Interconnection System, High Pressure, AMPMODU* Mod I With Tin Contacts

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the AMPMODU* Mod I high pressure interconnection system. This connector is a two piece configuration of which the receptacle may be mounted directly on a printed circuit board or snapped into a flame retardant housing. Plug or post half of the connector may be inserted into a printed circuit board or furnished in a flame retardant header. These connectors may be board mount receptacle with .031 by .062 inch post or board mount post or header with crimp snap-in receptacle and configured as: receptacle contacts mounted directly on a printed circuit board with .125 inch minimum centerline; receptacle contacts used on .156 inch contact centers on an insulated housing mounted on a printed circuit board; receptacle contacts crimped to 18 through 26 AWG wire in an insulator housing on .156 inch centerline; post contacts mounted directly on printed circuit board .125 inch minimum centerline; or post contacts on .156 and .312 inch centerline in an insulated headed which is mounted directly on a printed circuit board.

1.2. Qualification

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

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 requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. AMP Documents

A. 109-1: General Requirements for Test Specifications
B. 109 Series: Test Specifications as indicated in Figure 1. (Comply with MIL-STD-202, MIL-STD-1344 and EIA RS-364)
C. Corporate Bulletin 401-76: Cross-reference between AMP Test Specifications and Military or Commercial Documents
D. 108-25025: Product Specification
E. 114-25000: Application Specification
F. 114-25004: Application Specification
G. 114-25011: Application Specification
H. 501-347-1: 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.

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3.2. Materials

A.	Header:	Polyester, UL94V-0
B.	Housing:	Nylon 6/6, UL94V-0
C.	Post:	Brass, tin plated
D.	Receptacle:	Phosphor bronze, tin plated

3.3. Ratings

A.	Voltage:	300 vac
B.	Current:	Signal application only, 5 amperes, 50% energized (every other contact)
C.	Temperature:	-65 to 60°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 AMP Specification 109-1.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-25000, 114-25004 and 114-25011.	Visual, dimensional and functional per applicable quality inspection plan.
	ELECTRICAL	
Termination resistance.	12 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.	5000 megohms minimum.	AMP Spec 109-28-4. Test between adjacent contacts of mated samples.
Dielectric withstanding voltage	1200 vac at sea level for .156 inch centerline. 1 minute hold No breakdown or flashover.	AMP Spec 109-29-1. Test between adjacent contacts of mated samples.
	MECHANICAL	
Vibration, sinusoidal	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-21-2. Subject mated samples to 10-500-10 Hz traversed in 15 minutes with .06 inch total excursion. 3 hours in each of 3 mutually perpendicular planes. See Figure 4.

Figure 1 (cont)

Test Description	Requirement	Procedure
Physical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	AMP Spec 109-26-1. Subject mated samples to 50 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.
Durability.	See Note.	AMP Spec 109-27. Mate and unmate samples for 25 cycles at a maximum rate of 500 cycles per hour.
Mating force.	60 ounces maximum average per contact.	AMP Spec 109-42, Condition A. Measure force necessary to mate samples after third mating at a maximum rate of .5 inch per minute.
Unmating force.	3 ounces minimum average per contact.	AMP Spec 109-42, Condition A. Measure force necessary to unmate samples at a maximum rate of .5 inch per minute.
ENVIRONMENTAL		
Thermal shock.	See Note.	AMP Spec 109-22. Subject mated samples to 5 cycles between -65 and 60°C.
Humidity-temperature cycling.	See Note.	AMP Spec 109-23-3, Condition B. Subject mated samples to 10 cycles between 25 and 65°C at 95% RH.
Temperature life.	See Note.	AMP Spec 109-43. Subject mated samples to temperature life at 105°C for 500 hours.

NOTE *Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in 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(c)
	Test Sequence (b)		
Examination of product	1,9	1,6	1,8
Termination resistance	3,7	2,5	
Insulation resistance			2,6
Dielectric withstanding voltage			3,7
Vibration	5		
Physical shock	6		
Durability	4		
Mating force	2		
Unmating force	8		
Thermal shock			4
Humidity-temperature cycling		3(d)	5
Temperature life		4	

NOTE

(a) *See Para 4.1.A.*
(b) *Numbers indicate sequence in which tests are performed.*
(c) *Unmounted samples.*
(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. All test groups shall each consist of minimum of 5 connectors containing at least 30 contacts total with receptacles crimped to wire and an equal amount of posts of identical plating and thickness to mate with receptacles. All contacts shall be crimped to appropriate size tin plated stranded copper test conductors in accordance with AMP Specification 114-25000.

B. Test Sequence

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

4.2. Requalification Testing

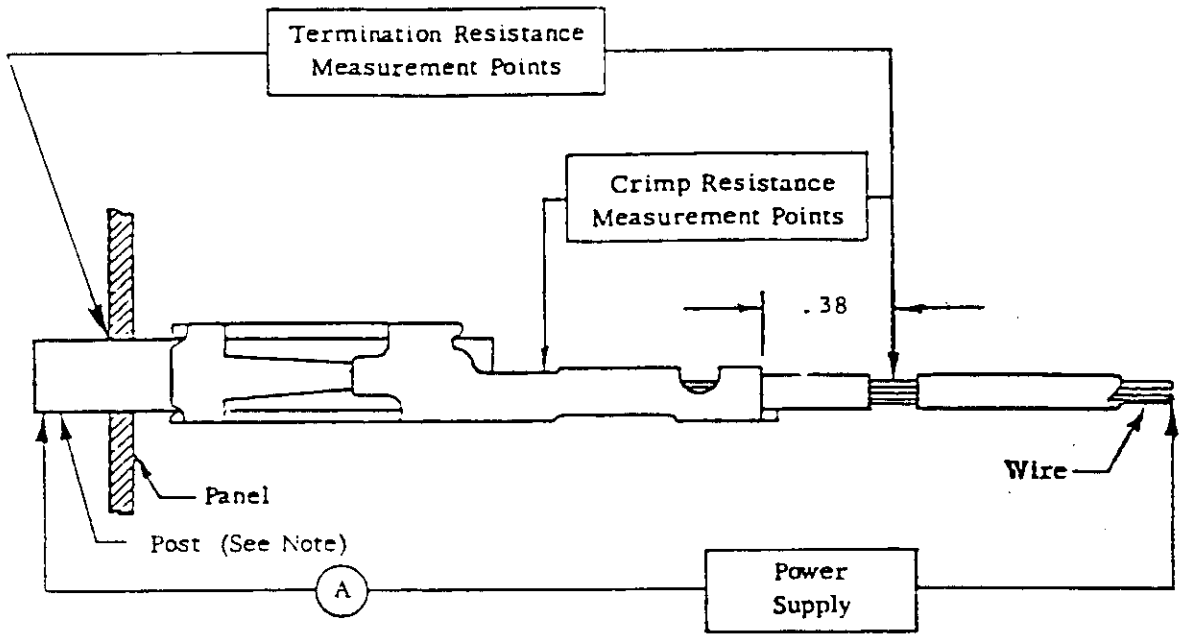
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

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. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

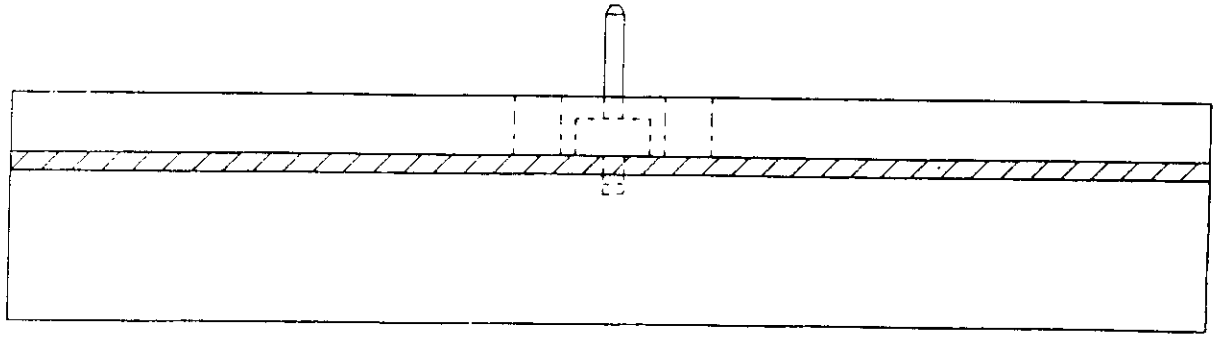
4.4. Quality Conformance Inspection

Applicable AMP 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.



NOTE *Post and receptacle plating type shall be identical.*

Figure 3
Termination Resistance Measurement Points



NOTE *Stress is inputted to sample through header printed circuit board.*

Figure 4
Vibration & Physical Shock Mounting Fixture