PRODUCT SPECIFICATION

Title: M5 / M8 / M12

Part Number: 850 / 851 / 852 / 853 / 854 / 855 / 858 / 859 / 860 / 861 series

Description: IP67 circular connector series

Rev.	ECN Number	Originator	Approval	Date

Product Specification Origination

Originator Date	Checked By	Approved By
01-15-16	*Matt Sigmon*	*Pamela R. Jenkins*

1 – Scope:

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This specification covers performance, tests and quality requirements for our WATER PROOF IP 67 Circular M5, M8 and M12 connector series.

2 – Applicable Documents:

The following document of the latest issue in effect at the time of performance test, shall form a part of this specification to the extent specified herein.

Military:

MIL-STD-202 Test Methods for electrical connectors

Underwriter's Laboratories, Inc.:

UL-STD-94 Tests for flammability of plastic materials devices and appliances.
UL-STD-1581 Reference standard for electrical wires, cables and Flexible cords.

3 – Material & Finish:

3.1 Plug

Part Name	Material/Finish
Insulator	Reference drawing
Contact	Reference drawing
Metal Shell	Reference drawing
O-Ring	Reference drawing

3.2 Receptacle

Part Name	Material/Finish
Insulator	Reference drawing
Contact	Reference drawing
Metal Shell	Reference drawing

O-Ring	**Reference Drawing**

4.0 Ratings:

Rated Current	**Reference drawing**
Rated Voltage	**Reference drawing**
Operating Temperature	**Reference drawing**

5.0 Requirements:

Electrical Performance:

1	**Contact Resistance:**	**Initial: 10mΩ (Max.)** **Final: 20mΩ (Max.)**	**Mate connectors,** **Contact: Measure by dry circuit, 20 m Volts Max, 10mA (ANSI/EIA-364-06B)**
2	**Insulation Resistance:**	**Initial: 1000 MΩ (min.)** **Final: 500MOhm (min)**	**Mate the plug and receptacle connector together, then apply 500V DC between the neighboring contacts in accordance with (ANSI/EIA-364-21C)**
3	**Dielectric Withstanding:**	**No Breakdown on Appearance**	**500 V AC (rms) applied for 1 minute in accordance with (ANSI/EIA-364-20C, Method A)**

Mechanical Performance:

1	**Connector Mating force**	**3kgf Max.**	**Measure of initial mating/ un-mating 30th cycle at a speed of 25 +/- 3mm/min. along the mating axis.**
2	**Connector Un-mating**	**0.5kgf**	
3	**Contact retention force per pin**	**Plug: 4kgf Min.** **Receptacle: 4kgf Min**	**Mating/Un-mating speed of 25 +/- 3mm/min. Measure the force when the contact dislodges the connector.**

4	**Durability**	**Contact Resistance: 20mOhm Max.**	**Repeat mating/unmating 100 mating cycles (gold flash) 500 mating cycles 10u" gold cycles at a speed of 25+/_3mm/min. along the mating axis.**
5	**Torsion Examination**	**Torsion value: 7 in/lb Max.**	**Using torsion trigger test nut and shell mating force.**

Environmental Performance:

1	**Thermal Shock**	**Contact resistance: 20mΩ Max.**	**Mate receptacle and plug. Then apply the Following environmental in accordance with MIL-STD-202. Method 107, Condition B.**
2	**High Temperature life**	**Contact Resistance: 20mΩ Max. Insulation Resistance: 500MΩ Min**	**Mate receptacle and plug. connector. Then apply the following High Temperature life in accordance with' MIL-STD-202. Method 108 Condition B. Temperature: 85 +/- 2°C. Duration: 96 hours**
3	**Humidity**	**Contact Resistance: 20MΩ Max. Insulation resistance: 500MΩ Min.**	**Mate receptacle and plug. Then apply the following Humidity in accordance with MIL-STD-202. Method 103, Condition A Temperature: 40 +/- 2°C. Relative Humidity: 90~95% Duration: 96 hours**
4	**Humidity Cycling:**	**Contact Resistance: 20mΩ Max. Insulation resistance: 500MΩ Min.**	**Mate receptacle and plug. Then apply the following Humidity in accordance with MIL-STD-20, Method 106. Temperature: 25°C~65°C Humidity: 98~98%RH No of cycles: 4 cycles in 96 hours.**
5	**Salt water spray:**	**Contact Resistance: 20mΩ Max.**	**Mate receptacle and plug.**

			Then apply the following Environmental in accordance with MIL-STD-202, Method 101, Condition B. **Temperature: 35°C** **Salt water density: 5+/1%** **Duration: 48 hours.**
6	**Solder Ability:**	**More than 95% of the dipped Surface shall be evenly wet.**	**Dip the solder line of the contact in the solder bath at 245+/- 5° for 5 +/-0.5 secs. after immersing the tine in flux of RAM or R type for 5 to 10 seconds in accordance with MIL-STD-202, Method 208.**
7	**Water Proof**	**Protection against ingress water**	**Ambient temperature: 25 +/- 3°C.** **Relative Humidity: 55 +/-120%RH.** **The lowest point of enclosure with a light less than 850mm is located 1000mm below the surface of the water.** **Test Duration: 30 minutes (IEC 60529 Edition 2.1:2001-02-IP68)**