



# 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

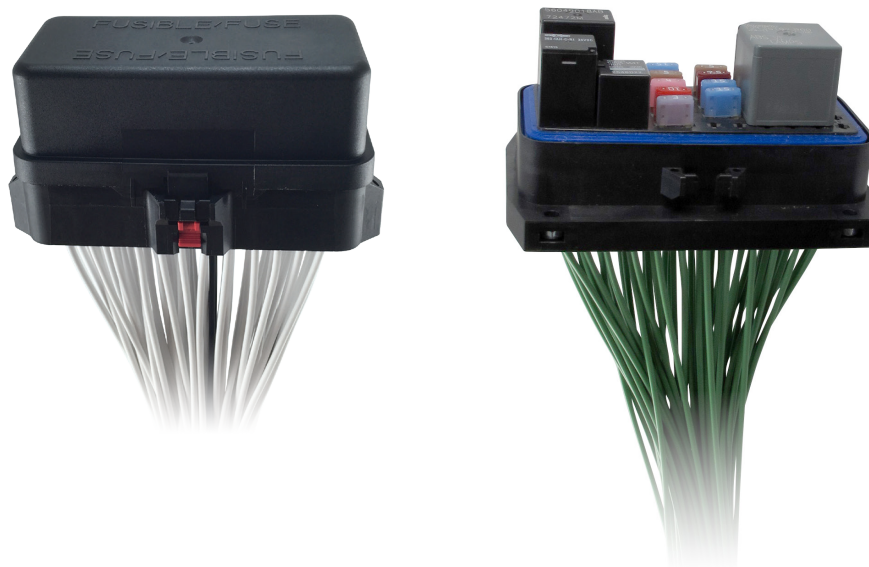


#### ORDERING INFORMATION

##### 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
<b>NEW</b> 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

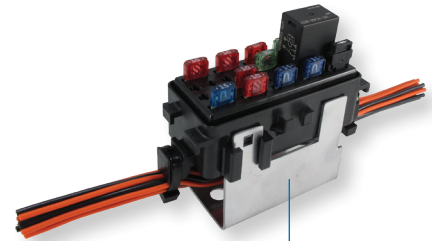
##### Direct Wire Fuse and Relay Solutions - 49, 38, & 27 Way Fuse Box

	Part Number
49P direct wire fuse (22x) & relay (1x) enclosure assembly w/ seal and dual cover CPA	2297813-1
<b>NEW</b> 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
<b>NEW</b> 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
<b>NEW</b> 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

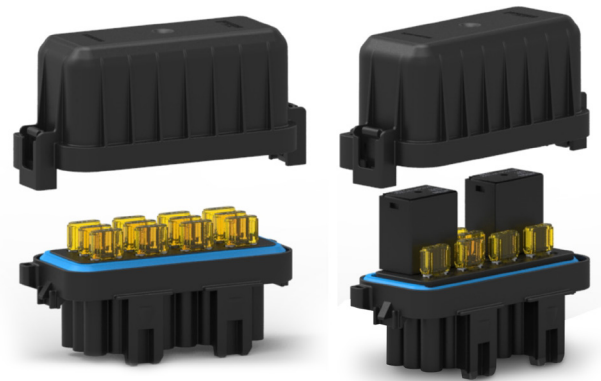
- Quickly and easily add a sealed fuse anywhere
- Numerous mounting options, with readily available mounting clips
- Uses the high-performance AMP MCP terminal system for proven reliability



### 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

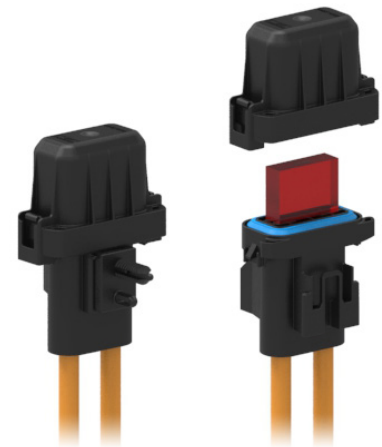
##### Direct Wire Fuse Solutions - Dual Sealed Mini Fuse Holder

	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 mm<sup>2</sup> - 10.0 mm<sup>2</sup> wire
- Dual cover latches

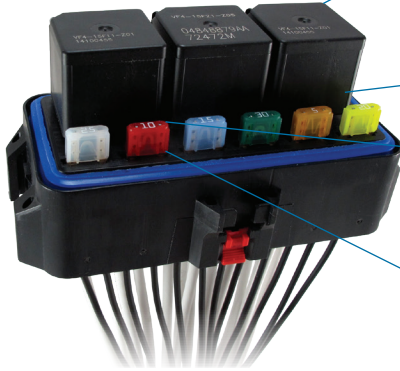


#### ORDERING INFORMATION

##### 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 <sup>2</sup> wire, strip form	x-968882-x
20-18 AWG, 0.5 - 1.0 mm <sup>2</sup> wire, strip form	x-968855-x
16-14 AWG, 1.0 - 2.5 mm <sup>2</sup> wire, strip form	x-968857-x
12 AWG, 3.0 - 3.8 mm <sup>2</sup> wire, strip form	x-1719506-x
22-24 AWG, 0.35 - 0.5 mm <sup>2</sup> wire	x-968896-x
20-18 AWG, 0.5 - 1.0 mm <sup>2</sup> wire	x-968875-x
16-14 AWG, 1.0 - 2.5 mm <sup>2</sup> wire	x-968876-x

#### Material and Finish:

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

<b>AMP MCP 2.8mm Single Wire Seals (Silicone)</b>	<b>Part Number</b>
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

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

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

#### Material and Finish:

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

<b>AMP MCP 6.3mm Single Wire Seals (Silicone)</b>	<b>Part Number</b>
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

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

<b>Mounting Clip Options</b>	<b>Part Number</b>
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



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### PRODUCT SHEET

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