



POWER DISTRIBUTION SOLUTIONS

Industrial & Commercial Transportation

Whether you are on the road or at the worksite, the complexity and number of electrical and electronic functions in your vehicle increases the need for a reliable multi-purpose power network. We offer a portfolio of rugged, flexible, and cost-effective solutions for complex heavy vehicle and equipment networks. Our sealed direct wire fuse and relay enclosure products are offered in 2-60 circuit configurations and specifically designed to withstand tough conditions and round the clock operations. These rugged products provide the easy-to-use, off-the-shelf solution that you need to build an economical electrical network.

Our sealed direct wire fuse and relay enclosure products control and distribute the current flow within a vehicle's electric power network. They are available in multiple sizes and mounting options. Our compact line includes sealed Dual-4P, 8P, 24P and Maxi fuse holders. These options make adding accessible circuit protection quick and easy into any vehicle. With our portfolio of power distribution products and our expertise in connectivity we are here to help solve your biggest harsh environment connection system challenges.

APPLICATIONS

- On-highway and off-road trucks
- Commercial passenger buses and school buses
- Construction machinery and equipment
- Agricultural and turf-care equipment
- Industrial machinery and power equipment
- Recreational products - snowmobiles, boats, personal water craft, utility vehicles, all-terrain vehicles, and motorcycles

60 Position Fuse and Relay Enclosures

FEATURES

- Designed for 2.8 mm plug-in blade ATM type mini fuse and up to eight (8) 280 micro relay components
- Utilizes sealed AMP MCP 2.8 mm receptacle terminals
- Accommodates multiple mounting configurations and brackets
- Sealed to IP67 requirements with cover installed
- For use with 12 AWG GXL - 18 AWG SXL wire
- Dual cover latches with cover position assurance capability
- 5 columns x 12 rows

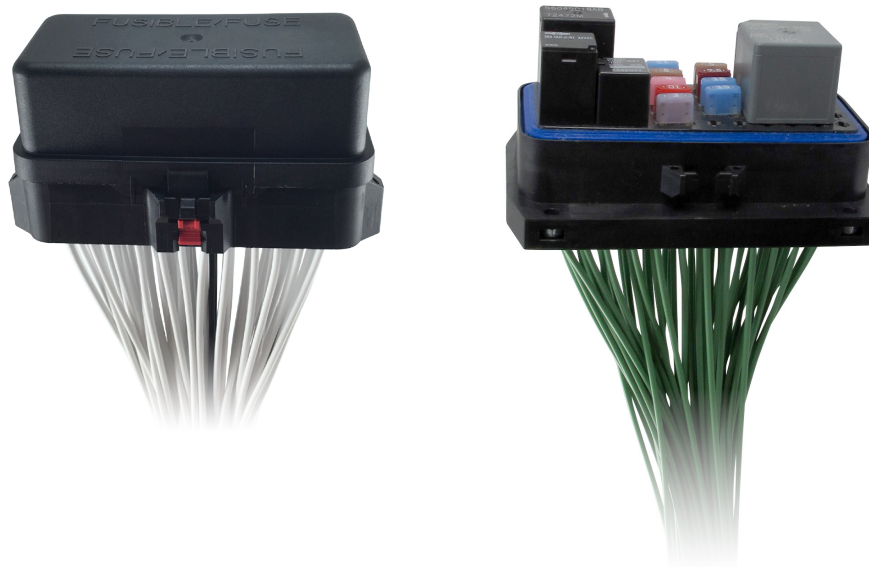


ORDERING INFORMATION

Direct Wire Fuse and Relay Solutions - 60 Way Fuse Box

Part Number

| | |
|---|-----------|
| 60P direct wire fuse (30x) enclosure assembly with seal and dual cover position assurance | 1443997-1 |
| 60P direct wire fuse (30x) enclosure assembly with seal | 1443997-2 |
| NEW 60P direct wire fuse (30x) enclosure assembly with seal and mounting flange | 2304643-4 |
| Cover, standard height | 1443996-4 |
| Cover, standard height with spare fuse holders | 1443996-3 |
| Cover, standard height with top side graphic | 1443996-2 |
| Cover, standard height, spare fuse holders & topside graphic | 1443996-1 |



Power Distribution Solutions

49, 38 & 27 Position Fuse & Mini ISO Relay Enclosures

FEATURES

- Designed for 1, 2, or 3 mini ISO relay(s) and 2.8 mm plug-in blade fuse component
- Utilizes sealed AMP MCP 2.8 mm and 6.3 mm receptacle terminals
- Accommodates multiple mounting configurations and brackets
- Sealed to IP67 requirements with cover installed
- For use with 10 AWG FLR - 18 AWG SXL wire
- Dual cover latches with cover position assurance capability



ORDERING INFORMATION

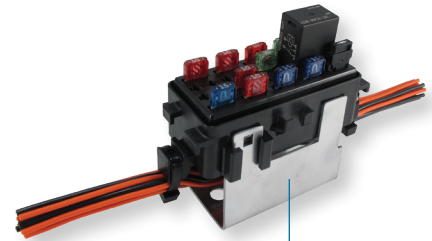
Direct Wire Fuse and Relay Solutions - 49, 38, & 27 Way Fuse Box

| | Part Number |
|--|-------------|
| 49P direct wire fuse (22x) & relay (1x) enclosure assembly w/ seal and dual cover CPA | 2297813-1 |
| NEW 49P direct wire fuse (22x) & relay (1x) enclosure w/seal and M4 mounting flange | 2304643-1 |
| 38P direct wire fuse (14x) & relay (2x) enclosure assembly w/ seal and dual cover CPA | 2297813-2 |
| NEW 38P direct wire fuse (14x) & relay (2x) enclosure w/seal and M4 mounting flange | 2304643-2 |
| 27P direct wire fuse (6x) & relay (3x) enclosure assembly w/ seal and dual cover CPA | 2297813-3 |
| NEW 27P direct wire fuse (6x) & relay (3x) enclosure w/seal and M4 mounting flange | 2304643-3 |
| Cover, extended height | 2098164-4 |
| Cover, extended height with spare fuse holder | 2098164-3 |
| Cover, extended height with top side graphic | 2098164-2 |
| Cover, extended height, spare fuse holder & topside graphic | 2098164-1 |

40 Position Fuse and Relay Enclosures

FEATURES

- Designed for 2.8 mm plug-in blade ATM type mini fuse and up to eight (8) 280 micro relay components
- Utilizes sealed AMP MCP 2.8 mm receptacle terminals
- Integrated harness strain relief on both sides with bracket mounting options
- Sealed to IP67 requirements with cover installed
- For use with 18 AWG SXL - 12 AWG GXL
- Integrated harness strain relief
- 4 columns x 10 rows



Bracket shown is representative only; bracket component is not available from TE Connectivity.

ORDERING INFORMATION

Direct Wire Fuse and Relay Solutions - 40 Way Fuse Box

| | Part Number |
|---|-------------|
| 40P direct wire fuse (20x) enclosure assembly with cover position assurance (CPA) | 1587335-1 |
| 40P direct wire fuse enclosure base | 109853-1 |
| Cover assembly with seal and with top side graphic | 109854-1 |

COMPACT – SEALED DIRECT WIRE FUSE & RELAY ENCLOSURES

Solutions for Auxiliary Circuit Protection

We have expanded our offering of compact sealed fuse & relay holders to meet the industry's demand for accessory and overflow circuit protection. The range of sizes and possible configurations offer the design flexibility and reliability that you need to build a safe and economical electrical network. These compact sized offerings – Dual (4P), 8P and 24P accept AMP MCP 2.8mm terminals. This multiple contact point terminal system confirms component retention and offers a reliable connection even in high vibration environments. The heavy-duty thermoplastic housing and dual latching cover are designed to withstand the severe vibration and mechanical shock of harsh environments and 24/7 operation. These compact, rugged fuse and relay enclosures can be fitted with a mix of 280 style components – ATM type mini fuses, mini circuit breakers, mini diodes, mini resistors and ISO 280 micro and ultra-micro relays. The 8P and 24P housings can accommodate multiple component configurations.

The Maxi fuse holder with the MCON 8mm receptacle terminal expands our compact size offering into higher current circuit protection. The Maxi fuse holder is designed for high vibration environments and is rugged enough for direct chassis mounting.

The full range of our compact size offering can be chassis mounted using standard DEUTSCH DT and AMPSEAL 16 connector mounting clips. The mounting clip offering includes 90° and 180° options as well as thermoplastic and metal options. When you need to add accessible and reliable circuit protection into your heavy-duty vehicle or equipment, you can count on TE to help you make it easy.

FEATURES

- Compact sizes
- Accommodates 2.8mm plug-in blade ATM-type mini fuses, mini circuit breakers, mini diodes, mini resistors and ISO 280 micro and ultra-micro relays
- Environmentally sealed to IP67 rating with wire seals/plugs installed
- Available with integrated mounting feature or dovetail for multiple mounting clip options
- Maxi fuse housings are stackable
- Mounting features are attached to the housing rather than the cover. This reduces the applied load on the seal, providing for a more robust and reliable seal interface

BENEFITS

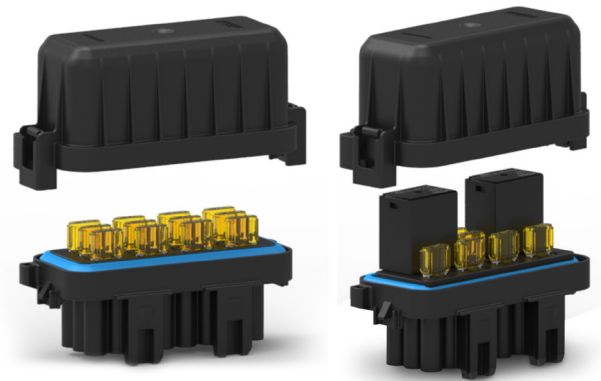
- Quickly and easily add a sealed fuse anywhere
- Numerous mounting options, with readily available mounting clips
- Uses the high-performance AMP MCP terminal system for proven reliability



24 Position Fuse and Relay Enclosures

FEATURES

- Designed for 2.8 mm plug-in blade ATM type mini fuse and up to two (2) 280 micro relay components
- Utilizes sealed AMP MCP 2.8 mm receptacle terminals
- Accommodates multiple mounting configurations and brackets
- Sealed to IP67 requirements with cover installed
- For use with 14 AWG GXL - 18 AWG SXL wire
- Dual cover latches
- 3 columns x 8 rows



12 mini fuse variant

2- 280 micro relay,
6-mini fuse variant

ORDERING INFORMATION

Direct Wire Fuse and Relay Solutions - 24 Way Fuse Box

| | Part Number |
|---|-------------|
| 24P direct wire fuse (12x) housing with seal and dovetails for mounting clips | 2318967-1 |
| 24P direct wire fuse (12x) housing with seal. Dovetail feature supports 30° and 90° angled metal mounting brackets. | 2318967-2 |
| Raised height cover for 24P enclosure | 2318957-2 |
| Standard height cover for 24P enclosure | 2318957-1 |

8 Position Fuse and Relay Enclosures

FEATURES

- Designed for 2.8 mm plug-in blade ATM type mini fuse and 280 micro relay components
- Utilizes sealed AMP MCP 2.8 mm receptacle terminals
- Sealed to IP67 requirements with cover installed
- For use with 14 AWG GXL - 18 AWG SXL wire
- Dual cover latches



4 mini fuse variant

1- 280 micro relay,
1-mini fuse variant

ORDERING INFORMATION

Direct Wire Fuse and Relay Solutions - 8 Way Fuse Box

| | Part Number |
|---|-------------|
| 8P direct wire fuse (4x) housing with seal | 2319023-1 |
| 8P direct wire fuse (1x) & relay (1x) housing with seal | 2319023-2 |
| Raised height cover for 8P enclosure | 2319021-2 |
| Standard height cover for 8P enclosure | 2319021-1 |

Dual Sealed Mini Fuse Holders

FEATURES

- Designed for 2.8 mm plug-in blade ATM type mini fuse
- Utilizes sealed AMP MCP 2.8 mm receptacle terminals
- Accommodates two active and two spare fuses
- Sealed to IP67 requirements with cover installed
- Available with integrated mounting feature, or dovetail that accepts mounting clips
- Due to mounting being on the housing assembly instead of the cover, there is a reduced applied load on the seal, which provides a more robust seal interface



ORDERING INFORMATION

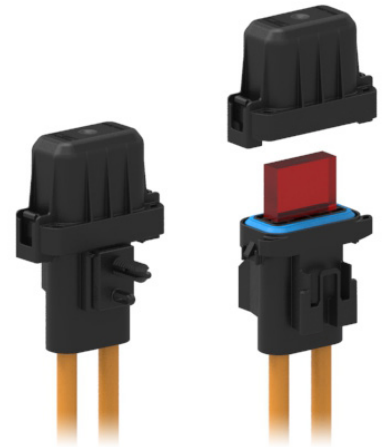
Direct Wire Fuse Solutions – Dual Sealed Mini Fuse Holder

| | Part Number |
|--|-------------|
| 4P Fuse (2x + 2 spares) housing with integrated mounting feature | 2066046-3 |
| 4P Fuse (2x + 2 spares) housing with dovetail for connector mounting clips | 2066046-4 |
| Cover, 25A & 15A markings | 1-2066502-1 |
| Cover, 25A & 10A markings | 1-2066502-2 |
| Cover, with no current markings | 1-2066502-3 |

Single MAXI Fuse Holders

FEATURES

- Designed for plug-in blade MAXI type fuses
- Utilizes sealed MCON 8 mm receptacle terminals
- Accommodates multiple mounting configurations
- For use with 2.5 mm² - 10.0 mm² wire
- Dual cover latches



ORDERING INFORMATION

Direct Wire Fuse Solutions – Single MAXI Fuse Holder

| | Part Number |
|---|-------------|
| 2P direct wire fuse (1x) housing with integrated mounting feature for customer supplied bracket | 2319826-1 |
| 2P direct wire fuse (1x) housing with dovetail for mounting clips | 2319826-2 |
| Raised height cover for 2P MAXI Fuse Holder | 2319021-2 |

AMP MCP Terminal Benefits



6.3 mm AMP MCP terminal establishes multiple points of contact on both sides of each ISO relay blade terminal, providing stable electrical connection and solid relay retention performance; while 3-gland wire seal provides redundant and robust sealing characteristics to wire and plastic housing.

2.8 mm AMP MCP terminal establishes multiple points of contact on both sides of each ATM mini fuse blade terminal, providing stable electrical connection and solid fuse retention performance; while 3-gland wire seal provides redundant and robust sealing characteristics to wire and plastic housing.

Design-In Guidelines

- Direct wire fuse and relay enclosures can be assembled directly to the harness and are intended to be provided by your harness supplier.
- Multiple, distributed, auxiliary power distribution modules using these parts can be assembled into a vehicle’s electrical wiring architecture.
- These products are ideally suited for applications where volumes or design and project timing do not justify development of new or custom electrical enclosures.
- These direct wire fuse and relay enclosures are designed to accommodate a customer supplied bracket for secure vehicle mounting and wiring access, see customer drawing for details.
- Sealed product designed for mounting in areas of high heat or vibration; but away from hazardous, articulating or rotating sections of the vehicle.
- Product Specification: 108-2206
- Application Specifications: 114-18388, 114-18148-5

Applicable Companion Components

ORDERING INFORMATION

| AMP MCP 2.8mm Receptacle Terminal (Other platings and wire sizes available) | Part Number |
|---|-------------|
| 22-24 AWG, 0.35 – 0.5 mm ² wire, strip form | x-968882-x |
| 20-18 AWG, 0.5 – 1.0 mm ² wire, strip form | x-968855-x |
| 16-14 AWG, 1.0 – 2.5 mm ² wire, strip form | x-968857-x |
| 12 AWG, 3.0 – 3.8 mm ² wire, strip form | x-1719506-x |
| 22-24 AWG, 0.35 – 0.5 mm ² wire | x-968896-x |
| 20-18 AWG, 0.5 – 1.0 mm ² wire | x-968875-x |
| 16-14 AWG, 1.0 – 2.5 mm ² wire | x-968876-x |

Material and Finish:

1-xxx-1 = CuNiSi, pre-tin plated; 1-xxx-3 = CuNiSi, selective silver plated

| AMP MCP 2.8mm Single Wire Seals (Silicone) | Part Number |
|---|--------------------|
| Single wire seal, Ø1.2-2.1 mm insulation, blue | 828904-1 |
| Single wire seal, Ø2.2-3.0 mm insulation, white | 828905-1 |
| Single wire seal, Ø2.7-3.0 mm insulation, grey | 282536-1 |
| Cavity plug, natural | 828922-1 |
| Cavity plug, green | 828922-2 |

| Auxiliary Tooling for AMP MCP 2.8mm Terminals | Part Number |
|---|--------------------|
| Terminal Removal Tool - used to extract receptacle terminals from housing | 1579007-1 |
| Fuse Puller | 1443998-1 |

| AMP MCP 6.3mm Terminal For Mini ISO Relay Connection on 27P, 38P & 49P | Part Number |
|---|--------------------|
| 14 AWG, 1.0-2.5 mm ² wire, strip form | 1241414-x |
| 12 AWG, 2.5-4.0 mm ² wire, strip form | 1241416-x |
| 10 AWG, 4.0-6.0 mm ² wire, strip form | 1241418-x |

Material and Finish:

xxx-1 = CuNiSi, pre-tin plated; xxx-3 = CuNiSi, selective silver plated

| AMP MCP 6.3mm Single Wire Seals (Silicone) | Part Number |
|---|--------------------|
| Single Wire Seal, Ø2.7 - 3.0mm insulation, rust | 1823111-1 |
| Single Wire Seal, Ø3.4 - 3.7mm insulation, blue | 1394512-1 |
| Single Wire Seal, Ø4.0 - 4.5mm insulation, green | 1719043-1 |

| Auxiliary Tooling for AMP MCP 6.3mm Terminals | Part Number |
|--|--------------------|
| Terminal Removal Tool - used to extract terminals from housing | 1-1579007-3 |

| Mounting Clip Options | Part Number |
|---|--------------------|
| DT mounting clip, straight, 13mm dia hole, stainless-steel | 1027-005-1200 |
| DT mounting clip, straight, 13mm dia hole, zinc plated steel | 1027-004-1200 |
| DT mounting clip, straight, 11mm dia hole, stainless-steel | 1027-003-1200 |
| DT mounting clip, straight, 11mm dia hole, zinc plated steel | 1027-008-1200 |
| DT mounting clip, straight, 8.2mm dia hole, zinc plated steel | 1027-017-1200 |
| DT mounting clip, straight, 5.08mm dia hole, plastic | 1011-026-0205 |
| DT mounting clip, straight, T-stud 5.08mm, plastic | 1011-030-0205 |
| DT mounting clip, straight, fir tree stud mount, plastic | 1011-310-0205 |
| AS16 mounting clip, straight, 20.5 mm, fir tree stud mount, plastic | 1924487-1 |
| AS16 mounting clip, straight, 20.5mm, fir tree stud mount, anti-rotation, plastic | 1924487-2 |
| AS16 mounting clip, straight, 11mm, fir tree stud mount, plastic | 1924487-3 |

Product Selection Guide

| Name | No. of Cavities | Grid | AMP MCP Terminals* | ATM Type Mini Fuse | MAXI Fuse |
|------|-----------------|------|--------------------|--------------------|-----------|
| 60P | 60 | 5x12 | 2.8mm | 30 | |
| 49P | 49 | 5x12 | 2.8/6.3mm | 22 | |
| 38P | 38 | 5x12 | 2.8/6.3mm | 14 | |
| 27P | 27 | 5x12 | 2.8/6.3mm | 6 | |
| 40P | 40 | 4x10 | 2.8mm | 20 | |
| 24P | 24 | 3x8 | 2.8mm | 12 | |
| 8P | 8 | 2x4 | 2.8mm | 4 | |
| DUAL | 4 | 2x2 | 2.8mm | 2 | |
| MAXI | 2 | 1x2 | MCON 8mm | | 1 |

| Name | Micro 280 / Ultra Micro Relay | Mini-ISO Relay | Rating w/ Cover | Cover Latch CPA Option | Mounting Clip/Bracket Options | Flange Mount (M4 Screw) Option |
|------|-------------------------------|----------------|-----------------|------------------------|-------------------------------|--------------------------------|
| 60P | 8 | | IP67 | ✓ | ✓ | ✓ |
| 49P | 4 | 1 | IP67 | ✓ | ✓ | ✓ |
| 38P | 2 | 2 | IP67 | ✓ | ✓ | ✓ |
| 27P | | 3 | IP67 | ✓ | ✓ | ✓ |
| 40P | 8 | | IP67 | ✓ | ✓ | |
| 24P | 3 | | IP67 | | ✓ | |
| 8P | 1 | | IP67 | | ✓ | |
| DUAL | | | IP67 | | ✓ | |
| MAXI | | | IP67 | | ✓ | |

* Terminals are available in tin and silver platings for a variety of wire gauge sizes

Single Wire Seals are color-coded based on the selected wire O.D. and terminal size

Sealing plugs must be installed in any non-populated terminal position for IP67 protection

TE TECHNICAL SUPPORT CENTER

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