



MX123™ Sealed Connection System 2.54mm (.100") Pitch

Molex has developed a fully-sealed, high-performance MX123™ connection system that offers the smallest packaging size in the industry, designed for transportation power-train applications that accommodate low-level signal and high-current load requirements

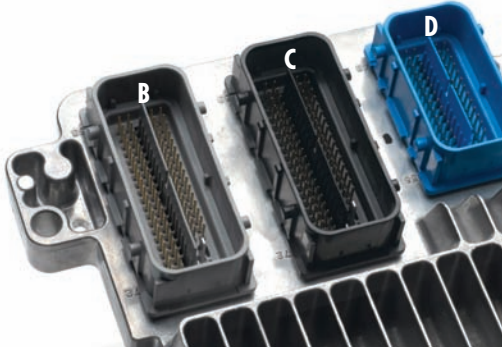
The MX123 is a fully sealed, high-performance connection system that has been optimized for transportation power-train applications in the most challenging under-hood environments. MX123 connection systems are currently used in on-engine automotive applications, off-road construction and industrial equipment. The MX123 system maintains low and stable contact resistance under severe temperatures and vibrations.

The system consists of lever (mate-assist) receptacles that reduce harness-assembly complexity by integrating the housing, lever, Positive Latch Reinforcement (PLR) and Connector Position Assurance (CPA) components. Sealing performance and package size are optimized by utilizing interfacial and matte-seal technologies. The matte-seal technology reduces package size and harness-assembly complexity by allowing closer center-to-center terminal spacing and by eliminating the need for crimping individual cable seals. The interfacial seal is interior to the connector shroud, protecting it from damage during harness handling.

The header pins are protected from scooping by a center wall that extends longer than the terminal length. This innovative connection system is based on two terminal systems, 064- and 280-size terminals, to provide optimal electrical performance. The 064-size terminal system has increased normal force and selective precious plating required to maintain performance characteristics in the most demanding environments.

The MX123 lever receptacles mate with the MX123 vertical headers. The headers have been designed to provide customer flexibility by offering two mounting-style options, three PCB electrical strategies and multiple-plating options. The headers are designed to be vertically mounted from the top or bottom of a casting. They are available for through-hole solder processing, compliant-pin, or wire-bonding technologies with precious plating (Gold or Silver). For more information on the Molex MX123 connection system, visit: www.molex.com/ind/mx123.html.

31386	53-Circuit Vertical Headers
31387	73- and 80-Circuit Vertical Headers
34566	73- and 80-Circuit Lever (Mate-Assist) Receptacles
34576	49- and 56-Circuit Lever (Mate-Assist) Receptacles
34565	73- and 80-Circuit Wire Dress Covers
34575	49- and 56-Circuit Wire Dress Covers
33467, 33468	MX64 Receptacle Terminals
34586	0.64mm (.025") TerminalService Tool



MX123 Headers Mounted on a Under-Hood Engine Control Module
A: 80-Circuit Header (Series 31387)
B and C: 73-Circuit Header (Series 31387)
D: 56-Circuit Header (Series 31386)

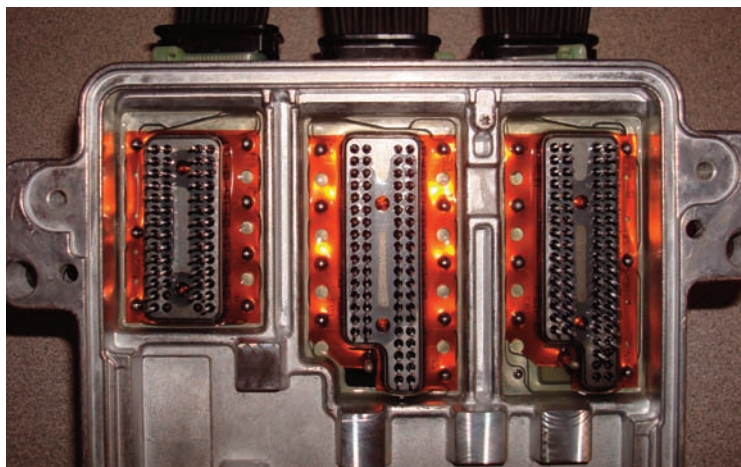
A: Up-Integrated Module (Custom from Molex)
B: 73-Circuit Lever Receptacle (Series 34566)



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Features and Benefits

- Receptacle and header housings with 6 unique mechanical polarization options and unique color coding offers the ability to use multiple connectors on one module without the risk of cross-mating incorrect harness connectors
- Wire dress available in 2 options: 0 and 180° orientation allows for wire-routing design flexibility
- Anti-scooping features are friendly to "blind-mate" conditions
- Integrated PLR and CPA components reduce assembly complexity
- Optional header terminal filtering eliminates cross talk between adjacent circuits
- PCB tail customization available with solder-tail or compliant-pin technology, allowing for PCB design flexibility
- Header placement flexibility allows top or bottom header loading to streamline module manufacturing process's
- Precious plating enables stable contact resistance under extreme temperature and vibration conditions
- Lever retention lock on harness connector retains lever in pre-lock position for ease of installation



MX123 Up-Integrated Module Filtering Option



MX123 Sealed Headers for Top and Bottom
PCB Mounting



MX123 Sealed Headers — PCB Interface Options

SPECIFICATIONS



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Reference Information

Packaging:

Vertical Headers: Tray
Lever Receptacles: Cell-Pack Partition
Wire Dress Covers: Bulk
Terminals — Reel

Mates With:

73- and 80-Circuit: Headers (Series 31387) mate with Receptacle (Series 34566)
56-: Header (Series 31386) mates with Receptacle (Series 34576)

Use With, Terminals:

MX64: 0.64mm (.025") (Series 33467)

Electrical

Voltage (max.): 500V

Current (max.):

2.80mm (.110") — 25.0A
0.64mm (.025") — 11.0A

Contact Resistance:

2.80mm (.110") — 5 milliohms max.
0.64mm (.025") — 20 milliohms max.

Dielectric Withstanding Voltage: 1500V AC

Isolation Resistance: 20 Megohms min.

Physical

Housing: 30% Glass Filled SPS / Nylon Blend

PLR: 30% Glass Filled SPS / Nylon Blend

Contact: Copper (Cu) Alloy

Terminal Plating:

Contact Area:

2.80mm (.110") — Tin (Sn)
0.64mm (.025") — Gold (Au)

Underplating:

2.80mm (.110") — Nickel (Ni)
0.64mm (.025") — Nickel (Ni)

Operating Temperature: -40 to +125 °C

Mechanical / Electrical / Sealing

Mating Force: Less than 75N (16.9 lb)

Unmating Force: Less than 75N (16.9 lb)

Connector Retention (Primary Latch): 110N (24.7 lb) min.

Contact Retention to Housing:

2.80mm (.110") — 90N (20.2 lb) min.
0.64mm (.025") — 75N (16.9 lb) min.

Contact Insertion Force Into Housing: 30N (6.7 lb) max.

Polarization Feature Effectiveness: 220N (49.5 lb) min.

Durability — 10 Cycles:

2.80mm (.110") — 5 milliohms max.

0.64mm (.025") — 20 milliohms max.

PLR Insertion Force: 75N (16.9 lb) max.

PLR Extraction Force: 120N (27.0 lb) max.

CPA Insertion Force: 60N (13.5 lb) max. (unmated),
22N (5.0 lb) max. (fully mated)

CPA Extraction Force: 22N (5.0 lb) max.

FCLT (Class 3): 20 milliohms max.

Thermal Shock (Class 3, 100 cycles):

2.80mm (.110") — 5 milliohms max.

0.64mm (.025") — 20 milliohms max.

High-Temperature Exposure (Sealing): 48kPa for 15 seconds and submersion for 30 minutes and isolation resistance of 20 Megohms @ 500V DC min.

Temperature / Humidity (Sealing): 48kPa for 15 seconds and submersion for 30 minutes and isolation resistance of 20 Megohms @ 500V DC min.

Fluid Resistance (Sealing): submersion for 30 minutes and isolation resistance of 100 Megohms @ 500V DC min.

Mechanical Shock and Vibration Sequence (GMW3191, Electrical):

2.80mm (.110") — 5 milliohms max.

0.64mm (.025") — 20 milliohms max.

MARKETS AND APPLICATIONS

■ Automotive, Industrial and Recreational Vehicles

- Power-train (Engine Control and Transmission Control Modules)
- Safety / Chassis
- Body and Interior
- Information and Entertainment




MX123 Vertical Headers

Order No.	Plating	Circuit Size	Key Option	Colors
31387-4001	Select Gold	80	G	Blue
31387-4009		80	H	Gray
31387-2014		73	A	Black
31387-2002		73	B	Gray
31387-2003		73	C	Blue
31386-2001		56	G	Blue

MX123 Lever (Mate-Assist) Receptacles*

Order No.	Circuit Size	Key Options	PLR Color
34566-0703	80	G	Blue
34566-0803	80	H	Gray
34566-0103	73	A	Black
34566-0203	73	B	Gray
34566-0303	73	C	Blue
34576-0703	56	G	Blue

Dress Covers

Order No.	Assembly Features	Cover for Circuit Sizes
34565-0003	Lever Retention Lock	73 and 80
34575-0003		49 and 56

Cavity Plug

Order No.	Assembly Features	Size (mm)
34586-0001	Lock Tab and Forward Stop	0.64mm terminal

MX64 Terminals

Order No.	Size (mm)	Plating	Wire Size (AWG)	Payoff Direction
33467-0004	0.64	Gold	22	D
33467-0003	0.64	Gold	22	B
33467-0006	0.64	Gold	18 to 20	D
33467-0005	0.64	Gold	18 to 20	B
7116-4152-02	2.80	Tin	14	Yazaki 2.80mm Terminals

* Numerous additional polarity, wire dress, knock-out patterns and PLR color options; for full offering, visit molex.com and enter the series number (for example: 34566)