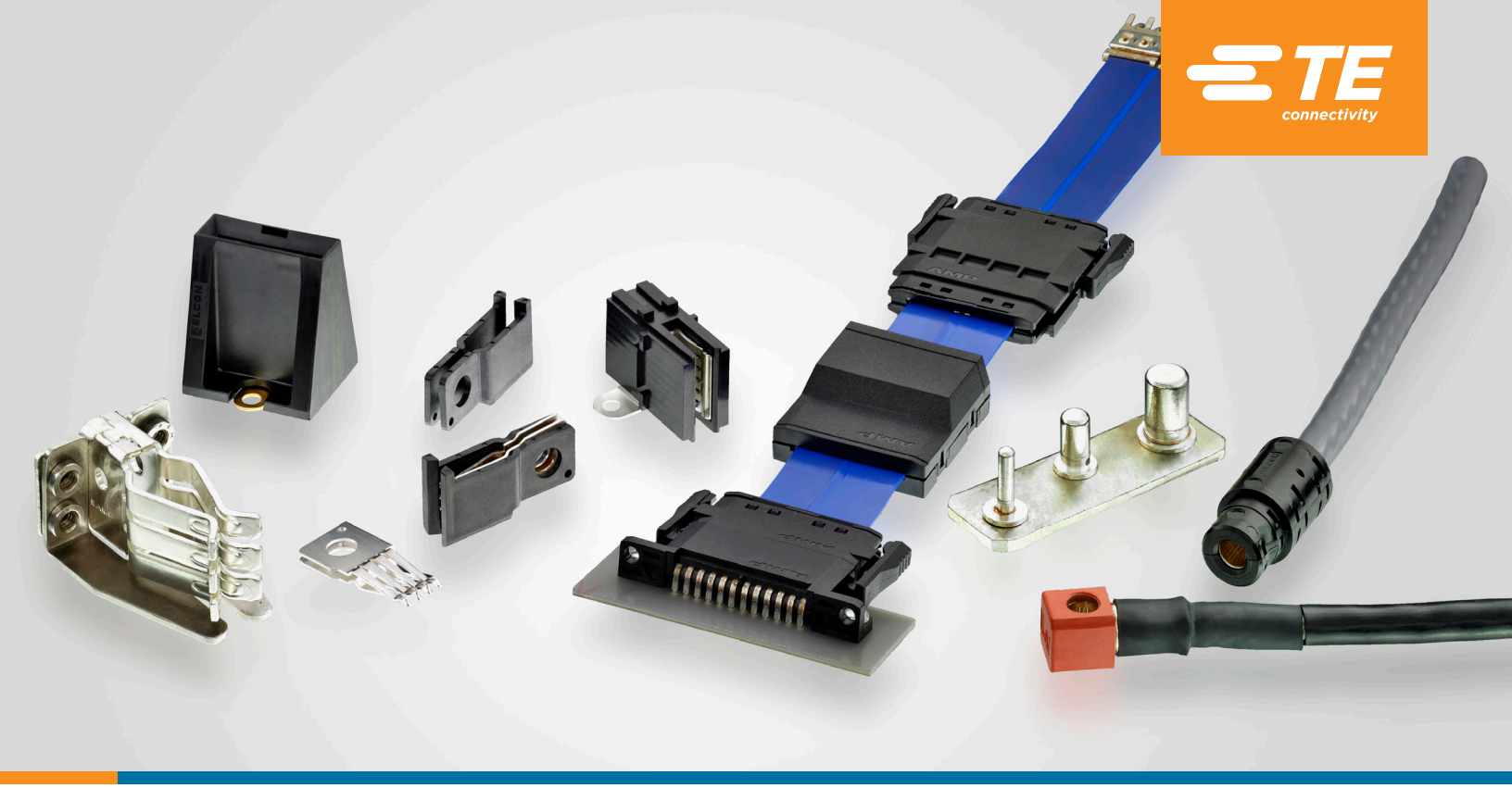


# BUSBAR CONNECTIVITY

## QUICK REFERENCE GUIDE

### THINGS TO CONSIDER WHEN CHOOSING BUSBAR PRODUCTS

**Application:** Properties like dimensions, shape, isolation, plating, base material, and use of connectors should be considered when choosing a busbar product.

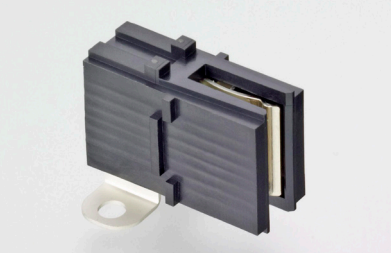
**Current and Voltage:** Does the connector require power only, or a combination of power and signal? How much current is required in the application? Keep in mind that busbar products performance is usually measured in amperes (or amps). The voltage is also highly important as it defines the spacing between the contacts and is related to safety requirements.

**Hot-Pluggability:** Will the application be mated while under electrical load? If so, a hot-pluggable connector is required. Many of the products in this guide have been approved for use in hot-plug applications.

### TYPICAL POWER CONNECTOR APPLICATIONS

- Busbar based power distribution
- Power racks
- Rack mounted switching power supplies
- Core network energy systems
- Cellular base stations
- PSU power distribution
- Servers, storage & network routers
- Industrial
- Computer
- Modular power supply
- Alternative (green) energy systems
- Power inverters

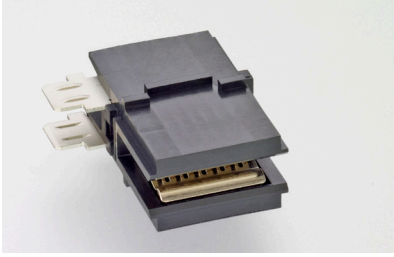
## CROWN CLIP Jr. Connectors



### Screw Mount

**Reference Part Numbers***
**1982995-1 | 1982995-2**

- Mates directly to a power busbar
- Provides a space efficient interconnection in solder or screw mount configurations
- Low insertion/extraction forces
- Ideal for power supply/distribution applications
- Busbar misalignment: ± .75mm

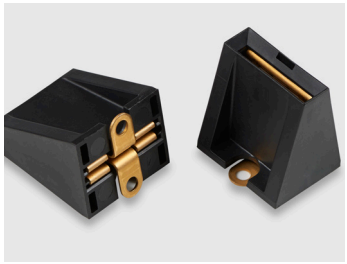


### Solder Tail

**Reference Part Numbers***
**2178410-1 | 2178411-1 | 1551953-1**

- Blind mate
- Hot pluggable
- Copper busbar, plated nickel or suitable alternative
- Current = 170A
- Anti-overstress feature
- Mating busbar thickness: 3.0 ± 0.1mm

## CROWN CLIP Senior Connectors

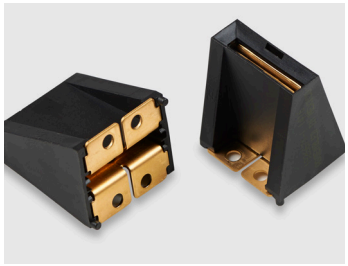


### CROWN CLIP Sockets

**Reference Part Number***
**1643906-1**

### CROWN CLIP II Sockets

**Reference Part Number***
**1643903-1**



### Dual CROWN CLIP Sockets

**Reference Part Number***
**1926671-1**

**CROWN CLIP Sockets Features:**

- Compact, high-current, blind-mate design. Supports true hot-plug, complies with safety regulatory requirements for current interruption under load.
- Utilizes the well-known ELCON CROWN BAND contact technology.
- CROWN CLIP connector could mate with the solid busbar blade (CROWN CLIP Std) or laminated busbar blade (CROWN CLIP II and Dual CROWN CLIP).
- CROWN CLIP Std is a single pole, and floating mount socket. CROWN CLIP II is a dual pole, floating mount socket, offering ±1.0mm floating contact and ±6° misalignment capability. Dual CROWN CLIP is a dual-pole, feed-through socket, allowing insertion of mating blade from both top or bottom of socket.
- Mating busbar blades to be .125" (3.18mm) or .118" (3.00mm) thick. Insertion length .650" (16.50mm) minimum, 1.00" (25.40mm) maximum.

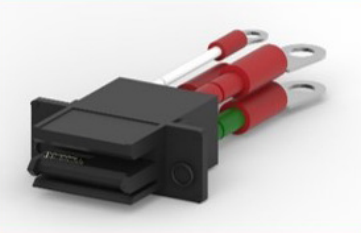
| | Part Number | Length (mm [in1]) | Width (mm [in1]) | Comment | Rated Current | Current Interruption |
|---|---|---|---|---|---|---|
| **CROWN CLIP** | 1643906-1 | 36.45 [1.435] | 25.40 [1.000] | Single Pole | 300A | 100A at 48V<br>200A at 42V |
| **CROWN CLIP II** | 1643903-1 | 36.45 [1.435] | 25.40 [1.000] | Dual Pole | 300A | 100A at 48V<br>200A at 42V |
| **Dual CROWN CLIP** | 1926671-1<br>2204899-1 | 35.56 [1.400]<br>30 [1.18] | 25.40 [1.000]<br>20.6 [0.81] | Single OR Dual Pole | 350A | 100A at 60V<br>200A at 5V |
| **CROWN CLIP Jr.** | 1982995-1<br>1982995-2<br>2178410-1<br>2178411-1<br>2178531-1<br>1551953-1 | 35.56 [1.400] | 26.67 [1050] | Feed Through | 170A | - |

*Part numbers listed are examples of some available samples, please visit website for additional and mating part numbers

## Features

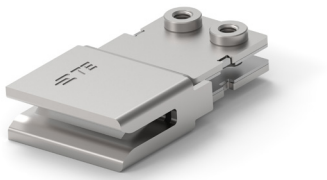
- Board-to-Busbar, Wire-to-Busbar
- Silver plated Copper alloy
- Mate with .125” or .062” thick plated busbar providing a separable connection that eases assembly, inspection, and troubleshooting
- Ideal for computer, industrial control, modular power supply or other applications that demand low millivolt drop and reliable separation. Commonly used in rack-mounted equipment with busbar architecture.
- Blind mateable (misalignment up to + .060” [1.52mm] for both series)

## Busbar Connector Overview

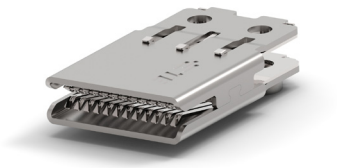


**50A Connector**
**2204288-1**

**200A Connector**
**2204080-1**



**300A Connector**
**2204761-1**

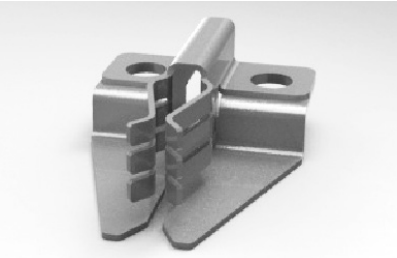


**500A Connector**
**2204273-2**

**Dual Pole 500A Connector**
**2204866-1**

| Part Number | Power Rating | Busbar Mating Width | Application |
|---|---|---|---|
| 2204761-1 | 12V or 48V, 300A | 3mm | Power Shelf, BBU Shelf, Cubby Shelf |
| 2204288-1 | 12V or 48V, 50A | 3.56mm | Power Shelf, BBU Shelf, IT Tray |
| 2204600-1 | 12V or 48V, 125A | 3mm | Power Shelf, BBU Shelf, IT Tray |
| 2204273-1 | 12V or 48V, 500A | 3mm | Power Shelf, BBU Shelf, Cubby Shelf |
| 2204080-1 | 12V or 48V, 200A | 3mm | Power Shelf, BBU Shelf, IT Tray |
| 2204866-1 | 12V or 48V, 500A | 6mm | BBU Shelf, IT Tray |
| 2204761-1 | 12V or 48V, 300A | 3mm | Power Shelf, BBU Shelf, IT Tray |

## 125 Series



**Reference Part Number***
**104502-1**

**Reference Part Number***
**104501-1**

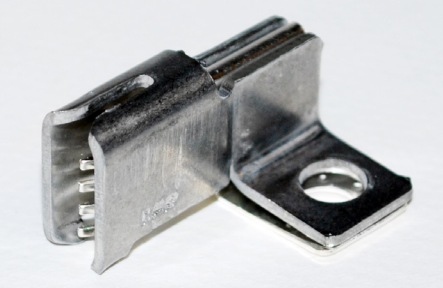
**Reference Part Number***
**213647-1**

- Contact Rated Current = 500A
- 100 mating cycles minimum
- 1" [25.4mm] minimum width busbar

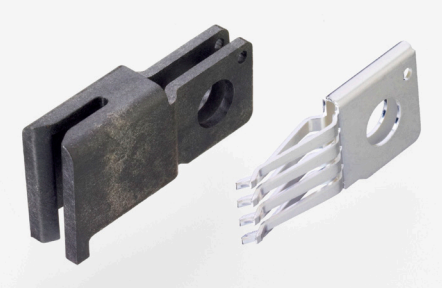
| Series | Part Number | Dimensions | | |
|---|---|---|---|---|
| | | "A" (Width) | "B" (Height) | "C" (Length) |
| 125 Series Fits Busbar **.125** [3.18] Thick | 104502-1* | **2.290** 58.17 | **1.141** 28.99 | **3.200** 81.28 |
| | 104501-1* | **.850** 21.59 | **1.122** 28.5 | **3.294** 83.67 |
| | 213647-1 | **1.250** 31.75 | **1.141** 28.99 | **1.993** 50.61 |
| | 2212011-1 | **1.25** 31.8 | **1.01** 25.8 | **2.00** 50.9 |

*Busbar or Cable Power Feed

## 062 Series



**Reference Part Number***
**104729-1**



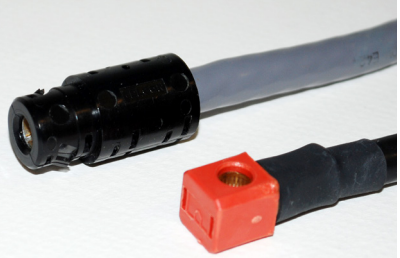
**Reference Part Number***
**104742-2**

| Series | Part Number | Dimensions | | |
|---|---|---|---|---|
| | | "A" (Width) | "B" (Height) | "C" (Length) |
| 062 Series Fits Busbar **.062** [1.57] Thick | 104729-1 | **1.360** 34.54 | **.705** 17.91 | **1.342** 34.09 |
| | 104742-2 | **.356** 9.04 | **.705** 17.91 | **1.342** 34.09 |

- Contact Rated Current = 250A
- 50 cycle minimum
- ½" [12.7mm] minimum width busbar

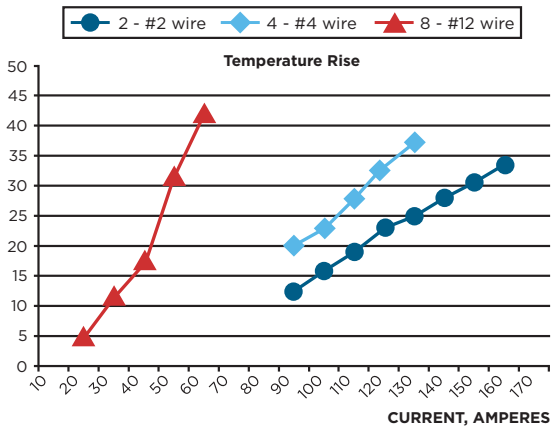
*Part numbers listed are examples of some available samples, please visit website for additional and mating part numbers

# RAPID LOCK Quick Connect/Disconnect Busbar Connectors



## Features

- Replacement for threaded studs
- No loose nuts = no fretting/heat rise
- Quick Connect/Disconnect
- Safety Locking feature
- Currents from 50A to 250A
- Wire sizes from 2.5 to 95mm²
- Color coding available
- Straight and right angle versions




## Pin Contacts - Swage Type

| Type | Type | Size | Current Rating | Part No |
|---|---|---|---|---|
| Pin Contact | Swage | #8 | 50A | 6648221-1 |
| Pin Contact | Swage | #4 | 120A | 6648222-1 |
| Pin Contact | Swage | #2 | 150A | 6648223-1 |
| Pin Contact | Swage | 12mm | 250A | 1857523-3 |

## Pin Sockets - Screw and Washer Type

| Type | Type | Part No | Size | Current Rating |
|---|---|---|---|---|
| Pin Contact | Screw & Washer | 2085957-1 | #4 | 120A |
| Pin Contact | Screw & Washer | 6648226-1 | #2 | 150A |

## Socket Connectors - Right Angle

| Part No | Size | Wire Size | Current Rating | Color* |
|---|---|---|---|---|
| 6648237-1 | #8 | AWG #12 | | Black |
| 6648228-1 | #8 | AWG #8 | 50A | Black |
| 1766484-1 | #8 | AWG #6 | | Black |
| 6648235-1 | #4 | AWG #8 | | Black |
| 6648239-1 | #4 | AWG #6 | 110A | Black |
| 6648236-1 | #4 | AWG #4 | | Black |
| 6648238-1 | #2 | AWG #2 | 150A | Black |
| 6648234-1 | #2 | AWG #0 | | Black |
| 1857547-1 | 12mm | 95mm² | 250A | Red |

*Black, Red and Blue colors available

## Insulation Boots

| Part No | Size | Color |
|---|---|---|
| 1651003-1 | #4 #8 | Black |
| 1651003-2 | #4 #8 | Red |
| 1651003-3 | #4 #8 | Grey |
| 1651003-4 | #4 #8 | Blue |
| 1766600-1 | #2 | Black |
| 1766600-2 | #2 | Red |
| 1766600-3 | #2 | Grey |
| 1766600-4 | #2 | Blue |

## Socket Connectors - Straight

| Type | Size | Wire Size | Current Rating | Color | Part No |
|---|---|---|---|---|---|
| Plastic locking hood | #8 | | | Black | 1643279-1 |
| Plastic locking hood | #8 | | | Red | 1643279-2 |
| Plastic locking hood | #8 | | | Blue | 1643279-3 |
| Socket contact | #8 | #8 | 50A | | 6648317-1 |
| Plastic locking hood | #4 | | | Black | 1651766-1 |
| Socket contact | #4 | #4 | 120A | | 6648434-1 |

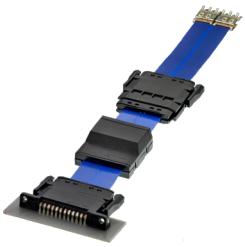
Part numbers listed are examples of some available samples, please visit website for additional and mating part numbers

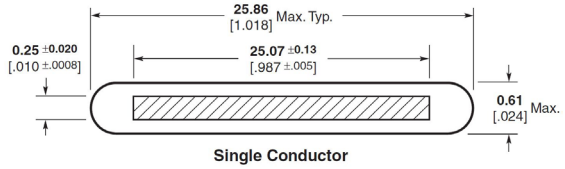
## Features

- Insulated flat copper cable conductors and associated interface components enable solutions to power distribution challenges through its unmatched packaging flexibility.
- Single and dual conductor cable types with various conductor and insulation thicknesses available. Standard cable types support 80-135 Amps and operating voltages up to 600V.
- Flat power cables offer a number of advantages over both round jacketed power cables or traditional busbars.
- Variety of interfaces for end of cable or mid-cable terminations enable high application versatility and customization.
- Flat cables can be easily formed and will hold their shape, enabling high packaging flexibility. Cables can be easily routed through confined spaces.
- Fully touch-safe. Less copper compared to round jacketed cable; therefore less weight and lower cost per ampere of rated current.

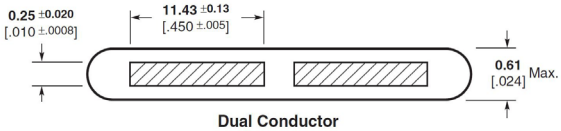
## Copper Cable Options

| Part Number | Width (mm [in1]) | Thickness (mm [in1]) | Copper Conductor(s) W (inch[mm]) x T (inch [mm]) | Color | Operating Voltage | Max Current (A) |
|---|---|---|---|---|---|---|
| 1-765210-7 | 1.018 (25.86) | 0.024 (0.61) | 1 x 0.987 (25.07) x 0.01 (0.25) | Blue | 300 | 80 |
| 1-765210-8 | 1.018 (25.86) | 0.034 (0.86) | 1 x 0.987 (25.07) x 0.02 (0.51) | Blue | 300 | 110 |
| 1-765210-9 | 1.018 (25.86) | 0.024 (0.61) | 2 x 0.45 (11.43) x 0.01 (0.25) | Blue | 300 | 40/40 |
| 2-765210-0 | 1.018 (25.86) | 0.034 (0.86) | 2 x 0.45 (11.43) x 0.02 (0.51) | Blue | 300 | 55/55 |
| 2-765210-3 | 0.484 (12.29) | 0.024 (0.61) | 1 x 0.45 (11.43) x 0.01 (0.25) | Blue | 300 | 40 |
| 2-765210-4 | 0.484 (12.29) | 0.034 (0.86) | 1 x 0.45 (11.43) x 0.02 (0.51) | Blue | 300 | 55 |
| 2-765210-5 | 1.018 (25.86) | 0.044 (1.12) | 1 x 0.987 (25.07) x 0.03 (0.76) | Red | 300 | 135 |
| 2-765210-6 | 1.018 (25.86) | 0.052 (1.32) | 1 x 0.987 (25.07) x 0.03 (0.76) | Red | 600 | 135 |
| 2-765210-7 | 1.018 (25.86) | 0.052 (1.32) | 1 x 0.987 (25.07) x 0.03 (0.76) | Blue | 600 | 135 |
| 2-765210-8 | 0.484 (12.29) | 0.034 (0.86) | 1 x 0.45 (11.43) x 0.02 (0.51) | Red | 300 | 55 |
| 2-765210-9 | 1.018 (25.86) | 0.034 (0.86) | 2 x 0.45 (11.43) x 0.02 (0.51) | Red | 300 | 55/55 |
| 3-765210-0 | 1.018 (25.86) | 0.034 (0.86) | 1 x 0.987 (25.07) x 0.02 (0.51) | Red | 300 | 110 |

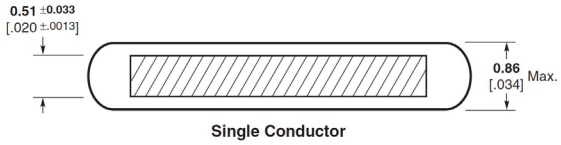




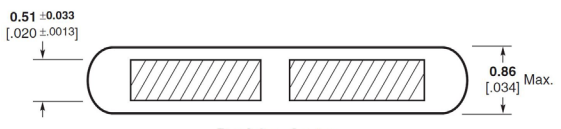

Single Conductor




Dual Conductor




Single Conductor




Dual Conductor

| Circular MILS Per Conductor | Approx AWG Per Conductor | Amps |
|---|---|---|
| 12,566 | 9 | 80 |
| 5,729 | 13 | 40/40 |
| 25,133 | 6 | 110 |
| 11,459 | 10 | 55/55 |

## Cable-to-Cable Connectors

| Part Number | Description | Tail Type | Tail Length (inch) |
|---|---|---|---|
| 765191-1 | slim plug | N/A | N/A |
| 765478-1 | slim receptacle | N/A | N/A |
| 766569-1 | cable to cable receptacle PM* | N/A | N/A |
| 766569-1 PM needs: | 765530-1, 765245-1 | N/A | N/A |
| 766569-1 | cable to cable receptacle STR** | N/A | N/A |
| 766569-1 STR needs: | 765529-1, 765245-1 | N/A | N/A |

*PM = Panel Mount
**STR = Sqeeze-to-Release

Cable Receptacle

Mid-Cable Termination .250 FASTON Tab Tap

PCB-Mounted Header

## Blindmate PCB-Mounted Headers

| Part Number | Description | Tail Type | Tail Length (inch) |
|---|---|---|---|
| 5765527-1 | 2 cable vert header | Solder | 0.131 |
| 5765527-2 | 2 cable vert header | Solder | 0.165 |
| 765608-1 | 2 cable R/A header | Solder | 0.273 |
| 5765208-1 | 4 cable vert header | Solder | 0.131 |
| 5765208-2 | 4 cable vert header | Solder | 0.165 |
| 5765208-3 | 4 cable vert header | Solder | 0.235 |
| 5765208-4 | 4 cable vert header | Solder | 0.305 |
| 766510-1 | 4 cable R/A header | Solder | 0.273 |
| 765208-5 | 4 cable vert header | Press Fit | 0.144 |

## PCB Mounted Headers

| Part Number | Description | Tail Type | Tail Length (inch) |
|---|---|---|---|
| 1-765206-7 | slim vert header | Solder | 0.131 |
| 1-765206-8 | slim vert header | Solder | 0.165 |
| 1-765206-9 | slim vert header | Solder | 0.225 |
| 2-765206-0 | slim vert header with eyelet | Solder | 0.131 |
| 765271-1 | slim vert header | Press Fit | 0.144 |
| 765204-5 | slim R/A header | Solder | 0.124 |
| 765204-6 | slim R/A header | Solder | 0.165 |

## Mid-Cable Terminations

| Part Number | Description | Tail Type | Tail Length (inch) |
|---|---|---|---|
| 765277-1 | Tap | N/A | N/A |
| 765311-1 | Side Tap, R/A | N/A | N/A |
| 765275-1 | Side Tap, Jogged | N/A | N/A |
| 765276-1 | .250 FASTON Tab Tap | N/A | N/A |

## Blindmate Cable-Mounted Receptacles

| Part Number | Description | Tail Type | Tail Length (inch) |
|---|---|---|---|
| 765528-1 | 2 cable housing | N/A | N/A |
| 765528-1 needs: | 765529-1, 765209-1, 768209-2 | N/A | N/A |
| 765247-1 | 4 cable housing | N/A | N/A |
| 765247-1 needs: | 765248-1, 765209-1, 768209-2 | N/A | N/A |

## Terminal Block Interface

| Part Number | Description | Centerline [inch,(mm)] | Hole Size [inch,(mm)] |
|---|---|---|---|
| 765228-1 | Full-Width Cover | | |
| 765216-1 | Termination Assembly, .562 | 0.562 (14.27) | 0.171 x 0.250 (4.34 x 6.35) |
| 765225-1 | Termination Assembly, .688 | 0.688 (17.48) | 0.270 x 0.296 (6.86 x 7.52) |
| 765229-1 | Half-Width Cover | | |
| 765216-1 | Termination Assembly, .562 | 0.562 (14.27) | 0.171 x 0.250 (4.34 x 6.35) |
| 765225-1 | Termination Assembly, .688 | 0.688 (17.48) | 0.270 x 0.296 (6.86 x 7.52) |

## Stud Interface

| Part Number | Description | Stud Size [inch,(mm)] | Hole Size [inch,(mm)] |
|---|---|---|---|
| 765228-1 | Cover | | |
| 765226-1 | Termination Assembly for 1/4 | 0.250 (6.35) | 0.266 (6.76) |
| 765226-2 | Termination Assembly for 5/16 | 0.312 (7.92) | 0.328 (8.33) |

# Associated Content

**Open Compute Project (OCP) Bus Bar Clip and Cable Assemblies QRG** (Doc # 1-1773867-8)

**2-Piece Power Connectors QRG** (Doc # 4-17773458-1)

TE also has a broad offering of **cable-mounted** bus bar connectivity solutions; contact TE for more details.

## For More Information

### TE Technical Support Center

| | |
|---|---|
| USA: | 1.800.522.6752 |
| Canada: | 1.905.475.6222 |
| Mexico: | 52.0.55.1106.0800 |
| Latin/S. America: | 54.0.11.4733.2200 |
| Germany: | 49.0.6251.133.1999 |
| UK: | 44.0.800.267666 |
| France: | 33.0.1.3420.8686 |
| Netherlands: | 31.0.73.6246.999 |
| China: | 86.0.400.820.6015 |

te.com/busbar

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**1-1773701-9 DND 02/2020**

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