

# MX150 Sealed Connector System **molex**

The field-proven MX150 Sealed Connector System with a USCAR interface offers a compact package, a superior operating temperature and a current rating up to 22.0A for power and signal automotive and commercial vehicle applications

## Features and Advantages: Sealed Single- and Dual-Row Connector System

### Matte seal technology

Eliminates the need for individual cable seals which provides reduced package size and reduced cost, while still meeting S2 sealing requirements

### 1-piece 3.5mm-pitch housing

Eliminates unnecessary and costly assembly operations. Offers a compact connector

### V0 versions available (UL1977 certified)

Meets stringent safety requirements

### Grommet cap

Protects the mat seal and assures proper alignment of the terminals

### Flashover options (custom void patterns) available

Provides design flexibility

### 4 polarization and color options

Facilitates quick visual installation



Twist-Head Sealed Bulkhead Connectors

### Connector position assurance (CPA) option available

Assures connectors have been fully mated and prevents accidental disconnection

### Temperature class 4 (-40 to +150°C) and 22.0A current rating

Delivers superior performance

### Preassembled terminal position assurance (TPA) housing

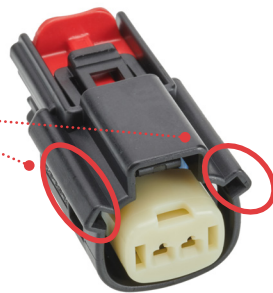
Ensures crimped terminal leads are properly locked into connector

### Conforms to USCAR-2/USCAR-21/GMW3191

For use in on-engine, high-vibration, under-hood and under-chassis environments at temp class 4

### USCAR Interface

Released & approved interface for major North America OEMs



### Backshells/wire dress covers available

Provides additional protection of the wires out the back of the connector. Secures cable bundle. Provides strain relief



2x3 Panel-Mount Now Available

### Clip-slot feature standard on blade connectors, optional on receptacle

Fastens/attaches clips. USCAR standard 11.00mm clip slot

## Features and Advantages: Hybrid Connector

### 16-, 12- and 8-circuit versions currently available (9- and 10-circuit versions available in Q4 2019)

Offers versatility to meet a range of applications

### Mat Seal Technology

Eliminates the need for individual cable seals which provides reduced package size and reduced cost, while still meeting S2 sealing requirements

### Flashover options (i.e., custom void patterns) available

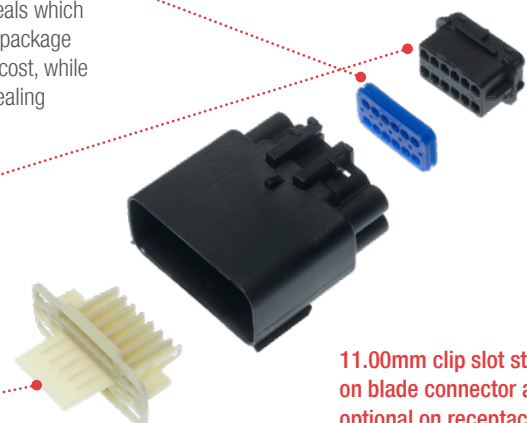
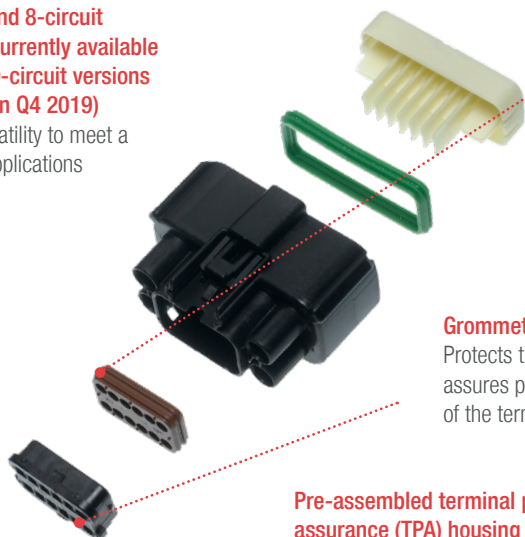
Provides design flexibility

### Grommet Cap

Protects the mat seal and assures proper alignment of the terminals

### Pre-assembled terminal position assurance (TPA) housing

Ensures crimped terminal leads are properly locked into connector



11.00mm clip slot standard on blade connector and optional on receptacle  
Fastens/attaches clips

# MX150 Sealed Connector System



## Features and Advantages: Hybrid Connector (Continued)

### Backshells/wire dress covers available

Secures cable. Provides strain relief



### Connector position assurance (CPA) option available

Assures connectors have been fully mated and prevents accidental disconnection



### Meets GMW3191 and USCAR-2 specifications

Ensures reliable performance. Mates with USCAR interfaces

### 4 key options available

Facilitates quick visual installation

### Hybrid 8-Way Receptacle:

Six 1.5A circuits and two 6.3A circuits

Terminal cavity:

1.50mm: MX150 matte sealed

6.3mm: FCI Apex Sealed

Wire ranges (ISO):

1.5mm terminals: 0.35 - 1.50mm<sup>2</sup>

6.3mm terminals: 6.00mm<sup>2</sup>

### Hybrid 12-Way Connector System, Blade and Receptacle:

Ten 1.5A circuits and two 2.8A circuits

Terminal cavity:

- 1.50mm: MX150 mat sealed

- 2.80mm: Sumitomo unsealed (mat sealed)

Wire ranges (ISO):

- 1.50mm terminals: 0.35 - 1.50mm<sup>2</sup>

- 2.80mm terminals: 1.00 - 2.50mm<sup>2</sup>

## Features and Advantages: Terminals

### Tin, Silver and Gold options available for blade and receptacle matte seal and cable seal terminals

Offers reliable, economic connectivity

Tin rated up to temp class 3 (-40 to +125°C)

Silver rated up to temp class 4 (-40 to +150°C)

Delivers superior performance

### Current rating up to 22.0A

Delivers superior performance

Validated to latest specification revisions: USCAR-21, USCAR-2 and GMW3191 specs

Meets industry standards

Validated wires to GM, Ford, PSA and JASO specifications

Meets requirements of major auto manufacturers



## Markets and Applications

### Automotive and Commercial Vehicle

Transmissions

Head/tail lamps

Body harnesses

Wipers, washers, defoggers

Speedometers

A/C modules

Turn signals

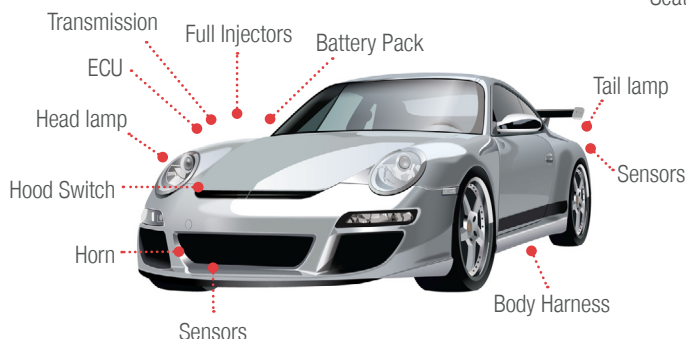
Airbag harnesses

Speakers

Door connectors

Brake modules

Horns



Wipers, washers, defoggers

Speedometer

A/C Module

Turn Signals

Airbag Harness

Speakers

Seat Harness

Horn



# MX150 Sealed Connector System

# molex

## Specifications

### SEALED CONNECTORS AND RECEPTACLES

#### REFERENCE INFORMATION

Packaging:  
Housings – Bulk pack  
Terminals – Reel  
Mates With:  
Receptacle Connectors, Series 33471, 33472, 34985  
Blade Connectors, Series 33481, 33482, 34986  
Use With:  
- Terminals:  
Receptacles, Series 33001, 33012  
Blades, Series 33000, 33011  
Backshells, Series 34948, 34949, 34950, 34951  
Cavity Plugs, Order No. 34345-0001  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 500V  
Current (max.): 22.0A  
Contact Resistance: 10 milliohms max.  
Dielectric Withstanding Voltage: 1500V AC min.  
Isolation Resistance: 20 Megohms min.

### SEALED HEADERS

#### REFERENCE INFORMATION

Packaging:  
Headers – Trays  
Mates With:  
Receptacle connectors, Series 33472  
Designed in: Millimeters

### PANEL-MOUNT CONNECTORS

#### REFERENCE INFORMATION

Packaging:  
Housings – Packed in trays  
2x6 Series: 47725  
2x3 Series: 148028  
Mates With:  
Receptacle Connectors, Series 33472  
Use With: Blade Terminals, Series 33000, 33011  
Designed in: Millimeters

#### MECHANICAL/ELECTRICAL/SEALING

Mating Force: Less than 75N max.  
Unmating Force: Less than 75N max.  
Connector Retention (Primary Latch): 255N (57.33 lb) avg. (exceeds 110N [24.73 lb] min. USCAR requirement)  
Contact Retention to Housing: 210N (47.21 lb) avg. (exceeds 90N (20.23 lb) min. USCAR requirement)  
Contact Insertion Force Into Housing: 30N (6.74 lb) max.  
Contact Insertion Force: 4.4N (1.0 lb) max.  
Connector Audible Feedback: 7dB over ambient  
Polarization Feature Effectiveness: 220N (49.46 lb) min.  
FCLT (Class 3): 20 milliohms max.  
Durability: 10 milliohms max.  
Tin (Sn) Plating – 25 Cycles  
Silver (Ag) Plating – 100 Cycles  
Gold (Au) Plating – 100 Cycles  
Thermal Shock (class 3, 100 cycles): 10 milliohms max.  
High-Temperature Exposure:  
Pressure/Vacuum Immersion – 28 kPa (4psi) 30 minutes  
Isolation Resistance – 20 Megohms @ 500V DC min.  
Vibration: (USCAR-2 Rev 4) 10 milliohms max.  
Random “On-Engine” Profile: 118.7 mps<sup>2</sup> rms, 60 to 1,200 Hz  
Mechanical Shock: 343 mps<sup>2</sup>, half-sine wave, 10 msec Pulse  
Vibration: (GMW 3191) 10 milliohms max.

#### ELECTRICAL

Voltage (max.): 500V DC  
Current (max.): 22.0A  
Contact Resistance (max.): 10 milliohms  
Dielectric Withstanding Voltage: 1000V  
Isolation Resistance (min.): 20 Megohms min.

#### MECHANICAL/ELECTRICAL/SEALING

Durability (max.): 10 milliohms at 10 cycles  
Sealing: IP67K & IP6k9k w Backshells

#### ELECTRICAL

Voltage (max.): 500V DC  
Current (max.): 22.0A  
Contact Resistance: 8 milliohms max.  
Dielectric Withstanding Voltage: 1000V AC min.  
Isolation Resistance: 100 Megohms min.

#### MECHANICAL/ELECTRICAL/SEALING

Durability: 8 milliohms max. at 10 cycles  
Sealing: GMW3191 Sealing Class 2, IP67K & IP6k9k with Backshells

Random “On-Engine” Profile: 170 mps<sup>2</sup> rms, 10 to 1,500Hz  
Sine “On-Engine” Profile: 280 mps<sup>2</sup> Pk, 100-440 Hz  
Mechanical Shock: 245 mps<sup>2</sup>, half-sine wave, 10 msec pulse  
Sealing: (USCAR-2 Rev 4) (GMW3191)  
Heat Soak Submersion: +125°C and submersion depth of 40.00cm (15.75”) water  
Pressure/Vacuum Immersion: 48 kPa (7 psi)  
IEC 529, IP6K7, IPX9K when used with CPA, Backshell and Conduit  
Isolation Resistance: 20 Megohms @ 500V DC min.

#### PHYSICAL

Housing: SPS/Nylon Blend 20%GF, UL 94-HB  
TPA: SPS/Nylon Blend 20%GF  
Contact: Copper (Cu) Alloy  
Plating:  
Contact Area — Tin (Sn), Gold (Au) or Silver (Ag)  
Underplating — Nickel (Ni)  
Wire Gauge:  
ISO Wire: 0.35 to 1.50mm<sup>2</sup> SAE Wire: 22AWG to 14AWG  
Insulation Diameter: 2.70 to 1.50mm  
Operating Temperature: -40 to +125°C (Sn), -40 to +150°C (Ag)

#### PHYSICAL

Housing: PBT 30% Glass Filled  
Terminal: Copper (Cu) Alloy  
Size: 1.20 X 0.80 mm  
Plating: Tin (Sn) (Silver (Ag) coming soon)  
Underplating: Nickel (Ni)  
PCB Interface: Solder tail or Compliant pin  
Module attachment type: Adhesive  
Operating Temperature: -40 to +125°C

#### PHYSICAL

Housing: SPS/Nylon 20% Glass Filled, UL 94-HB  
TPA: 20% Glass Filled SPS/Nylon  
Wire Gauge: ISO Wire: 0.35 to 1.50mm<sup>2</sup> SAE Wire: 22 to 14 AWG  
Insulation Diameter: 2.69 to 1.20mm (.106 to .047”)  
Operating Temperature: -40 to +125°C

## Specifications

### TWIST-LOCK SEALED BULKHEAD CONNECTORS

#### REFERENCE INFORMATION

Packaging:  
Housings – Packed in trays  
Mates With:  
Receptacle Connectors, Series 33472  
Use With: Blade Terminals, Series 33000 and 33011  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 14V DC  
Current (max.): 22.0A  
Contact Resistance (max.): 8 milliohms  
Dielectric Withstanding Voltage: 1000V  
Isolation Resistance (min.): 100 Megohms min.

#### PHYSICAL

Housing: SPS/Nylon 20% GF, UL 94-HB  
TPA: 20% Glass-Filled SPS/Nylon  
Wire Gauge: ISO Wire: 0.35 to 1.50mm<sup>2</sup>, SAE Wire:  
22 to 14 AWG  
Operating Temperature: -40 to +105°C

### STANDARD AND M3 GRIP TERMINALS

#### REFERENCE INFORMATION

Packaging: Reel (terminals are not packaged with connectors)  
Use With:  
Receptacle Connector Series 33471, 33472, 34985  
Blade Connector Series 33481, 33482, 34986  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 500V  
Current (max.): 12.5A

#### PHYSICAL

Contact: Copper (Cu) Alloy  
Plating:  
Contact Area — Tin (Sn), Silver (Ag), Gold (Au)  
Underplating — Nickel (Ni)  
Wire Gauge:  
ISO Wire: 0.35 to 2.00mm<sup>2</sup>  
SAE Wire: 22 to 14 AWG  
Operating Temperature: -40 to +125°C – Tin (Sn)  
Operating Temperature: -40 to +155°C – Silver (Ag)

### 12W HYBRID CONNECTORS

#### REFERENCE INFORMATION

Packaging:  
Housings – Bulk Pack  
Mates With:  
Receptacle Connectors, Series 160111  
Blade Connectors, Series 160112  
Use With:  
MX150 Receptacle Terminals, Series 33012, 33001  
MX150 Blade Terminals, Series 33000, 33011  
Sumitomo Receptacle Terminal Part Numbers,  
8240-0423, 8240-0424  
Sumitomo Blade Terminal PN's, 8230-5257,  
8230-5258  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 500V DC  
Current (max.): 22.0A  
Contact Resistance: 8 milliohms max.  
Dielectric Withstanding Voltage: 1000V AC min.  
Isolation Resistance: 100 Megohms min.

#### PHYSICAL

Housing: Nylon 40% Glass Filled  
TPA: Nylon 40% Glass Filled  
Wire Gauge:  
MX150 Terminals ISO Wire: 0.35 to 1.50mm<sup>2</sup>, SAE  
Wire: 22 to 14 AWG  
Sumitomo 2.80mm Terminals: 1.00mm<sup>2</sup> thru  
2.50mm<sup>2</sup>  
Insulation Diameter: 2.69 to 1.20mm (.106 to .047")  
Operating Temperature: -40 to +125°C

### 8W HYBRID RECEPTACLE CONNECTORS

#### REFERENCE INFORMATION

Packaging:  
Housings – Bulk Pack  
Use With:  
MX150 Receptacle Terminals, Series 33012, 33001  
Apex 6.3mm Receptacle Terminal PN: 33140138  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 500V DC  
Current (max.): 22.0A  
Contact Resistance: 8 milliohms max.  
Dielectric Withstanding Voltage: 1000V AC min.  
Isolation Resistance: 100 Megohms min.

#### PHYSICAL

Housing: Nylon 40% Glass Filled  
TPA: Nylon 40% Glass Filled  
Wire Gauge:  
MX150 Terminals ISO Wire: 0.35 to 1.50mm<sup>2</sup>, SAE  
Wire: 22 to 14 AWG  
Sumitomo 2.80mm Terminals: 6.00mm<sup>2</sup>  
Insulation Diameter: 2.69 to 1.20mm (.106 to .047")  
Operating Temperature: -40 to +125°C

#### MECHANICAL/ELECTRICAL/SEALING

Durability: 8 milliohms max. at 10 cycles  
Sealing: USCAR-2 Sealing Class 2, IP67K