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PRODUCT SPECIFICATION

1. SCOPE

1.1 Content

This specification covers the performance and test requirements for the AMP* Metric Interconnect System. This connector system consists of mass-terminated receptacle assemblies, P/N [redacted]-770631-[redacted], using insulation displacement technology on 2.50 millimeter centerlines and mates with either .025-inch square post header assemblies P/N [redacted]-770639-[redacted] , or .025-inch diameter post header assemblies, P/N [redacted]-770640-[redacted]. The system provides a reliable interconnection between wires and printed circuit board traces. The standard system is available in 2 through 13 positions and terminates to 26 AWG tin-plated wire with a maximum insulation diameter of 1.5 millimeters. Wire must be in accordance with UL style 1007.

1.2 Qualification

When tests are performed on the subject product line, the procedures specified in this document shall be used. All tested samples must meet the specified requirements. 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. 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 AMP Documents

A. 114-16013: Application Specification

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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				DR 1/7/91 F. Rinehart	AMP Incorporated Harrisburg, PA 17105-3608
				CHK 1/7/91 M. Tsukakoshi	
				APP 1/7/91 S. Kikuchi	NO 108-1235-1 REV 0 LOC B
0	Released	FLR	1/91	PAGE 8 1 OF	TITLE METRIC INTERCONNECT SYSTEM
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3.2 Material

A. Contact: Phosphor bronze, bright tin-lead plated
B. Housing: Nylon 6/6, UL94V-0
C. Header: Nylon 6/6, UL94V-0
D. Header Post: Brass, bright tin-lead plated over nickel

3.3 Rating

A. Voltage: 250 VAC
B. Current: 3A max.
C. Operating Temperature: -25°C to +105°C

3.4 Printed Circuit Board

A. Thickness: 1.6±0.15mm
B. Hole Diameter: 0.94±0.05mm

3.5 Performance and Test Description

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in paragraph 4. All tests are performed at ambient environmental conditions unless otherwise specified.

4. TEST REQUIREMENTS AND PROCEDURES

4.1 Mechanical

Test Description	Requirement		Procedure
Mating Force	Maximum Mating Force (kg)		Measure force necessary to mate connector assembly with detent latches to header a distance of .1 inch from point of initial contact, incorporating free floating fixtures at a rate of 50mm/minute.
	Pos. Initial	After 30 Cycles	
	2 2.0	1.5	
	3 2.4	1.8	
	4 2.8	2.1	
	5 3.2	2.4	
	6 3.6	2.7	
	7 4.0	3.0	
	8 4.4	3.3	
	9 4.8	3.6	
	10 5.2	3.9	
	11 5.6	4.2	
	12 6.0	4.5	
	13 6.4	4.8	

Test Description	Requirement		Procedure
Unmating Force	Minimum Unmating Force (kg)		Measure force necessary to unmate connector assembly with detent latches from header at a rate of 50mm/min.
	Pos.	Initial / After 30 Cycles	
	2	0.5 / 0.5	
	3	0.8 / 0.7	
	4	1.2 / 0.9	
	5	1.5 / 1.2	
	6	1.8 / 1.4	
	7	2.2 / 1.6	
	8	2.6 / 1.9	
	9	2.9 / 2.1	
	10	3.3 / 2.3	
	11	3.6 / 2.5	
	12	4.0 / 2.8	
	13	4.3 / 3.0	
2) Contact Separating Force	100 g. min.		Measure force necessary to separate a single header pin from a receptacle contact at a rate of 50mm/ minute after three engaging/separating cycles.
3) Crimp Tensile Strength	2.0 kg min.		Determine crimp tensile at a rate of 100mm/minute by axially pulling on a terminated contact.
4) Contact Retention	2.0 kg. min. without dislodging.		Apply axial load by pulling on a terminated contact.
5) Header PinForce Retention Force	2.0 kg. min.		Measure force necessary to push header pin from housing by applying an axial load at a rate of 25 mm/min.
6) Header Pin Strength	No withdrawal or looseness.		Apply a static load of 1.0 kg axially to the tip of each pin.

4.2 Electrical

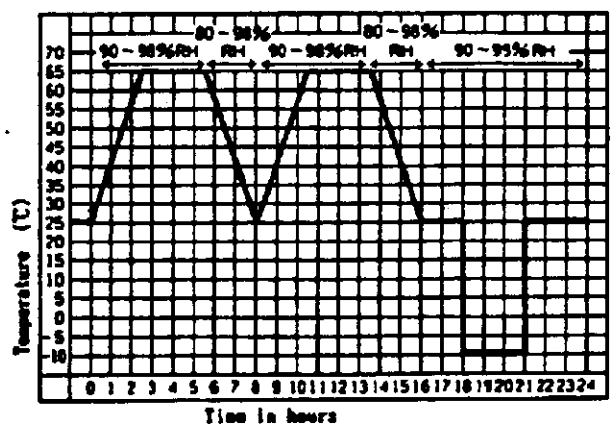
Test Description	Requirement	Procedure
1) Termination Resistance Dry Circuit	10 milliohms max. initial; 20 milliohms max. after mechanical and environmental conditioning	Subject mated contacts assembled in housing to 50 mv open circuit at 10 ma maximum; see Figure 1
2) Dielectric Withstanding Voltage	1 kvac dielectric withstanding voltage, one minute hold. 2 milliampere leakage current.	Test between adjacent contacts of mated and unmounted connector assemblies; test between contacts and case.
3) Insulation Resistance	1000 megohoms minimum, 500 vdc test voltage	Test between adjacent contacts of mated and unmounted connector assemblies; test between contacts and case.
4) Temperature Rise vs. Rated Current	30°C maximum temperature rise at specified current	Measure temperature rise at 3 Amps; all contacts energized

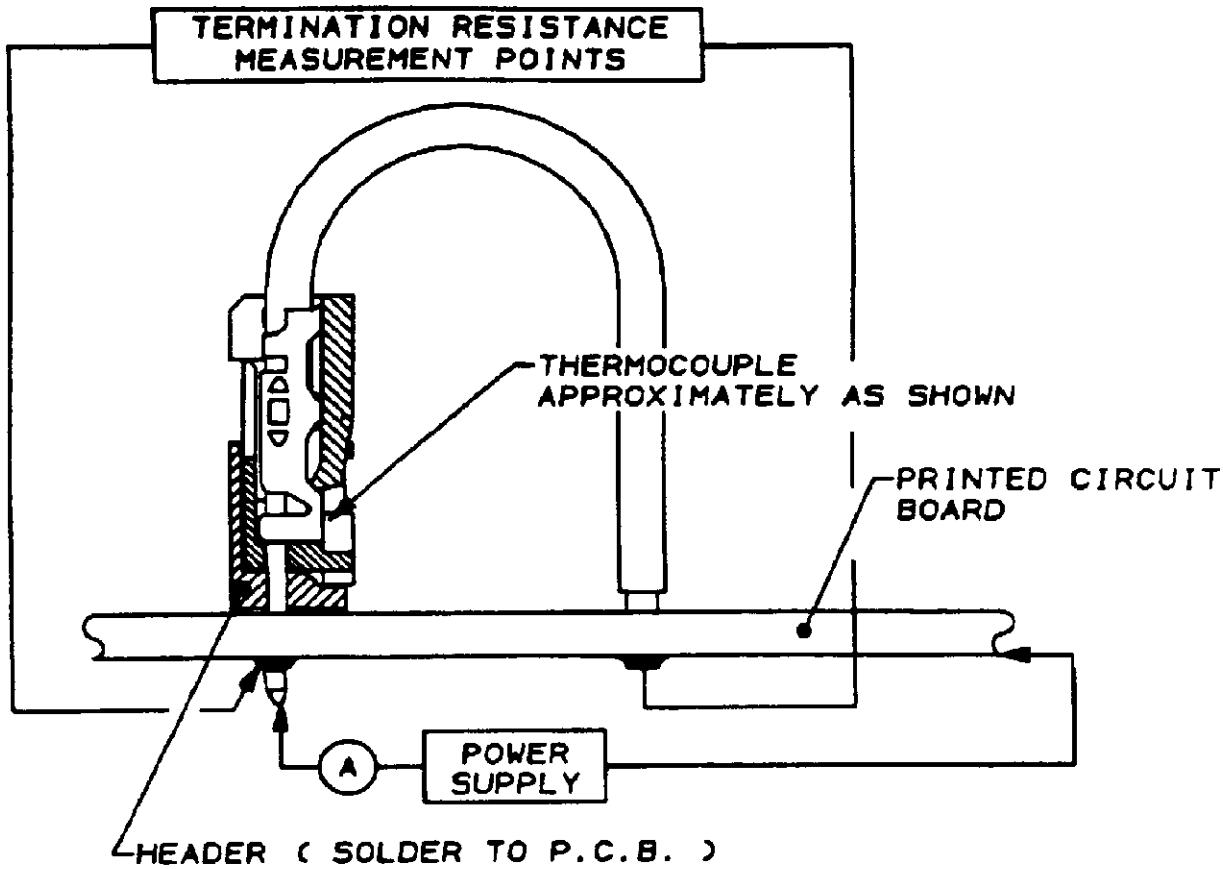
4.3 Environmental

1) Vibration, Sinusoidal Low Frequency	No discontinuities greater than 1 microsecond; 20 milliohms maximum termination resistance, dry circuit after exposure	Subject mated connectors to 10-55-10 Hz traversed in one minute at 1.5 mm total excursion; 2 hours in each of 3 mutually perpendicular planes; energize all contacts with .1 Amps
2) Physical Shock	No discontiunuities greater than 1 microsecond; 20 milliohms maximum termination resistance, dry circuit after exposure	Subject mated connectors to 50 G's half sine shock pulses of 11 millisecond duration; 3 shocks in each direction applied along the 3 mutually perpendicular planes; total 18 shocks

Test Description	Requirement	Procedure
3) Bikashin	No resistance during hammer shock greater than 5 times initial resistance; 20 milliohms maximum termination resistance, dry circuit	Subject mated connectors to 10,000 hammer shocks at a rate of 1 shock/sec.; energize all contacts with 1ma; see Figure 2.
4) Heat	20 milliohms maximum termination resistance, dry circuit after exposure	Subject mated connector assemblies to a temperature of 85±2°C for 96 hours.
5) Cold	20 milliohms maximum termination resistance, dry circuit after exposure	Subject mated connector assemblies to a temperature of -25±3°C for 48 hours.
6) Humidity (Steady State)	Insulation Resistance; Dielectric Withstanding Voltage; 20 milliohms max. termination resistance, dry circuit after exposure	Subject mated connector assemblies to a temperature of 40±2°C at 90-95% relative humidity for 96 hours.
7) Thermal Shock	20 milliohms maximum termination resistance, dry circuit.	Subject mated connector assemblies to 5 cycles between -25° and 85°C; 30 minutes at each temp.
8) Salt Spray	20 milliohms maximum termination resistance, dry circuit.	Subject mated connector assemblies to 5% salt spray at 35±2°C for 48 hours.
9) Sulfuration	20 milliohms maximum termination resistance, dry circuit.	Subject mated connector assemblies to 3±1ppm sulfurous acid gas at 40±2°C for 240 hours.
10) Ammonia	20 milliohms maximum termination resistance, dry circuit.	Subject mated connector assemblies to ammonia atmosphere in desiccator for 32 hours; enclosed ammonia-solution 28% by weight.

Test Description	Requirement	Procedure
11) Solder-ability	Solderable area shall have a solder coverage of 95% minimum.	Subject header posts to solder temperature of 230±5°C, immersion time 3±0.5 seconds; flux - non active type.
12) Exposure to Soldering Heat	No crack, deformation etc. of housing	Subject header post to 260 ±5°C, immersion time 10±1 seconds.
13) Humidity-Temperature Cycling	20 milliohms maximum termination resistance, dry circuit after exposure	Mate and unmate connector assemblies for 30 cycles by manually hand-cycling; then subject mated connector assemblies to 5 humidity-temperature cycles between 25° and 65°C at 90-95% RH. per MIL -STD-202, Method 106 D; omit the vibration of step 7B. (see below)





Notes:

1. Termination resistance equals millivolts divided by test current less resistance of wire.

2. After wave soldering the board and posts shall be cleaned to remove all flux and contaminants.

Figure 1

Temperature and Termination Resistance Measurement Points

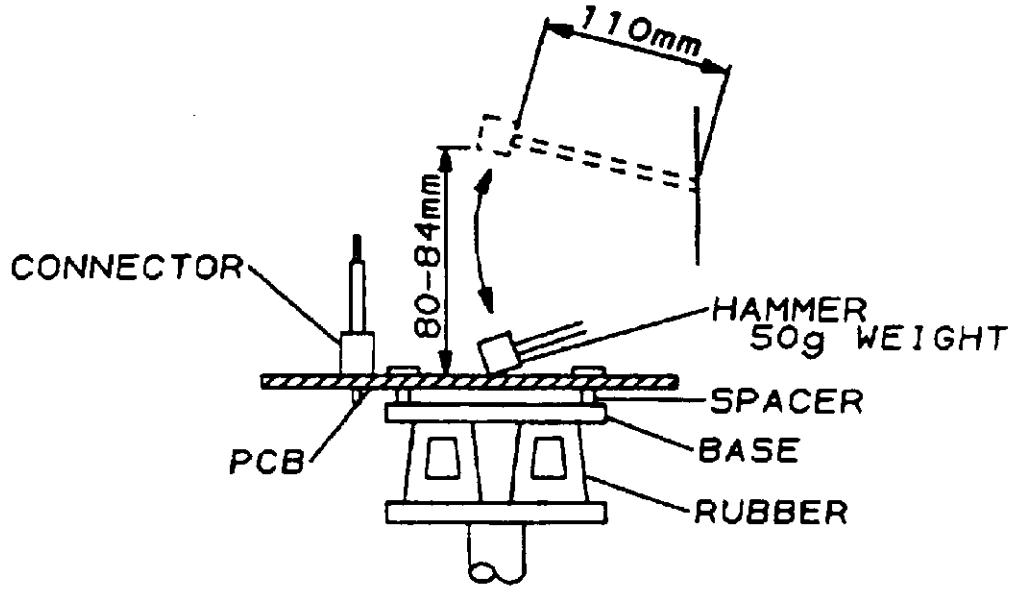


Figure 2

Bikashin Test Setup4