



PRODUCT SPECIFICATION

MX150L 22-14AWG WIRE-TO-WIRE & PANEL MOUNT CONNECTOR SYSTEM

1.0 SCOPE

This Product Specification covers the 5.84 mm (.236 inch) centerline (pitch) Connector Series terminated with 22 to 14 AWG wire using Crimp Technology with Tin or Select Gold plated terminals.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

2.1.1 Receptacle Assembly 22-14 AWG Series	19418
2.1.2 Plug Assembly 22-14 AWG Series	19419
2.1.3 Female Terminal 22-14 AWG Series	19420
2.1.4 Male Terminal 22-14 AWG Series	19417
2.1.5 Panel Mount Plug Assembly 22-14 AWG Series	19429
2.1.6 Sealed Panel Mount Plug Assembly 22-14 AWG Series	19435
2.1.7 Circuit Plug, Standard and W-T-B	19417

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See applicable sales drawings for information on dimensions, materials, plating, and any other specifications.

2.3 SAFETY AGENCY APPROVALS

- 2.3.1 UL FILE #E152602
- 2.3.2 CSA File #018689, Class #6233-01
- 2.3.3 All molded components are flammability rated UL94 V-0

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 Receptacle Assemblies

- Sales Drawing SD-19418-***
- Packaging Drawing PK-19418-***

3.2 Plug Assemblies

- Sales Drawing SD-19419-***
- Packaging Drawing PK-19419-***

3.3 Female Terminals

- Sales Drawing SD-19420-***
- Packaging Drawing PK-19420-***

3.4 Male Terminals

- Sales Drawing SD-19417-***
- Packaging Drawing PK-19417-***

3.5 Panel Mount Plug Assemblies

- Sales Drawing SD-19429-***
- Packaging Drawing PK-19429-***

3.6 Panel Mount Plug Assemblies

- Sales Drawing SD-19435-***
- Packaging Drawing PK-19435-***

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4.0 RATINGS

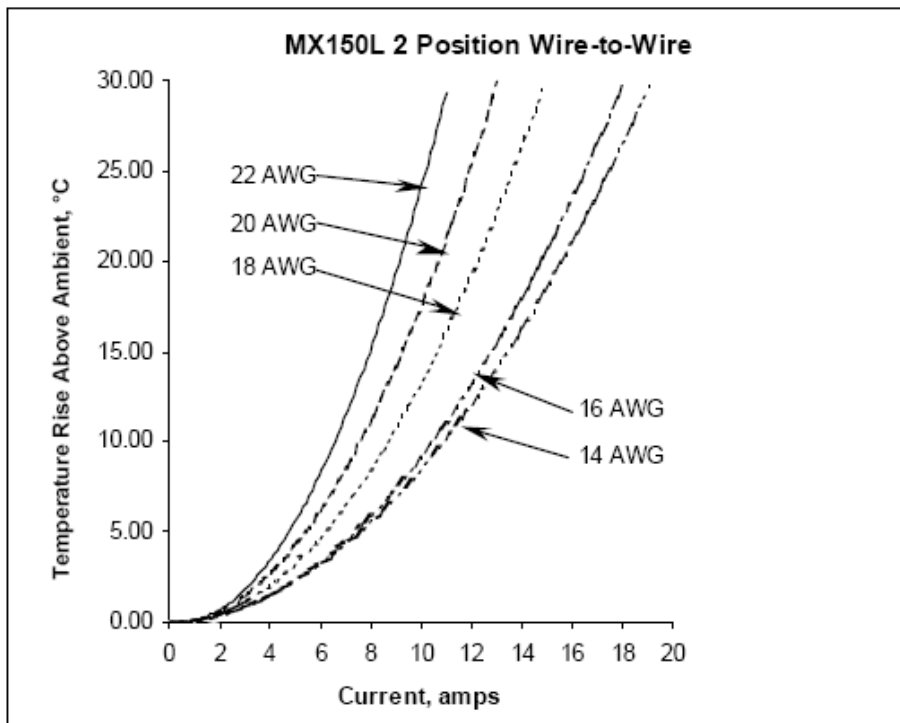
4.1 VOLTAGE

600 Volts AC

4.2 CURRENT

AWG	Amps	Insulation Outside Diameter
22-18	See chart	2.36-2.74mm (.093-.108 inch)
16-14	See chart	2.87-3.53mm (.113-.139 inch)

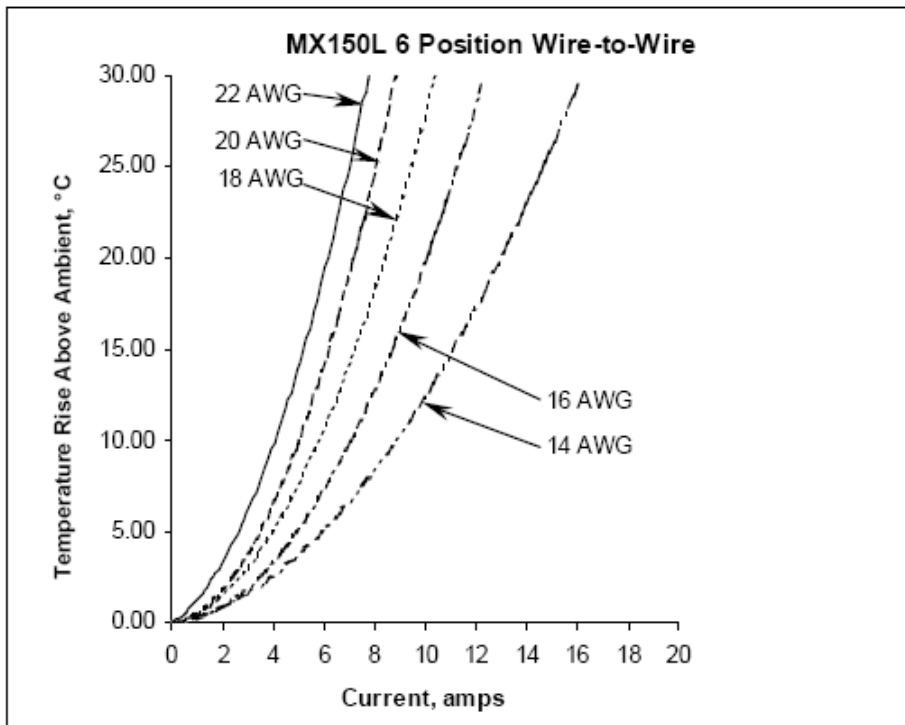
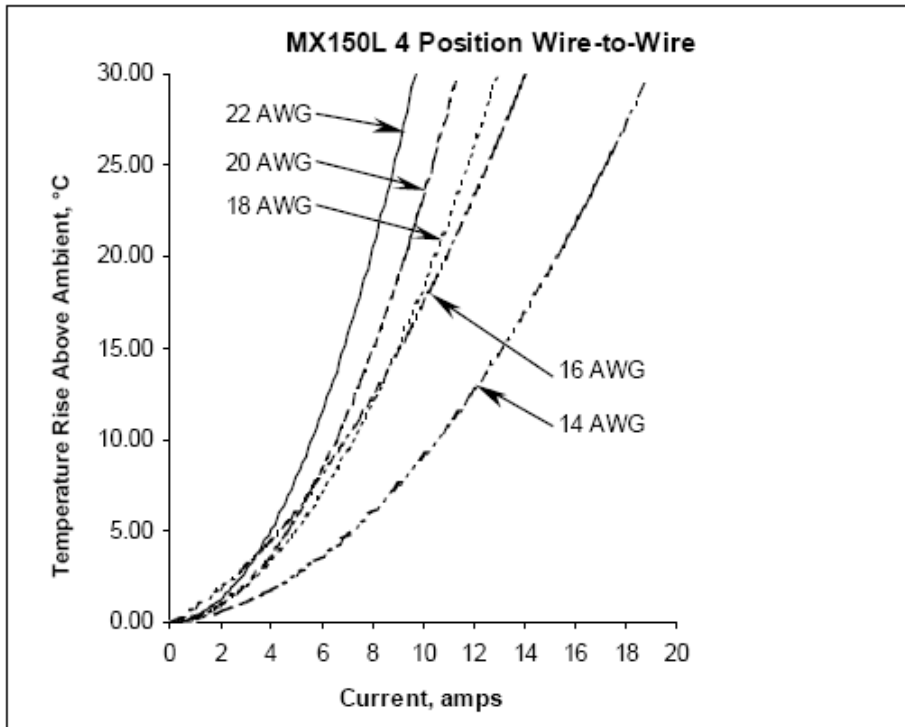
Note: The below curves were developed using averages of fully loaded connector pairs and are presented as a guideline. The end user must evaluate the performance of the connector pair in actual application to determine the suitability and actual performance.



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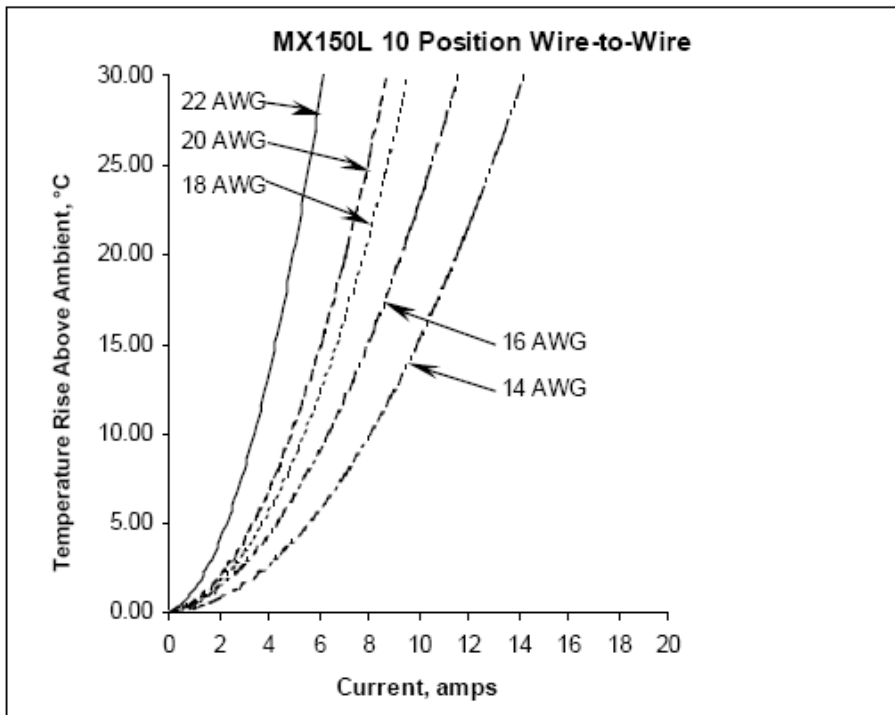
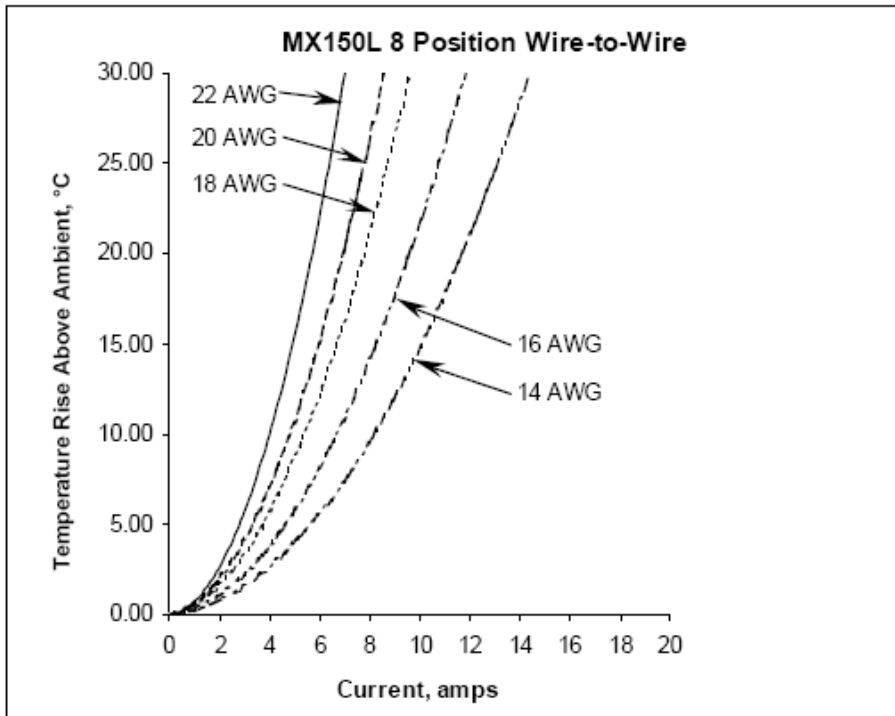
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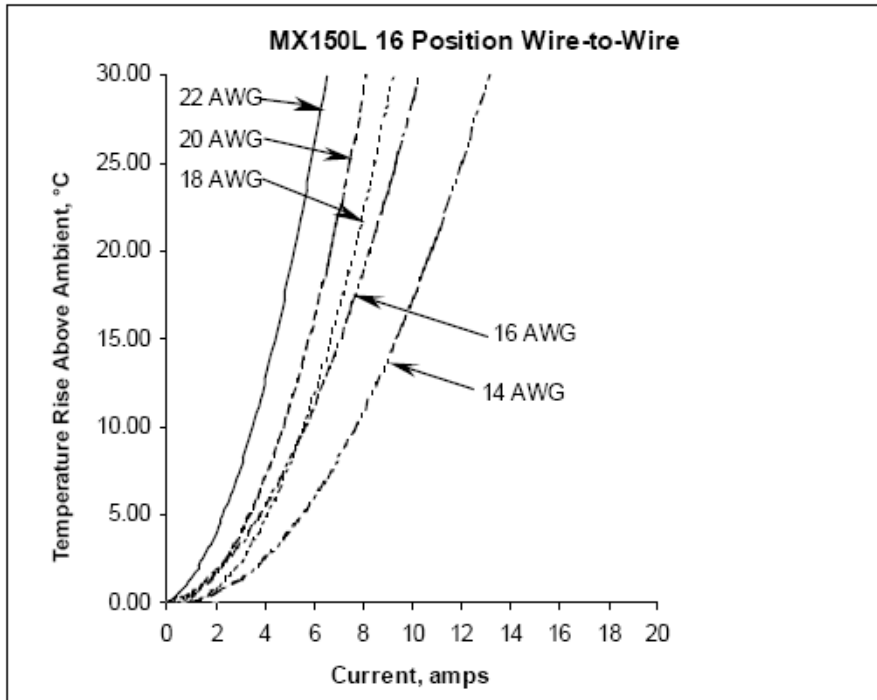
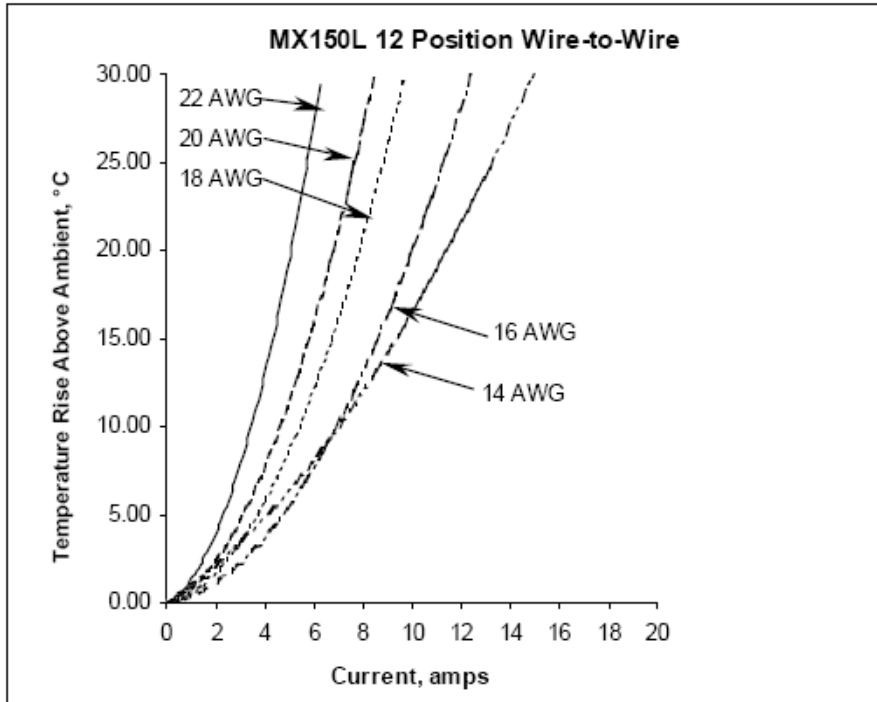
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4.3 TEMPERATURE

Operating: - 40°C to + 120°C

Nonoperating: - 40°C to + 120°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA.	10 milliohms MAXIMUM [initial]
2	Insulation Resistance	Un-mate & un-mount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	20 Megohms MINIMUM
3	Dielectric Withstanding Voltage	Un-mate connectors: apply a voltage of {two times the rated voltage plus 1000 volts} VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < 5 mA
4	Temperature Rise	Mate connectors: measure the temperature rise at the rated current after 4 hours and temperature stabilizes	Temperature rise: +30°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Terminal Insertion and Withdrawal Forces	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	5.78 N (1.3 lbf) MAXIMUM insertion force & 1.11 N (0.25 lbf) MINIMUM withdrawal force
6	Connector Mate and Un-mate Forces	Mate and un-mate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	75 N (16.9 lbf) MAXIMUM insertion force & 110 N (24.7 lbf) MINIMUM withdrawal force
7	Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	85 N (19.1 lbf) MINIMUM retention force
8	Durability	Mate connectors up to {25 cycles for tin (non-noble) plating OR 100 cycles for gold (noble) plating} at a maximum rate of 10 cycles per minute prior to Environmental Tests.	10 milliohms MAXIMUM (change from initial)

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5.2 MECHANICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
9	Vibration (Random)	Mate connectors and vibrate from 10Hz to 1000Hz for 8 hours in each of three mutually perpendicular axes (X, Y, Z).	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
10	Shock (Mechanical)	Mate connectors and shock at 35 g's with 10 ½ sine wave (11 milliseconds) shocks in the ±X, ±Y, ±Z axes.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
11	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).	22 AWG 35.6 N (8 lbf) 20 AWG 57.9 N (13 lbf) 18 AWG 89.0 N (20 lbf) 16 AWG 133.5 N (30 lbf) 14 AWG 222.6 N (50 lbf) MINIMUM pullout force {Recommended minimum value: 75% of tensile strength of the wire}

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT										
12	Shock (Thermal)	Mate connectors; expose to 100 cycles of: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Temperature °C</th> <th>Duration (Minutes)</th> </tr> </thead> <tbody> <tr> <td>-40 +0/-3</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>30 sec. MAXIMUM</td> </tr> <tr> <td>+125 +3/-0</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>30 sec. MAXIMUM</td> </tr> </tbody> </table>	Temperature °C	Duration (Minutes)	-40 +0/-3	30	+25 ±10	30 sec. MAXIMUM	+125 +3/-0	30	+25 ±10	30 sec. MAXIMUM	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Temperature °C	Duration (Minutes)												
-40 +0/-3	30												
+25 ±10	30 sec. MAXIMUM												
+125 +3/-0	30												
+25 ±10	30 sec. MAXIMUM												
13	High Temperature Exposure	Mate and un-mate connectors: 10 cycles Duration: 1008 hours exposure Temperature: +125°± 3°C	10 milliohms MAXIMUM (change from initial)										
14	Salt Spray	Mate connectors: Duration: 96 hours exposure; Atmosphere: salt spray from a 5% solution; Temperature: 35 +1/-2°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage										
15	Fluid Resistance	Submerge mated connectors for 30 minutes in each of the following automotive fluids: gasoline, diesel fuel, engine oil, E85 ethanol fuel, power steering fluid, automatic transmission fluid, engine coolant, brake fluid	Insulation Resistance 20 Megohms MINIMUM & Visual: No damage or loss of mechanical function										

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5.3 ENVIRONMENTAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
16	IPX7	IPX7 – Submerge mated connectors for 30 minutes under 1 meter of water	No dielectric breakdown; current leakage < 5 mA

6.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

7.0 APPLICATION TOOLING

7.1 Male Terminal 22-18 AWG

- 63811-7600 Hand Crimp Tool
- 63811-4400 Hand Crimp Tool
- 63900-8300 Fine Adjust Applicator
- 63910-8300 T2 Terminator Tooling
- 63813-1500 Manual Extraction Tool

7.2 Female Terminal 22-18 AWG

- 63811-7600 Hand Crimp Tool
- 63811-4400 Hand Crimp Tool
- 63900-8400 Fine Adjust Applicator
- 63910-8400 T2 Terminator Tooling
- 63813-1500 Manual Extraction Tool

7.3 Male Terminal 16-14 AWG

- 63811-4400 Hand Crimp Tool
- 63900-8200 Fine Adjust Applicator
- 63910-8200 T2 Terminator Tooling
- 63813-1500 Manual Extraction Tool

7.4 Female Terminal 16-14 AWG

- 63811-4400 Hand Crimp Tool
- 63900-8200 Fine Adjust Applicator
- 63910-8200 T2 Terminator Tooling
- 63813-1500 Manual Extraction Tool

8.0 OTHER INFORMATION

The MX150L™ Industrial Sealed Connector System is IPX7 rated and conforms to UL 1977, but it is **NOT** suitable for automotive applications with requirements such as USCAR-2, USCAR-25, GMW3191, AK Testing, J2030, Volvo Technology Requirements, and Toyota Connector Spec (TCS)

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