

I/57602/2025

Description No. SER/ELEC/GS/DESCRIPTION/LT PANEL/1/REV-2/JUNE 2025

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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.

Chief Electrical General Engineer

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

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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. 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. 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	

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	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. <u>SER/ELEC/GS/DESCRIPTION/RCCB/REV-0/DEC 2024 or latest</u> 63 A is of 4 pole. 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.				