

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



CPRI

Test Report Number : CPRI BLRSCL20T0179 **Date:** 12 March 2020

Name & Address of the Customer : M/s. Enpro Industrial Automation Pvt. Ltd.,
F-18, Ambattur Industrial Estate,
Chennai – 600 058, Tamil Nadu, India.

Name and Address of the Manufacturer : M/s. Enpro Industrial Automation Pvt. Ltd.,
F-18, Ambattur Industrial Estate,
Chennai – 600 058, Tamil Nadu, India.

Particulars of sample tested : 415V, 500A Distribution Pillar Panel

Type : Outdoor

Description of test sample : Refer Sheet 2 of 7

Serial Number : EIA – 01

Number of samples tested : One

Date(s) of Test(s) : 26 February 2020

CPRI Sample code No(s). : SCL20S0166

Particulars of tests conducted : Verification of temperature rise

Test in accordance with Standard/Specification : Subclause 10.10.2.3.5 of IS/IEC 61439-1:2011

Sampling Plan : Not applicable

Customer's Requirement : Nil

Deviations if any : Nil

Name of the witnessing persons

Customers representative : Mr. B Chandrasekar, Testing Engineer

Other than customer's representatives : None

Test subcontracted with address of the laboratory : None

Documents constituting this report (in words)

Number of Sheet(s) : Seven

Number of Oscillogram(s) : Nil

Number of Graph(s) : Nil

Number of Photograph(s) : One

Number of Test circuit Diagram(s) : Nil

Number of Drawing(s) : Four


(S. Arjuna Rao)
Test Engineer


(Swaraj Kumar Das)
Head of Division
Approved by

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report No. CPRI BLRSCL20T0179

Date: 12 March 2020

DESCRIPTION OF SAMPLE TESTED

(As assigned by the manufacturer)

Test sample	: Distribution Pillar Panel
Serial number	: EIA - 01
Type	: Outdoor
Rated voltage	: 415 V
Rated current	: 500 A
Frequency	: 50 Hz
Number of phase(s)	: Three & neutral
Rated insulation voltage	: 1000 V

Bus-bar details:

Main Busbar	: Tinned copper bus-bar of size 40mm x 10mm one run per phase.
Neutral Busbar	: Tinned copper bus-bar of size 40mm x 10mm one run.
Earth Busbar	: Tinned copper bus-bar of size 25mm x 6mm one run.


(S. Arjuna Rao)
Test Engineer

B.L2

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report No. CPRIBLRSCCL20T0179

Date: 12 March 2020

SUMMARY OF TESTS CONDUCTED

- | | |
|-----------------------------|-------------------------------------|
| 1. Tests conducted | : Verification of temperature rise |
| 2. Rating for which tested | : 500A |
| 3. Schedule of test results | : Refer Sheet 5 of 7 & Sheet 6 of 7 |
| 4. Photograph Numbers | : CPRIBLRSCCL20T0179P01 |
| 5. Drawing Numbers | : Refer Sheet 4 of 7 |


(S. Arjuna Rao)
Test Engineer

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report No. CPRI BLSCL20T0179

Date: 12 March 2020

LIST OF DRAWINGS

Drawing Numbers

The manufacturer has guaranteed that the sample submitted for the test has been manufactured in accordance with the following drawings.

Sl. No.	Drawing Number	Sheet Number	Revision Number
1	EIA-DPP-01	4 OF 4	0
2	EIA-DPP-01	1 OF 4	0
3	EIA-DPP-01	2 OF 4	0
4	EIA-DPP-01	3 OF 4	0

It is verified that these drawings adequately represent the sample tested. The verification of the sample drawings by CPRI is limited to dimensional checks only wherever possible.


(S. Arjun Rao)
Test Engineer

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report No. CPRI BLR SCL20T0179

Date: 12 March 2020

TEST RESULTS

Test : Verification of temperature rise

Procedure: Temperature rise test was carried-out by using the temporary connections mentioned in the table below and by feeding the current of 500A. The temperature measurements were recorded at different locations as per the standard until it reaches steady state, which are indicated in the drawing enclosed (Drawing No: EIA-DPP-01 Sheet No: 1 OF 4 Rev. 0 & EIA-DPP-01 Sheet No: 2 OF 4 Rev. 0).

Details of Temporary Connections

Temporary connection	Material	Quantity (numbers)	Length (mm)	Cross-section mm ²	Remarks
Incoming Terminal	Tin Plated Copper bus-bar	1	2000	30 x 10	Each phase
Outgoing Terminal	Tin Plated Copper bus-bar	1	2000	30 x 10	Each phase
Shorting link	Tin Plated Copper bus-bar	1	210	30 x 10	Across R, Y, B Phases


(S. Arjuna Rao)
Test Engineer

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report No. CPRI/BLRSCL20T0179

Date: 12 March 2020

TEST RESULTS

Average ambient temperature (T24,T25,T26): 31.3°C.
 Inside air temperature rise (T20): 11.4 K.
 Test Frequency: 50 Hz.

Location of Thermocouple	Temperature Rise (K)				Observations
	Measured values			Limits as per standard	
	R-Phase	Y-Phase	B-Phase		
Terminal for external insulated conductors					
Panel Incoming Terminal (T1,T2,T3)	27.5	25.4	27.4	70	Within Limits
Panel Outgoing Terminal (T16,T17,T18)	26.1	24.5	32.3	70	Within Limits
Bus-bars and conductors					
Midpoint of Horizontal Bus-bar (T4,T5,T6)	25.4	22.5	23.0	105	Within Limits
Joint between Horizontal Bus-bar to Vertical Bus-bar (T7,T8,T9)	27.1	20.9	23.3	105	Within Limits
Midpoint of Vertical Bus-bar (T10,T11,T12)	25.7	22.8	26.6	105	Within Limits
Joint between Vertical Bus-bar to Horizontal Bus-bar (T13,T14,T15)	26.9	23.8	33.6	105	Within Limits
Accessible external enclosures and covers: metal surface					
Panel Inside Enclosure (T21)	6.3			40	Within Limits
Panel Outside Enclosure (T22)	2.2			40	Within Limits
Accessible external enclosures and covers: Insulating surface					
Handle (T23)	0.1			50	Within Limits
Extra thermocouple point					
Support Insulator (T19)	11.6			---	---

Conclusion: The sample tested complies with the requirement of subclause 10.10.2.3.5 of IS/IEC 61439-1:2011 for the test conducted.


 (S. Arjuna Rao)
 Test Engineer

CENTRAL POWER RESEARCH INSTITUTE

TEST REPORT



Test Report Number: CPRI BLSCL20T0179

Date: 12 March 2020

NOTE

- The Test results relate only to the sample tested.
- Publication or reproduction of the Test Report in any form other than by complete set of the whole Test Report and in the language written is not permitted without the written consent of CPRI.
- Any Corrections/erasure invalidates the Test Report.
- NABL has accredited this laboratory as per ISO/IEC 17025:2017, vide certificate no.TC-5452 for the tests carried out.
- Any anomaly/discrepancy in the Test Report should be brought to the notice of CPRI within 45 days from the date of issue.
- All documents constituting the Test Report are stitched together with a continuous silk thread, the two ends of which have been brought over the front sheet of the Test Report and sealed with a CPRI logo printed paper sticker.


(S. Arjuna Rao)
Test Engineer

