

MX150 Sealed Connector System >

The MX150 Sealed Connector System is a field-proven solution that delivers 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 (1.100mm), 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 facilitates ensure proper alignment of the terminals

Single- and dual-row V0 versions available

Meets 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

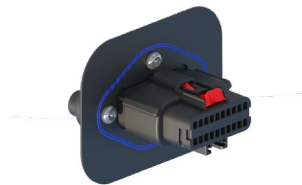
Mid-voltage capability of 60V for simplified upgrades

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

Available two-ring seal with terminal potting

Enables reliable connection to the inside of next-generation, high-performance, oil-cooled electric motors

Extensions:



Panel Mounts
2x3, 2x6 and 2x10 Circuit Sizes Available



MX150 Mid-Voltage Connectors
Capable of up to 60V



MX150 Pass-Through Connectors
for Oil-Cooled Motor Connections



Twist-Head Sealed Bulkhead Connectors
2x4, 2x6, 2x8 Circuit Sizes Available



R/A Headers and Unshrouded Headers Available

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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 mps² rms, 60 to 1,200 Hz
Mechanical Shock: 343 mps², half-sine wave, 10 mps pulse
Vibration: (GMW 3191) 10 milliohms max.

Random “On-Engine” Profile: 170 mps² rms, 10 to 1,500 Hz
Sine “On-Engine” Profile: 280 mps² Pk, 100 to 440 Hz
Mechanical Shock: 245 mps², 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 1.50mm² 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)

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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 1.50mm² SAE Wire:
 22 to 14 AWG
 Insulation Diameter: 2.69 to 1.20mm (.106 to .047")
 Operating Temperature: -40 to +125°C

Pass-Through Connectors

REFERENCE INFORMATION

Packaging: Housings – packed in trays
 Interface: USCAR 2x6 1.5mm interface (outside),
 MX150 2x3 + 2x3 (inside)
 Mates With: Series 33472, 160074, 160092
 Use With Terminals:
 Series 33001 (Silver-plated)
 Flammability: UL 94 HB
 Designed in: Millimeters

ELECTRICAL

Voltage (max.): 14V DC
 Current (max.): 12.0A
 Contact Resistance (max.): 8 milliohms
 Dielectric Withstanding Voltage: 1,000V AC
 Insulation Resistance (min.): 100 Megohms
 at 500V DC

MECHANICAL/ELECTRICAL/SEALING

Durability: 8 milliohms max. at 10 cycles
 Sealing: GMW3191 Class 3 and IP6k9k
 Vibration: GMW3191 2019 Class V5, transmission
 ISO 16750-3 Test II – passenger car, gearbox
 Temperature: GMW3191 2019 Class 3

PHYSICAL

Housing: Glass fiber-filled nylon 66
 Seal: AEM rubber
 Contact: Copper Alloy
 Plating:
 Contact area—Silver
 Underplating—Nickel
 Wire Gauge: ISO wire: 0.35 to 0.50mm² Insulation
 Diameter: 1.20 to 1.60mm
 Operating Temperatures: -40 to +125°C

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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 1.50mm², 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 1.50mm²
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