

**Eight Position Right Angle Inverted Multiple Port Modular Jack  
With & Without LED's****1. SCOPE****1.1. Content**

This specification covers the performance, tests and quality requirements for Tyco Electronics 8 position right angle inverted multiple port modular jack with and without LED's.

**1.2. Qualification**

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

**1.3. Qualification Test Results**

Successful qualification testing on the subject product line was completed on 09Jun98. The test file number for this testing is 501-91-4. This documentation is on file at and available from Engineering Practices and Standards (EPS).

**2. APPLICABLE DOCUMENTS**

The following 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 Electronics Documents**

- 109-1: General Requirements for Test Specifications
- 109 Series: Test Specifications as indicated in Figure 1
- 108-1163: Product Specification
- 114-2154: Application Specification
- 501-91-4: Qualification Test Report

**2.2. Commercial Specification**

ANSI/EIA/TIA 568, Appendix A: Reliability of Connecting Hardware Used for 100 ohm UTP Cabling

**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**

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

### 3.3. Ratings

- Voltage: 150 volts AC
- Current: Signal application only
- Temperature: -40 to 85°C

### 3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per Test Specification 109-1.

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and Application Specification 114-2154.	Visual, dimensional and functional per applicable quality inspection plan. Verify LED function using 2.1 vdc at 20 ma maximum.
ELECTRICAL		
Termination resistance.	$\Delta R$ 10 milliohms maximum.	AMP Spec 109-6-6. Subject mated contacts assembled in housing to 20 mv maximum open circuit at 100 ma maximum. See Figure 3.
Insulation resistance.	500 megohms minimum.	AMP Spec 109-28-4. Test between adjacent contacts of unmated samples.
Dielectric withstanding voltage.	1 minute hold with no breakdown or flashover.	AMP Spec 109-29-1. 900 volts AC at sea level. Test between adjacent contacts of unmated samples.
MECHANICAL		
Vibration, sinusoidal.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-1. Subject mated samples to 10-55-10 Hz traversed in 1 minute with 0.06 inch maximum excursion. 2 hours in each of 3 mutually perpendicular planes. See Figure 4.
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1, except 30 G's. Subject mated samples to 30 G's half-sine shock pulses of 11 milliseconds duration. 3 shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 750 cycles at a maximum rate of 600 cycles per hour.
Mating force.	4.5 pounds maximum.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples at a maximum rate of 0.5 inch per minute.
Unmating force.	4.5 pounds maximum.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at a maximum rate of 0.5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated and unmated samples to 100 cycles between -40 and 85°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-4, Condition C. Subject mated and unmated samples to 21 cycles between 25 and 65°C at 95% RH with -10°C cold shock.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 85°C for 500 hours.

**NOTE**

*Shall meet visual requirements, show no physical damage and shall meet the requirements of additional tests as specified in the Test Sequence in Figure 2.*

Figure 1 (end)

### 3.6. Product Qualification and Requalification Test Sequence

Test or Examination	Test Group (a)			
	1	2	3	4
	Test Sequence (b)			
Examination of product	1,9	1,5	1,7	1,8
Termination resistance	3,7	2,4	2,6	
Insulation resistance				2,6
Dielectric withstanding voltage				3,7
Vibration	5			
Mechanical shock	6			
Durability	4		5(c)	
Mating force	2			
Unmating force	8			
Thermal shock			3	4
Humidity-temperature cycling			4	5
Temperature life		3(d)		

**NOTE**

- (a) See paragraph 4.1.A.  
(b) Numbers indicate sequence in which tests are performed.  
(c) Perform 100 cycles of durability prior to thermal shock, 33 cycles of durability after 50 cycles of thermal shock, 33 cycles of durability after 7 days of humidity-temperature cycling, and 34 cycles of durability after 21 days of humidity-temperature cycling.  
(d) Precondition samples with 10 cycles durability.

Figure 2

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Sample Selection

Samples shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production. Test group 1 shall consist of 10 jacks (5 shielded and 5 unshielded) and 10 terminated plugs. Test groups 2 and 3 shall each consist of 5 unshielded jacks and 5 terminated plugs. Test group 4 shall consist of 5 shielded jacks and 5 terminated plugs. A minimum of 30 data points shall be taken for each test except mating and unmating tests where 10 data points are acceptable.

#### B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

### 4.2. Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

#### 4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

#### 4.4. Quality Conformance Inspection

The applicable quality inspection plan will specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

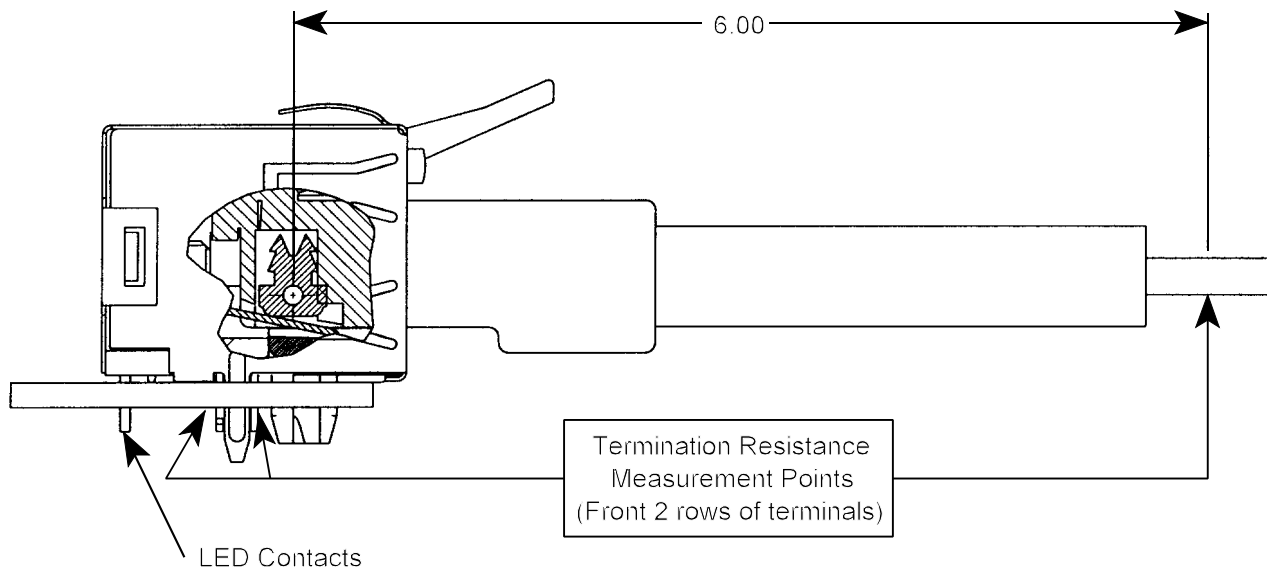


Figure 3  
Termination Resistance Measurement Points

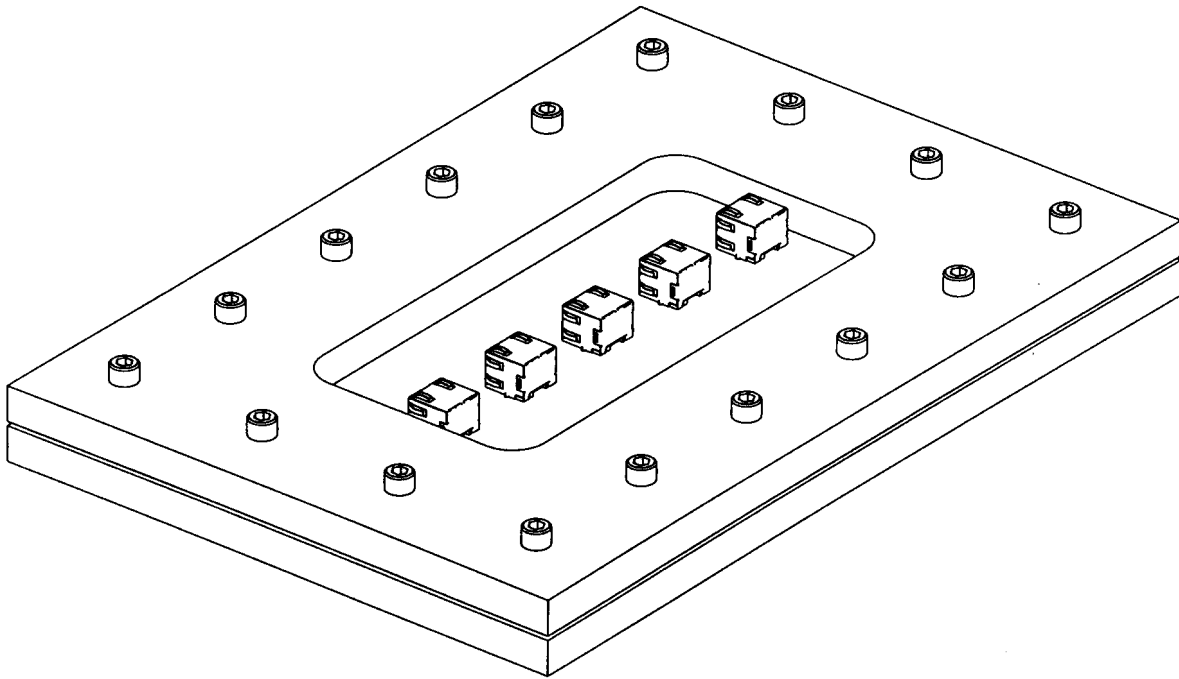


Figure 4  
Vibration & Mechanical Shock Mounting Fixture