



The product described in this document has not been fully tested to ensure conformance to the requirements outlined below. Therefore, TE Connectivity (TE) makes no representation or warranty, express or implied, that the product will comply with these requirements. Further, TE may change these requirements based on the results of additional testing and evaluation. Contact TE Engineering for further details.

## RJ45 Jacks with Magnetics PoE

### 1. SCOPE

#### 1.1. Content

This specification covers the performance, tests and quality requirements for RJ45 Jacks with Magnetics PoE for Ethernet applications.

#### 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Paragraph 3.3 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

### 2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein.

#### 2.1. TE Documents

##### A. Application Specifications

114-94556          Application Specification

##### B. Test Reports

501-19258 Rev. A    Qualification Report

#### 2.2. Standards

All dimensions in the contact zone of all RJ45 Jacks are according to IEC 60603-7.

IEC 60512-1-100    Connectors for electronic equipment – Tests and measurements – Part 1-100:  
General – Applicable publications

EIA-364            Electrical Connector/Socket Test Procedures Including Environmental  
Classifications

IEEE 802-3        Local Area Networks: Carrier Sense Multiple Access with Collision Detection  
(CSMA/CD) Access Method and Physical Layer Specification

FCC Part 68        Connection of Terminal Equipment to the Telephone, Connector Specifications

### 3. REQUIREMENTS

#### 3.1. Design and Construction

Product shall be of the design, construction, materials 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.

- Contacts Copper alloy, overall nickel plating with selective gold plating in the contact area and tin plating on the soldertails.
- Housing LCP Black UL94V-0.
- Shield Copper Alloy, overall nickel plating.
- LED Epoxy encapsulated diode lens, iron lead frame with nickel and Tin.
- Magnetics Varnish coated wound cores. Housing contains wire-wound cores (Common mode choke and isolation transformer)

### 3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

TEST DESCRIPTION	REQUIREMENT	PROCEDURE
Visual examination	Meet requirements of product drawing. There shall be no cracks or burrs.	comply with IEC 60512-1-1 Test 1a
<b>ELECTRICAL</b>		
HI Pot (Isolation voltage)	2250 VDC for 60 s applied as specified in 5.3.2 of IEC 60950-1:1991. No flashovers may occur visually or audibly on the sample or any breakdowns with a current larger than 10mA. Comply with IEEE802.3 isolation requirements: IEC 60512 Test 4a  *500VAC for 60 s Only for specific design acc. to datasheet	Between the contacts on the plug side and the contacts on the PHY side or the shield.
Turn ratio (Chip: cable)	TX = 1:1; RX = 1:1 @100kHz, 100mV	
PoE+ ability	No functional damage. Contact resistance before & after should remain the same with tolerance of 20 mΩ. Comply with IEEE802.3 at.	IEC 60512-99-001/002 DC current 720mA @57V(continuous)
<b>MECHANICAL</b>		
Mating and unmating force	Mate: 20N maximum Unmate: 20N maximum	IEC 60512-13-2 Test 13b. Number of cycles: 10
Effectiveness of connector locking device	Tensile force: ≤ 50 N/ 60 s +/-5 s	IEC 60512-16-4, test 16d
<b>ENVIRONMENTAL</b>		
Thermal shock	No physical evidence of damage	IEC 60512-11-4 Test 11e. Subject unmated to 5 cycles between -40°C for 30 minutes and 85°C for 30 minutes
TEST DESCRIPTION	REQUIREMENT	PROCEDURE
<b>TRANSMISSION PERFORMANCE</b>		
Insertion Loss	-1.2 dB MAX. from 1 MHz to 100 MHz	In accordance with IEC 60512-27-100

Return Loss	For 10/100 Mbps: -16 dB MIN. from 1 MHz to 30 MHz -12 dB MIN. from 30 MHz to 60 MHz -10 dB MIN. from 60 MHz to 80 MHz  For 1 Gbps: -16 dB MIN. from 1 MHz to 40 MHz -12 dB MIN. from 40 MHz to 60 MHz -10 dB MIN. from 60 MHz to 80 MHz -8 dB MIN. from 80 MHz to 100 MHz	In accordance with IEC 60512-27-100
Cross-Talk	-30 dB MIN. from 1 MHz to 100 MHz	In accordance with IEC 60512-27-100
Common- to- Common Mode Attenuation	-30 dB MIN. from 1 MHz to 100 MHz	In accordance with IEC 60512-27-100
DC Resistance	1.2 Ohms MAX.	
<b>SOLDERABILITY</b>		
Solderability test	The part must be solderable using the applicable JEDEC profile	IEC 60068-2-20, Test Tb, method 1a

**NOTE**

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 Paragraph 3.4.

## 3.4. Test Sequence of product qualification

TEST OR EXAMINATION	TEST GROUP			
	I	II	III	IV
Visual examination	1,8 <sup>(a)</sup>	1,5,9	1,5	1,3
Visual LED test			2,4	
HI Pot (Isolation voltage)		3,6		
Turn ratio (Chip: cable)	2			
POE+				2
Mating/umate force		2,7		
Effectiveness of connector locking device		8		
Thermal shock			3	
Insertion Loss	3			
Return Loss	4			
Near-End Cross-Talk (NEXT)	5			
Common-to-Common Mode Attenuation	6			
DC Resistance	7			
Solderability test		4		

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

## 4. QUALITY ASSURANCE PROVISIONS

### 4.1. Qualification Testing

#### A. Sample Selection

The samples shall be prepared in accordance with product drawings. They shall be selected at random from current production.

#### B. Test Sequence

The tests realization must be in accordance with test groups as shown in section 3.4.

### 4.2. Re-Qualification Testing

If changes significantly affecting form, fit, or function are made to the product or to the 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 section 3.3. 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 will 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.