RELAY TEST TERMINAL BLOCK & RELAY TEST PLUG

Features

- On load testing of relays and meters without disconnecting or disturbing panel wiring
- Reduced cost of commissioning and routine maintenance
- Simplified and safer testing

Application

In conjunction with relay test block, test plug is used for testing relays and meters in non-drawoutcase

DEEPL ELECTRICALS PVT. LTD.
ISO :9001:2000
anjani.agrawal@gmail.com www.deepl.co.in
Description

Test plug have 13 pairs of nickel plated finger contacts which are linked to the test sockets. The top and bottom contact strips of each finger are separated by insulation for 5 contacts which get shortened once cover is inserted. Each of the balance 8 pairs of contacts is spring loaded. Permanent connections are made between Test Block and relay and meter and the test plug is inserted into the Block for testing purposes. A protective cover is fitted into the Block when not in use. The Contacts of the Test Block close automatically when test plug is removed from it except the trip contact which remains open unless and until the cover is replaced. It is therefore possible to isolate the trip circuit by just removing the test block cover and thus preventing unnecessary tripping during testing.

Insulation

The Test Plug and Test Block meets the requirement of IS 3231 / IEC 255-5 series C 2KV for one minute

Connection

The Test Block is provided with mounting screws and connection diagram pasted on it.

Note: Relay Test Terminal Block and Test Plug are suitable for use in tropical environments
DESCRIPTION:
TEST TERMINAL BLOCK WITH PLUG IS USED FOR ONLINE TEST OF THE FOLLOWING:
1. DISTANCE PROTECTION RELAY:
   RY3NCT: -1 - 8 TERMINALS
   RYBN PT: -9 - 18 TERMINALS
   TRIP BYPASS: -26 - 28 TERMINALS
2. DIFFERENTIAL PROTECTION RELAY:
   RYBN HVCT: -1 - 8 TERMINALS
   RYBN LVCT: -9 - 18 TERMINALS
   NCT: -17 - 20 TERMINALS
   VP (OVERCURRENT): -24 TERMINALS
   TRIP BYPASS: -28 - 28 TERMINALS
3. DIRECTIONAL & NON DIRECTIONAL: OF RELAY:
   RYBN OT: -1 - 8 TERMINALS
   RYBN PT: -9 - 18 TERMINALS
   TRIP BYPASS: -25 TERMINALS
   NCT: -17 - 20 TERMINALS
   OPEN DELTA: -17 - 30 TERMINALS
   TRIP BYPASS: -25 TERMINALS

INSTRUCTIONS / NOTES:
1. WHEN TEST BLOCK IS FITTED WITH COVER, CIRCUIT IS IN NORMAL TEST.
2. WHEN TEST PLUG IS INSERTED, ALL INCOMING AM OR AM OUTGOING CONTACTS ARE SEPARATED.
3. VERY IMPORTANT: INCOMING CT TERMINALS ARE TO BE SHORTED EXTERNALLY BEFORE INSERTION TO BLOCK.
   AM PLUG TO BE INSERTED PROPERLY.
4. CONTACT SHOWN ARE WHEN TEST PLUG IS INSERTED PROPERLY.
5. ENSURE TEST PLUS IS INSERTED PROPERLY.
6. IF ADDITIONAL BYPASS CONTACT REQUIRED FOR SCHEME TESTING, ANY OF THE (LEFT CT) CONTACTS CAN BE USED.

TYPICAL CONNECTION FOR DIFFERENTIAL RELAY TESTING

- HV CURRENT COIL
- LV CURRENT COIL
- REF COIL
- TRIP BYPASS
- V
- A TRIP
- B CL

DESIGNER: [Sign]
DATE: 03/04/03
DEEPL ELECTRICALS FYTUD
DEP. 130072
**Test Report**

**Work Order No.** : WO/ETL/007/09-10  
**Date** : 17.04.2009  
**Test Report No.** : TR/ETL/007/09-10  
**Date of Testing** : 24 -25.04.2009  
**Page No.:** 1 of 3

**Test Item : Relay Test Terminal Block**

**Tested for :** M/S, Deepl Electrical Pvt. Ltd., 0-125, Ansa Industrial Estate. Saki Vihar Road,  
Andheri (E), Mumbai- 400 072  
**Tested at:** IDEMI, Mumbai. 400 022

**Specification of Items Under Test**

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>M/s. Deepl Electrics Pvt. Ltd. Mumbai - 72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition of Item on receipt</td>
<td>Good</td>
</tr>
<tr>
<td>Range /Rating / Size</td>
<td>50 A</td>
</tr>
</tbody>
</table>

**Specification of Standards Used**

1) **RE High voltage tester**  
   Range: 0 to 5KV.AC  
   Calibration Validity up to: 24.03.2010

2) **GANZ insulation Tester**  
   Range: 0 To 10000M Ohms  
   Calibration Validity up to: 07.04.2010

3) **Digital Temp. Indicator with Probe**  
   Model FLUKE 54II,  
   Calibration Validity up to: 22.02.2010

4) **Blue Star Tenny Chamber**  
   Temp: -40 to 200°C, RH: 30 % to 95%  

5) **Zaran High Current Test Set (0-500A)**  
   Traceability: Standard Used for Testing is Traceable to NPL, New Delhi

**Ambient Conditions :**

Temperature: 25°C ± 2.5°C  
Relative Humidity: 35% to 65%

**Remarks :** Please refer page 2 to 3 for Test Results.

1) **Procedure of Test :** The above mentioned item is tested as per Customer Request

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S.R. VICHARE  
TECHNICAL MANAGER  
AUTHORISED SIGNATORY

(Note : This report refers only to the particular item(s) submitted for testing. The report should not be reproduced except in full without the prior permission from the Principal Director IDEMI, Mumbai - 400 022)
ELECTRICAL TESTING LABORATORY

Test Report for Sr. No.: —  Test Report No.: TR/ETL/007/09-10
Date of Testing : 24-25.04.2009  Page No. : 2 of 3

Test Result of: Relay Test Terminal Block

1. Insulation Resistance Test:
   By applying 500V DC between following points for 1 minute the IR values measured were as below.
   (1) Between two Terminals. - Above 5000 MQ
   (2) Between all Terminals shorted together & Body - Above 5000 Mfi

2. Pi-electric Test:
   An AC, 2.5 kV, 50 Hz RMS was applied between following points for 1 minute.
   (1) Between two Terminals.
   (2) Between all Terminals shorted together & body
   Test Result - No breakdown or flashover observed.

Z Insulation Resistance at 40°C

Relay Test Terminal Block was kept in the chamber and Temperature was adjusted to 40°C and It was maintained for 1 hour and at the end of one hour applying 500V DC between the points given below for one minute the IR value measured were as follows.

i) Between two live Terminals - 600 MD
ii) Between all terminal shorted together & body - 3000 MQ
4. Insulation Resistance at Dry Heat (80°C)

The chamber was adjusted to 80°C and then Relay Test Terminal Block was kept there for one hour and at the end of one hour applying 500V DC between the points given below for one minute the lift value measured were as follows,

i) Between two live terminals - Above 75 MD
ii) Between all terminals shorted together & body - Above 2000 MO

5. Temperature Rise Test:

Temperature rise was measured at 50 Amp. Current (till stable temp was achieved) at the following points

Ambient Temp.: 28°C

<table>
<thead>
<tr>
<th>Test Terminal</th>
<th>Temp Rise (Measured Temp – Ambient Temp.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal 1</td>
<td>35.0 °C</td>
</tr>
<tr>
<td>Terminal 2</td>
<td>35.9 °C</td>
</tr>
<tr>
<td>Terminal 3</td>
<td>42.6 °C</td>
</tr>
<tr>
<td>Terminal 4</td>
<td>41.0 °C</td>
</tr>
<tr>
<td>Terminal 5</td>
<td>52.0 °C</td>
</tr>
<tr>
<td>Terminal 6</td>
<td>50.1 °C</td>
</tr>
<tr>
<td>Enclosure</td>
<td>10.9 °C</td>
</tr>
</tbody>
</table>
Work Order No.: WO/ETL/007/09-10
Date : 17.04.2009

Test Report No. : TR/ETL7008/09-10
Date of Testing : 24-25.04.2009
Page No.: 1 of 3

Test Item : Relay Test Plug

Tested for : M/S. Deep! Electrical Pvt. Ltd., D-125, Ansa Industrial Estate, Saki Vihar Road, Andheri (E), Mumbai- 400 072
Tested at : IDEMI, Mumbai. 400 022

Specification of Items under Test

| Manufacturer | M/s. Deepl Electricals Pvt. Ltd. Mumbai - 72 |
| Condition of Item on receipt | Good |
| Range /Rating / Size | 50 A |
| Model/Markings | Deepl Electricals Pvt. Ltd Relay Test Terminal Block |
| Accuracy | N.A |

Specification of Standards Used

1) RE High voltage tester
   Range: 0 to 5KV.AC
   Calibration Validity up to : 24.03.2010

2) GANZ Insulation Tester
   Range: 0 To 10000M Ohms
   Calibration Validity up to : 07.04.2010

3) Digital Temp. Indicator with Probe
   Model FLUKE 54il,
   Calibration Validity up to : 22.02.2010

4) Blue Star Tenny Chamber
   Temp : -40 to 200°C, RH : 30 % to 95%

5) Zaran High Current Test Set ( 0-50CA)
   Traceability: Standard Used for Testing is Traceable to NPL, New Delhi

Ambient Conditions :

Temperature^ 25°C ± 2.5°C Relative Humidity : 35% to 65%

p^niarks : Please refer page 2 to 3 for Test Results.

1) Procedure of Test : The above mentioned item is tested as per Customer Request

S.R. VIChARE
TECHNICAL MANAGER
AUTHORISED SIGNATORY
Test Result of: Relay Test Plug

1. **Insulation Resistance Test:**
   
   By applying 500V DC between following points for 1 minute the IR values measured were as below.
   
   (1) Between two Terminals - Above 5000 MQ
   (2) Between all Terminals shorted together & Body - Above 5000 MQ.

2. **Dielectric Test:**
   
   An AC, 2.5 kV, 50 Hz RMS was applied between following points for 1 minute.
   
   (1) Between two Terminals.
   (2) Between all Terminals shorted together & body
   
   Test Result - No breakdown or flashover observed.

3. **Insulation Resistance at 40°C**
   
   Relay Test Plug was kept in the chamber and Temperature was adjusted to 40°C and it was maintained for 1 hour and at the end of one hour applying 500V DC between the points given below for one minute the IR value measured were as follows
   
   i) Between two live Terminals - 600 MQ
   ii) Between all terminal shorted together & body - 3nnn MO
4. Insulation Resistance at Dry Heat (80°C)

The chamber was adjusted to 80°C and then Relay Test Plug was kept there for one hour and at the end of one hour applying 500V DC between the points given below for one minute the IR values measured were as follows.

i) Between two live terminals - Above 80 MΩ
ii) Between all terminals shorted together & body - Above 2000 MΩ

5. Temperature Rise Test

Temperature rise was measured at 50 Amp. Current (until stable temp was achieved) at the following points

Ambient Temp.: 28.3 °C

<table>
<thead>
<tr>
<th>Test Termi n</th>
<th>Temp Rise (Measured Temp. - Ambient Temp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal 1</td>
<td>33.1 °C</td>
</tr>
<tr>
<td>Terminal 2</td>
<td>32.1 °C</td>
</tr>
<tr>
<td>Terminal Z</td>
<td>31.2 °C</td>
</tr>
<tr>
<td>Terminal A</td>
<td>32.4 °C</td>
</tr>
<tr>
<td>Terminal §</td>
<td>40.2 °C</td>
</tr>
<tr>
<td>% Enclosure</td>
<td>5.4 °C</td>
</tr>
</tbody>
</table>
Address: D125, Ansa Industrial Estate, Saki Vihar Road, Saki Naka, Mumbai 400072, India
Tel:-Off: 2858 1158
Res: 28570829/2623 6011
Fax: 28570829/2623 6011
Mobile: 9324421029 / 9324236011
Website: www.deepl.co.in