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MX150 SEALED CONNECTOR SYSTEM

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.

ADVANTAGES AND FEATURES

Sealed Connectors

Circuit Sizes Offered (Single & 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 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.

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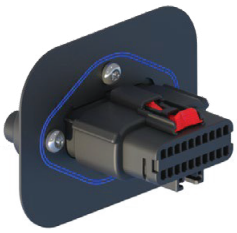
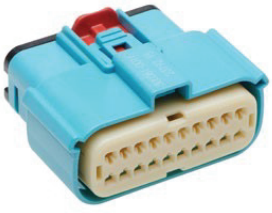
Extensions



Panel Mounts
2x3, 2x6, 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

MARKETS & APPLICATIONS

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

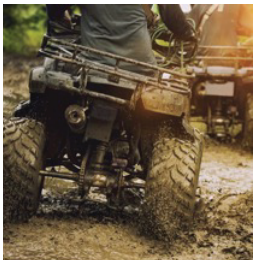
COMMERCIAL VEHICLE
Industrial vehicles and equipment
Recreational vehicles
Golf carts and ATVs
Marine and jet skis

ELECTRICAL AND POWER
Solar energy storage systems
Home generators

INDUSTRIAL AUTOMATION
Robotics
Industrial machines and motors

Automotive Vehicles

Robotics



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SPECIFICATIONS

Sealed Connectors and Receptacles

Reference Information
Packaging:
Housing - Bulk pack
Terminals - Reel
Mates with:
Receptacle Connectors
Series 33471, 33472, 34985
Blade Connectors
Series 33481, 33482, 34986
Terminal Used:
Receptacles, Series 33001, 33012
Blades, Series 33000, 33001
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 millioms 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 Immerson -
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^2 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 1.50mm^2
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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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: 10 milliohms max.
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
Used 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^2
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
Used 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 0.50mm^2
Insulation Diameter:
1.20 to 1.60mm
Operating Temperature: -40 to +125°C

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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.): 8milliohms
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^2
SAE Wire: 22 to 14 AWG
Operating Temperature: -40 to +105°C

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
Used 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

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 for MX150 Terminals:
ISO Wire: 0.35 to 1.50mm^2
2SAE Wire: 22 to 14 AWG
Operating Temperature: -40 to +125°C

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