
Timer Connector with Lanceless .125 Inch Blade Receptacle

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity timer connector. This connector is designed to mate directly with a variety of appliance timing mechanisms which incorporate the use of a .125 inch wide by .020/.025 inch thick tab.

1.2. Qualification

When tests are performed on 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. Successful qualification testing on the subject product line was completed on 05Feb93. Additional testing was completed on 13Jan09. The Qualification Test Report number for this testing is 501-213. This documentation is on file at and available from Engineering Practices and Standards (EPS).

2. APPLICABLE DOCUMENTS

The following TE 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.

- 109-1: Test Specification (General Requirements for Test Specifications)
- 109-151: Test Specification (Current Rating Verification)
- 109 Series: Test Specifications as indicated in Figure 1
- 114-49003: Application Specification (Standard Timer Connectors)
- 501-213: Qualification Test Report (Timer Connector With Lanceless .125 Inch Blade Receptacle)

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of 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: 240 volts AC
- Current: See Figure 4 for applicable current carrying capability
- Temperature: -55 to 105°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 114-49003.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Termination resistance, dry circuit.	3 milliohms maximum initial. ΔR 4 milliohms maximum.	EIA 364-23A. Subject mated contacts assembled in housing to 50 millivolts maximum open circuit voltage at 100 milliamperes maximum. See Figure 3.
Dielectric withstanding voltage.	One minute hold with no breakdown or flashover.	EIA 364-20B. 1500 volts AC at sea level. Test between adjacent contacts of unmated connector assemblies.
Insulation resistance.	1000 megohms minimum.	EIA 364-21C. Test between adjacent contacts of unmated connector assemblies.
Temperature rise vs current.	30°C maximum temperature rise at specified current.	EIA 364-70A. Measure temperature rise vs current. See Figure 4.
MECHANICAL		
Sinusoidal vibration.	No discontinuities greater than 1 microsecond. See Note.	EIA 364-28D. Subject mated connectors to 10 to 55 to 10 Hz traversed in 1 minute at .06 inch total excursion. Two hours in each of 3 mutually perpendicular planes. See Figure 5.
Physical shock.	No discontinuities greater than 1 microsecond. See Note.	EIA 364-27B. Subject mated connectors to 50 G's sawtooth shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks. See Figure 5.

Figure 1 (continued)

Test Description	Requirement	Procedure								
Mating force, initial.	2 pounds maximum average per contact.	EIA 364-13B. Measure force necessary to mate connector assemblies with locking latches using free floating fixtures at a maximum rate of 0.5 inch per minute. Calculate force per contact.								
Un-mating force, final.	0.5 pound minimum average per contact.	EIA 364-13B. Measure force necessary to un-mate connector assemblies with locking latches removed at a maximum rate of 0.5 inch per minute. Calculate force per contact.								
Contact retention.	Contacts shall not dislodge when subjected to a 9 pound minimum load for V-2 material and a 7 pound minimum load for V-0 material. See Note 1.	AMP Spec 109-30. Apply axial load to contacts.								
Crimp tensile.	<table border="1"> <thead> <tr> <th>Wire Size (AWG)</th> <th>Crimp Tensile (pounds minimum)</th> </tr> </thead> <tbody> <tr> <td>18</td> <td>30</td> </tr> <tr> <td>16</td> <td>45</td> </tr> <tr> <td>14</td> <td>50</td> </tr> </tbody> </table>	Wire Size (AWG)	Crimp Tensile (pounds minimum)	18	30	16	45	14	50	EIA 364-8B. Determine crimp tensile at a maximum rate of 1 inch per minute.
Wire Size (AWG)	Crimp Tensile (pounds minimum)									
18	30									
16	45									
14	50									
Durability.	See Note 2.	EIA 364-9C. Mate and unmate connector assemblies for 5 cycles at a maximum rate of 500 cycles per hour.								
ENVIRONMENTAL										
Thermal shock.	See Note 2.	EIA 364-32C. Subject unmated connectors to 25 cycles between -55 and 105°C.								
Humidity/temperature cycling.	See Note 2.	EIA 364-31B. Subject mated connectors to 10 humidity/temperature cycles between 25 and 65°C at 95% RH.								
Temperature life.	See Note 2.	EIA 364-17B. Subject mated connectors to temperature life at 118°C for 792 hours.								

NOTE

(1) Minimum retention applies regardless of terminal orientation (i.e. terminal can be inserted with the lance facing toward or away from the latch in the housing).
 (2) Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown 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	1,9	1,8	1
Termination resistance, dry circuit	3,7	2,7		
Dielectric withstanding voltage			3,7	
Insulation resistance			2,6	
Temperature rise vs current		3,8		
Sinusoidal vibration	5	6(c)		
Physical shock	6			
Mating force, initial	2			
Un-mating force, final	8			
Contact retention				2
Crimp tensile				3
Durability	4			
Thermal shock			4	
Humidity/temperature cycling		4(d)	5	
Temperature life		5		

- NOTE**
- (a) See paragraph 4.1.A.
 - (b) Numbers indicate sequence in which tests are performed.
 - (c) Discontinuities shall not be measured, energize per Test Specification 109-151.
 - (d) Precondition with 3 durability cycles.

Figure 2

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 three, 24 position housings fully loaded with contacts crimped on 16 AWG wire and three, 24 position housings fully loaded with contacts crimped on 18 AWG wire. Test group 2 shall consist of three, 24 position housings fully loaded with contacts crimped 14 AWG wire and three, 24 position housings fully loaded with contacts crimped on 18 AWG wire. Test group 3 shall consist of five, 24 position housings selectively loaded with contacts crimped on any size wire. Test group 4 shall consist of five, 24 position housings randomly loaded with 30 contacts crimped on 14 AWG wire. All contacts shall be mated with a tinned male spade, .020/.025 by .125 inch, where specified.

B. Test Sequence

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

4.2. Requalification Testing

If changes significantly affecting the 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

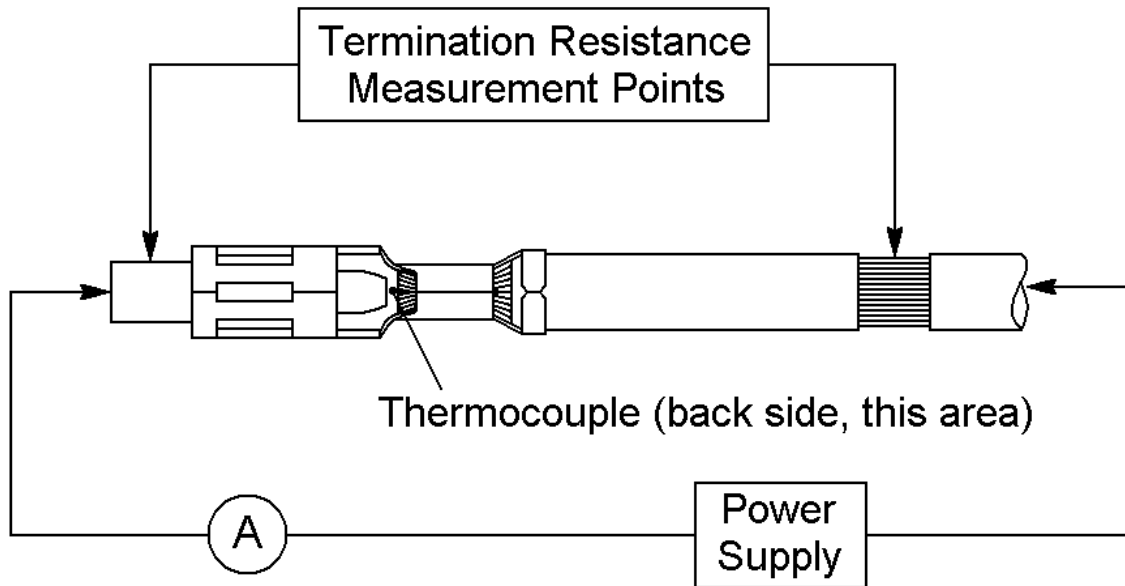
Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing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

4.4. Quality Conformance Inspection

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

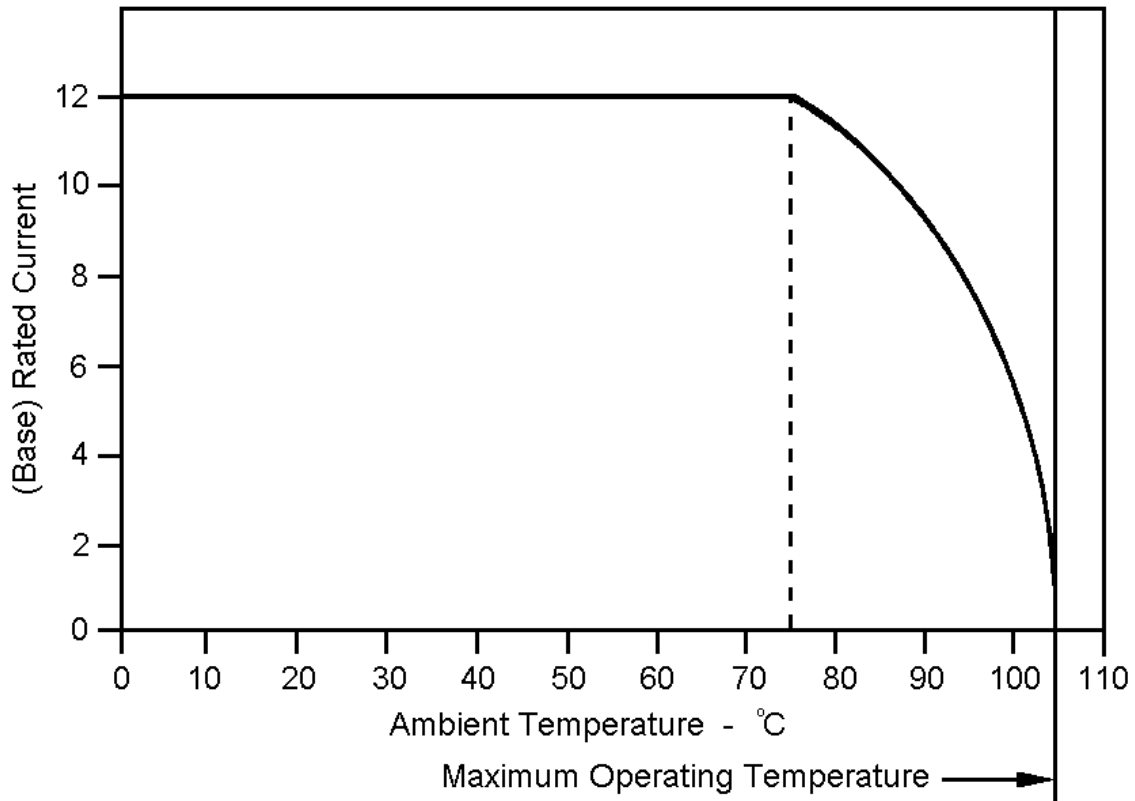
4.5. Certification

Product is recognized under Component Recognition Program of Underwriter's Laboratories Inc., File Number E28476 and certified by Canadian Standards Association, File Number LR16455.



NOTE Termination resistance equals total resistance minus the resistance in 3 inches of wire.

Figure 3
Termination Resistance & Temperature Measurement Points



Single Circuit, IRMS or IDC, 14 Gage Wire, Continuous Operating

Figure 4A
Current Carrying Capability

Percent Connector Loading	Wire Size AWG		
	18	16	14
Single Contact	.78	.88	1
25	.67	.75	.86
50	.56	.68	.73
75	.52	.59	.67
100	.48	.54	.62

NOTE To determine acceptable current carrying capacity for percentage connector loading and wire gage indicated, use the Multiplication Factor (F) from the above chart and multiply it times the Base rated Current for a single circuit at the maximum ambient operating temperature shown in Figure 4A.

Figure 4B
Current Rating

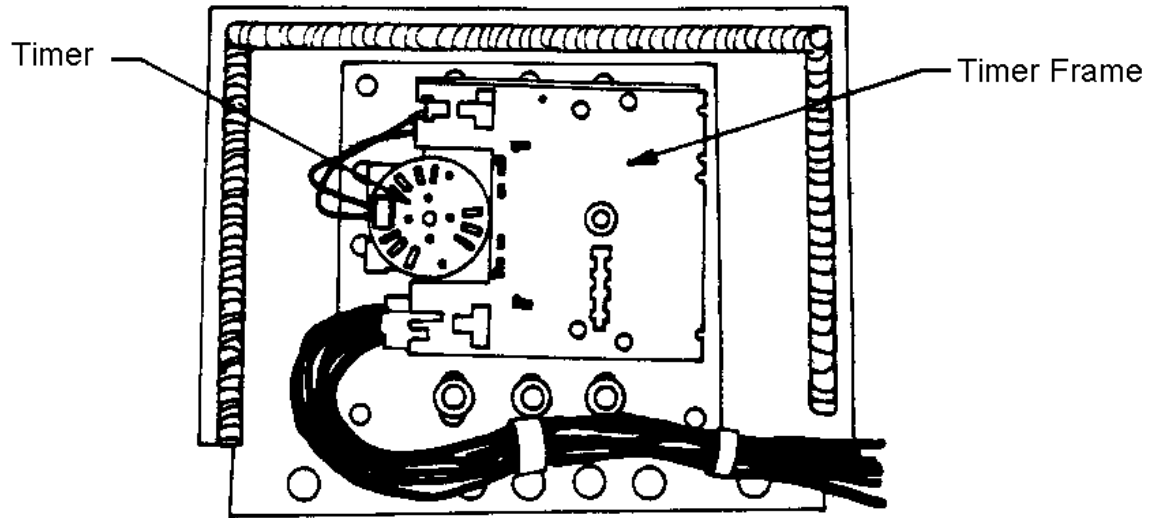


Figure 5
Vibration & Physical Shock Mounting Fixture