दक्षिण पूर्व रेलवे/**South Eastern Railway**
(प्रधान मुख्य विद्युत अभियंता का कार्यालय, गार्डन रीच, कोलकाता -700043)
(Office of the Principal Chief Electrical Engineer, Garden Reach, Kolkata-700043)

संख्या /No: eFile Computer No: 254349 दिनांक:/Date: As signed.

**Sr. DEE (G)ADA, CKP, KGP, RNC, SRC, Dy.CEE(WS)/KGP, ADEE/G/GRC**
**CEE/Con/GRC**

**Sub: Revised Description for 3 Phase LT Distribution Panel (Revision 2)**
**Ref:** Earlier Description no. SER/ELEC/GS/DESCRIPTION/LT PANEL/1/REV-1/JAN 2025 issued vide eFile Computer No: 255925 dated 05.02.2025

The description of the 3-Phase LT Distribution Panel, as referred above, has been revised to include the standard IS/IEC 61439:Part 1 & 2:2020 or latest with term 'Partially Type Tested'.

The revised Description, No. SER/ELEC/GS/DESCRIPTION/LT PANEL/1/REV-2/JUNE 2025, is attached as Annexure A.

It is advised to follow the revised description for procurement purpose. Divisions shall advise this description to other organizations working in the division to follow the same. Any changes/improvement to the description in the wisdom of the Divisions shall be advised to this Office for changes in the description in future.

Encl.: As above.

Digitally Signed by Neeraj Kumar Verma
Date: 16-06-2025 10:40:59
Reason: Approved

Chief Electrical General Engineer

Copy to: Secy. To PCEE for kind information of PCEE Sir please.

Signature Not Verified
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Date: 2025.09.23 15:17:50 IST
Reason: IREPS-CRIS
Location: New Delhi

## Annexure A

Supply, Installation, Testing & Commissioning of 415V, 3 Phase, 50Hz LT Distribution Panel Conforming to IS/IEC 61439:Part 1 & 2:2020 or latest with Partially Type Tested , Consisting of ACBs, MCCBs, RCCBs, Multifunction Meters, Indicator Lamps, Current Transformers etc. as per following details:

| **Following details are to be specified by Consignee in Non-stock requisition/Tender as per specific requirement:** | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Type of LT Panel** | **Indoor** or **Outdoor** | | | | | | | | | | | | | | |
| **Switchgear→** | **ACB** | | | **MCCB** | | | | **MCB** | | | | **RCCB** | | | |
| **Capacity→** | 1250A | 1000A | 800A | 630A | 400A | 250A | 100A | 63A | 32A | 16A | 6A | 63A | 32A | 16A | 10A |
| **Incoming (in nos.)** | | | | | | | | | | | | | | | |
| **Outgoing (in nos.)** | | | | | | | | | | | | | | | |
| **Bus Coupler (in nos.)** | | | | X | X | X | X | X | X | X | X | X | X | X | X |

| **Technical details**: | | |
|---|---|---|
| **1. LT Distribution Panel 415V, 3phase, 50Hz, 4 Wires System** | | |
| | **Indoor Type** | **Outdoor Type** |
| Degree of protection | **IP 53 or higher** | **IP 65 or higher** |
| Shape of Panel | Cubical type with flat-top | Cubical type with a canopy at the top made of minimum 2.0 mm thick CRCA Sheet Steel to protect panel from rainwater. |
| Doors & Operation | Front side openable & operatable compartmental doors. | Front side openable & operatable compartmental doors. Front side outer door is to be provided to meet the desired IP requirements. |
| Box Dimension (HxWxD) | **(Tentative dimension to be specified by Consignee. Layout drawing will be submitted by supplier for Railway approval)** | |
| Sheet | Minimum 2.0 mm thick CRCA Sheet Steel/GI | |
| Painting | Powder Coated for CRCA Sheet Steel | |
| Base | GI/SS Channel for floor Mounting. (Minimum 75mm height) | |
| Internal Wiring | Copper Strips & Flexible Copper Cables of suitable rating as per IS.<br>Cables should be terminated through suitable lugs manufactured from tough pitched electrolytic copper of 99.9% purity and fire retardant ferrules to grade UL-94 V0.<br>Cable ties used shall be of fire retardant to grade UL-94 V0 | |
| Busbar | Copper Busbar made of Electrolytic Copper with 99.9% purity, (R.Y.B.N). | |
| Busbar Supporter | Epoxy type Insulator. | |
| Earthing | Aluminum Earth bus of minimum cross section 50x6mm, shall run throughout the length at the bottom of the panel and shall have 02 earthing terminals. | |
| Stainless Steel materials | All Hinges, Locks, Cable Glands and Fasteners used in the Panel. | |
| Other details | Floor mounted, 'Detachable gland plate with glands at bottom for Cable Entry'. Panel bottom will have suitable clearance from floor level for cable entry through glands. All visible parts of Panel (meters, indication lamp, switches, MCCB etc.) shall have aluminum Name Plate. | |
| Automatic Fire Ball | Inside panel 1 no Automatic Fire Balls of spherical shape will be provided. Fire ball will have weight of extinguishing agent Dry Chemical Powder for Fighting A,B,C Class fires duly ISI marked UL listed not less than 0.5 kg but less than 1kg. Fire ball will be | |

| | | | | |
|---|---|---|---|---|
| | Thermally activated with activation temperature of 95 deg C. Location of installation shall be such that it should cover whole volume of the panel. | | | |
| Insulating Mat | Insulating Mat is to be provided as per PCEE Office's Description no. SER/ELEC/GS/ DESCRIPTION/INSULATING MATS/REV-0/JAN 2025 or latest to cover the whole length of panel. | | | |
| **2. Air Circuit Breaker (ACB):** 4 pole, Conforming to IS/IEC 60947-1&2 or latest. | | | | |
| Capacity | 1250A | 1000A | 800A | |
| Icu | 50 KA Rated Ultimate Short Circuit Breaking Capacity | | | |
| Protections required | Overload, Short-circuit, Instantaneous over current & earth fault. | | | |
| Rated Service breaking capacity (Ics) | Ics =100% Icu | | | |
| Icw | Rated short term withstand current for 1 sec Icw = 100% Icu | | | |
| Release and Tripping Mechanism | Microprocessor based release with true RMS based sensing. | | | |
| Rated Operational Voltage (Ue) | 690V or higher | | | |
| Rated Insulation Voltage (Ui) | 1000 V or higher | | | |
| Rated Impulse Voltage | 12 KV or higher | | | |
| **3. Moulded Case Circuit Breaker [MCCB]** 4 pole, Conforming to IS/IEC 60947-1&2 or latest. | | | | |
| Capacity | 630A | 400A | 250A | 100A |
| Breaking capacity | 50KA | 36KA | | |
| Rated Operational Voltage | 550V or higher, 50Hz, 3 Phase AC | | | |
| Rated insulation voltage | 800V AC or higher, capable to withstand 50 deg.C ambient temperature | | | |
| Impulse withstanding voltage capacity | 8KV or higher | | | |
| Additional feature | Adjustable thermal magnetic overload release & Fixed/Adjustable magnetic short circuit release. Indication of ON/OFF/Tripped with locking arrangement in OFF position to avoid accidental ON position | | | |
| **4. Digital Multifunction Meter (DFM):** 01 No. per Incoming & Outgoing ACB/MCCB. Three phase DFM shall have 4 or more Rows or Column LED/LCD display for display of Voltage, Current, Frequency, Power factor, kW, kVAR, kWh, kVAh, kVARh, ON-Hours, Phase Angle, and THD with Modbus RS 485 port having accuracy class of 0.5S, site adjustable CT secondary, Flush mounting, 128 samples/cycle, power supply 110V-230V AC/DC. Each line will display a group of different parameters. | | | | |
| **5. Miniature Circuit Breaker (MCB):** Rated Voltage 240V, 50Hz, 3 Phase AC, IS/IEC 60898-1:2015 or latest | | | | |
| Rated Current | 63A | 32A | 16A | 6A |
| No. of Poles | 02 | 02 | 02 | 01 |
| Breaking capacity | 10KA | 10KA | 10KA | 10KA |
| Instantaneous tripping current type | B- Type | | | |
| **6. Residual Current Circuit Breaker (RCCB)** | As per Description no. **SER/ELEC/GS/DESCRIPTION/RCCB/REV-0/DEC 2024 or latest**<br>**63 A is of 4 pole.**<br>**32A, 20A, 16A is of double pole.** | | | |
| **7. LED Indicator Lamp:** 1 set (R.Y.B) & 1 set (ON, OFF, TRIP) per ACB & MCCB. | | | | |
| **8. Current Transformer (CT):** Cast-resin type, Class-E insulation of Suitable Ratio: 3 nos. per Multifunction meter. | | | | |

**दक्षिण पूर्व रेलवे / South Eastern Railway**

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(Office of the Principal Chief Electrical Engineer, Garden Reach, Kolkata-700043)

संख्या /No: eFile Computer No: 255925 दिनांक:/Date: As signed.

**Sr.DEE/G/KGP, CKP, RNC, SRC, ADA, Dy.CEE/WS/KGP, ADEE/G/GRC**
**CEE/Con/GRC, ED/Electrical/RVNL, GM/Electrical/IRCON**

विषय/ **Sub:** Descriptions for Insulating Mats for Electrical purposes

The Description for Insulating Mats as approved by CEGE is being issued herewith as follows under Description no. **SER/ELEC/GS/DESCRIPTION/INSULATING MATS/REV-0/JAN 2025.**

| SN | Uses Voltage | Unit | Description |
|---|---|---|---|
| 1 | Up to 11 KV | Length in Meter | Insulating Mat for Electrical purpose of Width 1 Meter., thickness 2.5 mm ±10%, Class B type, Mechanical Properties of Mats suitable for ambient temperature of -10 to 55 degree C, Category III (Mats resistant to acids, alkali and oil and low temperature), Minimum Die-electric Strength of 45 KV ac (rms), should Conform to IS 15652: 2006 with Amendment No. 1 & 2 or latest and ISI marked. The Insulating Mat shall be packed in rolls as per clause 10 of IS.<br><br>Insulating Mat should be got type tested from NABL accredited laboratory.<br>Type Test certificate, Routine Test Certificate shall be attached with the supply.<br>To be supplied by manufacturer or authorized dealer of the manufacturer. |
| 2 | 33 KV | Length in Meter | Insulating Mat for Electrical purpose of Width 1 Meter., thickness 3.0 mm ±10%, Class C type, Mechanical Properties of Mats suitable for ambient temperature of -10 to 55 degree C, Category III (Mats resistant to acids, alkali and oil and low temperature), Minimum Die-electric Strength of 65 KV ac (rms), should Conform to IS 15652: 2006 with Amendment No. 1 & 2 or latest and ISI marked. The Insulating Mat shall be packed in rolls as per clause 10 of IS.<br><br>Insulating Mat should be got type tested from NABL accredited laboratory.<br>Type Test certificate, Routine Test Certificate shall be attached with the supply.<br>To be supplied by manufacturer or authorized dealer of the manufacturer. |

**Note:**
1. Consignee to specify length of individual rolls in a multiple of 5 meter, up to 50 meters. However, for specific needs, lengths of 1 meter, 2 meters, or 3 meters may also be specified.
2. The roll can be cut to sizes as per the individual requirements in substation etc

Any changes/improvement in the above description in the wisdom of the Divisions shall be advised to this Office for changes in the description in future.

Encl. As above.

Digitally Signed by Praveen Meena
Date: 09-01-2025 14:23:40
Reason: Approved

Dy. Chief Elect. Services Engineer
For Principal Chief Electrical Engineer

Copy to Secy. to PCEE for kind information to PCEE please.