
Timer Connector with 3.18 [.125] Blade Receptacle

1. SCOPE

1.1. Content

This specification covers performance, tests, and quality requirements for the TE Connectivity (TE) timer connector. This connector is designed to mate directly with a variety of appliance timing mechanisms which incorporate the use of a 3.18 [.125] wide by 0.51/0.63 [.020/.025] thick tab. The connector may also incorporate FASTON receptacles in some positions to allow connection to 6.3 [.250] wide tab terminals.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Table 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 24 Feb 98. The test file number for this testing is CTL 2074-000-009. This documentation is on file at and available from the Americas Regional Laboratory.

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. TE Documents

A.	109-1	General Requirements for Test Specifications
B.	109 Series	Test Specifications as indicated in Table 1
C.	108-1271	Product Specification
D.	114-49003	Application Specification
E.	501-213-1	Qualification 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.

3.2. Materials

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

3.3. Ratings

- A. Voltage: 120 volts AC
- B. Current: See Figure 2 for applicable current carrying capability of timer receptacles
- C. 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 Table 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per TE Specification 109-1.

3.5. Test Requirements and Procedures Summary

Table 1

Test Description	Requirement	Procedure
Examination of product.	Meets requirements of product drawing and TE Spec 114-49003.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Millivolt drop.	36 millivolts maximum after 24 current cycles. 54 millivolts maximum after 500 current cycles.	TE Spec 209-10. Subject mated contacts to 12 amperes AC.
Dry circuit resistance.	4.5 milliohms maximum.	EIA 364-23A. Subject samples to 20 mv maximum open circuit at 100 ma maximum. See Figure 1.
Dielectric withstanding voltage.	1240 volts AC at sea level. 1 minute hold with no breakdown or flashover.	EIA 364-20B. Test between adjacent contacts of unmated samples.
Temperature rise vs. current.	30°C maximum temperature rise at 10 amperes.	EIA 364-70A. Measure temperature rise vs. current. See Figures 2 and 3.
Current cycling.	Temperature increase between cycle 24 and cycle 500 shall be 15°C maximum. No individual temperature rise greater than 85°C. See Note 1.	EIA 364-55. Subject mated samples to 500 current cycles of 45 minutes ON and 15 minutes OFF with a 12 ampere test current.
MECHANICAL		
Conductor pullout.	90N [20lbf] minimum for 18 AWG wire.	EIA 364-8B. Determine conductor pullout at a maximum rate of 12.7 [.50] per minute.
Durability.	See Note 1.	EIA 364-9C. Mate and unmate samples for 10 cycles at a maximum rate of 600 cycles per hour.
Terminal retention force.	Timer – 50N [11lbf] minimum FASTON – 80N [18lbf] minimum	TE Spec 109-30. Apply axial load to contacts at a maximum rate of 12.7 [.50] per minute.

Table 1

Test Description	Requirement	Procedure
Terminal insertion force.	Timer and FASTON 26N [6lbf] maximum	AMP Spec 109-41, Condition A. Determine force necessary to insert a contact into a connector housing.
Contact mating force.	15N [3.5lbf] maximum per contact.	EIA 364-13B. Measure force necessary to mate samples at a maximum rate of 0.5 inch per minute.
ENVIRONMENTAL		
Environmental sequence.	See Note 1.	Subject samples to the following: <ul style="list-style-type: none"> • 96 hours at 70°C and 0 to 10% RH. • 96 hours at -40°C • 96 hours at 40°C and 96 ±2% RH. Seven cycles of the following: <ul style="list-style-type: none"> • 2.5 hour transition from 25°C to 70°C at 96 ±2% RH. • 3.0 hours steady state at 70°C and 96 ±2% RH. • 2.5 hour transition from 70°C to 25°C at 96 ±2% RH. • 2.5 hour transition from 25°C to 70°C at 96 ±2% RH. • 3.0 hours steady state at 70°C and 96 ±2% RH. • 2.5 hour transition from 70°C to 25°C at 96 ±2% RH. • 1.0 hour steady state at 25°C and 96 ±2% RH. • 1.5 hour transition from 25°C to -40°C at uncontrolled RH. • 3.0 hour steady state at -40°C and uncontrolled RH. • 1.5 hour transition from -40°C to 25°C at uncontrolled RH. • 1.0 hour steady state at 25°C and 96 ±2% RH.

NOTE

1. *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 Table 2.*
2. *Unless stated otherwise, these test requirements and procedures apply to the timer positions of the connector only. Consult the TE customer drawing for the recommended FASTON receptacle and the associated product specification for the test requirements.*

3.6. Product Qualification and Requalification Test Sequence

Table 2

Test or Examination	Test Group (a)						
	1	2	3	4	5	6	7
	Test Sequence (b)						
Examination of product	1,3	1,4	1,3	1,5	1,3	1,5	1,5
Millivolt drop				4			
Dry circuit resistance						2,4	2,4
Dielectric withstanding voltage					2		
Temperature rise vs. current				2			
Current cycling				3			
Conductor pullout			2				
Durability						3	
Terminal retention force		3					
Terminal insertion force		2					
Contact mating force	2						
Environmental sequence							3

NOTE

(a) See Paragraph 4.1.A.
 (b) Numbers indicate sequence in which tests are performed.

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 groups 1, 2, 3, 5, 6, and 7 shall each consist of a minimum of 20 data points. Test group 4 shall consist of a minimum of 10 data points. Where specified, all contacts shall be mated to tinned male tabs 3.18 [.125] wide by 0.51 [.020] thick.

B. Test Sequence

Qualification inspection shall be verified by testing samples as specified in Table 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 Table 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

The applicable TE quality inspection plan shall 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.

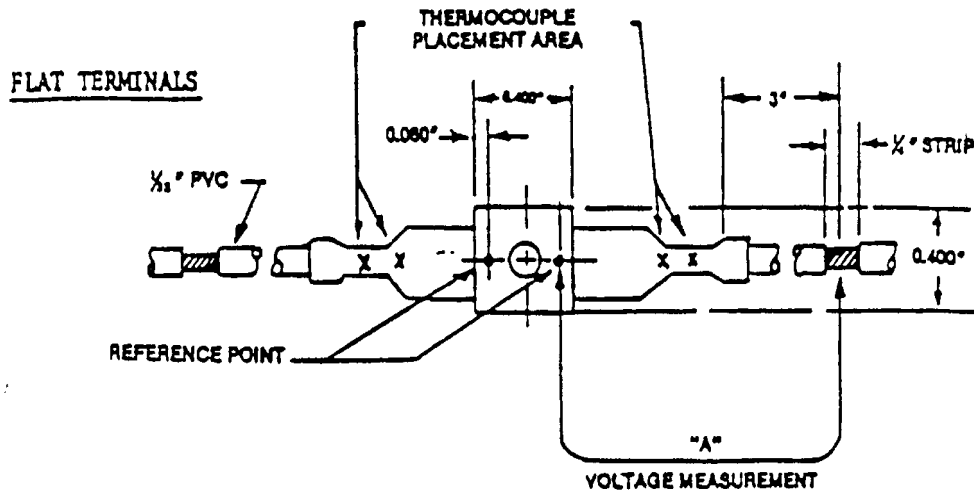


Figure 1
Dry Circuit Resistance Measurement Points

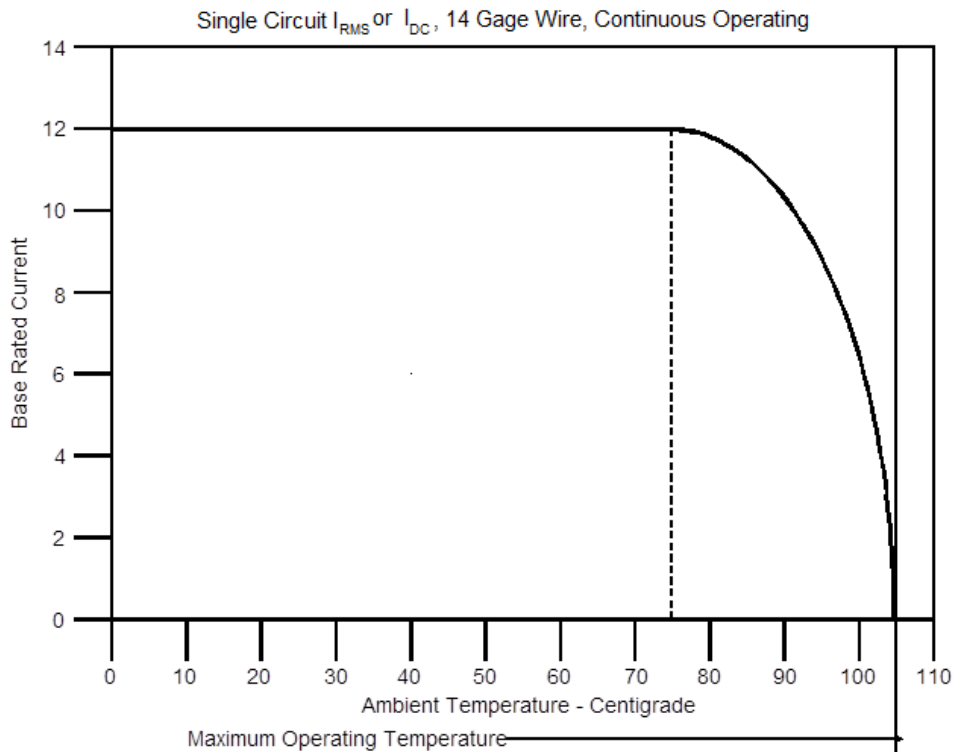


Figure 2
Current Carrying Capability
Timer only (See Note 2)

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 chart above, and multiply by the Base Rated Current for a single circuit at the maximum ambient operating temperature shown in Figure 2.*

Figure 3
Current Rating
Timer only (See Note 2)