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MX120G™ Sealed Wire-to-Wire and Wire-to-Board Connectors, IP67-rated

36783 Male Header, Through Hole, Right Angle

36799 Wire-to-Wire Female Crimped Terminal

36792 Wire-to-Wire Female Receptacle with Matte Seal, Seal Cap and Interface Seal

36804 Cavity Plug for Female Receptacle

Sealed MX120G™ connectors offer greater cost and space savings while providing superior design and mating features to meet the needs of harsh environment, non-automotive transportation applications

Molex's MX120G™ connector system is a highly compact, sealed wire-to-wire and wire-to-board family of interconnects with IP67-ratings that delivers optimal performance especially in wet, high-vibration and wide operating- temperature conditions.

Designed for rugged, harsh-environment non-automotive applications that range from tractors and combines to snow mobiles and jet skis; the MX120G interconnect system can be extended to exterior lighting applications that include traffic and overhead street lights; and is a more reliable and less expensive solution to pre-crimped wire-seal alternatives.

The MX120G™ wire-to-wire and wire-to-board receptacles feature a single-piece pre-assembly comprising a high-temperature connector housing, male silicone seal and a seal cap for strain relief – all pre-assembled and ready for easy crimp insertion. Standard through-hole male headers have a 3.20mm pitch footprint that makes ample room for PCB traces to support 7 to 10.5 Amp of current over a range of FLRY-B* wire sizes.

The connector's built-in positive locking feature ensures robust terminal retention while preventing any accidental terminal backout. Its unique twist-lock design ensures proper terminal alignment of the header contacts with those of the female receptacle thus eliminating the need for any fasteners. Female cavity plugs are available to allow selective sealing of circuit voids in female receptacles for both wire-to-wire and wire-to-board applications.

The terminals of the MX120G receptacle accept FLRY-B* wire sizes of 0.35 to 1 sq. mm conductor diameter allowing the receptacle to take multiple cable configurations for added flexibility.

Color codes on each component of the Wire-to-Board assembly make identification very easy.

Find out more at: www.molex.com/link/mx120g.html

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Features and Benefits

Reduced 3.20mm (mating) pitch design offers significant space reduction for the same circuit density offered by some other makes

Meets IP67 ratings with wide operating temperature range of -40 to +105°Celsius; provides complete protection of connector against dust and water (up to 1 m depth) and other defined conditions of pressure and time

High-vibration resistance up to 10G acceleration secures mating in high-vibration environment and applications

Independent terminal lock on through hole, right angle male header provides reinforced terminal retention to receptacle housing to prevent accidental terminal back-out

Twist-lock feature on the terminal and connector prevents rotation of terminal once inserted into the connector and ensures correct alignment of male terminals with receptacle contacts when mated; eliminating the need for additional fasteners

Single-piece construction of the female receptacle comprising a pre-assembled connector housing with matte silicone seal and seal-cap provides greater applied labor and process costsavings

Silicone seals are more durable and able to withstand higher temperatures than ordinary Nitrile-rubber seals

Seal-cap provides strain relief for the seal interface; enables easy insertion of crimped wires directly into the connector

Mounted male header with self-guiding slot for easy assembly into the ECU (Engine Control Unit) box facilitates easy assembly and subsequent potting (a process of filling a complete electronic assembly with thermosetting plastics for protection against shock and vibration as well as for exclusion of moisture and corrosive agents)

*FL – Automotive Wire; R – Reduced Thickness of Insulation; Y – PVC Insulation

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Specifications

CONNECTORS

Reference Information
Packaging:
  Carton (all); Bag (Series 36804)
UL File No.: E29179
Mates With: Refer to table
Use With: Refer to table
Designed In: mm
RoHS Compliant: Yes
Halogen Free: Yes
Glow Wire Compliant: No

Electrical
Voltage (max.): 28 V DC
Current (max.): 10.5A (per contact)
Contact Resistance (max.):
  20 milliohms
Dielectric Withstanding Voltage:
  1000 VAC
Insulation Resistance (min.):
  20 megaohms

Mechanical
Contact Insertion Force (max.): 30N
Contact Retention to Housing (min.):
  50N
Mating/Unmating Force:
  75N (max.); 90N min. (lock engaged)
Durability (max.): 10 cycles

Physical
Housing:
  HB-rated, glass-filled Nylon, black
    (Series 36783)
  Nylon (Series 36792), black
Contact:
  C42500 Brass / Copper alloy
Plating: Pre-plated Tin (Sn)
  Contact Area — Tin (Sn)
  Solder Tail Area — Tin (Sn)
  Underplating — Nickel (Ni)
PCB Thickness (recommended):
  1.60mm
Operating Temperature:
  -40 to +105 °C

CRIMP TERMINALS

Reference Information
Packaging: Reel
Use With: Refer table below
Designed In: mm
RoHS Compliant: Yes
Halogen Free: Yes
Glow Wire Compliant: No

Electrical
Voltage (max.): 28V DC
Current (max.): 10.5A (per contact)
Contact Resistance (max.):
  20 milliohms
Dielectric Withstanding Voltage:
  1000 VAC
Insulation Resistance (min.):
  20 megaohms

Mechanical
Crimped Wire Pullout Force:
  0.35 mm^2 wire – 35N (min.)
  0.50 mm^2 wire – 55N (min.)
  0.75 mm^2 wire – 75N (min.)
  1.00 mm^2 wire – 88N (min.)

Physical
Contact: Copper Alloy
Plating: 1.00µm (39µ") Tin (Sn)
  Contact Area —
    1.00µm (39µ") Tin (Sn)
  Solder Tail Area —
    1.00µm (39µ") Tin (Sn)
  Underplating —
    Nickel (Ni)
Operating Temperature:
  -40 to +105 °C

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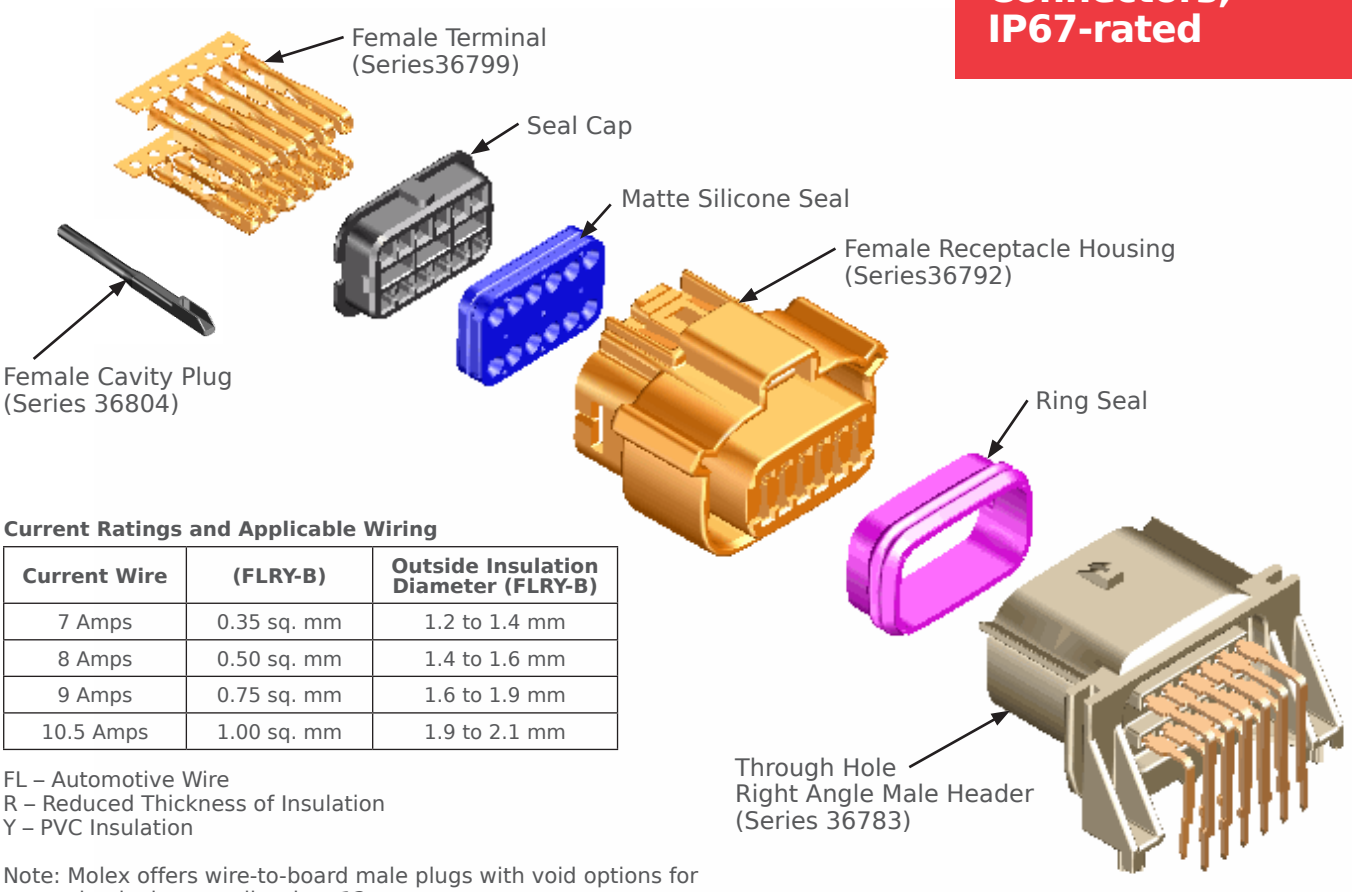
MX120G™ Sealed Wire-to-Board Connector Configuration



Current Ratings and Applicable Wiring

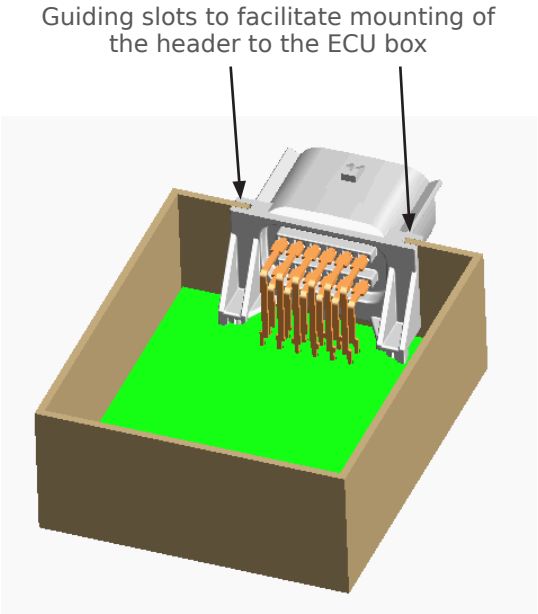
Current Wire	(FLRY-B)	Outside Insulation Diameter (FLRY-B)
7 Amps	0.35 sq. mm	1.2 to 1.4 mm
8 Amps	0.50 sq. mm	1.4 to 1.6 mm
9 Amps	0.75 sq. mm	1.6 to 1.9 mm
10.5 Amps	1.00 sq. mm	1.9 to 2.1 mm

FL – Automotive Wire
R – Reduced Thickness of Insulation
Y – PVC Insulation

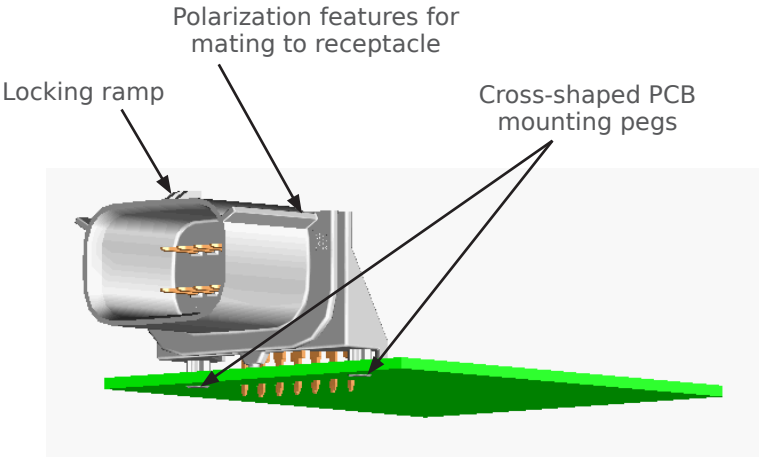
Note: Molex offers wire-to-board male plugs with void options for circuit sizes smaller than 12.

Mating configuration of a typical 2-by-6 circuit, sealed MX120G™ wire-to-board assembly (exploded view)

Additional Product Features



Rear view of a sealed MX120G™ male header mounted on an ECU box



Mating interface of a PCB-mounted MX120G™ male header

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Applications

Transportation
- Buses
- Motorcycles and scooters

Agriculture and worksite vehicles
- Utility vehicles
- Tractors and combines
- Riding lawnmowers

Recreational Vehicles
- Snowmobiles
- Golf carts
- Jet skis

Industrial
- Construction equipment
- Marine equipment
- Oil and gas installations

Exterior LED Lighting
- Traffic lights
- Overhead street lights

Medical
- Splash-proof medical equipment

LED street lights

Golf cart

Agriculture vehicles

Motorcycles and scooters

Ordering Information

Connectors

Order No.	Circuits	Description	Mates with	Use with
36792-1201	12	Female Receptacle	36783-120X (X = 1 to 8; refer SD for color mark identification options)	36799-0001 and 36799-0002 Crimp Terminals
36783-1201		Right Angle Shrouded Male Header	36792-1201	-
36804-0001	1	Cavity Plug for Female Receptacle	-	36792-1201 Female Receptacle

Crimp Terminals

Order No.	Description/ (Grip Code)	Wire Gauge (AWG)	Wire Size (mm^2)	Wire Insulation Diameter (mm)	Use with
36799-0001	Female Crimp Terminal (M)	17 – 20	0.50 – 0.75	1.4 – 1.9	36792-0401 and 36792-1201
36799-0002	Female Crimp Terminal (S)	20 – 22	0.35 – 0.50	1.2 – 1.6	

www.molex.com/link/mx120g.html

Order No. 987650-6511 Printed in USA/KC/2012.11