

# MX150 Sealed Connector System

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

### Mat seal technology for MX150 (1.50mm) Terminals

Eliminates the need for individual cable seals which provides reduced package size and reduced cost

### Connector position assurance (CPA) option available

Assures connectors have been fully mated and prevents accidental disconnection

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

Delivers superior performance

### 1-piece 3.5mm-pitch housing

Eliminates unnecessary and costly assembly operations. Offers a compact connector

### Single- and dual-row V0 versions available (UL1977 certified)

Meets stringent safety requirements

### Grommet cap

Protects the mat seal and assures proper alignment of the terminals

### USCAR Interface

Released & approved interface for major North America OEMs

### 4 polarization and color options

Facilitates quick visual installation

### Flashover options

(custom void patterns) available

Provides design flexibility



Twist-Head Sealed Bulkhead Connectors

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

Fastens/attaches clips. USCAR standard 11.00mm clip slot

### 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

### Single- and dual-row backshells/wire dress covers available in 2-, 3-, 6-, 8-, 12-, 16- and 20-circuit sizes

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



2x3 and 2x6 Panel-Mount Now Available;  
20-Way V0 Version Coming in Q2 2021

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

Provides design flexibility

## FEATURES AND ADVANTAGES: Hybrid Connector

### 10-way hybrid receptacles 12- and 16-way hybrid receptacle and blade connectors

### 8-way hybrid receptacles

### 9-way receptacles 8-, 9- and 10-way blade connectors

Offers versatility to meet a range of applications

### Mat seal technology for MX150 (1.50mm) Terminals

Eliminates the need for individual cable seals which provides reduced package size and reduced cost

### Grommet Cap

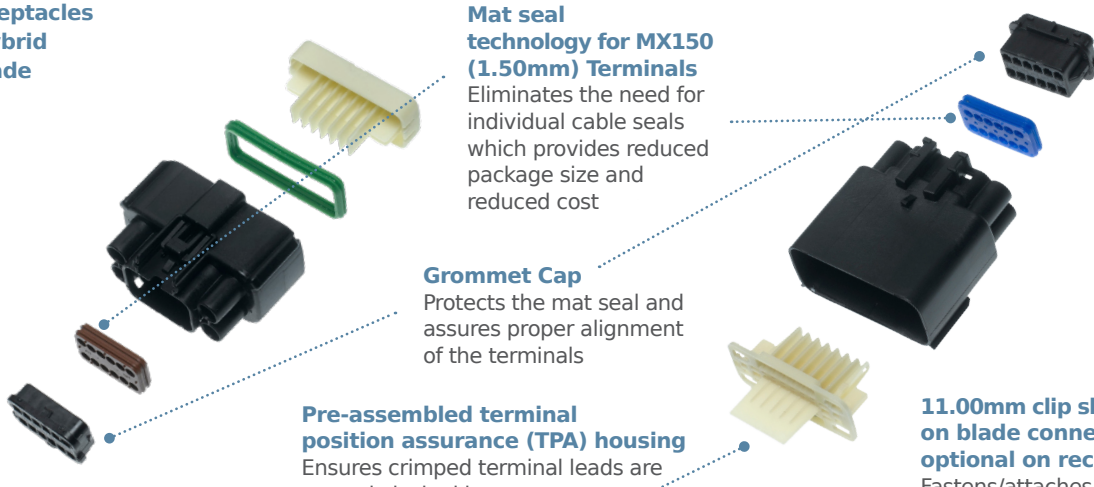
Protects the mat seal and assures proper alignment of the terminals

### 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



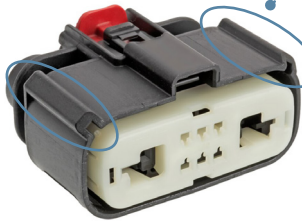
# MX150 Sealed Connector System >

## FEATURES AND ADVANTAGES: Hybrid Connector (Continued)

### Backshells/wire dress covers available

Secures cable. Provides strain relief

Hybrid 8-way Receptacle:  
Six 1.50mm Circuits and  
Two 6.30mm Circuits



### 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



8-, 9- and  
10-Way Receptacles  
(8-way and 10-way currently  
available, 9 way coming soon)



Hybrid 12-Way Connector System,  
Blade and Receptacle:  
Ten 1.50mm Circuits and  
Two 2.80mm Circuits

## FEATURES AND ADVANTAGES: Terminals

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

Offers reliable, economic connectivity

### Current rating up to 22.0A

Delivers superior performance

Validated: USCAR-21,  
USCAR-2 and GMW3191 specs  
Meets industry standards

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

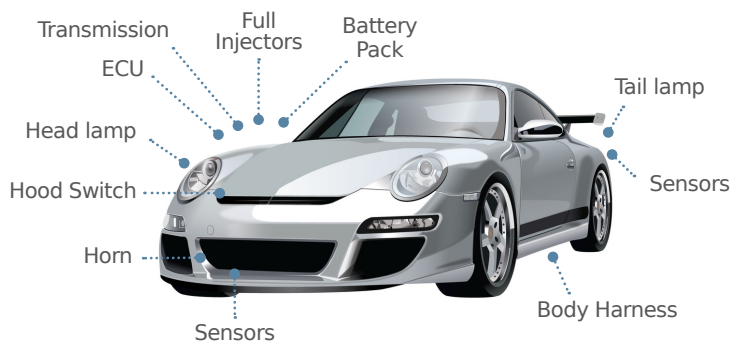
Validated wires to  
GM, Ford, PSA and  
JASO specifications  
Meets requirements  
of major auto  
manufacturers



## 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



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## 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.

#### 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.

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, 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)

### SEALED HEADERS

#### REFERENCE INFORMATION

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

#### 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: IP6k9k w Backshells

#### 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

### 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

#### 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 & IP6k9k with Backshells

#### 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

# MX150 Sealed Connector System

## 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.

#### MECHANICAL/ELECTRICAL/SEALING

Durability: 8 milliohms max. at 10 cycles  
Sealing: GMW3191 Class 2

#### 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 (SERIES 160111, 160112)

#### 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 (For MX150 Terminals)  
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: USCAR-2 Sealing Class 2

#### 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: 1.00 to 2.50mm<sup>2</sup>  
Insulation Diameter: 2.69 to 1.20mm  
(.106 to .047")  
Operating Temperature: -40 to +125°C

### 10W HYBRID RECEPTACLE CONNECTORS (SERIES 160076)

#### REFERENCE INFORMATION

Packaging:  
Housings – Bulk Pack  
Use With:  
μDPB Modules (series 200316); MX150 Receptacle  
Terminals, Series 16077 (coming January 2021)  
Apex 6.30mm Receptacle Terminal PN: 33140138  
Designed in: Millimeters

#### ELECTRICAL

Voltage (max.): 500V DC  
Current (max.): 22.0A (For MX150 Terminals)  
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: USCAR-2 Sealing Class 2

#### 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  
Unsealed FCI Apex 2.80mm Terminals:  
1.00 to 3.00mm<sup>2</sup>  
Operating Temperature: -40 to +125°C

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## SPECIFICATIONS

### 8W HYBRID RECEPTACLE CONNECTORS (SERIES 160078)

#### REFERENCE INFORMATION

Packaging:  
Housings – Bulk Pack  
Use With:  
μDPB Modules (series 200316);  
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 (For MX150 Terminals)  
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: USCAR-2 Sealing Class 2

#### 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  
Unsealed FCI Apex 6.30mm Terminals: 6.00mm<sup>2</sup>  
Operating Temperature: -40 to +125°C

[www.molex.com/link/mx150.html](http://www.molex.com/link/mx150.html)

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