

HALVONEX CONNECTOR SERIES

FOR INDUSTRIAL & COMMERCIAL TRANSPORTATION
TERMINALS AND CONNECTORS





WE GO TO EXTREMES TO MAKE SURE EVERY CONNECTION COUNTS.

TE Connectivity (TE) Industrial & Commercial Transportation (ICT) is a reliable provider of solutions for even the harshest environment. With a focus on employee expertise and durable products, we deliver the solutions and support our customers can count on.



2,000+ Employees

10,000+ Customers

20,000+ Different Parts

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

Our comprehensive line of products includes an unparalleled portfolio of rugged sensors, terminals, connectors, relays, and hybrid electric mobility solutions. These solutions are designed to withstand harsh environmental conditions and to help vehicles operate safer, cleaner, and smarter.

Our solutions adapt to virtually any harsh environment application, including:



Motors and Gearboxes



ABS/EBS Brake Units



Telematics Units



Sensors



Wire-To-Wire Coupling at the Chassis



Infotainment Applications

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HALVONEX CONNECTOR SERIES

Our HALVONEX connectors portfolio is a series of Sealed, Low Voltage Connectors for High Power Solution designed to meet the evolving demands of modern electrical vehicle systems utilizing 48V architecture while covering a wide range of wire sizes from 6mm² to 95mm². These connectors are engineered to provide reliable and efficient power transmission to address the need for higher current ratings with lower voltage connections in a compact design.



KEY BENEFITS

- Sealed, Low Voltage (60 V- up to 100 V*), High Current (up to 400 A) and High Power Connectors
- Ensure optimal electrical conductivity, capable of supporting high currents without compromising performance.
- Made from premium materials that are specifically selected for their durability, resistance to wear, and ability to maintain electrical performance even in harsh conditions.
- Built to withstand extreme environmental conditions such as high humidity, dust, vibrations, and corrosive elements.
- Compact size, helps save space.

KEY INDUSTRIES



Truck



Bus



Agriculture



Construction



Forklift

APPLICATIONS

The HALVONEX connector series can be utilized in the following applications:



EV Battery



After-Treatment



Chassis



High Power Air Compressor



Electric Power Steering



DC/DC converter



eFan



Battery Box

* :- upto 100V(need to be verified and approved by user)

PRODUCT DOCUMENTATION

Additional product documentation is available for assistance with HALVONEX connector series products.

HALVONEX MAX CONNECTORS

| | PRODUCT DOCUMENTATION | RECEPTACLE CONTACTS |
|---------------------------|-----------------------|---------------------|
| PRODUCT SPECIFICATION | 108-94935 | 108-94638 |
| APPLICATION SPECIFICATION | 114-97857 | 114-94511 |



HALVONEX PRO CONNECTORS

| | PRODUCT DOCUMENTATION | TERMINAL SPECIFICATIONS |
|---------------------------|-----------------------|-------------------------|
| PRODUCT SPECIFICATION | 108-18630 | 108-18809 |
| APPLICATION SPECIFICATION | 114-18022 | 114-18501 |



| PERFORMANCE SPECIFICATIONS | |
|----------------------------|--|
| Temperature: | Operating at temperatures -40°C to +120°C |
| Mating Durability: | Contacts: up to 50 cycles (silver) (see individual product specifications for additional details.) |
| Insulation Resistance: | 500 V DC, test per ISO 16750-2 (4.12) |
| Immersion: | IP67 rating, IP69K (with cover), for flanged tab housings, only by observing mounting instructions. |
| Random Vibration: | Tested at 177 m/s ² , 94 hours per axis. (See product spec 108-94020 for full specifications.) |
| Voltage: | 60V (up to 100V)* |
| Flammability: | UL 94-VO-rated material |
| Current Rating: | Up to 400 Amp. |

| MATERIAL SPECIFICATIONS | |
|-----------------------------|-------------------------|
| Flange Seal: | Silicone rubber |
| Seal for Secondary Locking: | Silicone rubber |
| Housing: | Glass-filled PBT |
| Secondary Lock: | PBT GF30 FR VO material |
| Slide Lock: | Glass-filled PBT |

* - upto 100V(need to be verified and approved by user)

HALVONEX MAX CONNECTOR SERIES HOUSINGS

HALVONEX Max connectors are a high-power PCON 21 terminal connector which specifically supports the increased connectivity requirements in Low-voltage interconnection systems of hybrid and all-electric vehicles, powertrain and auxiliary applications. With a wide range of wire sizes from 50mm² to 95mm²**, the connectors provide a backbone for efficient and sustainable operations, no matter the conditions.

1 POSITION WIRE TO BOARD/BUSBAR SOLUTIONS



DIMENSIONS

| Receptacle Housing | | | Header | | |
|--------------------------------|-----------------------------------|--------------------|-------------------|-------------------|-------------------|
| Overall Length A | Overall Height B | Overall Width C | Overall Length D | Overall Height E | Overall Width F |
| 94.4 - 113.5* (3.71"-4.46") | 47.4mm - 58.19mm (1.86"-2.29") | 44.4 mm (1.74") | 44.6mm (1.75") | 87.4mm (3.44") | 55.5mm (2.18") |

2 POSITION WIRE TO BOARD/BUSBAR SOLUTIONS



DIMENSIONS

| Receptacle Housing | | | Header | | |
|-----------------------------------|--------------------------------|-------------------|-------------------|-------------------|-------------------|
| Overall Length A | Overall Height B | Overall Width C | Overall Length D | Overall Height E | Overall Width F |
| 94.35mm - 120mm* (3.71"-4.72") | 47.4mm-58.2mm (1.86"-2.29") | 79.6mm (3.13") | 79.8mm (3.14") | 87.4mm (3.44") | 55.5mm (2.18") |

* : Lower limit without the cover, upper limit with cover

** : more wire sizes coming soon. Please contact TE for more information

ORDERING INFORMATION

| Positions | Contacts | Keying Color | Header 90° | Header 180° | Housing Type | | |
|-----------|----------|---------------|---------------|-------------|----------------|-----------------|-------------|
| | | | | | Receptacle 90° | Receptacle 180° | Tab Housing |
| 1 | PCON 21 | Black | 1-2461731-1 | 2461731-1 | 2461715-1 | 2461722-1 | * |
| | | Emerald Green | 1-2461731-2 | 2461731-2 | 2461715-2 | 2461722-2 | * |
| 2 | PCON 21 | Black | 1-2461733-1 | 2461733-1 | 2461719-1 | 2461726-1 | * |
| | | Emerald Green | 1-2461733-2 | 2461733-2 | 2461719-2 | 2461726-2 | * |
| | | Black | 2-2461733-1** | | 2461719-1 | 2461726-1 | * |
| | | Green | 2-2461733-2** | | 2461719-2 | 2461726-2 | * |

* - Coming soon. Please contact TE for further information

** - Flat Header Pins

HALVONEX MAX CONNECTOR ACCESSORIES

Several accessories are available to complement the HALVONEX connector series, including Terminal Position Assurance. Accessory items cover a wide array of design requirements such as assisting with mounting, providing additional protection, and offering enhanced functionality.

| Image | Accessory | Wire size (mm ²) | Part Number |
|---|--------------------------------------|------------------------------|-------------|
|  | Terminal Position Assurance (Runner) | 50 | 2461739-1 |
| | | 70 | 2461739-2 |
| | | 95 | 2461739-3 |
|  | Terminal Position Assurance (Pusher) | - | 2461740-1 |
|  | Cable Clamp | 50 | 2461741-1 |
| | | 70 | 2461741-2 |
| | | 95 | 2461741-3 |
|  | Connector Cover | 50 | 2461742-1 |
| | | 70 | 2461742-2 |
| | | 95 | 2461742-3 |
|  | Single Wire Seal | 50 | 2461743-1 |
| | | 70 | 2461743-2 |
| | | 95 | 2461743-3 |

CONTACTS AND TOOLING FOR HALVONEX CONNECTOR SERIES

HALVONEX MAX CONNECTOR SERIES CONTACTS

HALVONEX Max connectors utilize the common PCON 21 terminal contact system. These are high-power terminals specially designed for supporting increased connectivity requirements in interconnection systems of hybrid and all-electric vehicles.

Product Specification: 108-94638

Application Specification: 114-94511



PCON 21 CONTACT PERFORMANCE SPECIFICATIONS

| PCON 21 Contacts | |
|----------------------|-----------------------|
| Durability | 50 cycles (silver) |
| Vibration Level | USCAR V1 / LV214, SG2 |
| Max Current @ 80°C | Up to 400 A |
| Contact Normal Force | Approx. 3.5N |

HALVONEX MAX CONNECTOR SERIES CONTACTS

ORDERING INFORMATION

Stamped & Formed Tabs and Receptacles with Single Wire Sealing System

| PCON 21 | Orientation | Wire Size (mm ²) | Insulation Range (mm) | Part Number | Material |
|------------|-------------|------------------------------|-----------------------|-------------|----------|
| Receptacle | 90° | 25-50 | 10.4-13.5 | 2317017-1 | Silver |
| | | 70-95 | 15.5-18.0 | 2317017-2 | |
| | 180° | 25-50 | 10.4-13.5 | 2317680-1 | |
| | | 70-95 | 15.5-18.0 | 2317680-2 | |



HALVONEX MAX CONNECTOR SERIES APPLICATION TOOLING

| PCON 21 | Orientation | Wire Size (mm ²) | Strip Form Part Number | Crimp Height | Material | Master Application Tool |
|---------|-------------|------------------------------|------------------------|--------------|----------|-------------------------|
| PCON 21 | 90° | 25 | 2317017-1 | 6.4 +/- 0.15 | 14.5 | 541935-2 |
| | | 35 | | 6.6 +/- 0.15 | 14.5 | |
| | | 50 | | 7.7 +/- 0.15 | 15.0 | |
| | | 70 | 2317017-2 | 8.6 +/- 0.15 | 19.0 | 541936-2 |
| | | 95 | | 9.6 +/- 0.15 | 19.0 | |
| | 180° | 25 | 2317680-1 | 6.4 +/- 0.15 | 14.5 | 541923-2 |
| | | 35 | | 6.6 +/- 0.15 | 14.5 | |
| | | 50 | | 7.7 +/- 0.15 | 15.0 | |
| | | 70 | 2317680-2 | 8.6 +/- 0.15 | 19.0 | 541924-2 |
| | | 95 | | 9.6 +/- 0.15 | 19.0 | |

HALVONEX PRO CONNECTOR SERIES

HALVONEX PRO CONNECTORS

HALVONEX Pro connectors serve as a reliable solution for harsh environment applications that require a high-power, environmentally sealed two position electrical connector for wire sizes ranging from 6mm² to 10mm². With non-negotiable reliability and performance, the connector provides robust resistance to high temperature and vibrations.



DIMENSIONS

| Receptacle Housing | | | Tab Housing | | | Header | | |
|------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------|----------------------------|------------------|---------------------|-----------------|
| Overall Length A | Overall Height B | Overall Width C | Overall Length D | Overall Height E | Overall Width F | Overall Length G | Overall Height H | Overall Width I |
| 56.4-57.4 mm (2.22-2.25") | 58.5-59.5 mm (2.30-2.34") | 36.0-38.0 mm (1.42-1.49") | 83.6-84.4 mm (3.29-3.32") | 37.5-38.2 mm (1.47-1.5") | 57.4-58 mm (2.25-2.28") | 58 mm (2.28") | 49.35 mm (1.94") | 49 mm (1.9") |

ORDERING INFORMATION

| Positions | Contacts | Keying Color | Header 180° | Receptacle Housing | Tab Housing | |
|-----------|----------|--------------|-------------|--------------------|------------------|---------------------|
| | | | | | With Flange Seal | Without Flange Seal |
| 2 | (2x) 9.5 | Black | 2282162-1 | 1355328-1 | 1394026-1 | 1394026-2 |

*Other configurations available upon request. Please contact TE for additional information.

HALVONEX PRO CONNECTOR ACCESSORIES

Backshells provide additional protection against environmental conditions as well as provide additional strain relief to the wire bundle.

| Accessory | Accessibility | Part Number |
|--|------------------------|-------------|
| Backshell for Tab and Receptacle Housing | 2 way, 90° NW17 tubing | 2286685-1 |



HALVONEX PRO CONNECTOR SERIES CONTACTS

HALVONEX Pro connectors utilize the common AMP MCP 9.5 terminal contact system. These are high-power terminals specially designed for supporting increased connectivity requirements.

Product Specification : 108-18630

Application Specification : 114-18022



ORDERING INFORMATION

Stamped & Formed Tabs and Receptacles with Single Wire Sealing System

| | Wire Size (mm ²) | Insulation Diameter FLK (mm) | Strip Form Part Number | Loose Piece Part Number | Material/Finish Codes |
|---------------------|------------------------------|------------------------------|------------------------|-------------------------|-----------------------|
| Receptacle Contacts | 6.0-10.0 | 4.6-6.4 | 967590 | 929152 | 1-x-1* |
| Tab Contacts | 6.0-10.0 | 4.6-6.4 | 963774 | 963775 | 1-x-1*; 1-x-2* |

AMP MCP 9.5 CONTACT MATERIAL AND FINISH CODES

| | Finish Code | 1-x-1 | 1-x-2 |
|---------------------|-------------|---------|---------|
| | Material | CuNiSi | - |
| | Plating | Pre-Tin | - |
| Receptacle Contacts | Material | CuSn | CuFe |
| | Plating | Pre-Tin | Pre-Tin |
| Tab Contacts | Material | CuSn | CuFe |
| | Plating | Pre-Tin | Pre-Tin |

*Other configurations available upon request. Please contact TE for additional information.

HALVONEX PRO CONNECTOR SERIES

AMP MCP 9.5 WIRE SEALS

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

| Insulation Diameter (mm) | Wire Size Range (mm ²) | Color | Part Number |
|--------------------------|------------------------------------|--------|-------------|
| 4.6-5.2 | 6.0 | Violet | 1355437-1 |
| 5.8-6.6 | 10 | Blue | 1355437-2 |



HALVONEX PRO CONNECTOR SERIES APPLICATION TOOLING

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



HAND TOOL FOR AMP MCP CONTACTS

| Contact Size | Contact Type | Strip Form Part Number | Loose Piece Part Number | Hand Tool Part Number | Die Set Part Number |
|--------------|--------------|------------------------|-------------------------|-----------------------|--------------------------------|
| 9.5 | Receptacle | 967590 | 929152 | 539783-1 | 539783-8 for 6mm ² |
| | Tab | 963774 | 963775 | - | 539783-9 for 10mm ² |

Applicator available on request

EXTRACTION TOOLS

| Contact Size | Contact Type | Tool Part number |
|--------------|--------------|------------------|
| 9.5 | Receptacle | 539971-1 |
| | Tab | 1-1579007-1 |



ABOUT TE CONNECTIVITY

TE Connectivity is a global industrial technology leader creating a safer, sustainable, productive, and connected future. Our broad range of connectivity and sensor solutions enable the distribution of power, signal and data to advance next-generation transportation, renewable energy, automated factories, data centers, medical technology and more. With more than 85,000 employees, including 8,000 engineers, working alongside customers in approximately 140 countries, TE ensures that **EVERY CONNECTION COUNTS**.

Learn more at www.te.com and on LinkedIn, Facebook, WeChat, Instagram and X (formerly Twitter).

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We make it easy to connect with our experts and are ready to provide all the support you need. For additional information or product assistance, please contact your field representative or our customer service department. Additional information is also available on the website te.com/ict.

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