



110 SERIES POSITIVE LOCK RECEPTACLE

1. SCOPE

1.1. Content

This specification defines performance test method and quality requirements for 110 series POSITIVE LOCK REC.

1.2 Qualification

When tests are performed on the subject product line, procedures specified in 3.5 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing. All contacts must be crimped to comply with Application Specification using the appropriate TE Applicator or Hand Tool as specified in the document.

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 Connectivity (TE) Documents

TE Product Drawings (Customer Drawings)

2.2. Industry Documents

UL 310	Standard for Electrical Quick Connect Terminals
EIA-364	Electrical Connector/Socket Test Procedures Including Environmental Classifications
IEC 60251	Standard for Connectors for Electronic Equipment

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.

Contact: Brass

Tabs (for test purposes): Brass, temper 2 CDA 26000 complies with UL 310 Para 5.2

Wire (for test purposes): Complies with UL 310 Para 7.3, 600 volt rating

3.3. Ratings

Temperature: -40°C to 105°C

3.4. Performance and Test Description

Product is designed to meet the electrical, mechanical, and environmental performance requirements specified in 3.5. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5. Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial Examination of Product	Meets the requirements of product drawing; no defective abnormalities such as cracks, breakage, damages, loose of parts, rust and fusion that are detrimental to connector functions, shall be present.	EIA-364-18 Visually and tactually inspect parts for appearance in accordance with applicable Q.I.P (Quality Inspection Procedure) and product drawing for presence of stated defects.
Final Examination of Product	After testing, no physical damage such as cracks, breakage, damages, loose of parts, rust and fusion that are detrimental to connector functions, shall be present.	EIA-364-18 Visually and tactually inspect parts for appearance in accordance with applicable Q.I.P (Quality Inspection Procedure) and product drawing for presence of stated defects.

Electrical

Temperature Rising	Wire Size (AWG)	Test Current (Amps)	Temperature Rise (°C)	UL 310 and IEC 60512-5-1 Measure the temperature rise above ambient created by the energizing current. Measurement must be taken at a place where there is no influence from air convection. Stabilize temperature at a single current level until 3 readings at 5 minute intervals are within 1°C. The probing point shall be soldered to stabilize the measurement reading.
	26	2	30	
	24	2	30	
	22	3	30	
	20	4	30	
	18	7	30	
	16	10	30	
Termination Resistance	Initial: 3 milliohms (mΩ) maximum Final: 6 milliohms (mΩ) maximum			EIA-364-23 Subject the circuit (including the mated contacts, assembled in housings) to 1A (DC) current. After temperature has stabilized, probe 2 points on the mated tab contact that with one-point 75mm from the wire crimp. Calculate resistance after deducting bulk wire resistance. See figure 1

Mechanical

Contact Insertion Force	1 st insertion: 53 N maximum	UL 310, Para 6.4 Operation Speed: 25.4 mm/min Measure the force required to mate the tab to receptacle terminal.
Contact Retention Force	1 st extraction force (locked): 40 N	UL 310, Para 6.4 The connectors shall be inserted and withdrawn from test tabs for a total of six times. The forces required for the first insertion, first withdrawal and sixth withdrawal shall be measured. Operation Speed: 25.4 mm/min Apply an axial pull force to release the tab from the receptacle

Crimp pull-out test	Wire Size (AWG)	Crimp Tensile (min.) (N)	UL 310, Para 6.3 Operation Speed: 25.4 mm/min (1 in/min) Apply an axial pull force to the crimped wire. Crimp tensile strength is determined when the wire is broken or is pulled off. Exclude insulation crimp.
	26	13.4	
	24	22.3	
	22	36	
	20	58	
	18	89	
	16	133	
Environmental			
Humidity Steady-State	Final Termination Resistance: 6 mΩ (maximum)		EIA-364-31, Condition A, Method II Subject mated contacts to environment at 40±5°C and 90-95% RH for 96 hours. Sample shall be placed in the chamber out of the path of falling water drops. Measurement shall be taken upon completion of exposure period.
Thermal Shock	Final Termination Resistance: 6 mΩ (maximum)		EIA-364-32, Test Condition VII Subject mated specimens to 5 cycles between -40°C and 105°C with 30 minute dwell time at temperature extremes and 5 minute (maximum) transition between temperatures.

i **NOTE**
Shall meet the visual requirements, show no physical damage, and met requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence.

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	1,4	1, 5	1, 7
Resistance			2,4	2,4,6
Temperature Rising			3	
Contact Insertion Force		2		
Contact Retention Force		3		
Wire Crimp Tensile Strength	2			
Humidity Steady-State				3
Thermal Shock				5

- See paragraph 4.2.A.
- Numbers indicate sequence in which tests are performed.
- Prepare samples in accordance with UL 310. Fit must be sufficient to produce good thermal contact and void of free movement between thermocouple and contact. Thermocouple lead must have strain relief suitable to protect interface.

4. QUALITY ASSURANCE PROVISIONS

4.1. Test Conditions

Unless otherwise specified, all the tests shall be performed in any combination of the following test conditions.

Temperature	15-35°C
Relative Humidity	45-75%
Atmospheric Pressure	86.6-106.7KPa

4.2. Qualification Testing

A. Specimen Selection

The test specimens to be employed for tests shall conform to the requirements specified in the applicable product drawings. The crimped contacts shall be prepared in accordance with the requirements of applicable Specification and are to be selected at random from current production.

B. Applicable Wires

The wires to be used for crimping the samples for performance testing shall conform to the requirements specified in Application Specification.

C. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in 3.6.

4.3. Re-Qualification Testing

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

4.4. Acceptance

Acceptance is based on verification that the product meets the requirements of 3.5. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens re-submitted for qualification. Testing to confirm corrective action is required before re-submittal.

4.5. Quality Conformance Inspection

The applicable 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.

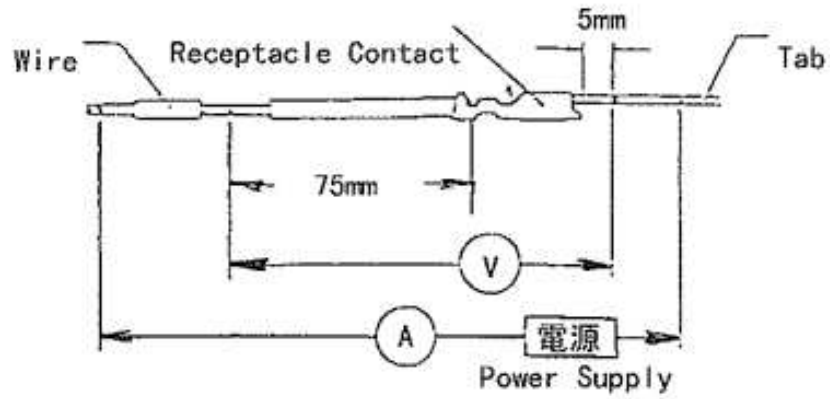


Figure 1: Termination Resistance Measurement Method