The rugged ML-XT™ connection system with market-leading high-performance seal technology is a cost-competitive solution offering superior reliability for critical vehicle-wiring applications in harsh environments.

Customers specifying low-circuit-count connectors for rugged harness applications in vehicles require a highly-reliable, securely sealed connection system to minimise electrical failures and prevent costly machinery downtime. This system needs to withstand high temperatures and harsh environments, including exposure to chemicals, at the lowest cost. The ML-XT™ system meets these needs with high-performing seal technology proven to prevent ingress of fluids under extreme conditions. Advanced two-shot LSR molded one-piece plug, and rear HCR seals with cover guards guarantee optimum seal positioning at all times, including during mating and unmating of the header and receptacle. The result is a cost-competitive solution that achieves superior reliability over de-facto, industry-standard systems.

Features and Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-piece plug housing and seal design, permanently bonded by two-shot LSR (liquid silicone rubber) molding technology</td>
<td>Prevents fluid ingress; system is IP68-rated and J2030 power-wash test capable. Prevents loss/ misalignment of seal; ensures repeatable retention during unmating and mating of plug and receptacle</td>
</tr>
<tr>
<td>Rear seals made from HCR (high consistency rubber)</td>
<td>Provides greater tear-resistance over LSR material; prevents damage to rear seal during terminal insertion/ extraction</td>
</tr>
<tr>
<td>Latched rear covers</td>
<td>Locks in rear HCR seals. Allows for flexible cable exits and cable movement whilst maintaining optimum seal position to prevent leak paths</td>
</tr>
<tr>
<td>Plug and receptacle housings are supplied pre-assembled with internal HCR rear seals locked-in by rear covers</td>
<td>Reduces inventory, assembly time and costs for harness manufacturers and prevents loss of rear seals for a cost-competitive mated system</td>
</tr>
<tr>
<td>Utilises Molex proven XRC™ terminals with current ratings up to 13.0A</td>
<td>Supports tooling widely used at harness makers</td>
</tr>
<tr>
<td>High terminal retention force; exceeds 111N</td>
<td>Withstands high axial pull-out forces per J2030 specification</td>
</tr>
<tr>
<td>Wedgelock / TPA (Terminal Position Assurance) loaded after terminals</td>
<td>Locks terminals in position for secure electrical contact</td>
</tr>
<tr>
<td>Plug housing features integral locking latch</td>
<td>Ensures secure mating of plug and receptacle</td>
</tr>
<tr>
<td>9 colour-coded housings available</td>
<td>Enables easy visual mating of harnesses to prevent mis-mating</td>
</tr>
</tbody>
</table>
Applications

Commercial Vehicle
- Agricultural machines
- Construction and mining equipment
- Forest and garden equipment
- Generator sets (Gensets)
- Search, detection and navigation equipment
- Trains and rail equipment
- Bus, coach, caravan
- Material handling equipment

Automotive
- Cars
- Motorcycles

Sealed applications
- Sensors – Electrical, fluid, velocity, magnetic, moisture, navigation, position angle, optical, pressure, proximity...
- Engine Control Units (ECUs)
- Airbag Control Units (ACUs)
- Diagnostics
- Alternators
- Starters
- Air conditioning
- Lights, lamps
- Pumps
- Power steering modules
- Alarms, horns
- Infotainment and telematics
- Electric seats
- Brakes
- Hydraulics

Military vehicles
- Marine

Aeronautical
- Commercial Aviation
Specifications

**REFERENCE INFORMATION**
Packaging: Bags in Boxes
Terminal: XRC™ series 84525, 84524
Designed In: Millimeters RoHS: Yes
Halogen Free: Yes
Cable Gauges:
  - 1.40 to 2.80mm
  - 2.70 to 3.60mm

**ELECTRICAL**
Voltage (max.): 500V DC
Current (max.): 13.0A
Contact Resistance:
  - 30 milliohm max.
Insulation Resistance:
  - 20 Megaohms min.

**MECHANICAL**
Contact Retention to Housing:
  - 111N min.
Mating Force: 135N max.
Unmating Force: 135N max.
  - with latches disengaged
Durability (min.): 100 cycles

**PHYSICAL**
Housing: Nylon
Seal: LSR
Contact:
  - Plating:
    - Contact Area — Nickel (Ni) or Gold (Au)
    - Solder Tail Area — Tin (Sn)
    - Underplating — Nickel (Ni)
Operating Temperature:
  -55 to +125°C
Sealed rating: IP68 and J2030
  - power-wash test capable

Technical Information

Exploded View
2-Circuit ML-XT™ Connector System

- Rear Seal & Cover
  - Housing supplied pre-assembled with rear HCR seal locked-in and fully protected by rear cover
- One-Piece Plug Housing & Seal
  - Two-Shot LSR Molded. Proven to maintain optimum seal positioning even during mating and unmating
- Plug Wedgelock (TPA)
- Receptacle Wedgelock (TPA)
- Receptacle Housing
- Rear Seal & Cover
  - Housing supplied pre-assembled with rear HCR seal locked-in and fully protected by rear cover

4-Circuit ML-XT Connector System
6-Circuit ML-XT Connector System
18-Circuit ML-XT Connector System
# Ordering Information

The ML-XT™ Connector System utilizes proven Molex XRC™ Terminals. Please refer to molex.com for terminal ordering information.

**Notes:**
- Receptacle and plug assemblies include housing + rear seal locked-in by rear cover. Supplied pre-assembled.
- †Wedgelocks: Green = standard coding. For other colour codings contact Molex.

## PLUGS AND RECEPTACLES

The table below provides the ordering information for circuits, colour coding, cable gauge accepted by seal, and assembly options for receptacles and plugs.

### Table: Receptacle and Plug Assembly Orders

<table>
<thead>
<tr>
<th>Circuits</th>
<th>Colour Coding (Housings)</th>
<th>Cable Gauge Accepted by Seal</th>
<th>Receptacle Assembly ‡</th>
<th>Wedgelock for Receptacle (Greent)</th>
<th>Plug Assembly ‡</th>
<th>Wedgelock for Plug (Greent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Black</td>
<td>1.40 to 2.80mm</td>
<td>93444-1101</td>
<td>93447-1003</td>
<td>93445-1101</td>
<td>93448-1003</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>2.70 to 3.60mm</td>
<td>93444-1201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey</td>
<td>1.40 to 2.80mm</td>
<td>93444-1102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey</td>
<td>2.70 to 3.60mm</td>
<td>93444-1202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Black</td>
<td>1.40 to 2.80mm</td>
<td>93444-3101</td>
<td>93447-3003</td>
<td>93445-3101</td>
<td>93448-3003</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>2.70 to 3.60mm</td>
<td>93444-3201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey</td>
<td>1.40 to 2.80mm</td>
<td>93444-3102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grey</td>
<td>2.70 to 3.60mm</td>
<td>93444-3202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Black</td>
<td>1.40 to 2.80mm</td>
<td>93444-4101</td>
<td>93447-4003</td>
<td>93445-4101</td>
<td>93448-4003</td>
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<tr>
<td></td>
<td>Black</td>
<td>2.70 to 3.60mm</td>
<td>93444-4201</td>
<td></td>
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<tr>
<td></td>
<td>Grey</td>
<td>1.40 to 2.80mm</td>
<td>93444-4102</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Grey</td>
<td>2.70 to 3.60mm</td>
<td>93444-4202</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Black</td>
<td>1.40 to 2.80mm</td>
<td>N/A</td>
<td>93444-7111</td>
<td>N/A</td>
<td>93445-7111</td>
</tr>
</tbody>
</table>

## WEDGELOCKS (TPA)

The diagram below illustrates how to order wedgelocks for receptacles and plugs. The series numbers and assembly options are provided for both receptacles and plugs.

### Wedgelocks Diagram

**Series No.:**
- 93447 = Wedgelock for Receptacle
- 93448 = Wedgelock for Plug

**XX = Colour:**
- 01 = Green

**Notes:**
- Contact Molex for heatshrink housing options.

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**Order No. 987651-0201 Rev. 2**

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**Series No.**
- 93444 = Receptacles
- 93445 = Plugs

**X = Circuit Size:**
- 1 = 2 Circuits
- 3 = 4 Circuits
- 4 = 6 Circuits
- 7 = 18 Circuits

**XX = Colour:**
- 01 = Black
- 02 = Grey
- 03 = Green
- 04 = Blue
- 05 = Yellow
- 06 = White
- 07 = Brown
- 08 = Orange
- 09 = Red

**Series No.**
- X = Assembly Options (Cable Gauge accepted by Seal):
  - 1 = 1.40 to 2.80mm
  - 2 = 2.70 to 3.60mm

**XX = Colour:**
- 01 = Green