

**MODULAR JACK, SIDE ENTRY, SINGLE / MULTI-PORT****1. SCOPE****1.1. CONTENTS**

This specification covers the performance, tests and quality requirements for the **MODULAR JACK, SIDE ENTRY, SINGLE / MULTI-PORT**.

**1.2. QUALIFICATION**

When tests are performed on the subject product line, the procedures specified in Tyco 109 series specifications shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**2. APPLICABLE DOCUMENT**

The following Tyco documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. 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. TYCO SPECIFICATIONS**

- A. 109-1: General Requirements for Test Specifications
- B. 109-197 : Tyco Specification vs EIA and IEC Test Methods
- | C. 501-57XXX : Test Report

**3. REQUIREMENTS****3.1. DESIGN AND CONSTRUCTION**

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

**3.2. MATERIALS**

- A. Housing : Thermoplastic or Thermoplastic High Temp., UL94V-0.
- B. Contact : Copper Alloy, Gold plating on contact area, Gold flash or Tin Plating on soldertail over Nickel underplating overall.
- | C. Shield : Copper Alloy, Tin or Nickel plating overall.

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**3.3. RATINGS**

- A. Voltage: 150 VAC Max.
- B. Current: 1 A Max.
- C. Temperature: -40°C to +85°C.

**3.4. PERFORMANCE REQUIREMENT AND TEST DESCRIPTION**

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

**3.5. TEST REQUIREMENTS AND PROCEDURES SUMMARY**

TEST ITEM	REQUIREMENT	PROCEDURE
Examination of product	Meets requirements of product drawing and Tyco Specification.	Visual inspection No physical damage.
<b>ELECTRICAL</b>		
Contact Resistance	[ 40 ] m Ohm Max(Initial) [ 50 ] m Ohm Max(Final)	Contact resistance was measured as detailed in Figure I. The voltage drop shall be measured between point A and point B. Current was set at 100 mA with the open circuit. The contact resistance to be measured. Subject mated jack and plug assembly. Refer to Fig.3. EIA-364-23A
Dielectric withstanding Voltage	No creeping discharge or flashover shall occur. Current leakage: 0.5 mA MAX	1000 VAC rms, for 1 minute applied between adjacent contacts. 1500 VAC rms, for 1 minute applied between shield and contacts. EIA-364-09B
Insulation Resistance	[500] M Ohm Min.(Initial) [200] M Ohm Min.(Final)	100 VDC Adjacent circuits of mated connectors. EIA-364-20A
<b>MECHANICAL</b>		
Connector Mating Force	2 contacts 1.6 Kgf max. 4 contacts 1.8 Kgf max. 6 contacts 2.1 Kgf max. 8 contacts 2.3 Kgf max. 10 contacts 2.5 Kgf max.	Operation Speed: [600] mm/min. Measure the force required to mate connector. EIA-364-13B
Durability	See Note	Operation speed: 10~20 cycles /min. Operation cycles: 750 cycles. EIA-364-09B
Contact Normal Force	100g Min.	The samples were measured by a compression / tensile force tester, in accordance with MIL-STD-1344A, Method 2014. The contact normal force was measured using gage (φ 0.56 mm diameter pin) Which is shifted from h2 vertically to the h1 horizontal position, as detailed in Fig.4

Figure 1 ( Cont. )

<b>ENVIRONMENTAL</b>		
Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp. : 240±5°C, 10±0.5sec. Tyco spec. 109-202, Condition A
Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp. : 265±5°C, 10±0.5sec. Tyco spec. 109-202, Condition B
Resistance to Wave Soldering Heat	No physical damage shall occur.	Solder Temp. : 260±5°C, 10±0.5sec. Tyco spec. 109-202, Condition C
Resistance to Reflow Soldering Heat	No physical damage shall occur.	Pre Heat : 100~150°C, 60 sec Max. Heat: 210°C Min., 30 sec Max. Peak Temp. : 240°C Max., 10±0.5sec.
Resistance to Reflow Soldering Heat	No physical damage shall occur.	Pre-soak condition, 85°C/85% RH for 168 hours. Pre Heat: 150~180°C, 90±30sec. Heat: 230°C Min., 30±10sec. Peak Temp. : 245+0/-5°C, 10~30sec. Duration: 3 cycles Tyco spec. 109-201, Condition A
Resistance to Reflow Soldering Heat	No physical damage shall occur.	Pre-soak condition, 85°C/85% RH for 168 hours. Pre Heat: 150~180°C, 90±30sec. Heat: 230°C Min., 30±10sec. Peak Temp. : 260+0/-5°C, 20~40sec. Duration: 3 cycles Tyco spec. 109-201, Condition B
Solderability	The inspected area of each lead must have 95% solder coverage minimum.	Steam Aging Preconditioning : (1) Tin 、Tin-Cu Coating: 93+3/-5°C 、100% HR 、8hrs. <J-STD-002 category 3 aging> (2) Other Coating: 93+3/-5°C 、100% HR 、1hrs. <J-STD-002 category 2 aging> Solder pot temperature: 245±5°C, 5sec
Temperature Life (Heat Aging)	See Note	Mated Connector 85°C , 250 hours, EIA-364-17B.
Humidity Test	At a temperature of 40°C±2°C and relative humidity of 90~ 95% for 96 hours.	MIL-STD-1344A, Method 1002.2
Salt Spray	No detrimental corrosion allowed in contact area and base metal exposed.	Subject mated connectors to 35+/-2 °C and 5+/-1% salt condition for 48hours. After test, rinse the sample with water and recondition the room temperature for 1 hour. EIA-364-26B.

Figure 1 ( End )

NOTE : Shall meet visual requirements, show no physical damage, and meet requirement of additional tests as specified in the test sequence in Figures 2

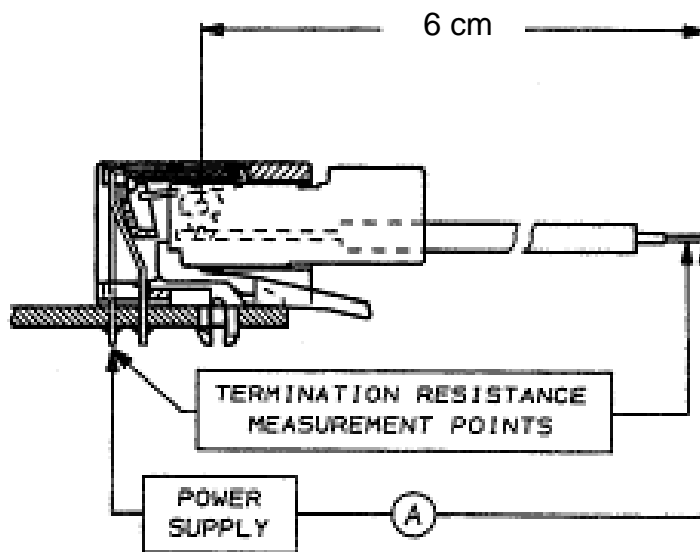
**3.6. PRODUCT QUALIFICATION AND REQUALIFICATION TEST**

Test or Examination	Test Group							
	A	B	C	D	E	F	G	H
	Test Sequence (a)							
Examination of Product	1, 7	1, 7	1, 5	1, 5	1, 3	1, 3	1, 5	
Contact Resistance		2, 6	2, 4	2, 4			2, 4	
Dielectric withstanding Voltage	3, 6							
Insulation Resistance	2, 5							
Mating Force		3, 5						
Durability		4						
Contact Normal Force								1
Solderability						2		
Resistance to Soldering Heat					2			
Temperature Life						3		
Humidity Test							3	
Salt Spray				3				

**Figure 2**

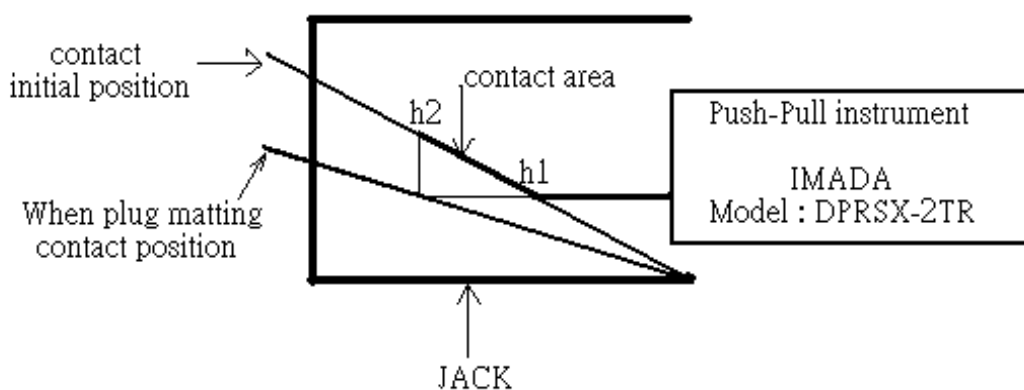
- NOTE : (a) Numbers indicate sequence in which tests are performed.  
 (b) Discontinuities shall not take place in this test group, during tests.

**Figure 3. Contact Resistance**



Note: Resistance of 6 cm wire length and contact pin shall be subtracted from all reading.

**Figure 4. Contact Normal Force**



Contact area (from h1 to h2) is the trace of attrition , when plug matting