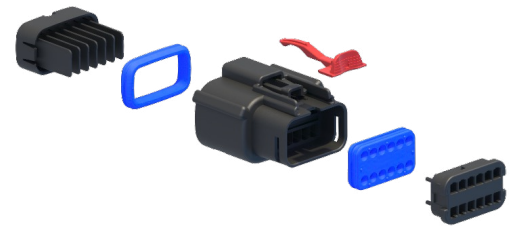


# MX150 Sealed Connector System >

The MX150 Sealed Connector System is field-proven and offers highly reliable performance under extreme temperatures, varying degrees of vibration, and exposure to moisture and chemicals for a variety of applications.



MX150 Sealed Connector System

## FEATURES AND ADVANTAGES

### Sealed Connectors



Circuit Sizes Offered (Single and Double Row)	2, 3, 4, 5, 6, 8, 12, 16, 20
Genders Offered	Male, Female
Polarization Options	Keys: A, B, C, D
Colors Offered	Black, Light Gray, Dark Gray, Stone Gray, Light Blue (Mid-Voltage)
Industry Interface	USCAR-2, USCAR-21 and GMW3191
Operating Specifications	Current up to 22.0A, voltage up to 60V, -40 to +150°C
Other Features	Optional clip slot (11.00mm), TPA, CPA and Custom Void Patterns

#### Connector position assurance (CPA) option available

Helps to eliminate accidental disconnection between connectors

#### Preassembled terminal position assurance (TPA) housing

Helps ensure crimped terminal leads are properly locked into connector

#### Grommet cap

Protects mat seal and helps ensure proper alignment of the terminals

#### Single- and dual-row V0 versions available

Meet stringent safety requirements

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

Helps eliminate the need for individual cable seals thereby reducing package size

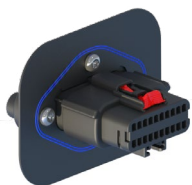
#### One-piece 3.50mm-pitch housing

Offers a compact connector and helps eliminate assembly cost

#### Mid-voltage capability of 60V for upgrading to 48V wiring

Streamlines upgrades to lighter-weight 48V wiring by using the proven MX150 form factor

### Extensions:



Panel Mounts  
2x3, 2x6 and 2x10 circuit sizes available



Twist-Head Sealed Bulkhead connectors  
2x6, 2x4, 2x6, 2x8 circuit sizes available



Headers  
R/A headers and unshrouded headers available



MX150 Mid-Voltage connectors capable of up to 60V

# MX150 Sealed Connector System >

## MARKETS AND APPLICATIONS

### Automotive

Internal combustion and electric vehicles  
Lighting  
Braking system components  
Electric motor generators  
Battery controllers  
Power distribution boxes

### Commercial Vehicle

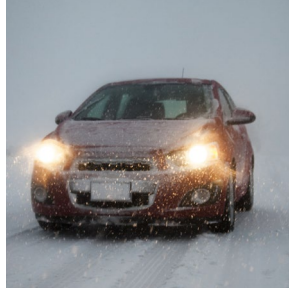
Industrial vehicles and equipment  
Recreational vehicles  
Golf carts and ATVs  
Marine and jet skis

### Electrical and Power

Solar energy storage systems  
Home generators

### Industrial Automation

Robotics  
Industrial machines and motors



Automotive Vehicles



Robotics



ATVs

## 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, Part 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 mps pulse  
Vibration: (GMW 3191) 10 milliohms max.

Random “On-Engine” Profile: 170 mps<sup>2</sup> rms, 10 to 1,500 Hz  
Sine “On-Engine” Profile: 280 mps<sup>2</sup> Pk, 100 to 440 Hz  
Mechanical Shock: 245 mps<sup>2</sup>, half-sine wave, 10 mps 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: 22 to 14 AWG  
Insulation Diameter: 2.70 to 1.50mm  
Operating Temperature: -40 to +125°C (Sn), -40 to +150°C (Ag)

# MX150 Sealed Connector System >

## SPECIFICATIONS

### 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 0.80mm  
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 and 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.

#### 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

#### MECHANICAL/ELECTRICAL/SEALING

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

### Mid-Voltage Connectors

#### REFERENCE INFORMATION

MX150 Mid-Voltage Part Series:  
Dual-Row Blade Connectors: 33482  
Dual-Row Receptacles: 300361  
Single-Row Receptacles: 300363  
Packaging Design: Bulk pack  
Designed in: Millimeters  
Use With Terminals:  
Receptacles: Part No. 33012-0002  
Blades: Part No. 33000-0001

#### ELECTRICAL

Voltage (max.): 60V DC  
Current (max.): 22.0A (for MX150 terminals)  
Contact Resistance: 8 milliohms  
Dielectric Withstanding Voltage (min.): 1,500V AC  
Insulation Resistance (min.): 100 Megohms

#### PHYSICAL

Housing: Nylon 40% glass filled  
TPA: Nylon 40% glass filled  
Wire Gauge for MX150 Terminals:  
ISO Wire: 0.35 to 1.50mm<sup>2</sup>  
2SAE Wire: 22 to 14 AWG  
Operating Temperatures: -40 to +125°C

#### MECHANICAL/ELECTRICAL/SEALING

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