
Multi-Position Mounted FASTIN-FASTON Housing, Free Hanging

1. SCOPE

This specification covers the requirements for product performance, test methods and quality assurance provisions of Multi-Position Mounted FASTIN-FASTON Connector, Free Hanging (MMF connector).

2. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 TE Specifications

A. TE Product Drawings, refer to TE Customer Drawings.

B. 501-106178: Test report

3. REQUIREMENTS

3.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawings.

3.2 Materials

Materials used in the construction of this product shall be as specified on the applicable product drawings.

3.3 Ratings

A Operating temperature rating: -30°C to $+105^{\circ}\text{C}$ (include temperature rising by operating electric energy in addition to the ambient temperature)

B Relative humidity: 45-75%

C Atmospheric pressure: 86.7-107kPa

4. PERFORMANCE REQUIREMENTS AND TEST DESCRIPTIONS

All the samples to be employed for the tests shall be prepared by crimping the wires of applicable sizes specified in this specification, in accordance with the procedure specified in instruction sheets. No Sample shall be reused, unless otherwise specified.

Item	Test Items	Requirement	Procedures																		
4.1	Product Examination	Meets requirements of product drawing	Visual inspection No physical damage																		
Electrical Performance Requirements																					
4.2	Termination Resistance	10mΩ Max(after the test)	Subject mated contacts assembled in housing to 50 mV Max open circuit at 50mA.Refer to Fig.1																		
4.3	Termination Resistance(Specified Current)	<table border="1"> <thead> <tr> <th>Wire AWG #</th> <th>Current(A)</th> <th>Voltage drop(mV)Max</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>5</td> <td>12</td> </tr> <tr> <td>18</td> <td>7</td> <td>21</td> </tr> <tr> <td>16</td> <td>10</td> <td>30</td> </tr> <tr> <td>14</td> <td>15</td> <td>45</td> </tr> <tr> <td>12</td> <td>20</td> <td>70</td> </tr> </tbody> </table>	Wire AWG #	Current(A)	Voltage drop(mV)Max	20	5	12	18	7	21	16	10	30	14	15	45	12	20	70	Measurement shall be done after temperature rising becomes stabilized, by using the DC voltmeter probing between the point Y and Y'. Termination resistance is obtained by calculation after deducting the resistance of wire used for termination. The probing points shall be soldered to stabilize the measurement reading. Refer to Fig 1.
		Wire AWG #	Current(A)	Voltage drop(mV)Max																	
		20	5	12																	
		18	7	21																	
		16	10	30																	
		14	15	45																	
12	20	70																			
4.4	Temperature Rising(Specified Current)	<table border="1"> <thead> <tr> <th>Wire AWG #</th> <th>Current(A)</th> <th>Temp. rising(°C)Max</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>5</td> <td>30</td> </tr> <tr> <td>18</td> <td>7</td> <td>30</td> </tr> <tr> <td>16</td> <td>10</td> <td>30</td> </tr> <tr> <td>14</td> <td>15</td> <td>30</td> </tr> <tr> <td>12</td> <td>20</td> <td>30</td> </tr> </tbody> </table>	Wire AWG #	Current(A)	Temp. rising(°C)Max	20	5	30	18	7	30	16	10	30	14	15	30	12	20	30	Measurement shall be done after temperature rising becomes stabilized. The value obtained from calculation to deduct ambient temperature from the measurement reading is amount of temperature rising. The probing points shall be soldered to stabilize the measurement reading. Refer to Fig 2.
		Wire AWG #	Current(A)	Temp. rising(°C)Max																	
		20	5	30																	
		18	7	30																	
		16	10	30																	
		14	15	30																	
12	20	30																			
4.5	Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur	2kVAC for 1 minute. The test between adjacent circuits and between the contacts and ground of mated connectors. MIL-STD-202 Method 301																		
4.6	Insulation Resistance	100MΩ Min	Impressed voltage 500 V DC. Test between adjacent circuits of mated/ unmated connectors. MIL-STD-202 Method 302 Condition B																		
Mechanical Requirements																					

4.7	Contact Insertion Force	Insertion Force:20N Max	Operation Speed: 25.4mm/min. Measure the force required to insert contact into housing.
4.8	Contact Retention Force	Retention Force:59N Min.	Operation Speed: 25.4mm/min. Apply an axial pull-off load to crimped wire of the contact held in housing.
4.9	Connector mating force (with 3 contacts)	60N Max	Operation Speed:25.4mm/min Measure the force required to mate connector
4.10	Connector un-mating force (with 3 contacts)	80N Min	Operation Speed:25.4mm/min Measure the force required to un-mate connector with locking latch.
4.11	Vibration (Low Frequency)	No damage that affect the function. 10m Ω Max.(After the test)	EIA-364-28, Test Condition I Subject mated connectors to 10-55-10 Hz traversed in 1 minute at 1.52 mm amplitude maximum total excursion, 2 hours each in 2 axial direction.
Environmental Requirements			
4.12	Humidity Steady State	termination resistance: 10m Ω Max.(After the test) Insulation Resistance:100M Ω Dielectric strength: No abnormalities shall be evident.	Mated connector 90-95%RH. 40 \pm 5 $^{\circ}$ C 96hours The sample shall be placed in chamber to avoid falling of water drops during the test. After the test, termination resistance, insulation resistance and dielectric strength shall be measured after reconditioning in the room temperature.
4.13	Resistance to Heat	termination resistance: 10m Ω Max.(After the test)	Mated connector 120 \pm 3 $^{\circ}$ C, Duration:120 hours After the test, termination resistance shall be measured after reconditioning in the room temperature.
4.14	Resistance to Cold	termination resistance: 10m Ω Max.(After the test)	Mated connector -50 $^{\circ}$ C, Duration:120 hours After the test, termination resistance shall be measured

			after reconditioning in the room temperature.
4.15	Glow wire Test	Test at 750°C (Flame duration≤2 seconds) Lighted tissue paper shall not burn	IEC 60695-2-11 and IEC 60335-1 Housings are subjected to glow wire test as described in specs above. Perform a visual check and take photos after the test.
4.16	Salt Spray	termination resistance: 10mΩ Max. (After the test)	EIA-364-26, Condition A Subject mated connectors to 5% salt concentration for 96 hours. Measurement is taken after removing the salt. Specimens dried per the specification.

5. PRODUCT QUALIFICATION TESTS

Test or Examination	Test Group										
	A	B	C	D	E	F	G	H	I	J	K
	Test Sequence (a)										
Examination of product	1,3	1,4	1,4	1,4	1,3	1,4	1,4	1,4	1,4	1,3	1,4
Termination Resistance				2		3	3	3	3		3
Insulation Resistance				3							
Dielectric withstanding voltage					2						
Temperature rise	2										
Contact insertion force		2									
Contact retention force		3									
Connector mating force(3Pos.)			2								
Connector um-mating force(3Pos.)			3								
Vibration (Low Frequency)									2		
Humidity Steady State						2					
Resistance to Heat							2				
Resistance to Cold								2			
Glow wire test										2	
Salt Spray											2

*** Notes:**

(a) Numbers indicate the sequence in which the tests are performed.

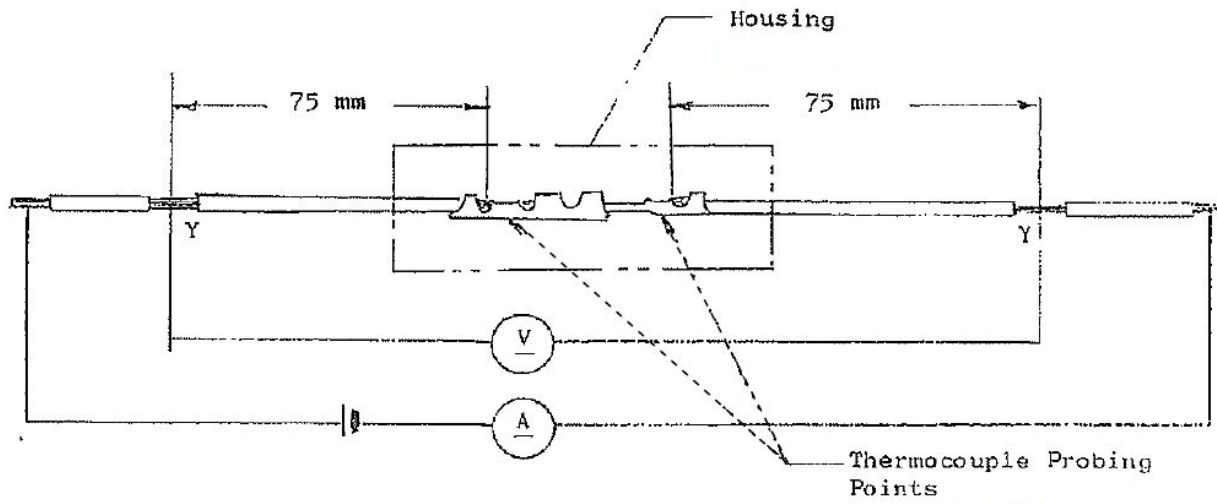


Fig.1 Measurement of Termination resistance, temperature rising.

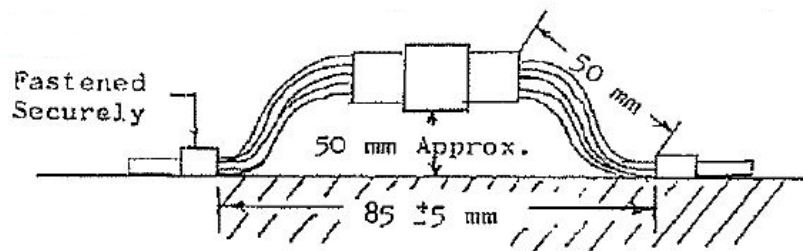


Fig.2 Vibration Test