

## ELCON Drawer Series Connectors True Hot-Plug, Blind-Mating Mixed Signal and Power Connectors

### Product Facts

- Wide variety of contact sizes and styles from 1 Amp signals up to power contacts rated at up to 200 Amps each
- Sequenced contacts for “mate-first-break-last” operation
- Floating panel-mount connectors float up to +/- 2 mm
- High durability specific products ranging from 100 to 1000 mate/un-mate cycles
- Customizable products allow the freedom to add or remove power or signal contacts to meet specific application requirement
- Most products recognized to US and Canadian requirements under the Component Recognition program of Underwriters Laboratories File No. E28476



### Typical Applications

- Low noise power supplies
- Switch-mode power supplies (SMPS)
- Power factor-correcting (PFC) power supplies
- Systems requiring mounting to backplane or chassis
- Redundant (N + 1) power systems
- “Live” hot-plug power supplies
- All ELCON drawer connectors in this section are RoHS compliant

### Technical Documents

#### Product Specification

108-2285

#### Application Specification

114-13206



Tyco Electronics offers a wide selection of blind-mateable “drawer” connectors to suit modular equipment designs. The term “drawer connector” was created to describe a cabinet drawer where the connector is installed at the back of the drawer and is mated by closing the drawer. Since the “drawer” is often times made with a somewhat loose fit — to enable easy opening and closing, the drawer connector must provide sufficient self-alignment and ideally a floating connection to the cabinet or drawer to keep the connection from binding.

The power drawer connectors in this catalog are divided into two separate categories: high power drawers and low power drawers. Specifically, the

product line names in these two categories are:

#### High Power Drawer Connectors

- ELCON Drawer Series Connectors

#### Low Power Drawer Connectors

- AMP Drawer Series Connectors
- Mini Power Drawer
- Blind-mate Drawer Connectors
- Hybrid Mini Drawer Connectors

Some of the benefits of the power drawer connectors from Tyco Electronics are the robustness of the housing designs and the durability of the contacts. High-end applications such as networking switches and servers want the lowest possible voltage drop across the connector. For these applications the high conductivity screw-machined contacts with either gold or silver plating offer the best performance.

The contacts are the core of the ELCON drawer series connectors. For cost sensitive applications the different hybrid drawer connectors offer a wide variety of shapes and sizes aimed at keeping cost minimized and still providing a reliable separable interface.

Regardless of the application, Tyco Electronics offers a wide variety of power & signal blind-mateable drawer connectors.

### Need more information?

Call Technical Support at the numbers listed below.

Technical Support is staffed with specialists well versed in all Tyco Electronics products. They can provide you with:

- Technical Support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

## ELCON Drawer Series Connectors

### True Hot-Plug, Blind-Mating Mixed Signal and Power Connectors (Continued)



3 mm Diameter Test Probe in  
Accordance with IEC 435  
Protective Cap (insulator)

#### Probe-proof Double CROWN BAND Contacts

The size #0 contacts used in the Top Drawer, Double Drawer, DualPower and QuadPower connectors are also available in a probe-proof double CROWN BAND version. These contacts are specially suited for operator-serviced power supplies that require extra safety protection.

#### Signal/Power Sequencing

All signal and some power contacts are available in various lengths to allow multiple levels of sequencing, thus giving the engineer further design flexibility.

#### Mating Polarization

To provide for positive housing mating of connectors, polarization is provided in the form of molded-in guide posts or pre-installed guide pins.

#### Regulatory Agency Certifications

Tyco Electronics ELCON drawer series connectors have been evaluated and found to comply with the UL1977 standard and the CSA standard C22.2 No. 182.3-M1987.

Tyco Electronics can also work with the customer to obtain application-specific regulatory certifications if needed.



#### Wide Array of Standard Contacts

ELCON drawer connectors support various termination styles, including crimp for cable, solder tail and compliant press-fit for mounting

to PCB, and internal/external threads for termination to lugs and/or busbars. See table below for details.

| Contact Size | Termination |           |       |          |          |
|--------------|-------------|-----------|-------|----------|----------|
|              | PC Tail     | Press-fit | Crimp | Threaded |          |
|              |             |           |       | Internal | External |
| #20          | •           | •         | •     |          |          |
| #16          | •           | •         | •     |          |          |
| #12          | •           | •         | •     |          |          |
| #8           | •           | •         | •     | •        | •        |
| #4           |             |           | •     | •        | •        |
| #0           |             |           | •     | •        | •        |

#### Application-Specific Designs

If none of our standard drawer connectors satisfies your requirements, Tyco Electronics can develop an ELCON connector design specific to your application. We will

work closely with your engineers to fully understand the design requirements and develop an interconnect solution that meets your stated needs. After the concept and design stages,

Tyco Electronics produces prototypes that perform both electrically and mechanically the same as production parts. These machined parts are used for testing, regulatory

agency evaluations and even as pre-production components, allowing the shortest lead time from concept to manufacturing in the industry.

#### Concept



#### Design



#### Prototypes



#### Production

Tyco Electronics engineers work closely with the customer to fully understand the design requirements.

A sketch drawing of the design concept is created for customer review, and the design is finalized only when it fully meets the requirements of the customer.

The design is frozen and work on the mold tools starts. Meanwhile, Tyco Electronics builds prototypes that are identical to the production parts.

By the time the customer is ready for production, all requirements for release to production, such as qualification and regulatory agency approval, have been cleared.



## How to Tailor Your ELCON Drawer Connector

If you selected a standard drawer connector for your application, before placing an order you need to specify your application-specific requirements, such as housing type, contact loading, and termination style. Layout forms for all standard drawer connectors, such as the one shown below, are available online at <http://www.tycoelectronics.com> or can be obtained from Tyco Electronics customer service for

this purpose. Complete a form for the pin and socket side of your connector as indicated in the instructions and fax it to your Tyco Electronics sales engineer. We will issue a unique part number specific to your configuration, which you can then use to place orders. Samples and customer drawings are also available upon request.

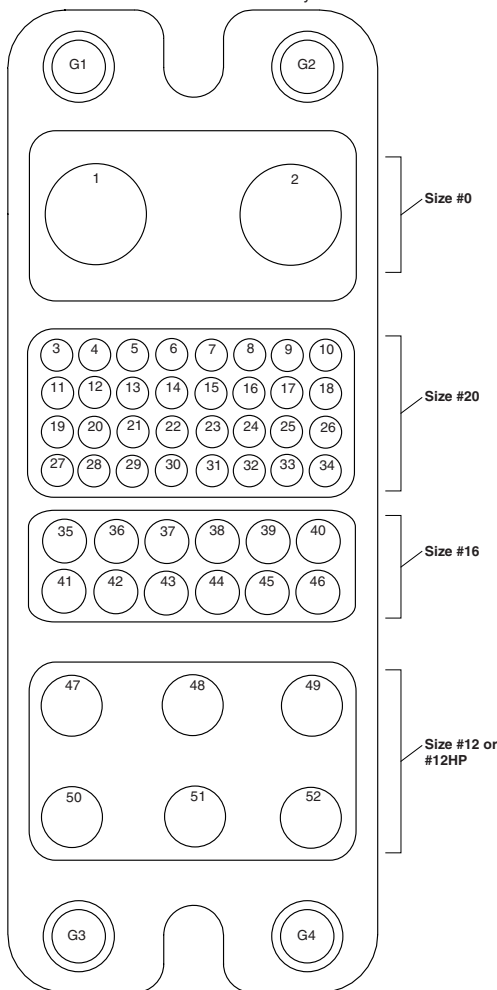
### Pin Assembly

1. Choose one housing from the **Pin Housing Selection Menu** table. Place an X in the appropriate guide pin circles, if guide pins are required.
2. Write the total quantity of each pin contact you require for each pin assembly in the **Qty** column of the **Pin Contact Selection Menu** table.
3. Crimp contacts are shipped uninstalled. Threaded and PCB tail contacts are installed by Tyco Electronics; enter the letter reference of the desired contact in the appropriate contact positions on the drawing: e.g., if you need a size #20 premate PCB tail standard contact to be installed in contact position #10, write "Q" in circle #10.
4. Sign, date and send the completed form to your local Tyco Electronics Sales Engineer.

#### Pin Connector (Rear Face)

Pin Contact Insertion Side

Pin Connector Rear Face Cavity Identification



**Top Assembly Part Number  
Assigned by Tyco Electronics**

### ENTER CUSTOMER INFORMATION

|                                                                                                        |                          |
|--------------------------------------------------------------------------------------------------------|--------------------------|
| Company                                                                                                | Location                 |
| Contact Name                                                                                           | Title                    |
| Telephone                                                                                              | Fax                      |
| Email Address                                                                                          |                          |
| I am: <input type="checkbox"/> End user<br><input type="checkbox"/> Contract manufacturer (end user: ) |                          |
| Signature                                                                                              | Today's Date             |
|                                                                                                        | Annual Quantity Required |

Submit to your local Tyco Electronics Sales Engineer.

### Pin Housing Selection Menu

| Part Number | Description                           | Check One |
|-------------|---------------------------------------|-----------|
| 1648183-1   | Housing without guides                |           |
|             | Housing with guides (#6-32 thread)    |           |
|             | Housing with guides (M3 x 0.5 thread) |           |

### Pin Contact Selection Menu

| Size         | Ref. | Part Number | Termination Style & Pin Length      | Qty. |
|--------------|------|-------------|-------------------------------------|------|
| #0           | A =  | 1766811-1   | Crimp                               |      |
|              | B =  | 1766819-1   | Probe Proof, crimp                  |      |
|              | C =  | 1766230-1   | 1/4-20 Internal Thread              |      |
|              | D =  | 1766274-1   | M6 x 1 Internal Thread              |      |
|              | E =  | 1766269-1   | Probe Proof, 1/4-20 Internal Thread |      |
|              | F =  | 1766275-1   | Probe Proof, M6 x 1 Internal Thread |      |
|              | G =  | 1766268-1   | 1/4-20 External Thread              |      |
|              | H =  | 1766231-1   | M6 x 1 External Thread              |      |
|              | J =  | 1766270-1   | Probe Proof, 1/4-20 External Thread |      |
|              | K =  | 1766276-1   | Probe Proof, M6 x 1 External Thread |      |
| #20          | L =  | 1650155-1   | Crimp, standard                     |      |
|              | M =  | 1650161-1   | Crimp, premate                      |      |
|              | N =  | 1650162-2   | Crimp, postmate                     |      |
|              | P =  | 1650283-1   | PCB tail, standard                  |      |
|              | Q =  | 1650065-1   | PCB tail, premate                   |      |
|              | R =  | 1650226-1   | PCB tail, postmate                  |      |
| #16          | S =  | 1766196-1   | Crimp, standard                     |      |
|              | T =  | 1766198-1   | Crimp, premate                      |      |
|              | U =  | 1766199-2   | Crimp, postmate                     |      |
|              | V =  | 1766222-1   | PCB tail, standard                  |      |
|              | W =  | 1766223-1   | PCB tail, premate                   |      |
|              | X =  | 1766818-1   | PCB tail, postmate                  |      |
| #12          | Y =  | 1766193-1   | Crimp, standard                     |      |
|              | Z =  | 1766195-1   | Crimp, premate                      |      |
|              | AA = | 1766196-1   | Crimp, postmate                     |      |
|              | AB = | 1766245-1   | PCB tail, standard                  |      |
|              | AC = | 1766250-1   | PCB tail, premate                   |      |
|              | AD = | 1766249-1   | PCB tail, postmate                  |      |
| #12 Hot-Plug | AE = | 1650153-2   | Crimp, standard, Hot-Plug           |      |
|              | AF = | 1650156-2   | Crimp, premate, Hot-Plug            |      |
|              | AG = | 1650060-2   | PCB tail, standard, Hot-Plug        |      |
|              | AH = | 1650074-3   | PCB tail, premate, Hot-Plug         |      |

Crimp and Threaded contacts are removable. PCB tail contacts are non-removable.

### Float-Mount Shoulder Screw

| Part Number | Description            | Qty. |
|-------------|------------------------|------|
| 1650399-1   | Screw, No 10-32 UNC 2A |      |
| 1650401-1   | Screw, M5 x 0.8        |      |

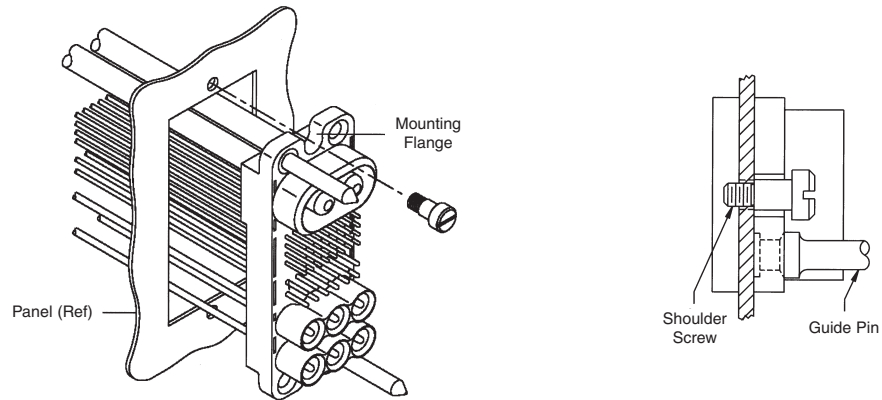
## ELCON Drawer Connector Mounting

All ELCON drawer series connectors can be fix-mounted or float-mounted using the designated shoulder screws to allow improved gatherability for blind-mating of the connector. Panel cut out dimensions are shown on the customer drawing specific to your ELCON drawer connector.

### Panel Float Mounting

When float-mounting to a panel or chassis, use the stainless steel shoulder screws specified in the layout sheet or customer drawing specific to your ELCON drawer connector. Shown in the sketch below is an example of how the Top Drawer connector is float-mounted to a panel.

Float-Mount of Top Drawer (Example)



| Screw Description      | Part Number | Used On                                                                 |
|------------------------|-------------|-------------------------------------------------------------------------|
| #10-32 UNF 2A Thread   | 1650399-1   | Top and Double Drawer, Dual and QuadPower, In-Line QuadPower, W5 Drawer |
| M5 x 0.8 Metric Thread | 1650401-1   |                                                                         |
| #8-32 UNF 2A Thread    | 1650402-1   |                                                                         |
| #6-32 UNF 2A Thread    | 1650106-1   | All Other Drawers                                                       |
| M4 x 0.7 Metric Thread | 1650589-1   |                                                                         |

### Panel Fix Mounting

As a rule of thumb, ELCON drawer connectors can be fix-mounted to a panel, in two ways: (1) by attaching a screw through the top and bottom mounting flange of the housing; or (2) by attaching a screw into a threaded guide pin (for those connectors that have one). An example of each case is shown in the sketches below.

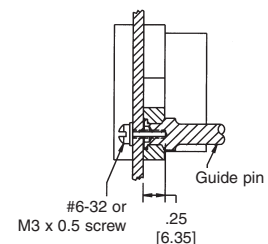
#### Screw Through Mounting Flange of Housing

Fix to the panel by attaching a commercially available screw and a washer through the top and bottom mounting flange of the housing.



#### Screw Into Thread of Guide Pin (When Applicable)

You can optionally fix-mount housings that have a guide pin by attaching a commercially available screw and washer into the thread on the back of the guide pin, as shown in the figures below.



**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Connector Mounting (Continued)

### Strain Relief and Wire Dress

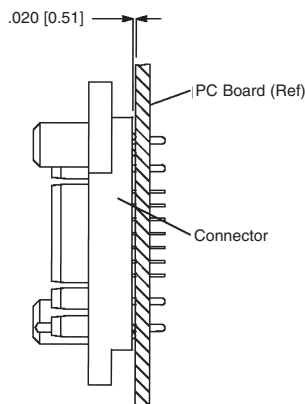
If required, wires can be bundled together and supported with cable ties. Wires must not be stretched or confined in any way that would restrict the floating action of the connectors. Therefore, the wires must remain perpendicular to the connector and avoid an excessively sharp bend radius. The minimum recommended distance for the cable tie, and the minimum bend radius of a wire bundle are shown in the figure to the right.



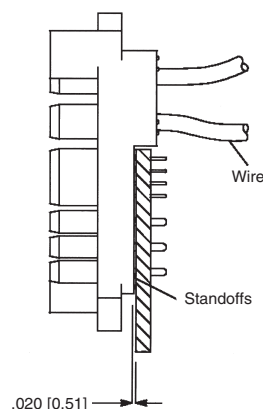
### PCB Fix Mounting

When mounting to a PC board, the connector standoffs must be seated on the board. Hold-downs are recommended to provide stability during the soldering procedure. PCB-mount hole patterns are shown on the customer drawing specific to your ELCON drawer connector.

**Flush PCB-Mount Drawer Connectors**

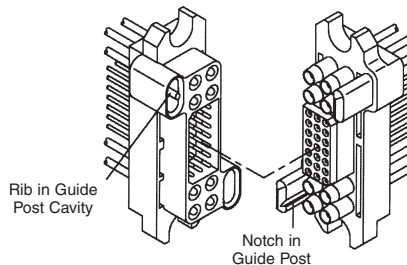
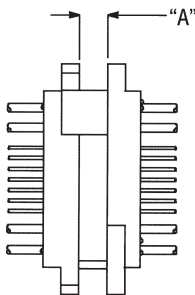


**Drawer Connectors with Cabled AC IN**



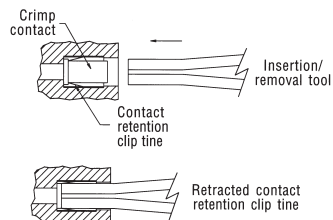
### Connector Engagement

To provide for proper mating of the connector when the power supply unit is fully engaged into the system, the gap between the pin and socket (shown as dimension "A" in the sketch below) must be within the limit specified in the customer drawing for your ELCON drawer connector. Failure to meet this requirement may compromise contact wipe. Refer to the customer drawing for details. ELCON drawer connectors are polarized and will only mate in the correct orientation (see sketch below).



## ELCON Drawer Connector Tooling

**Insertion/Removal (I/R) Tools:** Industry standard plastic I/R tooling is compatible with all crimp contacts for pin and socket removal. The following tools are available from Tyco Electronics.

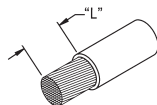


### I/R Tools

| Part Numbers | Size                 | Color Code   |
|--------------|----------------------|--------------|
| 1643917-1    | Size #20 I/R tool    | Red/White    |
| 1643916-1    | Size #16 I/R tool    | Blue/White   |
| 1643915-1    | Size #12 I/R tool    | Yellow/White |
| 1643914-1    | Size #8 removal tool | Red          |
| 1643922-1    | Size #4 removal tool | Blue         |
| 1643921-1    | Size #0 removal tool | Light Yellow |

**Note:** PCB tail contacts are non-removable.

**Wire strip length:** If inserting stranded wire into crimp style contacts, please use the table below to determine the proper strip length of the wire.



| Contact Size | Wire Size AWG | "L" + .020 [0.51] |       |
|--------------|---------------|-------------------|-------|
|              |               | inches            | mm    |
| #20          | #24 - #20     | 0.210             | 5.33  |
| #16          | #20 - #16     | 0.270             | 6.86  |
| #12          | #14 - #12     | 0.270             | 6.86  |
| #8           | #10* - #8     | 0.500             | 12.70 |
| #4           | #6* - #4      | 0.500             | 12.70 |
| #0           | #2* - #0      | 0.600             | 15.24 |

\*Ref: MS3348 "Contact Bushing, Electric, Wire Barrel"

**Crimp Tools:** The following table lists applicable MIL-STD crimp tools for contacts



| Size    | Type                | MIL-STD      | Part Number |
|---------|---------------------|--------------|-------------|
| 12 - 24 | Crimp Tool          | M22520/1-01  | 601967-1    |
|         | Turret head/locator | M22520/1-02  | 601967-2    |
| 8 - 10  | Crimp Tool          | M22520/23-01 | —           |
|         | Indenter head       | M22520/23-02 | —           |
|         | Locator             | M22520/23-09 | —           |
| 4       | Crimp Tool          | M22520/23-01 | —           |
|         | Indenter head       | M22520/23-04 | —           |
|         | Locator             | M22520/23-11 | —           |
| 0       | Crimp Tool          | M22520/23-01 | —           |
|         | Indenter head       | M22520/23-05 | —           |
|         | Locator             | M22520/23-13 | —           |

**Crimp Termination Wire Sizes:** The following table shows crimp rear release contacts and their respective wire sizes when crimped with applicable industry standard terminal tools.

| Contact Size | Wire Range       |                 |
|--------------|------------------|-----------------|
|              | AWG              | mm <sup>2</sup> |
| #20          | 20 - 24          | 0.241 - 0.616   |
| #16          | 16 - 18          | 0.963 - 1.23    |
| #12          | 12 - 14          | 1.94 - 2.98     |
| #8           | 10 - 8           | 4.74 - 8.61     |
| #4           | 4 <sup>(1)</sup> | 21.60           |
| #0           | 1/0              | 53.00           |

**Note:** <sup>(1)</sup> Consult Tyco Electronics for smaller wire sizes in #4 contacts

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Product Specifications

| Materials                                                 |                                                       |                |         |
|-----------------------------------------------------------|-------------------------------------------------------|----------------|---------|
| Housing                                                   | Polyester, 30% glass-filled, UL 94V-0 black           |                |         |
| Crimp Contacts                                            | High conductivity copper alloy                        |                |         |
| PCB Tails                                                 | Brass                                                 |                |         |
| Socket Contact Hoods (when applicable)                    | 305 corrosion resistant steel                         |                |         |
| Size #12 hoods, Hot-Plug                                  | Beryllium copper                                      |                |         |
| Crown contacts                                            | Beryllium copper                                      |                |         |
| Plating                                                   |                                                       |                |         |
| Size #20 and #12HP                                        | Gold plated over nickel                               |                |         |
| Sizes #0, #4, #8, #16 and non-HP #12                      | Silver plated over nickel                             |                |         |
| Hot-Plug hoods and pin contacts                           | Gold plated over nickel                               |                |         |
| Socket Contact Hoods (when applicable)                    | Passivated                                            |                |         |
| Mechanical                                                |                                                       |                |         |
| Typical<br>Insertion Forces<br>of individual<br>contacts  | Size #20                                              | 0.2 lb.        | 0.09 kg |
|                                                           | Size #16                                              | 2.3 lb.        | 1.04 kg |
|                                                           | Size #12                                              | 2.9 lb.        | 1.32 kg |
|                                                           | Size #12 Hot-Plug                                     | 2.9 lb.        | 1.32 kg |
|                                                           | Size #8                                               | 4.4 lb.        | 2.00 kg |
|                                                           | Size #4                                               | 3.8 lb.        | 1.72 kg |
|                                                           | Size #0                                               | 4.7 lb.        | 2.13 kg |
|                                                           | Size #0 w/double Crown                                | 4.8 lb.        | 2.18 kg |
| Typical<br>Extraction Forces<br>of individual<br>contacts | Size #20                                              | 0.1 lb.        | 0.05 kg |
|                                                           | Size #16                                              | 0.7 lb.        | 0.32 kg |
|                                                           | Size #12                                              | 1.9 lb.        | 0.86 kg |
|                                                           | Size #12 Hot-Plug                                     | 1.9 lb.        | 0.86 kg |
|                                                           | Size #8                                               | 2.4 lb.        | 1.07 kg |
|                                                           | Size #4                                               | 3.0 lb.        | 1.36 kg |
|                                                           | Size #0                                               | 3.0 lb.        | 1.36 kg |
|                                                           | Size #0 w/double Crown                                | 3.5 lb.        | 1.59 kg |
| Electrical                                                |                                                       |                |         |
| Typical<br>Voltage drop<br>of individual<br>contacts      | Size #20                                              | 1.7 mV at 5A   |         |
|                                                           | Size #16                                              | 3 mV at 15A    |         |
|                                                           | Size #12                                              | 4.2 mV at 35A  |         |
|                                                           | Size #12 Hot-Plug                                     | 4.7 mV at 35A  |         |
|                                                           | Size #8                                               | 6.5 mV at 75 A |         |
|                                                           | Size #4                                               | 8.4 mV at 125A |         |
|                                                           | Size #0                                               | 6.3 mV at 200A |         |
|                                                           | Size #0 w/double Crown                                | 5.6 mV at 200A |         |
| Insulator dielectric strength                             | 1,500 VDC for 1 minute, per MIL-STD 1344, Method 3001 |                |         |

## Regulatory Agency Evaluations

| Contacts                            | CSA-22.2 No. 0-M91 182.30<br>M1987 (CNR) | UL 498 and UL 1977 (USR) |
|-------------------------------------|------------------------------------------|--------------------------|
| AWG #20                             | 4A / 250V                                | 5A / 250V                |
| AWG #16                             | 10A / 250V                               | 15A / 250V               |
| AWG #12 Top Drawer                  | 25A / 600V                               | 35A / 600V               |
| AWG #12 Others                      | 25A / 250V                               | 35A / 250V               |
| AWG #12 with sockets                | 25A / 250V                               | 35A / 250V               |
| Size #12 hot-plug                   | 25A / 250V                               | 25A / 250VAC             |
|                                     |                                          | 35A / 120V               |
| Size #8                             | 55A / 250V                               | 75A / 250V               |
| Size #0 with single or double Crown | 150A / 250V                              | 200A / 250V              |
| Size #0 using bus bar               | —                                        | 200A / 250V              |
| Size #4                             | 100A / 250V                              | 125A / 250V              |

## ELCON Drawer Series Connectors

### Mini Drawer

**Dimensions** —

2.99" x 0.79" (75.9 x 20.1 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

**Available Contacts** —

Size 12 / 16 x 6 contacts

Size 20 x 16 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Features** — Hot-Plug size 12 contact option

**Contact Sequencing** — Multi-level for power and signal

**Contact Terminations** —

Size 12: Crimp and PCB tail

Size 16: Crimp and PCB tail

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing |                             | Socket Housing |                             |
|-------------|-----------------------------|----------------|-----------------------------|
| 1648110-1   | Size 12 + Size 20 + Size 12 | 1648115-1      | Size 12 + Size 20 + Size 12 |
| 1648111-1   | Size 16 + Size 20 + Size 16 | 1648116-1      | Size 16 + Size 20 + Size 16 |
| 1648112-1   | Size 12 + Size 20 + Size 16 | 1648117-1      | Size 12 + Size 20 + Size 16 |

### Lower Drawer

**Dimensions** —

3.26" x 1.34" (82.8 x 34.0 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

**Available Contacts** —

Size 12 / 16 x 8 contacts

Size 20 x 21 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Features** — Hot-Plug size 12 contact option

**Contact Sequencing** — Multi-level for power and signal

**Contact Terminations** —

Size 12: Crimp and PCB tail

Size 16: Crimp and PCB tail

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing |                             | Socket Housing |                             |
|-------------|-----------------------------|----------------|-----------------------------|
| 1648203-1   | Size 12 + Size 20 + Size 12 | 1648206-1      | Size 12 + Size 20 + Size 12 |
| 1648204-1   | Size 16 + Size 20 + Size 16 | 1648207-1      | Size 16 + Size 20 + Size 16 |
| 1648205-1   | Size 12 + Size 20 + Size 16 | 1648208-1      | Size 12 + Size 20 + Size 16 |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### 75A Middle Drawer

#### Dimensions —

3.31" x 1.31" (84.1 x 33.3 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

#### Available Contacts —

Size 8 x 4 contacts

Size 12 x 9 contacts

Size 20 x 24 contacts

**Current Rating** — Up to 75 Amps per size 8 contact

**Contact Features** — Hot-Plug size 12 contact option

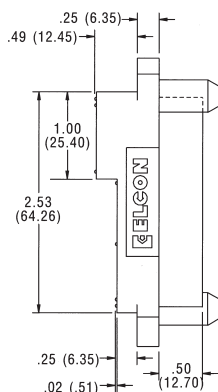
**Contact Sequencing** — Multi-level for power and signal

#### Contact Terminations —

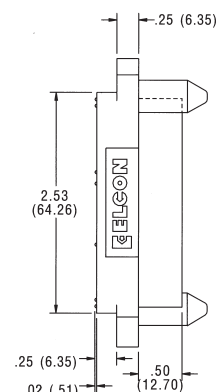
Size 8: Crimp, internal/external thread and PCB tail

Size 12: Crimp and PCB tail

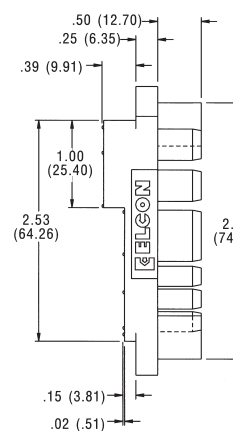
Size 20: Crimp and PCB tail



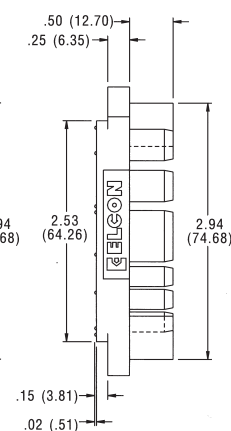
**Float-Mount**  
Part Number 1648162-1



**PCB-Mount**  
Part Number 1648163-1



**Float-Mount**  
Part Number 6648167-1



**PCB-Mount**  
Part Number 1648168-1

### Base Housing Part Numbers

| Pin Housing |             | Socket Housing |                                      |
|-------------|-------------|----------------|--------------------------------------|
| 1648162-1   | Float-Mount | 6648167-1      | Float-Mount w/<br>reinforced housing |
| 1648163-1   | PCB-Mount   | 1648168-1      | PCB-Mount                            |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### 125A Middle Drawer

**Dimensions —**

3.15" x 1.31" (80.0 x 33.3 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 4 x 2 contacts

Size 12 x 6 contacts

Size 20 x 32 contacts

**Current Rating —** Up to 125 Amps per size 4 contact

**Contact Features —** Hot-Plug size 12 contact option

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 4: Crimp and internal/external thread

Size 12: Crimp and PCB tail

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing |             | Socket Housing |             |
|-------------|-------------|----------------|-------------|
| 1648151-1   | Float-Mount | 1648156-1      | Float-Mount |
| 1648152-1   | PCB-Mount   | 1648157-1      | PCB-Mount   |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### 200A Middle Drawer

**Dimensions —**

3.31" x 1.31" (84.1 x 33.3 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 4 x 2 contacts  
Size 8 x 6 contacts  
Size 12 x 3 contacts  
Size 20 x 14 contacts

**Current Rating —** Up to 125 Amps per size 4 contact

**Contact Features —** Hot-Plug size 12 contact option

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 4: Crimp and internal/external thread  
Size 8: Crimp, internal/external thread and PCB tail  
Size 12: Crimp and PCB tail  
Size 20: Crimp and PCB tail



#### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648134-1   | 1648135-1      |

### Square Drawer

**Dimensions —**

2.76" x 1.24" (70.1 x 31.5 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 12 x 4 contacts  
Size 20 x 36 contacts

**Current Rating —** Up to 35 Amps per size 12 contact

**Contact Features —** Hot-Plug size 12 contact option

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 12: Crimp and PCB tail  
Size 20: Crimp and PCB tail



#### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648132-1   | 1648133-1      |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### Top Drawer

#### Dimensions —

4.24" x 1.60" (107.8 x 40.7 mm)

**Housing Variations** — Various guide pin configurations available.

#### Guides and Polarization —

Optional Steel Guide Pins with either #6-32 or M3 internal thread

#### Available Contacts —

Size 0 x 2 contacts

Size 12 x 6 contacts

Size 16 x 12 contacts

Size 20 x 32 contacts

**Current Rating** — Up to 200 Amps per size 0 contact

**Contact Features** — Hot-Plug size 12 contact option

Probe-proof size 0 contact option

**Contact Sequencing** — Multi-level for power and signal

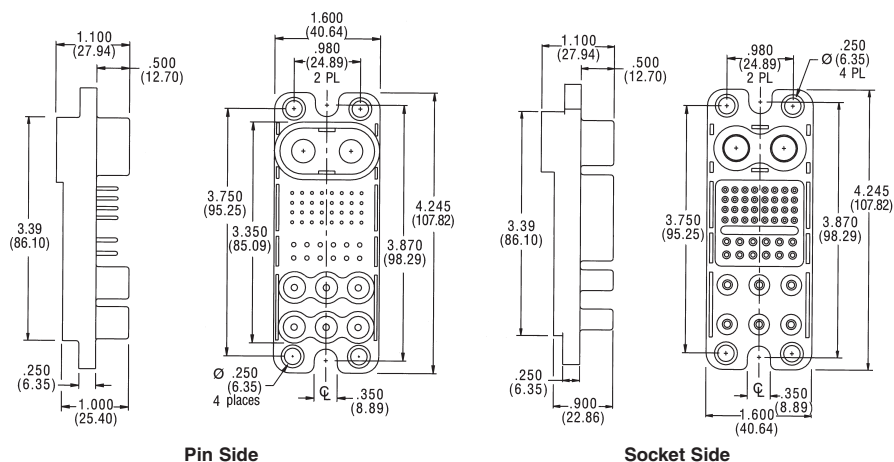
#### Contact Terminations —

Size 0: Crimp and internal/external thread

Size 12: Crimp and PCB tail

Size 16: Crimp and PCB tail

Size 20: Crimp and PCB tail



Pin Side

Socket Side

### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648183-1   | 1648186-1      |

Optional guide posts are available for improved alignment. Consult Customer Service for details.

### Double Drawer

**Dimensions** — 4.24" x 1.60" (107.8 x 40.7 mm)

**Housing Variations** — Various guide pin configurations available.

**Guides and Polarization** — Optional Steel Guide Pins with either #6-32 or M3 internal thread

#### Available Contacts —

Size 0 x 4 contacts

Size 12 x 11 contacts

Size 20 x 24 contacts

**Current Rating** — Up to 200 Amps per size 0 contact

**Contact Features** — Hot-Plug size 12 contact option

Probe-proof size 0 contact option

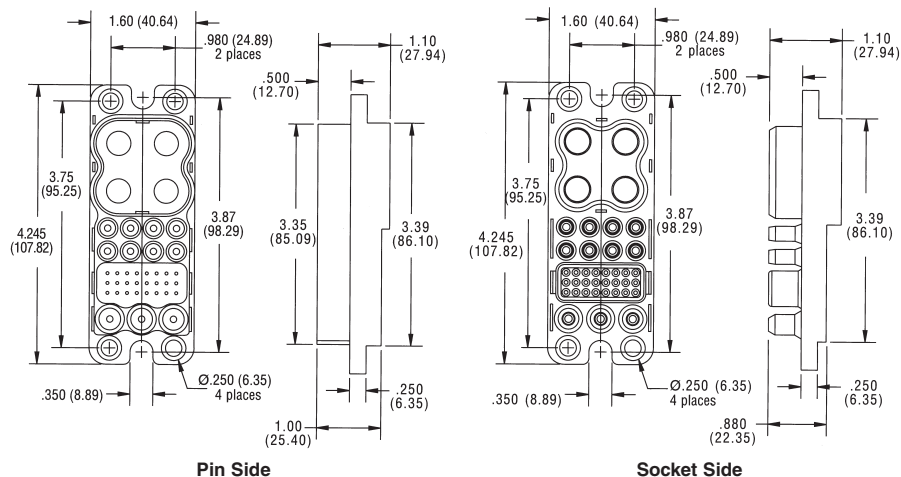
**Contact Sequencing** — Multi-level for power and signal

#### Contact Terminations —

Size 0: Crimp and internal/external thread

Size 12: Crimp and PCB tail

Size 20: Crimp and PCB tail



Pin Side

Socket Side

### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648552-1   | 1648578-1      |

Optional guide posts are available for improved alignment. Consult Customer Service for details.

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### DualPower Drawer

#### Dimensions —

1.80" x 1.60" (45.7 x 40.7 mm)

**Housing Variations** — Various guide pin configurations available.

#### Guides and Polarization —

Optional Steel Guide Pins with either #6-32 or M3 internal thread

**Available Contacts** — Size 0 x 2 contacts

**Current Rating** — Up to 200 Amps per contact

**Contact Features** — Probe-proof size 0 contact option

**Contact Sequencing** — Standard only

#### Contact Terminations —

Size 0: Crimp and internal/external thread



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648549-1   | 1648575-1      |

Optional guide posts are available for improved alignment. Consult Customer Service for details.

### QuadPower Drawer

#### Dimensions —

2.50" x 1.60" (63.5 x 40.7 mm)

**Housing Variations** — Various guide pin configurations available.

#### Guides and Polarization —

Optional Steel Guide Pins with either #6-32 or M3 internal thread

**Available Contacts** — Size 0 x 4 contacts

**Current Rating** — Up to 200 Amps per contact

**Contact Features** — Probe-proof size 0 contact option

**Contact Sequencing** — Standard only

#### Contact Terminations —

Size 0: Crimp and internal/external thread



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648548-1   | 1648574-1      |

Optional guide posts are available for improved alignment. Consult Customer Service for details.

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### In-Line QuadPower Drawer

**Dimensions** —

4.84" x 1.21" (122.8 x 30.7 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

**Available Contacts** — Size 0 x 4 contacts

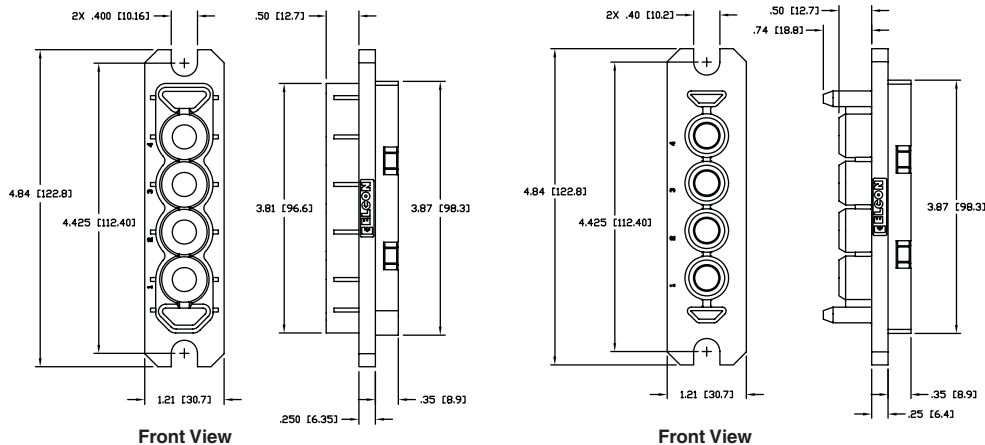
**Current Rating** — Up to 200 Amps per contact

**Contact Features** — Probe-proof size 0 contact option

**Contact Sequencing** — Standard only

**Contact Terminations** —

Size 0: Crimp and internal/external thread



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 6651493-1   | 6651494-1      |

### W5 Power Drawer

**Dimensions** —

3.00" x 1.18" (76.2 x 30.0 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

**Available Contacts** — Size 4 x 5 contacts

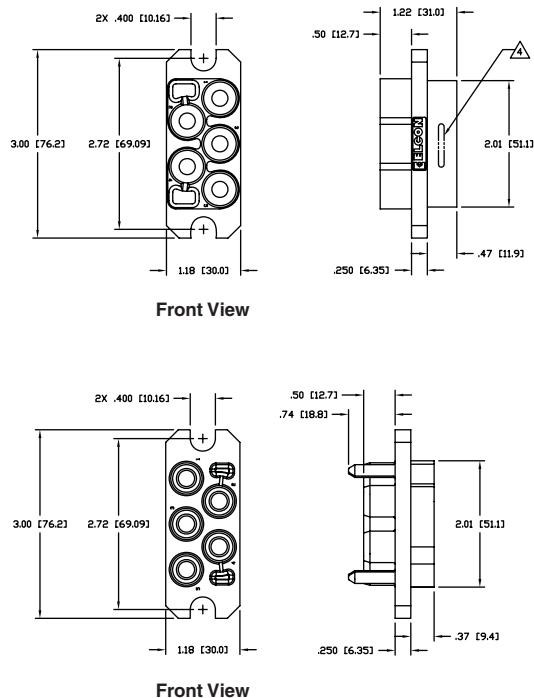
**Current Rating** — Up to 100 Amps per contact

**Contact Features** — Probe-proof size 0 contact option

**Contact Sequencing** — Standard only

**Contact Terminations** —

Size 4: Crimp and internal/external thread



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 6651457-1   | 6651458-1      |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### P3S0 Drawer

**Dimensions** —

0.99" x 0.95" (25.0 x 24.0 mm)

**Housing Variations** — See Part Numbers

Cable Socket to Panel-Mount Pin

**Guides and Polarization** — Polarization only

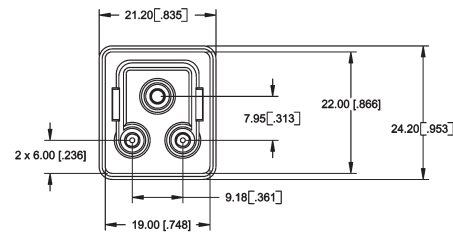
**Available Contacts** — Size 12 x 3 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Features** — Hot-Plug size 12 contact option

**Contact Sequencing** — Multi-level for power

**Contact Terminations** — Size 12: Crimp only



#### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1766447-1   | 1766448-1      |

### P4S0 Drawer

**Dimensions** —

1.34" x .76" (34.0 x 19.4 mm)

**Housing Variations** — See Part Numbers

Cable Pin to PCB-Mount Socket

**Guides and Polarization** — Polarization only

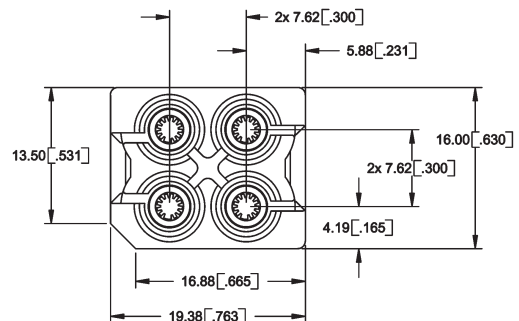
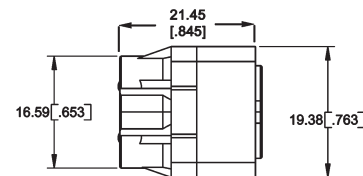
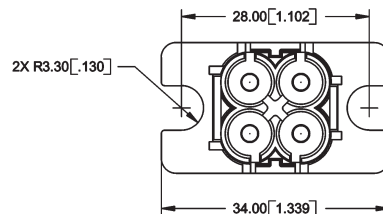
**Available Contacts** — Size 12 x 4 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Sequencing** — Standard only

**Contact Terminations** — Size 12: Crimp Pin and PCB tail Socket

**Note:** Supplied as kit, including contacts



#### Base Housing Part Numbers

| Pin Side Kit | Socket Side Kit |
|--------------|-----------------|
| 6766014-1    | 6766015-1       |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### HV8P Drawer

**Dimensions** —

2.50" x 1.11" (63.5 x 28.2 mm)

**Housing Variations** — See Part Numbers

600 V High Voltage Design

**Guides and Polarization** — Built in

**Available Contacts** — Size 12 x 8 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Features** — Hot-Plug size 12 contact option

**Contact Sequencing** — Multi-level for power

**Contact Terminations** —

Size 12: Crimp and PCB tail



#### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648127-1   | 1648128-1      |

### P10S0 Drawer

**Dimensions** —

2.96" x 1.00" (75.0 x 25.4 mm)

**Housing Variations** — See Part Numbers

**Guides and Polarization** — Built in

**Available Contacts** — Size 12 x 10 contacts

**Current Rating** — Up to 35 Amps per size 12 contact

**Contact Features** — Hot-Plug size 12 contact option

**Contact Sequencing** — Multi-level for power

**Contact Terminations** —

Size 12: Crimp and PCB tail



#### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648568-1   | 1648596-1      |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### P6S18 Drawer

**Dimensions —**

5.45" x 1.35" (138.4 x 34.3 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 4 x 6 contacts

Size 20 x 18 contacts

**Current Rating —** Up to 100 Amps per size 4 contact

**Contact Features —** Standard

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 4: Crimp and internal/external thread

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 6766615-1   | 6651810-1      |

### P10S22 Drawer

**Dimensions —**

4.12" x 0.79" (104.5 x 20.1 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 12 x 10 contacts

Size 20 x 22 contacts

**Current Rating —** Up to 35 Amps per size 12 contact

**Contact Features —** Hot-Plug size 12 contact option

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 12: Crimp and PCB tail

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1648211-1   | 1648212-1      |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Series Connectors (Continued)

### P12S12 Drawer

**Dimensions —**

4.31" x 0.70" (109.5 x 17.8 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —**

Size 16 x 12 contacts

Size 20 x 12 contacts

**Current Rating —** Up to 15 Amps per size 16 contact

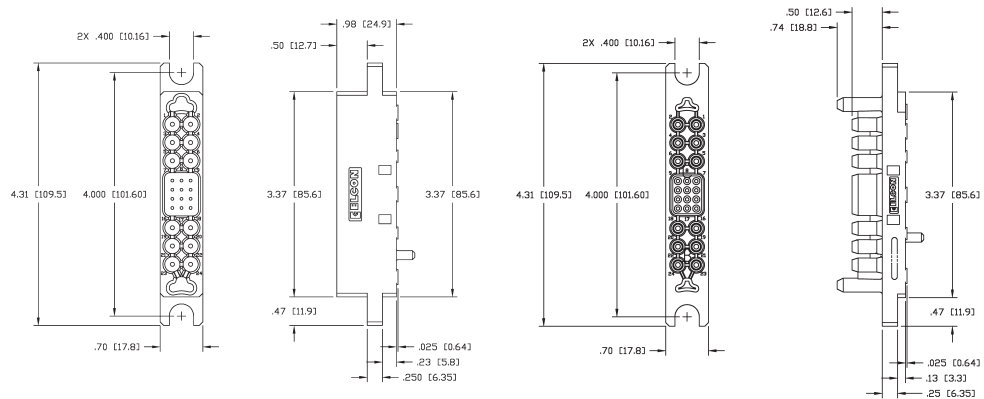
**Contact Features —** Standard only

**Contact Sequencing —** Multi-level for power and signal

**Contact Terminations —**

Size 16: Crimp and PCB tail

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

| Pin Housing | Socket Housing |
|-------------|----------------|
| 1651202-1   | 1651203-1      |

### POS30 Drawer

**Dimensions —**

3.22" x 0.70" (81.8 x 17.8 mm)

**Housing Variations —** See Part Numbers

**Guides and Polarization —** Built in

**Available Contacts —** Size 20 x 30 contacts

**Current Rating —** Up to 5 Amps per size 20 contact

**Contact Features —** Standard only

**Contact Sequencing —** Multi-level for signal

**Contact Terminations —**

Size 20: Crimp and PCB tail



### Base Housing Part Numbers

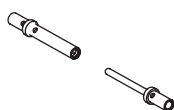
| Pin Housing | Socket Housing |
|-------------|----------------|
| 6651204-1   | 6651205-1      |

**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Standard Contacts

The ELCON drawer series connectors use standard contacts across the product line. This section shows the standard contacts available in different sizes and various lengths and termination styles, with their respective part numbers.

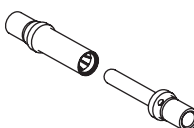
### Pin Side Contacts



Contact Size #20



Contact Size #16



Contact Size #12



Contact Size #8



Contact Size #4

**Note:** All part numbers are RoHS compliant.

#### Contact Size #20 — For use in most drawer connectors

| Termination Type   | Contact Part Number | Dimensions                                                                          | A    |         |
|--------------------|---------------------|-------------------------------------------------------------------------------------|------|---------|
|                    |                     |                                                                                     | in   | mm      |
| Crimp, standard    | 1650155-1           |  | 0.32 | [8.12]  |
| Crimp, premate     | 1650161-1           |                                                                                     | 0.47 | [11.93] |
| Crimp, postmate    | 1650162-2           |                                                                                     | 0.27 | [6.85]  |
| PCB tail, standard | 1650283-1           |  | 0.32 | [8.12]  |
| PCB tail, premate  | 1650065-1           |                                                                                     | 0.47 | [11.93] |
| PCB tail, postmate | 1650226-1           |                                                                                     | 0.27 | [6.85]  |

#### Contact Size #16 — For use in Mini Drawer, Lower Drawer, Top Drawer, and P12S12

| Termination Type   | Contact Part Number | Dimensions                                                                          | A    |         |
|--------------------|---------------------|-------------------------------------------------------------------------------------|------|---------|
|                    |                     |                                                                                     | in   | mm      |
| Crimp, standard    | 1766194-1           |  | 0.33 | [8.38]  |
| Crimp, premate     | 1766198-1           |                                                                                     | 0.48 | [12.19] |
| Crimp, postmate    | 1766199-1           |                                                                                     | 0.29 | [7.36]  |
| PCB tail, standard | 1766222-1           |  | 0.33 | [8.38]  |
| PCB tail, premate  | 1766223-1           |                                                                                     | 0.48 | [12.19] |
| PCB tail, postmate | 1766818-1           |                                                                                     | 0.29 | [7.36]  |

#### Contact Size #12 — For use in Mini Drawer, Lower Drawer, 75A, 125A and 200A Middle Drawer; Square Drawer, TOP Drawer & Double Drawer; P3S0 and P4S0, HV8P, P10S0, P10S22

| Termination Type   | Contact Part Number |               | Dimensions                                                                            | A    |         |
|--------------------|---------------------|---------------|---------------------------------------------------------------------------------------|------|---------|
|                    | Gold Plated         | Silver Plated |                                                                                       | in   | mm      |
| Crimp, standard    | 1650153-2           | 1766193-1     |  | 0.43 | [10.92] |
| Crimp, premate     | 1650156-2           | 1766195-1     |                                                                                       | 0.46 | [11.68] |
| Crimp, postmate    | 1650158-2           | 1766196-1     |                                                                                       | 0.39 | [9.90]  |
| PCB tail, standard | 1650060-2           | 1766245-1     |  | 0.43 | [10.92] |
| PCB tail, premate  | 1650074-3           | 1766250-1     |                                                                                       | 0.46 | [11.68] |
| PCB tail, postmate | 1650073-3           | 1766249-1     |                                                                                       | 0.39 | [9.90]  |

**Note:** For applications using the #12 hot-plug socket use of gold plated pins are recommended.

#### Contact Size #8 - For use in 75A and 200 A Middle Drawer

| Termination Type   | Contact Part Number | Dimensions                                                                            | A    |         |
|--------------------|---------------------|---------------------------------------------------------------------------------------|------|---------|
|                    |                     |                                                                                       | in   | mm      |
| Crimp, standard    | 1766192-1           |  | 0.43 | [10.92] |
| Crimp, premate     | 1766197-1           |                                                                                       | 0.48 | [12.19] |
| Crimp, postmate    | 1766821-1           |                                                                                       | 0.33 | [8.38]  |
| PCB tail, standard | 1766262-1           |  | 0.43 | [10.92] |
| PCB tail, premate  | 1766263-1           |                                                                                       | 0.48 | [12.19] |

#### Contact Size #4 - For use in 125A and 200A Middle Drawer. P6S18 Drawer, W5 Power Drawer

| Termination Type                        | Contact Part Number | Dimensions                                                                            | A    |         |
|-----------------------------------------|---------------------|---------------------------------------------------------------------------------------|------|---------|
|                                         |                     |                                                                                       | in   | mm      |
| Crimp, Standard                         | 1766232-1           |  | 0.51 | [12.95] |
| 1/4 - 20 x .050 DP External Thread      | 1766812-1           |  | 0.51 | [12.95] |
| M5 x 0.8 x 9.6 mm DP M5 Internal Thread | 1766283-1           |  | 0.51 | [12.95] |

## ELCON Drawer Standard Contacts (Continued)

### Pin Side Contacts (Continued)



**Contact Size #0**



**Contact Size #0  
Probe-proof**

#### Contact Size #0<sup>1</sup> - For use in Top Drawer, Double Drawer, DualPower & QuadPower, In-Line QuadPower

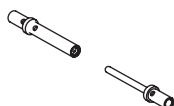
| Termination Type                                             | Contact Part Number | Dimensions                                                                          | A     |         |
|--------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|-------|---------|
|                                                              |                     |                                                                                     | in    | mm      |
| Crimp                                                        | 1766811-1           |  | 0.495 | [12.57] |
| Probe-proof crimp <sup>2</sup>                               | 1766819-1           |                                                                                     | 0.430 | [10.92] |
| 1/4 - 20 x .050 DP Internal thread                           | 1766230-1           |                                                                                     | 0.495 | [12.57] |
| M6 x 1 x 12.7 mm DP Internal thread                          | 1766274-1           |  | 0.495 | [12.57] |
| 1/4 - 20 x .050 DP Probe-proof/internal thread <sup>2</sup>  | 1766269-1           |                                                                                     | 0.430 | [10.92] |
| M6 x 1 x 12.7 mm DP Probe-proof/internal thread <sup>2</sup> | 1766275-1           |                                                                                     | 0.430 | [10.92] |
| 1/4 - 20 x .050 DP External thread                           | 1766268-1           |  | 0.495 | [12.57] |
| M6 x 1 x 12.7 mm DP External thread                          | 1766231-1           |                                                                                     | 0.495 | [12.57] |
| 1/4 - 20 x .050 DP Probe-proof/external thread <sup>2</sup>  | 1766270-1           |                                                                                     | 0.430 | [10.92] |
| M6 x 1 x 12.7 mm DP Probe-proof/external thread <sup>2</sup> | 1766276-1           |                                                                                     | 0.430 | [10.92] |

**Notes:** <sup>1</sup>Contact Tyco Electronics for alternate contact terminations.

<sup>2</sup>Use only with probe-proof socket contacts.

<sup>3</sup>Crimp and threaded contact are insertable/removable.

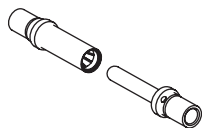
### Socket Side Contacts



**Contact Size #20**



**Contact Size #16**



**Contact Size #12**

#### Contact Size #20

| Termination Type | Contact Part Number |
|------------------|---------------------|
| Crimp            | 1648325-1           |
| PCB Tail         | 1648382-1           |

#### Contact Size #16

| Termination Type | Contact Part Number |
|------------------|---------------------|
| Crimp            | 6648319-1           |
| PCB Tail         | 6648383-1           |

#### Contact Size #12

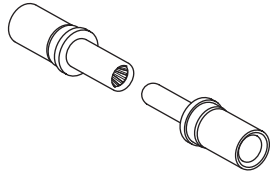
| Termination Type  | Contact Part Number |
|-------------------|---------------------|
| Crimp             | 6648318-1           |
| Hot-Plug Crimp    | 1648384-1           |
| PCB Tail          | 6648374-1           |
| Hot-Plug PCB Tail | 1648387-1           |

**Note:** For applications using the #12 hot-plug socket, the use of gold plated pins are recommended (see page 80).

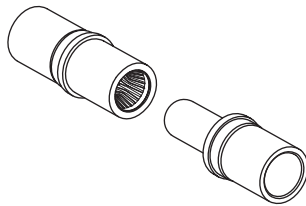
**Note:** All part numbers are RoHS compliant.

## ELCON Drawer Standard Contacts (Continued)

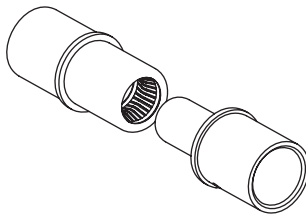
### Socket Side Contacts



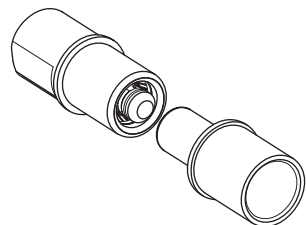
Contact Size #8



Contact Size #4



Contact Size #0



Contact Size #0  
Probe-proof

#### Contact Size #8

| Termination Type | Contact Part Number |
|------------------|---------------------|
| Crimp            | 6648317-1           |
| PCB Tail         | 6648400-1           |

#### Contact Size #4

| Termination Type                        | Contact Part Number |
|-----------------------------------------|---------------------|
| Crimp, Standard                         | 6648434-1           |
| 1/4 - 20 x .050 DP External Thread      | 6648435-1           |
| M5 x 0.8 x 9.6 mm DP M5 Internal Thread | 6648335-1           |

#### Contact Size #0<sup>1</sup>

| Termination Type                                             | Contact Part Number |
|--------------------------------------------------------------|---------------------|
| Crimp                                                        | 6648405-1           |
| Probe-proof crimp <sup>2</sup>                               | 6648418-1           |
| 1/4 - 20 x .050 DP Internal thread                           | 6648416-1           |
| M6 x 1 x 12.7 mm DP Internal thread                          | 6648428-1           |
| 1/4 - 20 x .050 DP Probe-proof/internal thread <sup>2</sup>  | 6648419-1           |
| M6 x 1 x 12.7 mm DP Probe-proof/Internal thread <sup>2</sup> | 6648429-1           |
| 1/4 - 20 x .050 DP External thread                           | 6648417-1           |
| M6 x 1 x 12.7 mm DP External thread                          | 6648430-1           |
| 1/4 - 20 x .050 DP Probe-proof/external thread <sup>2</sup>  | 6648420-1           |
| M6 x 1 x 12.7 mm DP Probe-proof/external thread <sup>2</sup> | 6648431-1           |

**Notes:** <sup>1</sup>Contact Tyco Electronics for alternate contact terminations.

<sup>2</sup>Use only with probe-proof Pin contacts.

<sup>3</sup>Crimp and threaded contact are insertable/removable.

### Non-Standard Contacts

Contacts with pin lengths and terminations other than standard are available. Consult customer service if your design requires contacts different from the ones shown in this catalog.

**Note:** All part numbers are RoHS compliant.

## AMP Miniature Power Drawer (MPD) Connectors

### Product Facts

- High mating cycle life
- Low Mating and Un-mating force (< 0.2lbs per contact)
- Single-piece molded housing
- Molded-in guide pins provide generous blind-mateability
- Sizes: 3 – 10 positions
- Compact size is ideal for distributed DC power applications
- Two Levels of contact sequencing
- One contact for either solder or press-fit termination
- Hardware — Less or traditional shoulder bolt mounting
- Minimum of 3 mm contact wipe on shortest power contact
- All MPD connectors in this section are RoHS compliant

### Specifications

Up to 16 Amps per contact  
 250 mating cycle durability  
 +/- 1.25 mm radial mis-alignment capability. (Total float is 2.5 mm!)

1.6 mm sequencing distance — ideal for modular sheet metal construction applications

Minimum of 3 mm contact wipe on shortest power contact

Maximum continuous operating temperature — 105°C

UL 94 V-0 High-temperature thermoplastic housings

### Technical Documents

#### Product Specification

108-1998

#### Application Specification

114-13067



The miniature power drawer connector combines a high density power interface in a blind-mateable wire-to-board connector. The MPD contact interface has been previously qualified to requirements similar to BellCore GR-1217 in board-to-board applications. Now available in a crimp-to-wire version, the contacts are rated for up to 15 Amps on 14 AWG wire. In addition, the MPD contacts are designed to meet UL 1977 hot-plug requirements for up to 7.8 Amps at 48VDC.

The connection consists of a vertical pcb mountable receptacle and a panel-mounted floating plug. The vertical receptacle pcb tails are designed for use in either through hole solder or press-fit applications. The float-mount plug is easily installed from the inside of the chassis without any additional hardware, lending itself to easy assembly of pre-made cable assemblies. Additionally, the staggered wire exit pattern permits the maximum number of contact interfaces in the least amount of connector volume.

The compact design is ideal for bringing power to small rack-mounted devices such as 1U computer servers and telecommunications switches. The 3 mm center-line satisfies UL 1977 safety requirements for 48 VDC distributed power applications. For higher voltage applications such as AC input, the contacts can be selectively loaded to handle up to 300 V AC or DC.

## AMP Miniature Power Drawer (MPD) Connectors (Continued)

### Crimp Contacts

#### Current Ratings

**Standard Power** — 10 Amps

**High Power** — 16 Amps

#### Material and Finish

**Standard Power:**

**Crimp Blade Contacts** — Brass

**Receptacle Contacts** —  
Phos. Bronze.

**Finish** — 0.38µm Gold over 1.27µm Nickel

**High Power:**

**Blades** — High Conductivity Cu Alloy

**Receptacle** — High Conductivity Cu Alloy

**Finish** — 1.27µm Gold over 1.27µm Nickel

**Contact Mating Length (Min.)** —

Type A — 4.6 mm

Type B — 3.0 mm

**Hot-Pluggability (With High Current Contacts only)** —

**250 Cycles** — 7.8 Amps @ 48VDC

**Note:** All contacts are Sn plated in the crimp barrel or Sn in pcb interface



**PRO-CRIMPER Hand Tool**  
Part Number 91363-1

### Crimp Blade Contacts

| Wire Size | Type           | Cycles | Mating Length | Part Number Strip Form | Applicator | Hand Tool |
|-----------|----------------|--------|---------------|------------------------|------------|-----------|
| 16-20 AWG | Standard Power | 100    | A             | 1489128-8              | 1385248-3  | 91363-1   |
|           |                |        | B             | 1489128-7              |            |           |
|           | High Power     | 250    | A             | 1-1489128-0            |            |           |
|           |                |        | B             | 1489128-9              |            |           |

Heavy Duty Miniature (HDM) Applicator for AMP-O-LECTRIC Model G Machine - #1385248-3.  
PRO-CRIMPER Hand Tool #354940-1, Die set # 91363-2

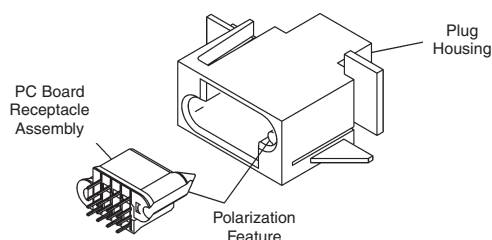
### Plugs and Receptacles

#### Materials

UL 94V-0 Thermoplastic

105°C Max. Operating temperature

**Note:** Vertical PCB Mt. Receptacles supplied with press-fit ACTION PIN contacts.



| Number of Positions | Part Number      |               |                       |              |
|---------------------|------------------|---------------|-----------------------|--------------|
|                     | Panel-Mount Plug |               | PCB-Mount Receptacles |              |
|                     | Snap-In          | Shoulder Bolt | Standard Power        | High Current |
| 3                   | 1489127-1        | —             | 1489715-1             | 1-1489715-1  |
| 4                   | 1489127-2        | 1489701-1     | 1489715-2             | 1-1489715-2  |
| 5                   | 1489127-3        | —             | 1489715-3             | 1-1489715-3  |
| 6                   | 1489127-4        | —             | 1489715-4             | 1-1489715-4  |
| 7                   | 1489127-5        | —             | 1489715-5             | 1-1489715-5  |
| 8                   | 1489127-6        | —             | 1489715-6             | 1-1489715-6  |
| 9                   | 1489127-7        | —             | 1489715-7             | 1-1489715-7  |
| 10                  | 1489127-8        | —             | 1489715-8             | 1-1489715-8  |

**Note:** All part numbers are RoHS compliant.

## Hybrid Blind-Mate Drawer Connectors

### Product Facts

- High current circuits and signal circuits can be mixed in the same connector
- High current circuits use MIC connector contacts located at four corners of the housing
- Signal circuits use Standard Drawer Connector contacts
- 24 positions
- Hermaphroditic housing can be mated with top and bottom turned while maintaining polarity



Hybrid Drawer Connectors offer high current and signal circuits mixed in the same connector system.

High current circuits use MIC connector contacts which are located at the four corners of the housing.

Signal circuits use the same

hermaphroditic crimp snap-in contacts that are used in the Standard Drawer Connector.

The hermaphroditic housings are available in a popular 24-position size. These housings can be mated with top and bottom turned while maintaining polarity.

### Performance Specifications

**Voltage Rating** — 250 VAC

**Current Rating (Max.)** —

Signal Circuit (Drawer);  
4 Amps — 24 AWG [0.2 mm<sup>2</sup>] Wire  
5 Amps — 22 AWG [0.3-0.4 mm<sup>2</sup>] Wire  
7 Amps — 20 AWG [0.5-0.6 mm<sup>2</sup>] Wire  
Power Circuit (MIC);  
10 Amps

**Low Level Resistance** —

Signal Circuit (Drawer);  
10 milliohms max. (Initial)  
20 milliohms max. (Final)  
Power Circuit (MIC);  
3 milliohms (Initial)  
6 milliohms (Final)

**Dielectric Withstanding Voltage** —

5000 milliohms (Initial)  
2000 milliohms (Final)

**Operating Temperature** —

–20°C to +120°C

## Hybrid Blind-Mate Drawer Connectors (Continued)

### Housings (Hermaphroditic), 24 Positions

#### Material

**Housing** — Glass-filled polybutylene terephthalate (PBT), blue

**Bushing** — Brass, zinc-plated

#### Related Product Data

**Performance Specifications** —  
page 85

**MIC Contacts** — page 87

**Crimp Snap-In Contacts** — page 87

#### Technical Documents

**Product Specification**  
108-5371



**Note:** Reverse figures show circuit numbers.

(Example =  $\frac{A1}{81B}$  The hole used for No. 1 circuit is used for No. 13 on the reverse side.)



| Floating of Bushing                                             | Housing Part Numbers |
|-----------------------------------------------------------------|----------------------|
| Up- and downward = 0.05 [.002]<br>Circumferential = 0.14 [.006] | 5176916-1            |
| Up- and downward = 0.30 [.012]<br>Circumferential = 0.80 [.031] | 5176916-2            |

Upward and downward = Axial clearance  
Circumferential = Floating

### Recommended Panel Cutout



\*Dimensions applicable for rear mounting.

**Note:** All part numbers are RoHS compliant.

## Hybrid Blind-Mate Drawer Connectors (Continued)

### MIC Contacts (Used for Power Circuits)

#### Material and Finish

Phosphor bronze, plated .000030 [0.00076] gold in contact area, remainder of contact gold flash, with entire contact underplated nickel

#### Related Product Data

**Performance Specifications—**  
page 85

**Housings—**page 86

#### Technical Documents

##### Instruction Sheets

408-089J, 408-369J, 408-370J



| Wire Size Range |                 | Insulation Diameter    | Part Numbers       |             |                       |            |
|-----------------|-----------------|------------------------|--------------------|-------------|-----------------------|------------|
|                 |                 |                        | Receptacle Contact |             | Hand Tool             | Applicator |
| AWG             | mm <sup>2</sup> |                        | Strip Form         | Loose Piece |                       |            |
| 20-14           | 0.5-2.0         | .087-.134<br>2.20-3.40 | 170286-4           | 170289-3    | 755338-1*<br>755339-1 | 567151-X** |

\*Part Number 755338-1 is used on wire for automotive application; Part Number 755339-1 is used on other types of wire.

\*\*Call Tyco Electronics for applicators.

Extraction Tool Part Number 723735-1

### Crimp Snap-In Contacts (Hermaphroditic, Used for Signal Circuits)

#### Material and Finish

Phosphor bronze, plated gold in contact area (for length of .236 [6.0] from tip), with entire contact underplated nickel



| Wire Size Range |                 | Insulation Diameter    | Part Numbers |             |                                        |           |
|-----------------|-----------------|------------------------|--------------|-------------|----------------------------------------|-----------|
|                 |                 |                        | Contact      |             | Applicator for AMP-O-ELECTRIC Machine* | Hand Tool |
| AWG             | mm <sup>2</sup> |                        | Strip Form   | Loose Piece |                                        |           |
| 24-20           | 0.2-0.6         | .060-.077<br>1.50-1.95 | 170311-1     | 170313-1    | 567324-2                               | 91591-1   |
| 20-16           | 0.5-1.4         | .071-.130<br>1.80-3.30 | 170484-1     | 170485-1    | 567241-2                               | 91590-1   |

\*Applicators are for Model "K" machines. Consult Tyco Electronics for applicators for other bench machines and lead-making machines.

**Notes:** For applicable wire, use wire specified in UL 1015 or 1007.

Extraction Tool Part Number 723986-1

### Tab Contacts

#### Material and Finish

Brass, plated .000030 [0.00076] gold in contact area, with entire contact underplated nickel



| Wire Size Range |                 | Insulation Diameter    | Part Numbers |             |                       |
|-----------------|-----------------|------------------------|--------------|-------------|-----------------------|
|                 |                 |                        | Tab Contact  |             | Hand Tool             |
| AWG             | mm <sup>2</sup> |                        | Strip Form   | Loose Piece |                       |
| 20-14           | 0.5-2.0         | .087-.134<br>2.20-3.40 | 170221-4     | 170222-3    | 755338-1*<br>755339-1 |

\*Part Number 755338-1 is used on wire for automotive application; Part Number 755339-1 is used on other types of wire.

Extraction Tool Part Number 724763-1

**Note:** All part numbers are RoHS compliant.

## Special Blind-Mate Drawer Connectors (uses AMP-LEAF Contacts)

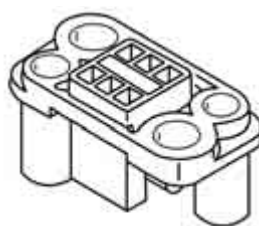
### Product Facts

- Blind-mate connectors accept AMP-LEAF crimp snap-in and solder dip contacts
- Contacts are phosphor bronze, gold-over-nickel plated
- 6 and 10 positions
- Housings made of polybutylene terephthalate (PBT)

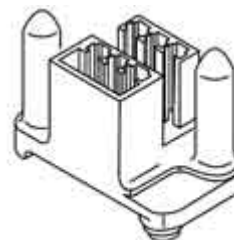


Special blind-mate drawer connectors are available in 6- and 10-position configurations and provide wire-to-board and wire-to-wire connection capabilities. These connectors offer the integrity of AMP-LEAF contacts with maximum travel wiping action.

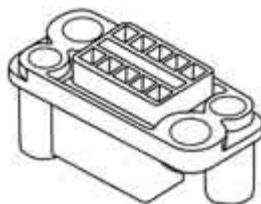
Housings feature molded-in guide pins and diagonally aligned sockets for correct polarization and to facilitate blind-mating. The PC header guide pins extend through the PC board to secure the header to the board prior to soldering.



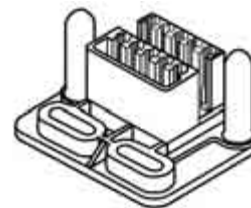
**6-Position Socket Housing**  
(Accepts AMP-LEAF  
Crimp Snap-In Contacts)



**6-Position PC Board Header Housing**  
(Fully loaded with AMP-LEAF  
Solder Dip Contacts)



**10-Position Socket Housing**  
(Accepts AMP-LEAF  
Crimp Snap-In Contacts)



**10-Position Header Housing**  
(Accepts AMP-LEAF  
Crimp Snap-In and  
Solder Dip Contacts)

### Performance Specifications

**Current Rating** —  
4 Amps (max.) — 26-22 AWG  
[0.12-0.4 mm<sup>2</sup>] wire

**Voltage Rating** — 50 VDC

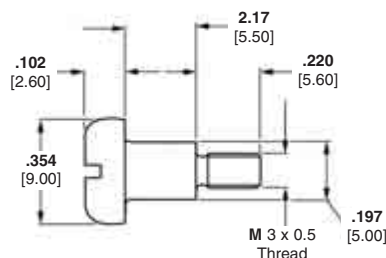
**Temperature Rating** —  
-10°C to +80°C

### Mounting Screw (2 Required per Socket Housing)

**Part Number 343404-1**

### Material and Finish

Steel, plated bright zinc chromate



**Note:** All part numbers are RoHS compliant.

## Special Blind-Mate Drawer Connectors (Continued)

### Socket Housing, 6 Positions

**Part Number 343886-1**

Accepts the following AMP-LEAF  
Crimp Snap-In Contacts:

Part Number 583990-3 (loose piece)  
Part Number 583204-2 (strip form)

Contacts must be ordered  
separately.



**Recommended Panel Cutout**



### Material

Glass-filled polybutylene terephthalate  
(PBT), black



### PC Board Header Housing, 6 Positions with Board Retention

**Part Number 343887-1**

Accepts AMP-LEAF Crimp Snap-In  
Contact Part Number 343371-1  
and Solder Dip Contact  
Part Number 583294-2

Contacts must be ordered  
separately; refer to contact  
specification pages for details.

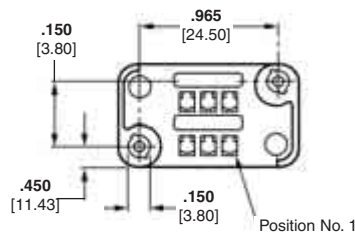


**Recommended PC Board Layout**



### Material

Glass-filled polybutylene terephthalate  
(PBT), black



**Note:** All part numbers are RoHS compliant.

## Special Blind-Mate Drawer Connectors (Continued)

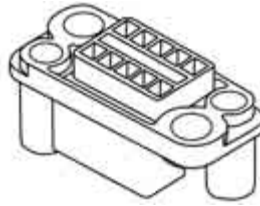
### Socket Housing, 10 Positions

**Part Number 343348-1**

Accepts the following AMP-LEAF  
Crimp Snap-In Contacts:

Part Number 343371-1 (strip form)  
Part Number 583204-2 (strip form)

Contacts must be ordered  
separately.

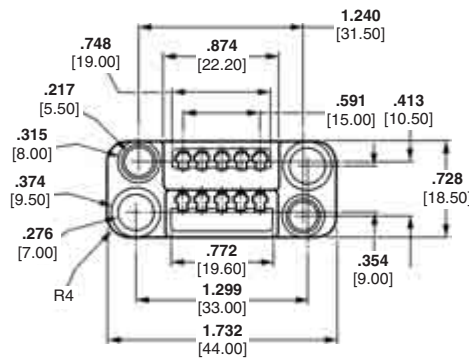


**Recommended Panel Cutout**



### Material

Glass-filled polybutylene terephthalate  
(PBT), black



### Header Housing, 10 Positions

**Part Number 343347-1**

Accepts AMP-LEAF Crimp Snap-In  
Contact Part Number 343371-1  
and Solder Dip Contact  
Part Number 583294-2

Contacts must be ordered  
separately: refer to contact  
specification pages for details.

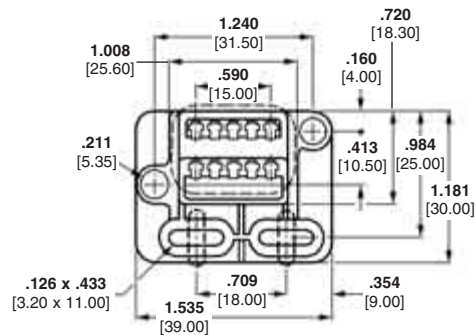


**Recommended Panel Cutout**



### Material

Glass-filled polybutylene terephthalate  
(PBT), black



**Note:** All part numbers are RoHS compliant.

## Special Blind-Mate Drawer Connectors (Continued)

### Crimp, Snap-In Contacts

#### Material and Finish

Phosphor bronze, plated as follows:

**Plating A** — .000100-.000200 [0.00254-0.00508] tin (lubricant must be used)

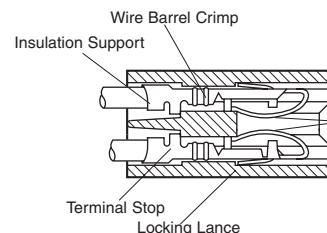
**Plating B** — .000030 [0.00076] min. gold in mating area, gold flash on remainder of contact, with entire contact underplated .000050 [0.00127] min. nickel

**Plating C** — .000015 [0.00038] min. gold in mating area, gold flash on remainder of contact, with entire contact underplated .000050 [0.00127] min. nickel

**Plating D** — .000030 [0.00076] min. gold over .000050 [0.00127] min. nickel in mating area, remainder of contact gold flash over .000015 [0.00038] min. nickel

**Plating E** — .000030 [0.00076] min. gold in mating area, with entire contact underplated .000050 [0.00127] min. nickel

**Plating F** — .000015 [0.00038] min. gold in mating area, with entire contact underplated .000050 [0.00127] min. nickel



| Wire Range<br>AWG/mm <sup>2</sup> | Insulation Range<br>Single Wire | Double Wire            | Part Numbers |            |                |                                       |                                                          |
|-----------------------------------|---------------------------------|------------------------|--------------|------------|----------------|---------------------------------------|----------------------------------------------------------|
|                                   |                                 |                        | Contact      |            | Contact Finish | Applicator for AMP-O-LECTRIC Machine* | Hand Tool                                                |
|                                   |                                 |                        | Loose Piece  | Strip Form |                |                                       |                                                          |
| 26-22<br>0.12-0.4                 | .050-.064<br>1.27-1.63          | —                      | 583990-3     | 583204-2   | B              | 466366-2                              | 90028-3                                                  |
|                                   |                                 |                        | —            | 343371-1   | D              |                                       |                                                          |
| 22-18<br>0.3-0.9                  | .055-.080<br>1.40-2.03          | .120<br>3.05<br>Max.   | —            | 583361-2   | A              | 466367-2                              | 90017-3 (1 #22-20)<br>90028-3 (2 #22)<br>90101-3 (1 #20) |
|                                   |                                 |                        | 583989-3     | 583361-3   | B              |                                       |                                                          |
|                                   |                                 |                        | 583989-4     | 583361-4   | C              |                                       |                                                          |
|                                   |                                 |                        | —            | 583555-4   | E              |                                       |                                                          |
|                                   |                                 |                        | —            | 583555-6   | F              |                                       |                                                          |
| 16<br>1.25-1.40                   | .108<br>2.74<br>Max.            | .080-.160<br>2.03-4.06 | 583991-3     | 60151-6    | B              | 466368-2                              | 90031-8 (2 #18)<br>90101-3 (2 #20)<br>90101-3 (1 #16)    |

\*Applicators are for AMP-O-LECTRIC Model "K" machines. Consult Tyco Electronics for applicators for other bench machines and lead-making machines.

**Notes:** 1. Shorting contacts are available, consult Tyco Electronics.  
2. Contacts and housings to accommodate .093 [2.36] thick PC boards can be made available, consult Tyco Electronics.

#### Technical Documents

##### Product Specifications

108-9013, 108-9043

##### Application Specification

114-9003

##### Instruction Sheets

408-6591, 408-7045, 408-7622,  
408-7623, 408-7624, 408-7625,  
408-7626

##### Crimp Inspection Sheet

CI 8050-33

#### Hand Crimping Tool



#### Contact Extraction Tool

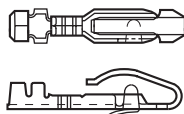


| Part Number     |                    |
|-----------------|--------------------|
| Extraction Tool | Used with Housings |
| 465195-1        | 480110-2, -5       |
|                 | 480142-2, -3       |
|                 | 582140-5           |
|                 | 582147-5           |
|                 | 582264-2           |
|                 | 582500-2           |
|                 | 582963-2           |
|                 | 583167-3           |
|                 | 583280-1           |
|                 | 583617-1           |
|                 | 583680-1           |
|                 | 583685-1           |
|                 | 583722-1           |
|                 | 583723-1           |
|                 | 583724-1           |
| 465195-2        | 583725-1           |
|                 | 583726-1           |
|                 | 480133-2           |

#### Dummy Contact

#### Material

Phosphor bronze



Plain Finish—  
**Part Number 66084-1**

Tin Finish—  
**Part Number 66084-2**

Gold Finish—  
**Part Number 66084-3**

#### Technical Documents

Instruction Sheet 408-7037

**Note:** All part numbers are RoHS compliant.

## Standard Blind-Mate Drawer Connectors

### Product Facts

- Designed for rack and panel applications
- Durable—withstands multiple mating/unmating
- Low insertion and withdrawal force
- Hermaphroditic contacts
- Accepts signal and power contacts
- Provides excellent creep distance
- Mated connectors dust-proof
- Configurations available in 8, 12, 16, 20 and 24 positions
- Contacts accept wire sizes 24-14 AWG [0.2-2.0 mm<sup>2</sup>]
- Accept wire insulation diameter — .059-.154 [1.5-3.9]
- Recognized under the Component Program of the Underwriters Laboratories Inc. 



Drawer connectors are designed as an economical rack and panel connector. They are used in copying machines, control panels, power distribution boards, industrial equipment, power supplies and other electronic equipment.

Blind-mate drawer connectors feature excellent durability and provide low insertion and withdrawal force. Leaf-type hermaphroditic contacts ensure reliable, positive contact.

Contacts are on .197 [5.00] centerlines for signal circuits, and .260 [6.60] centerlines for power circuits (2-circuits at each end of the double row of contacts) for a total of 4. Row-to-row spacing is .390 [9.90].

Housings are made of UL 94V-0 rated thermoplastic and feature molded-in guide pins and sockets for positive connector mating.

Other features include wire outlets which provide for sufficient creep distance, plus mated assemblies are completely dust-proof.

Additional economies are achieved through the use of strip-form contacts suitable for high-speed automatic machine terminations. For prototype, maintenance and repair applications, contacts are available in loose piece for easy termination with Tyco Electronics hand crimping tools.

### Performance Specifications

**Voltage Rating** — 250 VAC

#### Current Rating —

4 Amps — 24 AWG [0.2 mm<sup>2</sup>] Wire  
 5 Amps — 22 AWG [0.3-0.4 mm<sup>2</sup>] Wire  
 7 Amps — 20 AWG [0.5-0.6 mm<sup>2</sup>] Wire  
 8 Amps — 18 AWG [0.8-0.9 mm<sup>2</sup>] Wire  
 12 Amps — 16 AWG [1.25-1.4 mm<sup>2</sup>] Wire  
 15 Amps — 14 AWG [2.0 mm<sup>2</sup>] Wire

#### Contact Resistance —

10 milliohms max. (Initial)  
 20 milliohms max. (Final)

#### Insulation Resistance —

5000 milliohms min. (Initial)  
 2000 milliohms min. (Final)

**Dielectric Withstanding Voltage** —  
 2000 VAC/1 minute

#### Operating Temperature —

–20°C to +120°C (Includes T-Rise)

#### Insertion/Extraction Force —

Insertion—4 kg max. (Initial) —  
 16-position  
 Extraction—0.7 kg min. (Initial) —  
 16-position

#### Durability —

Tested to 1000 Mate/Unmate cycles

## Standard Blind-Mate Drawer Connectors (Continued)

### Plug Connectors, PCB-Mount

#### Material and Finish

**Housing** — Glass-filled polybutylene terephthalate (PBT), blue, 94V-0 rated

**Contacts** — Phosphor bronze, plated gold in contact area over nickel underplating; board-mount tails are brass, plated tin over steel underplating

#### Related Product Data:

**Performance Specifications** —  
page 92

**Mating Receptacles** — page 94

#### Technical Documents

**Product Specification**  
108-5125

**Application Specification**  
114-5044



| No. of Pos. | Dimensions    |               |               |              |   | Plug Connector Part Numbers |
|-------------|---------------|---------------|---------------|--------------|---|-----------------------------|
|             | A             | B             | C             | D            | E |                             |
| 8           | 2.016<br>51.2 | 1.500<br>38.0 | 1.055<br>26.8 | .197<br>5.00 | 1 | 172653-2                    |
| 12          | 2.409<br>61.2 | 1.890<br>48.0 | 1.449<br>36.8 | .591<br>15.0 | 3 | 172653-3                    |
| 16          | 2.803<br>71.2 | 2.283<br>58.0 | 1.843<br>46.8 | .984<br>25.0 | 5 | 172653-1                    |

**Note:** To ensure proper contact alignment, connectors must be mated during the soldering process.



Recommended PC Board Layout

**Note:** All part numbers are RoHS compliant.

## Standard Blind-Mate Drawer Connectors (Continued)

### Housings for Crimp Snap-In Contacts

#### Material

Polybutylene terephthalate (PBT), blue, 94V-0 rated

#### Related Product Data

**Performance Specifications** — page 92

**Crimp Snap-In Contacts** — page 95

**Panel Cutout** — page 95

#### Technical Documents

**Product Specification**  
108-5125

**Application Specification**  
114-5044



Receptacle



Plug

| No. of Pos. | Dimensions     |                |                |                |   |                | Receptacle            |              | Plug                      |              |
|-------------|----------------|----------------|----------------|----------------|---|----------------|-----------------------|--------------|---------------------------|--------------|
|             | A              | B              | C              | D              | E | F              | Floating Bushing Size | Part Numbers | Panel-Mount Hole Diameter | Part Numbers |
| 8           | 1.858<br>47.20 | 1.055<br>26.80 | 2.016<br>51.20 | 1.500<br>38.00 | 1 | .197<br>5.00   | .118<br>3.00          | 5172070-1    | .130<br>3.30              | 172063-1     |
|             |                |                |                |                |   |                | .157<br>4.00          | 5172070-3    | .169<br>4.30              | 172063-3     |
| 12          | 2.252<br>57.20 | 1.449<br>36.80 | 2.410<br>61.20 | 1.890<br>48.00 | 3 | .591<br>15.00  | .118<br>3.00          | 5172069-1    | .130<br>3.30              | 172061-1     |
|             |                |                |                |                |   |                | .157<br>4.00          | 5172069-3    | .169<br>4.30              | 172061-3     |
| 16          | 2.657<br>67.20 | 1.843<br>46.80 | 2.803<br>71.20 | 2.283<br>58.00 | 5 | .984<br>25.00  | .118<br>3.00          | 5172068-1    | .130<br>3.30              | 172059-1     |
|             |                |                |                |                |   |                | .157<br>4.00          | 5172068-3    | .169<br>4.30              | 172059-3     |
| 20          | 3.039<br>77.20 | 2.236<br>56.80 | 3.197<br>81.20 | 2.677<br>68.00 | 7 | 1.378<br>35.00 | .157<br>4.00          | 5173033-3    | .169<br>4.30              | 173032-3     |
| 24          | 3.433<br>87.20 | 2.630<br>66.80 | 3.591<br>91.20 | 3.071<br>78.00 | 9 | 1.772<br>45.00 | .118<br>3.00          | 5172625-1    | .130<br>3.30              | 172624-1     |
|             |                |                |                |                |   |                | .157<br>4.00          | 5172625-3    | .169<br>4.30              | 172624-3     |

**Note:** All part numbers are RoHS compliant.

## Standard Blind-Mate Drawer Connectors (Continued)

### Crimp Snap-In Contacts (Hermaphroditic)

#### Material and Finish

Phosphor bronze, plated gold in contact area (for length of .236 [6.0] from tip), with entire contact underplated nickel

#### Related Product Data

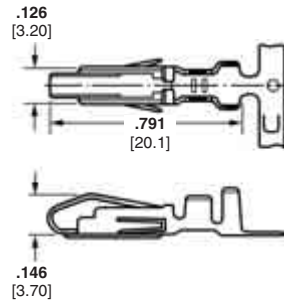
**Performance Specifications** — page 92

**Housings** — page 94

#### Technical Documents

##### Instruction Sheets

408-097J, 408-098J, 408-151J



**CERTI-CRIMP Hand Tool**  
Part Number 91591-1

| Wire Size Range |         | Insulation Dia. Range  | Part Numbers |             | Applicator for AMP-O-LETRIC Machine* | Hand Tool Numbers |
|-----------------|---------|------------------------|--------------|-------------|--------------------------------------|-------------------|
|                 |         |                        | Strip Form   | Loose Piece |                                      |                   |
| 24-20           | 0.2-0.6 | .059-.077<br>1.50-1.95 | 170311-1     | 170313-1    | 567324-2                             | 91591-1           |
| 20-16           | 0.5-1.4 | .071-.130<br>1.80-3.30 | 170484-1     | 170485-1    | 567241-2                             | 91590-1           |
| 18-14           | 0.8-2.0 | .091-.154<br>2.30-3.90 | 170312-1     | 170314-1    | 567325-2                             | 2063849-1         |

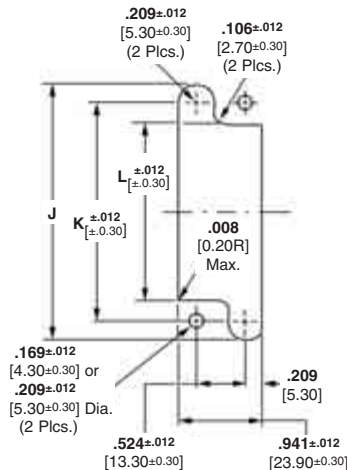
\*Applicators are for Model "K" machines. Consult Tyco Electronics for applicators for other bench machines and lead-making machines.

**Notes:** 1. For applicable wire, use wire specified in UL 1015 or 1007.

2. Contacts for 18-14 AWG [0.8-2.0 mm<sup>2</sup>] wire are used at the four corners of the connector as power contacts (8 required per assembly).

Extraction Tool **Part Number 723986-1**

### Recommended Panel Cutout



**Rear Panel-Mount**

| No. of Pos. | Rear Panel-Mount Dimensions |                |                |
|-------------|-----------------------------|----------------|----------------|
|             | J                           | K              | L              |
| 8           | 1.913<br>48.60              | 1.500<br>38.00 | 1.110<br>28.20 |
| 12          | 2.307<br>58.60              | 1.890<br>48.00 | 1.504<br>38.20 |
| 16          | 2.701<br>68.60              | 2.283<br>58.00 | 1.898<br>48.20 |
| 20          | 3.094<br>78.60              | 2.677<br>68.00 | 2.291<br>58.20 |
| 24          | 3.488<br>88.60              | 3.071<br>78.00 | 2.685<br>68.20 |

**Note:** Mounting holes of .209 [5.30] dia. are used when mounting receptacle housings with .157 [4.0] long floating bushings and the mating plug housings. Panel thickness is .063 [1.60]. Panel cutout shown above is for use with plug housings. For receptacle housings, use the mirror-image cutout.

**Note:** All part numbers are RoHS compliant.

## Hybrid Mini-Drawer Connectors

### Product Facts

- Combine signal circuits and power circuits into one connector
- Power circuits can be used for high current of up to 15A
- Signal circuits accept CT connector in the back, reducing harnessing costs
- Power circuits use crimp-type tab and receptacle contacts
- Meet requirements for creepage distance and spatial distance for primary power supply as set forth in IEC-950, safety specifications for business machines and OA equipment.  
Creepage distance on active power side: 5 mm  
Spatial distance on active power side: 4.5 mm



### Technical Documents

#### Product Specification

108-60022

#### Application Specification

114-5182

Hybrid mini-drawer connectors are designed for use in rack and panel application to serve as an I/O connector for copying machines, laser-beam printers and other OA equipment. They provide an economical means of combining into one connector signal circuits and power circuits which were packaged separately in the past.

A major design feature of these hybrid mini-drawer connectors is that mini-drawer connectors mate with one another on the connector mating side and in the back, signal circuits accept a pre-terminated CT receptacle connector.

Also, for power circuits, crimp-type power contacts are used by inserting them into the four corners of the mini-drawer connector.

The housing has an integrated guide-pin and socket to facilitate mating of the connector halves. Provision is also made to prevent dust from entering.

This product line includes:

- 12-position connector (4 positions for power and 8 positions for signal circuits)
- 24-position connector (4 positions for power and 20 positions for signal circuits)
- 32-position connector (4 positions for power and 28 positions for signal circuits)

Drawer connectors are available in the following types depending on application: (For details contact our sales department)

- Mini-drawer connectors
- Standard drawer connectors
- High current drawer connectors

### Performance Data

#### Voltage Rating —

250V AC (power)

30V AC (signal)

#### Current Rating —

15A max. (power)

2A max. (signal)

#### Contact Resistance —

10 mm  $\Omega$  max. (power)

40 mm  $\Omega$  max. (signal)

#### Insulation Resistance —

100M  $\Omega$  max.

#### Dielectric Withstanding Voltage —

1.8KV AC/min. (power)

1.0KV AC/min. (signal)

#### Durability — 3,000 cycles min.

## Hybrid Mini-Drawer Connectors (Continued)

### Standard Width



| Type       | Part Number | Number of Power Contacts | Number of Signal Contacts | L             | W            |
|------------|-------------|--------------------------|---------------------------|---------------|--------------|
| Plug       | 292180-1    | 2                        | 4                         | 1.299 [33.00] | .646 [16.40] |
| Receptacle | 292184-1    | 2                        | 4                         | 1.299 [33.00] | .646 [16.40] |
| Plug       | 1-292183-2  | 6                        | 12                        | 2.638 [67.00] | .748 [19.00] |
| Receptacle | 1-292186-2  | 6                        | 12                        | 2.638 [67.00] | .748 [19.00] |

### Slim Width



| Type       | Part Number | Number of Power Contacts | Number of Signal Contacts | L             | W            |
|------------|-------------|--------------------------|---------------------------|---------------|--------------|
| Plug       | 1-292187-2  | 3                        | 5                         | 1.870 [47.50] | .591 [15.00] |
| Receptacle | 2-292190-2  | 3                        | 5                         | 1.713 [43.50] | .472 [12.00] |
| Plug       | 3-292187-2  | 4                        | 5                         | 2.146 [54.50] | .531 [13.50] |
| Receptacle | 4-292190-2  | 4                        | 5                         | 1.988 [50.50] | .472 [12.00] |
| Plug       | 2-292189-3  | 3                        | 7                         | 2.028 [51.50] | .591 [15.00] |
| Receptacle | 1-292192-3  | 3                        | 7                         | 1.870 [47.50] | .472 [12.00] |

**Note:** All part numbers are RoHS compliant.

## Hybrid Mini-Drawer Connectors (Continued)

### Power Contacts

#### Material

Copper alloy  
For finish, see table below.

#### Finish Codes

- 1) Over nickel underplated, contact area: gold plated, crimp area: tin plated
- 2) Tin plated all over.

Hand Tool AWG #20-24

**Part No. 934199-1 (411-5662)**

AWG #16-20

**Part No. 934198-1 (411-5661)**



| Wire Range |                 | Wire Ins. Dia. | Plating Code | Receptacle Part Number | Tab Part Number |
|------------|-----------------|----------------|--------------|------------------------|-----------------|
| AWG        | mm <sup>2</sup> |                |              | Strip Form             | Strip Form      |
| 24-20      | 0.2-0.5         | 1.4-2.6        | 1            | 179317-2               | 179322-2        |
|            |                 |                | 2            | 1-179317-2             | 1-179322-2      |
| 20-16      | 0.5-1.25        | 1.6-2.8        | 1            | 179316-2               | 179321-2        |
|            |                 |                | 2            | 1-179316-2             | 1-179321-2      |

### Receptacle Assembly

#### Material and Finish

**Housing** — Thermoplastic, black

**Contact** — Copper alloy, gold plated on mating side over nickel underplate, tin plated on CT mating side over nickel underplate.



| No. of Pos.<br>(Power/<br>Signal) | Dimensions |      |      |      |      |      |      |      | Mini-Drawer<br>Receptacle<br>Assembly Part No. | Required<br>Number of<br>Power Contact | Required<br>Number of<br>CT Connector |
|-----------------------------------|------------|------|------|------|------|------|------|------|------------------------------------------------|----------------------------------------|---------------------------------------|
|                                   | A          | B    | C    | D    | E    | F    | G    | H    |                                                |                                        |                                       |
| 12 (4-8)                          | 56.0       | 47.0 | 6.0  | 24.1 | 31.8 | 31.4 | 38.0 | 32.4 | 292185-8                                       | 4                                      | 4 Pos. x 2                            |
| 24 (4-20)                         | 68.0       | 59.0 | 18.0 | 36.1 | 43.8 | 43.4 | 50.0 | 44.4 | 2-292185-0                                     | 4                                      | 10 Pos. x 2                           |
| 32 (4-28)                         | 76.0       | 67.0 | 26.0 | 44.1 | 51.8 | 51.4 | 58.0 | 52.4 | 2-292185-8                                     | 4                                      | 14 Pos. x 2                           |

**Note:** All part numbers are RoHS compliant.

## Hybrid Mini-Drawer Connectors (Continued)

### Plug Assembly

#### Material and Finish

**Housing** — Thermoplastic, black  
UL94V-0

**Contact** — Copper alloy, gold plated  
on mating side over nickel underplate,  
tin plated platen on CT mating side over  
nickel underplate.



| No. of Pos.<br>(Power/<br>Signal) | Dimensions |      |      |      |      |      |      |      | Mini-Drawer<br>Receptacle<br>Assembly Part No. | Required<br>Number of<br>Power Contact | Required<br>Number of<br>CT Connector |
|-----------------------------------|------------|------|------|------|------|------|------|------|------------------------------------------------|----------------------------------------|---------------------------------------|
|                                   | A          | B    | C    | D    | E    | F    | G    | H    |                                                |                                        |                                       |
| 12 (4-8)                          | 56.0       | 47.0 | 6.0  | 24.1 | 36.0 | 31.4 | 33.4 | 38.0 | 292182-8                                       | 4                                      | 4 Pos. x 2                            |
| 24 (4-20)                         | 68.0       | 59.0 | 18.0 | 36.1 | 48.0 | 43.4 | 45.4 | 50.0 | 2-292181-0**                                   | 4                                      | 10 Pos. x 2                           |
| 32 (4-28)                         | 76.0       | 67.0 | 26.0 | 44.1 | 56.0 | 51.4 | 53.4 | 58.0 | 2-292181-8                                     | 4                                      | 14 Pos. x 2                           |

\*12-Position connector is provided with sequential feature in one power circuit position. Other connector sizes have sequential feature in power circuits and signal circuits.

\*\*Optional part numbers offer sequential mating – see customer drawings for details.

**Note:** All part numbers are RoHS compliant.

## Hybrid Mini-Drawer Connectors (Continued)

### CT Receptacle Connectors to Mate with Signal Circuit Terminator with Insulation Displacement Contacts

#### Receptacle Assemblies (Wire Application Side)

##### Material and Finish

**Housing** — UL94V-0 rated, glass-filled P.B.T. see chart below for color.

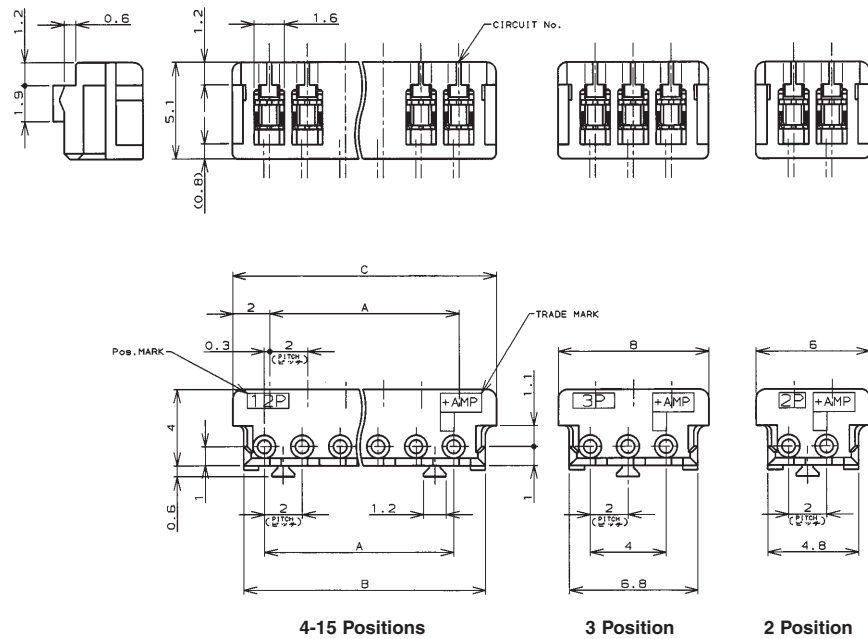
**Contact** — Pre-tinned phosphor bronze

**Wire Size** — AWG #28-26  
(0.08-0.15 mm<sup>2</sup>)

**Insulation Dia.** — 0.85-1.05 mm

**Wire Size** — AWG #24  
(0.20-0.22 mm<sup>2</sup>)

**Insulation Dia** — 0.95-1.05 mm<sup>2</sup>  
(For AWG #24 wire, see notes under the table)



| No. of Positions | Dimensions |      |      | Part Number           |            |
|------------------|------------|------|------|-----------------------|------------|
|                  |            |      |      | Receptacle Assembly** |            |
|                  | A          | B    | C    | AWG #28-26*           | AWG #24*** |
| 2                | 2.0        | 4.8  | 6.0  | 173977-2              | 2-179694-2 |
| 3                | 4.0        | 6.8  | 8.0  | 173977-3              | 2-179694-3 |
| 4                | 6.0        | 8.8  | 10.0 | 173977-4              | 2-179694-4 |
| 5                | 8.0        | 10.8 | 12.0 | 173977-5              | 2-179694-5 |
| 6                | 10.0       | 12.8 | 14.0 | 173977-6              | 2-179694-6 |
| 7                | 12.0       | 14.8 | 16.0 | 173977-7              | 2-179694-7 |
| 8                | 14.0       | 16.8 | 18.0 | 173977-8              | 2-179694-8 |
| 9                | 16.0       | 18.8 | 20.0 | 173977-9              | 2-179694-9 |
| 10               | 18.0       | 20.8 | 22.0 | 1-173977-0            | 3-179694-0 |
| 11               | 20.0       | 22.8 | 24.0 | 1-173977-1            | 3-179694-1 |
| 12               | 22.0       | 24.8 | 26.0 | 1-173977-2            | 3-179694-2 |
| 13               | 24.0       | 26.8 | 28.0 | 1-173977-3            | 3-179694-3 |
| 14               | 26.0       | 28.8 | 30.0 | 1-173977-4            | 3-179694-4 |
| 15               | 28.0       | 30.8 | 32.0 | 1-173977-5            | 3-179694-5 |

\* The color of housing is natural. Other colors available include blue, yellow and black. For details contact our Sales Department

\*\* For wire to be used, contact our Sales Department as there are wires that have been tested by Tyco Electronics and can be recommended for your use.

\*\*\* The color of housing is gray.

**Note:** All part numbers are RoHS compliant.

## Hybrid Mini-Drawer Connectors (Continued)

### CT Receptacle Contacts to Mate with Signal Circuit Termination with Crimp Type Contacts

#### Receptacle Contact

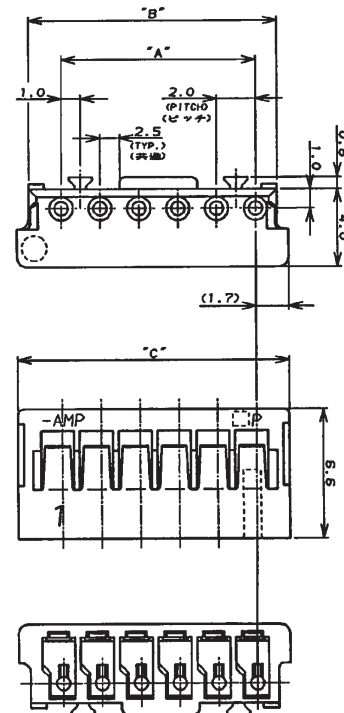


#### Receptacle Housing Material

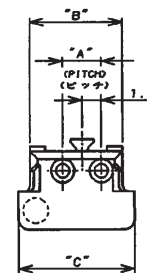
UL94-0 rated, 66 nylon, natural color (white)

| Wire Size<br>AWG (mm <sup>2</sup> ) | Insulation Dia.<br>(mm) | Material<br>and Finish                                | Part Number |             |                        |
|-------------------------------------|-------------------------|-------------------------------------------------------|-------------|-------------|------------------------|
|                                     |                         |                                                       | Strip Form  | Loose Piece | Hand Tool              |
| 30-26<br>(0.05-0.12)                | 0.65-1.35               | Phosphor bronze<br>(0.20 mm thickness),<br>tin plated | 179609-1    | —           | 234169-1<br>(411-5711) |
| 26-22<br>(0.12-0.35)                | 0.93-1.5                |                                                       | 179227-1    | 179518-1    | 91572-1<br>(408-8547)  |

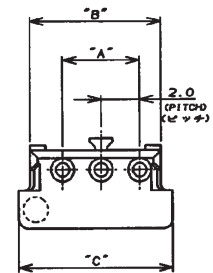
**Note:** Loose piece contacts, being small in size, are supplied in the form of a comb with 10 pieces on 7.5 mm pitch. There is a slit at the root of each contact and it can be snapped off easily.



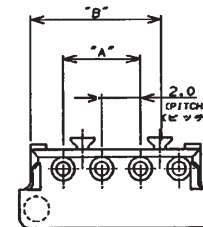
4-15 Positions



2 Position



3 Position



4 Position

| No. of<br>Positions | Dimensions |      |      | Part Number<br>Receptacle Assembly* |
|---------------------|------------|------|------|-------------------------------------|
|                     | A          | B    | C    |                                     |
| 2                   | 2.0        | 4.8  | 6.0  | 179228-2                            |
| 3                   | 4.0        | 6.8  | 8.0  | 179228-3                            |
| 4                   | 6.0        | 8.8  | 10.0 | 179228-4                            |
| 5                   | 8.0        | 10.8 | 12.0 | 179228-5                            |
| 6                   | 10.0       | 12.8 | 14.0 | 179228-6                            |
| 7                   | 12.0       | 14.8 | 16.0 | 179228-7                            |
| 8                   | 14.0       | 16.8 | 18.0 | 179228-8                            |
| 9                   | 16.0       | 18.8 | 20.0 | 179228-9                            |
| 10                  | 18.0       | 20.8 | 22.0 | 1-179228-0                          |
| 11                  | 20.0       | 22.8 | 24.0 | 1-179228-1                          |
| 12                  | 22.0       | 24.8 | 26.0 | 1-179228-2                          |
| 13                  | 24.0       | 26.8 | 28.0 | 1-179228-3                          |
| 14                  | 26.0       | 28.8 | 30.0 | 1-179228-4                          |
| 15                  | 28.0       | 30.8 | 32.0 | 1-179228-5                          |

\* The color of housing is natural. Other colors available include blue, yellow and black. For details contact our Sales Department

**Note:** All part numbers are RoHS compliant.

## ET Power Connector

### Product Facts

- Right-angle and vertical mounts available
- Low profile right-angle connector  $\leq 8$  mm above pcb
- 2.5 mm<sup>2</sup> (14 AWG) to 6 mm<sup>2</sup> (10 AWG) wire range
- Refer to current v temp rise graphs for current capability
- Coding contacts for sense function
- Positive metal latch retention
- Up to 30 Amps per contact. See temperature rise charts on page 103



### Description

- Cable to pcb
- Low profile Right Angle
- Vertical Mount
- High reliability interface
- Excellent price to performance ratio

Designed for low-profile power distribution units requiring small form factor connector with high current, the ET power connector is a low loss, highly reliable and cost effective solution for cable-to-pcb applications.

The connector is available in both a vertical mount and a right-angle mount, which stands at just 8 mm off of the board. A unique feature of the ET power series is integrated coding contacts which allow different electronic functions such as sense and enable to be

designed into the PDU electronics with activation on full insertion of the cable connector.

Crimp contacts from the industry proven "Standard Power Timer" range for use with 2.5 mm<sup>2</sup> (14 AWG), 4 mm<sup>2</sup> (12 AWG) and 6 mm<sup>2</sup> (10 AWG) wire.

The cable connector has a positive latching mechanism providing no accidental un-mating even with pull forces up to 100N.

### Material and Finish

**Housing ST Cable** — Black glass-filled thermoplastic, UL 94V-0 rated

**Latch** — Stainless Steel

**Housing ST & Right-angle PCB** — Black glass-filled thermoplastic, UL 94V-0 rated

**Power Contacts** — Copper alloy, 3.0  $\mu$ m Ag min.

**Contact Detection** — 0.8  $\mu$ m gold min. in contact place; 1.27  $\mu$ m nickel min. contact place

### Application

- Power Distribution
- Power Supplies
- Telecoms Base Stations
- Computer Servers and Storage Systems
- Industrial Electronic Equipment Cabinets

### Technical Documents

#### Product Specification

108-19346

#### Application Specification

114-19110

## Test Results

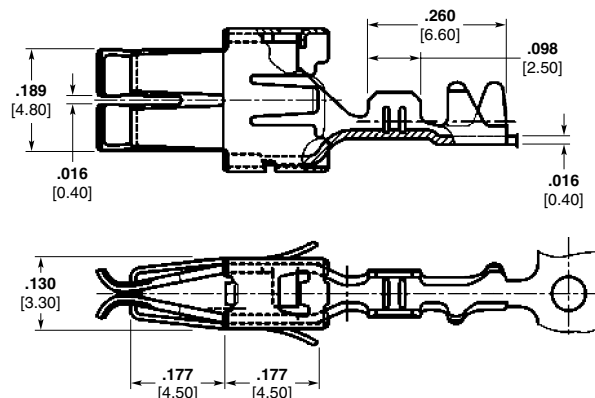
### Temperature Rise vs. Current Results



## Contact Summary

Refer to Standard Timer catalog 889759 for detailed information or Product/ Application Specification.

| Wire Size Range mm <sup>2</sup> | Part Number |
|---------------------------------|-------------|
| 0.2 – 0.5                       | 927840-4    |
| 0.5 – 1.0                       | 927831-4    |
| >1.0 – 2.5                      | 927837-4    |
| >2.5 – 4.0                      | 927829-5    |
| >4.0 – 6.0                      | 963709-5    |



**Material Plating** — Silver

### Technical Documents

**Product Specification**

108-18025

**Application Specification**

114-18037

**Note:** All part numbers are RoHS compliant.

## ET Power Connector (Continued)

### ET Power Cable Connector

#### Material and Finish

**Housing** — Thermoplastic,  
UL 94V-0 rated

**Latch** — Stainless Steel



**Part Number 1982299-1**  
**With Right Coding Key Only**



**Part Number 1982299-2**  
**With Left Coding Key Only**



**Part Number 1982299-3**  
**With Two Coding Keys**



**Part Number 1982299-4**  
**Without Coding Keys**

### Right-Angle PCB Header

#### Material and Finish

**Housing** — High temperature liquid  
crystal polymer, UL 94V-0 rated

**Contacts** — Silver plated copper alloy



**Part Number 1982295-1**  
**With Coding Contacts**

**Part Number 1982295-2**  
**Without Coding Contacts**

### Vertical PCB Header

#### Material and Finish

**Housing** — High temperature liquid  
crystal polymer, UL 94V-0 rated

**Contacts** — Silver plated copper alloy



**Part Number 2042274-1**  
**With Coding Contacts**

**Part Number 2042274-2**  
**Without Coding Contacts**

**Note:** All part numbers are RoHS  
compliant.

## AMP-DUAC PL Connectors

### Product Facts

- Wire to board connection system
- Improved dual-action contact design — provides better contact lead-in and reduces contact mating force
- Sequenced contacts available for mate-first break-last operation
- 4-, 6- and 12-position right-angle headers and free hanging receptacles
- 4.2 mm x 5.5 mm centerline
- Receptacle contacts designed for 26-16 AWG stranded wire
- Recognized under the Component Program of Underwriters Laboratories Inc.,  File No. E28476
- Certified by Canadian Standards Association,  File No. LR7189

### Technical Documents

#### Product Specification

108-1646

#### Application Specification

114-6067-Crimping Contacts

#### Qualification Test Report

501-394

### Performance Data

**Voltage Rating** — 600 VAC

**Current Rating** — 9 Amps maximum in 2-position application

**Low Level Resistance** — 10 megohms max.

**Dielectric Withstanding Voltage** — 1500 VAC/min.

**Insulation Resistance** — 1000 Megohms minimum

**Operating Temperature** — -55°C to +105°C [-67°F to +221°F]



The latest addition to the 4.2 mm Wire-to-Board Power Connectors is the AMP-DUAC PL Connector. This product uses the industry proven AMP-DUAC contacts with the addition of several housing improvements to offer significant overall improvements in connector reliability. The product is available in both component form and as fully assembled custom cable assemblies.

The AMP-DUAC PL housings are designed to confirm that all electrical contacts are fully seated. The "PL" refers to "Positive

Locking" of the contacts. It is also referred to as terminal position assurance. Contacts are inserted into the receptacle housing and the contact lock is installed to lock all the contacts into position. If any one of the contacts is not fully inserted, the contact lock cannot be installed. This feature eliminates a common concern of operator fatigue and the resulting contact back-out, which occurs when a contact is not installed properly. An improved mounting flange has also been added for more secure printed circuit board mounting.

Finally, the housings have been re-designed to provide an improved latch, which offers a metal spring instead of the original plastic spring/latch. An extended latch arm is also available for hard to reach installations or where the connectors are stacked in close proximity.

All the housings are polarized to help prevent mis-mating.

## AMP-DUAC PL Connectors (Continued)

### AMP-DUAC PL PCB Headers

#### Material

**Housings** — Nylon, UL 94V-0

Color, white

**Contacts** — Brass, tin-lead

**Finish** — 0.00038 [0.00030] gold in mating area, tin-lead in solder tail, all over 0.00127 [0.00050] nickel



**Recommended Mounting Hole Pattern  
For 1.78 Max. Thick PC Board  
Component Side Shown**

| No. of Positions | Mate-First Break-Last Position # | Part Number |
|------------------|----------------------------------|-------------|
| 4                | All Standard                     | 5794172-2   |
|                  | Length 3                         | 5794172-3   |
| 6                | All Standard                     | 5794173-2   |
|                  | Length 3                         | 5794173-3   |
| 12               | All Standard                     | 5794176-2   |
|                  | Length 4                         | 5794176-3   |

**Note:** All part numbers are RoHS compliant.

## AMP-DUAC PL Connectors (Continued)

### AMP-DUAC PL Receptacles

#### Material

**Housings** — Nylon, UL94V-0

Color, White

**Technical Documents** — page 105

**Contacts** — page 113



| No. of Positions | Dimension L | Part Numbers |                            |                |                |
|------------------|-------------|--------------|----------------------------|----------------|----------------|
|                  |             | Housing      | Housing with Positive Lock | Standard Latch | Extended Latch |
| 4                | 15.9        | 794152-1*    | 794318-1                   |                |                |
| 6                | 20.1        | 794153-1     | 794319-1                   | 794150         | 794149         |
| 12               | 28.6        | 794156-1     | 794322-1                   |                |                |

\*Latch items ordered separately

Optional keying plug — Part No. 794144-1

**Note:** Position Lock Required — use one per housing — Part No. 794145-3

**Note:** All part numbers are RoHS compliant.

## AMP-DUAC PL-II Connectors

### Product Facts

- Wire-to-board connection system combining power and signal contacts
  - 10A power contacts
  - 4A signal contacts
- High conductivity copper alloy power contacts yield 30% gain in current carrying capacity compared to alternative designs
- Dual action contact design — reduces mating forces by up to 50% compared to alternative designs
- 9 power and 20 signal contacts
- Positive Lock (PL) feature on both power and signal contacts ensures contacts remain in position in cable receptacle
- Pin and receptacle contacts offered in three sizes:
  - 16 AWG
  - 18 AWG
  - 20-22 AWG
- Wide 5.2 X 5.5 mm contact spacing allows for 300V applications.

- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476



The AMP-DUAC PL-II Connectors bring both shielding and a power / signal mix to the popular AMP-DUAC product family. In addition, the wider contact spacing and the use of high conductivity materials results in a higher current carrying capacity than the original 4.2 mm pitch AMP-DUAC product.

The deep back shell allows for gathering the larger wire and insulation diameters involved with combination power / signal and shielding all in the same cable. Traditional signal connectors do not accept the range of wire sizes covered by the AMP-DUAC PL-II product.

For applications involving higher voltage cabled power distribution, this product is the ideal solution. The AMP-DUAC PL-II connector uses the original industry proven dual-action contact design which provides a lower mating force and less plating wear than alternate contact designs. The signal contacts also feature a twin-cantilever beam that mates on the milled contact surface to provide low plating wear and high long-term reliability.

The cable mounted receptacle uses the popular "Positive Lock" devices proven throughout the automotive industry to ensure all the contacts are fully seated. The "positive locks" are also referred to as "terminal position assurance". If any one of the contacts is not properly / completely installed into the housing, then the "Positive Lock" can not be installed. This feature reduces the common concern of operator fatigue and the resulting contact back-out which occurs when a contact is not properly seated.

The shielding system fully encapsulates the inner conductors and cable braids and provides a reliable conduction to the faceplate of the mating equipment.

Finally, the cable retention is accomplished through two rear-accessed over molded jackscrews for easy installation and removal.

### Technical Documents

**Product Specification**  
108-2218

**Application Specification**  
Contact Tyco Electronics

### Performance Data

**Voltage Rating** — 600 VAC

**Current Rating** —  
10 Amps max on a single contact  
6 Amps on each contact in 48 pos. connector

**Low Level Resistance** —  
10 milliohms max

**Insulation Resistance** —  
1000 Megohms minimum

**Operating Temperature** —  
-40°C to +105°C

### Materials

**Housing Material** — PBT, UL 94V-0

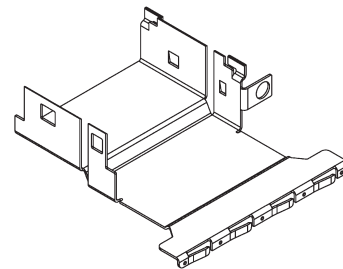
**Colors** —  
Plugs and Receptacles — Black  
Positive Locks — White

## AMP-DUAC PL-II Connectors (Continued)

### PCB Plug Part Number 6469602-3



**Free-Hanging Receptacle  
Shown with Positive Locks  
Part Number 1469606-1**



**Shield  
Part Number 1469609-2**



**Cable Clamp  
Part Number 1469610-1**

**Note:** Other cable components required. Cable receptacle components shown not sold separately. Receptacle only sold as part of a finished cable assembly.

**Note:** All part numbers are RoHS compliant.

## AMP-DUAC UPC Connectors

### Product Facts

- Wire-to-wire connection system
- High conductivity copper alloy contacts yield 30% gain in current carrying capacity compared to alternative designs
- Dual action contact design — reduces mating forces by up to 50% compared to alternative designs
- Sequenced contacts for make-first-break-last operation
- 48 and 66 position housings
- 4.4 mm X 5.3 mm contact grid
- Pin and Receptacle contacts offered in three sizes:
  - 16 AWG
  - 18 AWG
  - 20-22 AWG
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476



The latest addition to the AMP-DUAC product family is the AMP-DUAC UPC connector. The UPC connector offers much higher pin counts and a variety of product improvements to make the connector more reliable and easier to use. The UPC connector uses the original industry proven dual-action contact design along with very high conductivity copper alloys to improve the current carrying capacity.

The first noticeable difference of the UPC connector is the large pin count. With either 48 or 66 positions, the housing can serve as a common mating I/O point where multiple low current power connector cables are combined into one interface. Other connectors would yield an excessive mating force when mating this number of wires, however, the low mating force of the AMP-DUAC / UPC connector allows up to 66 wires to be mated with less than a 20 lb mating force.

The next key improvement is the use of molded-in guide pins. The guide pins make the mating process very easy and provide a visual polarization of the connector. The housings mate together easily.

The use of two locking latches provides a more secure connection and the screw-mounts for the panel mounted plug provide better retention than plastic latches.

Finally, the free-hanging receptacle uses the popular "Positive Lock" device to confirm all the contacts are fully seated. The "positive locks" are also referred to as "terminal position assurance". If any one of the contacts is not properly/ completely installed into the housing, then the "Positive Lock" can not be installed. This feature eliminates the common concern of operator fatigue and the resulting contact back-out which occurs when a contact is not properly seated.

### Technical Documents

#### Product Specification

108-2248

#### Application Specification

114-13195

### Performance Data

**Voltage Rating** — 600 VAC

**Current Rating** —

11 Amps max on a single contact  
4 Amps on each contact in 48 pos. connector

**Low Level Resistance** —  
10 milliohms max

**Insulation Resistance** —  
1.2 E16 ohms minimum

**Operating Temperature** —  
-40°C to +105°C

### Materials

**Housing Material** — PBT, UL 94V-0

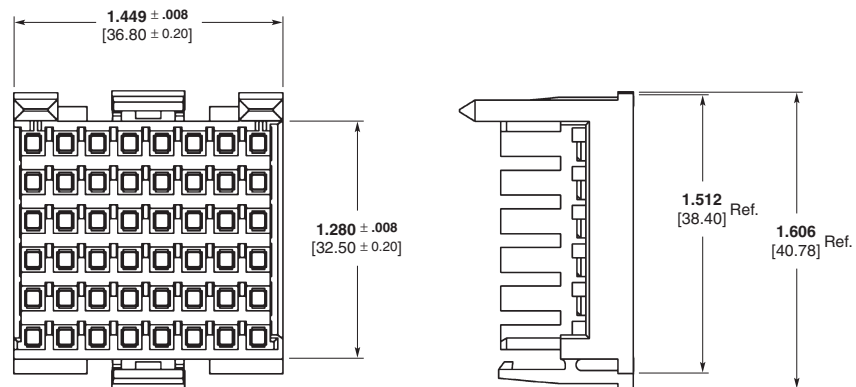
**Colors** —

Plugs and Receptacles — Black  
Positive Locks — White

## AMP-DUAC UPC Connectors (Continued)



**Panel-Mount Plug**  
(Accepts contacts on page 112)



**Free-Hanging Receptacle**  
(Accepts contacts on page 113)

| Size<br>(No. Circuits) | Panel-Mount<br>Plug | Dimensions   |              |              | Free-Hanging<br>Receptacle* | Positive<br>Lock* |
|------------------------|---------------------|--------------|--------------|--------------|-----------------------------|-------------------|
|                        |                     | A            | B            | C            |                             |                   |
| 48                     | 1934142-1           | 1.61<br>41.0 | 1.85<br>47.0 | 2.22<br>56.4 | 1934144-1                   | 1469910-1         |
| 66                     | 1934143-1           | 2.13<br>54.2 | 2.37<br>60.2 | 2.74<br>69.6 | 1934145-1                   | 1934017-1         |

\*Two (2) required for each receptacle housing. Not used in plug housings.  
Additional configurations possible. For information, please contact your Tyco Electronics sales engineer.

**Note:** All part numbers are RoHS compliant.

## Contacts for AMP-DUAC PL, PL-II and UPC Connectors

**Materials** — High Conductivity  
Copper Alloy  
**Finish** — Pre-Tin or Gold Plated



### Contacts, Male

#### Technical Documents

**Product Specification**  
108-2248 AMP-DUAC UPC

**Application Specification**  
114-6067 AMP-DUAC PL  
114-13195 AMP-DUAC UPC

### AMP-DUAC PL or UPC Contacts

| Wire Size<br>Range<br>AWG [mm <sup>2</sup> ] | Ins. Dia.<br>Range       | Plating | Part Number<br>(Continuous Strip) | Applicator |
|----------------------------------------------|--------------------------|---------|-----------------------------------|------------|
| 22-20<br>[0.3-0.5]                           | .590-.094<br>[1.50-2.40] | Gold    | 794576-4                          | 680308-3   |
| 18 or 18+22<br>[0.8-1.1]                     | .087-.154<br>[2.20-3.90] | Gold    | 1934185-4                         | 1852467-3  |
| 16 or 2 @ 18<br>[1.3-1.6]                    | .098-.173<br>[2.50-4.40] | Gold    | 1934184-4                         | 1852468-3  |

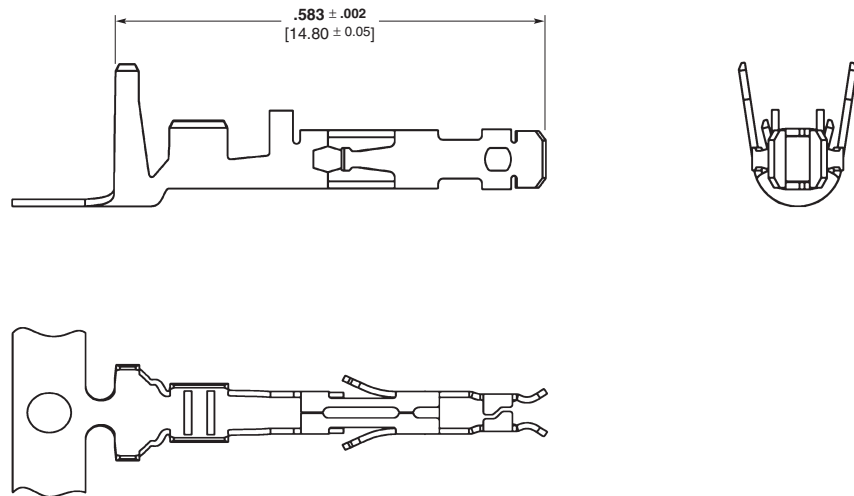
Application Equipment: Extraction Tool 1976132

\*Made from Phosphor-Bronze material (low conductivity)

**Note:** All part numbers are RoHS compliant.

## Contacts for AMP-DUAC PL, PL-II and UPC Connectors (Continued)

**Materials** — High Conductivity  
Copper Alloy  
**Finish** — Gold Plated



### Contacts, Female

#### Technical Documents

##### Product Specification

108-2248 AMP-DUAC UPC

##### Application Specification

114-6067 AMP-DUAC PL

114-13195 AMP-DUAC UPC

### AMP-DUAC PL or UPC Contacts

| Wire Size<br>Range<br>AWG [mm <sup>2</sup> ] | Ins. Dia.<br>Range       | Plating | Part Number<br>(Continuous Strip) | Applicator |
|----------------------------------------------|--------------------------|---------|-----------------------------------|------------|
| 22-20<br>[0.3-0.5]                           | .590-.094<br>[1.50-2.40] | Gold    | 1934193-4                         | 1852469-3  |
| 18 or 18+22<br>[0.8-1.1]                     | .087-.154<br>[2.20-3.90] | Gold    | 1934183-4                         | 1852467-3  |
| 16 or 2 @ 18<br>[1.3-1.6]                    | .098-.173<br>[2.50-4.40] | Gold    | 1934182-4                         | 1852468-3  |

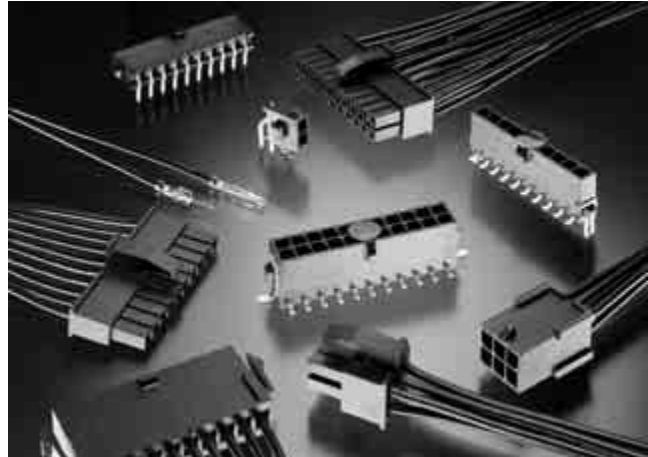
Application Equipment: Extraction Tool 1976382

**Note:** All part numbers are RoHS compliant.

## Other Soft Shell Pin & Socket Connectors

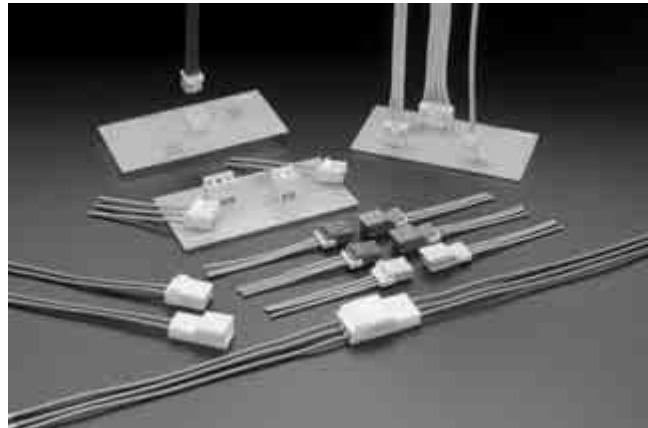
### Micro MATE-N-LOK 3 mm Connector System

- Wire-to-wire and wire-to-board, pin and receptacle connectors
- 3.0 mm [.118] centerline spacing
- 2-12 positions – single row
- 2-24 positions – dual row
- Ratings: 5A, 250 VAC
- Accommodates 30-20 AWG wire
- Panel-mount or free-hanging versions
- Dual beam receptacle contact design for improved reliability
- PCB-mount pin header assemblies available in both vertical and right-angle styles; surface-mount or through hole versions
- Available in a low profile design (<4.7 mm)



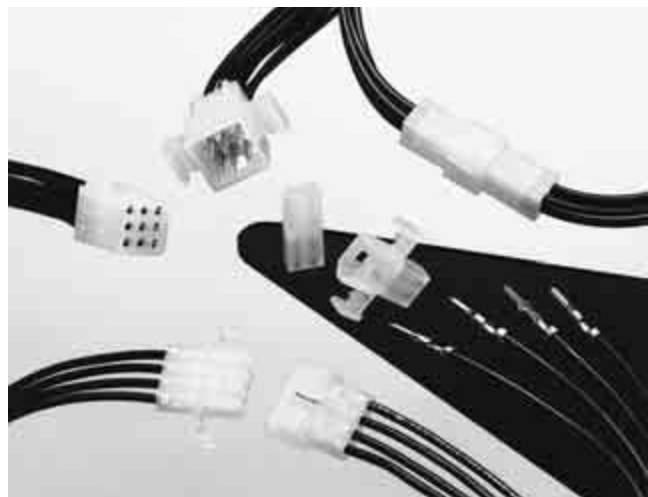
### Grace Inertia Connector System

- Wire-to-wire and wire-to-board, blade and receptacle connectors
- Wire-to-wire
  - 2.5 mm, 3.5 mm and 6.2 mm centerline spacing
  - Select 2-12 position depending on centerline spacing
- Wire-to board
  - 2.0 mm, 3.3 mm, 6.5 mm, 7.92 mm, 9.0 mm and 12.4 mm centerline spacing
  - Select 2-20 position depending on centerline spacing
- Four kinds of keying per color-coded housings
- Inertia locking mechanism on the housing which simultaneously locks when mated to prevent mismatching
- Robust connections for use in high vibration or transportation applications



### Commercial Pin and Socket Connector System

- Panel-mount or free-hanging, wire-to-wire, pin and socket connectors
- 3.68 mm [.145"] and 5.03 mm [.198"] centerline spacing
- High density, 1-9 positions – 2, 3 & 4 in-line and 4, 6 & 9 matrix
- Standard density, 1-15 positions – 2-6 in-line and 4, 6, 9, 12 & 15 matrix
- Ratings: 7A (high density) or 13A, 250 VAC
- High density system accommodates 30-18 AWG wire
- Standard density system accommodates 24-14 AWG wire
- Dual contact locking lances provide optimum contact stability
- Low contact-mating force



For more Information Order Catalog 82181, "Soft Shell Pin and Socket Connectors"

## Other Soft Shell Pin & Socket Connectors (Continued)

### Power Double Lock Connector System

- Wire-to-wire and wire-to-board, blade and receptacle connectors
- 3.96 mm [.156] and 6.5 mm [.256] centerline spacing
- High density, 1-12 positions – 2, 3 & 4 in-line and 4, 6, 8, 9, 10 & 12 matrix
- Standard density, 2-12 positions – 2, 3 & 4 in-line and 4, 6, & 12 matrix
- Ratings: 14A, 300 VAC
- Accommodates 26-16 AWG wire
- Panel-mount or free-hanging versions
- Optional double lock plate on the wire side that confirms contact seating
- Lanceless contacts prevent entanglement of contacts with each other
- Housings are polarized with four types of special keying to prevent mismatching



### Mini-Universal MATE-N-LOK and Mini-Universal MATE-N-LOK II Connector System

- Wire-to-wire and wire-to-board, pin and socket connectors
- 4.14 mm [.163"] centerline
- 1-24 and 2-24 positions, respectively
- Ratings: 9.5A and 10.5A respectively  
600 VAC or VDC
- Accommodates 30-16 AWG wire
- Compact, durable housings
- Contacts protected in the housings
- Fully polarized to provide proper mating
- Seals available for splash protection  
(Mini-Universal MATE-N-LOK system only)



### VAL-U-LOK Connector System

- Wire-to-wire and wire-to-board, pin and receptacle connectors
- 4.2 mm [.165] centerline
- 2-24 position dual row and 3-5 single row configurations
- Ratings: 9A, 600 VAC
- Accommodates 26-18 AWG wire
- Easy-to-mate, positive locking housings
- Fully isolated terminals
- Panel-mount or free-hanging versions
- Black, red and blue in addition to the standard white
- PCB headers are available in vertical, right-angle, screw-mount, and blind-mate configurations
- Intermateable with similar connectors from other manufacturers



For more Information Order Catalog 82181, "Soft Shell Pin and Socket Connectors"

## Other Soft Shell Pin & Socket Connectors (Continued)

### Commercial MATE-N-LOK Connector System

- Wire-to-wire and wire-to-board, pin and socket connectors
- 5.08 mm [.200"] centerline
- Panel-mount or free-hanging versions
- 1-16 positions
- Ratings: 19A, 250 VAC
- Accommodates 30-14 AWG wire
- Fully polarized housings
- Contact stabilization and self-aligning features
- Hot side is egg-crated for safety
- Locking devices are integral part of design



### Universal MATE-N-LOK and Universal MATE-N-LOK II Connector System

- Wire-to-wire and wire-to-board, pin and socket connectors
- 6.35 mm [.250"] centerline
- 1-15 and 2-15 positions, respectively
- Panel-mount or free-hanging versions
- Ratings: 19A, 600 VAC or VDC
- Accommodates 30-10 AWG wire
- Contacts protected in the housings
- Special keying to prevent incorrect mating
- Additional offerings include:
  - UV resistant materials
  - High temperature materials
  - Glow wire approved products
  - Special high retention contacts
  - Seals available for splash protection (UMNL only)
  - Color housings available (UMNL only)



For more Information Order Catalog 82181, "Soft Shell Pin and Socket Connectors"

## AMPINNERGY Wire-To-Wire Connectors

### Product Facts

- Rated to 600 VAC (RMS)
- Flame retardant housings 94V-0
- Housings, adapters, and power terminals keyed for proper assembly
- Stackable housings provide easy wire routing and neat wire dressing
- Built-in interlocking features better resist shock and vibration
- Usable as in-line connector, or as panel and surface-mount connector
- Available in six different colors for circuit coding and identification
- Choice of two power terminals accommodates 10-12 AWG and 14-16-18 AWG conductors
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR7189
- VDE Registered #5133



AMPINNERGY wire-to-wire (WTW) Connectors provide a reliable and efficient means of interconnecting conductors employed to carry up to 600 VAC in power circuits or networks.

The WTW connectors consist of mating hermaphroditic, flame retardant polycarbonate housings into which customer terminated power contacts are inserted. Stackable in four directions through the use of molded interlocking keyways, the connectors make wire routing and dressing orderly and easy to accomplish. More importantly, the built-in interlocking features on the connectors and the accessory mounting adapters provide better resistance to the effects of shock and vibration, keeping the interconnect more stable and secure.

The design features of the WTW connector make it easily applicable to free-hanging, surface mounted or panel mounted applications. By simply sliding the accessory mounting adapters into the molded keyways of the connector housing, a free-hanging connector can be trans-

formed into a surface-mount connector or a panel-mount connector. Customer supplied 8-32 screws and nuts may be used to secure the connectors configured with the mounting adapters to printed circuit boards or distribution panels. The same hardware may be used to secure the connectors to pre-cut openings in the panels.

Furthermore, WTW connector housings, mounting adapters and power terminals are all provided with alignment or keying features that make it difficult to improperly assemble and apply the connector. Alignment slots and tabs on the plastic connector housings provide for easy mating of the housings, even in the dark! Mounting adapters have a keyway on one side and a key on the other side providing for easy assembly to the connector by touch alone if necessary. And the power terminals have a side tab that helps prevent the incorrect insertion of the terminated conductor into the housing. Once inserted, the contacts

firmly latch within the connector housing.

The WTW connector system is available in six different and distinctive colors which makes circuit differentiation and identification possible. The crimped power terminals will accommodate either 10-12 AWG or 14-16-18 AWG stranded conductors. Depending upon the conductor size and the number of conductors in the connector configuration, the current rating ranges from 10 Amps to 55 Amps.

### Technical Documents

#### Product Specification

108-1373 AMPINNERGY WTW Connectors

#### Application Specification

114-6051

#### Instruction Sheets

408-3277 AMPINNERGY Wire-To-Wire Stackable Connectors

408-3198 Inspection of AMPINNERGY System Power Contacts

For more information,  
request Catalog 1308885.

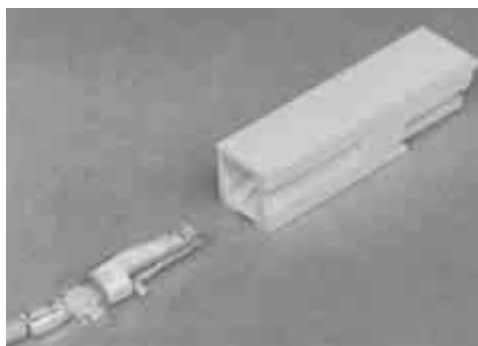
## AMPINNERGY Wire-To-Wire Connectors (Continued)

### Housings

#### Material and Finish

**Housing** — Polycarbonate, 94V-0

For surface mounting and panel mounting information, see Instruction Sheet 408-3277, AMPINNERGY Wire-To-Wire Stackable Connectors.

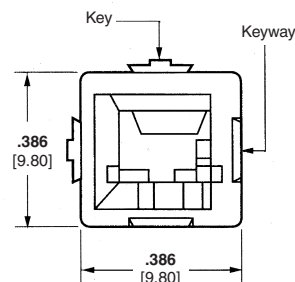
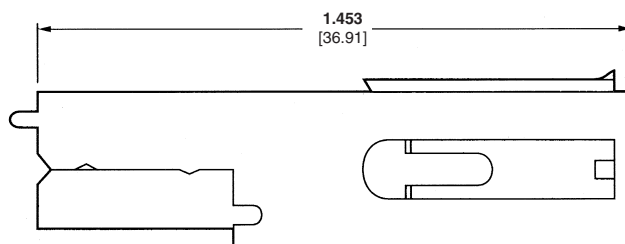


Customer terminated power contacts are inserted into housings



Free-Hanging Interconnections

| Color | Housing Part Numbers |
|-------|----------------------|
| White | 556137-1             |
| Black | 556137-2             |
| Green | 556137-3             |
| Red   | 556137-4             |
| Blue  | 556137-6             |
| Gray  | 556137-8             |



Wire-To-Wire Connector Housing

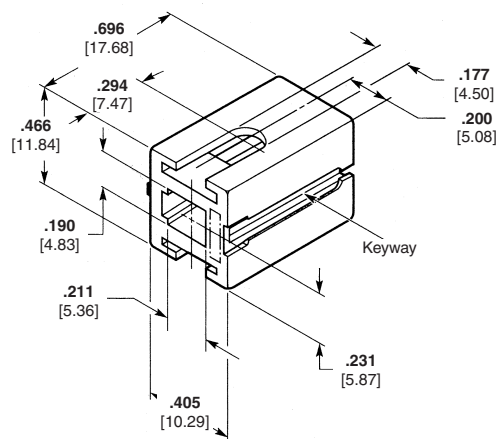
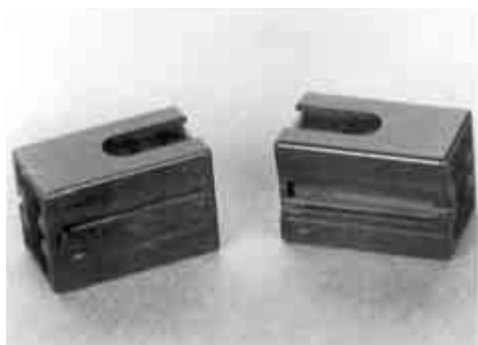
### Mounting Adapters

**Part Number** 557313-1

#### Material and Finish

**Housing** — Polycarbonate, Black

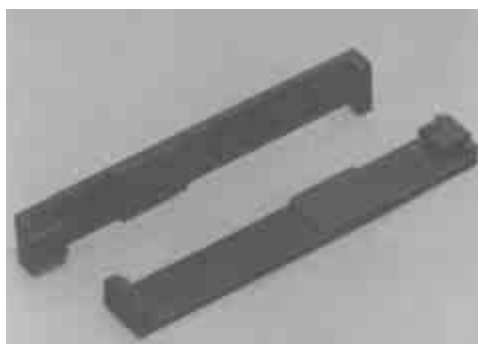
Two mounting adapters can be used with one or more connector housings to provide thru-panel or horizontal surface mounting capability of the completed assembly.



### External Locking Latch Clip

**Part Number** 557640-1

AMPINNERGY wire-to-wire connector housings have an integral locking feature designed to keep housings mated in most applications. However, the external locking latch clip may be used as needed in applications where severe vibration or tension may pull mated housings apart.



AMPINNERGY Wire-To-Wire Clips  
Part Number 557640-1



AMPINNERGY Wire-To-Wire Clips (Installed)  
Part Number 557640-1

**Note:** All part numbers are RoHS compliant.

## AMPINNERGY Wire-To-Wire Connectors (Continued)

### Power Terminals

#### Material and Finish

**Contacts** — Copper alloy plated with .000100 [0.00254] minimum tin

The wire-to-wire connector power contacts are available in either strip form or in loose piece form.

Contacts in strip form are terminated on continuous feed type terminators and the loose piece contacts are terminated with the hand tool or pneumatic tool.

For wire preparation and crimped contact inspection information, refer to Instruction Sheet 408-3198, Inspection of AMPINNERGY System Power Contacts.

#### Loose Piece

**Part Number** 556136-2

**Part Number** 556135-2



| Contact Part Numbers   | Wire Size (AWG) | Hand Tool Part Number | Pneumatic Tool Part Numbers | Die Set Part Numbers |
|------------------------|-----------------|-----------------------|-----------------------------|----------------------|
| 556135-2 (loose piece) | 18-16           | 69710-1               | 189721-2*                   | 58493-1              |
|                        | 14              |                       |                             | 58492-1              |
| 556136-2 (loose piece) | 12              |                       |                             | 58490-1              |
|                        | 10              |                       |                             | 58491-1              |

\*Requires "C" head adapter part number 318161-1 and adapter holder part number 189928-1. See Catalog 124208 for more information.

**Note:** The same hand tool or pneumatic tool and die sets may be used to apply the wire-to-board connector terminals.

#### Strip Form



**Part Number** 556135-1



**Part Number** 556136-1



**Part Number** 788109-1



**Part Number** 788110-1



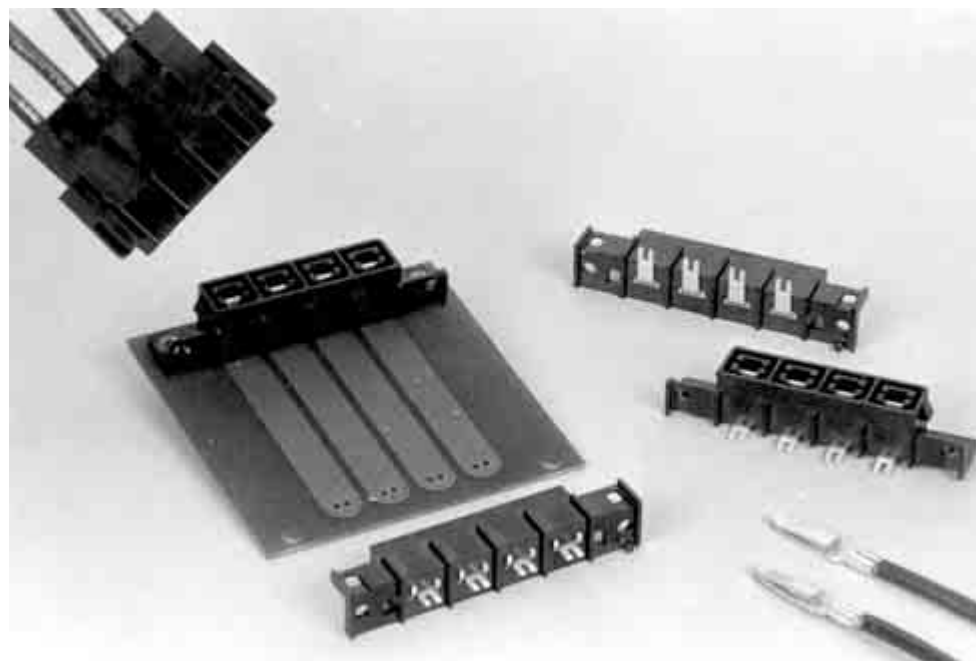
| Contact Part Numbers | Wire Size (AWG) | AMP-O-ELECTRIC Model G Terminating Machine | Applicator Part Numbers |
|----------------------|-----------------|--------------------------------------------|-------------------------|
| 556135-1 (strip)     | 18-16-14        | 354500-1                                   | 567403-3                |
| 556136-1 (strip)     | 10-12           | 354500-1                                   | 567256-6                |
| 788109-1 (strip)     | 18-14           | 354500-1                                   | 680447-3                |
| 788110-1 (strip)     | 10-12           | 354500-1                                   | 680449-3                |

**Note:** All part numbers are RoHS compliant.

## AMPINNERGY Wire-To-Board Connectors

### Product Facts

- **Ratings: 600 VAC (RMS), current ratings range from 12-35 Amps**
- **Receptacles polarized to plug**
- **Receptacles and plugs available in contact configurations of 2 through 8 positions**
- **Vertical receptacle polarized to PCB**
- **Receptacle contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength**
- **Receptacles may be mounted on PCBs .062 to .125 inch thick**
- **Plugs have positive latching to receptacles**
- **Removable crimp contacts latch firmly in plug**
- **Plugs are one-piece design**
- **Two ranges of crimped contacts accommodate either 10-12 AWG or 14-16-18 AWG conductors**
- **Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476** 
- **Certified by Canadian Standards Association, File No. LR7189-239** 



### AMPINNERGY Wire-To-Board (WTB) Connectors

Connectors provide a convenient and efficient means of delivering up to 600 VAC to component printed circuit boards and other power distribution devices in computers and peripherals, telephone systems and appliances. The WTB connectors also have automotive and industrial applications.

#### Receptacles

The AMPINNERGY WTB connector receptacles can be installed on pc boards varying in thickness from .062 inch to .125 inch. A polarizing pin is provided on the vertical receptacle assembly to aid in proper positioning on the pc board. Both the vertical and right-angle assemblies are polarized for accurate mating to the plug assemblies. The receptacle

assemblies are available in contact configurations ranging from two to eight positions.

#### Plugs

The single piece plug housings are available in contact configurations to mate with the receptacles. The plug is equipped with positive latches to allow full and more secure mating to the respective receptacle.

A make-first/break-last feature is designed into position 1 of the plug assemblies to provide grounding protection.

#### Contacts

The crimp contacts will accommodate either 10-12 AWG or 14-16-18 AWG conductors. The contacts latch firmly within the plug housing.

### Technical Documents

#### Product Specification

108-1349 AMPINNERGY WTB Connectors

#### Application Specification

114-6044 AMPINNERGY WTB Connectors

#### Instruction Sheets

408-3236 Installation of AMPINNERGY WTB Connectors  
408-3198 Inspection of AMPINNERGY Contacts

## AMPINNERGY Wire-To-Board Connectors (Continued)

### Vertical PCB Receptacles

#### Product Facts

- Withstands vapor phase, infrared and wave soldering processes
- .040 inch minimum standoff to PCB
- Polarized to PCB; to plug
- Contact centerline spacing: .440 inch
- Overall height on PCB: .600 inch
- Fits PCB thickness .062 through .125 inch
- Contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength
- Positive latching to mating plug

#### Material and Finish

**Housing** — Polyphenylene Sulfide, Black, 94V-0

**Contacts** — Tin Plated Copper Alloy



#### PCB Thickness — .062-.125 inch

| No. of Positions | Dimensions    |                |                | Receptacle Part Numbers |
|------------------|---------------|----------------|----------------|-------------------------|
|                  | A             | B              | C              |                         |
| 2                | .93<br>23.50  | 1.56<br>39.62  | 1.84<br>46.61  | 556881-2                |
| 3                | 1.37<br>34.68 | 2.00<br>50.80  | 2.28<br>57.79  | 556881-3                |
| 4                | 1.81<br>45.85 | 2.44<br>61.98  | 2.72<br>68.97  | 556881-4                |
| 5                | 2.25<br>57.03 | 2.88<br>73.15  | 3.16<br>80.14  | 556881-5                |
| 6                | 2.69<br>68.20 | 3.32<br>84.33  | 3.60<br>91.32  | 556881-6                |
| 7                | 3.13<br>79.38 | 3.76<br>95.50  | 4.04<br>102.49 | 556881-7                |
| 8                | 3.57<br>90.56 | 4.20<br>106.68 | 4.48<br>113.67 | 556881-8                |

#### PCB Thickness — .250 inch

| No. of Positions | Receptacle Part Numbers |
|------------------|-------------------------|
| 4                | 558574-1                |
| 6                | 558084-1                |

**Note:** All part numbers are RoHS compliant.

## AMPINNERGY Wire-To-Board Connectors (Continued)

### Right-Angle PCB Receptacles

#### Product Facts

- Withstands vapor phase, infrared and wave soldering processes
- .040 inch minimum standoff to PCB
- Receptacles polarized to plug
- Contact centerline spacing: .440 inch
- Overall height on PCB: .600 inch
- Fits PCB thickness .062 through .125 inch
- Contacts have dual solder posts for efficient heat dissipation, low millivolt drop and mechanical strength
- Positive latching to mating plug

#### Material and Finish

**Housing** — Polyphenylene Sulfide, Black, 94V-0

**Contacts** — Tin Plated Copper Alloy



#### PCB Thickness — .062-.125 inch

| No. of Positions | Dimensions    |                |                | Receptacle Part Numbers |
|------------------|---------------|----------------|----------------|-------------------------|
|                  | A             | B              | C              |                         |
| 2                | .93<br>23.50  | 1.56<br>39.62  | 1.84<br>46.61  | 556882-2                |
| 3                | 1.37<br>34.68 | 2.00<br>50.80  | 2.28<br>57.79  | 556882-3                |
| 4                | 1.81<br>45.85 | 2.44<br>61.98  | 2.72<br>68.97  | 556882-4                |
| 5                | 2.25<br>57.03 | 2.88<br>73.15  | 3.16<br>80.14  | 556882-5                |
| 6                | 2.69<br>68.20 | 3.32<br>84.33  | 3.60<br>91.32  | 556882-6                |
| 7                | 3.13<br>79.38 | 3.76<br>95.50  | 4.04<br>102.49 | 556882-7                |
| 8                | 3.57<br>90.56 | 4.20<br>106.68 | 4.48<br>113.67 | 556882-8                |

**Note:** All part numbers are RoHS compliant.

## AMPINNERGY Wire-To-Board Connectors (Continued)

### Plug Housings

#### Product Facts

- One-piece housing
- Polarized to mating receptacles
- Positive latching to mating receptacles
- Accepts crimp contacts  
Part Numbers 556880-2 and 556883-1
- Internal latching of crimp contact

#### Material

**Housing** — Polycarbonate,  
Black, 94V-0



| No. of Positions | Dimensions    |               | Plug Part Numbers |
|------------------|---------------|---------------|-------------------|
|                  | A             | B             |                   |
| 2                | .85<br>21.42  | 1.20<br>30.31 | 556879-2          |
| 3                | 1.29<br>32.59 | 1.64<br>41.48 | 556879-3          |
| 4                | 1.73<br>43.77 | 2.08<br>52.66 | 556879-4          |
| 5                | 2.17<br>54.94 | 2.52<br>63.83 | 556879-5          |
| 6                | 2.61<br>77.30 | 2.96<br>75.01 | 556879-6          |
| 7                | 3.05<br>77.30 | 3.40<br>86.19 | 556879-7          |
| 8                | 3.49<br>88.47 | 3.84<br>97.36 | 556879-8          |

**Note:** All part numbers are RoHS compliant.

## AMPINNERGY Wire-To-Board Connectors (Continued)

### Crimp Contacts

#### Product Facts

- Contacts are dual beam design

#### Material and Finish

**Contacts**—Tin Plated Copper Alloy



### Wire barrel accepts one 10 or 12 AWG stranded copper conductor

**Part Number** 556880-2 Strip

**Part Number** 556880-1 Loose Piece

#### Application Tooling

##### Applicator Part Number

567256-3 (for Lead Makers)

567256-4 (for AMP-O-ELECTRIC Model K Machine)

567256-6 (for AMP-O-ELECTRIC Model G Machine)



### Wire barrel accepts one 14, 16 or 18 AWG stranded copper conductor

**Part Number** 556883-1 Loose Piece

**Part Number** 556883-2 Strip

#### Application Tooling Part Number

69710-1 Hand Tool

58492-1 Die Set (14 AWG)

58493-1 Die Set (18-16 AWG)

91308-1 Extraction Tool



**Note:** All part numbers are RoHS compliant.

## Circular (CPC) Connectors for Commercial Signal and Power Applications

### Product Facts

- Lightweight, all-plastic and metal-shell connectors
- CPC connectors are UL 94V-0 rated and made of stabilized, heat resistant, self-extinguishing thermo-plastic material
- Metal-shell CPC connector housings made of UL 94V-0 rated thermoplastic
- Operating temperature range: -55°C to +125°C
- Available in panel- or chassis-mount and free-hanging configurations
- Quick connect/disconnect capability with thread assist, positive detent coupling
- Built-in pin and socket protection
- Polarized for proper mating of connector halves
- Special connector configurations offer special solder and posted contacts, special receptacles with or without threaded inserts
- Full complement of optional accessories
- Recognized under the Component Program of Underwriters Laboratories Inc.  for 250 VAC, rms or 250 VDC, Service†; Series 1 and Series 3 (600 V); Series 2, Series 4, Series 5 and Series 6 (250 V) File No. E28476

†Select connectors are recognized for 600 volts service.

- Certified by Canadian Standards Association,  File No. LR 7189
- Certain products meet VDE Standard 0627 



- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request.

### Connector series for different interconnection requirements:

- Series 3 — Low density, power applications with Type XII contacts capable of carrying up to 35 Amps of current

- Series 4 — Combination of standard and power density application with Type III+ and Type XII contacts
- Series 5 — Power density application with Size 8 screw machined and precision formed contacts
- Series 6 — Combination of standard and power density application with Type III+ and Size 8 contacts

### Type XII, Precision Formed, Crimp Contacts



Male

Female

### High Current Type XII Crimp Contacts



High Current Type XII Socket

High Current Type XII Pin

For more information, request Catalog 82021.

## Circular (CPC) Connectors for Commercial Signal and Power Applications (Continued)

### Connector Series and Types



#### Series 3 — Power Contacts

Series 3 connectors accept Type XII power contacts which can carry up to 25 Amps per contact. These contacts will accommodate a wire size range of 16 to

10 AWG [1.4 to 5 mm<sup>2</sup>]. Two connector sizes are available in both standard and reverse sex connector arrangements **3 and 7 positions**.



#### Series 4 — Combination Size 16 and Power Contacts

Series 4 connectors accept Size 16 Multimate and Type XII power contacts, combining the signal and coaxial circuit capabilities of Series 1 connectors with the

power circuit capabilities of Series 3 connectors. Available in two connector sizes offering power mixing combinations totaling **16 and 22 positions**.



#### Series 5 — Power Contacts .125 POWERBAND

Series 5 connectors combine the revolutionary performance of the new POWERBAND Contact, high current contact in configurations similar to the Series 3 connectors. POWERBAND contacts offer the electrical perform-

ance of the best Mil Spec Size 8 screw-machined contacts with the economy and productivity of strip-fed, precision formed contacts.

Series 5 connectors are environmentally sealable to meet IEC IP 65 and IP 67 specifications.

Rated at 600 VAC or VDC, 45 Amps maximum in a single contact, the connectors are available in free-hanging and panel-mount applications — **one connector configuration containing three .125 POWERBAND contacts**.



#### Series 6 — Combination, Size 16 and .125 POWERBAND Contacts

Series 6 combines the high current and environmental sealing capability of Series 5, POWERBAND contacts, and the reliability of signal carrying, low current Type III+ contacts. This

combination of power and signal contacts is offered in **one connector configuration containing two .125 POWERBAND contacts and eight Type III+ signal pin and socket contacts**.

For more information, request Catalog 82021.

## Circular (CPC) Connectors for Commercial Signal and Power Applications (Continued)

### Connector Series and Types (Continued)



#### Metal-Shell, Circular Plastic Connectors (Series 3 and 4)

Metal-Shell CPC connectors consist of a black thermoplastic insert in a nickel-plated, zinc alloy shell. These connectors

are currently available in **shell sizes 14, 22 and 28, and in two basic configurations consisting of plugs and square flange receptacles.**



#### Miniature CPC Connectors

These compact connectors accept existing Mini-Universal MATE-N-LOK pin and socket contacts, 30-18 AWG [.05-.8 mm<sup>2</sup>].

Two shell sizes (8 or 11) are available, accommodating **from 1 to 4 and 5 to 9 positions.**

Featuring high contact density and IP67 sealing, these durable connectors are well suited for many wire-to-wire, wire-to-board, and wire-to-panel applications.

For more information,  
request Catalog 82021.

## High Current Products (LOUVERTAC Contacts)

### Product Facts

- Pins and sockets have low insertion force
- High current ratings with very low resistance
- All plated products are gold or silver plated
- LOUVERTAC bands have a temperature range from  $-196^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$  available
- Formed bands are available for up to 1.250 [31.75] pin diameter

The transfer of high current with manageable insertion and withdrawal forces has always presented a challenge to the connector industry.

LOUVERTAC bands provide a unique means of transferring high amperage with a resultant space and weight savings. Tyco Electronics

offers a wide range of pin and socket sizes for your applications. Strip and formed LOUVERTAC bands are also offered for customer use in their own contact design. The wide variety of flat and formed male and female bands provide the ability to design electrical connections more

inexpensively and quickly. LOUVERTAC products are your high current applications solution.

The variety of pins and sockets available from Tyco Electronics provide a quick and simple solution to most high current applications.



## High Current Products (LOUVERTAC Contacts) (Continued)

### Thread-Mount Sockets

These sockets are designed for easy installation and removal. The large variety of sizes have ratings from 30 continuous Amps and can be mated with Thread-Mount Pins and Crimp Pins.

#### Material

**Body** — Brass

**LOUVERTAC Band** — Beryllium  
Copper

#### Finish

**Body** — Silver

**LOUVERTAC Band** —  
See Table



| Mating<br>Pin Dia. | Part<br>Number | Thread  | Contin.<br>Current<br>(Amp) | Voltage<br>Drop<br>(mV) | Dimensions  |              |              |              |              |              | LOUVERTAC<br>Band<br>Plating |
|--------------------|----------------|---------|-----------------------------|-------------------------|-------------|--------------|--------------|--------------|--------------|--------------|------------------------------|
|                    |                |         |                             |                         | A<br>Dia.   | B<br>Dia.    | C            | D            | E<br>Ref.    | F            |                              |
| 2 mm               | 192059-1       | M3x0.5  | 30                          | 12                      | .080<br>2.0 | .220<br>5.6  | .670<br>17.0 | 1.42<br>36.1 | .630<br>16   | .790<br>20.1 | Silver                       |
| 4 mm               | 192129-1       | 10-32   | 60                          | 10                      | .160<br>4.1 | .280<br>7.1  | .790<br>20.1 | 2.00<br>50.8 | 1.00<br>25.4 | 1.00<br>25.4 | Gold                         |
| 6 mm               | 192211-1       | 1/4-28  | 100                         | 11                      | .240<br>6.1 | .410<br>10.4 | .800<br>20.3 | 2.09<br>53.1 | 1.00<br>25.4 | 1.09<br>27.7 | Gold                         |
| 8 mm               | 192271-1       | 5/16-24 | 185                         | 12                      | .320<br>8.1 | .560<br>14.2 | 1.40<br>35.6 | 3.07<br>78   | 1.42<br>36.0 | 1.65<br>41.9 | Silver                       |

### Thread-Mount Pins

These pins are designed for thread-mount. The large variety of sizes have ratings from 30 continuous Amps and are designed to be mated with Thread-Mount Sockets, Threaded Sleeve Sockets and Crimp Sockets.



**Material** — Brass

**Finish** — Silver

| Pin<br>Dia. | Part<br>Number | Thread  | Contin.<br>Current<br>(Amp) | Dimensions  |             |              |              |              |
|-------------|----------------|---------|-----------------------------|-------------|-------------|--------------|--------------|--------------|
|             |                |         |                             | A<br>Dia.   | B           | C            | D            | E<br>Ref.    |
| 2 mm        | 192085-1       | M3x0.5  | 30                          | .080<br>2.0 | .16<br>4.1  | .65<br>16.5  | 1.40<br>35.6 | .63<br>15.0  |
| 4 mm        | 192161-1       | 10-32   | 60                          | .160<br>4.1 | .25<br>6.4  | .77<br>19.6  | 1.91<br>48.5 | .99<br>25.1  |
| 6 mm        | 192244-1       | 1/4-28  | 100                         | .240<br>6.1 | .31<br>7.9  | .77<br>19.6  | 2.03<br>51.6 | 1.11<br>25.2 |
| 8 mm        | 192293-1       | 5/16-24 | 185                         | .320<br>8.1 | .44<br>11.2 | 1.30<br>33.0 | 2.95<br>74.9 | 1.47<br>37.3 |

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Threaded Sleeve Sockets

The Threaded Sleeve Socket Assembly is designed for High Current in a restricted space. The Sleeve can be screwed directly into a threaded bus bar or it may be inserted into a drilled hole in the bus bar with tightened nuts on each side of the bus bar. A Crimp Pin or Thread-Mount Pin can be attached to a cable for the completed connector.



#### Material

**Body** — Brass

**LOUVERTAC Band** —  
Beryllium Copper

#### Finish

**Body** — Silver

**LOUVERTAC Band** —  
See Table

| Mating<br>Pin Dia. | Part<br>Number | Thread            | Contin.<br>Current<br>(Amp) | Voltage<br>Drop<br>(mV) | Dimensions   |              |             |             | LOUVERTAC<br>Band<br>Plating |
|--------------------|----------------|-------------------|-----------------------------|-------------------------|--------------|--------------|-------------|-------------|------------------------------|
|                    |                |                   |                             |                         | A<br>Dia.    | B            | C           | D           |                              |
| 2 mm               | 1-192447-0     | 5/16-32           | 30                          | 12                      | .090<br>2.3  | .650<br>16.5 | .060<br>1.5 | .060<br>1.5 | Silver                       |
| 4 mm               | 192447-8       | 5/16-32           | 60                          | 10                      | .160<br>4.1  | .770<br>19.6 | .060<br>1.5 | .060<br>1.5 | Gold                         |
| 6 mm               | 192447-2       | 1/2-20            | 100                         | 11                      | .240<br>6.1  | .770<br>19.6 | .078<br>2.0 | .078<br>2.0 | Gold                         |
| 8 mm               | 1-192447-8     | 9/16-18           | 185                         | 12                      | .320<br>8.1  | 1.35<br>34.3 | .100<br>2.5 | .100<br>2.5 | Silver                       |
| 12 mm              | 1-192447-2     | 3/4-16 UNF<br>-2A | 290                         | 13                      | .479<br>12.2 | 1.34<br>34.0 | .130<br>3.3 | .130<br>3.3 | Silver                       |



**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Crimp Pins

Crimp Pins feature a mechanism for locking the pin into a housing designed by the customer. The 2 mm and 4 mm pins are crimped with a Daniels Hand Crimp Tool. Pin sizes from 6 mm to 8 mm may be crimped with the indicated tooling and a DYNA-CRIMP 69120-1 electric-hydraulic power unit. The large variety of sizes have ratings from 24 continuous Amps and can be mated with Thread-Mount Socket Assemblies, Threaded Sleeve Socket Assemblies or Crimp Sockets.



### Material

**Body** — Copper Alloy

**Retention Spring** — Stainless Steel  
or Beryllium Copper

### Finish

**Body** — Silver

| Pin Dia. | Part Number | Contin. Current (Amp) | Voltage Drop (mV) | Dimensions   |              |               |              |              |              |             | Use with AWG | Tooling Part Numbers |            |                 |
|----------|-------------|-----------------------|-------------------|--------------|--------------|---------------|--------------|--------------|--------------|-------------|--------------|----------------------|------------|-----------------|
|          |             |                       |                   | A            | B Dia.       | C Dia.        | D            | E            | F            | G Dia.      |              | Crimp Die            | Crimp Head | Extraction Tool |
| 2 mm     | 193837-1    | 30                    | 12                | 1.40<br>35.6 | .225<br>5.72 | .100<br>2.54  | .640<br>16.3 | .211<br>5.36 | .050<br>1.27 | .080<br>2.0 | 12-14        | M310                 | TP1019     | 318813-1        |
| 4 mm     | 193837-2    | 44                    | 8                 | 1.53<br>38.9 | .300<br>7.6  | .145<br>3.7   | .750<br>19.1 | .211<br>5.36 | .050<br>1.27 | .160<br>4.0 | 10           | M310                 | TP1020     | 679916-1        |
|          | 193837-3    | 60                    | 8                 | 1.53<br>38.9 | .300<br>7.6  | .181<br>4.60  | .750<br>19.1 | .211<br>5.36 | .050<br>1.27 | .160<br>4.0 | 8            | M310                 | TP1020     | 679916-1        |
| 6 mm     | 193837-4    | 76                    | 9                 | 1.64<br>41.7 | .410<br>10.4 | .235<br>5.97  | .760<br>19.3 | .211<br>5.36 | .050<br>1.27 | .240<br>6.0 | 6            | 69133-1              | 69099      | 679917-1        |
|          | 193837-5    | 100                   | 9                 | 1.73<br>43.9 | .410<br>10.4 | .290<br>7.37  | .760<br>19.3 | .211<br>5.36 | .050<br>1.27 | .240<br>6.0 | 4            | 69134-2              | 69099      | 679917-1        |
| 8 mm     | 193837-6    | 135                   | 10                | 2.50<br>63.5 | .570<br>14.5 | .390<br>9.91  | 1.30<br>33.0 | .211<br>5.36 | .050<br>1.27 | .320<br>8.0 | 2            | 46765-3              | 69099      | 679918-1        |
|          | 193837-7    | 185                   | 12                | 2.63<br>66.8 | .570<br>14.5 | .487<br>12.37 | 1.30<br>33.0 | .211<br>5.36 | .050<br>1.27 | .320<br>8.0 | 1/0          | 46766-2              | 69099      | 679918-1        |

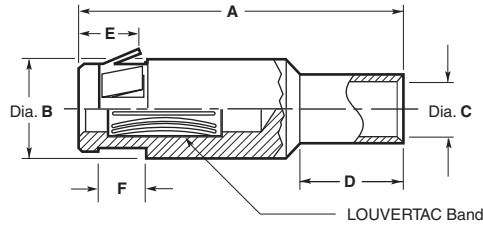
**Notes:** 1. Additional information on AMPPOWER terminal hydraulic crimping is available in Catalog 82025.  
2. Application Specification — 114-16022

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Crimp Sockets

Crimp Sockets feature a mechanism for locking the socket into a housing designed by the customer. A Tyco Electronics extraction tool is offered to remove the contact. The 2 mm and 4 mm sockets are crimped with a Daniels Hand Crimp Tool. Socket sizes from 6 mm to 8 mm may be crimped with the indicated tooling and a DYNA-CRIMP 69120-1 electric-hydraulic power unit. The large variety of sizes have ratings from 24 continuous Amps and can be mated with Thread-Mount Pins or Crimp Pins.



### Material

**Body** — Copper Alloy

**LOUVERTAC Band** — Beryllium Copper

**Retention Spring** — Stainless Steel or Beryllium Copper

### Finish

**Body** — Silver

**LOUVERTAC Band** — Silver

| Mating Pin Dia. | Part Number | Contin. Current (Amp) | Voltage Drop (mV) | Dimensions   |                |               |               |              |              | Use with AWG | Tooling Part Numbers |            |                 |
|-----------------|-------------|-----------------------|-------------------|--------------|----------------|---------------|---------------|--------------|--------------|--------------|----------------------|------------|-----------------|
|                 |             |                       |                   | A            | B Dia.         | C Dia.        | D             | E            | F            |              | Crimp Die            | Crimp Head | Extraction Tool |
| 2 mm            | 193673-1    | 24                    | 10                | 1.13<br>28.7 | .230<br>5.8    | .100<br>2.54  | .420<br>10.7  | .211<br>5.36 | .209<br>5.31 | 14           | M310                 | TP1021     | 318813-1        |
|                 | 193673-1    | 30                    | 12                | 1.13<br>28.7 | .230<br>5.8    | .100<br>2.54  | .420<br>10.7  | .211<br>5.36 | .209<br>5.31 | 12           | M310                 | TP1021     | 318813-1        |
| 4 mm            | 193673-2    | 44                    | 8                 | 1.31<br>33.3 | .300<br>7.6    | .145<br>3.68  | .400<br>10.2  | .211<br>5.36 | .209<br>5.31 | 10           | M310                 | TP1022     | 679916-1        |
|                 | 193673-3    | 60                    | 8                 | 1.31<br>33.3 | .300<br>7.6    | .181<br>4.60  | .410<br>10.4  | .211<br>5.36 | .209<br>5.31 | 8            | M310                 | TP1022     | 679916-1        |
| 6 mm            | 193673-4    | 76                    | 9                 | 1.42<br>36.1 | .410<br>10.4   | .235<br>5.97  | .460<br>11.7  | .211<br>5.36 | .209<br>5.31 | 6            | 69133-1              | 69099      | 679917-1        |
|                 | 193673-5    | 100                   | 9                 | 1.48<br>37.6 | .410<br>10.4   | .290<br>7.37  | .530<br>13.5  | .211<br>5.36 | .209<br>5.31 | 4            | 69134-2              | 69099      | 679917-1        |
| 8 mm            | 193673-6    | 135                   | 10                | 2.26<br>57.4 | .570<br>14.5   | .390<br>9.91  | .640<br>16.3  | .211<br>5.36 | .209<br>5.31 | 2            | 46765-3              | 69099      | 679918-1        |
|                 | 193673-7    | 185                   | 12                | 2.45<br>62.2 | .570<br>14.5   | .487<br>12.37 | —             | .211<br>5.36 | .209<br>5.31 | 1/0          | 46766-2              | 69099      | 679918-1        |
| 12 mm           | 193673-8*   | 290                   | 13                | 2.51<br>63.7 | .795<br>20.19  | .541<br>13.74 | .930<br>23.62 | —            | —            | 2/0          | 46767-2              | 69099      | —               |
| 20 mm           | 1-193673-2* | 480                   | 11                | 3.17<br>80.5 | 1.072<br>27.23 | .721<br>18.31 | 1.24<br>31.50 | —            | —            | 250 MCM      | 46751-2              | 69099      | —               |

\* Socket contact uses retention ring (not supplied) for locking contact in housing. See Application Specification 114-16022 for details.

**Notes:** 1. Additional information on AMPPOWER terminal hydraulic crimping is available in Catalog 82025.

2. Application Specification — 114-16022

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Thread-Mount Fork

The Thread-Mount Fork was developed to mount onto a plate or bus bar designed and fabricated by the customer. The Fork is rated at 84 Amps (Upper Tolerance Limit) and accepts a .087 thick blade or circuit board. The anti-rotation pin is in place to help prevent the Fork from rotating while tightening the screw.

#### Material

**Fork** — Zinc Al Alloy

**LOUVERTAC Bands** — Copper Alloy

**Screw** — Steel

#### Finish

**Fork** — Silver

**LOUVERTAC Bands** — Silver

**Screw** — Zinc



Part Number 194257-1

### Right-Angle Thread-Mount Fork



Part Number 194305-1

#### Material

**Fork** — Zinc Al Alloy

**LOUVERTAC Bands** — Copper Alloy

**Spring Pin** — Stainless Steel

#### Finish

**Fork** — Silver

**LOUVERTAC Bands** — Silver

**Note:** All part numbers are RoHS compliant.

### LOUVERTAC Strip, Torsional Louver Type

The Torsional Louver Type Band was designed as an electrical interface that allows the transfer of high current and a more generous tolerance between mating surfaces. A strip can be sized with scissors in an on-site installation. They are available for use in flat and circular applications. A male band is used on the outside diameter of a pin. The female band is used on the inside diameter of a socket.

**Material** — Beryllium Copper

**Finish** — See Tables

### LAO .092 [2.27] Louver Height

Tooth Angle — 15°  
Minimum Diameter — 1.75 inches



| Part Number | Application    | Material Thickness | Suggested Current Limit per inch | Finish |
|-------------|----------------|--------------------|----------------------------------|--------|
| 192000-2    | Flat or Female | .006<br>.15        | 150                              | Silver |
| 192000-9    | Flat or Female | .010<br>.25        | 250                              | Silver |
| 192001-4    | Flat or Male   | .006<br>.15        | 150                              | Silver |

### LAOG Louver Height — See Table

Tooth Angle — 45°  
Minimum Diameter — 1.75 inches



| Part Number | Application    | Material Thickness | Suggested Current Limit per inch | Louver Height | Finish   |
|-------------|----------------|--------------------|----------------------------------|---------------|----------|
| 192002-1    | Flat or Female | .006<br>.15        | 300                              | .105<br>2.67  | Unplated |
| 192002-2    | Flat or Female | .006<br>.15        | 300                              | .105<br>2.67  | Silver   |
| 192002-3    | Flat or Female | .010<br>.25        | 500                              | .110<br>2.79  | Unplated |

### LAIA .050 [1.27] Louver Height

Tooth Angle — See Table  
Minimum Diameter — 1½ inches



| Part Number | Application    | Material Thickness | Suggested Current Limit per inch | Tooth Angle | Finish |
|-------------|----------------|--------------------|----------------------------------|-------------|--------|
| 192004-4    | Flat or Female | .004<br>.10        | 150                              | 15°         | Silver |
| 192004-6    | Flat or Female | .004<br>.10        | 150                              | 45°         | Silver |
| 192004-8    | Flat or Female | .006<br>.15        | 250                              | 15°         | Silver |
| 1-192004-1  | Flat or Female | .006<br>.15        | 250                              | 15°         | Gold   |
| 1-192004-4  | Flat or Female | .006<br>.15        | 250                              | 45°         | Silver |
| 192007-7    | Flat or Male   | .006<br>.15        | 250                              | 15°         | Silver |
| 192008-1    | Flat or Male   | .004<br>.10        | 150                              | 45°         | Silver |

**Notes:** 1. Product will be sold by the foot except where length is specified.  
2. Suggested current limits are application dependent.  
3. Additional sizes are available upon request.

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### LOUVERTAC Strip, Bridge Louver Type

The Bridge Louver Type Band was designed to transfer high currents in very small spaces. A strip can be sized with scissors in an on-site installation. They are available for use in flat and circular applications. A male band is used on the outside diameter of a pin. The female band is used on the inside diameter of a socket.

**Material**—Beryllium Copper

#### LAIII .034 [.86] Louver Height

Minimum Diameter — 1 inch  
Suggested Current Limit  
Per Inch — 150 Amps  
Material Thickness — .006 [.15]



| Part Number | Application | Finish |
|-------------|-------------|--------|
| 192038-6    | Female      | Silver |
| 192039-5    | Male        | Silver |

#### LAIV .026 [.66] Louver Height

Minimum Diameter — ¾ inch  
Suggested Current Limit  
Per Inch — 150 Amps  
Material Thickness — See Table



| Part Number | Application | Finish | Material Thickness |
|-------------|-------------|--------|--------------------|
| 1-192041-2  | Female      | Silver | .006<br>.15        |
| 192042-5    | Male        | Silver | .006<br>.15        |
| 192048-2    | Male        | Gold   | .004<br>.10        |

#### LAV .022 [.56] Louver Height

Minimum Diameter — ¾ inch  
Suggested Current Limit  
Per Inch — 120 Amps  
Material Thickness — See Table



| Part Number | Application | Finish | Material Thickness |
|-------------|-------------|--------|--------------------|
| 1-192044-9  | Female      | Silver | .005<br>.13        |
| 192045-5    | Male        | Silver | .005<br>.13        |
| 192045-2    | Male        | Gold   | .004<br>.10        |
| 1-192045-2  | Male        | Gold   | .004<br>.10        |

- Notes:** 1. Product will be sold by the foot except where length is specified.  
2. Suggested current limits are application dependent.  
3. Additional sizes are available upon request.

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Preformed Female LOUVERTAC Bands

#### Female Torsional Formed Type

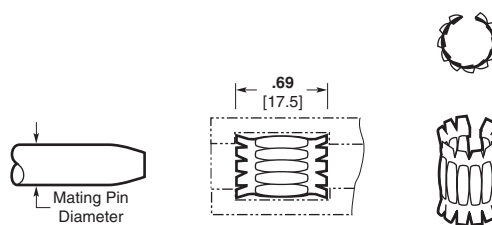
#### LA1A/LA1B

**.050 [1.27] Louver Height**

**Material**—Beryllium Copper

**Finish**—See Table

**Tooth Angle**—See Table



LOUVERTAC Bands can be manufactured as preformed diameters. This will allow the insertion of the band into a socket.

The diameter indicated is the mating pin diameter that will be inserted into the socket assembly.

Consult Product Engineering for mounting details.

| Part Number | Mating Pin Dia. | Material Thickness | Suggested Current Limit (A) | Finish | Tooth Angle | Band Type |
|-------------|-----------------|--------------------|-----------------------------|--------|-------------|-----------|
| 4-192013-3  | .312 [7.92]     | .004 [.10]         | 150                         | Silver | 15°         | LA1A      |
| 4-192013-5  | .312 [7.92]     | .006 [.15]         | 250                         | Silver | 15°         | LA1A      |
| 5-192013-1  | .355 [9.01]     | .006 [.15]         | 275                         | Gold   | 15°         | LA1A      |
| 5-192013-4  | .375 [9.53]     | .006 [.15]         | 300                         | Silver | 15°         | LA1A      |
| 5-192013-5  | .394 [10.00]    | .006 [.15]         | 325                         | Silver | 15°         | LA1A      |
| 5-192013-8  | .434 [11.02]    | .006 [.15]         | 350                         | Gold   | 15°         | LA1A      |
| 5-192013-9  | .437 [11.10]    | .006 [.15]         | 350                         | Silver | 15°         | LA1A      |
| 6-192013-7  | .472 [11.99]    | .006 [.15]         | 375                         | Silver | 15°         | LA1A      |
| 6-192013-9  | .472 [11.99]    | .008 [.20]         | 375                         | Silver | 15°         | LA1A      |
| 7-192013-1  | .500 [12.70]    | .006 [.15]         | 400                         | Silver | 15°         | LA1A      |
| 7-192013-6  | .551 [14.00]    | .006 [.15]         | 450                         | Silver | 15°         | LA1A      |
| 8-192013-2  | .625 [15.88]    | .006 [.15]         | 500                         | Silver | 15°         | LA1A      |
| 8-192013-6  | .625 [15.88]    | .008 [.20]         | 475                         | Silver | 15°         | LA1A      |
| 8-192013-9  | .685 [17.40]    | .006 [.15]         | 550                         | Silver | 15°         | LA1A      |
| 9-192013-6  | .750 [19.05]    | .006 [.15]         | 600                         | Silver | 15°         | LA1A      |
| 192033-3    | .750 [19.05]    | .008 [.20]         | 600                         | Silver | 15°         | LA1A      |
| 1-192033-9  | .875 [22.22]    | .006 [.15]         | 675                         | Gold   | 15°         | LA1A      |
| 2-192033-0  | .875 [22.22]    | .006 [.15]         | 700                         | Silver | 15°         | LA1A      |
| 2-192033-6  | 1.000 [25.40]   | .006 [.15]         | 775                         | Silver | 15°         | LA1A      |
| 3-192033-4  | 1.250 [31.75]   | .006 [.15]         | 975                         | Silver | 15°         | LA1A      |
| 5-192033-2  | 1.000 [25.40]   | .008 [.20]         | 800                         | Silver | 15°         | LA1A      |
| 3-192013-8  | 1.187 [30.10]   | .006 [.15]         | 950                         | Silver | 45°         | LA1B      |
| 5-192033-0  | .812 [20.62]    | .008 [.20]         | 625                         | Silver | 45°         | LA1B      |

**Notes:** 1. Suggested current limits are application dependent.  
2. Additional sizes are available upon request.

**Note:** All part numbers are RoHS compliant.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Preformed Female LOUVERTAC Bands

(Continued)

### Female Bridge Formed Type LAIII through LAVI

Material — Beryllium Copper

Finish — See Table



| Part Number | Mating Pin Dia. | Length     | Material Thickness | Suggested Current Limit (A) | Finish   | Band Type |
|-------------|-----------------|------------|--------------------|-----------------------------|----------|-----------|
| 1-192038-9  | .125 [3.18]     | .47 [11.9] | .004 [.10]         | 40                          | Nickel   | LAIII     |
| 2-192038-8  | .197 [5.00]     | .47 [11.9] | .006 [.15]         | 90                          | Gold     | LAIII     |
| 3-192038-7  | .236 [6.00]     | .47 [11.9] | .006 [.15]         | 100                         | Gold     | LAIII     |
| 4-192038-0  | .236 [6.00]     | .47 [11.9] | .008 [.20]         | 120                         | Gold     | LAIII     |
| 4-192038-1  | .236 [6.00]     | .47 [11.9] | .008 [.20]         | 120                         | Gold     | LAIII     |
| 4-192038-8  | .250 [6.35]     | .47 [11.9] | .006 [.15]         | 110                         | Silver   | LAIII     |
| 4-192038-9  | .250 [6.35]     | .47 [11.9] | .006 [.15]         | 110                         | Gold     | LAIII     |
| 5-192038-4  | .250 [6.35]     | .47 [11.9] | .008 [.20]         | 125                         | Gold     | LAIII     |
| 6-192038-0  | .280 [7.11]     | .47 [11.9] | .008 [.20]         | 165                         | Silver   | LAIII     |
| 6-192038-1  | .280 [7.11]     | .47 [11.9] | .008 [.20]         | 125                         | Gold     | LAIII     |
| 6-192038-2  | .250 [6.35]     | .47 [11.9] | .006 [.15]         | 125                         | Unplated | LAIII     |
| 6-192038-5  | .315 [8.00]     | .47 [11.9] | .008 [.20]         | 185                         | Silver   | LAIII     |
| 6-192038-6  | .315 [8.00]     | .47 [11.9] | .008 [.20]         | 185                         | Gold     | LAIII     |
| 7-192038-7  | .394 [10.00]    | .47 [11.9] | .008 [.20]         | 250                         | Silver   | LAIII     |
| 8-192038-1  | .437 [11.10]    | .47 [11.9] | .008 [.20]         | 270                         | Silver   | LAIII     |
| 8-192038-6  | .472 [11.99]    | .47 [11.9] | .008 [.20]         | 300                         | Silver   | LAIII     |
| 9-192038-4  | .500 [12.70]    | .47 [11.9] | .008 [.20]         | 300                         | Tin      | LAIII     |
| 192040-8    | .375 [9.53]     | .47 [11.9] | .008 [.20]         | 200                         | Gold     | LAIII     |
| 2-192040-7  | .250 [6.35]     | .47 [11.9] | .006 [.15]         | 110                         | Gold     | LAIII     |
| 2-192041-9  | .025 [0.64]     | .32 [8.13] | .005 [.13]         | 15                          | Gold     | LAIV      |
| 4-192041-0  | .062 [1.57]     | .32 [8.13] | .006 [.15]         | 25                          | Silver   | LAIV      |
| 4-192041-1  | .062 [1.57]     | .32 [8.13] | .006 [.15]         | 25                          | Gold     | LAIV      |
| 4-192041-4  | .080 [2.03]     | .32 [8.13] | .006 [.15]         | 35                          | Gold     | LAIV      |
| 5-192041-0  | .093 [2.36]     | .32 [8.13] | .005 [.13]         | 40                          | Gold     | LAIV      |
| 5-192041-9  | .100 [2.54]     | .32 [8.13] | .006 [.15]         | 50                          | Gold     | LAIV      |
| 6-192041-9  | .125 [3.18]     | .32 [8.13] | .006 [.15]         | 60                          | Gold     | LAIV      |
| 7-192041-4  | .157 [4.00]     | .32 [8.13] | .006 [.15]         | 65                          | Gold     | LAIV      |
| 7-192041-7  | .157 [4.00]     | .32 [8.13] | .006 [.15]         | 65                          | Silver   | LAIV      |
| 7-192041-8  | .157 [4.00]     | .32 [8.13] | .006 [.15]         | 65                          | Gold     | LAIV      |
| 8-192041-4  | .157 [4.00]     | .32 [8.13] | .008 [.20]         | 75                          | Gold     | LAIV      |
| 8-192041-9  | .173 [4.39]     | .32 [8.13] | .006 [.15]         | 70                          | Gold     | LAIV      |
| 192043-6    | .218 [5.54]     | .32 [8.13] | .006 [.15]         | 95                          | Silver   | LAIV      |
| 1-192043-5  | .254 [6.45]     | .32 [8.13] | .006 [.15]         | 110                         | Silver   | LAIV      |
| 1-192043-6  | .250 [6.35]     | .32 [8.13] | .006 [.15]         | 120                         | Gold     | LAIV      |
| 2-192043-0  | .280 [7.11]     | .32 [8.13] | .006 [.15]         | 130                         | Gold     | LAIV      |
| 2-192043-7  | .315 [8.00]     | .32 [8.13] | .006 [.15]         | 165                         | Silver   | LAIV      |
| 4-192043-5  | .375 [9.53]     | .32 [8.13] | .006 [.15]         | 175                         | Gold     | LAIV      |
| 5-192043-0  | .375 [9.50]     | .32 [8.13] | .007 [.18]         | 175                         | Tin      | LAIV      |
| 6-192043-7  | .602 [15.30]    | .32 [8.13] | .006 [.15]         | 285                         | Gold     | LAIV      |
| 7-192043-2  | .125 [3.18]     | .32 [8.13] | .006 [.15]         | 60                          | Silver   | LAIV      |
| 9-192043-3  | .157 [4.00]     | .32 [8.13] | .006 [.15]         | 65                          | Silver   | LAIV      |
| 9-192043-6  | .725 [18.40]    | .32 [8.13] | .006 [.15]         | 350                         | Silver   | LAIV      |
| 4-192044-1  | .030 [0.76]     | .20 [5.10] | .005 [.13]         | 13                          | Gold     | LAV       |
| 4-192044-2  | .030 [0.76]     | .20 [5.10] | .005 [.13]         | 11                          | Unplated | LAV       |
| 4-192044-4  | .055 [1.40]     | .20 [5.10] | .005 [.13]         | 20                          | Gold     | LAV       |
| 4-192044-7  | .060 [1.54]     | .20 [5.10] | .004 [.10]         | 22                          | Gold     | LAV       |
| 5-192044-6  | .062 [1.57]     | .20 [5.10] | .005 [.13]         | 25                          | Gold     | LAV       |
| 5-192044-8  | .065 [1.65]     | .20 [5.10] | .005 [.13]         | 23                          | Unplated | LAV       |
| 6-192044-0  | .080 [2.03]     | .20 [5.10] | .004 [.10]         | 30                          | Silver   | LAV       |
| 6-192044-4  | .080 [2.03]     | .20 [5.10] | .005 [.13]         | 30                          | Gold     | LAV       |

**Note:** All part numbers are RoHS compliant.

**Notes:** 1. Suggested current limits are application dependent.  
2. Additional sizes are available upon request.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Preformed Female LOUVERTAC Bands

(Continued)

### Female Bridge Formed Type LAIII through LAVI

(Continued)

**Material** — Beryllium Copper

**Finish** — See Table



| Part Number | Mating Pin Dia. | Length     | Material Thickness | Suggested Current Limit (A) | Finish   | Band Type |
|-------------|-----------------|------------|--------------------|-----------------------------|----------|-----------|
| 6-192044-6  | .080 [2.03]     | .20 [5.10] | .008 [.20]         | 30                          | Gold     | LAV       |
| 7-192044-1  | .093 [2.36]     | .20 [5.10] | .005 [.13]         | 35                          | Gold     | LAV       |
| 8-192044-1  | .125 [3.18]     | .20 [5.10] | .004 [.10]         | 45                          | Gold     | LAV       |
| 8-192044-3  | .125 [3.18]     | .20 [5.10] | .005 [.13]         | 45                          | Silver   | LAV       |
| 8-192044-4  | .125 [3.18]     | .20 [5.10] | .005 [.13]         | 45                          | Gold     | LAV       |
| 8-192044-7  | .125 [3.18]     | .20 [5.10] | .005 [.13]         | 45                          | Unplated | LAV       |
| 192046-6    | .172 [4.40]     | .20 [5.10] | .006 [.15]         | 65                          | Gold     | LAV       |
| 1-192046-6  | .225 [5.70]     | .20 [5.10] | .006 [.15]         | 85                          | Gold     | LAV       |
| 1-192046-9  | .250 [6.35]     | .20 [5.10] | .006 [.15]         | 110                         | Gold     | LAV       |
| 2-192046-0  | .250 [6.30]     | .20 [5.10] | .006 [.15]         | 95                          | Tin      | LAV       |
| 3-192046-0  | .400 [10.2]     | .20 [5.10] | .005 [.13]         | 150                         | Gold     | LAV       |
| 5-192046-0  | .750 [19.0]     | .20 [5.10] | .005 [.13]         | 285                         | Gold     | LAV       |
| 5-192046-9  | .134 [3.40]     | .20 [5.10] | .006 [.15]         | 50                          | Gold     | LAV       |
| 1-192047-4  | .040 [1.00]     | .10 [2.54] | .004 [.10]         | 15                          | Gold     | LAVI      |
| 1-192047-9  | .062 [1.60]     | .10 [2.54] | .004 [.10]         | 22                          | Gold     | LAVI      |
| 3-192047-7  | .125 [3.20]     | .10 [2.54] | .004 [.10]         | 45                          | Gold     | LAVI      |
| 5-192047-1  | .256 [6.50]     | .10 [2.54] | .004 [.10]         | 95                          | Gold     | LAVI      |
| 5-192047-3  | .272 [6.90]     | .10 [2.54] | .004 [.10]         | 65                          | Gold     | LAVI      |
| 7-192047-5  | .256 [6.50]     | .10 [2.54] | .004 [.10]         | 95                          | Unplated | LAVI      |

**Note:** All part numbers are RoHS compliant.

**Notes:** 1. Suggested current limits are application dependent.  
2. Additional sizes are available upon request.

## High Current Products (LOUVERTAC Contacts) (Continued)

### Preformed Male LOUVERTAC Bands

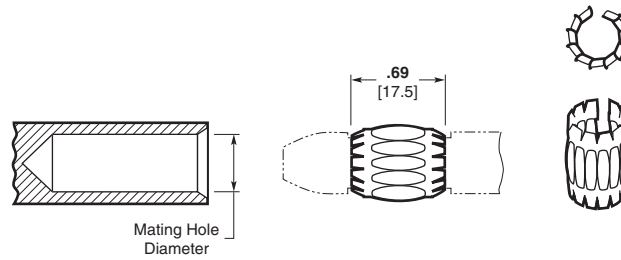
#### Male Torsional Formed Type

##### LA1AS/LA1BS

**Material**—Beryllium Copper

**Finish**—See Table

**Tooth Angle**—See Table



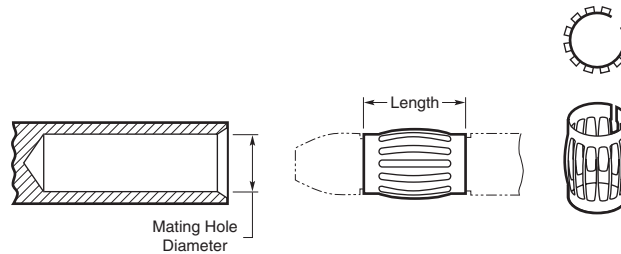
LOUVERTAC Bands can be formed into a "male" shape for use on a pin. Selection begins with the amperage requirement and then the mating hole diameter. Consult Product Engineering for mounting details.

| Part Number | Mating Hole Dia. | Material Thickness | Suggested Current Limit (A) | Finish | Tooth Angle | Band Type |
|-------------|------------------|--------------------|-----------------------------|--------|-------------|-----------|
| 192007-9    | .312 [7.92]      | .006 [.15]         | 200                         | Silver | 15°         | LA1AS     |
| 1-192007-9  | .620 [15.7]      | .006 [.15]         | 425                         | Silver | 15°         | LA1AS     |
| 2-192007-5  | .750 [19.0]      | .008 [.20]         | 550                         | Silver | 15°         | LA1AS     |
| 3-192007-1  | 1.000 [25.4]     | .006 [.15]         | 750                         | Silver | 15°         | LA1AS     |
| 192008-6    | .500 [12.7]      | .006 [.15]         | 350                         | Silver | 45°         | LA1BS     |
| 1-192008-3  | .750 [19.0]      | .008 [.20]         | 550                         | Silver | 45°         | LA1BS     |
| 1-192008-5  | .781 [19.8]      | .006 [.15]         | 575                         | Silver | 45°         | LA1BS     |
| 2-192008-1  | .875 [22.22]     | .008 [.20]         | 650                         | Silver | 45°         | LA1BS     |
| 3-192008-4  | 1.197 [30.4]     | .008 [.20]         | 900                         | Silver | 45°         | LA1BS     |
| 4-192008-2  | 1.450 [36.8]     | .006 [.15]         | 1100                        | Silver | 45°         | LA1BS     |

### Male Bridge Formed Type LAIIS through LAVIS

**Material**—Beryllium Copper

**Finish**—See Table



| Part Number | Mating Hole Dia. | Length      | Material Thickness | Suggested Current Limit (A) | Finish   | Band Type |
|-------------|------------------|-------------|--------------------|-----------------------------|----------|-----------|
| 1-192039-7  | .157 [4.0]       | .470 [11.9] | .008 [.20]         | 75                          | Gold     | LAIIS     |
| 2-192039-1  | .250 [6.35]      | .470 [11.9] | .008 [.20]         | 130                         | Silver   | LAIIS     |
| 2-192039-3  | .248 [6.3]       | .470 [11.9] | .008 [.20]         | 130                         | Silver   | LAIIS     |
| 2-192039-7  | .311 [7.9]       | .470 [11.9] | .008 [.20]         | 175                         | Unplated | LAIIS     |
| 2-192039-9  | .311 [7.9]       | .470 [11.9] | .008 [.20]         | 175                         | Silver   | LAIIS     |
| 3-192039-0  | .311 [7.9]       | .470 [11.9] | .008 [.20]         | 175                         | Gold     | LAIIS     |
| 5-192039-3  | .236 [6.0]       | .470 [11.9] | .008 [.20]         | 120                         | Nickel   | LAIIS     |
| 5-192039-4  | .157 [4.0]       | .470 [11.9] | .008 [.20]         | 75                          | Nickel   | LAIIS     |
| 1-192042-5  | .080 [2.0]       | .320 [8.13] | .005 [.12]         | 30                          | Nickel   | LAIVS     |
| 2-192042-5  | .157 [4.0]       | .320 [8.13] | .006 [.15]         | 65                          | Unplated | LAIVS     |
| 2-192042-8  | .157 [3.99]      | .320 [8.13] | .006 [.15]         | 60                          | Gold     | LAIVS     |
| 4-192042-8  | .500 [1.27]      | .320 [8.13] | .005 [.12]         | 235                         | Unplated | LAIVS     |
| 6-192042-6  | .368 [9.38]      | .320 [8.13] | .004 [.10]         | 170                         | Unplated | LAIVS     |
| 6-192042-7  | .375 [9.53]      | .320 [8.13] | .006 [.15]         | 175                         | Tin      | LAIVS     |
| 6-192042-8  | .375 [9.53]      | .320 [8.13] | .006 [.15]         | 175                         | Gold     | LAIVS     |
| 2-192045-3  | .250 [6.35]      | .200 [5.10] | .006 [.15]         | 95                          | Gold     | LAIVS     |
| 192048-6    | .051 [1.3]       | .100 [2.54] | .004 [.10]         | 17                          | Gold     | LAVIS     |
| 1-192048-1  | .127 [3.23]      | .100 [2.54] | .004 [.10]         | 22                          | Gold     | LAVIS     |
| 2-192048-4  | .156 [3.96]      | .100 [2.54] | .004 [.10]         | 65                          | Gold     | LAVIS     |

**Note:** All part numbers are RoHS compliant.

**Notes:** 1. Suggested current limits are application dependent.  
2. Additional sizes are available upon request.

## AMP Power Series Connectors

### Product Facts

- Single-pole and 2-pole (battery) quick connect/disconnect connectors
- Eight Series, based on approximate current-carrying capability:
  - Series 15/30/45 (Single-Pole)
  - Series 50 (2-Pole Battery)
  - Series 50 Finger Probe Resistant (FPR)
  - Series 75 (Single-Pole)
  - Series 120 (Single- and 2-Pole)
  - Series 175 (2-Pole Battery)
  - Series 180 (Single-Pole)
  - Series 350 (2-Pole Battery)
- Voltage rating: 600 V AC/DC
- Color-coded housings, UL 94V-0
- Hermaphroditic (genderless) housings reduce inventory
- Modular, single-pole housings are stackable in four directions
- Polarity (+ and -) molded into 2-pole housings promotes proper wiring
- Mechanical keys help prevent two different color-coded housings from mating
- Stainless steel retaining springs secure contacts in housings
- Stamped and formed, open barrel contacts (6-20 AWG) on reels for automatic and semiautomatic machine termination
- Loose piece, cold-headed contacts (6 AWG – 300 MCM) for manual and hydraulic hand tools; reducing bushings accommodate smaller wire sizes
- Compatible with industry standard crimp tooling from Pico Corporation (<http://www.picotools.com>)
- Connectors intermateable with similar connectors from other manufacturers



- **Series 15/30/45, single-pole connectors designed to meet Amateur Radio Emergency Service (ARES)/Radio Amateur Civil Emergency Service (RACES) Standard Power Connector requirements**
- **Accessories available for mounting, vibration protection, and strain relief**
- **Component Recognized by Underwriters Laboratories Inc. to US and Canadian Standards, File No. E28476**



AMP power series connectors provide a durable, quick connect/disconnect means to transmit "power" levels of current and voltage (15-275 A, 600 V AC/DC).

This product family is primarily comprised of single-pole and 2-pole (battery) connector housings, crimp snap-in contacts, and accessories. Housings are offered in various colors. Two-pole housings have different polarization configurations; with the exception of black housings, each color identifies a different keying configuration. In general, only like color housings will mate. Contacts are either cold-headed or stamped and formed, depending upon the connector series.

AMP power series connectors are divided into eight series, based on approximate current-carrying capability.

### Applications

AC/DC power supplies and charging systems, rechargeable batteries, material handling equipment (e.g. forklift trucks), electric vehicles (e.g., golf carts, sweepers, wheelchairs), office furniture/panels, amateur emergency radios, and industrial equipment.

## AMP Power Series Connectors (Continued)



### AMP Power Series 15/30/45

Single-pole connector housings are stackable side-to-side and top-to-bottom. For example, Series 30 red and black housings joined side-to-side, are commonly used as standard power connectors for handheld, mobile, or base amateur radio equipment.

Modular housings can also be grouped into plug frames with or without latches, which mate with receptacle housings. Typically, these are used as quick disconnects for electrical power distribution in office furniture and panels.



### AMP Power Series 50

Two-pole (battery) housings are available in bulk quantities or in kit form (i.e., 1 housing and 2 contacts). These high durability connectors are designed for repeated mating and unmating.



### AMP Power Series 50 Finger Probe Resistant (FPR)

This new, 2-pole, FPR version helps prevent finger access, which allows it to be more safely used at elevated voltages and in user access areas.



### AMP Power Series 75

Single-pole, stackable housings, in locking and non-locking versions, are available in a variety of colors. Housings accept stamped and formed or cold-headed contacts. Bulk quantities and connector kits (1 housing and

1 contact) can be ordered. Accessories include: mounting wings for through-panel or surface mounting and mounting clamp sets for ganging housings.



### AMP Power Series 120

This Series includes both single- and 2-pole (battery) versions. Single-pole housings with molded-in dovetails allow stacking. Housing retaining pins provide more vibration protection. Two-pole housing have slots designed to accept mounting clamp sets for easier panel mounting.



### AMP Power Series 175

Two-pole (battery) housings accept cold-headed contacts (4-1/0 AWG). Basically, these connectors offer the same features as the two-pole Series 50 connectors.



### AMP Power Series 180

These stackable, single-pole connectors accept cold-headed contacts (4-1/0 AWG). Most features are similar to the smaller, single-pole, Series 120 connectors.



### AMP Power Series 350

Rugged, 2-pole housings accept only loose piece, cold-headed contacts (1/0-300 MCM). Rated at 275 A, these connectors have been tested up to 275 A, with 4/0 AWG wire.

## Selection Guide

| Series | Housing Type | Stackable Housing | Current Max. (A) | Voltage, Max. (V, AC or DC) | Cold-headed Contact (AWG)   | Stamped & Formed Contact (AWG) | Housing Colors                                      | Approvals          |
|--------|--------------|-------------------|------------------|-----------------------------|-----------------------------|--------------------------------|-----------------------------------------------------|--------------------|
| 15     | Single-Pole  | Yes               | 15               | 600                         | —                           | 16-20                          | Blue, Black, White, Red Green, Yellow, Orange, Gray | UL File No. E28476 |
| 30     | Single-Pole  | Yes               | 30               | 600                         | —                           | 12-16                          | Blue, Black, White, Red Green, Yellow, Orange, Gray | UL File No. E28476 |
| 45     | Single-Pole  | Yes               | 40*              | 600                         | —                           | 10-14                          | Blue, Black, White, Red Green, Yellow, Orange, Gray | UL File No. E28476 |
| 50     | 2-Pole       | No                | 50               | 600                         | 6, 8, 10-12                 | 6-10,10-12                     | Red, Gray, Blue, Black, Yellow                      | UL File No. E28476 |
| 75     | Single-Pole  | Yes               | 75               | 600                         | 6, 8,10-12                  | 6-10,10-12                     | Blue, Black, White, Green, Red (Single-Pole)        | UL File No. E28476 |
| 120    | Single-Pole  | Yes               | 120              | 600                         | 2, 4, 6                     | —                              | Blue, Black, White, Green, Red (Single-Pole)        | UL File No. E28476 |
| 120    | 2-Pole       | No                | 120              | 600                         | 2, 4, 6                     | —                              | Blue, Gray (2-Pole)                                 | UL File No. E28476 |
| 175    | 2-Pole       | No                | 175              | 600                         | 1/0, 1, 2, 4                | —                              | Blue, Gray, Orange, Yellow, Red                     | UL File No. E28476 |
| 180    | Single-Pole  | Yes               | 180              | 600                         | 1/0, 1, 2, 4                | —                              | Blue, Black, White, Green, Red                      | UL File No. E28476 |
| 350    | 2-Pole       | No                | 275**            | 600                         | 1/0, 2/0, 3/0, 4/0, 300 MCM | —                              | Blue, Green, Red, Yellow, Orange, Gray              | UL File No. E28476 |

\*Performance equivalent to competition \*\*Tested to 275 Amps with 4/0 AWG wire

## AMP Power Series 15/30/45 Connectors (Single-Pole)

### Product Facts

- Color-coded UL 94V-0 housings: blue, black, white, green, red, yellow, orange and gray
- Genderless housings reduce inventory
- 3 contact offerings available: Series 15, 30 and 45
- Built-in interlocking features (dovetails) allow stacking
- Series 15/30/45, single-pole connectors designed to meet Amateur Radio Emergency Service (ARES)/Radio Amateur Civil Emergency Service (RACES) Standard Power Connector requirements
- Plug frames (with or without latches) and receptacle housings accept stacked single-pole housings (2 to 8 poles)
- File No. E28476 

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0

**Retaining Spring**—Stainless Steel

**Contacts**—Copper with silver or tin plating

**Mounting Wings & Spacers**—Polycarbonate, UL 94V-0

**Retaining Pins**—Stainless steel

### Electrical Characteristics

**Current Carrying Capability**—

40 A w/10 AWG wire (Series 45)

30 A w/12 AWG wire (Series 30)

20 A w/16 AWG wire (Series 15)

**Operating Voltage**—600 V, AC or DC

**Dielectric Withstanding Voltage**—2200 VDC

**Average Initial Contact**

**Resistance**—525 micro-ohms

### Mechanical Characteristics

**Contact Retention**—25 lbs. [111.2 N]

**Average Mating/Unmating Force**—4.7 [20.9 N]

**Max. Wire Insulation Diameter**—.175 [18.16]

**Wire Size Range**—10-20 AWG [5-0.5 mm<sup>2</sup>]

### Related Product Data

**Accessories**—page 151

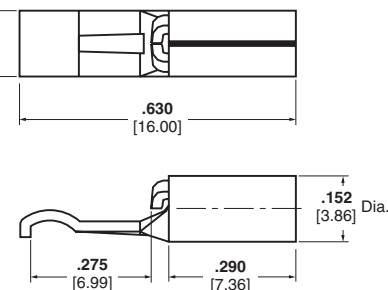
### Single-Pole Housing



### Stamped and Formed Contact (Strip)



### Closed Barrel Contact (Loose Piece)



### AMP Power Series 15

| Housing <sup>1</sup> |             | Contact Part Number             |                         |
|----------------------|-------------|---------------------------------|-------------------------|
| Color                | Part Number | Strip Form (16, 18, 20 AWG)     | Loose Piece (16-20 AWG) |
| Blue                 | 1445957-1   |                                 |                         |
| Black                | 1445957-2   |                                 |                         |
| White                | 1445957-3   |                                 |                         |
| Green                | 1445957-4   | 1604113-1 (silver) <sup>2</sup> | 1744042-1               |
| Red                  | 1445957-5   | 1604113-2 (tin) <sup>2</sup>    |                         |
| Yellow               | 1445957-6   |                                 |                         |
| Orange               | 1445957-7   |                                 |                         |
| Gray                 | 1445957-8   |                                 |                         |

### AMP Power Series 30

| Housing <sup>1</sup> |             | Contact Part Number             |                                   |
|----------------------|-------------|---------------------------------|-----------------------------------|
| Color                | Part Number | Strip Form (12, 14, 16 AWG)     | Loose Piece (12-16 AWG)           |
| Blue                 | 1445957-1   |                                 |                                   |
| Black                | 1445957-2   |                                 |                                   |
| White                | 1445957-3   |                                 |                                   |
| Green                | 1445957-4   | 1604112-1 (silver) <sup>3</sup> | 1744041-1 Dimensions shown above. |
| Red                  | 1445957-5   | 1604112-2 (tin) <sup>3</sup>    |                                   |
| Yellow               | 1445957-6   |                                 |                                   |
| Orange               | 1445957-7   |                                 |                                   |
| Gray                 | 1445957-8   |                                 |                                   |

### AMP Power Series 45

| Housing <sup>1</sup> |             | Contact Part Number             |  |
|----------------------|-------------|---------------------------------|--|
| Color                | Part Number | Strip Form (10, 12, 14 AWG)     |  |
| Blue                 | 1445957-1   |                                 |  |
| Black                | 1445957-2   |                                 |  |
| White                | 1445957-3   |                                 |  |
| Green                | 1445957-4   | 1445962-1 (silver) <sup>4</sup> |  |
| Red                  | 1445957-5   | 1445962-2 (tin) <sup>4</sup>    |  |
| Yellow               | 1445957-6   |                                 |  |
| Orange               | 1445957-7   |                                 |  |
| Gray                 | 1445957-8   |                                 |  |

<sup>1</sup> Housings are bulk packaged.

<sup>2</sup> Use Applicator Part No. 1385450-3

<sup>3</sup> Use Applicator Part No. 1385468-3

<sup>4</sup> Use Applicator Part No. 1385469-3

**Note:** Tyco Electronics does NOT recommend intermating connectors with different contact platings.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 50 Connectors (2-Pole Battery)

### Product Facts

- Color-coded UL 94V-0 housings: gray, red, blue, yellow and black; other colors available upon request  
Note: Black color housing has the same mechanical key as the gray housing
- Mechanical keys help prevent two different voltage color-coded housings from mating
- Polarity (+ and -) molded into housings
- Genderless housings reduce inventory
- Cold-headed contact wire range: 6, 8, 10-12 AWG (Taped version of the cold-headed contacts available.)
- File No. E28476 c  US

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0  
**Retaining Spring**—Stainless Steel  
**Contacts**—Copper with silver plating  
**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

**Current Carrying Capability**—50 Amps per circuit w/6 AWG wire  
**Max. Operating Voltage**—600 V, AC or DC  
**Dielectric Withstanding Voltage**—2200 VDC  
**Average Initial Contact Resistance**—200 micro-ohms

### Mechanical Characteristics

**Contact Retention**—50 lbs. [222.4 N]  
**Average Mating/Unmating Force**—15 lbs. [66.7 N]  
**Max. Wire Insulation Diameter**—.44 [11.18]  
**Wire Size Range**—6-12 AWG (also 6-16 AWG w/Reducing Bushings)

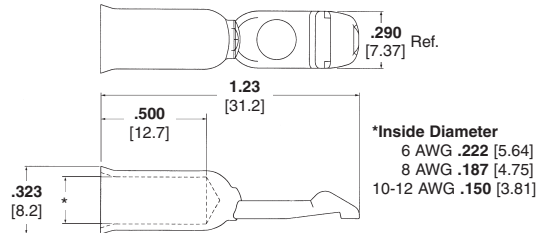
### Related Product Data

**Accessories**—page 151

### 2-Pole Housing



### Cold-headed Contact



### Stamped and Formed Contact (on Reel)



### AMP Power Series 50 (2-Pole)

| Housing <sup>2,3</sup>                            |             | Contact <sup>2</sup> |             | Connector Kit            |
|---------------------------------------------------|-------------|----------------------|-------------|--------------------------|
| Color                                             | Part Number | Wire Size            | Part Number | Part Number <sup>1</sup> |
| Red                                               | 647845-3    | 6 AWG                | 647877-1    | 647892-3                 |
|                                                   |             | 10-12 AWG            | 647879-1    | 647893-3                 |
| Gray                                              | 647845-4    | 6 AWG                | 647877-1    | 647892-4                 |
|                                                   |             | 10-12 AWG            | 647879-1    | 647893-4                 |
| Blue                                              | 647845-5    | 6 AWG                | 647877-1    | 647892-5                 |
|                                                   |             | 10-12 AWG            | 647879-1    | 647893-5                 |
| Black <sup>4</sup>                                | 647845-7    | 6 AWG                | 647877-1    | 647892-7                 |
|                                                   |             | 10-12 AWG            | 647879-1    | 647893-7                 |
| Yellow                                            | 647845-8    | 6 AWG                | 647877-1    | 647892-8                 |
|                                                   |             | 10-12 AWG            | 647879-1    | 647893-8                 |
| Cold-headed Contact                               |             | 8 AWG                | 647878-1    | —                        |
| <sup>5</sup> Stamped and Formed contacts, on Reel |             | 6-10 AWG             | 1604433-17  |                          |
| <sup>6</sup> Stamped and Formed contacts, on Reel |             | 10-12 AWG            | 1604433-27  |                          |

<sup>1</sup> 1 Housing and 2 contacts.

<sup>2</sup> Housings and contacts are bulk packaged.

<sup>3</sup> Mechanical keys molded in housings generally will engage only with housings of same color.

<sup>4</sup> Black color housing has the same mechanical key as the gray housing.

<sup>5</sup> Use Heavy Duty Mini-Applicator (HDM) for 6 to 8 AWG - Part Number 1385663-2 (Use with AMP-O-LECTRIC Model K Terminator)

<sup>6</sup> Use Heavy Duty Mini-Applicator (HDM) for 10 to 12 AWG - Part Number 1385664-2 (Use with AMP-O-LECTRIC Model K Terminator)

<sup>7</sup> Use Power Lock Machine Part Number 68296-1

### Voltage Key Color Chart

| Housing Color | Voltage |
|---------------|---------|
| Yellow        | 12V     |
| Red           | 24V     |
| Gray          | 36V     |
| Blue          | 48V     |
| Black         | 80V     |

Color code given for various voltages is only a suggestion, other codes and keys available upon request.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 50 FPR (Finger Probe Resistant) Connectors

### Product Facts

- Complies with UL 60950 finger probe requirements
- Utilizes AMP Power Series 50 contacts
- Brown and white housing colors available (other colors possible)
- Two keying configurations available (up to 6 keying configurations possible)
- File No. E28476 

### 2-Pole Housing



### Cold-headed Contact



### Stamped and Formed Contact (on Reel)



### Material and Finish

**Housing**—Polycarbonate, UL 94V-0  
**Retaining Spring**—Stainless Steel  
**Contacts**—Copper  
**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

**Current Capability**—50 A max.  
**Voltage Rating**—600 V, AC or DC  
**Dielectric Withstanding Voltage**—2200 VDC

### Mechanical Characteristics

Meets UL finger probe as outlined in UL 60950  
**Contact Retention**—50 lbs. [222.4 N]  
**Wire Size**—6-12 AWG [15-3 mm<sup>2</sup>]  
**Max. Wire Insulation Diameter**—.44 [11.18]

### Related Product Data

**Accessories**—page 151

### Applications

- Uninterruptible Power Supplies
- Power Supplies
- Battery Banks

### AMP Power Series 50 FPR (2-Pole)

| Housing <sup>1,2</sup> |             | Wire Size | Contact Part Number <sup>1</sup> |          |                                           |                        |
|------------------------|-------------|-----------|----------------------------------|----------|-------------------------------------------|------------------------|
| Color                  | Part Number |           | Cold-headed <sup>5</sup>         |          | Stamped and Formed/Strip <sup>3,4,6</sup> |                        |
|                        |             |           | Loose Piece                      | On Tape  | On Reel                                   |                        |
| Brown                  | 1604342-1   | 6 AWG     | 647877-1                         | 647754-1 | 6-10 AWG                                  | 1604433-1 <sup>6</sup> |
| White                  | 1604342-2   | 8 AWG     | 647878-1                         | 647755-1 |                                           |                        |
|                        |             | 10-12 AWG | 647879-1                         | 647756-1 | 10-12 AWG                                 | 1604433-2 <sup>6</sup> |

<sup>1</sup> Housings and contacts are bulk packaged.

<sup>2</sup> Mechanical keys molded in housings will engage only with housings of same color.

<sup>3</sup> Use Heavy Duty Mini-Applicator (HDM) for 6 to 8 AWG - Part Number 1385663-2 (Use with AMP-O-LECTRIC Model K Terminator)

<sup>4</sup> Use Heavy Duty Mini-Applicator (HDM) for 10 to 12 AWG - Part Number 1385664-2 (Use with AMP-O-LECTRIC Model K Terminator)

<sup>5</sup> Hand Tool for Cold-headed Contact - Part Number 1526955-1

Taped version can be terminated using the AMP-TAPETRONIC Machine

<sup>6</sup> Use Power Lock Machine Part Number 68296-1

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 75 Connectors (Single-Pole)

### Product Facts

- Color-coded UL 94V-0 housings: blue, black, white, green and red
- Genderless housings reduce inventory
- Cold-headed contact wire range: 6, 8, 10-12 AWG
- Stamped and formed contacts available:  
6-8 AWG Part Number 1604433-1 (strip);  
10-12 AWG Part Number 1604433-2 (strip)
- File No. E28476 

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0

**Retaining Spring**—Stainless Steel

**Contacts**—Copper with silver plating  
**Reducing Bushings**—Copper with silver plating

**Mounting Wings**—Polycarbonate, UL 94V-0

**Retaining Pins**—Stainless steel

### Electrical Characteristics

**Current Carrying Capability (with 6 AWG)**—Configuration:

Single-Pole 75 A

1x2 Stacked 62 A

2x2 Stacked 60 A

1x3 Stacked 58 A

2x3 Stacked 52 A

**Operating Voltage**—600 V, AC or DC

**Dielectric Withstanding Voltage**—2200 VDC

**Average Initial Contact**

**Resistance**—200 micro-ohms

### Mechanical Characteristics

**Contact Retention**—50 lbs. [222.4 N]

**Average Mating/Unmating Force**—15 lbs. [66.7 N]

**Max. Wire Insulation Diameter**—.44 [11.18]

**Wire Size Range**—6-12 AWG [15-3 mm<sup>2</sup>]

### Related Product Data

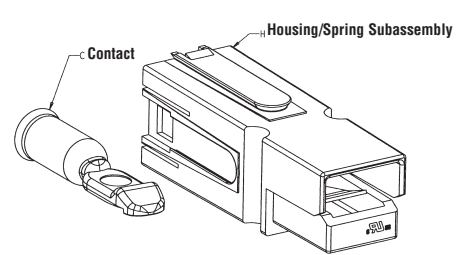
**Accessories**—page 151

**Application Tooling**—page 153

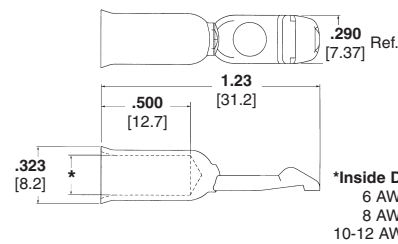
### Housing without Locking Feature



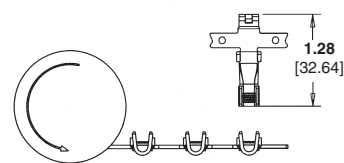
### Housing with Locking Feature



### Cold-headed Contact



### Stamped and Formed Contact (on Reel)



**\*Inside Diameter**  
6 AWG .222 [5.64]  
8 AWG .187 [4.75]  
10-12 AWG .150 [3.81]

### AMP Power Series 75 (Single-Pole)

| Housing <sup>2</sup> |             | Cold-headed Contact <sup>2</sup> |             | Connector Kit<br>Part Number <sup>1</sup> |
|----------------------|-------------|----------------------------------|-------------|-------------------------------------------|
| Color                | Part Number | Wire Size                        | Part Number |                                           |
| Non-Locking Version  |             |                                  |             |                                           |
| Blue                 | 1445715-1   | 6 AWG                            | 647877-1    | 1445716-1                                 |
| Black                | 1445715-2   | 6 AWG                            | 647877-1    | 1445716-2                                 |
| White                | 1445715-3   | 6 AWG                            | 647877-1    | 1445716-3                                 |
| Green                | 1445715-4   | 6 AWG                            | 647877-1    | 1445716-4                                 |
| Red                  | 1445715-5   | 6 AWG                            | 647877-1    | 1445716-5                                 |
| Locking Version      |             |                                  |             |                                           |
| Blue                 | 1445715-6   | 6 AWG                            | 647877-1    | 1445716-6                                 |
| Black                | 1445715-7   | 6 AWG                            | 647877-1    | 1445716-7                                 |
| White                | 1445715-8   | 6 AWG                            | 647877-1    | 1445716-8                                 |
| Green                | 1445715-9   | 6 AWG                            | 647877-1    | 1445716-9                                 |
| Red                  | 1-1445715-0 | 6 AWG                            | 647877-1    | 1-1445716-0                               |

\*Samples available on loose housing and contacts only.

### Contacts

| Description                            | Wire Size | Part Number | Die Set Part Number <sup>3</sup> | Applicator Part No. for AMP-O-ELECTRIC Model K Terminator |
|----------------------------------------|-----------|-------------|----------------------------------|-----------------------------------------------------------|
| Cold-headed (Loose Piece) <sup>4</sup> | 6 AWG     | 647877-1    | —                                | —                                                         |
|                                        | 8 AWG     | 647878-1    | —                                | —                                                         |
|                                        | 10-12 AWG | 647879-1    | —                                | —                                                         |
| Cold-headed (Tape) <sup>3, 4</sup>     | 6 AWG     | 647754-1    | 68344-1                          | —                                                         |
|                                        | 8 AWG     | 647755-1    | 68344-1                          | —                                                         |
|                                        | 10-12 AWG | 647756-1    | 68313-1                          | —                                                         |
| Stamped and Formed (Strip)             | 6-8 AWG   | 1604433-1   | —                                | 1385664-2                                                 |
|                                        | 10-12 AWG | 1604433-2   | —                                | 1385663-2                                                 |

<sup>1</sup> 1 housing and 1 contact

<sup>2</sup> Housings and contacts are bulk packaged.

<sup>3</sup> Taped version can be terminated using the AMP-TAPETRONIC machine Part Number 68250-1.

<sup>4</sup> Use hand tool Part Number 1526955-1 for Cold-headed contacts

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 120 Connectors (Single-Pole)



### Product Facts

- Color-coded modular housings: blue, black, white, green and red
- Genderless housings reduce inventory
- Cold-headed contact wire range: 2, 4, and 6 AWG
- Built-in interlocking features (dovetails) allow stacking and wire routing
- Self-wiping contacts increase product life and improve conductivity
- Integral stainless steel locking spring in housing for contact retention
- Rugged design
- File No. E28476 c  us

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0  
**Retaining Spring**—Stainless Steel  
**Contacts**—Copper with silver plating  
**Reducing Bushings**—Copper with silver plating  
**Mounting Clamp Sets**—Aluminum

### Electrical Characteristics

#### Current Carrying Capability—

Single-Pole—120 A  
 2x1 Stacked Array—115 A  
 2x2 Stacked Array—115 A

**Voltage Rating**—600 V  
 (both AC and DC)

**Dielectric Withstanding Voltage**—  
 2200 VDC

#### Average Initial Contact

**Resistance**—136 micro-ohms

### Mechanical Characteristics

**Contact Retention**—100 lbs.  
 [444.8 N]

**Average Mating/Unmating Force**—8 lbs. [35.6 N]

**Temperature Rating**—-4°F to  
 221°F [-20°C to 105°C]

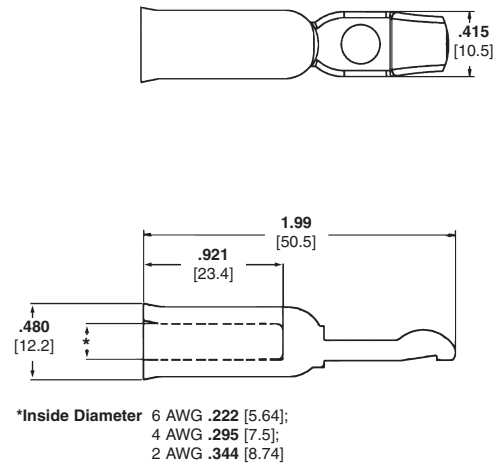
**Max. Wire Insulation Diameter**—  
 .6 [15.24]

**Wire Size Range**—2-6 AWG

### Single-Pole Housing



### Cold-headed Contact



### AMP Power Series 120 (Single-Pole)

| Housing |             | Contact   |             | Connector Kit            |
|---------|-------------|-----------|-------------|--------------------------|
| Color   | Part Number | Wire Size | Part Number | Part Number <sup>1</sup> |
| Blue    | 1604001-1   | 2 AWG     | 1445995-1   | 1604002-1                |
| Black   | 1604001-2   | 2 AWG     | 1445995-1   | 1604002-2                |
| White   | 1604001-3   | 2 AWG     | 1445995-1   | 1604002-3                |
| Green   | 1604001-4   | 2 AWG     | 1445995-1   | 1604002-4                |
| Red     | 1604001-5   | 2 AWG     | 1445995-1   | 1604002-5                |
| —       | —           | 4 AWG     | 1445996-1   | —                        |
| —       | —           | 6 AWG     | 1445997-1   | —                        |

<sup>1</sup> 1 Housing and 1 contact.

### Related Product Data

**Accessories**—page 152

**Application Tooling**—page 153

**Technical Documents**—page 154

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 120 Connectors (2-Pole Battery)



### Product Facts

- Color-coded UL 94V-0 housings: gray and blue
- Keying feature helps prevent two different voltage color-coded housings from mating
- Genderless housings reduce inventory
- Contact wire range: 2, 4, 6 AWG
- Molded-in panel-mount grooves
- Integral stainless steel locking spring in housing for contact retention
- Rugged design
- File No. E28476 

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0

**Retaining Spring**—Stainless Steel

**Contacts**—Copper with silver plating

**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

**Current Carrying Capability**—

115 A with 2 AWG

**Voltage Rating**—600 V  
(both AC and DC)

**Dielectric Withstanding Voltage**—  
2200 VDC

**Avg. Initial Contact Resistance**—  
136 micro-ohms

### Mechanical Characteristics

**Contact Retention**—100 lbs.  
[444.8 N]

**Average Mating/Unmating Force**—18 lbs. [80.1 N]

**Temperature Rating**—-4°F to  
221°F [-20°C to 105°C]

**Max. Wire Insulation Diameter**—  
.6 [15.24]

**Wire Size Range**—2-6 AWG

### Related Product Data

**Accessories**—page 152

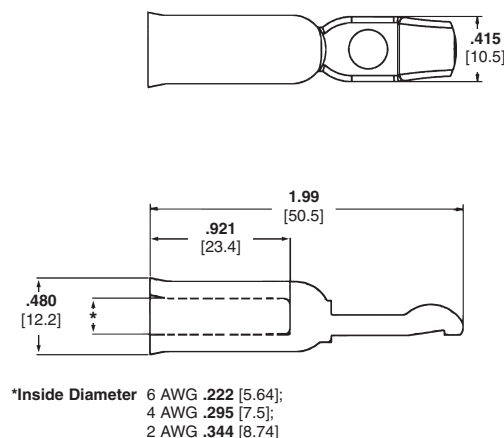
**Application Tooling**—page 153

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### 2-Pole Housing



### Cold-headed Contact



### AMP Power Series 120 (2-Pole)

| Housing <sup>2,3</sup> |             | Contact <sup>2</sup> |             | Connector Kit Part Number <sup>1</sup> |
|------------------------|-------------|----------------------|-------------|----------------------------------------|
| Color                  | Part Number | Wire Size            | Part Number |                                        |
| Gray                   | 1445994-1   | 2 AWG                | 1445995-1   | 1445998-1                              |
| Blue                   | 1445994-2   | 2 AWG                | 1445995-1   | 1445998-2                              |
| Gray                   | 1445994-1   | 4 AWG                | 1445996-1   | 1445999-1                              |
| Blue                   | 1445994-2   | 4 AWG                | 1445996-1   | 1445999-2                              |
| Gray                   | 1445994-1   | 6 AWG                | 1445997-1   | 1446000-1                              |
| Blue                   | 1445994-2   | 6 AWG                | 1445997-1   | 1446000-2                              |

<sup>1</sup> 1 Housing and 2 contacts.

<sup>2</sup> Housings and contacts are bulk packaged.

<sup>3</sup> Mechanical keys molded in connectors will engage only with connectors of same color.

### Voltage Key Color Chart

| Housing <sup>2,3</sup> Color | Voltage |
|------------------------------|---------|
| Gray                         | 36 V    |
| Blue                         | 48 V    |

Color code given for various voltages is only a suggestion, other codes and keys available upon request.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 175 Connectors (2-Pole Battery)

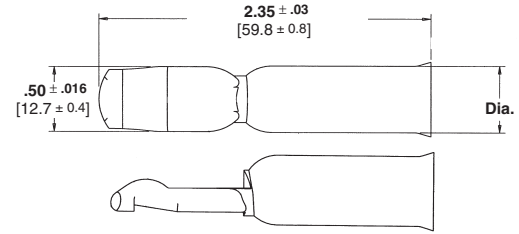
### Product Facts

- Color-coded UL 94V-0 housings: yellow, orange, red, gray, blue, and black
- Keying feature helps prevent two different voltage color-coded housings from mating
- Genderless housings reduce inventory
- Contact wire range: 1/0, 1, 2, 4 AWG
- Integral stainless steel locking spring in housing for contact retention
- Reducing bushings down to 10 gauge
- File No. E28476 

### 2-Pole Housing



### Cold-headed Contact



Inside Diameter .516±.005 [13.1±0.13] for 1/0 AWG  
.512±.005 [13.0±0.13] for 1 AWG,  
2 AWG, and 4 AWG

### Material and Finish

**Housing**—Polycarbonate, UL 94V-0  
**Retaining Spring**—Stainless Steel  
**Contacts**—Copper with silver plating  
**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

**Current Carrying Capability**—  
175 Amp @ 80.42°F [26.9°C] T-Rise  
with 1/0 AWG wire

**Voltage Rating**—600 V (both AC  
and DC)

**Dielectric Withstanding Voltage**—  
2200 VDC

**Avg. Initial Contact Resistance**—  
100 micro-ohms

### Mechanical Characteristics

**Average Mating/Unmating**

**Force**—25 lbs. [111.21 N]

**Max. Wire Insulation Diameter**—  
.750 [19.05]

**Wire Size Range**—1/0, 1, 2, 4 AWG  
[53, 40, 35, 21 mm<sup>2</sup>]

**Contact Retention**—300 lbs.  
[1,334.47 N]

**Temperature Rating**—-4°F to  
221°F [-20°C to 105°C]

### Related Product Data

**Accessories**—page 152

**Application Tooling**—page 153

**Technical Documents**—page 154

### AMP Power Series 175 (2-Pole)

| Housing            |             | Connector Kit Part Numbers <sup>1,2</sup> |           |           |           |
|--------------------|-------------|-------------------------------------------|-----------|-----------|-----------|
| Color              | Part Number | 4 AWG                                     | 2 AWG     | 1 AWG     | 1/0 AWG   |
| Yellow             | 1604037-1   | 1604044-1                                 | 1604043-1 | 1604045-1 | 1604042-1 |
| Orange             | 1604037-2   | 1604044-2                                 | 1604043-2 | 1604045-2 | 1604042-2 |
| Red                | 1604037-3   | 1604044-3                                 | 1604043-3 | 1604045-3 | 1604042-3 |
| Gray               | 1604037-4   | 1604044-4                                 | 1604043-4 | 1604045-4 | 1604042-4 |
| Blue               | 1604037-5   | 1604044-5                                 | 1604043-5 | 1604045-5 | 1604042-5 |
| Black <sup>3</sup> | 1604037-6   | 1604044-6                                 | 1604043-6 | 1604045-6 | 1604042-6 |

<sup>1</sup> 1 Housing and 2 contacts.

<sup>2</sup> Housings and contacts are bulk packaged.

<sup>3</sup> Black housing mates with any other housing.

### Contacts (Cold-headed)

| Wire Size | Part Number |
|-----------|-------------|
| 4 AWG     | 1604040-1   |
| 2 AWG     | 1604039-1   |
| 1 AWG     | 1604041-1   |
| 1/0 AWG   | 1604038-1   |

### Voltage Key Color Chart

| Housing Color | Voltage |
|---------------|---------|
| Yellow        | 12 V    |
| Orange        | 18 V    |
| Red           | 24 V    |
| Gray          | 36 V    |
| Blue          | 48 V    |
| Black         | 80 V    |

Color code given for various voltages is only a suggestion, other codes and keys available upon request.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series 180 Connectors (Single-Pole)

### Product Facts

- Color-coded modular housings: blue, black, white, red and green
- Genderless housings reduce inventory
- Contact wire range: 1/0, 1, 2, 4 AWG
- Integral stainless steel locking spring in housing for contact retention
- Built-in interlocking features (dovetails) allow stacking and wire routing
- Reducing bushings down to 10 gauge
- File No. E28476 c  us

### Single-Pole Housing



### Cold-headed Contact



### Material and Finish

**Housing**—Polycarbonate, UL 94V-0

**Retaining Spring**—Stainless Steel

**Contacts**—Copper with silver plating

**Mounting Clamp Sets**—Aluminum

**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

#### Current Carrying Capability—

(1/0 AWG Wire)

1 x 1 — 180 A, 84.9°F [29.4°C] T-Rise

2 x 1 — 165 A, 78.3°F [25.7°C] T-Rise

2 x 2 — 150 A, 76.6°F [24.8°C] T-Rise

**Voltage Rating**—600 V (both AC and DC)

**Dielectric Withstanding Voltage**—2200 VDC

**Avg. Initial Contact Resistance**—100 micro-ohms

### Mechanical Characteristics

#### Average Mating/Unmating

**Force**—20 lb. [89 N]

**Max. Wire Insulation Diameter**—.900 [22.86]

**Wire Size Range**—1/0, 1, 2, 4 AWG [53, 40, 35, 21 mm<sup>2</sup>]

**Contact Retention**—170 lb. [756 N]

**Temperature Rating**—-4°F to 221°F [-20°C to 105°C]

### Related Product Data

**Accessories**—page 152

**Application Tooling**—page 153

**Technical Documents**—page 154

### AMP Power Series 180 (Single-Pole)

| Housing |             | Connector Kit Part Numbers <sup>1,2</sup> |           |           |           |
|---------|-------------|-------------------------------------------|-----------|-----------|-----------|
| Color   | Part Number | 4 AWG                                     | 2 AWG     | 1 AWG     | 1/0 AWG   |
| Blue    | 1604062-1   | 1604395-1                                 | 1604396-1 | 1604397-1 | 1604398-1 |
| Black   | 1604062-2   | 1604395-2                                 | 1604396-2 | 1604397-2 | 1604398-2 |
| White   | 1604062-3   | 1604395-3                                 | 1604396-3 | 1604397-3 | 1604398-3 |
| Red     | 1604062-4   | 1604395-4                                 | 1604396-4 | 1604397-4 | 1604398-4 |
| Green   | 1604062-5   | 1604395-5                                 | 1604396-5 | 1604397-5 | 1604398-5 |

<sup>1</sup> 1 Housing and 1 contact.

<sup>2</sup> Housings and contacts are bulk packaged.

### Contacts (Cold-headed)

| Wire Size | Part Number |
|-----------|-------------|
| 4 AWG     | 1604040-1   |
| 2 AWG     | 1604039-1   |
| 1 AWG     | 1604041-1   |
| 1/0 AWG   | 1604038-1   |

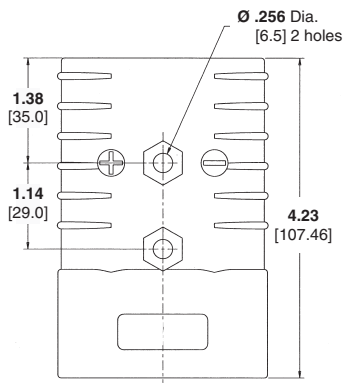
**Note:** All part numbers are RoHS compliant.

## AMP Power Series 350 Connectors (2-Pole Battery)

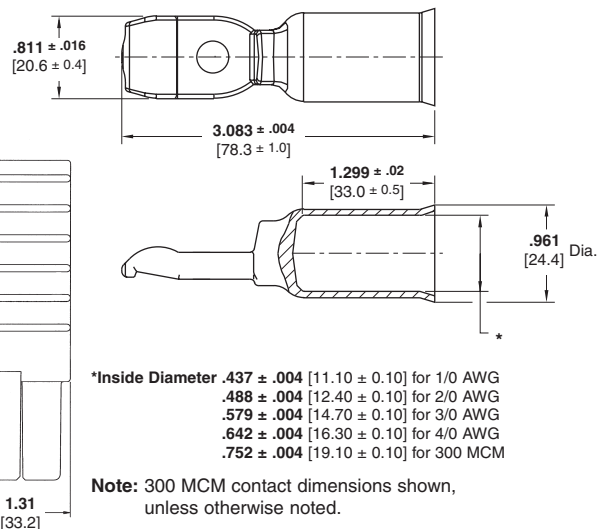
### Product Facts

- Color-coded UL 94V-0 housings: yellow, orange, red, gray, blue, and green
- Keying feature helps prevent two different voltage color-coded housings from mating
- Genderless housings reduce inventory
- Contact wire range: 1/0, 2/0, 3/0, 4/0, 300 MCM
- Replaceable contacts
- Integral stainless steel locking spring in housing for contact retention
- File No. E28476  us

### 2-Pole Housing



### Cold-headed Contact



### Material and Finish

**Housing**—Polycarbonate, UL 94V-0  
**Retaining Spring**—Stainless Steel  
**Contacts**—Copper with silver plating  
**Reducing Bushings**—Copper with silver plating

### Electrical Characteristics

**Current Carrying Capability**—  
 275 Amp @ 83.3°F [28.5°C] T-Rise  
 with 4/0 AWG wire  
**Voltage Rating**—600 V, AC or DC  
**Dielectric Withstanding Voltage**—  
 2200 VDC  
**Average Initial Contact  
 Resistance**—50 micro-ohms

### Mechanical Characteristics

**Contact Retention**—500 lbs.  
 [2224.1 N]  
**Average Mating/Unmating  
 Force**—30 lbs. [133.5 N]  
**Max. Wire Insulation Diameter**—  
 1.10 [27.94]  
**Temperature Rating**—-4°F to  
 221°F [-20°C to 105°C]  
**Wire Size Range**—1/0, 2/0, 3/0,  
 4/0, 300 MCM [53, 67, 85, 107,  
 152 mm<sup>2</sup>]

### Related Product Data

**Accessories**—page 152  
**Application Tooling**—page 153  
**Technical Documents**—page 154  
**Reducing Bushing**—(1/0 to 2/0 AWG)  
**Part No.** 1604121-6  
**Cable Clamp**—**Part No.** 647688-1

### AMP Power Series 350 (2-Pole)

| Housing |             | Connector Kit Part Numbers <sup>1,2</sup> |           |           |           |           |
|---------|-------------|-------------------------------------------|-----------|-----------|-----------|-----------|
| Color   | Part Number | 1/0 AWG                                   | 2/0 AWG   | 3/0 AWG   | 4/0 AWG   | 300 MCM   |
| Yellow  | 1604050-1   | 1604060-1                                 | 1604059-1 | 1604058-1 | 1604057-1 | 1604056-1 |
| Orange  | 1604050-2   | 1604060-2                                 | 1604059-2 | 1604058-2 | 1604057-2 | 1604056-2 |
| Red     | 1604050-3   | 1604060-3                                 | 1604059-3 | 1604058-3 | 1604057-3 | 1604056-3 |
| Gray    | 1604050-4   | 1604060-4                                 | 1604059-4 | 1604058-4 | 1604057-4 | 1604056-4 |
| Blue    | 1604050-5   | 1604060-5                                 | 1604059-5 | 1604058-5 | 1604057-5 | 1604056-5 |
| Green   | 1604050-6   | 1604060-6                                 | 1604059-6 | 1604058-6 | 1604057-6 | 1604056-6 |

<sup>1</sup> 1 Housing and 2 contacts.

<sup>2</sup> Housings and contacts are bulk packaged.

### Contacts (Cold-headed)

| Wire Size | Part Number |
|-----------|-------------|
| 1/0 AWG   | 1604055-1   |
| 2/0 AWG   | 1604054-1   |
| 3/0 AWG   | 1604053-1   |
| 4/0 AWG   | 1604052-1   |
| 300 MCM   | 1604051-1   |

### Voltage Key Color Chart

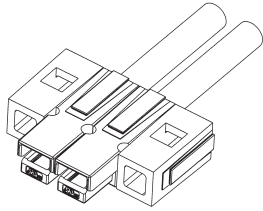
| Housing Color | Voltage |
|---------------|---------|
| Yellow        | 12V     |
| Orange        | 18V     |
| Red           | 24V     |
| Gray          | 36V     |
| Blue          | 48V     |
| Green         | 72V     |

Color code given for various voltages is only a suggestion, other codes and keys available upon request.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series Accessories

### AMP Power Series 15/30/45 Mounting Wings

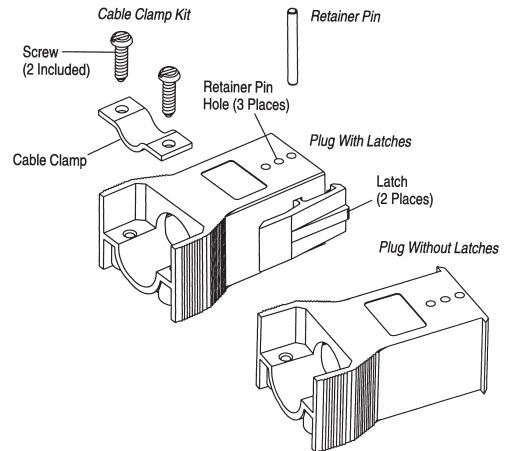


### AMP Power Series 15/30/45 Accessories

| Part Number                                       | Description          |
|---------------------------------------------------|----------------------|
| <b>Mounting Wings</b>                             |                      |
| 1445960-1                                         | Red, UL 94V-0        |
| <b>Spacers</b>                                    |                      |
| 1445959-1                                         | Red, UL 94V-0, Short |
| 1445959-2                                         | Red, UL 94V-0, Long  |
| <b>Retaining Pins for use with 15 A/30 A/45 A</b> |                      |
| 1445886-4                                         | .25 [6.35] length    |
| 1445886-5                                         | .44 [11.18] length   |

| Part Number                                                    | Description |
|----------------------------------------------------------------|-------------|
| <b>Hardware Kits</b><br>(Cable clamp, screws & retaining pins) |             |
| 647747-3                                                       | 4 pole      |
| 647747-2                                                       | 6 pole      |
| 647747-1                                                       | 8 pole      |

### AMP Power Series 15/30/45 Hardware Kits



### AMP Power Series 50 Accessories

| Part Number | Description                       |
|-------------|-----------------------------------|
| 1744077-1   | Dust Cover, Black                 |
| 1445762-1   | Reducing Bushing — 6 to 8 AWG     |
| 647840-1    | Reducing Bushing — 6 to 10-12 AWG |
| 1445763-1   | Reducing Bushing — 6 to 14-16 AWG |

Please contact Product Engineering or Product Management for availability.  
(permits use of smaller wires with 6 AWG contact Part Number 647877-1)

### AMP Power Series 75 Accessories

| Part Number                                         | Description                         |
|-----------------------------------------------------|-------------------------------------|
| <b>Mounting Wings</b>                               |                                     |
| 1445729-1                                           | Blue, oval mounting hole            |
| 1445729-2                                           | Blue, round mounting hole           |
| <b>Retaining Pins for use with 75 A/120 A/180 A</b> |                                     |
| 1445886-1                                           | 75 A/120 A/180 A hsgs, 1 high block |
| 1445886-2                                           | 75 A/120 A/180 A hsgs, 2 high block |
| <b>Reducing Bushings for Series 50 A and 75 A</b>   |                                     |
| 1445762-1                                           | 6 to 8 AWG                          |
| 647840-1                                            | 6 to 10-12 AWG                      |
| 1445763-1                                           | 6 to 14-16 AWG                      |

Mounting clamp set part numbers available.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series Accessories (Continued)

### AMP Power Series 120 Panel Mounting Clamp



### AMP Power Series 120 Accessories

| Part Number                                      | Type          | Description                |
|--------------------------------------------------|---------------|----------------------------|
| <b>Retaining Pins for use with 75A/120A/180A</b> |               |                            |
| 1445886-1                                        | Single-Pole   | 1 high block               |
| 1445886-2                                        | Single-Pole   | 2 high block               |
| <b>Reducing Bushings</b>                         |               |                            |
| 1604072-3                                        | Single/2-Pole | 2 to 4 AWG                 |
| 1604072-2                                        | Single/2-Pole | 2 to 6 AWG                 |
| 1604072-1                                        | Single/2-Pole | 2 to 8 AWG                 |
| <b>Mounting Clamp Sets</b>                       |               |                            |
| 647721-1                                         | Single-Pole   | 2- & 4- pole configuration |
| 647722-1                                         | Single-Pole   | 3-pole configuration       |
| <b>Panel Mounting Clamp</b>                      |               |                            |
| 1744090-1                                        | 2-Pole        | —                          |

### AMP Power Series 175 & 350 Handle Kit



### AMP Power Series 175, 180 & 350 Accessories

| Part Number              | Type       | Description    |
|--------------------------|------------|----------------|
| <b>Reducing Bushings</b> |            |                |
| 1604121-1                | 175/180    | 10 to 1/0 AWG  |
| 1604121-2                | 175/180    | 6 to 1/0 AWG   |
| 1604121-5                | 175/180    | 4 to 1/0 AWG   |
| 1604121-4                | 175/180    | 2 to 1/0 AWG   |
| 1604121-3                | 175/180    | 1 to 1/0 AWG   |
| 1604121-6                | 350        | 1/0 to 2/0 AWG |
| <b>Handle Kit</b>        |            |                |
| 647737-1                 | 175 2-Pole | Red            |
| 647737-2                 | 175 2-Pole | Gray           |
| 1-647737-1               | 350 2-Pole | Red            |
| 1-647737-2               | 350 2-Pole | Gray           |

### AMP Power Series 175 Dust Cover Assembly



### AMP Power Series 175 & 180 Accessories

| Part Number         | Type | Description                 |
|---------------------|------|-----------------------------|
| <b>Cable Clamps</b> |      |                             |
| 647720-1            | 180  | 2 pole version              |
| 647719-1            | 180  | 3 pole version              |
| <b>Dust Cover</b>   |      |                             |
| 647691-1            | 175  | Dust Cover Assembly (Shown) |
| 647692-1            | 175  | Dust Cover Housing          |

**Note:** All part numbers are RoHS compliant.

## AMP Power Series Tooling

### Power Applicator Part Number 68296-1 (Customer Manual 409-2661)



The semiautomatic power applicator is designed to produce a carefully controlled uniform pressure crimp while providing a high rate of production. The applicator features matching dies that fully bottom at the completion of the crimp to provide proper crimp height. The one die set is fully adjustable to provide the full range of crimp heights for all wire sizes.

### 500 MCM Heavy Duty Cable Cutter Part No. 605742-1 (408-4557)



- Designed to cut aluminum or copper cable up to 500 MCM.
- Light weight tubular steel handles with hand grips
- 21" overall length

### Cable Insulation Stripper/Slitter Part No. 606700-1 (408-9688)



- Used on single or multiple conductor cable up to 1.75" in diameter

### Contact Extraction Tool Part No. 68265-1 or standard insulated screwdriver



### Hand Tools for Cold-Headed Contacts and Heavy-Duty Lug Terminals (Single-Indent Crimp)



| For AMP Power Series<br>50 and 75 Contacts |                            |          | Tyco Electronics<br>Crimp Tool Part No. 1526955-1<br>Includes Adapter |         | OR | American Electrical Terminal (AET)<br>Crimp Tool Part No. T-406<br>Includes Adapter |         | Also For Heavy-Duty<br>Lug Terminals |               |
|--------------------------------------------|----------------------------|----------|-----------------------------------------------------------------------|---------|----|-------------------------------------------------------------------------------------|---------|--------------------------------------|---------------|
| Wire Size<br>(AWG)                         | Strip Length               | Part No. | Part Number                                                           | Marking |    | Part Number                                                                         | Marking | Wire Size<br>(AWG)                   | Strip Length  |
| 6                                          | .475-.525<br>[12.06-13.33] | 647877-1 | 1527508-1                                                             | A       |    | 5992                                                                                | A       | 6                                    | 7/16 [11.11]  |
| 8                                          |                            | 647878-1 |                                                                       |         |    |                                                                                     |         | 4                                    | 1/2 [12.70]   |
| 10-12                                      |                            | 647879-1 |                                                                       |         |    |                                                                                     |         | 1/0                                  | 11/16 [17.46] |
| —                                          | —                          | —        |                                                                       |         |    |                                                                                     |         | 2/0                                  | 11/16 [17.46] |
|                                            |                            |          | 1527507-1                                                             | B       |    | 5991                                                                                | B       | 2                                    | 9/16 [14.29]  |
|                                            |                            |          | 1527505-1                                                             | C       |    | 5989                                                                                | C       | 1                                    | 5/8 [15.87]   |
|                                            |                            |          | No Adapter                                                            | —       |    | No Adapter                                                                          | —       | 3/0                                  | 3/4 [19.05]   |
|                                            |                            |          |                                                                       |         |    |                                                                                     |         | 4/0                                  | 13/16 [20.64] |

### Pneumatic Tools for Cold-Headed Contacts (Dual-Indent Crimp) and Heavy-Duty Lug Terminals



| AMP Power Series Contacts |                 |           | PICO* Pneumatic Tools** |           |             |           |           |              |
|---------------------------|-----------------|-----------|-------------------------|-----------|-------------|-----------|-----------|--------------|
| Series                    | Wire Size (AWG) | Part No.  | 400 Series Power Unit   |           | Die         | Locator   |           | Closure Dim. |
|                           |                 |           | Preferred               | Alternate |             | Preferred | Alternate |              |
| 50/50 FPR/75              | 6               | 647877-1  | 400-BEC                 | 400-BHD   | 414DA-4583  | 4582-1    | 9616-1    | .152 [3.86]  |
|                           | 8               | 647878-1  |                         |           | 414DA-4583  |           |           | .152 [3.86]  |
|                           | 10-12           | 647879-1  |                         |           | 414DA-4582  |           |           | .134 [3.40]  |
| 120                       | 2               | 1445995-1 | 400-BEC                 | 400-BHD   | 414DA-4580  | 4580-1    | None      | .200 [5.08]  |
|                           | 4               | 1445996-1 |                         |           |             |           |           |              |
|                           | 6               | 1445997-1 |                         |           |             |           |           |              |
| 500 Series Power Unit     |                 |           |                         |           |             |           |           |              |
| 50/50 FPR/75              | 6               | 647877-1  | 500-DEC                 | 500-D     | 514DA-7033  | 7033-1    | 7034-1    | .152 [3.86]  |
|                           | 8               | 647878-1  |                         |           | 514DA-7033  |           |           | .152 [3.86]  |
|                           | 10-12           | 647879-1  |                         |           | 514DA-7034  |           |           | .134 [3.40]  |
| 120                       | 2               | 1445995-1 | 500-DEC                 | 500-D     | 514DA-7035  | 7035-1    | None      | .200 [5.08]  |
|                           | 4               | 1445996-1 |                         |           |             |           |           |              |
|                           | 6               | 1445997-1 |                         |           |             |           |           |              |
| 175/180                   | 1/0             | 1604038-1 | 500-DEC                 | 500-D     | 514DA-10023 | 10034-1   | None      | .225 [5.72]  |
|                           | 2               | 1604039-1 |                         |           |             |           |           |              |
|                           | 4               | 1604040-1 |                         |           |             |           |           |              |
|                           | 1               | 1604041-1 |                         |           |             |           |           |              |
| 350                       | 300 MCM         | 1604051-1 | 500-DEC                 | 500-D     | 514DA-10027 | 10023-2   | None      | .475 [12.07] |
|                           | 4/0             | 1604052-1 |                         |           | 514DA-10026 | 10023-2   |           | .400 [10.16] |
|                           | 3/0             | 1604053-1 |                         |           | 514DA-10025 | 10023-2   |           | .360 [9.14]  |
|                           | 2/0             | 1604054-1 |                         |           | 514DA-10024 | 10023-1   |           | .325 [8.26]  |
|                           | 1/0             | 1604055-1 |                         |           | 514DA-10023 | 10023-1   |           | .225 [5.72]  |

\* Pico Corporation, 444 Constitution Ave., Camarillo, CA 93012-8505; Tel: (805) 388-5510

\*\* Pneumatic Tool consists of a power unit, die, and locator; it can be used as a portable hand tool, bench-mounted hand tool, or foot-controlled unit.

**Note:** All part numbers are RoHS compliant.

## AMP Power Series Connectors (Continued)

### 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.

|                 |                                 |
|-----------------|---------------------------------|
| <b>108-1349</b> | AMPINNERGY WTB Connectors       |
| <b>108-1373</b> | AMPINNERGY WTW Connectors       |
| <b>108-2104</b> | AMP Power Series 50 Connectors  |
| <b>108-2149</b> | AMP Power Series 15 Connectors  |
| <b>108-2150</b> | AMP Power Series 30 Connectors  |
| <b>108-2151</b> | AMP Power Series 45 Connectors  |
| <b>108-2152</b> | AMP Power Series 75 Connectors  |
| <b>108-2153</b> | AMP Power Series 120 Connectors |
| <b>108-2154</b> | AMP Power Series 175 Connectors |
| <b>108-2155</b> | AMP Power Series 180 Connectors |
| <b>108-2156</b> | AMP Power Series 350 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.

|                  |                                                                               |
|------------------|-------------------------------------------------------------------------------|
| <b>114-6044</b>  | AMPINNERGY WTB Connectors                                                     |
| <b>114-6051</b>  | AMPINNERGY WTW Connectors                                                     |
| <b>114-13071</b> | AMP Power Series 50 (Double-Pole) and 75 (Single Pole) Connector Assemblies   |
| <b>114-13107</b> | AMP Power Series 120 (Single- and Double-Pole) Connector Assemblies           |
| <b>114-13118</b> | AMP Power Series 175 (Double-Pole) and 180 (Single-Pole) Connector Assemblies |
| <b>114-13119</b> | AMP Power Series 350 (Double-Pole) Connector Assemblies                       |
| <b>114-13127</b> | AMP Power Series 15, 30 and 45 (Single-Pole) Connector Assemblies             |

**Instruction Sheets** provide instructions for assembling or applying the product. They are intended for the Manufacturing Assembler or Operator.

|                 |                                                                         |
|-----------------|-------------------------------------------------------------------------|
| <b>408-3198</b> | Inspection of AMPINNERGY System Power Contacts                          |
| <b>408-3236</b> | Installation of AMPINNERGY WTB Connectors                               |
| <b>408-3277</b> | AMPINNERGY Wire-To-Wire Stackable Connectors                            |
| <b>408-8636</b> | AMP Power Series 50 Connector Assemblies                                |
| <b>408-8868</b> | AMP Power Series 175 and 350 Connector Assemblies with Cable Clamp Kits |
| <b>408-4557</b> | Heavy Duty Cable Cutter Hand Tool 605743-1                              |
| <b>408-4559</b> | Heavy Duty Cable Cutter Hand Tool 605744-1                              |
| <b>408-4561</b> | Heavy Duty Cable Cutter Hand Tool 6057469-1                             |
| <b>408-8540</b> | Crimp Tool 1526955-1                                                    |
| <b>408-9688</b> | Cable Stripper/Slitter Tool 606700-1                                    |
| <b>408-9816</b> | Handling of Reeled Products                                             |

### Test Summary

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>502-1136</b> | 50/75 Product Evaluation                       |
| <b>502-1160</b> | 15/30/45 Product Evaluation                    |
| <b>502-1166</b> | 120 Product Evaluation                         |
| <b>502-1167</b> | 120 Competitive Evaluation                     |
| <b>502-1172</b> | AMP Power Series 175/180 Product Evaluation    |
| <b>502-1173</b> | AMP Power Series 350 Product Evaluation        |
| <b>502-1189</b> | 15/30/45 Intermate                             |
| <b>502-1206</b> | 15/30/45 Stamped and Formed Contact Evaluation |

### Customer Manual

|                 |                                                      |
|-----------------|------------------------------------------------------|
| <b>409-5128</b> | AMP-O-ELECTRIC Model K Terminator Machine 1-471273-2 |
|-----------------|------------------------------------------------------|

**Note:** All part numbers are RoHS compliant.

## Domino Series Connectors

### Hot-Plug High Current Modular Power Connectors

#### Key Features

- Modular construction
- Blind-mating
- High current CROWN BAND contacts
- Logic/Signal
- Locking system
- Uses ELCON drawer contacts

#### Typical Applications

- Power Supplies
- Telecommunications
- Automatic Test Equipment
- Computer Hardware
- Process Control
- Uninterruptible Power Systems
- All Domino products in this section are RoHS compliant



The ELCON Domino connector system is a modular high-current connector system consisting of interchangeable modules which can provide AC, DC, logic and signal, float mounting, and pin sequencing. All Domino modules incorporate CROWN BAND technologies, tried and tested under the most arduous conditions. The high current capabilities virtually eliminate the need for bussing or splitting current, with resulting space savings and economies.

The Domino connector system allows the user to configure a connector specific to an application, from off-the-shelf components. It can be purchased as separate modules and assembled by the user, but is more generally ordered as a

connector assembly using an assembly part number which Tyco Electronics assigns to a specific configuration. Consult Tyco Electronics for assistance in laying out a new connector. If required, Domino connector assembly is simple: once the locking rails are cut to size, the only tool required is a Phillips screwdriver for tightening the end-caps.

Most Domino contacts are the same as used in ELCON drawer connectors. Modules A through E and R are sold as housings with retention clips; the contacts are ordered separately. See page 80 for available contact options and plating information, page 67 for tooling. Modules K, L, and M are sold pre-loaded with contacts. Domino assemblies are shipped complete with contacts.

The Domino system is ideal for use with hot-pluggable power supplies of the type employed for load-sharing and/or redundant power for computer systems. Current interruption capability is standard in the L module and an available option in the A module.

The CROWN BAND contact is a small louvered cylindrical receptacle of beryllium copper. Manufactured on progressive dies to allow consistent, even insertion and withdrawal forces, its design helps ensure maximum surface contact area for minimum voltage drop and minimum heat generation. CROWN BAND contacts also provide excellent shock and vibration resistance.

## Domino Series Connectors (Continued)

### A Modules — 3 x #12 Power Contacts, Hot-Plug option available

**Note:** Supplied without contacts. Crimp insertable/removable, PCB insertable/non-removable

Specifications: Contact rating 35 Amps UL, 20 Amps CSA, 250V; Hot-plug 35 Amps UL, 30 Amps CSA, 120 V ac, 50 cycles; Fully loaded module nominal forces: insertion 9.2 lbs, extraction 5.5 lbs (Hot-plug insertion 11.5 lbs, extraction 6.4 lbs)



**Pin Housing**  
(without contacts)  
Part Number 1648461-1



**Socket Housing**  
(without contacts)  
Part Number 1648466-1

### B Modules — 2 x #8 Power Contacts

**Note:** Supplied without contacts. Crimp insertable/removable, PCB insertable/non-removable

Specifications: Contact rating 75 Amps UL, 40 Amps CSA, 250V; Fully loaded module nominal forces: insertion 6.7 lbs, extraction 3.9 lbs



**Pin Housing**  
(without contacts)  
Part Number 1648462-1



**Socket Housing**  
(without contacts)  
Part Number 1648467-1

### C Modules — 20 x #20 Signal Contacts

**Note:** Supplied without contacts. Crimp insertable/removable, PCB insertable/non-removable

Specifications: Contact rating 5 Amps UL, 4 Amps CSA, 125V; Fully loaded module nominal forces: insertion 2.4 lbs, extraction 2.6 lbs



**Pin Housing**  
(without contacts)  
Part Number 1648463-1



**Socket Housing**  
(without contacts)  
Part Number 1648468-1

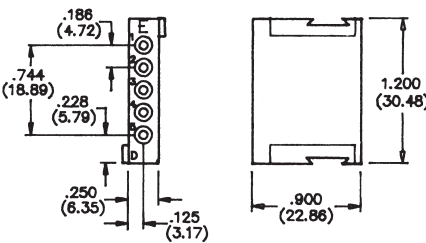
### D Module — 5 x #16 Power Contacts

**Note:** Supplied without contacts. Crimp insertable/removable, PCB insertable/non-removable

Specifications: Contact rating 15 Amps UL, 10 Amps CSA, 125V; Fully loaded module nominal forces: insertion 18.6 lbs, extraction 13.0 lbs



**Pin Housing**  
(without contacts)  
Part Number 1648464-1



**Socket Housing**  
(without contacts)  
Part Number 1648469-1

**Note:** All part numbers are RoHS compliant.

## Domino Series Connectors (Continued)

### E Modules — 14 x #16 Power Contacts

**Note:** Supplied without contacts. Crimp insertable/removable, PCB insertable/non-removable

Specifications: Contact rating 15 Amps UL, 10 Amps CSA, 125V; Fully loaded module nominal forces: insertion 43.1 lbs, extraction 33.7 lbs



### G Modules - Non-electrical Guide Module

**Note:** May be turned through 180 in the horizontal plane

Specifications: Guide pin type 303 Stainless Steel, passivated



### J Modules — Jackscrew Locking Module

**Note:** Select socket side to match desired orientation of T-handle in locked position

Specifications: Corrosion resistant Steel



**Note:** All part numbers are RoHS compliant.

## Domino Series Connectors (Continued)

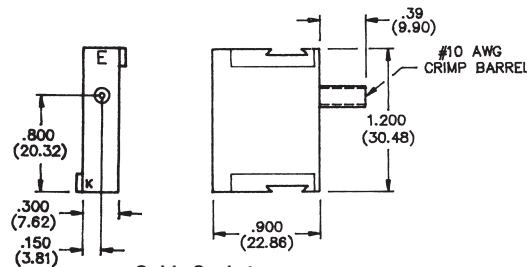
### K Modules — Electrically Active Ground/Guide Module

**Note:** May be turned through 180 in the horizontal plane. Use Crimp Tool PN 1766453-1

Specifications: Contact rating 40 Amps UL, 15 Amps CSA, 250V; Fully loaded module nominal forces: insertion 3.0 lbs, extraction 1.3 lbs



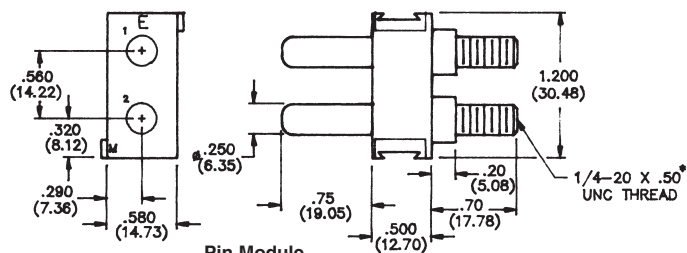
Guide Pin  
# 10 AWG Crimp  
Part Number 6648508-1



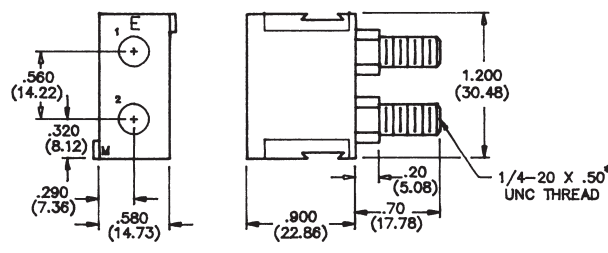
Guide Socket  
# 10 AWG Crimp  
Part Number 6648476-1

### M Modules — Pre-installed Dual In-Line Crown Pin & Socket

Specifications: Contact rating 125 Amps UL/CSA, 250V; Fully loaded module nominal forces: insertion 14.9 lbs, extraction 9.8 lbs



Pin Module  
Ext. Threaded  
Part Number 6648499-1



Socket Module  
Ext. Threaded  
Part Number 6648454-1

Recommended torque value 40 lb.in (4.52 N.m)

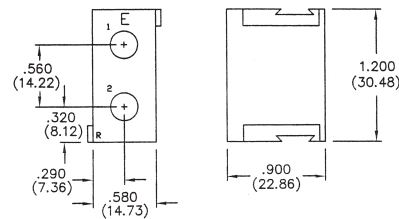
### R Modules — 2 x 1/4" Power Contacts

**Note:** Supplied without contacts; available contacts: Crimp insertable/removable, Ext. Threaded insertable/non-removable, consult Tyco Electronics for contact part numbers and available Double Crown option

Specifications: Contact rating 150 Amps UL, 110 Amps CSA, 250V; Fully loaded module nominal forces: insertion 9.4 lbs, extraction 6.0 lbs



Pin Module  
(without contacts)  
Part Number 6648515-1



Socket Module  
(without contacts)  
Part Number 6648457-1

### Spacer Module — Non-electrical

**Note:** any module may be ordered without contacts for use as spacers; consult sales engineer for options and part numbers.

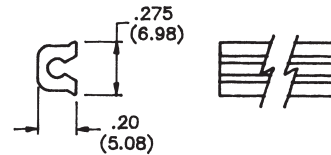
**Note:** All part numbers are RoHS compliant.

## Domino Series Connectors (Continued)

### Domino Assembly Mounting Accessories



Screw Part Number 1766829-1, Steel

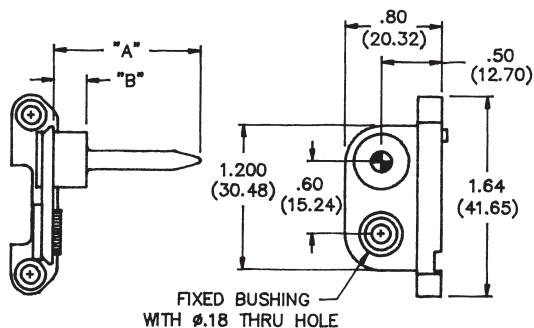


Locking Rail Part Number 1648990-1,  
Aluminum alloy, gold anodized finish, 36" length.  
Requires cutting to size.

Locking Rail (at 1' interval)  
Part Number 1650469-1

### End Caps — Zinc die cast, CRS hardware, trivalent chromate finish

End caps secure the modules when screwed into the locking rails providing rigid assembly and a means of mounting assembly to frames, bulkheads, etc. Float-mount styles correct for misalignment during mating. Any end cap may be used to mount either pin or socket sides.



Fix-Mount, Guide Pin  
Part Number 6648259-1  
A = 1.22 (30.98), B = .275 (6.98)



Fix-Mount, Guide Socket  
Part Number 6648263-1  
A = .175 (4.44)



Float-Mount, Guide Pin  
Part Number 6648251-1  
Standard  
A = 1.22 (30.98), B = .275 (6.98)  
Part Number 6648253-1  
L-Module  
A = 1.62 (41.14), B = .125 (3.17)



Float-Mount, Guide Socket  
Part Number 6648252-1  
Standard  
A = .175 (4.44)  
Part Number 6648254-1  
L-Module  
A = .325 (8.25)

**Note:** All part numbers are RoHS compliant.

## Domino Series Connectors (Continued)

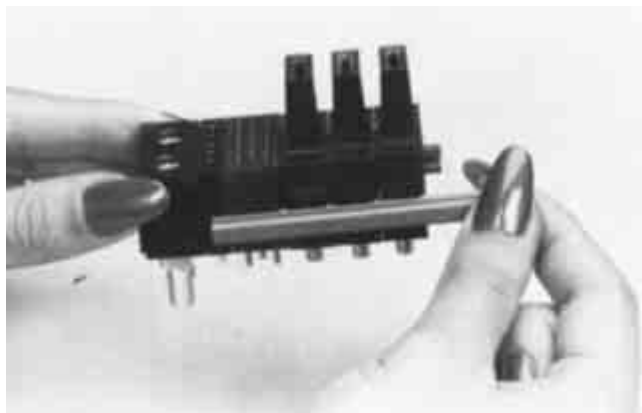
### Domino Module Assembly Process



1. Align modules in desired order.



2. Measure length of assembly, and add .100" (2.54 mm) to determine overall rail length. Cut rails to length.



3. Slide locking rails into position on both sides of module assembly via the molded rail tracks.



4. Position end caps over locking rail ends and secure using Phillips head screws.

## Domino Connector Layout Form

### Instructions

1. Indicate the connector layout by filling in the Module letter for each module required in the boxes below, one per box. Use one form per mated pair.
2. Contacts are required for most modules, and are sold separately. Please see the High Current Drawer Section Contacts for specific part numbers.
3. The left to right order of the modules should match the **mating face views** of the connector.
4. Sign, date and send the completed form to your local Tyco Electronics Sales Engineer.

**Upon receipt of this form, Tyco Electronics will generate a Customer Drawing for you to check and approve prior to connector production.**

### Pin Side:

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

### Socket Side:

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|

**A Modules**  
3 x #12  
Power Contacts  
Hot Plug

**B Modules**  
2 x #8  
Power Contacts

**C Modules**  
20 x #20  
Signal Contacts

**D Modules**  
5 x #16  
Power Contacts

**E Modules**  
14 x #16  
Power Contacts

**G Modules**  
Non-Electrical  
Guide Modules

**J Modules**  
Jackscrew  
Locking Module

**K Modules**  
Electrically Active Guide/  
Ground Module

**M Modules**  
Pre-Installed Dual  
In-Line Crown Pin & Socket

**R Modules**  
2 x #14  
Power Contacts

**Domino Mounting Accessories**

Locking Rail, 1' Interval Part Number 1650469-1



**Fix-Mount End Cap**  
with Guide Pin



**Float-Mount End Cap**  
with Guide Pin

### Contacts

Please reference Power Connectors & Interconnection Systems Catalog 1773096 for contact part numbers.

| Part Number | Quantity |
|-------------|----------|
|             |          |
|             |          |
|             |          |

| Part Number | Quantity |
|-------------|----------|
|             |          |
|             |          |
|             |          |

**Note:** All part numbers are RoHS compliant.

## HTS Power Connectors

### Product Facts

- Heavy-duty, rectangular, multiple-position, pin and socket connectors
- Current rating: 10-500 A
- Voltage rating: 1-1.4 kV
- Number of contact positions: 1 through 216
- Connectors are designated by four components: base and hood, and male and female inserts
- Contact inserts provide for three types of wire termination: screw (no crimp tool required), crimp (higher pin count), and cage clamp (fastest)
- HE Series inserts (screw terminated) are the most popular
- Bases provide environmental (IP 55, 65 and 68) and electrical protection (NEMA 4 and 4X)
- Bases share an industry standard panel cutout and mounting hole pattern
- Hoods offer top, side, or angled cable entry. Hoods are tapped to accommodate metric or PG fittings
- Automated tooling matched to contact
- DIN/VDE, UL, CSA and SEV approved



HTS power connectors are heavy-duty, rectangular, multiple-position, pin and socket connectors. They are commonly referred to as "rectangular" or "European metal shell" connectors.

HTS connectors are designated by four components: base and hood, and male and female inserts. The designation is driven by electrical specifications; pin count and current rating define the inserts needed. From 1 to 216 contact positions are available. Current ratings range from 10-500 A.

The appropriate housing size (1-12) to accommodate selected inserts is then defined. Housing selection criteria include: base mounting style, latch type, hood cable entry location, and hood gland size. The most popular housing sizes are: Shell Size 1 (3 or 4 positions), Shell Size 3 (6 positions), Shell Size 6 (16 positions), Shell Size 8 (24 positions), and Shell Size 5 (25 positions).

HTS connectors have many applications: industrial machinery (automotive, plastics, semiconductors, material handling, packaging and printing), and railroad and mass transit (A/C and brake subsystems, power transformers, door systems, switches and signals, and drive motor enclosures).

For more information on the entire line of HTS heavy-duty connectors, see Catalog 889745-2.

## HTS Power Connectors (Continued)

### Contact Inserts

#### Series HVS

- High Variable System
- Zinc Frames Size 3 to 8 (acc. to Housing)
- For up to 6 Single Modules

#### Material

- PBT
- Flammability Rating:  
acc. UL 94 V-0



To offer a maximum of flexibility and reliability with a minimum of installation or maintenance effort Tyco Electronics developed the HVS product range (high variable system).

This system enables customers to build their own application specific connection and due to the combination variety of the different modules customers benefit in terms of reduced costs (cost efficiency) and less mounting space.

The HVS range comprises more than 25 different modules and the particular zinc frames which can then be mounted into all standard hoods and housings from Tyco Electronics. There is no tooling needed to put the modules in and out of the frame due to lever snap-in technology.

Up to 6 single modules can be used in a size 8 frame whereby the customer can individually define the combination of modules.

Signal, high current and high voltage, high density, Fire Wire, RJ45, USB, Coax, twisted pair, high speed and also pressure air are only some of the different connector modules. According to the insert contacts can be used individually.

In combination with the Tyco Electronics' hoods and housings IP ratings of IP 65 or even IP 68 can be realized. Customers also benefit from EMI- and corrosion-protection dependent on housing.

A large variety of customer specific applications complete the product range.



For more information on the entire line of HTS heavy-duty connectors, see Catalog 889745-2.

## RAPID LOCK Quick Connect/Disconnect Bus Bar Connectors

### Product Facts

- Replaces power lugs
- Locking feature “snaps” each contact to mating pin
- Up to 250 Amps per contact
- CROWN BAND connector technology provides low contact resistance

### Typical Applications

- Power Distribution Systems
- Recognized under the Component Program of Underwriters Laboratories, File No. E28476



The RAPID LOCK connector is a single-pole, quick connect/disconnect replacement for lug connections, used in bus bar and backplane power distribution applications. RAPID LOCK connectors allow a reliable and safe connection, as well as better serviceability, than bolt-fitted lugs. The cable mounted sockets have a right-angle configuration, and feature an insulator cap that provides the retention mechanism on the pin. The pin contacts can be attached to a bus bar by screw or swage, and to a backplane by press fit and backup screw.

### Secure Power Distribution

By replacing power lugs fitted using nuts and bolts, the RAPID LOCK connector offers an extremely secure interconnect mechanism that totally frees the power distribution system from the risk of loose connections, which can cause arcing.

### Safety Locking Feature

A locking feature is provided on the pins for protection against accidental unlatching of the cable. Although connection of the cable is easily performed by hand, disconnection requires a simple tool to provide the leverage needed to overcome the locking feature.

### Improved Ease of Service

Service in the field becomes very easy with RAPID LOCK connectors because there are no nuts and washers to lose in the equipment. The RAPID LOCK connector is available with red or black color insulators.

### CROWN BAND Technology

The RAPID LOCK connector enjoys all the benefits of the ELCON CROWN BAND technology, providing a stable connection with excellent mechanical and electrical performance with ratings up to 300 Amps depending on wire gauge and application.

**Note:** All RAPID LOCK Products in this section are RoHS compliant.

**Note:** All part numbers are RoHS compliant.

**RAPID LOCK Connectors  
Ordering Information**
**RAPID LOCK Quick Connect/Disconnect Bus Bar Connectors (Continued)**

| Size  | Crimp Size | Part Numbers |           |           |           |           |
|-------|------------|--------------|-----------|-----------|-----------|-----------|
|       |            | Socket       |           |           | Pin       |           |
|       |            | Black        | Red       | Blue      | Swage     | Screw     |
| #8    | AWG #8     | 6648228-1    | 6648228-2 | N/A       | 6648221-1 | —         |
|       | AWG #12    | 6648237-1    | 6648237-2 | N/A       | 6648221-1 | N/A       |
|       | AWG #6     | 1766484-1    | 1766484-2 | N/A       | 6648221-1 | —         |
| #4    | AWG #8     | 6648235-1    | 6648235-2 | N/A       | 6648222-1 | —         |
|       | AWG #4     | 6648236-1    | 6648236-2 | N/A       | 6648222-1 | 6648224-1 |
|       | AWG #6     | 6648239-1    | 6648239-2 | N/A       | 6648222-1 | —         |
| #2    | AWG #0     | 6648234-1    | 6648234-2 | N/A       | 6648223-1 | 6648226-1 |
|       | AWG #2     | 6648238-1    | 6648238-2 | N/A       | 6648223-1 | 6648226-1 |
| 12 mm | 95 Sq. mm  | N/A          | 1857547-1 | 1857547-2 | 1857523-3 | N/A       |

| Size  | Insulation Boot |           |           |           |
|-------|-----------------|-----------|-----------|-----------|
|       | Black           | Red       | Grey      | Blue      |
| #4/#8 | 1651003-1       | 1651003-2 | 1651003-3 | 1651003-4 |
| #2    | 1766600-1       | 1766600-2 | 1766600-3 | 1766600-4 |

**Product Specifications**

| Materials                    |                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulator                    | Thermoplastic, UL 94V-0 flammability rated                                                                                                               |
| Socket Contact Body          | Copper alloy, plated Silver over nickel                                                                                                                  |
| CROWN BAND                   | Beryllium Copper, plated Gold (30 micro inches minimum) over nickel                                                                                      |
| Pin Contact                  | Copper alloy, plated Silver over nickel                                                                                                                  |
| Electrical                   |                                                                                                                                                          |
| Current Rating @ 30°C T-rise | Size 8 — 50 Amps on 8 AWG wire<br>Size 4 — 115 Amps on 4 AWG wire<br>Size 2 — 145 Amps on 2 AWG wire<br>Size 12 mm — 250 Amps on 95 mm <sup>2</sup> wire |
| Contact Resistance           | Size 8 — 0.5mΩ<br>Size 4 — 0.15 mΩ<br>Size 2 — 0.12 mΩ                                                                                                   |
| Voltage Drop                 | See graphs                                                                                                                                               |
| Mechanical                   |                                                                                                                                                          |
| Removal Tool                 | Part Number 1857376-1                                                                                                                                    |

**Note:** For more information about tooling, call Tooling Sales at 888-777-5917, (717)-810-2080 or e-mail [toolingsales@tycoelectronics.com](mailto:toolingsales@tycoelectronics.com).

**Test Data**

Shown below is current versus temperature rise of the five different available socket sizes.



Shown below is current versus voltage drop performance of the five different available socket sizes.



**Note:** All part numbers are RoHS compliant.

## RAPID LOCK Quick Connect Sockets and Pins

### Cable Mounted Sockets

RAPID LOCK sockets are crimped to AWG #4, #6 or #8 size cable depending on the application requirements. Envelope dimensions are common except for the crimp barrel diameter.



| Part Number | Size    | Dimensions |       |       | Cable AWG |
|-------------|---------|------------|-------|-------|-----------|
|             |         | C          | D     | E     |           |
| 6648228-X   | #8      |            |       |       | 8         |
| 6648237-X   |         | 1.080      | .500  | .500  | 12        |
| 1766484-X   |         | 27.43      | 12.70 | 12.70 | 6         |
| 6648235-X   | #4      | 1.08       | .500  | .500  | 8         |
| 6648236-X   |         | 27.43      | 12.70 | 12.70 | 4         |
| 6648239-X   |         |            |       |       | 6         |
| 6648234-X   | #2      | 1.280      | .490  | .640  | 0         |
| 6648238-X   |         | 32.51      | 12.45 | 16.26 | 2         |
| 1857178-X   |         |            |       |       | 1/0       |
| 1857547-X   | 12.0 mm | 1.920      | .930  | .930  | 3/0       |
|             |         | 48.70      | 23.70 | 23.70 |           |

**Note:** X refers to available color variants.

### Pin Contacts

RAPID LOCK pin contacts are offered in either swage or screw & washer mounting options for .125" (3.18 mm) or 3 mm (.118") thick PCB or bus bars. Consult Tyco Electronics Customer Service for other bus bar and backplane thicknesses and designs.

### Press Fit Pin Contacts

| Attach Type      | Pin Size | Mounts to         |
|------------------|----------|-------------------|
| Screw and Washer | #4       | Bus bar/Backplane |
|                  |          | Bus bar           |
| Swage            | #4       | Bus bar           |

**Note:** All part numbers include attachment hardware (screw, washer, etc.)

### Swage-Mount Pin



| Part Number | Size    | Dimensions |       |
|-------------|---------|------------|-------|
|             |         | A          | B     |
| 6648221-1   | #8      | .142       | .550  |
|             |         | 3.81       | 13.97 |
| 6648222-1   | #4      | .250       | .550  |
|             |         | 6.35       | 13.97 |
| 6648223-1   | #2      | .375       | .550  |
|             |         | 9.53       | 13.97 |
| 1857523-3*  | 12.0 mm | .470       | .850  |
|             |         | 12.00      | 21.70 |

\*Requires washer Part Number 1857513-2

### Screw-Mount Pin



| Part Number | Size | Dimensions |       |
|-------------|------|------------|-------|
|             |      | A          | B     |
| 6648224-1   | #4   | .250       | .550  |
|             |      | 6.35       | 13.97 |
| 6648226-1   | #2   | .375       | .550  |
|             |      | 9.53       | 13.97 |

**Note:** All part numbers are RoHS compliant.

## Custom RAPID LOCK Connector Products

In addition to the flexibility offered with standard RAPID LOCK connector products, the basic technology and standard components may also be packaged to suit specific customer needs. Some examples of custom packages are given below.

### Snap-Lock Sockets

Discrete pins are generally offered with or without a locking feature. A locking feature for a discrete socket is provided by a special two piece molding (94 V-0). This enables the socket to snap over a locking pin, and provides a 5 lb withdrawal force. The molding will also lock into a panel or holder of .125 (3.18) thickness.



| Part Numbers | Wire Size | Color |
|--------------|-----------|-------|
| 1643279-1    | 8 AWG     | Black |
| 1643279-2    |           | Red   |
| 1643279-3    |           | Blue  |
| 1651766-1    | 4 AWG     | Black |

### Press-Fit Discrete Contacts

Pins and sockets of the type shown are designed for press-fit to board or bus bar, and allow plug-in removal of a variety of board-mount components, discrete contacts, and flat-pack power supplies. Each socket contains a CROWN BAND contact, providing high current capacity and minimum loss, and accommodating misalignment.



**Note:** All part numbers are RoHS compliant.

## AMP Power Taps

### Product Facts

- **ACTION PIN** contacts eliminate soldering
- Provides high current, separable connection to pc board traces
- Wire-to-board connection using common terminals
- All metal-to-metal assembly for long-term integrity
- Standard DIP outlines (7.62 x 2.54 [.300 x .100]), 10 positions, and 6.35 x 3.18 [.250 x .125], 6 and 10 positions, plus high current versions on 10.16 x 5.08 [.400 x .200] footprint in 4 and 6 positions, 7.62 x 2.54 [.300 x .100] in 8 positions, and both 2 and 3 position in-line 2.54 [.100] tab taps
- Low resistance interface
- Internally threaded tap to secure screw to terminal
- Anti-rotational embossments hold wire and terminal in place
- Standard power taps rated at 2.5 Amps per pin — 6 position 15 Amps, 10 position 25 Amps current carrying capability
- High current power taps rated at up to 5 Amps per pin — 2 position 10 Amps, 3 position 15 Amps, 4 and 6 position 20 Amps and 8 position 40 Amps
- 30 Amp inverse sex power tap



AMP power taps are designed for the growing need for power to printed circuit board applications required in today's electronic industry. The taps provide a high current, separable connection to a pc board. Pin configuration is of the standard DIP outline with 7.62 x 2.54 [.300 x .100] or 6.35 x 3.18 [.250 x .125] for the standard versions, plus 10.16 x 5.08 [.400 x .200], 7.62 x 2.54 [.300 x .100] and in-line spacing for the high current versions.

ACTION PIN contacts provide a low resistance interface with tin-plated through holes in the pc board, thereby eliminating the need for soldering.

The variety of available power taps allow for various installation schemes. The uninsulated tap and low profile tap can be used in bus bar pattern. The high profile and low profile taps offer insulation protection from other components. The high current versions provide a greater power

density option with current ratings from 10 Amps on the 2 position in-line 6.35 [.250] tab tap up to 40 Amps on the 8 position dual 6.35 [.250] tab tap.

All AMP power tap configurations are easily inserted into the pc board with a simple Tyco Electronics or customer supplied tool.

## AMP Power Taps (Continued)

### Material and Finish

**Connector Body and Lid** — Nylon,  
105°C 94V-0 rated

**Contact** — Copper alloy, bright  
tin-lead or tin plated

**Screw** — Plated steel

### Electrical and Mechanical Characteristics

**Resistance** — 2 milliohms, max.  
(stud hole to ACTION PIN contact)

**Insertion Force** — 40 lbs. [177.9N],  
max. per pin

**Retention Force** — 7 lbs. [31.1N],  
min. per pin

### Technical Documents

#### Product Specification

108-11030 Tap, Power Distribution

#### Application Specification

114-11000 Tap, Power Distribution

#### Handbook

5697 Guide to Application of  
ACTION PIN Connectors



| Tap Version  | PCB Thickness          | Description                                             | Screw Hole Size | Part Number |           |
|--------------|------------------------|---------------------------------------------------------|-----------------|-------------|-----------|
|              |                        |                                                         |                 | Tin Lead    | Tin       |
| High Profile | 1.57–3.18<br>.062–.125 | Housing and Contact Assembled With Screw <sup>1,2</sup> | 6-32            | 55557-4●    | 5055557-4 |
| Low Profile  | 1.57–3.18<br>.062–.125 | Housing and Contact Assembled With Screw <sup>2</sup>   | 6-32            | 55556-4●    | 5055556-4 |
| Low Profile  | 1.57–3.18<br>.062–.125 | Housing and Contact Assembled With Screw <sup>2,3</sup> | 6-32            | 55673-2●    | 5055673-2 |
| Low Profile  | 1.57–3.18<br>.062–.125 | Housing and Contact Assembled Without Screw             | M4              | 55556-9●    | 5055556-9 |

<sup>1</sup>Cover not Assembled

<sup>2</sup>Screw not Assembled

<sup>3</sup>No Anti-rotational Embossments

**Note:** Part Numbers are RoHS compliant except: ● Indicates "5 of 6 compliant" (lead in solderable interface only).

## AMP Power Taps (Continued)

### Material and Finish

**Contact**—Copper alloy, post plated  
bright tin-lead or tin plated

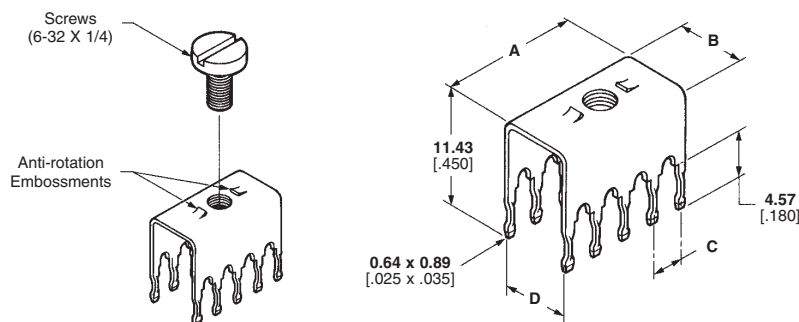
**Screw**—Stainless steel, passivated

### Electrical and Mechanical Characteristics

**Resistance** — 2 milliohms, max.  
(stud hole to ACTION PIN contact)

**Insertion Force** — 40 lbs. [177.9N]  
max. per pin

**Retention Force** — 7 lbs. [31.1N]  
min. per pin



| Size                                      | PCB Thickness          | Dimensions    |              |              |              | Description   | Screw Size | Part Number |             |
|-------------------------------------------|------------------------|---------------|--------------|--------------|--------------|---------------|------------|-------------|-------------|
|                                           |                        | A             | B            | C            | D            |               |            | Tin Lead    | Tin         |
| 7.62 x 2.54<br>.300 x .100<br>10 Position | 1.57-3.18<br>.062-.125 | 11.18<br>.440 | 8.26<br>.325 | 2.54<br>.100 | 7.62<br>.300 | Without Screw | 6-32       | 55558-3●    | 5055558-3   |
|                                           |                        |               |              |              |              | With Screw    | 6-32       | 55558-4●    | 5055558-4   |
| 6.35 x 3.18<br>.250 x .125<br>6 Position  | 1.57-3.18<br>.062-.125 | 8.13<br>.320  | 6.99<br>.275 | 3.18<br>.125 | 6.35<br>.250 | Without Screw | 6-32       | 55323-5●    | 5055323-5   |
|                                           |                        |               |              |              |              | With Screw    | 6-32       | 55323-9●    | 5055323-9   |
| 6.35 x 3.18<br>.250 x .125<br>10 Position | 1.57-3.18<br>.062-.125 | 14.48<br>.570 | 6.99<br>.275 | 3.18<br>.125 | 6.35<br>.250 | Without Screw | 6-32       | 55323-6●    | 5055323-6   |
|                                           |                        |               |              |              |              | With Screw    | 6-32       | 1-55323-0●  | 1-5055323-0 |

### High Current\* Power Taps

\*Up to 20 Amps

### Material and Finish

**Contact** — Phosphor bronze, tin-lead  
or tin plated

**Screw** — Stainless steel, passivated

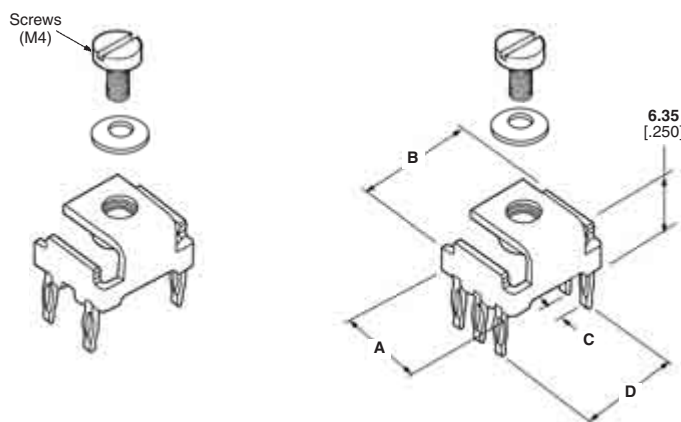
**Washer** — Stainless steel

### Electrical and Mechanical Characteristics

**Current Rating** — 20 Amps max.

**Insertion Force** — 40 lbs. [180N]  
max. per pin

**Retention Force** — 7 lbs. [30N] min.  
per pin



| Size       | PCB Thickness          | Dimensions   |               |              |               | Description        | Part Number            |           |
|------------|------------------------|--------------|---------------|--------------|---------------|--------------------|------------------------|-----------|
|            |                        | A            | B             | C            | D             |                    | Tin Lead               | Tin       |
| 4 Position | 1.57-3.18<br>.062-.125 | 9.09<br>.358 | 10.95<br>.431 | 5.08<br>.200 | 10.16<br>.400 | With Screw, Washer | 213815-1●              | 5213815-1 |
|            |                        |              |               |              |               | Without Screw      | 216906-1● <sup>1</sup> | —         |
| 6 Position | 1.57-3.18<br>.062-.125 | 9.09<br>.358 | 10.95<br>.431 | 2.54<br>.100 | 10.16<br>.400 | With Screw, Washer | 213816-1●              | 5213816-1 |
|            |                        |              |               |              |               | Without Screw      | 216907-1● <sup>1</sup> | —         |

<sup>1</sup>No Anti-rotation Embossments featured on High Current Taps. Therefore, if application requires product supplied without washer and screw, use of lock-washers with a high surface contact area are strongly recommended.

### For High Current and FASTON Taps

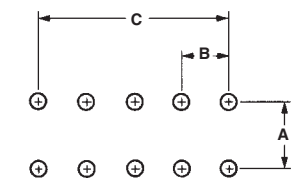
Use with Hand Press 677430-1

### Recommended PC Board Layout

**Drilled Hole Diameter**—  
1.60±0.03 [.063±.001]

**Cu Thickness**—  
0.03-0.08 [.001-.003]

**SnPb Thickness**—  
0.004 min. [.0002 min.]



**Finished Hole**—  
1.36-1.54 [.054-.061]

**After Reflow**—  
1.36-1.54 [.054-.061]

| Type       | A             | B            | C            |
|------------|---------------|--------------|--------------|
| 4 Position | 10.16<br>.400 | 5.08<br>.200 | 5.08<br>.200 |
| 6 Position | 10.16<br>.400 | 2.54<br>.100 | 5.08<br>.200 |
| I          | —             | 5.08<br>.200 | 5.08<br>.200 |
| II         | —             | 2.54<br>.100 | 5.08<br>.200 |
| III        | 10.16<br>.400 | 5.08<br>.200 | 5.08<br>.200 |
| IV         | 7.62<br>.300  | 2.54<br>.100 | 7.62<br>.300 |

**Note:** Part Numbers are RoHS compliant except: ● Indicates "5 of 6 compliant" (lead in solderable interface only).

## AMP Power Taps (Continued)

\*Up to 5 Amps per pin

### Mating Connectors FASTON Receptacles

#### Material and Finish

**Contact** — Phosphor bronze, post plated tin-lead or tin plated

**Screw** — Stainless steel, passivated

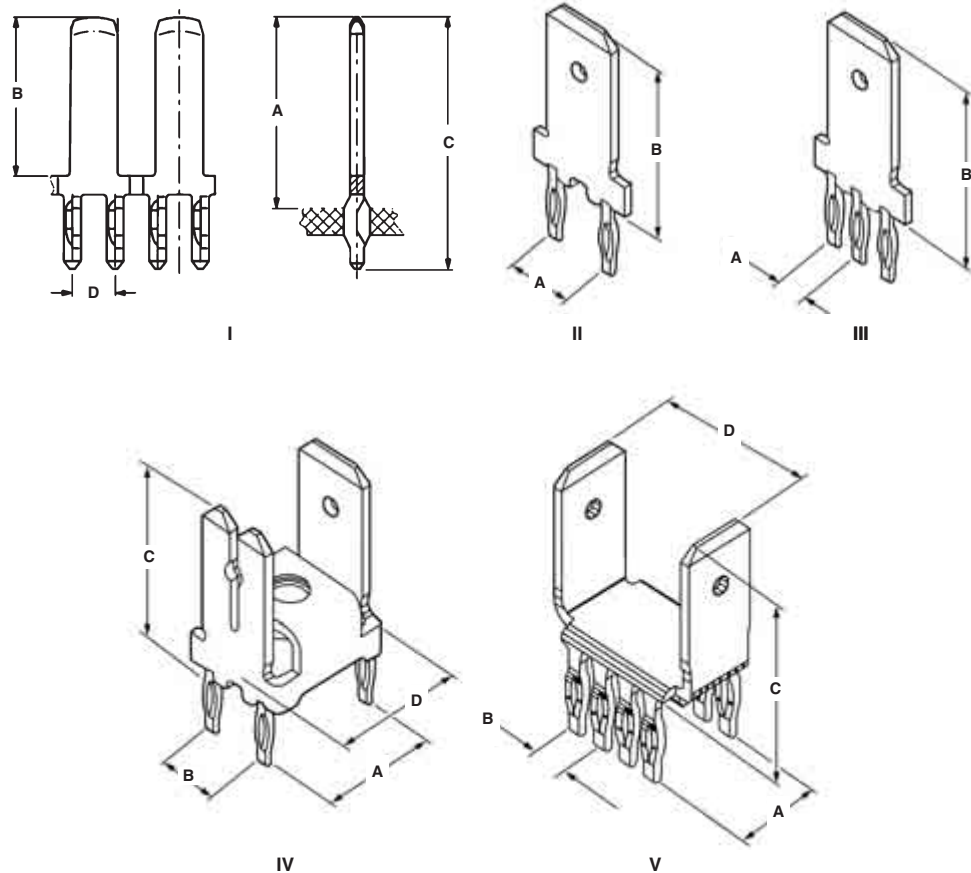
**Washer** — Stainless steel

#### Electrical and Mechanical Characteristics

**Current Rating** — 5 Amps max. per pin

**Insertion Force** — 40 lbs. [180N] max. per pin

For Recommended PC Board Layout, see page 170.



| Style | PCB Thickness              | Dimensions    |               |               |               | Description                      | Part Number           | Receptacle Mating |
|-------|----------------------------|---------------|---------------|---------------|---------------|----------------------------------|-----------------------|-------------------|
|       |                            | A             | B             | C             | D             |                                  |                       |                   |
| I     | 1.39 x 1.54<br>.055 x .061 | 13.50<br>.531 | 10.75<br>.423 | 18.50<br>.728 | 2.54<br>.100  | 2.8 x 0.80<br>.110 x .031 Tab    | 338429-2              | Positive Lock     |
| II    | 1.57 x 3.18<br>.062 x .125 | 5.08<br>.200  | 13.49<br>.531 | —             | —             | 6.35 x 0.81<br>.250 x .032 Tab   | 216926-1              | Positive Lock     |
| III   | 1.57 x 3.18<br>.062 x .125 | 2.54<br>.100  | 13.49<br>.531 | —             | —             | 6.35 x 0.81<br>.250 x .032 Tab   | 216843-1              | Positive Lock     |
| IV    | 1.57 x 3.18<br>.062 x .125 | 10.16<br>.400 | 5.08<br>.200  | 13.49<br>.531 | 10.95<br>.431 | 1-6.35 x 0.81<br>.250 x .032 Tab | 216905-1 <sup>1</sup> | Positive Lock     |
|       |                            |               |               |               |               | 2-2.79 x 0.81<br>.110 x .032 Tab |                       |                   |
| V     | 3.18<br>.125               | 7.62<br>.300  | 2.54<br>.100  | 12.32<br>.485 | 12.70<br>.500 | 2-6.35 x 0.81<br>.250 x .032 Tab | 167892-3 <sup>2</sup> | FASTON Rcpt.      |
|       |                            |               |               |               |               | With Hole                        | 167892-6 <sup>2</sup> | Positive Lock     |

<sup>1</sup>No Anti-rotation Embossments featured on High Current Taps. Therefore, if application requires product supplied without washer and screw, use of lock-washers with a high surface contact area are strongly recommended.

<sup>2</sup>Phosphor Bronze, post plated matte tin

**Note:** All part numbers are RoHS compliant.

## AMP Power Taps (Continued)

### Application Tooling/ PCB Layout

#### For Standard Threaded Taps Only

#### Recommended PC Board Layout

**Drilled Hole Diameter—**  
.0453±.001 [1.15±0.03]

**After Plating**

.037-.043 [0.94-1.09]

**After Reflow—**

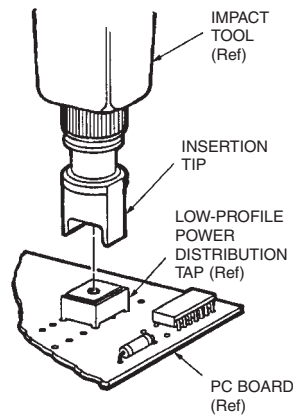
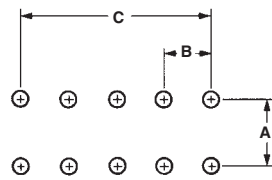
.036-.043 [0.91-1.09]

#### Installation and Extraction Tooling

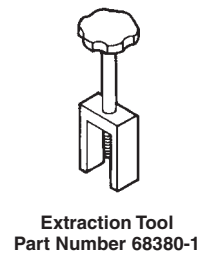
**Impact Insertion Tool Number**

**313102-1**

(Insertion Tip No. 58133-1 required)



| Size                                      | Dimensions   |              |               |
|-------------------------------------------|--------------|--------------|---------------|
|                                           | A            | B            | C             |
| .300 x .100<br>7.62 x 2.54<br>10 Position | .300<br>7.62 | .100<br>2.54 | .400<br>10.16 |
| .250 x .125<br>6.35 x 3.18<br>6 Position  | .250<br>6.35 | .125<br>3.18 | .250<br>6.35  |
| .250 x .125<br>6.35 x 3.18<br>10 Position | .250<br>6.35 | .125<br>3.18 | .500<br>12.7  |



#### For High Current and FASTON Taps

Use with Hand Press **677430-1**

#### Recommended PC Board Layout

**Drilled Hole Diameter—**  
.063±.001 [1.60±0.03]

**Cu Thickness—**

.001-.003 [0.03-0.08]

**SnPb Thickness—**

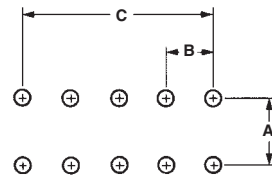
.0002 min. [0.004 min.]

**Finished Hole—**

.055-.061 [1.39-1.54]

**After Reflow—**

.054-.061 [1.36-1.54]



| Type       | A             | B            | C            |
|------------|---------------|--------------|--------------|
| 4 Position | .400<br>10.16 | .200<br>5.08 | .200<br>5.08 |
| 6 Position | .400<br>10.16 | .100<br>2.54 | .200<br>5.08 |
| I          | —             | .200<br>5.08 | .200<br>5.08 |
| II         | —             | .100<br>2.54 | .200<br>5.08 |
| III        | .400<br>10.16 | .200<br>5.08 | .200<br>5.08 |
| IV         | .300<br>7.62  | .100<br>2.54 | .300<br>7.62 |

#### Installation Tooling

| Type                         | Part Number           | Upper Tool | Lower Tool              |
|------------------------------|-----------------------|------------|-------------------------|
| High Current 4 & 6 Positions | 216906-1<br>216907-1  | 432848-1   | 433600-2 or<br>432130-2 |
| High Current Style I, II     | 216926-1<br>216843-1  | 432845-1   | 433600-2 or<br>432130-2 |
| High Current Style III       | 216905-1              | 432847-1   | 433600-2 or<br>432130-2 |
| High Current Style IV        | 5167892-3<br>167892-6 | 432849-1   | 433600-2 or<br>432130-2 |

**Note:** All part numbers are RoHS compliant.