-1	6-147278-1	6-147324-1
13	1.500 [38.10]	1.320 [33.53]	1.200 [30.48]	.690 [17.53]	1.390 [35.31]	6-147323-2	6-147278-2	6-147324-2
14	1.600 [40.64]	1.420 [36.07]	1.300 [33.02]	.740 [18.80]	1.490 [37.85]	6-147323-3	6-147278-3	6-147324-3
15	1.700 [43.18]	1.520 [38.61]	1.400 [35.56]	.790 [20.07]	1.590 [40.39]	6-147323-4	6-147278-4	6-147324-4
16	1.800 [45.72]	1.620 [41.15]	1.500 [38.10]	.840 [21.34]	1.690 [42.93]	6-147323-5	6-147278-5	6-147324-5
17	1.900 [48.26]	1.720 [43.69]	1.600 [40.64]	.890 [22.61]	1.790 [45.47]	6-147323-6	6-147278-6	6-147324-6
18	2.000 [50.80]	1.820 [46.23]	1.700 [43.18]	.940 [23.88]	1.890 [48.01]	6-147323-7	6-147278-7	6-147324-7
19	2.100 [53.34]	1.920 [48.77]	1.800 [45.72]	.990 [25.15]	1.990 [50.55]	6-147323-8	6-147278-8	6-147324-8
20	2.200 [55.88]	2.020 [51.31]	1.900 [48.26]	1.040 [26.42]	2.090 [53.09]	6-147323-9	6-147278-9	6-147324-9
21	2.300 [58.42]	2.120 [53.85]	2.000 [50.80]	1.090 [27.69]	2.190 [55.63]	7-147323-0	7-147278-0	7-147324-0
22	2.400 [60.96]	2.220 [56.39]	2.100 [53.34]	1.140 [28.96]	2.290 [58.17]	7-147323-1	7-147278-1	7-147324-1
23	2.500 [63.50]	2.320 [58.93]	2.200 [55.88]	1.190 [30.23]	2.390 [60.71]	7-147323-2	7-147278-2	7-147324-2
24	2.600 [66.04]	2.420 [61.47]	2.300 [58.42]	1.240 [31.50]	2.490 [63.25]	7-147323-3	7-147278-3	7-147324-3
25	2.700 [68.58]	2.520 [64.01]	2.400 [60.96]	1.290 [32.77]	2.590 [65.79]	7-147323-4	7-147278-4	7-147324-4

MTE Headers, Vertical, Polarized/Latching, Surface Mount



Material and Finish

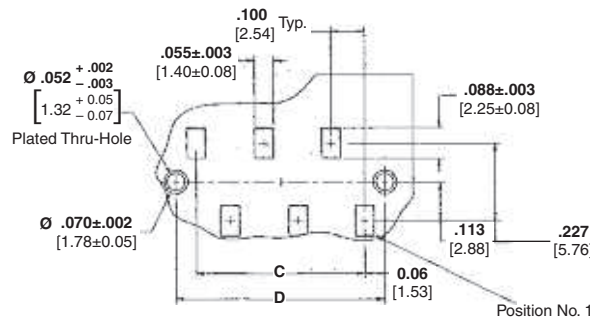
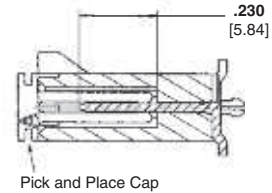
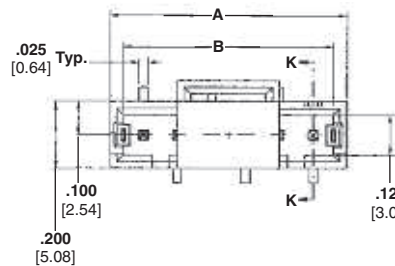
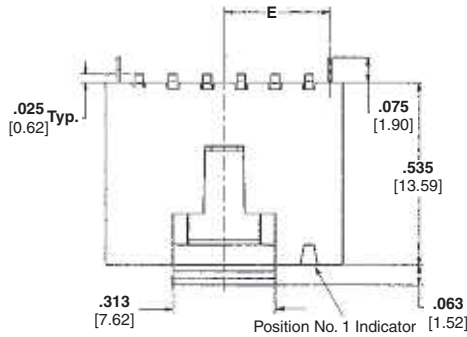
Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, plated as follows:

Plating A — Duplex plated .000030 [.00076] gold on contact area, .000100 [.00254] min. tin on solder area, with entire post underplated .000050 [.00127] nickel.

Plating B — Duplex plated .000015 [.00038] gold on contact area, .000100 [.00254] min. tin on solder area, with entire post underplated .000050 [.00127] nickel.

Plating C — .000100 [.00254] tin over .000050 [.00127] nickel on entire post



Recommended PC Board Layout

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

Related Product Data

Mateable AMPMODU MTE Products —

Receptacle Assemblies (Polarized/Latching) — pages 230, 231

Receptacle Assemblies with Guide Ribs (installed in Single-Row Coupling Shroud) — pages 232, 233, 235, 240

Technical Documents — pages 277, 278

Product Specification 108-25034

Application Specification 114-25026

No. of Pos.	Dimensions					Vertical SMT Headers		
	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]	5-1375583-1	5-1375582-1	5-1375549-1
3	.400[10.16]	.320[8.13]	.200[5.08]	.320[8.14]	.160[4.07]	5-1375583-2	5-1375582-2	5-1375549-2
4	.500[12.70]	.420[10.67]	.300[7.62]	.420[10.68]	.210[5.34]	5-1375583-3	5-1375582-3	5-1375549-3
5	.600[15.24]	.520[13.21]	.400[10.16]	.520[13.22]	.260[6.61]	5-1375583-4	5-1375582-4	5-1375549-4
6	.700[17.78]	.620[15.75]	.500[12.70]	.620[15.76]	.310[7.88]	5-1375583-5	5-1375582-5	5-1375549-5
7	.800[20.32]	.720[18.29]	.600[15.24]	.720[18.30]	.360[9.15]	5-1375583-6	5-1375582-6	5-1375549-6
8	.900[22.86]	.820[20.83]	.700[17.78]	.820[20.84]	.410[10.42]	5-1375583-7	5-1375582-7	5-1375549-7
9	1.000[25.40]	.920[23.37]	.800[20.32]	.920[23.38]	.460[11.69]	5-1375583-8	5-1375582-8	5-1375549-8
10	1.100[27.94]	1.020[25.91]	.900[22.86]	1.020[25.92]	.510[12.96]	5-1375583-9	5-1375582-9	5-1375549-9
11	1.200[30.48]	1.120[28.45]	1.000[25.40]	1.120[28.46]	.560[14.23]	6-1375583-0	6-1375582-0	6-1375549-0
12	1.300[33.02]	1.220[30.99]	1.100[27.94]	1.220[31.00]	.610[15.50]	6-1375583-1	6-1375582-1	6-1375549-1
13	1.400[35.56]	1.320[33.53]	1.200[30.48]	1.320[33.54]	.660[16.77]	6-1375583-2	6-1375582-2	6-1375549-2
14	1.500[38.10]	1.420[36.07]	1.300[33.02]	1.420[36.08]	.710[18.04]	6-1375583-3	6-1375582-3	6-1375549-3
15	1.600[40.64]	1.520[38.61]	1.400[35.56]	1.520[38.62]	.760[19.31]	6-1375583-4	6-1375582-4	6-1375549-4
16	1.700[43.18]	1.620[41.15]	1.500[38.10]	1.620[41.16]	.810[20.58]	6-1375583-5	6-1375582-5	6-1375549-5
17	1.800[45.72]	1.720[43.69]	1.600[40.64]	1.720[43.70]	.860[21.85]	6-1375583-6	6-1375582-6	6-1375549-6
18	1.900[48.26]	1.820[46.23]	1.700[43.18]	1.820[46.24]	.910[23.12]	6-1375583-7	6-1375582-7	6-1375549-7
19	2.000[50.80]	1.920[48.77]	1.800[45.72]	1.920[48.78]	.960[24.39]	6-1375583-8	6-1375582-8	6-1375549-8
20	2.100[53.34]	2.020[51.31]	1.900[48.26]	2.020[51.32]	1.010[25.66]	6-1375583-9	6-1375582-9	6-1375549-9
21	2.200[55.88]	2.120[53.85]	2.000[50.80]	2.120[53.86]	1.060[26.93]	7-1375583-0	7-1375582-0	7-1375549-0
22	2.300[58.42]	2.220[56.39]	2.100[53.34]	2.220[56.40]	1.110[28.20]	7-1375583-1	7-1375582-1	7-1375549-1
23	2.400[60.96]	2.320[58.93]	2.200[55.88]	2.320[58.94]	1.160[29.47]	7-1375583-2	7-1375582-2	7-1375549-2
24	2.500[63.50]	2.420[61.47]	2.300[58.42]	2.420[61.48]	1.210[30.74]	7-1375583-3	7-1375582-3	7-1375549-3
25	2.600[66.04]	2.520[64.01]	2.400[60.96]	2.520[64.02]	1.260[32.01]	7-1375583-4	7-1375582-4	7-1375549-4

Note: All part numbers are RoHS compliant.

Interchangeable Contacts, Wire Crimp (Snap-In)

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 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 in crimp area, with entire contact underplated .000050 [0.00127] min. nickel

Plating C — .000100 [0.00254] min. tin over .000050 [0.00127] min. nickel on entire contact



Keying Plug

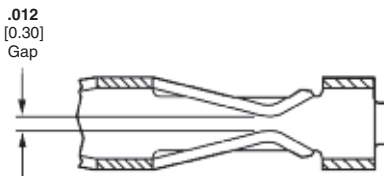
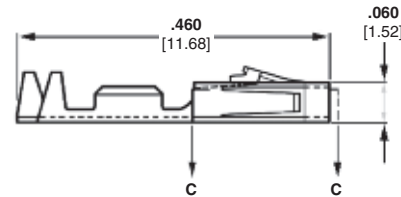
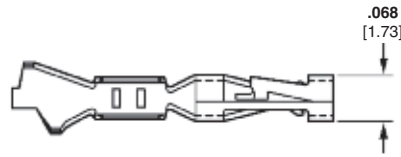
Part No. 104072-1

Ten plugs are supplied per strip. Order quantity reflects the number of strips required.



Extraction/Lance Reset
Tool No. 843477-1

Short Point Receptacles



Section C - C

Related Product Data

Performance Characteristics — page 221

Housings used in — Short Point—pages 223, 224

AMPMODU MTE Unloaded Housings — pages 228-233

Application Tooling — pages 270-272

Technical Documents — pages 277, 278

Product Specification
108-1472, 108-1472-1

Application Specification
114-25038

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part No. (Standard Pressure)		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Nos.
			Strip Form	Loose Piece			
32-28 0.03-0.08	.025-.060 0.64-1.52	Plating A	1-104481-1	1-104481-3	567296-2	466980-1	91518-1
		Plating B	1-104481-0	1-104481-2			
		Plating C	5-104481-2	5-104481-6			
26-22 0.13-0.3	.025-.060 0.64-1.52	Plating A	1-104480-3	1-104480-6	567297-2	466981-1	91518-1
		Plating B	1-104480-2	1-104480-5			
		Plating C	1-104480-7	1-104480-4			
24-20 0.2-0.5	.025-.060 0.64-1.52	Plating A	1-104479-0	1-104479-3	567298-2	466982-1	91551-1
		Plating B	1-104479-9	1-104479-2			
		Plating C	1-104479-8	1-104479-1			

*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 270), 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.

Note: All part numbers are RoHS compliant.

Interchangeable Contacts, Wire Crimp (Snap-In) (Continued)

Material and Finish

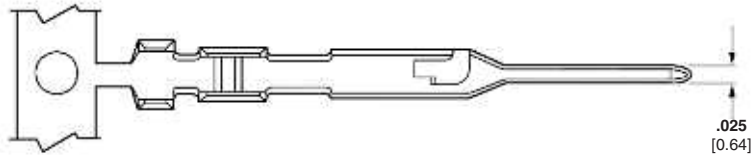
Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold on contact area, .000030 [0.00076] min. tin 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 on solder area, with entire contact underplated .000050 [0.00127] nickel

Plating C — .000100 [0.00254] tin over .000050 [0.00127] nickel on entire contact

Pins



**Extraction/Lance Reset
Tool No. 843477-1**

Related Product Data

Performance Characteristics — page 221

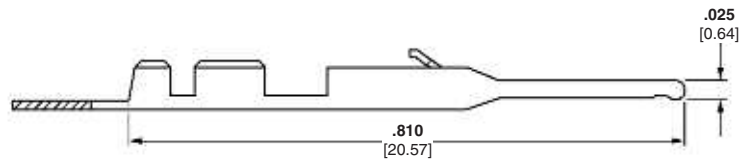
AMPMODU MTE Unloaded Housings — pages 228-233

Application Tooling — pages 270-272

Technical Documents — pages 277, 278

Product Specification 108-25034

Application Specification 114-25026



MTE Contacts
5

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part No. (Standard Pressure)		Heavy Duty Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine	Hand Tool Nos.
			Strip Form	Loose Piece			
32-28 0.03-0.08	.025-.054 0.64-1.37	Plating A	5-104506-6	5-104506-7	—	—	58342-2
		Plating B	5-104506-4	5-104506-5			
		Plating C	5-104506-2	5-104506-3			
26-22 0.14-0.32	.036-.054 0.91-1.37	Plating A	5-104505-6	5-104505-7	567239-2	466983-1	91531-1
		Plating B	5-104505-4	5-104505-5			
		Plating C	5-104505-2	5-104505-3			

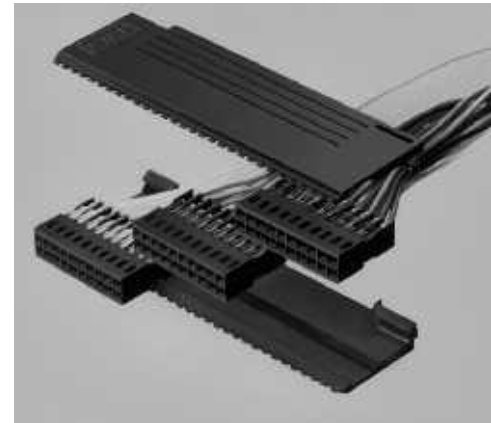
*For use with AMP-O-LECTRIC Model "K" machines. Call Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (shown on page 270), as well as other bench machines and fully automatic AMPOMATOR lead making machines.
Note: These wire crimp contacts can be intermixed with insulation displacement crimp contacts.

Note: All part numbers are RoHS compliant.

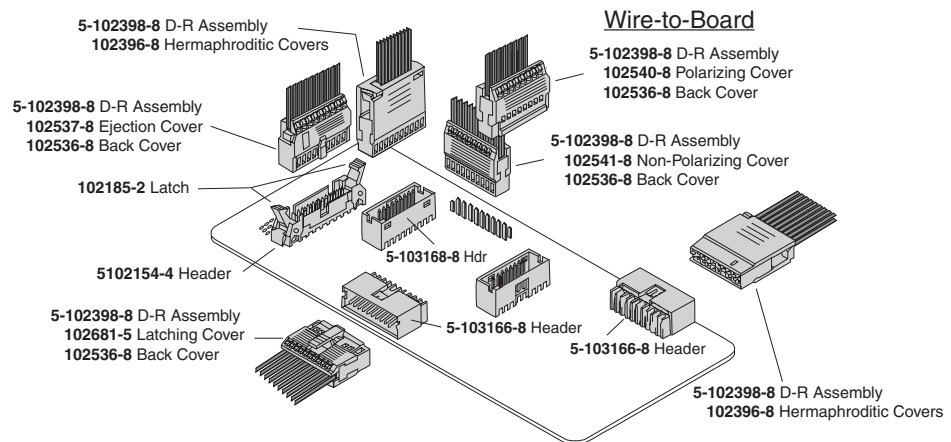
MT and Shielded MT Interconnection System

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 permanent deformation
- Redundant insulation displacement slots provide for maximum reliability
- Integral wire strain relief on contact can prevent wire motion from being transmitted to wire termination areas
- Built-in contact post stop can protect terminated wire from being disturbed by over-insertion of mating post, prevents 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.

Note: All part numbers are RoHS compliant.

MT Receptacle Assemblies, Double-Row .100 x .100 [2.54 x 2.54] Centerline

Housings Pre-loaded with Standard Pressure Contacts



Material and Finish

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

Contacts — Copper alloy, duplex plated .000030 [0.00076] gold in mating area, .000050 [0.00127] tin on solder tail, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors — pages 117, 122, 126, 130, 264

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 255

Replacement Contacts — page 265

Connector Covers — pages 258, 259

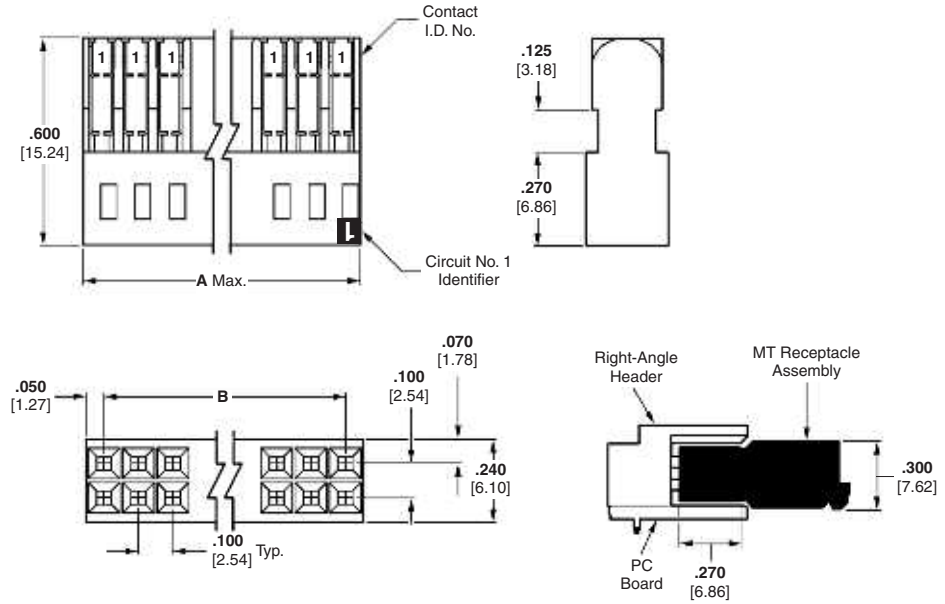
Application Tooling — pages 273-275

Technical Documents — pages 277, 278

Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

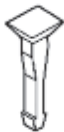
Instruction Sheet
408-6532



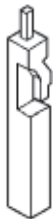
No. of Pos.	Dimensions		Part Nos. (Stamped)			Unloaded Housings
	A	B	Wire Size Range			
			30-26 AWG [0.05-0.15 mm ²]	26-22 AWG [0.12-0.3 mm ²]	22-20 AWG [0.3-0.6 mm ²]	
6	.300 [7.62]	.200 [5.08]	5-102393-1	5-102398-1	5-102448-1	102394-1
8	.400 [10.16]	.300 [7.62]	5-102393-2	5-102398-2	5-102448-2	102394-2
10	.500 [12.70]	.400 [10.16]	5-102393-3	5-102398-3	5-102448-3	102394-3
12	.600 [15.24]	.500 [12.70]	5-102393-4	5-102398-4	5-102448-4	102394-4
14	.700 [17.78]	.600 [15.24]	5-102393-5	5-102398-5	5-102448-5	102394-5
16	.800 [20.32]	.700 [17.78]	5-102393-6	5-102398-6	5-102448-6	102394-6
18	.900 [22.86]	.800 [20.32]	5-102393-7	5-102398-7	5-102448-7	102394-7
20	1.000 [25.40]	.900 [22.86]	5-102393-8	5-102398-8	5-102448-8	102394-8
22	1.100 [27.94]	1.000 [25.40]	5-102393-9	5-102398-9	5-102448-9	102394-9
24	1.200 [30.48]	1.100 [27.94]	6-102393-0	6-102398-0	6-102448-0	1-102394-0
26	1.300 [33.02]	1.200 [30.48]	6-102393-1	6-102398-1	6-102448-1	1-102394-1
28	1.400 [35.56]	1.300 [33.02]	6-102393-2	6-102398-2	6-102448-2	1-102394-2
30	1.500 [38.10]	1.400 [35.56]	6-102393-3	6-102398-3	6-102448-3	1-102394-3
32	1.600 [40.64]	1.500 [38.10]	6-102393-4	6-102398-4	6-102448-4	1-102394-4
34	1.700 [43.18]	1.600 [40.64]	6-102393-5	6-102398-5	6-102448-5	1-102394-5
40	2.000 [50.80]	1.900 [48.26]	6-102393-8	6-102398-8	6-102448-8	1-102394-8
50	2.500 [63.50]	2.400 [60.96]	7-102393-3	7-102398-3	7-102448-3	2-102394-3
60	3.000 [76.20]	2.900 [73.66]	7-102393-8	7-102398-8	7-102448-8	2-102394-8
64	3.200 [81.28]	3.100 [78.74]	8-102393-0	8-102398-0	8-102448-0	3-102394-0

Note: Contact Extraction/Lance Reset Tool No. 843477-3, see page 265.

Keying Plugs



Part No. 86286-1
(Plugs into receptacle contact)



Part No. 87077-2
(Plugs directly into housing)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

MT Receptacle Assemblies, Double-Row .100 x .100 [2.54 x 2.54] Centerline (Continued)

Housings Pre-loaded with High Pressure Contacts



Material and Finish

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

Contacts — Copper alloy, duplex plated .000030 [0.00076] gold in mating area, .000050 [0.00127] tin on solder tails, with entire contact underplated .000050 [0.00127] nickel

Related Product Data

Mateable Connectors — pages 117, 122, 126, 130, 264

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 255

Replacement Contacts — page 265

Connector Covers — pages 258, 259

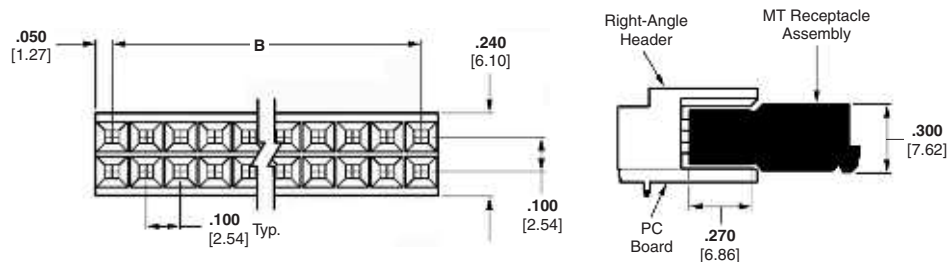
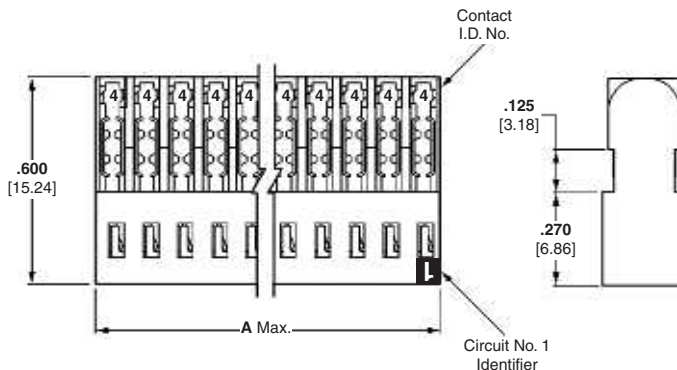
Application Tooling — pages 273-275

Technical Documents — pages 277, 278

Product Specification 108-25015, 108-25018, 108-25030

Application Specification 114-25032

Instruction Sheet 408-6532

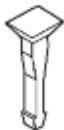


No. of Pos.	Dimensions		Part Nos. (Stamped*)		
	A	B	Wire Size Range		
			30-26 AWG [0.05-0.15 mm ²]	26-22 AWG [0.12-0.3 mm ²]	22-20 AWG [0.3-0.6 mm ²]
6	.300 [7.62]	.200 [5.08]	5-102693-1	5-102694-1	5-102695-1
8	.400 [10.16]	.300 [7.62]	5-102693-2	5-102694-2	5-102695-2
10	.500 [12.70]	.400 [10.16]	5-102693-3	5-102694-3	5-102695-3
12	.600 [15.24]	.500 [12.70]	5-102693-4	5-102694-4	5-102695-4
14	.700 [17.78]	.600 [15.24]	5-102693-5	5-102694-5	5-102695-5
16	.800 [20.32]	.700 [17.78]	5-102693-6	5-102694-6	5-102695-6
18	.900 [22.86]	.800 [20.32]	5-102693-7	5-102694-7	5-102695-7
20	1.000 [25.40]	.900 [22.86]	5-102693-8	5-102694-8	5-102695-8

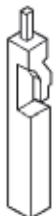
*Cavity identification — first cavity (one side); TE Part No. and date code stamped on housing where size permits.

Note: Contact Extraction/Lance Reset Tool No. 843477-3, see page 265.

Keying Plugs



Part No. 86286-1
(Plugs into receptacle contact)



Part No. 87077-2
(Plugs directly into housing)

Material — Natural color nylon

Note: All part numbers are RoHS compliant.

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 256, 257

Technical Documents —
pages 277, 278

Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

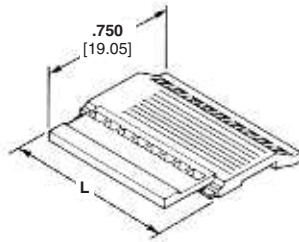
Instruction Sheet
408-6532

Note: See page 259 for Low Profile Cover Part Nos.

Front Covers

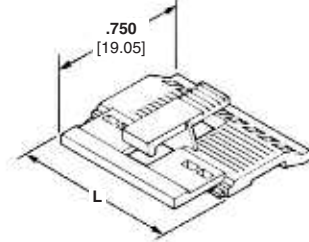
A - Polarizing Cover

(Mates with AMPMODU 4-sided shrouded headers. Refer to pages 117, 122, 126, 130.)



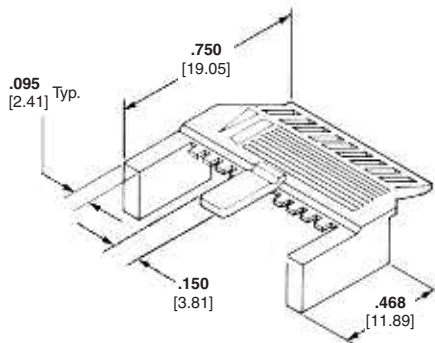
B - Latching Cover

(Mates with AMPMODU 4-sided shrouded headers with extraction slot. Refer to pages 117, 122, 126, 130.)



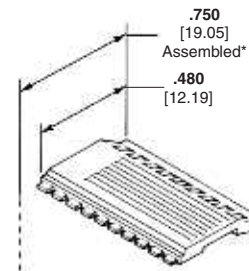
C - Ejection Cover

(Mates with AMP-LATCH universal ejection style pin headers equipped with latching ears, Part No. 102185-2 (with push tabs) or Part No. 102312-2 (without push tabs), see TE Catalog 82012.



D - Non-Polarizing Cover

(Designed for use with shielded connectors, pages 261 & 262; or for non-polarizing applications.)

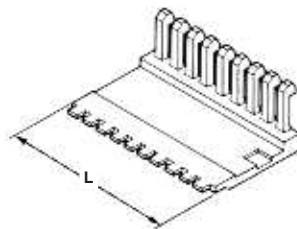


*Dimension applies to cover when installed on connector housing.

Back Covers

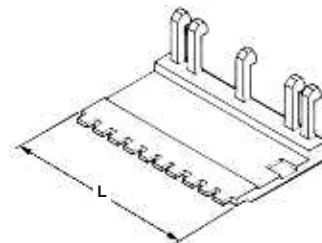
E - For Shielding and Non-Shielding Applications

(For use with any low profile cover.)



F - For Shielding Applications

(For use with Non-Polarizing Cover only.)



Note: All part numbers are RoHS compliant.

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 256, 257

Technical Documents — pages 277, 278

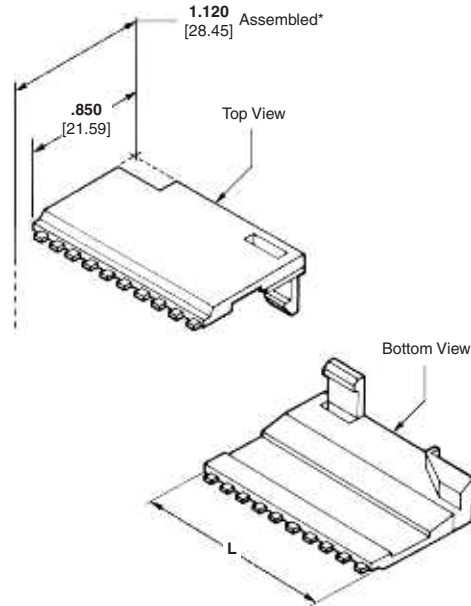
Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

Instruction Sheet
408-6532

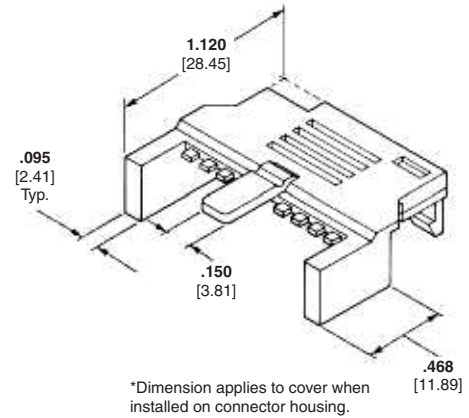
G - Hermaphroditic Cover

(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 No. 102185-2 (with push tabs) or Part No. 102312-2 (without push tabs), see TE Catalog 82012.)



No. of Pos.	Dimension L	Low Profile Covers						Standard Profile Covers	
		Front Covers				Back Covers		G Hermaphroditic	H Ejection
		A Polarizing	B Latching	C Ejection	D Non-Polarizing	E Shielding and Non-Shielding Applications	F Shielding Applications		
6	.300 [7.62]	102540-1	—	102537-1	102541-1	102536-1	—	102396-1	—
8	.400 [10.16]	102540-2	—	102537-2	102541-2	102536-2	—	102396-2	—
10	.500 [12.70]	102540-3	—	102537-3	102541-3	102536-3	—	102396-3	—
12	.600 [15.24]	102540-4	102681-1	102537-4	102541-4	102536-4	102823-5	102396-4	—
14	.700 [17.78]	102540-5	102681-2	102537-5	102541-5	102536-5	102823-6	102396-5	—
16	.800 [20.32]	102540-6	102681-3	102537-6	102541-6	102536-6	102823-7	102396-6	—
18	.900 [22.86]	102540-7	102681-4	102537-7	102541-7	102536-7	102823-1	102396-7	—
20	1.000 [25.40]	102540-8	102681-5	102537-8	102541-8	102536-8	102823-4	102396-8	103268-6
22	1.100 [27.94]	102540-9	102681-6	102537-9	102541-9	102536-9	102823-8	102396-9	—
24	1.200 [30.48]	1-102540-0	102681-7	1-102537-0	1-102541-0	1-102536-0	102823-9	1-102396-0	103268-7
26	1.300 [33.02]	1-102540-1	102681-8	1-102537-1	1-102541-1	1-102536-1	1-102823-0	1-102396-1	103268-8
28	1.400 [35.56]	1-102540-2	102681-9	1-102537-2	1-102541-2	1-102536-2	1-102823-1	1-102396-2	—
30	1.500 [38.10]	1-102540-3	1-102681-0	1-102537-3	1-102541-3	1-102536-3	1-102823-2	1-102396-3	103268-9
32	1.600 [40.64]	—	1-102681-1	1-102537-4	1-102541-4	1-102536-4	1-102823-3	1-102396-4	—
34	1.700 [43.18]	—	1-102681-2	1-102537-5	1-102541-5	1-102536-5	1-102823-4	1-102396-5	1-103268-0
40	2.000 [50.80]	—	1-102681-5	1-102537-8	1-102541-8	1-102536-8	102823-2	1-102396-8	—
50	2.500 [63.50]	—	2-102681-0	2-102537-3	2-102541-3	2-102536-3	102823-3	2-102396-3	1-103268-3
60	3.000 [76.20]	—	—	2-102537-8	2-102541-8	2-102536-8	—	2-102396-8	—
64	3.200 [81.28]	—	—	3-102537-0	3-102541-0	3-102536-0	—	3-102396-0	—

Note: All part numbers are RoHS compliant.

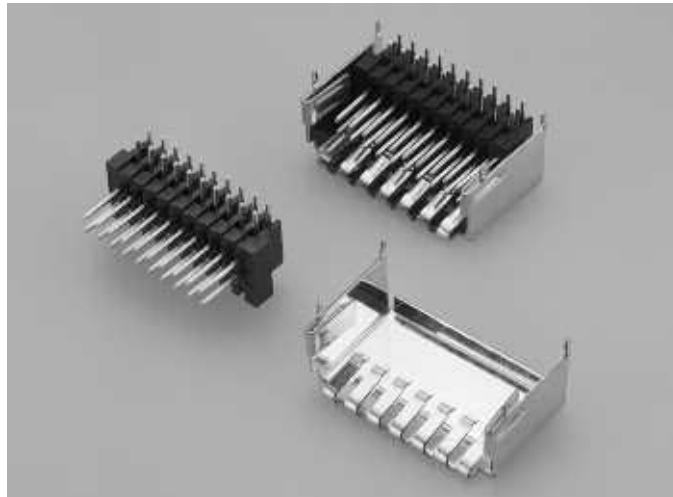
Shielding Hardware and Accessories for MT Interconnection System

Product Facts

- Add-on shielding accessories for existing AMPMODU Standard MT and PC board mounted headers
- Compact design
- Tin plated copper alloy material
- Redundant cantilever beams provide for good peripheral contact, eliminating the need for a separate RF gasket
- Polarized mating
- 360° cable braid termination with cable jacket support
- Cable shielding hardware permits molded cable terminations after assembly
- Must be used with braided shielded cables
- Solder tabs on right-angle header shields are self-retaining in a PC board



Shielded MT Receptacles



Shielded Right-Angle Headers

The shielded AMPMODU MT system features add-on metal shielding kits for double-row standard MT receptacle assemblies and double-row right-angle headers.

Cable shielding hardware consists of a ferrule and two stamped and formed shell halves. The inner shell half has a series of integral cantilever beams to provide

good peripheral contact with the mating outer shell half. This feature also eliminates the need for a separate RF gasket. Detents in the cantilever beam provide a positive lock when the two halves are mated. During assembly the inner and outer shell halves are snapped together over a terminated standard MT connector.

Shields for right-angle headers have integral cantilever beams which provide good contact with the mating shielded MT receptacle assembly, without the use of a separate RF gasket.

Shielding Hardware and Accessories for Double-Row MT Receptacle Assemblies

Two-Piece Shields— Straight Exit

Material and Finish

Shell Halves — Copper alloy, .020 [0.51] thick; pretinned .000030 [0.00076] min.

Related Product Data

Double-Row MT Receptacle Assemblies — pages 256, 257

Non-Polarizing Covers (Part No. Series 102541 with back cover 102536 or 102823) — pages 258, 259

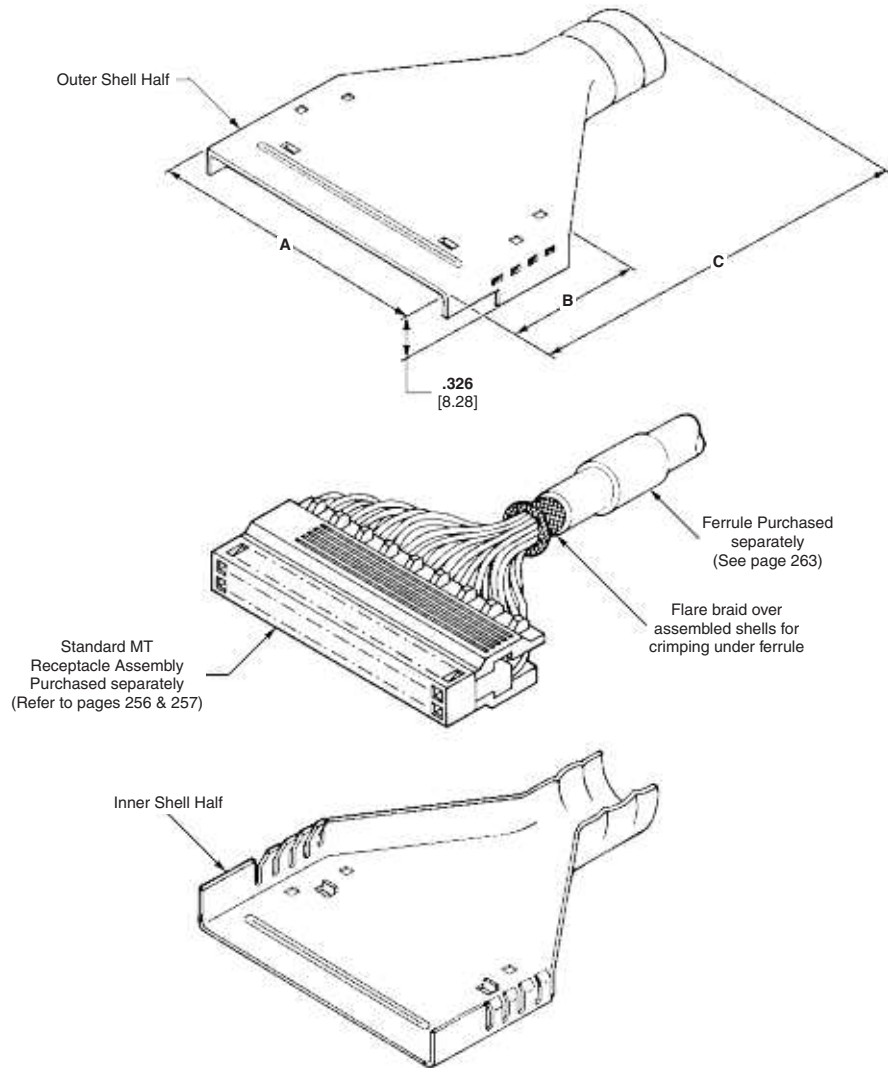
Shield Ferrules — page 263

Technical Documents — pages 277, 278

Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

Instruction Sheet
408-6532



No. of Pos.	Dimensions			Part Nos.	
	A	B	C	Outer Shell	Inner Shell
6	.410 [10.41]	.817 [20.75]	1.268 [32.21]	102988-2	102987-6
10	.610 [15.49]	.817 [20.75]	1.667 [42.34]	103137-2	103136-2
16	.910 [23.11]	.950 [24.13]	1.925 [48.90]	103153-2	103152-2
26	1.410 [35.81]	.950 [24.13]	1.925 [48.90]	103341-2	103340-2
40	2.110 [53.59]	1.325 [33.66]	2.468 [62.69]	104272-1	104271-1
50	2.610 [66.29]	.950 [24.13]	2.468 [62.69]	103158-2	103157-2

Note: Match shield size to number of connector positions.

Note: All part numbers are RoHS compliant.

Shielding Hardware and Accessories for Double-Row MT Receptacle Assemblies (Continued)

Two-Piece Shields— Right-Angle Exit

Material and Finish

Shell Halves — Copper alloy, .020 [0.51] thick; pretinned .000030 [0.00076] min.

Related Product Data

Double-Row MT Receptacle Assemblies — pages 256, 257

Non-Polarizing Covers (Part No. Series 102541 with back cover 102536 or 102823) — pages 258, 259

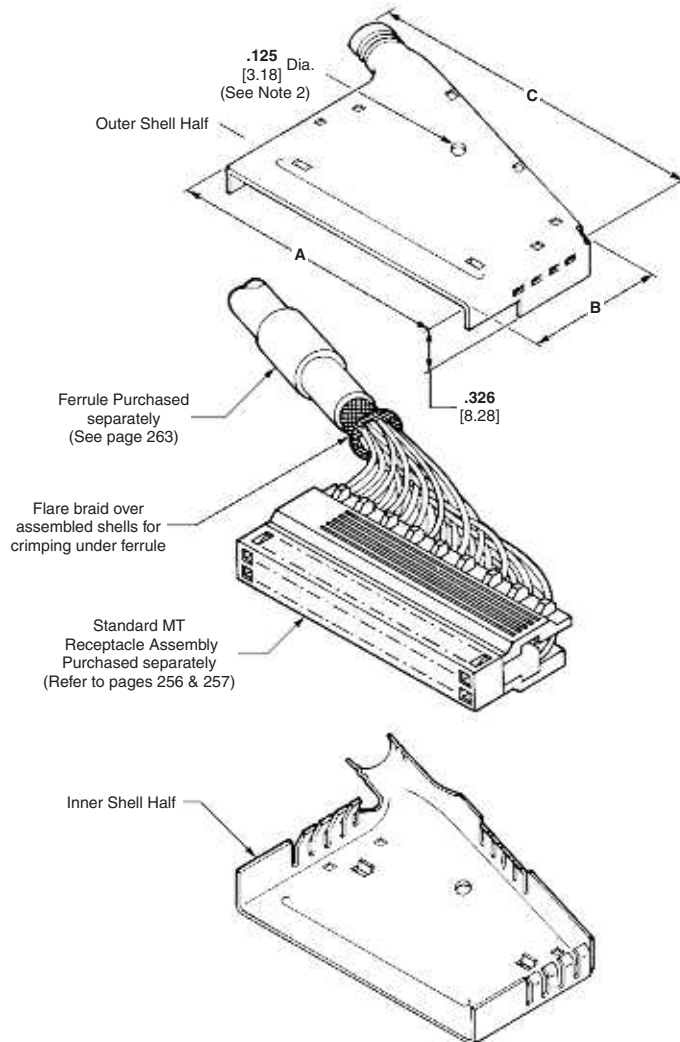
Shield Ferrules — page 263

Technical Documents — pages 277, 278

Product Specification
108-25015, 108-25018, 108-25030

Application Specification
114-25032

Instruction Sheet
408-6532



No. of Pos.	Dimensions			Part Nos.	
	A	B	C	Outer Shell	Inner Shell
18	1.010 [25.65]	1.120 [28.45]	1.413 [35.89]	102784-2	102783-2
26	1.410 [35.81]	1.166 [29.62]	1.975 [50.17]	103139-2	103138-2
40	2.110 [53.59]	1.135 [28.83]	2.633 [66.88]	102786-2	102785-2
50	2.610 [66.29]	.983 [24.97]	3.133 [79.58]	102788-2	102787-2
60	3.110 [78.99]	1.118 [28.40]	3.606 [91.59]	103141-2	103140-2

Notes: 1. Match shield size to number of connector positions.
2. Hole is provided in 26 through 60-position cable shields for application of optional cable tie pull ring after assembly.

Note: All part numbers are RoHS compliant.

Shielding Hardware and Accessories for Double-Row MT Receptacle Assemblies (Continued)

Ferrules for Shielding Kits

Material and Finish

Soft copper, tin plated

Related Product Data

Used with Shielding Kits —
pages 261, 262

Technical Documents

pages 277, 278

Product Specification

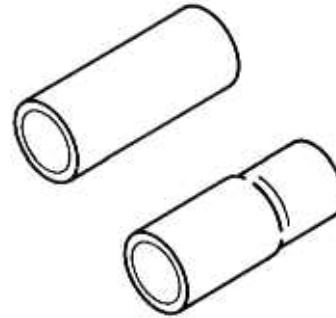
108-25015, 108-25018, 108-25030

Application Specification

114-25032

Instruction Sheet

408-6532



Application Tooling



AMP-O-LECTRIC Model "G" Terminating Machine



TE Hand Tool 91410-1 (Die Set required, see table below)

No. of Pos.	Straight-Exit Shields		Right-Angle Exit Shields		Cable Dia. Range	Ferrule Part Number	Applicator Die* Assembly Part No.	Hand Tool Die Sets	
	Outer	Inner	Outer	Inner				Insulation	Braid
6	102988-2	102987-6	—	—	0.200-0.250 [5.08-6.35]	102985-4	812665-2	1-527116-8	527116-4
					0.250-0.300 [6.35-7.62]	5-102903-2	812665-5	1-527116-6	527116-3
					0.310-0.360 [7.87-9.14]	5-102903-1	812665-4	1-527116-5	527116-3
10	103137-2	103136-2	—	—	0.370-0.420 [9.40-10.67]	5-102789-1	812665-3	1-527116-4	527116-3
					0.190-0.240 [4.83-6.10]	5-102903-3	812665-6	1-527116-7	527116-3
					0.250-0.300 [6.35-7.62]	5-102903-2	812665-5	1-527116-6	527116-3
16	103153-2	103152-2	—	—	0.310-0.360 [7.87-9.14]	5-102903-1	812665-4	1-527116-5	527116-3
					0.370-0.420 [9.40-10.67]	5-102789-1	812665-3	1-527116-4	527116-3
					0.190-0.240 [4.83-6.10]	5-102903-3	812665-6	1-527116-7	527116-3
18	—	—	102784-2	102783-2	0.250-0.300 [6.35-7.62]	5-102903-2	812665-5	1-527116-6	527116-3
					0.310-0.360 [7.87-9.14]	5-102903-1	812665-4	1-527116-5	527116-3
					0.370-0.420 [9.40-10.67]	5-102903-1	812665-3	1-527116-4	527116-3
26	103341-2	103340-2	103139-2	103138-2	0.320-0.370 [8.13-9.40]	5-102903-4	812665-9	1-527116-3	527116-2
					0.430-0.460 [10.92-11.68]	5-102789-2	812665-7	1-527116-1	527116-2
					0.320-0.370 [8.13-9.40]	5-102903-4	812665-9	1-527116-3	527116-2
40	104272-1	104271-1	102786-2	102785-2	0.430-0.460 [10.92-11.68]	5-102789-2	812665-7	1-527116-1	527116-2
					0.380-0.420 [9.65-10.67]	5-102903-6	1-812665-5	1-527116-2	527116-1
					0.430-0.460 [10.92-11.68]	5-102903-5	1-812665-4	1-527116-1	527116-1
50	103158-2	103157-2	102788-2	102787-2	0.470-0.520 [11.94-13.21]	5-102789-3	1-812665-3	1-527116-0	527116-1
					0.470-0.520 [11.94-13.21]	5-102903-8	1-812665-8	—	—
					0.500-0.545 [12.70-13.84]	5-102903-7	1-812665-7	—	—
60	—	—	103141-2	103140-2	0.550-0.600 [13.97-15.24]	5-102789-4	1-812665-6	—	—
					0.550-0.600 [13.97-15.24]	5-102903-4	1-812665-6	—	—

*For use with Model "K" machines. Call the TE Technical Support Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (also shown on page 270), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

- Notes:** 1. Ferrules are used with shielding kits shown on pages 261 & 262, and are purchased separately.
2. Individual anvils and crimpers also may be purchased separately.
3. Ferrule Part Number 1-102903-8 also requires Spacer Part Number 527116-9.

Note: All part numbers are RoHS compliant.

Shielded MT Headers for use with Shielded MT Receptacle Assemblies

AMPMODU Right-Angle Headers PC Board Mounted

Material and Finish

Housing — Black thermoplastic, flame retardant

Posts — Copper alloy, plated .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Shield — Copper alloy, .020 [0.51] thick; pretinned .000030 [0.00076] min.

Related Product Data

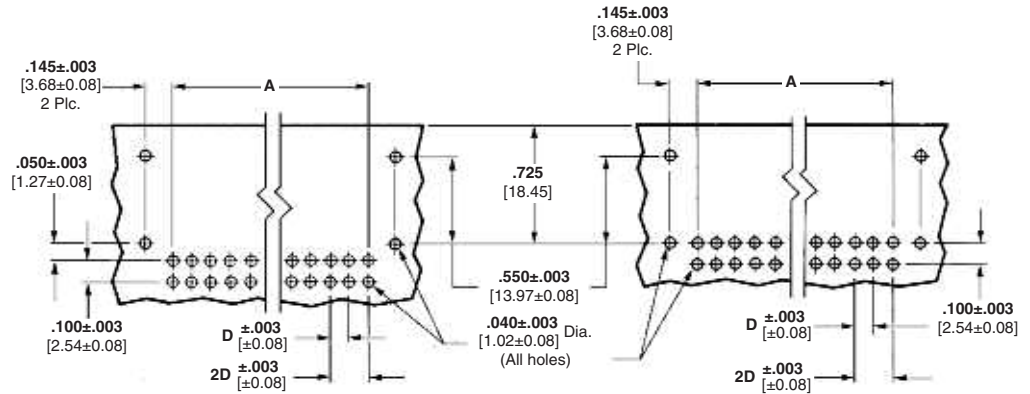
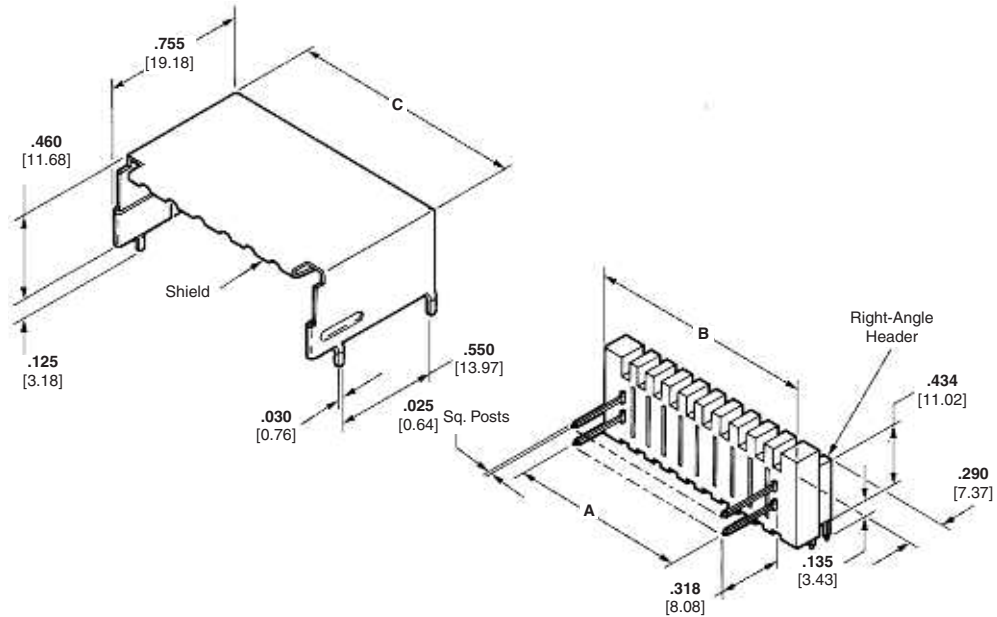
Mating Connectors — Double-Row MT Receptacle Assemblies with Shielding Hardware — pages 256-263

Technical Documents — pages 277, 278

Product Specification 108-25015, 108-25018, 108-25030

Application Specification 114-25032.

Instruction Sheet 408-6532



Recommended PC Board Hole Layout for 6, 8 and 10 Positions

Recommended PC Board Hole Layout for 16 thru 50 Positions

D - Contact centerline is .100 [2.54]; ±.003 [0.08] tolerances not to accumulate within one connector pattern.

No. of Pos.	Dimensions			Header Part Nos.	Shield Part Nos.
	A	B	C		
6	.200 [5.08]	.430 [10.92]	.510 [12.95]	102792-6	102991-1
8	.300 [7.62]	.530 [13.46]	.610 [15.49]	102792-8	102991-2
10	.400 [10.16]	.630 [16.00]	.710 [18.03]	102792-1	102791-2
16	.700 [17.78]	.930 [23.62]	1.010 [25.65]	102792-7	102791-3
18	.800 [20.32]	1.030 [26.16]	1.110 [28.19]	102792-2	102791-4
20	.900 [22.86]	1.130 [28.70]	1.210 [30.73]	102792-5	1-102791-0
26	1.200 [30.48]	1.430 [36.32]	1.510 [38.35]	102792-9	102791-1
50	2.400 [60.96]	2.630 [66.80]	2.710 [68.83]	102792-4	102791-8

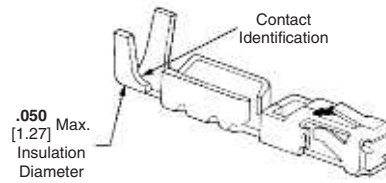
Note: All part numbers are RoHS compliant.

Replacement MT Receptacle Contacts

Insulation Displacement Contacts

Material and Finish

Copper alloy, duplex plated .000030 [0.00076] gold in mating area, .000100-.000200 [0.00254-0.00508] tin in crimp area, with entire contact underplated .000050 [0.00127] nickel



Related Product Data

Performance Characteristics — page 255

Application Tooling — pages 273-275

Technical Documents — pages 277, 278

Product Specification
108-25015, 108-25018, 108-25030

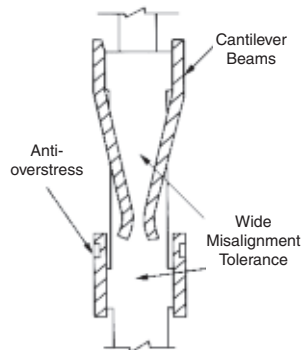
Application Specification
114-25032

Instruction Sheet
408-6532

Wire Size Range		Standard Pressure Receptacle		High Pressure Receptacle	
AWG	[mm ²]	Contact Ident.	Part No.	Contact Ident.	Part No.
30-26	0.05-0.15	1	5-102395-2	4	5-102641-6
26-22	0.12-0.3	2	5-102399-1	5	5-102642-6
22-20	0.3-0.6	3	5-102449-6	—	—

Note: Termination tooling for MT receptacle insulation displacement contacts is shown on pages 273-275.

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 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 helping to prevent damage during handling and assembly, and makes the system compatible with automatic application techniques.





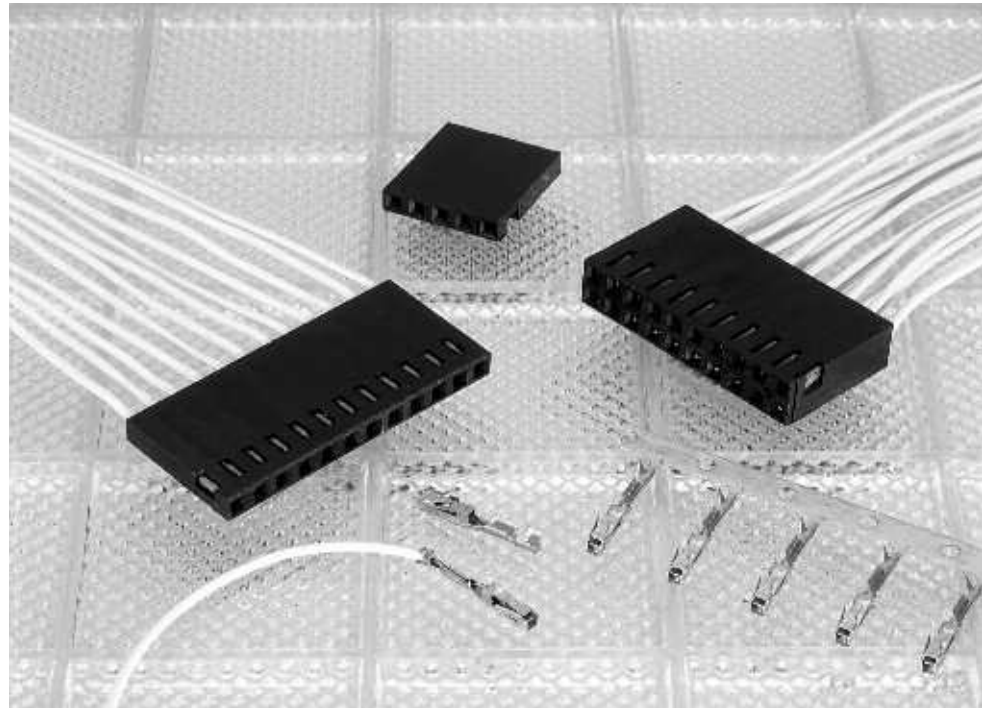
**Extraction/Lance Reset Tool
No. 843477-3**

Note: All part numbers are RoHS compliant.

Mini-Tandem Spring Receptacle Housings and Contacts

Product Facts

- Individual contacts mate with .025 [0.64] sq. posts, .125 [3.18] long
- Crimp snap-in contacts accept 32-22 AWG [0.03-0.32 mm²] wire
- Retention latch provides for positive installation
- No insertion tool required
- High durability design provides long life
- Available with .000015 [0.00038] or .000030 [0.00076] thick gold inlay in contact areas, or bright tin plated
- Closed-entry housings
- Mini-contact box size: .060 [1.52] sq.
- Mini-Tandem Spring Housings can be stacked on .100 [2.54] centers in either direction
- Mini-Tandem Spring Housings are Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR 7189



Mini-Tandem Spring Receptacle Contacts are designed to mate with .025 [0.64] posts. When used individually, they will mate with posts as short as .125 [3.18] and when used in a housing, they will mate with .140 [3.55] long posts. These versatile contacts may be used for interconnecting posted pc panels, I/O wiring and cross-connecting pin arrays.

The receptacle contact's box configuration provides for long contact life with controlled contact mating forces which minimize wear. An external retention spring facilitates quick assembly and provides firm seating in a contact housing.

Mini-Tandem Spring Receptacle Contacts are used in single- or double-row housings with .100 [2.54] centerline spacing. Single-row housings can be converted into double-row connectors on .100 x .200 [2.54 x 5.08] centers with the use of stacking clips.

Mini-Tandem Spring Housings can be stacked side-by-side or end-to-end on .100 [2.54] centers.

Specifications

Contact Current Rating — 3 amperes

Termination Resistance — 12 milliohms (max.) — gold plated contacts
18 milliohms (max.) — tin plated contacts

Durability — Ref. Product Specification 108-25031

Mini-Tandem Spring Housings, Single-Row

.100 [2.54] Centerline

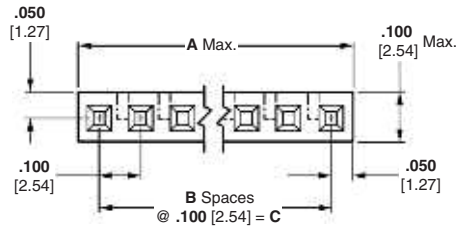
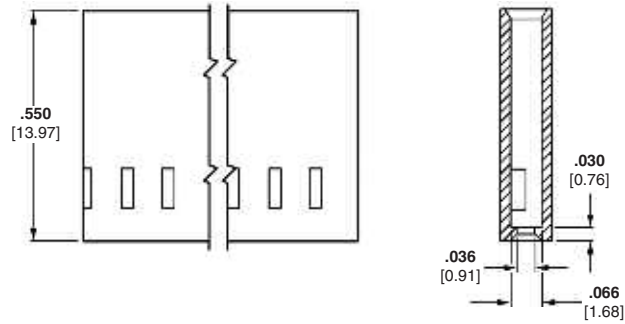


Material — Black glass-filled polyester, 94V-0 rated

Technical Documents —
pages 277, 278

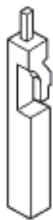
Product Specification
108-25031

Application Specification
114-25021



Minimum mating post length is .140 [3.55].

Material—Natural color nylon, 94V-2 rated



Keying Plug
Part No. 531226-1
(Plugs directly into housing)

Note: Mini-Tandem Spring contacts for use in these housings are shown on page 269.

No. of Pos.	Dimensions			Housing Part No.
	A	B	C	
2	.200 [5.08]	1	.100 [2.54]	530554-1
4	.400 [10.16]	3	.300 [7.62]	530554-3
8	.800 [20.32]	7	.700 [17.78]	530554-7
12	1.200 [30.48]	11	1.100 [27.94]	1-530554-1
16	1.600 [40.64]	15	1.500 [38.10]	1-530554-5
18	1.800 [45.72]	17	1.700 [43.18]	1-530554-7
20	2.000 [50.80]	19	1.900 [48.26]	1-530554-9
22	2.200 [55.88]	21	2.100 [53.34]	2-530554-1

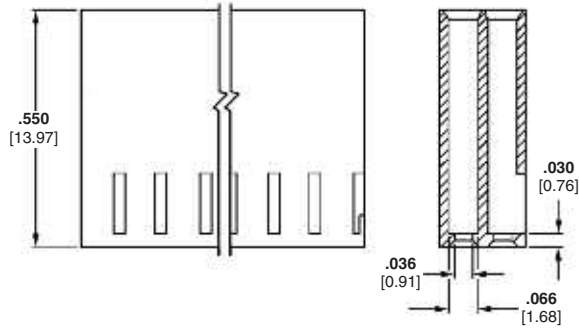
Note: All part numbers are RoHS compliant.

Mini-Tandem Spring Housings, Double-Row

.100 [2.54] Centerline



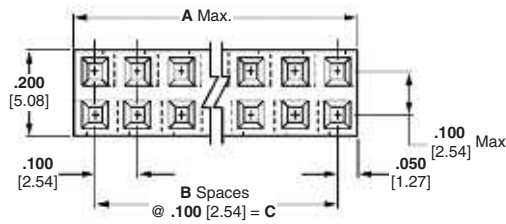
Material — Black glass-filled polyester, 94V-0 rated*



Technical Documents —
pages 277, 278

Product Specification
108-25031

Application Specification
114-25021



Minimum mating post length is .140 [3.55].

Mini-Tandem Spring Contacts

5

Material — Natural color nylon, 94V-2 rated



Keying Plug
Part No. 531226-1
(Plugs directly into housing)

No. of Pos.	Dimensions			Housing Part No.
	A	B	C	
6	.300 [7.62]	2	.200 [5.08]	530902-1
8	.400 [10.16]	3	.300 [7.62]	530902-6
12	.600 [15.24]	5	.500 [12.70]	2-530902-0
16	.800 [20.32]	7	.700 [17.78]	3-530902-0

Note: Mini-Tandem Spring contacts for use in these housings are shown on page 269.

*Consult TE for specific UL recognition.

Note: All part numbers are RoHS compliant.

Mini-Tandem Spring Contacts

Receptacle Contacts

Material and Finish

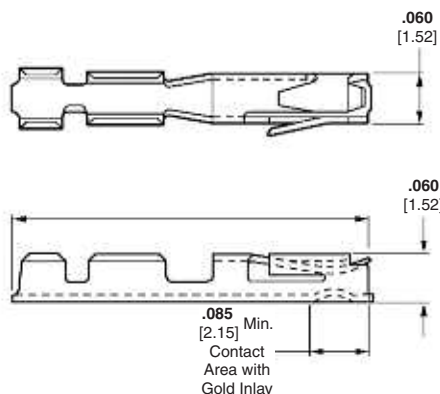
Phosphor bronze, plated as follows:

Plating A — Duplex plated .000030 [0.00076] gold inlay on contact area, matte tin in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating B — Duplex plated .000015 [0.00038] gold inlay on contact area, matte tin in crimp area, with entire contact underplated .000050 [0.00127] nickel

Plating C — Duplex plated .000050 [0.00127] over matte tin in contact area, over .000030 [0.00076] nickel on entire contact

Plating D — .000100 [0.00254] min. matte tin over .000030 [0.00076] nickel on entire contact



Technical Documents — pages 277, 278

Product Specification
108-25031

Application Specification
114-25021

Low Pressure Contacts

Wire Size Range AWG	mm ²	Ins. Dia. Range	Finish	Contact Part No.		Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine
				Strip Form	Loose Piece		
26-22	0.14-0.32	.036-.054 [0.64-1.37]	Plating A	5531216-3	5531216-4	466819-2	466943-1
			Plating B	5531216-1	5531216-2		

Standard Pressure Contacts

Wire Size Range AWG	mm ²	Ins. Dia. Range	Finish	Contact Part No.		Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine
				Strip Form	Loose Piece		
32-28	0.03-0.08	.025-.054 [0.64-1.37]	Plating B	530901-2	530901-3	466723-1	466952-1
			Plating C	5530901-6	5530901-7		
			Plating D	5530901-4	5530901-5		
26-22	0.14-0.32	.036-.054 [0.91-1.37]	Plating B	5530553-4	—	466819-2	466943-1
			Plating C	5530553-6	—		
			Plating D	5530553-2	—		

High Pressure Contacts

Wire Size Range AWG	mm ²	Ins. Dia. Range	Finish	Contact Part No.		Miniature Applicator for AMP-O-LECTRIC Machine*	Applicator for AMP-O-MATIC Stripper/Crimper Machine
				Strip Form	Loose Piece		
32-28	0.03-0.08	.025-.054 [0.64-1.37]	Plating B	5531225-6	—	466723-1	466952-1
26-22	0.14-0.32	.036-.054 [0.91-1.37]	Plating B	5531224-6	—	466819-2	466943-1

*For use with AMP-O-LECTRIC Model "K" machines. Call the Tooling/Technical Assistance Center (1-800-522-6752) for part nos. of applicators for use with the AMP-O-LECTRIC Model "G" machines (shown on page 270), as well as other bench machines and fully automatic AMPOMATOR lead making machines.

- Notes:** 1. Mini-Tandem Spring Receptacle Contacts are for use only in the housings shown on pages 267 & 268. They cannot be used in AMPMODU Mod IV Housings.
2. Use Hand Tool No. 91540-1 for crimping loose-piece receptacles to all wire sizes listed above.
3. Application tooling is described on pages 270 & 275.

Note: All part numbers are RoHS compliant.

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 88 to determine the applicable connectors.

AMP-O-LECTRIC Model "G" Terminating Machine (Shown with Optional Crimp Force Monitor)

A totally new design of our most popular machine for bench-top operation. It features a quiet and reliable direct motor drive, electronic controls for easy setup and operation, and improved guarding and lighting for operator convenience and safety. All versions include either manual or automatic precision adjustment for crimp height.

For further details, request TE Catalog 65828.



AMP-O-MATIC Stripper/Crimper Machine

Applicators

Several terminating machines, including the AMP-O-LECTRIC Model "G", AMP-O-MATIC Stripper/Crimper and AMPOMATOR CLS machines, are designed for use with interchangeable applicators. Basic styles are quickly interchangeable to minimize costly downtimes, and feature dial-in wire and insulation crimp height settings. Special applicators are available for use with the Crimp Force Monitor (see page 272), for measuring the crimp height of each termination as it is made, plus evaluating the quality of each crimp.



This machine automatically strips as well as terminates individual wires. Similar to the AMP-O-LECTRIC Model "G" machine, applicators are quickly interchangeable, and it includes precision adjustment for crimp height. All adjustments can be made from the front of the machine, without special tools.

For further details, request TE Catalog 65004.



Heavy Duty Miniature Applicators



EDGE, Electronic Applicator Counter

The new versatile EDGE applicator counter tracks wearable tool usage for the most effective maintenance planning. The completely electronic counter with clear LCD display, indicates cycles since installation. By performing maintenance at measured intervals with pre-set limits, operators avoid breakdowns and rejects caused by tool wear or mid-adjustment. For more information, request catalog 1773385.

Application Tooling for Wire Crimp Contacts (Continued)

AMP 3K/40 and AMP 5K/40 Terminators

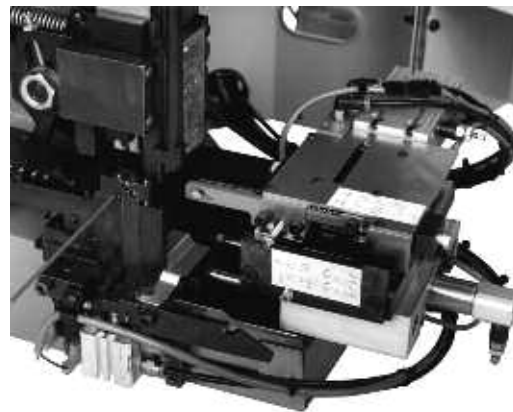
As a value oriented terminator, the AMP 3K/40 and AMP 5K/40 are designed for customers that require the increased output and quality of a semiautomatic machine at a competitive price. By incorporating the most commonly requested features as standard and offering a long list of optional equipment, these terminators offer flexibility to meet the specific needs of various applications at the lowest possible cost.



AMP 5K/40 Terminator

Optional Stripping Module for the AMP 3K/40, AMP 5K/40 and the AMP-O-LECTRIC Model G

The combination of the Stripping Module with the AMP-O-LECTRIC Model G Terminator or the AMP 3K/40, 5K/40 provides an economical, proficient method of stripping wire and crimping terminals on the same machine. Wires are stripped moments before crimping, meaning there is virtually no chance of damaging wire conductors during handling or storage. Once the wire is fed into the start sensor, the Stripping Module does the rest, improving placement accuracy. For more information, request catalog 1309085.



Application Tooling for Wire Crimp Contacts (Continued)

Tooling shown on this page is designed to terminate wire crimp contacts used in various AMPMODU wire-to-board connectors. Refer to page 88 to determine the applicable connectors.

Crimp Force Monitor (CFM)



Your quality program calls for more than a good crimping system. It demands proof - the proof you get with the SLE Crimp Force Monitor. It has high-resolution piezo-quartz sensor technology for a more precise identification of typical crimping faults. The monitor features Zone & Peak Force Analysis, 128x128 Dot Matrix, Force Trigger and Encoder Proximity Trigger, and Absolute Force Measurement for real-time monitoring of every crimp. The CFM can be used with bench or fully-automatic machines. Special applicators are not required.

Sure, you can sample and test crimp height with a micrometer. In fact, that's how you standardize your process. But for ongoing quality control, testing every crimp, SLE is the choice. It's known worldwide, and meets our standards for a high performance terminating system. That's how you can be sure.

High quality crimping - with verification - means higher production and productivity.

AMPOMATOR System III Leadmaker



The AMPOMATOR System III is an automatic machine for the production of terminated wire leads. The machine combines state of the art technology to process single and double wire application utilizing the wire processing industry's best and most friendly subsystems and accessories available to meet the latest market requirements for wire lead production.

The new machine incorporates a servo-driven, software-controlled AMP-O-LECTRIC ST III terminator and the next generation System III Applicator.

See catalog 1654956-5 for more information.



Commercial PRO-CRIMPER III Hand Tool



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].

Premium CERTI-CRIMP Straight Action Hand Tool (SAHT)



TE hand tools are ideal for small production and prototype applications. They feature ratchet control to help eliminate partial crimps,

straight-line die closure, terminal locator and support, and insulation crimp adjustment. TE hand tools also can be adapted for use with pneumatic tooling assemblies, providing air operated crimping capabilities.

For further details on TE straight action hand tools, request TE Catalog 65780. For more details on TE pneumatic tooling assemblies, call the TE Technical Support Center, 1-800-522-6752.



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 88 to determine the applicable connectors.

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)



Manual Pistol Grip
Tool No. 58074-1



Pneumatic Pistol Grip
Tool No. 58075-1



Bench Mounted Pneumatic Power Assembly
No. 58338-1

Modular Head Tool No. 58540-1



This modular head tool can be used on any pistol grip tool. It was designed for discrete wire or flat ribbon cable applications.



IDC Electric Power Unit
No. 931800-1

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)

*A tube-fed track assembly, Part No. 856675-1, also can be used with MTE Connectors.

Note: All part numbers are RoHS compliant.

Application Tooling for Insulation Displacement Crimp (IDC) Contacts and Connectors (Continued)

Tooling shown on this page is designed to terminate IDC contacts for various AMPMODU wire-to-board connectors. Refer to page 88 to determine the applicable connectors.

Tube-Fed Ribbon Cable Machine



Tube-Fed Ribbon Cable Machine No. 856002-1

Designed for bench applications, this machine is pneumatically operated and controlled by a foot pedal. It terminates connectors onto end-notched ribbon cable. *The connectors are supplied in strip form and in plastic tubes. The machine consists of three basic sub-assemblies: a feed track, a terminating station and a seating station. The feed track is a constant force,

spring-driven unit which conveys connectors through the product tube to the terminating station. The air-operated terminating station positions and terminates contacts onto the notched cable. The seating station is manually operated and seats connector housings onto the terminated contacts.

*At a rate of 13-25 positions at a time.

2700 lb. Power Unit With Cable Notching Die



2700 lb. Power Unit No. 312522-1

Equipped with a cable notching die an adapter kit, this fully pneumatic bench machine provides the 2700 lb [12 010N] force required for end-notching ribbon cable. It features a grooved cable support plate, a pressure plate and a cable stop to facilitate cable alignment and positioning during the notching process.

Notching Dies:

854449-1 (for 24-22 AWG [0.2-0.6 mm²] Wire)

854449-2 (for 28-26 AWG [0.08-0.15 mm²] Wire)

Note: All part numbers are RoHS compliant.

Application Tooling for Insulation Displacement Crimp (IDC) Contacts and Connectors (Continued)

Tooling shown on this page is designed to terminate IDC contacts for various AMPMODU wire-to-board connectors. Refer to page 88 to determine the applicable connectors.

CHAMPOMATOR Model 2.5 Terminating Machine No. 354786-(*)



This compact bench machine terminates wires manually sorted from multiconductor cables. Termination sequence may include full termination of all contacts, or selective termination. Designed for easy programming, the machine is microprocessor controlled

and programmed by a membrane switch keyboard. It also has an internal storage capability for retaining up to 350 cable assemblies. Connectors can be terminated with either straight or right-angle wire dress.

*For applicable dash nos., call the Technical Support Center: 1-800-522-6752. For further details, request TE Catalog 82247

CHAMPOMATOR Model 3A Terminating Machine No. 761420-(*)



This floor model machine automatically sorts wires from multiconductor jacketed cable and terminates them in a user-determined sequence; either full termination of all contacts, or selective termination. Designed for easy programming, the machine is microprocessor

controlled and programmed by a touchscreen. It also has an internal storage capability for retaining up to 50 cable assemblies. Connectors can be terminated with either straight or right-angle wire dress. All cable assemblies are tested for continuity and shorts.

*For applicable dash nos., call the Technical Support Center: 1-800-522-6752. For further details, request TE Catalog 82247

Note: All part numbers are RoHS compliant.

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.

PC/104 and PC/104-Plus Connectors — Pages 5-12:

108-1956 PC/104 and PC/104-Plus Connector Systems

Receptacle Assemblies and Unshrouded Breakaway Headers, Surface-Mount — Pages 109, 110, 185-192:

108-25017 AMPMODU Interconnection System, Two-Piece
 108-25022 AMPMODU Mod. IV Interconnection System, Vertical Assemblies
 108-25026 AMPMODU Mod. II Interconnection System, Standard Pressure Receptacle Assembly and Header

Two-Piece Printed Circuit Board Connectors — Pages 193-202:

108-16 ACTION PIN Contacts
 108-25017 AMPMODU Interconnection System, Two-Piece
 108-25027 AMPMODU Mod. II Interconnection System, Short-Point Receptacle Assembly and Header

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 168-192:

108-25022 AMPMODU Mod. IV Interconnection System, Vertical Assemblies
 108-25026 AMPMODU Mod. II Interconnection System, Standard Pressure Receptacle Assembly and Header
 108-25027 AMPMODU Mod. II Interconnection System, Short-Point Receptacle Assembly and Header

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 92-105, 114-140, 145-153, 163:

108-16 ACTION PIN Contacts
 108-25026 AMPMODU Mod. II Interconnection System, 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.

PC/104 and PC/104-Plus Connectors — Pages 5-12:

114-13021 PC/104 and PC/104-Plus Connectors

Two-Piece Printed Circuit Board Connectors — Pages 193-202:

114-9009 AMPMODU Header, Two-Piece, Double Row, Application of

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 168-192:

114-25018 AMPMODU Mod. II and IV Receptacle Assembly, PC Board Mounted, Vertical, Application of

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 92-105, 114-140, 145-153, 163-167:

114-25028 ACTION PIN Contacts with TE Headers, Application
 114-13011 AMPMODU .025 and .045 Square Continuous Posts

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

PC/104 and PC/104-Plus Connectors — Pages 5-12:

408-8502 Future Board Assembly 1424685 for PC/104 and PC/104-Plus Connectors
 408-8503 Seating Tool Assembly 1424686 for PC/104 and PC/104-Plus Connectors
 408-8504 Pneumatic Seating Tool Assembly 1424930-1 for PC/104 and PC/104-Plus Connectors
 408-8505 Manual Seating Tool Assembly 1424931-1 for PC/104 and PC/104-Plus Connectors

Two-Piece Printed Circuit Board Connectors — Pages 193-202:

408-2636 ACTION PIN Contact Rear Insertion/Extraction Tool 265871-7
 408-9054 Seating Tools

Receptacle Assemblies, Horizontal and Vertical Board Mount — Pages 168-192:

408-7411 Suggestions for Wave Soldering Vertical AMPMODU Receptacles

.025 [0.64] Square Posts, Headers, Accessories and Tooling — Pages 92-105, 114-140, 145-153, 163:

408-2636 ACTION PIN Contact Rear Insertion/Extraction Tool 265871-7
 408-6944 TE Uninsulated Bandolier Post Insertion Tool 91419-1
 408-7977 AMPMODU Double Row, Straight Posts, End Shrouds .100 x .100 [0.64 x 0.64] Centers
 408-7878 AMPMODU Header Barrier Inserts
 408-9054 ACTION PIN Contact Headers Seating Tool, 91170 Series
 408-9707 Tool Kit 314818-1 for Breakaway Headers

Handbook
5697

Guide to Application of ACTION PIN Contact Connectors

Note: All part numbers are RoHS compliant.

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.

Locking Clip Contacts and Housings — Pages 206-209:

- 108-36028 Connector, Locking Clip, .025 [0.64] Square, Gold
- 108-36028-1 Connector, Locking Clip, .025 [0.64] Square, Tin

Mod. IV Wire-Applied Contacts and Housings — Pages 210-220:

- 108-25007 AMPMODU Mod. V Interconnection System, Wire-Applied (High Pressure)
- 108-25019 AMPMODU Mod. IV Male Connectors
- 108-25020 AMPMODU Mod. IV Interconnection System, (Standard Pressure)
- 108-25021 AMPMODU Mod. IV.V Interconnection System, (Intermediate Pressure)

Short-Point Wire-Applied Contacts and Housings — Pages 221-224:

- 108-1472 Short-Point Contacts and Housings

AMPMODU MTE Interconnection System — Pages 225-252:

- 108-25034 AMPMODU MTE Connectors

AMPMODU MT and Shielded MT Interconnection System — Pages 255-265:

- 108-25015 AMPMODU MT Standard Pressure Connectors
- 108-25018 AMPMODU MT High Pressure Connectors
- 108-25030 AMPMODU MT Shielding Accessories

AMPMODU Level V, IDC Connectors —

- 108-25028 Interconnection System, Insulation Displacement Connector, IDC Level

Mini-Tandem Spring Receptacle Contacts — Pages 266-269:

- 108-25031 Tandem Spring Receptacle Contact

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.

Locking Clip Contacts and Housings — Pages 206-209:

- 114-25006 Contact, Locking Clip, .025 [0.64] Square, Application of

Mod. IV Wire-Applied Contacts and Housings — Pages 210-220:

- 114-25003 AMPMODU Mod. IV (Standard Pressure), AMPMODU Mod. IV.V (Intermediate Pressure) and AMPMODU Mod. V (High Pressure) Receptacle Contacts, Application of
- 114-25016 AMPMODU Mod. IV Crimp Pin Contact

Short-Point Wire-Applied Contacts and Housings — Pages 221-224:

- 114-25038 Short-Point Contacts and Housings

AMPMODU MTE Interconnection System — Pages 225-252:

- 114-25026 AMPMODU MTE Interconnection System

AMPMODU MT and Shielded MT Interconnection System — Pages 255-265:

- 114-25032 AMPMODU MT Interconnection System and Shielding Accessories, Application of

AMPMODU Level V, IDC Connectors —

- 114-25020 Interconnection System, IDC Level V, Application of

Mini-Tandem Spring Receptacle Contacts — Pages 266-269:

- 114-25021 Tandem Spring Receptacle Contact, Application of

Note: All part numbers are RoHS compliant.

Technical Documents for Wire-to-Board Products (Continued)

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

Locking Clip Contacts and Housings — Pages 206-209:

- 408-7604 TE Extraction Tool 91084-1
- 408-7606 TE Locking Clip Contacts and Connectors
- 408-7627 TE Hand Crimp Tool 90295-1, 28-30 AWG Wire
- 408-8547 TE Hand Crimp Tool 91533-1, 22-26 AWG Wire
- 408-9388 TE Hand Crimp Tool 90431-1, 20 AWG Wire

Mod. IV Wire-Applied Contacts and Housings — Pages 210-220:

- 408-4379 TE PRO-CRIMPER II Hand Tool
- 408-7935 AMPMODU Receptacle Connectors with Strain Relief/Pull Tabs
- 408-8547 TE Hand Tool 91516-1, 91517-1 and 91541-1
- 408-9451 TE Extraction Tool 843473-1 for AMPMODU Wire-Applied Housings 86308
- 408-9453 TE Extraction Tools 843996 and 843477 for Removing AMPMODU Crimp Snap-In Receptacle Contacts from Wire-Applied Housings

AMPMODU MTE Interconnection System — Pages 225-252:

- 409-5746 TE Electric Power Unit 931800-1
- 409-5832 MTE Ribbon Cable Terminator 856002-1
- 408-6789 TE Pneumatic Pistol Handle 58075-1
- 408-6790 TE Manual Pistol Handle 58074-1
- 408-6919 AMPMODU MTE Connectors
- 408-8547 TE Hand Crimp Tool 91518-1 and 91551-1
- 408-9230 TE Keying Tool 91417-1
- 408-9359 MTE Modular Terminating Head 58336-1
- 408-9393 TE Pneumatic Bench Assy. 58338-1
- 408-9407 TE Hand Crimp Tool 91531-1 and 58342-2
- 408-9453 TE Extraction Tools 843996 and 843477 for Removing AMPMODU Crimp Snap-In Receptacle Contacts from Wire-Applied Housings
- 408-9515 Ribbon Cable Notcher 854449-[]

AMPMODU MT and Shielded MT Interconnection System — Pages 255-265:

- 408-6532 AMPMODU MT Connectors

AMPMODU Level V, IDC Connectors —

- 408-6843 TE Extraction Tool 91409-1

Standard Tandem Spring and Mini-Tandem Spring Receptacle Contacts — Pages 266-269:

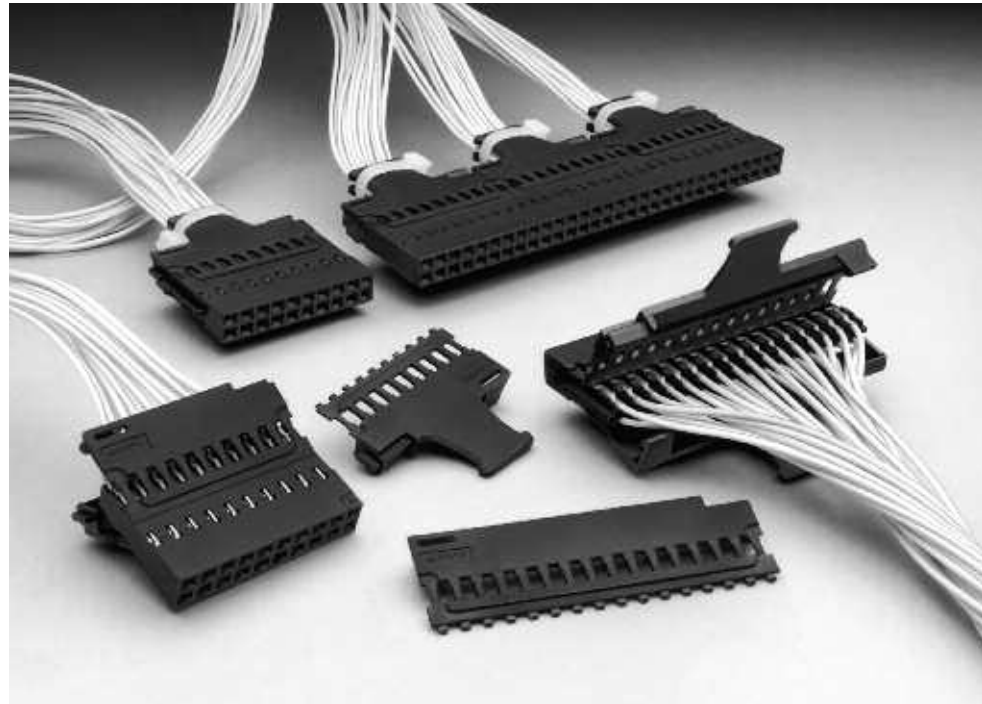
- 408-7909 TE Hand Crimping Tool 91540-1

Note: All part numbers are RoHS compliant.

Level V IDC Connectors, .125 x .125 [3.18 x 3.18] Centerline

Product Facts

- Termination of discrete wire sizes 26-22 AWG [0.12-0.3 mm²] as well as jacketed cable and bonded ribbon cable (conductors separated)
- Connectors stackable end-to-end and side-to-side on .125 [3.18] centers
- Connectors preloaded with insulation displacement receptacle contacts
- Contact design employs dual cantilever beams, redundant insulation displacement slots, built-in post stop and wire support crimp
- Copper alloy contacts are duplex plated
- Snap-on covers with or without cable tie paddles
- Full line of mass termination tooling offers lowest installed costs for most production needs
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189



AMPMODU Level V IDC connectors provide cost effective discrete wire connections that are compatible with today's telecommunications packaging techniques. These connectors are designed to mate with .025 [0.64] sq. posts on .125 x .125 [3.18 x 3.18] centers and are comprised of double-row housings preloaded with insulation displacement receptacle contacts, snap-on hermaphroditic covers, and a full line of mass termination tooling to meet virtually every production need. For modular flexibility, connectors can be stacked end-to-end or side-to-side, maintaining a .125 x .125 [3.18 x 3.18] centerline spacing.

Covers can be furnished with and without a cable tie paddle. The covers are simply snapped onto a housing after the connector has been terminated.

The receptacle contacts feature the TE insulation displacement crimp technique for achieving top quality, low cost terminations. These contacts employ dual cantilever beams for redundant interface with a mating post, an integral post stop to limit post mating depth and protect the crimp termination, and a wire support (strain relief) crimp to prevent accidental wire pull-out. The contacts are made of high conductivity copper alloy and are duplex plated.

Performance Characteristics

Contact Current Rating — 3 amperes

Termination Resistance — 12 milliohms (max.)

Durability — Ref. Product Specification 108-25028 (Interconnection System, Insulation Displacement Connector, IDC Level)

Application Specification 114-25020 (Interconnection System, IDC Level V, Application of)

.125 [3.18] x .125 [3.18]
Centerline

6

Receptacle Assemblies, Double-Row, .125 x .125 [3.18 x 3.18] Centerline

Housings Preloaded with Insulation Displacement Crimp Receptacle Contacts



Material and Finish

Housing — Black thermoplastic, flame retardant

Contacts — Copper alloy, duplex plated .000050 [0.00127] gold on contact area, .000100 [0.00254] min. tin in crimp area, with entire contact underplated .000050 [0.00127] nickel

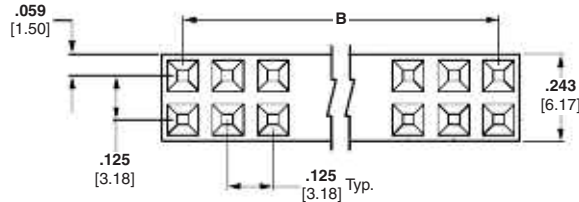
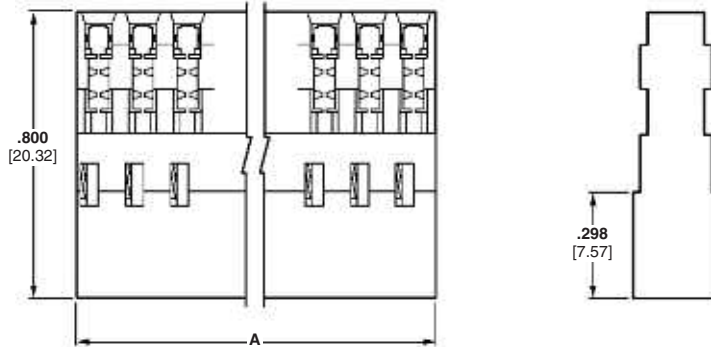
Note: Preloaded contacts accept max. insulation dia. of .050 [1.27]. The minimum point of contact, as measured from front edge of housing, is .095 [2.41].

Technical Documents — pages 277, 278

Product Specification
108-25028

Application Specification
114-25020

Receptacle assemblies can be stacked end-to-end and side-to-side on .125 x .125 [3.18 x 3.18] centers.



No. of Pos.	Dimensions		Receptacle Assembly (Stamped ¹) for 26-22 AWG [0.12-0.3 mm ²] Wire
	A	B	
8	.493 [12.52]	.375 [9.52]	102935-4
10	.618 [15.70]	.500 [12.70]	102935-6
12	.743 [18.87]	.625 [15.88]	102935-8
16	.993 [25.22]	.875 [22.23]	1-102935-2
20	1.243 [31.57]	1.125 [28.58]	1-102935-6
24	1.493 [37.92]	1.375 [34.93]	1-102935-9
30	1.868 [47.45]	1.750 [44.45]	1-102935-3
32	1.993 [50.62]	1.875 [47.63]	2-102935-8
40	2.493 [63.32]	2.375 [60.33]	3-102935-6

¹White ink stamped, one side—8- thru 12-position with AMP and arrow; 14- and 16-position with AMP, part no., and arrow; 18- thru 40-position with AMP, part no., date code and arrow.

- Notes:**
- Covers for these housings are shown on pages 281 & 282.
 - Termination tooling for these connectors are shown on page 273-275.
 - 14- and 18-position receptacle assemblies, as well as other sizes, can be made available upon request. Consult TE.

Note: All part numbers are RoHS compliant.

.125 [3.18] x .125 [3.18] Centerline

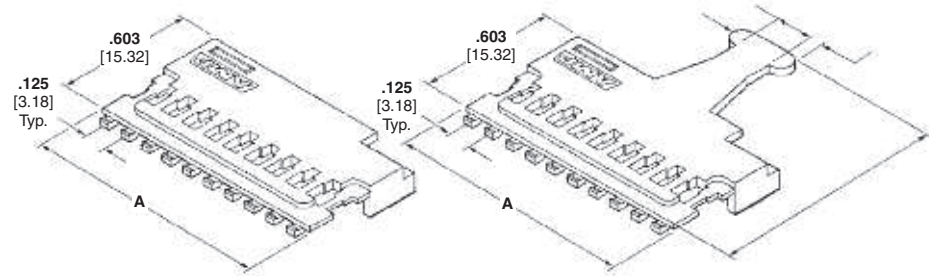
6

Hermaphroditic Covers for Level V IDC Receptacle Assemblies, Double-Row, .125 x .125 [3.18 x 3.18] Centerline

All covers illustrated here and on the following page can be used on the double-row Level V IDC connectors shown on page 280.

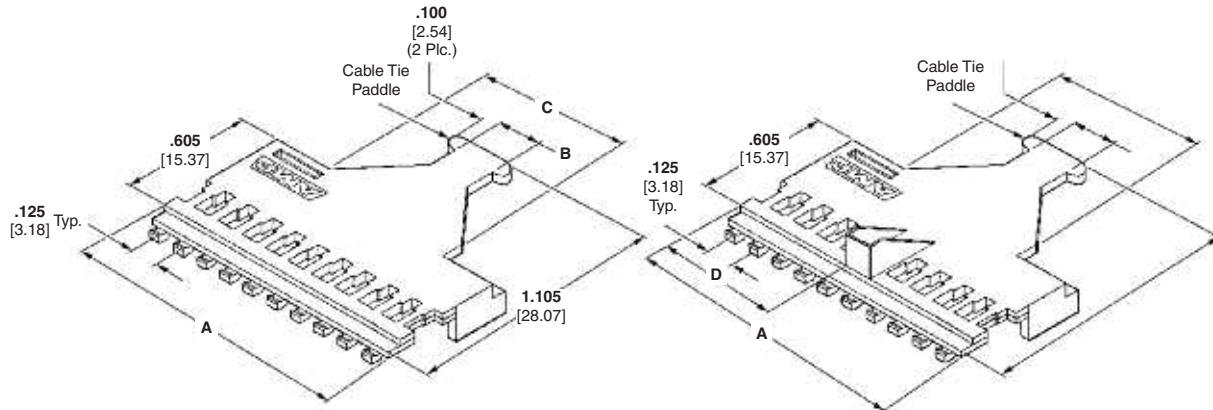
Material

Black thermoplastic, flame retardant, 94V-0 rated



Cover 103056 Series
without Cable Tie Paddle

Cover 103058 Series
with Cable Tie Paddle



Cover 103349 Series
with Wide Cable Tie Paddle

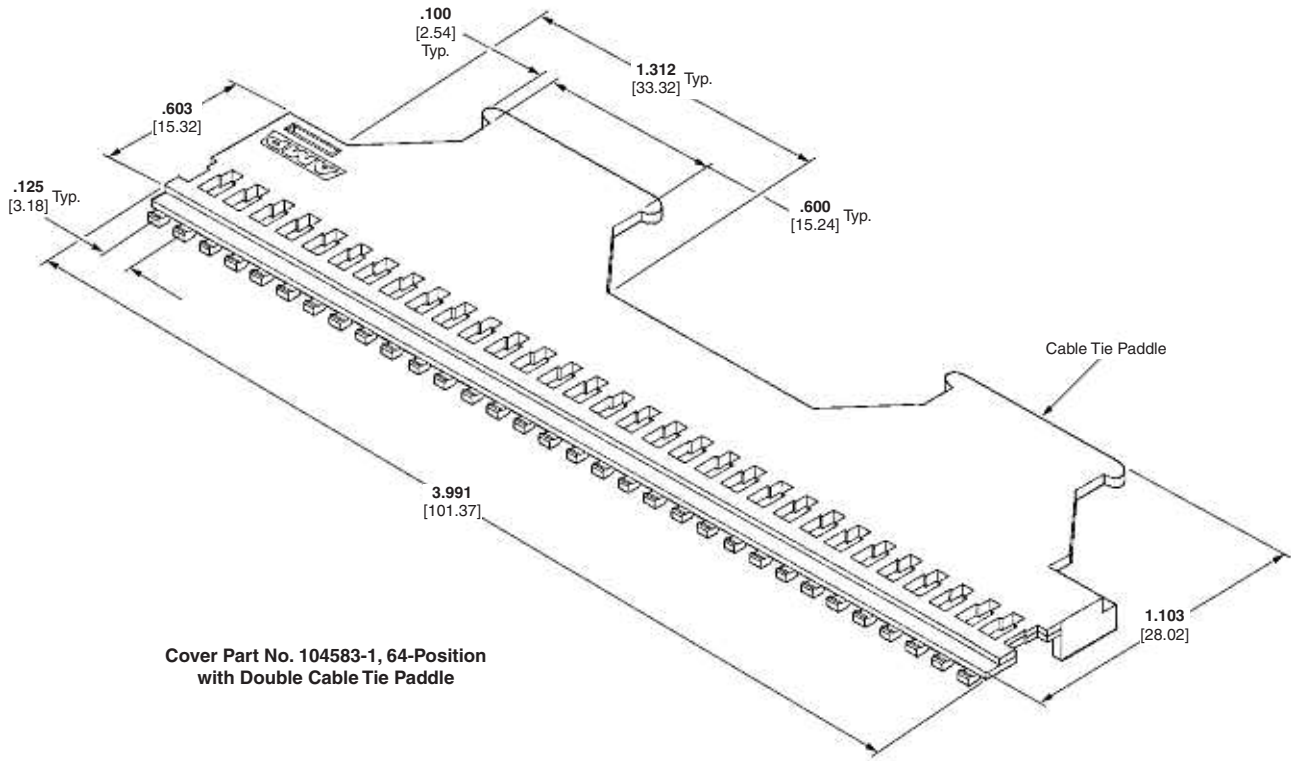
Cover 103350 Series
with Wide Cable Tie Paddle
and Polarization

No. of Pos. (Housing Size)	Dimensions					Cover Part Nos.			
	A	B	C	D	E	Without Cable Tie Paddle	With Cable Tie Paddle	With Wide Cable Tie Paddle	With Wide Cable Tie Paddle and Polarization
8	.491 [12.47]	.150 [3.81]	.285 [7.24]	.166 [4.22]	.125 [3.18]	—	—	103349-4	103350-4
10	.616 [15.65]	—	—	—	.125 [3.18]	—	103058-3	—	—
12	.741 [18.82]	—	—	—	.200 [5.08]	—	103058-4	—	—
16	.991 [25.17]	.300 [7.62]	.592 [15.04]	.416 [10.57]	—	—	—	103349-1	103350-1
20	1.241 [31.52]	.300 [7.62]	.592 [15.04]	.541 [13.74]	—	—	—	103349-5	103350-5
24	1.491 [37.87]	—	—	—	.400 [10.16]	1-103056-0	1-103058-0	—	—
32	1.991 [50.57]	.600 [15.24]	1.312 [33.32]	.916 [23.27]	—	—	—	103349-2	103350-2
40	2.491 [63.27]	.750 [19.05]	1.820 [46.23]	1.166 [29.61]	—	—	—	103349-3	103350-3
64	See page 282 for Double Cable Tie Paddle versions.								

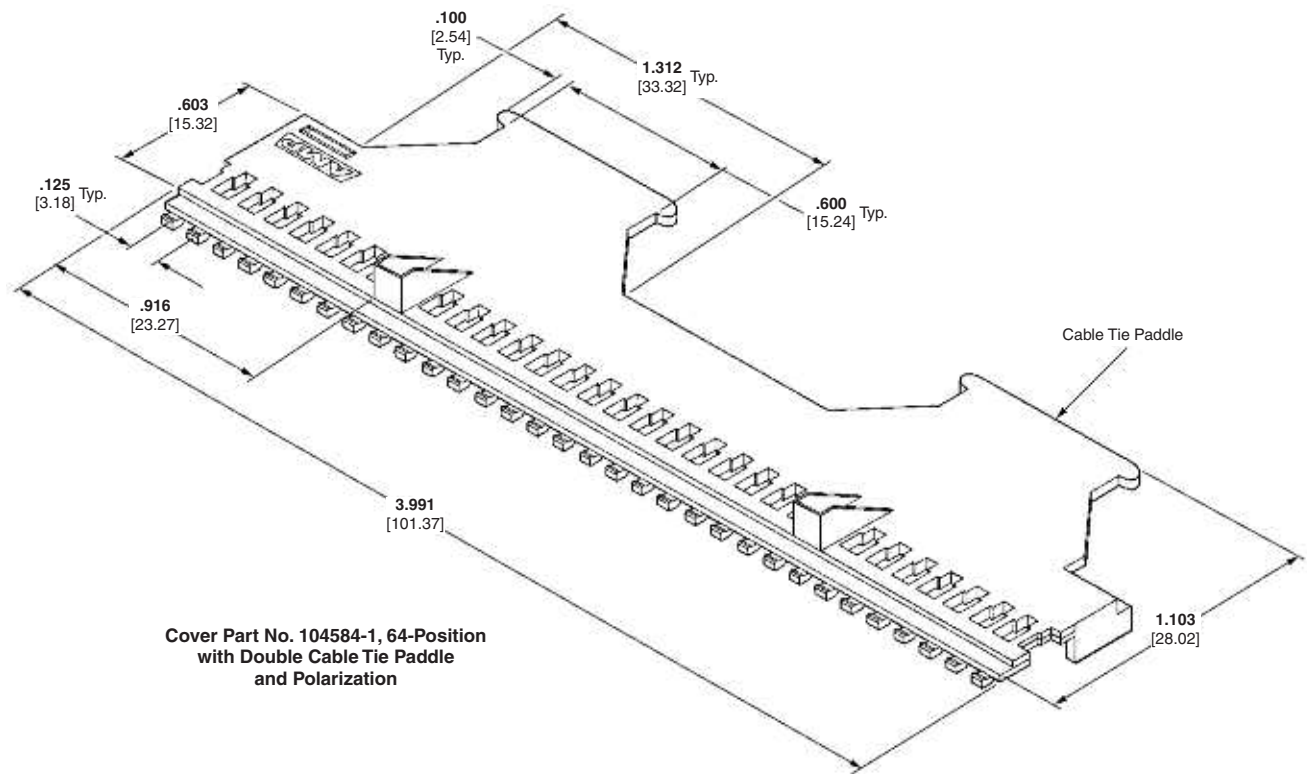
Notes: 1. Two hermaphroditic covers of any style can be installed on a double-row connector housing.
2. Other sizes can be made available upon request.

Note: All part numbers are RoHS compliant.

**Hermaphroditic Covers for Level V IDC Receptacle Assemblies,
Double-Row, .125 x .125 [3.18 x 3.18] Centerline** (Continued)



**Cover Part No. 104583-1, 64-Position
with Double Cable Tie Paddle**





**Cover Part No. 104584-1, 64-Position
with Double Cable Tie Paddle
and Polarization**

Note: All part numbers are RoHS compliant.

.125 [3.18] x .125 [3.18] Centerline
6

AMPMODU .031 x .062 [0.79 x 1.57] Interconnection System

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 [0.79 x 1.57] 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, assuring the lowest possible applied cost.

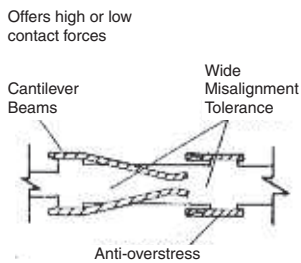
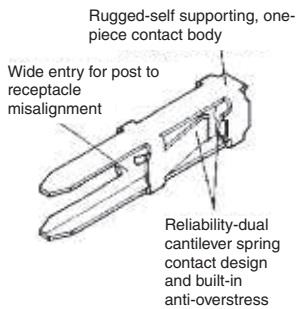
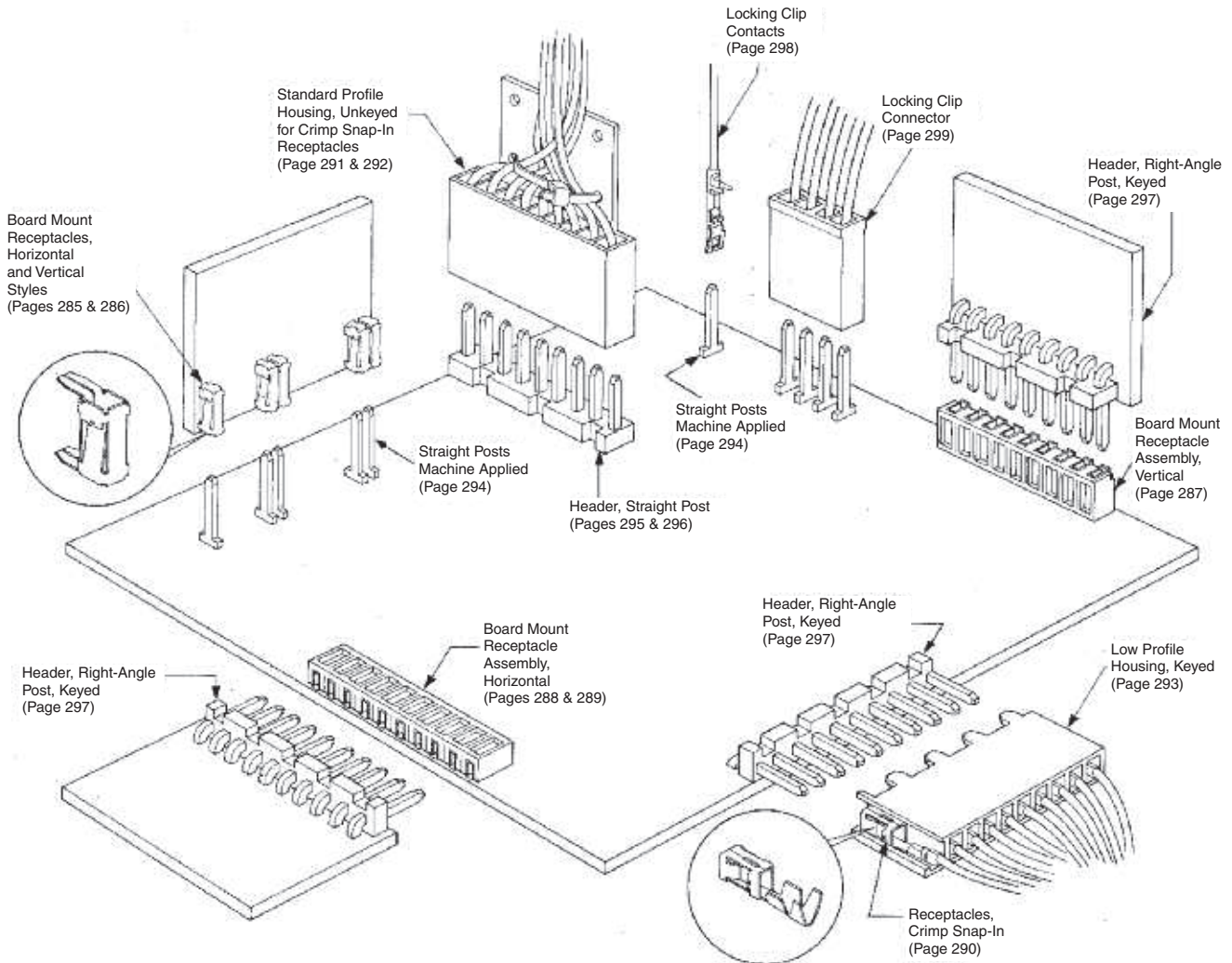
Crimp snap-in receptacles for 26-18 AWG [0.12 – 0.9mm²] wire provide excellent discrete wire terminations. Housings for these contacts provide for ease of handling terminations in high density applications.

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, TE 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.

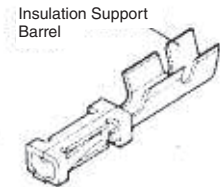
AMPMODU .031 x .062 [0.79 x 1.57] Interconnection System (Continued)



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 permanent 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 preventing 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.

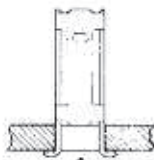
Note: Application of a contact lubricant is part of the manufacturing process of all AMPMODU tin-plated crimp products. However, it is not part of the manufacturing process of products that customers will solder, then clean. For these products, TE recommends that customers purchase a contact lubricant. (See application specification 114-25004 for further information.)



Wire Crimp Receptacle

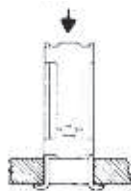
Mod I Receptacles, Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Vertical and Horizontal Board Mount



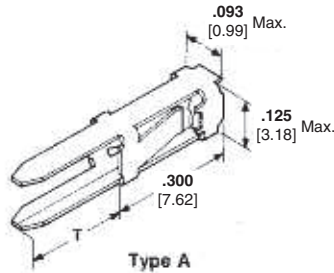
Bottom Post Entry Type A

Top Post Entry Type B

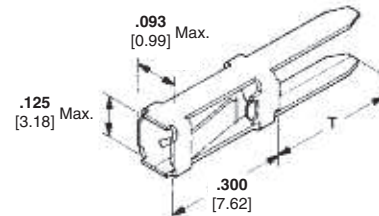


Horizontal Post Entry Type C

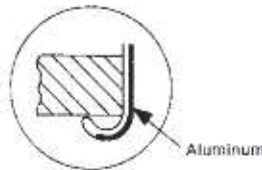
Receptacle Styles



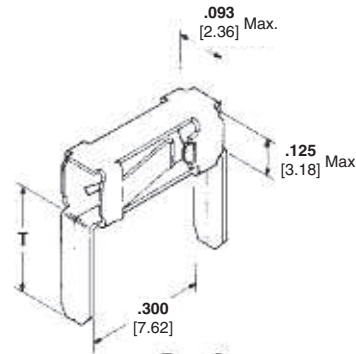
Type A



Type B



Typical Solder Resist Tab (Type A or B)

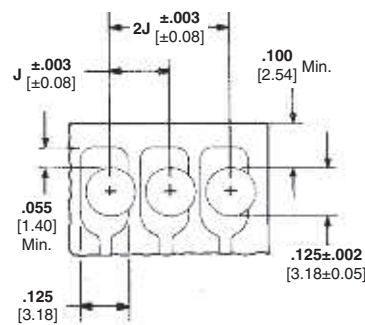


Type C

Related Product Data
Recommended Board Layout for Type C — page 288

- Mates with** —
- Machine Applied Posts** — page 294
- Headers** — pages 295-297
- Application Tooling** — pages 300-304
- Performance Specifications** — page 305
- Technical Documents** — page 305

Recommended Board Layout for Receptacle Assemblies and Individual Receptacles (Type A and B)



Round Hole (Post Entry Type A or B)

Keying Plug



Part No. 86181-2
Use in Board Mount Receptacles

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 TE 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 TE Engineering Report ER-001 and TE Instruction Sheet 408-7411. For solder mask, see TE Instruction Sheet 408-7411.

Note: All part numbers are RoHS compliant.

Mod I Receptacles, Board Mount, .031 x .062 [0.79 x 1.57] Centerline (Continued)

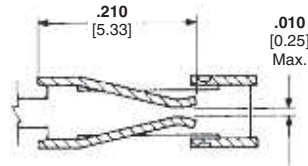
Material and Finish

Copper alloy, plated as follows:

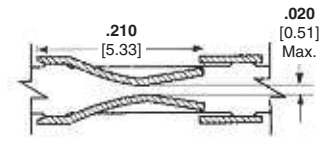
Plating A — Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire contact

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	Dimension T (Ref. Pg. 285)	Finish	Standard Pressure Part Nos.		High Pressure Part Nos.		Insertion Applicator No. 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
			Plating C (Solder Resist)	87774-2	—	—	—	466376-1
C	.103-.055 [2.62-1.40]	.145 [3.68]	Plating A	85487-4	85493-4	86432-8	86434-6	565967-3
			Plating B	85487-3	—	86432-1	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.

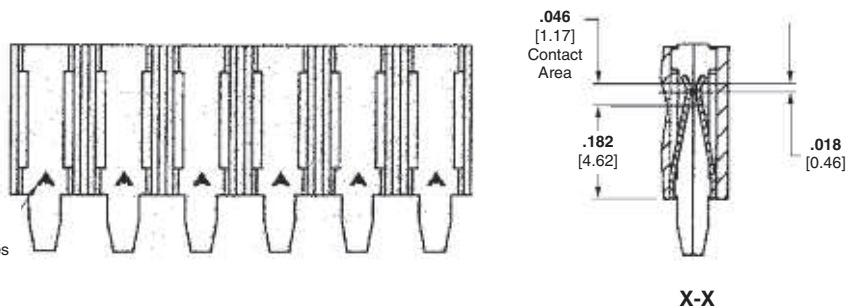
Note: All part numbers are RoHS compliant.

Mod I Receptacle Assemblies, Vertical Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Single Row .156 [3.96] Centerline



The letter A stamped on contact indicates mating end of receptacle.



X-X

Material and Finish

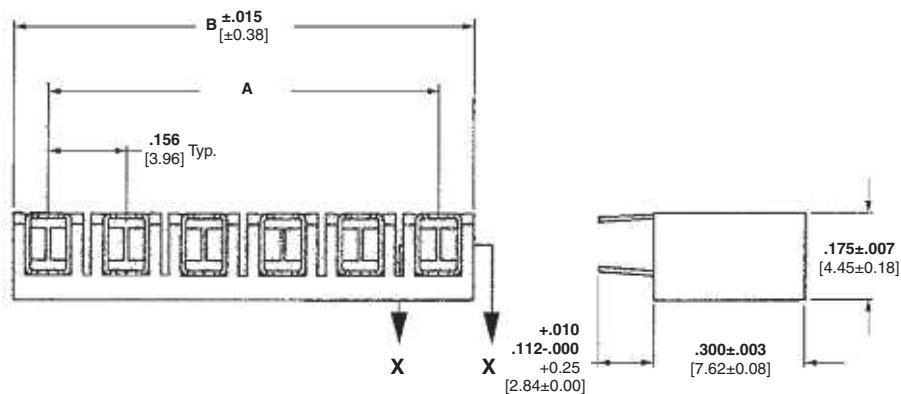
Housing — Black thermoplastic, 94V-0 rated

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 288

Mates with —

Machine Applied Posts — page 294

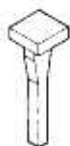
Headers — pages 295-297

Performance Specifications — page 305

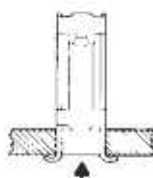
Technical Documents — page 305

No. of Pos.	Dimensions		Type A				Type B		
	A	B	Standard Pressure		High Pressure	Standard Pressure			
			Plating A	Plating B	Plating C	Plating B	Plating A	Plating B	Plating C
2	.156 [3.96]	.312 [7.92]	87984-2	87983-2	87989-2	87993-2	87986-2	87985-2	87990-2
3	.312 [7.92]	.468 [11.89]	87984-3	87983-3	87989-3	87993-3	87986-3	87985-3	87990-3
4	.468 [11.89]	.624 [15.85]	87984-4	87983-4	87989-4	87993-4	87986-4	87985-4	87990-4
5	.624 [15.85]	.780 [19.81]	87984-5	87983-5	87989-5	87993-5	87986-5	87985-5	87990-5
6	.780 [19.81]	.936 [23.77]	87984-6	87983-6	87989-6	87993-6	87986-6	87985-6	87990-6
7	.936 [23.77]	1.092 [27.74]	87984-7	87983-7	87989-7	87993-7	87986-7	87985-7	87990-7
8	1.092 [27.74]	1.248 [31.70]	87984-8	87983-8	87989-8	87993-8	87986-8	87985-8	87990-8
9	1.248 [31.70]	1.404 [35.66]	87984-9	87983-9	87989-9	87993-9	87986-9	87985-9	87990-9
10	1.404 [35.66]	1.560 [39.62]	1-87984-0	1-87983-0	1-87989-0	1-87993-0	1-87986-0	1-87985-0	1-87990-0
11	1.560 [39.62]	1.716 [43.59]	1-87984-1	1-87983-1	1-87989-1	1-87993-1	1-87986-1	1-87985-1	1-87990-1
12	1.716 [43.59]	1.872 [47.55]	1-87984-2	1-87983-2	1-87989-2	1-87993-2	1-87986-2	1-87985-2	1-87990-2
13	1.872 [47.55]	2.028 [51.51]	1-87984-3	1-87983-3	1-87989-3	1-87993-3	1-87986-3	1-87985-3	1-87990-3
14	2.028 [51.51]	2.184 [55.47]	1-87984-4	1-87983-4	1-87989-4	1-87993-4	1-87986-4	1-87985-4	1-87990-4
15	2.184 [55.47]	2.340 [59.44]	1-87984-5	1-87983-5	1-87989-5	1-87993-5	1-87986-5	1-87985-5	1-87990-5
16	2.340 [59.44]	2.496 [63.40]	1-87984-6	1-87983-6	1-87989-6	1-87993-6	1-87986-6	1-87985-6	1-87990-6
17	2.496 [63.40]	2.652 [67.36]	1-87984-7	1-87983-7	1-87989-7	1-87993-7	1-87986-7	1-87985-7	1-87990-7
18	2.652 [67.36]	2.808 [71.32]	1-87984-8	1-87983-8	1-87989-8	1-87993-8	1-87986-8	1-87985-8	1-87990-8
19	2.808 [71.32]	2.964 [75.29]	1-87984-9	1-87983-9	1-87989-9	1-87993-9	1-87986-9	1-87985-9	1-87990-9
20	2.964 [75.29]	3.120 [79.25]	2-87984-0	2-87983-0	2-87989-0	2-87993-0	2-87986-0	2-87985-0	2-87990-0

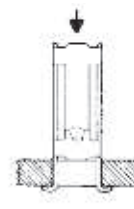
Keying Plug



Part No. 86181-2
(Use in Board Mount Receptacles)



Post Entry Type A



Post Entry Type B

Note: All part numbers are RoHS compliant.

Mod I Receptacle Assemblies, Horizontal Board Mount, .031 x .062 [0.79 x 1.57] Centerline

Single Row .156 [3.96] Centers

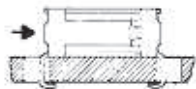
Material and Finish

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



Post Entry
Type C

Related Product Data

Mates with —

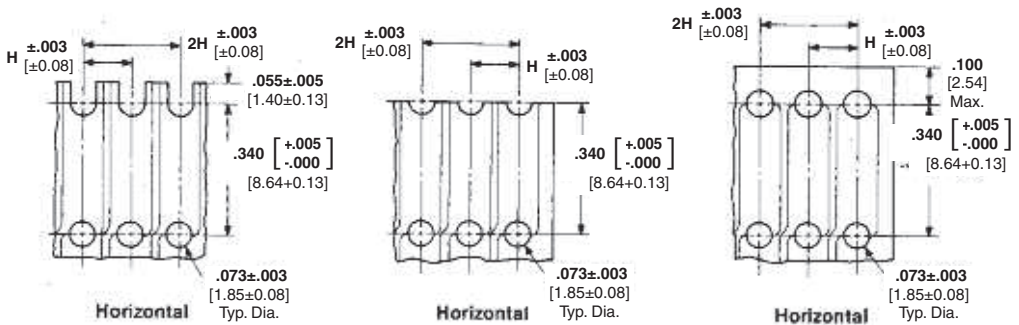
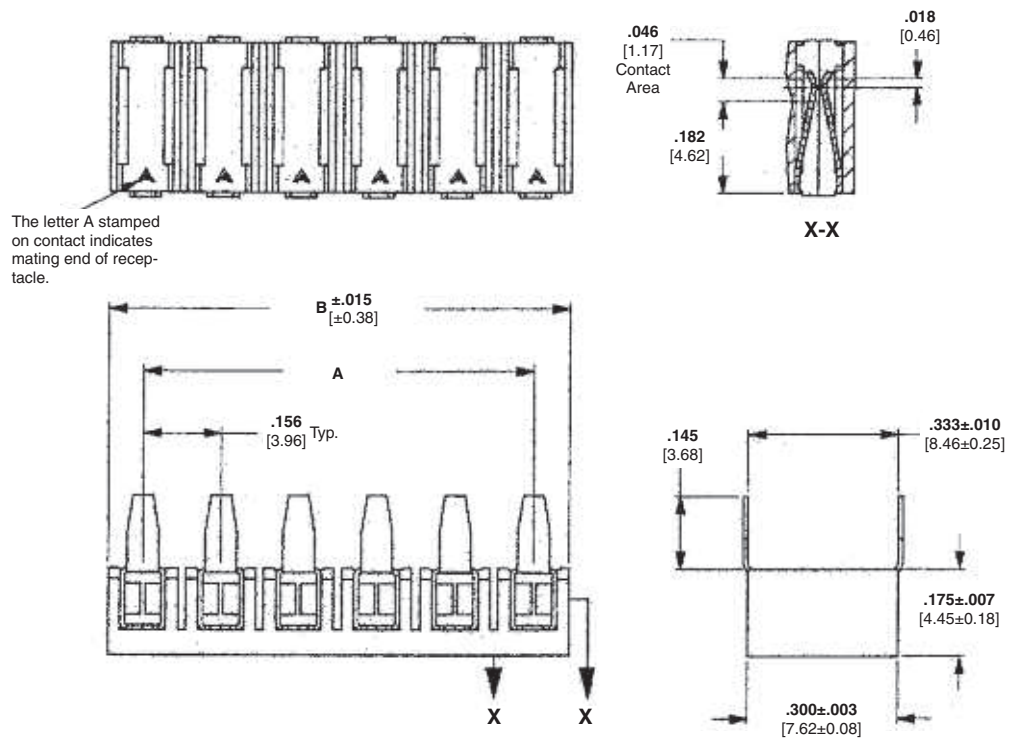
Machine Applied Posts — page 294

Headers — pages 295-297

Performance Specifications — page 305

Technical Documents — page 305

Recommended Board Layouts for Receptacle Assemblies and Individual Receptacles (Type C)



This configuration recommended for use with machine applied posts or headers with a .405 [10.29] minimum mating end post length.*

This configuration recommended for use with machine applied posts or headers with a .345 [18.76] minimum mating end post length.*

This configuration recommended for use with machine applied posts or headers with a .500 [12.70] minimum mating end post length.*

Keying Plug



Part No. 86181-2
(Use in Board Mount Receptacles)

The mating post length is depicted by the A dimension on page 294 (machine applied posts) and the C dimension on pages 295-297 (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.

Note: All part numbers are RoHS compliant.

**Mod I Receptacle Assemblies, Horizontal Board Mount,
.031 x .062 [0.79 x 1.57] Centerline** (Continued)

No. of Pos.	Dimensions		Standard Pressure		High Pressure
	A	B	Plating A	Plating B	Plating B
2	.156 [3.96]	.312 [7.92]	87988-2	87987-2	87995-2
3	.312 [7.92]	.468 [11.89]	87988-3	87987-3	87995-3
4	.468 [11.89]	.624 [15.85]	87988-4	87987-4	87995-4
5	.624 [15.85]	.780 [19.81]	87988-5	87987-5	87995-5
6	.780 [19.81]	.936 [23.77]	87988-6	87987-6	87995-6
7	.936 [23.77]	1.092 [27.74]	87988-7	87987-7	87995-7
8	1.092 [27.74]	1.248 [31.70]	87988-8	87987-8	87995-8
9	1.248 [31.70]	1.404 [35.66]	87988-9	87987-9	87995-9
10	1.404 [35.66]	1.560 [39.62]	1-87988-0	1-87987-0	1-87995-0
11	1.560 [39.62]	1.716 [43.59]	1-87988-1	1-87987-1	1-87995-1
12	1.716 [43.59]	1.872 [47.55]	1-87988-2	1-87987-2	1-87995-2
13	1.872 [47.54]	2.028 [51.51]	1-87988-3	1-87987-3	1-87995-3
14	2.028 [51.51]	2.184 [55.47]	1-87988-4	1-87987-4	1-87995-4
15	2.184 [55.47]	2.340 [59.44]	1-87988-5	1-87987-5	1-87995-5
16	2.340 [59.44]	2.496 [63.40]	1-87988-6	1-87987-6	1-87995-6
17	2.496 [63.40]	2.652 [67.36]	1-87988-7	1-87987-7	1-87995-7
18	2.652 [67.36]	2.808 [71.32]	1-87988-8	1-87987-8	1-87995-8
19	2.808 [71.32]	2.964 [75.29]	1-87988-9	1-87987-9	1-87995-9
20	2.964 [75.29]	3.120 [79.25]	2-87988-0	2-87987-0	2-87995-0

Note: All part numbers are RoHS compliant.

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 291-293

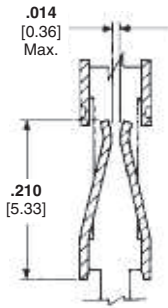
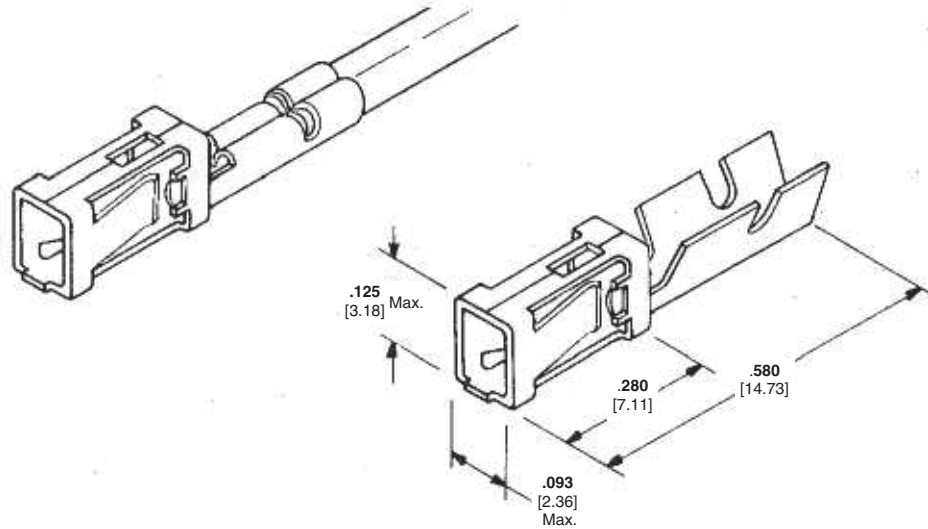
Mate with Machine Applied Posts — page 294

Headers — pages 295-297

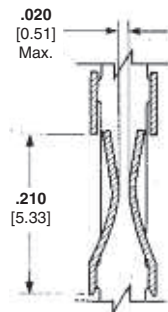
Application Tooling — page 300-304

Performance Specification — page 305

Technical Documents — page 305



Standard Pressure Receptacle



High Pressure Receptacle



Extraction Tool Part No. 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 Nos.	Packaged Quantities	Part Nos.
22-18 [0.3-0.9]	.051-.090 [1.30-2.29]	Plating A	5,000	102099-2	500	102103-2
		Plating B	5,000	102099-5	500	102103-3

Wire Size Range AWG [mm ²]	Applicator (Standard 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)	
	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 TE.

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	High Pressure			
			Strip Form		Loose Piece	
			Packaged Quantities	Part Nos.	Packaged Quantities	Part Nos.
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]	0.42-.073 [1.07-1.85]	Plating A	5,000	102102-2	500	102106-2
		Plating B	5,000	102102-5	500	102106-3

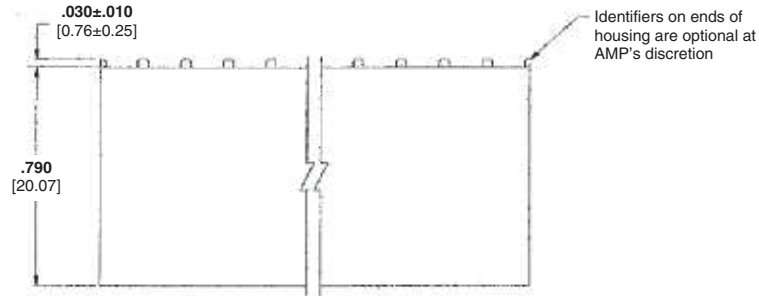
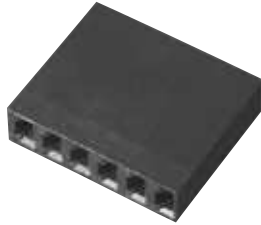
Wire Size Range AWG [mm ²]	Applicator (High Pressure)			Premium CERTI-CRIMP Hand Tool Part Number
	Part Number	Type	Used With Machine	
22-18 [0.3-0.9]	466764-3	HDM	Model "G" (AMP-O-LECTRIC)	90274-2
	466764-2	HDM	Model "K" (AMP-O-LECTRIC)	
	466764-1	HDM	CLS IV+ (AMPOMATOR)	
	466937-1	SCA	Stripper-Crimper (AMP-O-MATIC)	
26-22 [0.12-0.4]	466763-2	HDM	Model "K" (AMP-O-LECTRIC)	90328-1
	466763-1	HDM	CLS IV+ (AMPOMATOR)	

AMP-O-LECTRIC KII Machine. Applicators also available for AMPOMATOR Lead Making Machines and Stripper/Crimper Machines. Consult TE.

Note: All part numbers are RoHS compliant.

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



Material

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data

Contacts used with — page 290

Mate with —

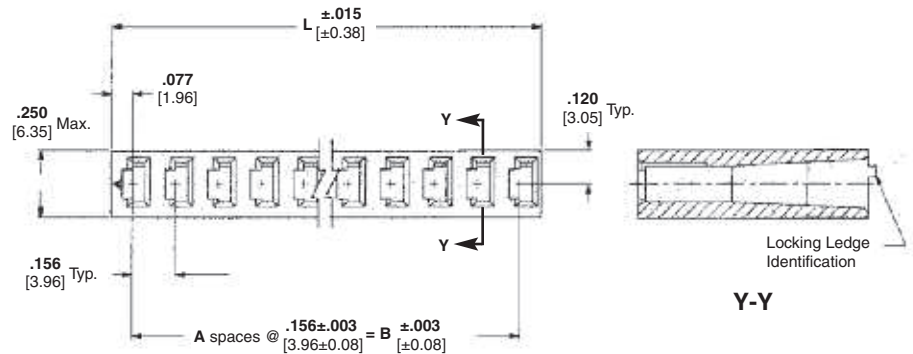
Machine Applied Posts — page 294

Headers — pages 295-297

Performance Specifications — page 305

Technical Documents —

page 305



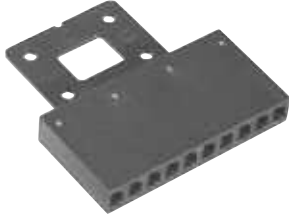
No. of Pos.	Dimensions			Housing Part Nos.	
	A	B	L	Stamped ¹	Unstamped ²
2	1	.156 [3.96]	.312 [7.92]	—	2-87025-5
3	2	.312 [7.92]	.468 [11.89]	—	2-87025-1
4	3	.468 [11.89]	.624 [15.85]	—	1-87025-3
5	4	.624 [15.85]	.780 [19.81]	—	2-87025-3
6	5	.780 [19.81]	.936 [23.77]	87025-1	87025-2
7	6	.936 [23.77]	1.092 [27.74]	—	3-87025-4
8	7	1.092 [27.74]	1.248 [31.70]	—	1-87025-6
9	8	1.248 [31.70]	1.404 [35.66]	87025-9	1-87025-0
10	9	1.404 [35.66]	1.560 [39.62]	1-87025-7	1-87025-8
11	10	1.560 [39.62]	1.716 [43.59]	—	3-87025-6
12	11	1.716 [43.59]	1.872 [47.55]	1-87025-1	1-87025-2
13	12	1.872 [47.55]	2.028 [51.51]	—	3-87025-0
14	13	2.028 [51.51]	2.184 [55.47]	—	3-87025-8
15	14	2.184 [55.47]	2.340 [59.44]	—	3-87025-2
16	15	2.340 [59.44]	2.496 [63.40]	—	2-87025-0
17	16	2.496 [63.40]	2.652 [67.36]	—	4-87025-0
18	17	2.652 [67.36]	2.808 [71.32]	—	87025-4
19	18	2.808 [71.32]	2.964 [75.29]	—	87025-6
20	19	2.964 [75.29]	3.120 [79.25]	—	87025-8
25	24	3.744 [95.10]	3.900 [99.06]	—	5-87025-0

Notes: ¹Markings on housing.
²No markings on housing.

Note: All part numbers are RoHS compliant.

**Mod I Receptacle Housings, Standard Profile, Unkeyed,
.031 x .062 [0.79 x 1.57] Centerline** (Continued)

**Single Row, .156 [3.96]
Centers, With Strain Relief**



Material

Black thermoplastic, flame retardant,
94V-0 rated

Related Product Data

Contacts used with — page 290

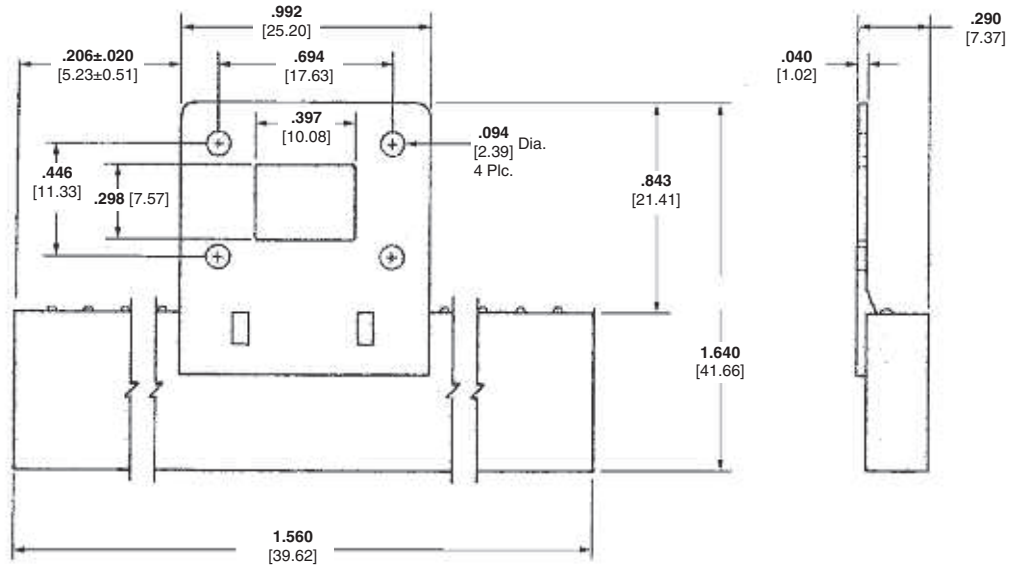
Mate with —

Machine Applied Posts — page 294

Headers — pages 295-297

Performance Specifications —
page 305

Technical Documents —
page 305

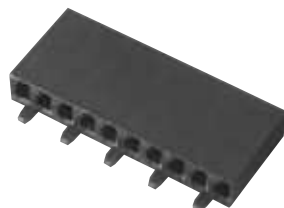


10 Position Receptacle Housing, Part No. 1-102090-0

Note: All part numbers are RoHS compliant.

Mod I Receptacle Housings, Low Profile, Keyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers



Material

Black thermoplastic, flame retardant, 94V-0 rated

Related Product Data

Contacts used with — page 290

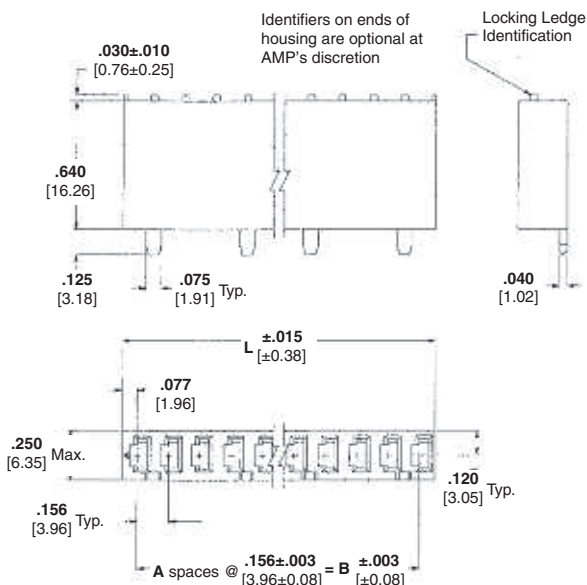
Mate with —

Headers — pages 295-297

Performance Specifications — page 305

Technical Documents —

page 305

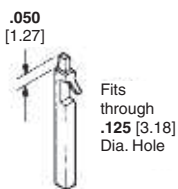


No. of Pos.	Dimensions			No. of Keys	Housing Part Nos. (Unstamped) ¹	Key Locations
	A	B	L			
2	1	.156 [3.96]	.312 [7.92]	1	87159-3	A
3	2	.312 [7.92]	.468 [11.89]	1	87159-4	A
4	3	.468 [11.89]	.624 [15.85]	2	87159-5	A,C
5	4	.624 [15.85]	.780 [19.81]	2	87159-1	A,D
6	5	.780 [19.81]	.936 [23.77]	3	87159-6	A,C,E
7	6	.936 [23.77]	1.092 [27.74]	3	87159-7	A,C,E
8	7	1.092 [27.74]	1.248 [31.70]	4	87159-8	A,C,E,G
9	8	1.248 [31.70]	1.404 [35.66]	3	87159-9	A,D,G
10	9	1.404 [35.66]	1.560 [39.62]	5	1-87159-0	A,C,E,G,J
11	10	1.560 [39.62]	1.716 [43.59]	4	1-87159-1	A,D,G,K
12	11	1.716 [43.59]	1.872 [47.55]	6	1-87159-2	A,C,E,G,J,L
13	12	1.872 [47.55]	2.028 [51.51]	4	87159-2	A,D,J,M
14	13	2.028 [51.51]	2.184 [55.47]	7	1-87159-3	A,C,E,G,J,L,N
15	14	2.184 [55.47]	2.340 [59.44]	5	1-87159-4	A,D,G,K,N
16	15	2.340 [59.44]	2.496 [63.40]	8	1-87159-5	A,C,E,G,J,L,N,Q
17	16	2.496 [63.40]	2.652 [67.36]	6	1-87159-6	A,D,G,K,N,R
18	17	2.652 [67.36]	2.808 [71.32]	6	1-87159-7	A,D,F,J,P,S
19	18	2.808 [71.32]	2.964 [75.29]	8	1-87159-8	B,D,F,J,L,N,Q,S
20	19	2.964 [75.29]	3.120 [79.25]	10	1-87159-9	A,C,E,G,J,L,N,Q,S,U
25	24	3.744 [95.10]	3.900 [99.06]	11	2-87159-4	A,C,E,H,K,M,Q,S,U,W,Y

¹No marking on housing.

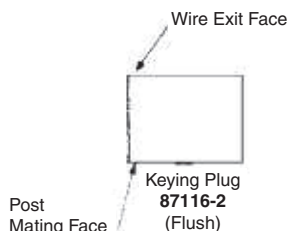
Keying Plug

Material — Natural Color Nylon

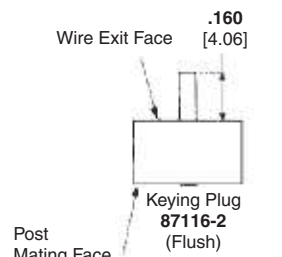


Part No. 87116-2

Keying Plug References



For Standard Housings

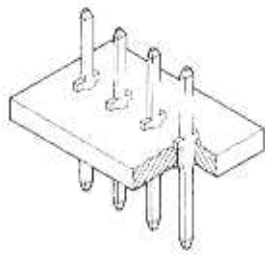


For Low Profile Housings

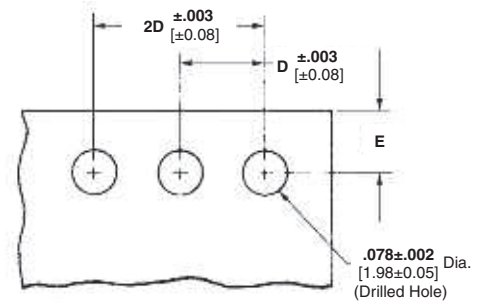
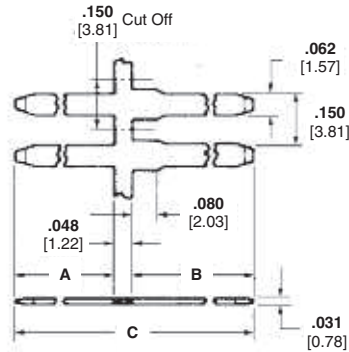
Note: All part numbers are RoHS compliant.

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 .000030 [0.00076] gold over .000050 [0.00127] nickel on entire post

Related Product Data

Mate with —

Board Mount Receptacles — pages 285, 286

Board Mount Receptacle Assemblies — pages 287-289

Crimp Snap-In Receptacles and Housings — pages 290-292

Locking Clip Contacts & Housings — pages 298, 299 (see page 298 for recommended post length).

Application Tooling — pages 300-304

Performance Specifications — page 305

Technical Documents — page 305

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.

A	Dimensions			Finish	Part Nos.	
	B	C	Strip Form ¹		Loose Piece ²	
.360 [9.14]	.187 [4.75]	.595 [15.11]	Plating A	86147-7	86182-7	
			Plating B	5086147-2	5086182-2	
.380 [9.65]	.320 [8.13]	.748 [19.00]	Plating A	1-86147-5	1-86182-5	
			Plating B	5086147-9	5086182-9	
.400 [10.16]	.125 [3.18]	.573 [14.55]	Plating A	4-86147-2	2-86182-9	
			Plating B	3-5086147-7	2-5086182-5	
.480 [12.19]	.187 [4.75]	.715 [18.16]	Plating A	1-86147-8	1-86182-8	
			Plating B	2-5086147-2	2-5086182-2	
.565 [14.35]	.187 [4.75]	.800 [20.32]	Plating A	86147-8	86182-8	
			Plating B	5086147-1	5086182-1	
.800 [20.32]	.150 [3.81]	.998 [25.35]	Plating A	1-86147-2	1-86182-2	
			Plating B	1-5086147-0	1-5086182-0	

¹ Packaging quantity of 20,000 per reel.

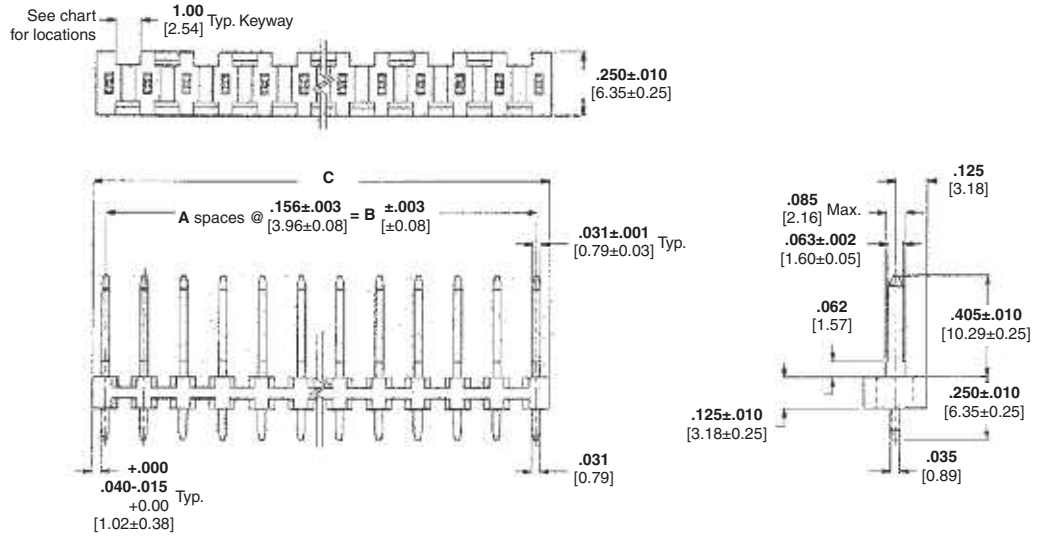
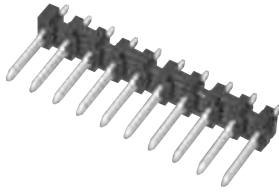
² Packaging quantity of 1,000 per bag.

Note: Strip form posts applied with Insertion Machine No. 3-457382-1, includes power unit and applicator.

Note: All part numbers are RoHS compliant.

Mod I Headers, Straight Post, Keyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers



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] tin over .000030 [0.00762] nickel on entire post

Related Product Data

Mate with — Board Mount Receptacles — pages 285, 286

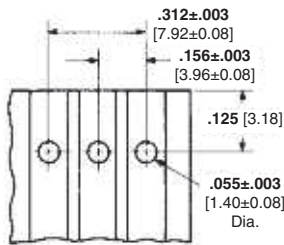
Board Mount Receptacle Assemblies — pages 287-289

Crimp Snap-In Receptacles and Housings — pages 290-292

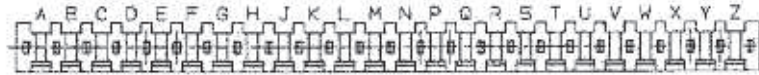
Locking Clip Contacts & Housings — pages 298 & 299 (see page 298 for recommended post length).

Performance Specifications — page 305

Technical Documents — page 305



Recommended Board Layout



Keyway Locations (Ref only)

No. of Pos.	A	Dimensions		No. of Keying Slots	Post Height D=.405 [10.29]		Post Height D=.587 [14.91]		Keyway Locations
		B	C		Plating A	Plating B	Plating A	Plating B	
2	1	.156 [3.96]	.267 [6.78]	1	85829-2	5-87160-4	87247-2	5-87262-2	A
3	2	.312 [7.92]	.423 [10.74]	1	85829-3	5-87160-5	87247-3	5-87262-3	A
4	3	.468 [11.89]	.579 [14.71]	2	85829-4	5-87160-6	87247-4	5-87262-4	A,C
5	4	.624 [15.85]	.735 [18.67]	2	85829-5	5-87160-1	87247-5	5-87262-5	A,D
6	5	.780 [19.81]	.891 [22.63]	3	85829-6	5-87160-7	87247-6	5-87262-6	A,C,E
7	6	.936 [23.77]	1.047 [26.59]	3	85829-7	5-87160-8	87247-7	5-87262-7	A,C,E
8	7	1.092 [27.74]	1.203 [30.56]	4	85829-8	5-87160-9	87247-8	5-87262-8	A,C,E,G
9	8	1.248 [31.70]	1.359 [34.52]	3	85829-9	6-87160-0	87247-9	5-87262-9	A,D,G
10	9	1.404 [35.66]	1.515 [38.48]	5	1-85829-0	6-87160-1	1-87247-0	6-87262-0	A,C,E,G,J
11	10	1.560 [39.62]	1.671 [42.44]	4	1-85829-1	6-87160-2	1-87247-1	6-87262-1	A,D,G,K
12	11	1.716 [43.59]	1.827 [46.41]	6	1-85829-2	6-87160-3	1-87247-2	6-87262-2	A,C,E,G,J,L
13	12	1.872 [47.55]	1.983 [50.37]	4	1-85829-3	5-87160-2	1-87247-3	6-87262-3	A,D,J,M
14	13	2.028 [51.51]	2.139 [54.33]	7	1-85829-4	6-87160-4	1-87247-4	6-87262-4	A,C,E,G,J,L,N
15	14	2.184 [55.47]	2.295 [58.29]	5	1-85829-5	6-87160-5	1-87247-5	6-87262-5	A,D,G,K,N
16	15	2.340 [59.44]	2.451 [62.26]	8	1-85829-6	6-87160-6	1-87247-6	6-87262-6	A,C,E,G,J,L,N,Q
17	16	2.496 [63.40]	2.607 [66.22]	6	1-85829-7	6-87160-7	1-87247-7	6-87262-7	A,D,G,K,N,R
18	17	2.652 [67.36]	2.763 [70.18]	7	1-85829-8	6-87160-8	1-87247-8	6-87262-8	A,D,F,J,M,PS
19	18	2.808 [71.32]	2.919 [74.14]	8	1-85829-9	6-87160-9	1-87247-9	6-87262-9	B,D,F,J,L,N,Q,S
20	19	2.964 [75.29]	3.075 [78.11]	10	2-85829-0	7-87160-0	2-87247-0	7-87262-0	A,C,E,G,J,L,N,Q,S,U
21	20	3.120 [79.25]	3.231 [82.07]	7	2-85829-1	7-87160-1	2-87247-1	7-87262-1	A,D,G,K,N,R,U
22	21	3.276 [83.21]	3.387 [86.03]	11	2-85829-2	7-87160-2	2-87247-2	7-87262-2	A,C,E,G,J,L,N,Q,S,U,W
23	22	3.432 [87.17]	3.543 [89.99]	8	2-85829-3	7-87160-3	2-87247-3	7-87262-3	A,D,G,K,N,R,U,X
24	23	3.588 [91.14]	3.699 [93.95]	12	2-85829-4	7-87160-4	2-87247-4	7-87262-4	A,C,E,G,J,L,N,Q,S,U,W,Y
25	24	3.744 [95.10]	3.855 [97.92]	11	2-85829-5	7-87160-5	2-87247-5	7-87262-5	A,C,E,H,K,M,Q,S,U,W,Y

Note: All part numbers are RoHS compliant.

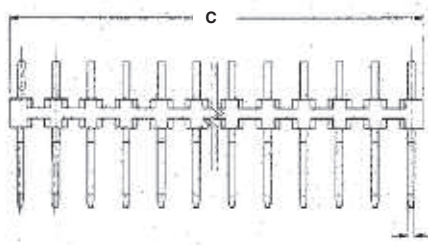
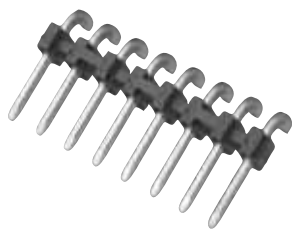
**Mod I Headers, Straight Post, Keyed,
.031 x .062 [0.79 x 1.57] Centerline** (Continued)

No. of Pos.	Dimensions			No. of Keying Slots	Post Height D=.750 [19.05]		Post Height D=1.187 [30.15]		Post Height D=1.310 [33.27]		Keyway Locations
	A	B	C		Plating A	Plating B	Plating A	Plating B	Plating A	Plating B	
	2	1	.156 [3.96]		.267 [6.78]	1	85923-2	5-85875-7	87283-2	—	
3	2	.312 [7.92]	.423 [10.74]	1	85923-3	5-85875-8	87283-3	5-86207-2	85839-3	5-85840-3	A
4	3	.468 [11.89]	.579 [14.71]	2	85923-4	5-85875-1	87283-4	5-86207-9	85839-4	5-85840-4	A,C
5	4	.624 [15.85]	.735 [18.67]	2	85923-5	5-85875-2	87283-5	5-86207-3	85839-5	5-85840-5	A,D
6	5	.780 [19.81]	.891 [22.63]	3	85923-6	5-85875-9	87283-6	—	85839-6	5-85840-6	A,C,E
7	6	.936 [23.77]	1.047 [26.59]	3	85923-7	6-85875-0	87283-7	—	85839-7	5-85840-7	A,C,E
8	7	1.092 [27.74]	1.203 [30.56]	4	85923-8	6-85875-1	87283-8	—	85839-8	5-85840-8	A,C,E,G
9	8	1.248 [31.70]	1.359 [34.52]	3	85923-9	5-85875-3	87283-9	—	85839-9	5-85840-9	A,D,G
10	9	1.404 [35.66]	1.515 [38.48]	5	1-85923-0	6-85875-2	1-87283-0	—	1-85839-0	6-85840-0	A,C,E,G,J
11	10	1.560 [39.62]	1.671 [42.44]	4	1-85923-1	6-85875-3	1-87283-1	—	1-85839-1	6-85840-1	A,D,G,K
12	11	1.716 [43.59]	1.827 [46.41]	6	1-85923-2	5-85875-4	1-87283-2	—	1-85839-2	6-85840-2	A,C,E,G,J,L
13	12	1.872 [47.55]	1.983 [50.37]	4	1-85923-3	6-85875-4	1-87283-3	—	1-85839-3	6-85840-3	A,D,J,M
14	13	2.028 [51.51]	2.139 [54.33]	7	1-85923-4	6-85875-5	1-87283-4	—	1-85839-4	6-85840-4	A,C,E,G,J,L,N
15	14	2.184 [55.47]	2.295 [58.29]	5	1-85923-5	6-85875-6	1-87283-5	—	1-85839-5	6-85840-5	A,D,G,K,N
16	15	2.340 [59.44]	2.451 [62.26]	8	1-85923-6	6-85875-7	1-87283-6	—	1-85839-6	6-85840-6	A,C,E,G,J,L,N,Q
17	16	2.496 [63.40]	2.607 [66.22]	6	1-85923-7	6-85875-8	1-87283-7	—	1-85839-7	6-85840-7	A,D,G,K,N,R
18	17	2.652 [67.36]	2.763 [70.18]	7	1-85923-8	6-85875-9	1-87283-8	—	1-85839-8	6-85840-8	A,D,F,J,M,P,S
19	18	2.808 [71.32]	2.919 [74.14]	8	1-85923-9	7-85875-0	1-87283-9	—	1-85839-9	6-85840-9	B,D,F,J,L,N,Q,S
20	19	2.964 [75.29]	3.075 [78.11]	10	2-85923-0	7-85875-1	2-87283-0	—	2-85839-0	7-85840-0	A,C,E,G,J,L,N,Q,S,U
21	20	3.120 [79.25]	3.231 [82.07]	7	2-85923-1	7-85875-2	2-87283-1	—	2-85839-1	7-85840-1	A,D,G,K,N,R,U
22	21	3.276 [83.21]	3.387 [86.03]	11	2-85923-2	7-85875-3	2-87283-2	—	2-85839-2	7-85840-2	A,C,E,G,J,L,N,Q,S,U,W
23	22	3.432 [87.17]	3.543 [89.99]	8	2-85923-3	5-85875-5	2-87283-3	—	2-85839-3	7-85840-3	A,D,G,K,N,R,U,X
24	23	3.588 [91.14]	3.699 [93.95]	12	2-85923-4	7-85875-4	2-87283-4	—	2-85839-4	7-85840-4	A,C,E,G,J,L,N,Q,S,U,W,Y
25	24	3.744 [95.10]	3.855 [97.92]	11	2-85923-5	7-85875-5	2-87283-5	—	2-85839-5	7-85840-5	A,C,E,H,K,M,Q,S,U,W,Y

Note: All part numbers are RoHS compliant.

Mod I Headers, Right-Angle Post, Keyed, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers



.031±.001
[0.79±0.03] Typ.

Material and Finish

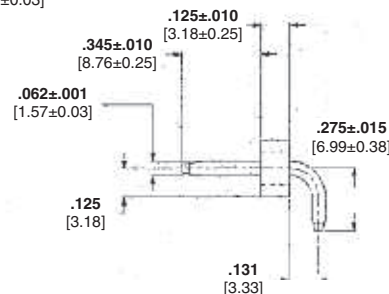
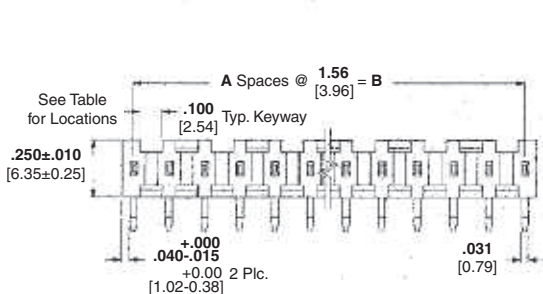
Housing — Black thermoplastic, 94V-0 rated

Posts — Brass, plated as follows:

Plating A — Selectively plated .000030 [0.00076] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B — .000015 [0.00038] gold over .000050 [0.00127] nickel on entire post

Plating C — .000100-.000200 [0.00254-0.00508] tin over .000050 [0.00127] nickel on entire post



Keyway Locations (Ref Only)

Related Product Data

Mate with —
Board Mount Receptacles — pages 285, 286

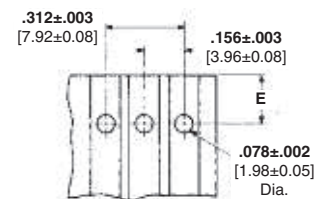
Board Mount Receptacle Assemblies — pages 287-289

Crimp Snap-In Receptacles and Housings — pages 290-292

Locking Clip Contacts and Housings — pages 298 & 299 (see page 298 for recommended post length).

Performance Specifications — page 305

Technical Documents — page 305



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.

No. of Pos.		Dimensions			No. of Keying Slots	Post Height D=.345 [8.76]		Post Height D=.500 [12.70]		Keyway Locations
		A	B	C		Plating A	Plating C	Plating B	Plating C	
2	1	.156 [3.96]	.267 [6.78]	1	87654-2	5-87655-2	87258-2	5-87194-1	A	
3	2	.312 [7.92]	.423 [10.74]	1	87654-3	5-87655-3	87258-3	5-87194-2	A	
4	3	.468 [11.89]	.579 [14.71]	2	87654-4	5-87655-4	87258-4	5-87194-3	A,C	
5	4	.624 [15.85]	.735 [18.67]	2	87654-5	5-87655-5	87258-5	5-87194-4	A,D	
6	5	.780 [19.81]	.891 [22.63]	3	87654-6	5-87655-6	87258-6	5-87194-5	A,C,E	
7	6	.936 [23.77]	1.047 [26.59]	3	87654-7	5-87655-7	87258-7	5-87194-6	A,C,E	
8	7	1.092 [27.74]	1.203 [30.56]	4	87654-8	5-87655-8	87258-8	5-87194-7	A,C,E,G	
9	8	1.248 [31.70]	1.359 [34.52]	3	87654-9	5-87655-9	87258-9	5-87194-8	A,D,G	
10	9	1.404 [35.66]	1.515 [38.48]	5	1-87654-0	6-87655-0	1-87258-0	5-87194-9	A,C,E,G,J	
11	10	1.560 [39.62]	1.671 [42.44]	4	1-87654-1	6-87655-1	1-87258-1	6-87194-0	A,D,G,K	
12	11	1.716 [43.59]	1.827 [46.41]	6	1-87654-2	6-87655-2	1-87258-2	6-87194-1	A,C,E,G,J,L	
13	12	1.872 [47.55]	1.983 [50.37]	4	1-87654-3	6-87655-3	1-87258-3	6-87194-2	A,D,J,M	
14	13	2.028 [51.51]	2.139 [54.33]	7	1-87654-4	6-87655-4	1-87258-4	6-87194-3	A,C,E,G,J,L,N	
15	14	2.184 [55.47]	2.295 [58.29]	5	1-87654-5	6-87655-5	1-87258-5	6-87194-4	A,D,G,K,N	
16	15	2.340 [59.44]	2.451 [62.26]	8	1-87654-6	6-87655-6	1-87258-6	6-87194-5	A,C,E,G,J,L,N,Q	
17	16	2.496 [63.40]	2.607 [66.22]	6	1-87654-7	6-87655-7	1-87258-7	6-87194-6	A,D,G,K,N,R	
18	17	2.652 [67.36]	2.763 [70.18]	7	1-87654-8	6-87655-8	1-87258-8	6-87194-7	A,D,F,J,M,PS	
19	18	2.808 [71.32]	2.919 [74.14]	8	1-87654-9	6-87655-9	1-87258-9	6-87194-8	B,D,F,J,L,N,Q,S	
20	19	2.964 [75.29]	3.075 [78.11]	10	2-87654-0	7-87655-0	2-87258-0	6-87194-9	A,C,E,G,J,L,N,Q,S,U	
21	20	3.120 [79.25]	3.231 [82.07]	7	2-87654-1	7-87655-1	2-87258-1	7-87194-0	A,D,G,K,N,R,U	
22	21	3.276 [83.21]	3.387 [86.03]	11	2-87654-2	7-87655-2	2-87258-2	7-87194-1	A,C,E,G,J,L,N,Q,S,U,W	
23	22	3.432 [87.17]	3.543 [89.99]	8	2-87654-3	7-87655-3	2-87258-3	7-87194-2	A,D,G,K,N,R,U,X	
24	23	3.588 [91.14]	3.699 [93.95]	12	2-87654-4	7-87655-4	2-87258-4	7-87194-3	A,C,E,G,J,L,N,Q,S,U,W,Y	
25	24	3.744 [95.10]	3.855 [97.92]	11	2-87654-5	7-87655-5	2-87258-5	7-87194-4	A,C,E,H,K,M,Q,S,U,W,Y	

Note: All part numbers are RoHS compliant.



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

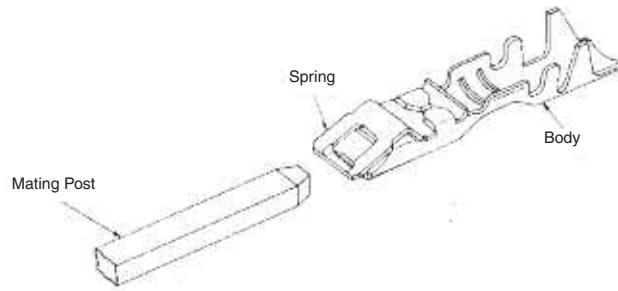
Material and Finish

Contact Body — Phosphor bronze, plated as follows:

Plating A — Selectively plated .00015 [0.00038] gold on contact area, with gold flash over .000050 [0.00127] nickel on entire post

Plating B — .000100 [0.00254] min. tin over .000050 [0.00127] nickel on entire contact

Contact Spring — Stainless steel



Related Product Data

Mate with —
Machine Applied Posts — page 294
Headers (.500 Post Height Only) — pages 295-297 (see recommended post length below)*

Housings used in — page 299

Application Tooling — pages 300-304

Performance Specification — page 305

Technical Documents — page 305

Wire Size Range AWG [mm ²]	Ins. Dia. Range	Finish	Contact Part Nos.	
			Strip Form	Loose Piece
22-18 [0.3-0.9]	.050-.0100 [1.27-2.54]	Plating A	87269-2	87278-2
		Plating B	5-87269-1	5-87278-1

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)	

¹AMP-O-LECTRIC KII Machine. Applicators also available for AMPOMATOR Lead Making Machines. Consult TE. **Note:** These contacts must be crimped in accordance with TE Specification No. 114-25008 in order to function properly in a connector housing. Extraction Tool **Part No. 91104-1** is used for removing individual contacts from connector housings and for detaching contacts from mating posts.

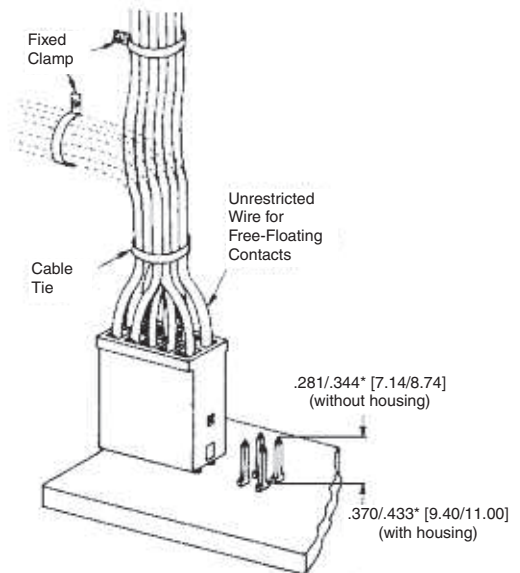


**Extraction Tool
Part No. 91104-1**

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.

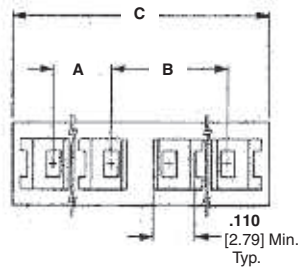


*Dimension defines .031 x .062 [0.79 x 1.57] portion of post. If post is longer than maximum specified, post tip may butt against wire ends.

Note: All part numbers are RoHS compliant.

Locking Clip Connector Housings, .031 x .062 [0.79 x 1.57] Centerline

Single Row, .156 [3.96] Centers



Material and Finish

Black thermoplastic, 94V-0 rated

Related Product Data

Contacts used with — page 298

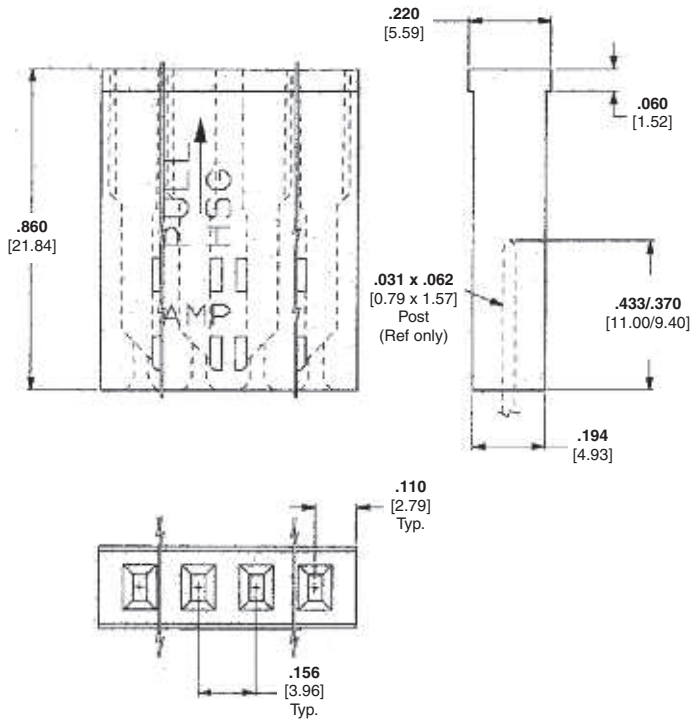
Mate with —

Machine Applied Posts — page 294

Headers — pages 295-297 (see page 298 for recommended post length)

Performance Specifications — page 305

Technical Documents — page 305



No. of Pos.	Dimensions			Housing Part Nos.		Keyed Positions on Mating Face
	A	B	C	UnKeyed	Keyed	
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	—	—
3 of 4	.156 [3.96]	.312 [7.92]	.688 [17.48]	—	87270-3	□□■□
4				87270-4	—	—
4 of 5	.312 [7.92]	.312 [7.92]	.844 [21.44]	—	1-87270-0	□□□■□
5				1-87270-4	—	—
5 of 6	.312 [7.92]	.468 [11.89]	1.000 [25.40]	—	1-87270-2	□□□□■□
6				87270-5	—	—
6 of 7	.468 [11.89]	.468 [11.89]	1.156 [29.36]	—	1-87270-1	□□□□■□□
7				1-87270-5	—	—
8	.468 [11.89]	.624 [15.85]	1.312 [33.32]	87270-6	—	—
9	.624 [15.85]	.624 [15.85]	1.468 [37.29]	1-87270-6	—	—
10	.624 [15.85]	.780 [19.81]	1.624 [41.25]	87270-7	—	—
11	.780 [19.81]	.780 [19.81]	1.780 [45.21]	1-87270-7	—	—
12	.780 [19.81]	.936 [23.77]	1.936 [49.17]	87270-8	—	—

■ Indicates "closed cavity". No post entry hole in this position.

Note: All part numbers are RoHS compliant.

Notes: 1. All housings listed above will accept Locking Clip Contacts No. 87269 and 87278, refer to page 298
2. Refer to TE Instruction Sheet 408-7676 for proper contact orientation within the housings.

Application Tooling

For Crimp Snap-In Receptacles and Locking Clip Contacts

Side-Feed Heavy-Duty Miniature Applicators (Coded HDM)



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.

For more information, request Instruction Sheet **408-8040**.

AMP-O-LECTRIC Model "G" Terminating Machines, 354500-1, -9, -11



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 and safety. 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.

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**.

AMPOMATOR CLS IV+ Lead-Making Machines, 356500-1, -2, 1213400-1, -2



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.

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).

Note: All part numbers are RoHS compliant.

Note: For additional tooling options, contact TE or reference the TE web site.

Application Tooling (Continued)

For Crimp Snap-In Receptacles and Locking Clip Contacts (Continued)

AMP-O-MATIC Stripper-Crimper Machines, 854040-3, -4

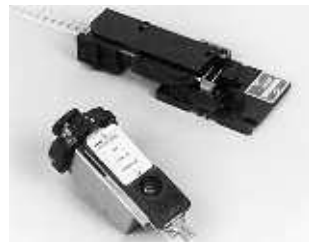


Semiautomatic bench crimping machines that also strip the wire, and are therefore used for terminating jacketed cable. Feature manual precision adjustment of crimp height, keyed strip blades for faster, more accurate setups, and an efficient scrap removal system. All adjustments can be made from the front of the machines without special tools. Available with crimp quality monitoring.

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**.

Stripper-Crimper Applicators (coded SCA)



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.

For more information, request Catalog **65004 (AMP-O-MATIC Stripper-Crimper Machines)**, Catalog **82275 [Crimp Quality Monitor (CQM)]**.

Kappa 235, Automatic Cut and Strip, 3-547178-1



The Kappa 235 has the capability of processing wires with a cross section of up to 4 AWG and an outside diameter of 0.59 inch. Options include an inner conductor processing kit for multiconductor cables and a flat ribbon cable kit.

Specifications

Width—25 [630]
Depth—16 [490]
Height—13.4 [370]
Weight—95 lb [44 kg]
Wire Cross-Sections—24-4 AWG [0.22-25 mm²]
Flat Ribbon Cables—width up to 40mm
Length Range—0.04"-328ft [1mm - 99.99m] (+/- 0.2%)
Electrical—110/230 V - 50/60Hz, switches automatically

Cosmic 927R Micro-Cable Stripper



The Cosmic 927R Micro-Cable Stripper was developed to reliably strip various insulation materials and micro-cable. From conductor diameter 36 AWG to 10 AWG, the stripping diameter display can be set to within 0.1mm increments.

Thus optimal stripping quality is guaranteed and damage to the conductor is eliminated.

Note: All part numbers are RoHS compliant.

Note: For additional tooling options, contact TE or reference the TE web site.

Application Tooling (Continued)

For Crimp Snap-In Receptacles and Locking Clip Contacts (Continued)

CERTI-CRIMP Straight Action Hand Tools (SAHT)



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]

All CERTI-CRIMP head assemblies / dies, have multiple power options available. The accompanying diagram outlines those power options. See catalogs 1654714 (SDE Electric Terminator), 124208 (626 Pneumatic Tool System) and 1773381 (Battery-Powered Crimp Tool Kits) for more information.

For more information, request Catalog **65780**.



PRO-CRIMPER III Hand Tool



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].

All PRO-CRIMPER head assemblies / dies, have multiple power options available. The accompanying diagram outlines those power options. See catalogs 1654714 (SDE Electric Terminator), 124208 (626 Pneumatic Tool System) and 1773381 (Battery-Powered Crimp Tool Kits) for more information.

Instruction Sheet
408-9930



Note: For additional tooling options, contact TE or reference the TE web site.

Application Tooling (Continued)

For Board Mount Receptacles and Machine Applied Posts

Modular Insertion System (MIS) Bench Machines, 217600 Series, 662820 Series (shown)



For Board Mount Receptacles

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.

This benchtop insertion machine installs contacts into PC boards at rates to 2000 per hour. A spotlight highlights the insertion area, and lower tooling assures precise board location. The machine is activated by a foot pedal.

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**.

P300 Automatic Insertion Machine



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 TE pneumatic insertion heads. Modem diagnostics standard, vision system optional. Control panel used to program and monitor entire insertion process.

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 TE.

Note: All part numbers are RoHS compliant.

Note: For additional tooling options, contact TE or reference the TE web site.

Application Tooling (Continued)

For Board Mount Receptacles and Machine Applied Posts (Continued)

P350 Pin Insertion Machine



The P350 is a fully automatic inline pin insertion machine capable of applying reeled pins, tabs, receptacles and similar products into PCBs. With inline operation, an automatic tool changer and insertion rates up to 5 per second, it is focused at fully automatic high speed operation to maximize throughput while minimizing costly scrap.

A servo powered XY table positions the PCB under a central drive station at high speed. The tool changer can hold up to 3 insertion heads each capable of applying a different product. A unique rotary insertion finger allows the application of products at up to 7 different angles without rotating the PCB. This allows the P350 to apply product at different angles without a reduction in insertion rate or the potential positioning error associated with PCB rotation. Icon driven software with touch screen provides a simple to use, intuitive operator interface.

The P350 provides a wide range of solutions for pin insertion applications. Quick change tooling packs, and a wide range of options make it a flexible high speed platform.

Specifications

Width — 102 [2600]

Depth — 118 [3000]

Height — 87 [2200]

Weight — approx 3500 lb [1600 kg]

Electrical — 230 V, 50-60 Hz, 10 A

Air — 600 kPa dried air

Max. Board Size — 17.5 x 17.5 [450 x 450]

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. Tin	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 TE Hand Tool 90274-2 for Crimping Crimp Snap-In 18-22 AWG Contacts

408-7750 TE Hand Tool 90328-1 for Crimping Crimp Snap-In Contacts (22-26 AWG)

408-7676 AMPMODU Locking Clip Connectors and Contacts

408-7671 TE Hand Tool 90308-1 for Crimping Locking Clip Contacts

408-7678 TE Extraction Tool 91104-1 for Locking Clip Contacts

408-7981 Clinching Procedures for Receptacle Assemblies

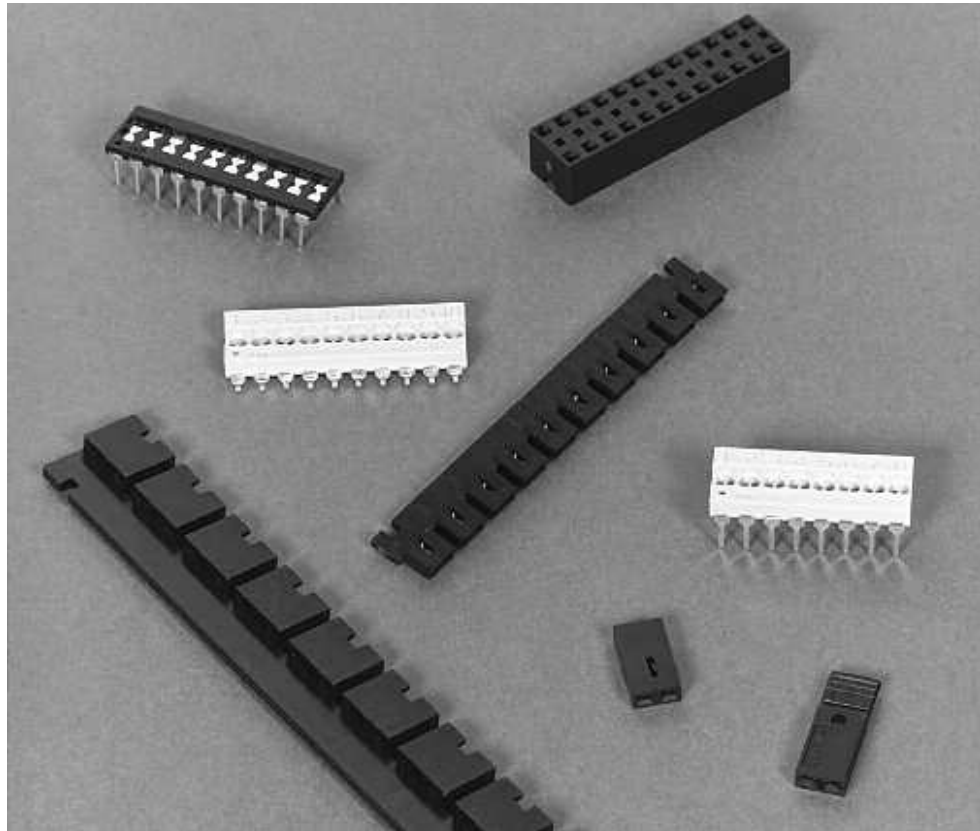
408-9451 TE Extraction Tool 843473-1 for Crimp Snap-In Receptacles

Note: All part numbers are RoHS compliant.

Shunts

Product Facts

- 7600 Series Programmable Shunts use conventional .100 x .300 [2.54x7.62] DIP leg spacing
- Post Shunts are used to common pairs of .025 [0.64] square posts, .025 [0.64] diameter round posts and .022 x .026 [0.56 x 0.66] formed posts



TE offers a variety of high quality shunts for low cost manual programming. TE 7600 Series Programmable Shunts are designed on the standard .100 x .300 [2.54 x 7.62] DIP spacing.

TE DIP Shunts are a highly reliable, low cost means of manually programming various types of electrical/electronic equipment. The shunt consists of a series of conductive straps packaged in a DIP configuration. The straps can be retained intact for a closed circuit or broken with a hand tool to produce an open circuit.

TE Post Shunts mate with any common pairs of square, rectangular and round posts. Post shunts come in two-position low profile, 2 mm miniature, tandem spring, dual beam, and multiposition versions.

Among the options available are choices of gold or tin plating, beryllium copper or phosphor bronze contact material and shunts with 94V-0 rated housing spaces on .079 [2.00], .100 [2.54] and .200 [5.08] centers with the low profile series requiring only .250 [6.35] clearance from the pc board.

All TE shunts feature one-piece construction for high reliability. All have high normal forces for excellent electrical continuity. For added reliability, Tandem Spring and Dual Beam Shunts have two points of contact in each receptacle.

Dual In-Line Package (DIP) Shunts — 7600 Series

Standard Shunt Standard Pressure

Material and Finish

Housing — Glass-filled polyester, UL 94V-0 rated

Contacts — Brass

Finish — Selectively plated .000100 min. tin on solder area over .000050 min. nickel on entire contact

Contact Lead Spacing — .100 x .300 [2.54x7.62]

Lead Length — .140 [3.56] below mounting surface

Housing Color — Black

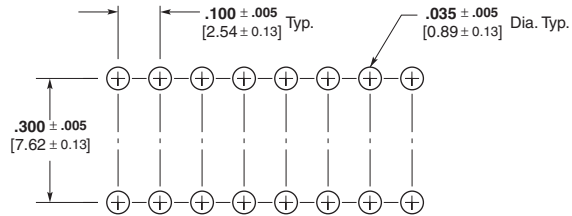
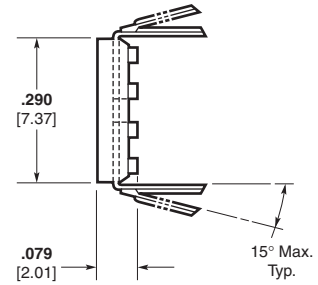
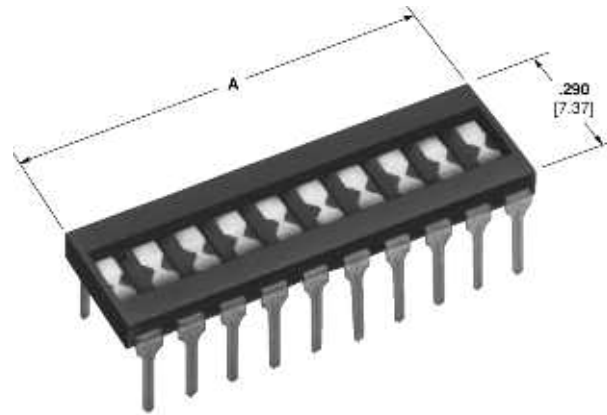
Programming Tool — See below

Programming Hand Tool

Part No. 435862-1



This tool provides a reliable means of programming DIP shunts. It is rugged, light-weight and dependable. No special skills are required to use this tool.



No. of Pos.	Dimension A		Standard Shunt Standard Pressure
	inch	mm	
4	.400	10.16	1825190-4
6	.600	15.24	1825190-6
7	.700	17.78	1825190-7
8	.800	20.32	1825190-8
9	.900	22.86	1825190-9
10	1.000	25.40	1-1825190-0
12	1.200	30.48	1-1825190-2

Note: All part numbers are RoHS compliant.

Post Shunts

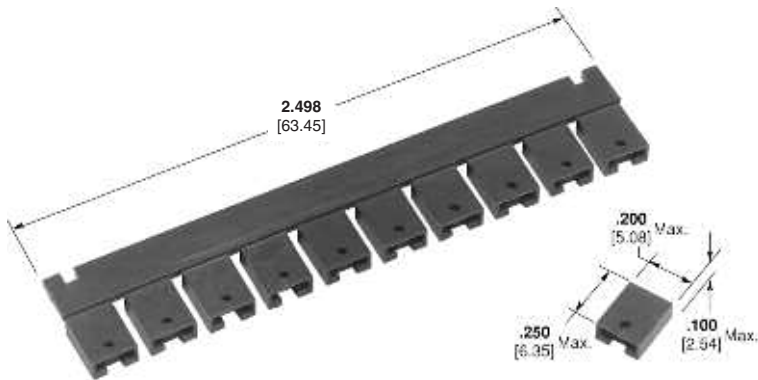
Product Facts

- One-piece contact construction
- High normal forces
- 94V-0 rated housings
- Gold inlay, gold plate or tin plate over nickel
- Stackable
- Those post shunts indicated are recognized under the component program of Underwriters Laboratories Inc., File No. E28476 and certified by the Canadian Standards Association File No. LR 7189



2-Position, Low Profile Shunts

Economy Shunt
.100 [2.54] Centerline



Configuration	Housing Color	Part Numbers			
		Gold Plate ¹ .000015 [0.00038]	Gold Flash ¹ .000005 [0.00013]	Tin Plate .000100 [0.00254]	Gold Plate .000030 [0.00076]
Strip of 10	Blue	382811-2	—	—	—
Strip of 10	Black	382811-6	382811-8	382811-5	2-382811-0
Strip of 10	Red	382811-9	—	—	—
Loose Piece	Black	1-382811-6	1-382811-8	—	—

¹In contact area

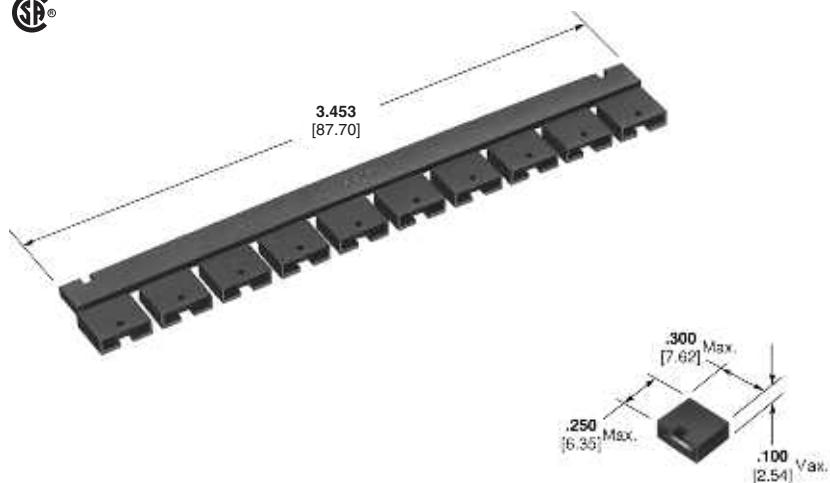
Tandem Spring Shunts

- Two points of contact provide extra reliability
- Shunts accept posts as short as .175 [4.45]; posts bottom at .330 [8.38]

2mm Mini Shunts

- Stackable on 2mm contact centerline
- Low profile
- Available in strips of 10

Standard Housing Shunt
.200 [5.08] Centerline



Configuration	Housing Color	Part Numbers		
		Gold Plate ¹ .000015 [0.00038]	Gold Plate ¹ .000030 [0.00076]	Tin Plate .000100 [0.00254]
Strip of 10	Black	531230-2	531230-3	531230-1

¹In contact area

Material and Finish — Low Profile and 2mm Shunts

Housing — Glass-filled thermoplastic, black, UL 94V-0 rated

Contacts — Beryllium copper or phosphor bronze, plated .000050 [0.00127] nickel underplate with gold plate in contact area or tin overall

Material and Finish — Tandem Spring Shunts

Housing — Nylon, UL 94V-0 rated

Contacts — Phosphor Bronze

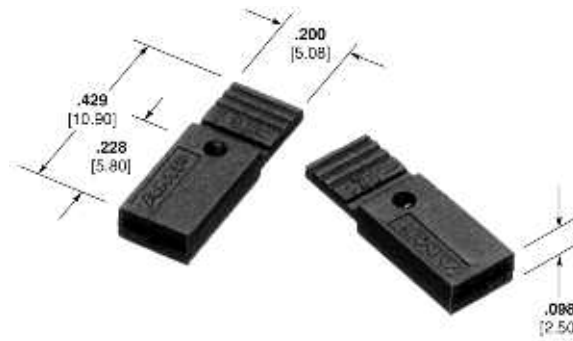
Finish — .000030 [0.00076] nickel underplate with gold inlay in the contact area or tin overall

Note: All part numbers are RoHS compliant.

Post Shunts (Continued)

2-Position, Low Profile Shunts (Novo)
(Continued)

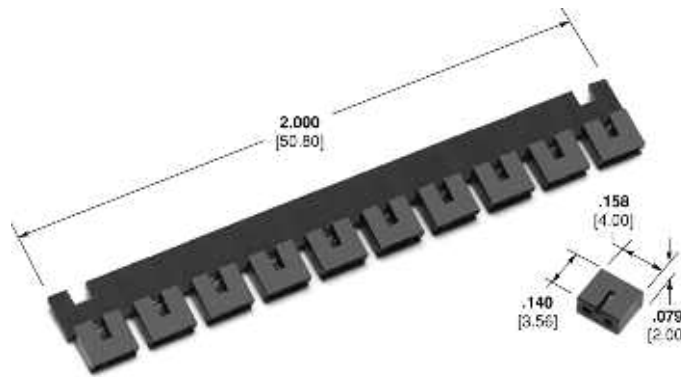
Handle Shunt
.100 [2.54] Centerline



Housing Color	Loose Piece Part Numbers				Type
	Gold Plate ¹ [0.00038]	Gold Plate ¹ [0.00076]	Gold Plate ¹ [0.00127]	Tin Plate [0.00254]	
Black	881545-1	881545-2	881545-3	4-881545-2	Open Top
Black	880584-1	880584-2	880584-3	880584-4	Closed Top

¹In contact area

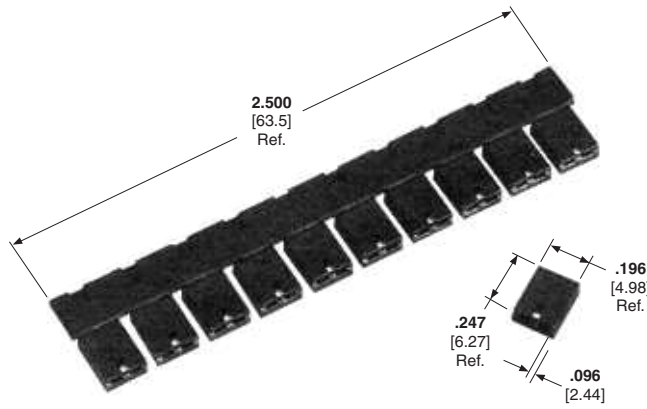
2 mm Mini-Shunt
.079 [2.00] Centerline



Configuration	Housing Color	Part Numbers	
		Gold Plate ¹ [0.00038]	Gold Plate ¹ [0.00076]
Strip of 10	Black	382575-2	382575-3

¹In contact area

Dual Beam Shunt



Configuration	Housing Color	Part Numbers		Type
		Gold Plate ¹ [0.00038]	Gold Plate ¹ [0.00076]	
Strip of 10	Black	390088-2	390088-1	Open Top
Strip of 10	Blue	390088-4	390088-3	Open Top
Strip of 10	Yellow	—	390088-5	Open Top

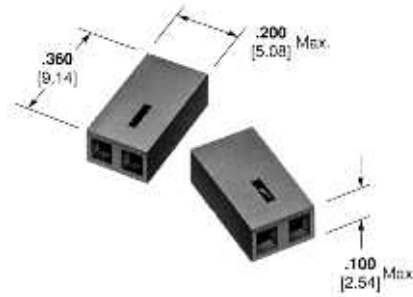
¹In contact area

Note: All part numbers are RoHS compliant.

Post Shunts (Continued)

Tandem Spring Shunt

.100 [2.54] Centerline



Housing Color	Part Numbers	
	Gold Inlay ¹	TinPlate
	.000030 [0.00076]	.000100 [0.00254]
Black	530153-2	4-530153-1

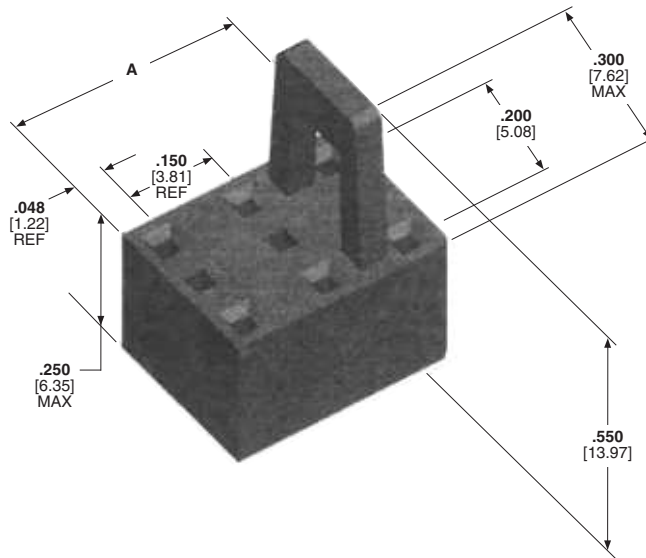
¹In contact area

Multiposition Shunts for .025 [0.64] Square Posts

.200 [5.08] Centerline



Housing — Glass-filled polyester
Contacts — Beryllium Copper
Finish — .000030 [0.00076] gold in contact area over .000050 [0.00127] nickel on entire contact
Current Rating — 2.5 amps



Size	Dimension A		Housing Color	Part Number
	inch	mm		
2x2	.246	6.25	Black	390102-1
2x2	.246	6.25	Red	390102-3
2x3	.396	10.01	Black	390102-2

Note: All part numbers are RoHS compliant.

Performance Specifications

Dual In-Line Package (DIP) Shunts — 7600 Series

Current Rating —

Standard pressure — 2 amperes for +20°C rise above ambient (one conductor per shunt)
 Machine insertable — 1 ampere for +20°C rise above ambient (one conductor per shunt)

Insulation Resistance — 1×10^{10} ohms min. at 100 VDC

Dielectric Withstanding Voltage — 500 VDC min.

Capacitance — 2 picofarads max. between adjacent straps

Temperature Rating — -55°C to +105°C

Terminal Strength (Bend Test) — Two 45° bend cycles per MIL-STD-202, Method 211, Condition B

Solder Bridging —

Cut straps can be reconnected by solder bridging. Solder bridging recommendations are:

- Use low temperature solder (60/40 tin/lead)
- Use solder tip approximately 1/32 [0.79] in diameter
- Do not let solder tip come in contact with plastic material

Post Shunts

Current Rating —

3 amperes max. unless otherwise noted

Temperature Rating — -65°C to +105°C (gold) -40°C to +85°C (tin)

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.

108-7533	Dual In-Line Package (DIP) Shunts
108-1445	2mm Mini Shunt
108-1476	Economy Shunt, Multiposition Shunt
108-1674	Dual Beam Shunt
108-9057	Low Profile Shunt
108-9062	Tandem Spring Shunt
108-37006	Novo Shunt with Handle

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.

114-1045	Tandem Spring Shunt
114-1054	Dual In-Line Package (DIP) Shunts
114-1059	Economy Shunt, Dual Beam Shunt, Low Profile Shunt, Multiposition Shunt
114-1074	2mm Mini Shunt

Instruction Sheets provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

408-7768	Dual In-Line Package (DIP) Shunts
408-3208	Tandem Spring Shunt
408-3230	Economy Shunt, Dual Beam Shunt, Low Profile Shunt
408-3251	Multiposition Shunt
408-3276	2mm Mini Shunt



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