

CENTRAL POWER RESEARCH INSTITUTE
(Member of STL)



TEST REPORT

Test Report Number : CPRI BLSCL20T0141 **Date:** 28 February 2020

Name and 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 LT Distribution Pillar Panel

Type : Outdoor

Description of test sample : Refer Sheet 2 of 7

Serial Number (s) : EIA - 01

Number of samples tested : One

Date (s) of Test (s) : 12 February 2020

CPRI Sample Code Number(s) : EATDIP20S0026

Particulars of tests conducted : Verification of the short-circuit withstand strength

Test in accordance with Standard / specification : Sub-clause 10.11.5.3.3 & 10.11.5.3.5 of
IS/IEC 61439-1: 2011 & IS/IEC 61439-2: 2011
(Reaffirmed 2018)

Sampling plan : Not applicable

Customer's requirement : 36 kA rms for 1.0 s & 75.6 kA peak on phase bus-bars

Deviations if any : Nil

Name of the witnessing persons

Customer's representative : Mr. B. Chandra Sekar, 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) : Two

Number of Graph(s) : Nil


Number of Photo(s) : Two

Number of Test Circuit Diagram(s) : Two

Number of Drawing(s) : Four


(Sakthivel. P)
Test Engineer




(Swaraj Kumar Das)
Head of Division
Approved by

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Date: 28 February 2020

DESCRIPTION OF SAMPLE TESTED
(As assigned by the manufacturer)

Test sample	: LT Distribution Pillar Panel
Type	: Outdoor
Serial number	: EIA - 01
Rated voltage	: 415V
Rated insulation voltage	: 1000V
Rated current	: 500A
Rated frequency	: 50 Hz
Number of phases	: Three & Neutral
Rated short-time withstand current & peak withstand current	: 36 kA rms for 1.0 s & 75.60 kA peak on phase bus-bars and 21.6 kA rms for 1.0 s & 45.36 kA peak on neutral bus-bar


(Sakthivel. P)
Test Engineer

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SUMMARY OF TESTS CONDUCTED

1. Test conducted : Verification of the short-circuit withstand strength
2. Rating for which tested : 36 kA rms for 1.0 s & 75.60 kA peak on phase bus-bars and 21.60 kA rms for 1.0 s & 45.36 kA peak on neutral bus-bar
3. Schedule of test results

Tests conducted	Clause Numbers	Sheet
Verification of the short-circuit withstand strength	10.11.5.3.3 & 10.11.5.3.5	5 of 7 & 6 of 7

4. Oscillogram Numbers : SC200141.S01 & SC200141.S02
5. Photograph Numbers : CPRI BLSCL20T0141P01 & CPRI BLSCL20T0141P02
6. Test Circuit Diagram Numbers : CRTL/SC/STC-04A & CRTL/SC/STC-02A
7. Drawings Numbers : Refer Sheet 4 of 7


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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	1 OF 4	0
2	EIA - DPP - 01	2 OF 4	0
3	EIA - DPP - 01	3 OF 4	0
4	EIA - DPP - 01	4 OF 4	0

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


(Sakthivel. P)
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TEST RESULTS

VERIFICATION OF SHORT-CIRCUIT WITHSTAND STRENGTH (Sub-clause 10.11.5.3.3 & 10.11.5.3.5)

Test conditions

<u>Source</u>	Short-circuit generator
<u>Phase</u>	
Test on phase bus-bars	Three
Test on neutral bus-bar	Single
Frequency	50 Hz

Test sample

Condition before test	In clean & good condition; end of the vertical bus-bars connected to source.
Body/Enclosure	2 mm thick Sheet Steel; isolated from earth and connected to the source neutral through a fine-wire fuse (FWF) of diameter 0.8mm and length of 50 mm in series with a 2.0 ohms resistor

Test details

Short-circuit applied	On the other end of the vertical bus-bars
Short-circuit point	Grounded

Test on: Horizontal and vertical phase bus-bars of LT Distribution Pillar Panel
Ambient Temperature: 27°C

Oscillogram Number	Current (kA)		Duration (s)	Observations
	Peak	RMS		
SC200141.S01	77.92 (R-phase)	R – 35.20 Y – 34.83 B – 34.64 Average: 34.89*	1.09	During test: No abnormality After test: Fine-wire fuse intact

*Equivalent to 36.43 kA rms for 1.0 s

Test on: Neutral bus-bar of LT Distribution Pillar Panel with nearest phase bus-bar as return conductor

Oscillogram Number	Current (kA)		Duration (s)	Observations
	Peak	RMS		
SC200141.S02	48.57	21.26*	1.09	During test: No abnormality; After test: Fine wire fuse intact

*Equivalent to 22.20 kA rms for 1.0 s

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TEST RESULTS

POWER FREQUENCY WITHSTAND VOLTAGE

Condition of the sample: As after the short-circuit withstand strength test

Test procedure	Observations
A power frequency voltage of 2200V rms for 5.0 s was applied between:	
1. All live parts connected together and earthed enclosure	Withstood; No disruptive discharge noticed
2. Each live part and all the other live parts connected to earthed enclosure	

Physical Inspection

Bus-bars : No visible damage or deformation
Supports : Intact

Remarks: The sample tested complies with the requirement of sub-clause(s) 10.11.5.3.3 & 10.11.5.3.5 of IS/IEC 61439-1: 2011 for the tests conducted.


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NOTE

- a) The Test results relate only to the sample tested.
- b) Publication or reproduction of this 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.
- c) Any Corrections / erasure invalidate the Test Report.
- d) NABL has accredited this laboratory as per ISO/IEC 17025:2017 vide certificate no. TC-5452 for the tests carried out.
- e) Any anomaly / discrepancy in the Test Report should be brought to notice of CPRI within 45 days from the date of issue.
- f) All documents constituting this Test Report are stitched together with a continuous silk thread, the two ends of which have been brought over the front sheet of this Test Report and sealed with a CPRI logo printed paper sticker.


(Sakthivel. P)
Test Engineer