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DigiTRON Single Connectors Site Received Test Manual

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DigiTRON Single Connectors
Site Received Test Manual

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Page No.
2

Contents

1. INTRODUCTION

This document defines the procedure and equipment required to carry out the Site Received Test (SRT) on DigiTRON Single Connectors.

2. SCOPE

The purpose of this document is to ensure that the Site Received Test is performed where specified, on all DigiTRON single connectors. IR and Continuity tests will be performed along with a visual inspection for any damage pre and post test.

Any information, records or Health and Safety feedback that needs to be detailed, can be recorded in the punch list at the rear of the document.

3. ABBREVIATIONS

A	**Ampere**
AC	**Alternating Current**
Assy	**Assembly**
API	**American Petroleum Institute**
AWG	**American Wire Gauge**
BOM	**Bill of Material**
°C	**Degree Celsius**
CE	**Community European**
Comms	**Communication Signal**
CP	**Cathodic Protection**
DC	**Direct Current**
DWG	**Drawing**
EFL	**Electrical Flying Leads**
EMF	**Electrical Magnetic field**
FAT	**Factory Acceptance Test**
IR	**Insulation Resistance**
ISO	**International Organization for Standardization**
ITP	**Inspection Test Plan**
K	**Kelvin**
LTC	**Long Term Cover**
M	**Metres**
Max.	**Maximum**
MFG	**Manufacturer**
Min.	**Minimum**
No.	**Number**
ROV	**Remotely Operated Vehicle**
SI	**Standard International**
SRT	**Site Received Test**
SST	**Stainless Steel**
TBD	**To Be Defined**
TSP	**Twisted Screened Pairs**
UNS	**Unified Numbering System for Metals and Alloys**
V	**Volt**

4. RESPONSIBILITIES

It is the operators' responsibility to comply with this instruction and to ensure all test equipment is within calibration and report any problems to the Quality Control Inspector.
The operator shall also be responsible for completing the Test Results Sheets.
All tests shall be carried out within a test cell, or specifically designed test area, which shall be clearly identified. Controlled access to such areas shall be enforced.
Care must be taken during handling, any damage to the connectors can result in schedule delays.

5. HEALTH & SAFETY

Manual Handling, Lifting and Carrying are known to be the largest contributors to occupational ill-health. Ensure that mechanical handling aids are used whenever possible to avoid manual handling. Where manual handling is considered appropriate for the task safe lifting guidelines must be followed, e.g. adopt correct posture, consider team lifting, employ safe lifting technique, etc.

WARNING: Please refer to product packaging for accurate lifting weight and ensure the appropriate lifting equipment and PPE are used during handling operations.

Only competent persons are permitted to perform tasks without supervision, if in doubt ask.

Good Housekeeping avoids Slips Trips and Falls, keep your area clean and tidy.

It is the operator's responsibility to comply with current Company & regional health and safety legislation.

Caution shall be exercised during assembly and testing to ensure that fittings and hydraulic/pneumatic equipment are properly installed

All high voltage testing shall be performed by trained personnel using equipment that has been checked for safety within the last 12 months from the date of use. The operator shall be protected from electrocution by earth-screened enclosures that contain the H.V. hazard.

After every H.V. test, an earth stick shall be used to verify that the conductors are discharged. For tests involving D.C. sufficient time must be allowed for the circuit to discharge before touching the conductors. The discharge period shall be at least equal to the period of charging.

In the event of a safety incident or any safety improvement suggestions please contact the Health and Safety Department at **prodsafe.gb@siemens.com** and/or complete and return the punch list in section 13.

Note – All receptacle's (male pins) must be mated to its correct mating half before it is energised (this includes the correct Test, Dummy and Wet Mate Pair).

6. MANUAL HANDLING, UNPACKING & STORAGE

- Details on each of these sections, is explained in the IOM-002 manual.

7. VISUAL INSPECTION AND CHECKS

- Upon receipt of each connector please handle in accordance with procedures detailed in IOM-002.
- Each page of this document contains a signature section to be completed by the user.
- Visual inspection for damage to be completed by Siemens trained technician

Please use check box as shown Pass ☑ Fail ☒

Check each connector is correct part ordered.
If connector is wrong part please stop test and inform Technical Dept..... ☐

Place connector on a clean surface and check for any visual damage
or leaks. Some example images can be found are on pg 8..... ☐

Check tails are undamaged along length (where fitted)..... ☐

Remove protective caps from connectors and check contact face / seal
for Debris or damage..... ☐

Check pins / sockets for damage ..... ☐

Inspect connector body for any impact damage, scratches..... ☐

Re-install protective caps..... ☐

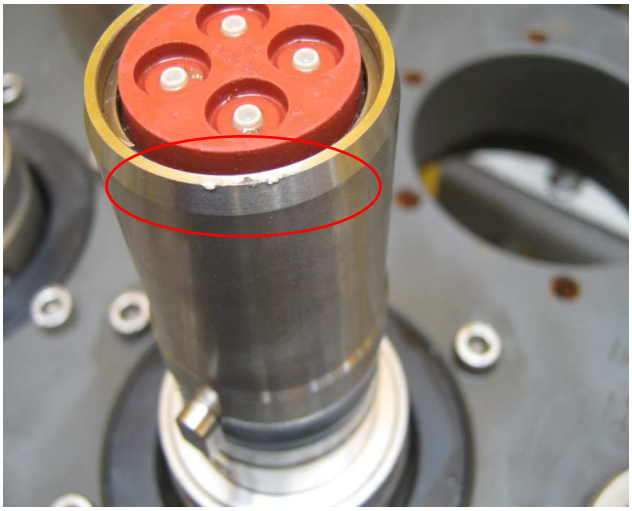
Check tagging and etching is to project requirements..... ☐

Repackage and store in accordance with IOM-002 manual..... ☐

Any failure to this criterion must be recorded on the Information and Notes / Health and Safety Feedback list at the back of this document and the technical department must be informed

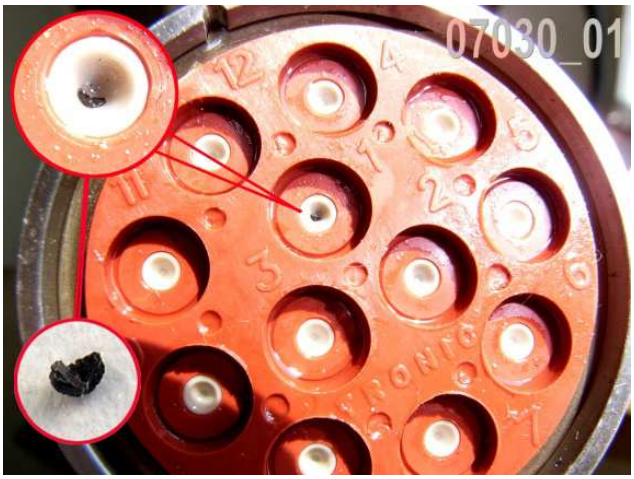
Photos must be taken as evidence to help rectify any non-conformance

Example images: - To help identify damage, debris, defects



Check connector body for damage such as dents, scratches
(Picture shows damage to body)

Check tail wires along their length, for damage or breaks.
(Picture shows broken tail wire)



Make sure all contacts and mating faces are Clean and free from debris.
(Picture shows debris in contact)

8. ELECTRICAL TESTING

ALL TESTS TO BE PERFORMED BY SIEMENS TRAINED OPERATIVES ONLY.

General Equipment:
Ambient temperature / humidity recorder
Barometer

Record atmospheric pressure, temperature & humidity (in accordance with the IEC 60060 standard) during electrical & function testing

Note: All calibrated equipment must have a current calibration certification at the time of the test. Details must be recorded on the results Record Sheets included in this document

The appropriate test connector must always be used to make electrical contact during testing. UNDER NO CIRCUMSTANCES should a foreign object (such as a screwdriver, test probe, or crocodile clip) be used as a test connection as this could damage the seals and insulation. Such actions will invalidate the warranty of the connector / harness.

9. CONTINUITY TEST

Equipment Required
Continuity Bleep Tester.
Cropico or Black Star Digital Ohmmeter.
Wiring diagram (where applicable)
Test connector (where applicable)

All equipment is functional and with calibration certificates..... ☐

Pre test Visual inspection of connectors completed..... ☐

Test connector and leads to be inspected for damage debris..... ☐

If the above criterion is passed testing may begin..... ☐

<u>If at any point the connector fails the test, stop testing and go to section 10</u>.

Procedure

- Touch the conductive ends of the test leads together. If the tester is in working order it will sound a "bleep".
- Attach one of the free ends of the test leads to one conductor, pin or socket (ensuring the plating is not damaged by the test lead).
- Attach the other test lead to the opposite end of the same conductor, pin or socket.
- If there is a "bleep" continuity is acceptable and recorded as a PASS, If there is no bleep there is a break in continuity and must be recorded as a FAIL.

- With the test lead attached to the first conductor the second test lead shall be attached to each of the remaining conductors in turn. The bleep must not sound during this test as this determines if a contact has been shorted or cross connected and shall ensure each conductor is isolated from the remaining conductors. If the bleep does sound the item must be reworked.

Table 1, Continuity test results

Project:		**Part No:**	**Each pin to all others**
Equipment used:		**Serial No:**	
Connector A - Pin	Connector B - Pin	PASS / FAIL	PASS / FAIL
1	1		
2	2		
3	3		
4	4		
5	5		
6	6		
7	7		
8	8		
9	9		
10	10		
11	11		
12	12		
Pin……. to body	Pin…… to body		

Table 5, Continuity Test Sign Off

Technician Name		**Date**	

Shunted / Shorted Connector Continuity Test:

Perform a continuity bleep test on shorted connectors between required pins
Record pin numbers and results in Table 3.
Perform a resistance test on shunted connectors between required.
Record pin numbers and results in Table 4

Table 3, Continuity Test Results (Shorted Connector)

Pins	Pass/Fail
-	
-	
-	
-	
-	
-	

Table 4, Resistance Test Results (Shunted Connector)

Pins	Reading	Confirm Resistor Yes/No eg: **1kΩ**
-	**Ω**	**Ω**
-	**Ω**	**Ω**
-	**Ω**	**Ω**
-	**Ω**	**Ω**
-	**Ω**	**Ω**
-	**Ω**	**Ω**

Table 5, Continuity Test Sign Off

Technician Name		Date	

10. IR TEST

Equipment Required:
DC H.V tester (BM 21/MIT520 Megger or similar).
Electrical test board with up to 12 connections.
Suitable Test Connector where applicable
Test connector mount fixture where applicable
Wiring Diagram
All equipment to be inspected for functionality prior to starting testing completed

All equipment is functional and with calibration certificates..... ☐

Pre test Visual inspection of connectors completed..... ☐

Test connector and leads to be inspected for damage debris..... ☐

If the above criterion is passed testing may begin..... ☐

IR TEST PROCEDURE:

Tailed connector
Insulation Resistance Test in accordance with procedure

- Test Voltage: 1000 Vdc for 60 seconds pin to pin and all pins to earth.
- Acceptance Criteria: No breakdown or flashover shall occur and resistance values are to be >100GΩ.

Open circuit or Shorted connector
Insulation Resistance Test in accordance with procedure

- Test Voltage: 1500 Vdc for 60 seconds pin to pin and all pins to earth.
- Acceptance Criteria: No breakdown or flashover shall occur and resistance values are to be >100GΩ.

Shorting Resistor Circuit
Insulation Resistance Test in accordance with procedure TSC-352-006

- Test Voltage: 50 Vdc for 60 seconds pin to pin and all pins to earth. If all contacts are linked then only perform all pins to earth test.
- Acceptance Criteria: No breakdown or flashover shall occur and resistance values are to be >1GΩ.

Note:
Blank term sleeves to be used on all un-used solder cups.
If no inserts are required do not do any electrical testing.

If at any point the connector fails the test, stop testing and go to section 11.

Table 6, Insulation Resistance Test Results

Pins	Reading	
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
		Ω
All Above to Body		Ω
Temperature	°C	°F
Humidity		%
Barometric Pressure		mb

Table 7, Insulation Resistance Test Sign Off

Technician Name		Date	

11. FAULT INVESTIGATION

(only complete if a fault is present)

If Connector fails test:

Check all connections are fully connected..... ☐

Remove all connections and inspect all contacts for damage or debris..... ☐

While disconnected check all equipment is working and set up correctly..... ☐

If using a bench test board this must be fully checked for correct Operation..... ☐

Re-connect all equipment and repeat tests..... ☐

<u>If there is still a fail please stop test and contact Technical Dept</u>

12. FINAL INSPECTION

Check connector and verify no damage has occurred..... ☐

Ensure protective caps are fitted..... ☐

Check to ensure that tags are fitted in accordance with the relevant drawing or tag schedule..... ☐

Ensure loose items (if any) are attached with connector..... ☐

FINAL CHECK

Make sure this document has been fully completed and all results / information recorded in the correct section.

13. INFORMATION AND NOTES / HEALTH & SAFETY FEEDBACK

DATE	DESCRIPTION

14. SIGN OFF SECTION

Please sign and date where indicated to confirm that each page of this document has been read and complied with in full.

Name	Signature	Date