



DEUTSCH* EEC-325X4 Electronic Enclosure System

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) EEC-325X4 Electronic Enclosure System.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Test Requirements and Procedures Summary sections 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 in 2000. The Qualification Test Report number for this testing is [501-151061](#). These documents are on file at and available from Product Engineering, Industrial Commercial Transportation (ICT).

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1. TE Connectivity (TE) Documents

- [109-1](#) General Requirements for Testing
- [114-151003](#) Application Specification for DEUTSCH Size 20 S&F Pin & Socket
- [114-151004](#) Application Specification for DEUTSCH Size 4-20 Solid Pin & Socket
- [408-151008](#) Instruction Guide DEUTSCH Extraction Tool DT-RT1
- [501-151061](#) Qualification Test Report for EEC-325X4
- [502-151061](#) EEC-325X4 Ingress Protection Engineering Test Report

Product Drawings
X refers to A, B, C, D keys

DTM13-12PX-GR01	12pin Receptacle, 90° Header, EEC Box, Au
DTM13-12PX-R008	12pin Receptacle, 90° Header, EEC Box, Ni
DTM13-12PX-12PX-GR01	24pin Receptacle, 90° Header, EEC Box, Au
DTM13-12PX-12PX-R008	24pin Receptacle, 90° Header, EEC Box, Ni
EEC-325X4A	Electronic Enclosure with Vent Hole
EEC-325X4B	Electronic Enclosure without Vent Hole

2.2. Industry Documents

- DIN 72551-6: Road Vehicles—Low-Tension Cables—Part 6: Single-Core, Unscreened with Thin Insulation Wall; Dimensions, Materials, Marking
- ISO 6722: Road Vehicles—60 V and 600 V Single-Core Cables—Dimensions, Test Methods, and Requirements
- SAE J1128: Low Voltage Primary Cable

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. Ratings

- Voltage: 250 VAC/VDC
- Current (Amp): See Figure 1

Contact Size	Wire Size AWG [mm ²]	All Circuits Energized (A)
20	16 [1.5-1.0]	7.5
	18 [0.8-0.75]	
	20 [0.5]	
	22 [0.35]	5

Figure 1

- Temperature: -55°C to +125°C
- Ingress Protection
 - Header: IP67 and IP6K9K (with rear protection on plugs, such as Backshell)
 - Enclosure: IP67 and IP6K9K (with rear protection on plugs, such as Backshell)
 - The samples position with their axis oriented vertically and the connectors facing upwards, cavities for the terminals are properly sealed using plugs and backshells.
- Flammability
 - Header: Not Tested. Parts are made with UL94 V-0 rated material.
 - Enclosure: Not Applicable. Part is made with UL94 V-0 rated material.

3.3. Test Requirements and Procedures Summary

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

VISUAL

3.3.1. Examination of Product

- A. Procedure: Not Applicable
- B. Method: Visually inspected for use of materials, proper construction, correct part number and insert markings and over-all quality of workmanship. Poor molding fabrication, loose materials, damaged or improperly manufactured contacts, galling of metal parts, nicks and burrs of metal parts, torn seals or cracked plastic were considered adequate basis for rejection.
- C. Requirement: The connectors shall be correctly constructed, marked and shall show good quality and workmanship.

ELECTRICAL

3.3.2. Insulation Resistance

- A. Procedure: MIL-STD-1344, Method 3003.1
- B. Method: Using a 500 VDC megohmmeter check each contact to all other contacts and the shell electrically connected together.
- C. Requirement: 1000 MΩ minimum

ENVIRONMENTAL

3.3.3. Thermal Cycle

- A. Procedure: Not Applicable
- B. Method: Cycle mated connectors from -55°C to +125°C at a rate of 3°C per minute. Connectors to remain at each temperature extreme for 1 hour minimum. Mated connectors are to be cycled a total of 20 complete cycles.
- C. Requirement: There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.

3.3.4. Temperature Life

- A. Procedure: MIL-STD-202, Method 108, Test Condition D
- B. Method: The wired and mated connectors shall be subject to 1000 hours at 125°C without current flowing.
- C. Requirement: There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.

3.3.5. Water Immersion

- A. Procedure: Not Applicable
- B. Method: Mated connectors shall be placed in an oven at +125 for 2 hours minimum then immediately be placed in water with a 5% salt by weight content and 0.1 g/L wetting solution to a depth of 3 feet for 4 hours minimum. The free ends of the mated connectors must remain out of the water to prevent wicking of the water through the open wires. Water temperature to be +23°C.
- C. Requirement: Insulation resistance 1000 MΩ minimum

i **NOTE**

- a) All cavities wired with the minimum approved wire gauge per SAE J1128 suitable for the terminal size and with enough length to accommodate testing. Wire insulation shall be minimum diameter per SAE J1128 and shall be verified to be within the connector wire sealing range. Crimp characteristics (i.e. height, width, etc.) shall be checked prior to testing.

All unsealed cavities shall be secured with sealing plugs. To prevent capillary action on the sealed connector, all free wire ends and test points (i.e. millivolt test connection) shall be sealed with alcohol-based RTV silicone or equivalent and covered with heat shrink tubing.

- b) Specimens shall be prepared in accordance with applicable production drawings and shall be selected at random from current production.

3.4. Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)
	1
	TEST SEQUENCE (b)
Examination of Product	1,8
Insulation Resistance	2
Thermal Cycle	4
Temperature Life	6
Water Immersion	3,5,7

i **NOTE**

- (a) Specimens shall be prepared in accordance with applicable Application Specification and shall be selected at random from current production.

- Groups 1, Specimens shall consist of 24 position connector and EEC box with DEUTSCH Stamped & Formed Terminal System size 20 nickel sockets with 20 AWG wire.

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

4. REVISION HISTORY

Rev Ltr	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	05-Jun-2020	DM	DM
A1	Page 1. Added TE Connectivity Document: Test Report Page 2. Ingress Protection note specification.	16-Dec-2024	RA	CB