

PRODUCT SPECIFICATION

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for AMPOWER\* Wave Crimp Terminal Block Connector. This product family terminates typically 1 inch wide single or dual cable having conductor thicknesses of .010 or .020 inches, to a variety of stamped terminal block interfaces via interdigitized waveforms which crimp to sheared edges of the flat cable.

1.2. Qualification

When tests are performed on subject product line, procedures specified in AMP 109 series specifications shall be used. All inspections shall be performed using 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 requirements of this specification and product drawing, product drawing shall take precedence. In the event of conflict between requirements of this specification and 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. 114-49005: Application Specification
- E. 501-119: Test Report

3. REQUIREMENTS

3.1. Design and Construction

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

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Product Code: 9983

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<p><b>CONTROLLED DOCUMENT</b> This specification is a controlled document per AMP Specification 102-21. It is subject to change and Corporate Standards should be contacted for latest revision.</p>				<p>DR F. Rinehardt 7/17/90</p>		<p><b>AMP</b> AMP Incorporated Harrisburg, PA 17105-3608</p>			
				<p>CHK D. Szczesny 7/23/90</p>					
				<p>APP R. Grebe 7/23/90</p>		NO	108-1313	REV C	LOG B
C	Revised per ECN 920S2602	<i>R/B</i>	<i>10/8/92</i>	PAGE	TITLE CONNECTOR, AMPOWER WAVE CRIMP, TERMINAL BLOCK				
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### 3.2. Material

- A. Contact: Copper alloy, silver plated.
- B. Housing: PBT polyester, black, glass filled, UL94V-0.

### 3.3. Ratings

- A. Voltage: 250 vac
- B. Current: See Figure 2 for applicable current carrying capability
- C. Temperature: -55 to 105°C

### 3.4. Performance and Test Description

Product is designed to meet electrical, mechanical and environmental performance requirements specified in Figure 1. All tests are performed at ambient temperature unless otherwise specified.

### 3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and AMP Spec 114-49005.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance, dry circuit.	.5 milliohms maximum initial. 1 milliohm maximum final.	Subject terminated cable assembled in housing to 50 mv open circuit at 100 ma maximum. See Figure 4. AMP Spec 109-6-1.
Dielectric withstanding voltage, 250 volt cable.	1500 vac rms dielectric withstanding voltage. No breakdown or flashover.	Test between adjacent contacts of unmated connector assemblies. AMP Spec 109-29-1.
Insulation resistance.	5000 megohms minimum initial. 1000 megohms minimum final.	Test between adjacent contacts of unmated connector assemblies. AMP Spec 109-28-4.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	Measure temperature rise vs current. See Figure 6. AMP Spec 109-45-1.

Figure 1 (cont)

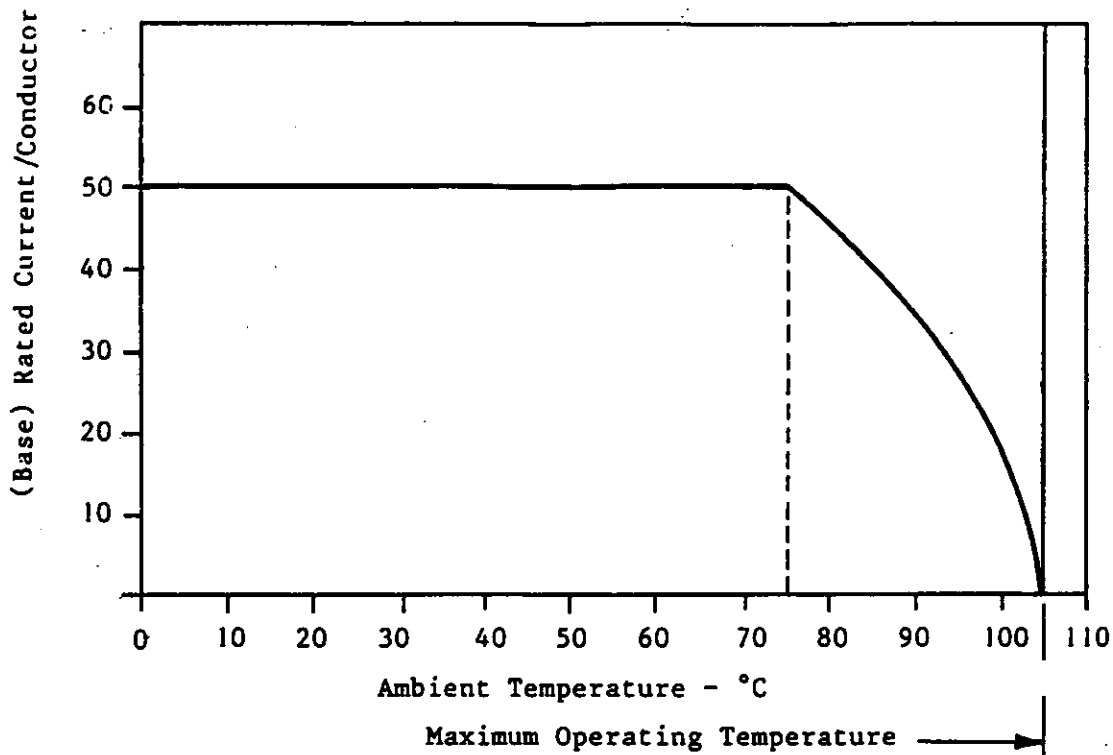
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Test Description	Requirement	Procedure
<b>MECHANICAL</b>		
Vibration, sinusoidal, high frequency.	See Note (a).	Subject mated connectors to 10 G's between 10-500 Hz traversed in 15 minutes 3 hours in each of 3 mutually perpendicular planes. See Figure 5. AMP Spec 109-21-2.
Crimp tensile.	30 pounds minimum.	Determine crimp tensile on specified cable specimen at rate of 1 inch per minute. AMP Spec 109-16.
<b>ENVIRONMENTAL</b>		
Thermal shock.	See Note (a).	Subject unmated connectors to 25 cycles between -40 and 105°C. AMP Spec 109-22.
Humidity-temperature cycling.	See Note (a).	Subject unmated connectors to 10 humidity-temperature cycles between 25 and 65°C at 95% RH. AMP Spec 109-23-3, Condition B.
Mixed flowing gas.	See Note (a).	Subject mated connectors to environmental class III for 20 days. AMP Spec 109-85-3.
Temperature life.	See Note (a).	Subject mated connectors to temperature life at 140°C for 720 hours. AMP Spec 109-43.

(a) Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in test sequence of Figure 3.

Figure 1 (end)

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Rated current for single conductor of a dual conductor .020 X 1 inch wide cable terminated with .563 centerline terminal block, both conductors energized. Current is ac (rms) or dc.

Figure 2A  
Current Carrying Capability

Inch	.010		.020	
	Solid	Split	Solid	Split
.563 Centerline	1.40	0.70	2	1
.688 Centerline	1.40	0.70	2	1
.250 Full width	1.45	N/A	2.05	N/A
.312 Full width	1.45	N/A	2.05	N/A

Note: To determine acceptable current carrying capacity for connector and cable configuration chosen, use Multiplication Factor (F) from above chart and multiply it times base rated current for a single conductor at maximum ambient temperature as shown on Figure 2A.

Figure 2B  
Current Rating

### 3.6. Product Qualification and Requalification Tests

Test or Examination	Test Group (a)		
	1	2	3
	Test Sequence (b)		
Examination of product	1,9	1,8	1,3
Termination resistance, dry circuit	2,7		
Dielectric withstanding voltage		3,7	
Insulation resistance		2,6	
Temperature rise vs current	3,8		
Vibration	6(c)		
Crimp tensile			2
Thermal shock		4	
Humidity-temperature cycling		5	
Mixed flowing gas	4		
Temperature life	5		

(a) See Para 4.1.A.

(b) Numbers indicate sequence in which tests are performed.

(c) Discontinuities shall not be measured. Energize at 18°C level for 100% loading as determined in AMP Specification 109-151.

Figure 3

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Sample Selection

Connector housings and contacts shall be prepared in accordance with applicable Instruction sheets and shall be selected at random from current production. Test group 1 shall consist of 24 samples, 12 for each conductor thickness. Test group 2 shall consist of 15 samples, using .020 conductor thickness. Test group 3 shall consist of 24 samples, 12 for each conductor thickness and without housings. All test samples shall use split cable. Each circuit shall be monitored for termination resistance, where required, and circuits shall always be series connected and individually monitored for temperature rise measurements.

#### B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 3.

### 4.2. Requalification Testing

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

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### 4.3. Acceptance

Acceptance is based on verification that product meets requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify 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 sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawing and this specification.

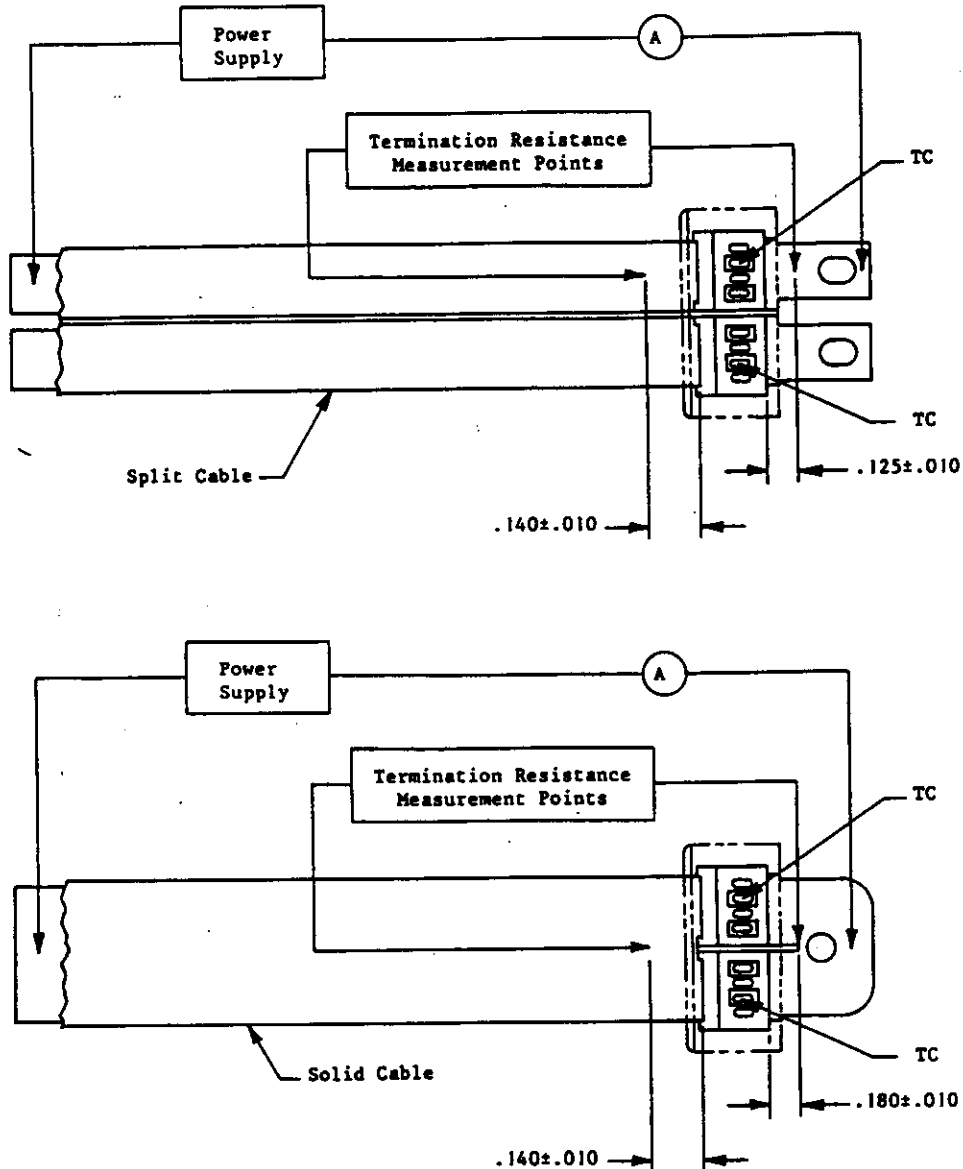
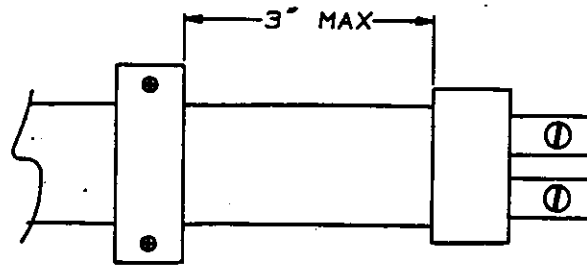
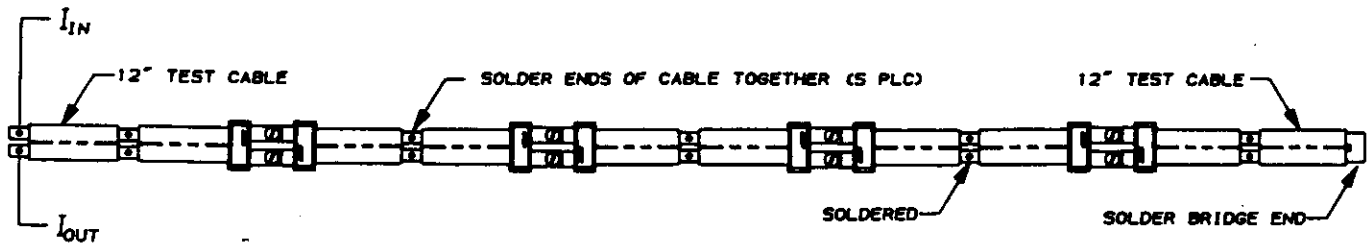


Figure 4  
Termination Resistance Measurement Points

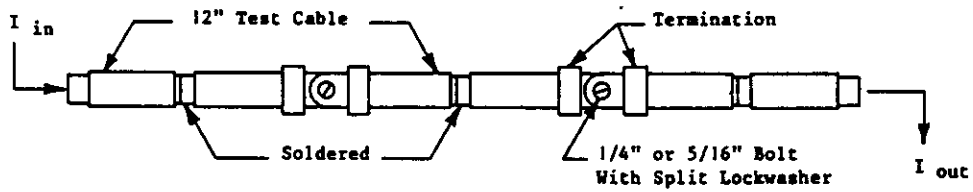


Clamp cable to moving table within 3 inches

Figure 5  
Vibration Mounting Fixture



Split Cable



Solid Cable

Figure 6  
Temperature Rise