



**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.	ORIGINATOR	APPROVAL	DATE
1	JK	JK	01/15/2019

**Product Specification Origination**

Originator Date	Checked By	Approved By
01-15-16	<i>Matt Sigmon</i>	<i>Pamela R. Jenkins</i>

## 1 – Scope:

This document is the property of NorComp, A Division of EDAC America LTD. located in Charlotte, North Carolina and shall not be reproduced, copied or used as the basis for the manufacture or sale of apparatus without written permission.

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

**4.0 Ratings:**

<b>Rated Current</b>	<b>Reference drawing</b>
<b>Rated Voltage</b>	<b>Reference drawing</b>
<b>Operating Temperature</b>	<b>Reference drawing</b>

**5.0 Requirements:****Electrical Performance:**

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

**Mechanical Performance:**

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

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.
<b>Environmental Performance:</b>			
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.

			<p>Then apply the following Environmental in accordance with MIL-STD-202, Method 101, Condition B.</p> <p>Temperature: 35°C Salt water density: 5+/-1% Duration: 48 hours.</p>
6	<b>Solder Ability:</b>	<b>More than 95% of the dipped Surface shall be evenly wet.</b>	<p>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.</p>
7	<b>Water Proof</b>	<b>Protection against ingress water</b>	<p>Ambient temperature: 25 +/- 3°C. Relative Humidity: 55 +/- 120%RH.</p> <p>The lowest point of enclosure with a light less than 850mm is located 1000mm below the surface of the water.</p> <p>Test Duration: 30 minutes (IEC 60529 Edition 2.1:2001-02-IP68)</p>

**\*M5 FEMALE CABLE MOUNT CONNECTORS POSITIONS 2, 3, & 4 MUST BE SEALED DURING ASSEMBLY PROCESS TO MEET IP67 REQUIREMENTS**

