

CORRIGENDUM – I I

Open Tender NIT no. TPCODL / P&S / 1000001509/ FY 24-25

Rate Contract for Supply & Supervision of O/D, I/D Prewired Metering panel

Bid submission date Extension for the above Tender as Annexure-I &

Updated/Revised specification for OD , ID Prewired metering panel attached in Annexure-II.

Annexure-I

<u>Calendar Event: (existing)</u>	<u>Calendar Event: (revised)</u>
Last date and time of receipt of Bid	Last date and time of receipt of Bid
18.12.2024 up to 17:00 Hours	24.12.2024 up to 17:00 Hours

Contracts Office : 1st Floor, Anuj Building, Plot No. 29, Satya Nagar,
Bhubaneswar – 751007.

Corporate Office : TP **CENTRAL** ODISHA DISTRIBUTION LIMITED ,
(A Joint Venture of Tata Power and Government of Odisha)

Registered Office/Corporate Office: Power House Square, Unit-8, Bhubaneswar, 751012, Tel: 0674-2541575 Web:
www.tpcentralodisha.com, E-mail: tpcodl@tpcentralodisha.com ,CIN: U40109OR2020 PLC032901

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 1 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

1. **INTRODUCTION:**

The Technical specification covers the complete design, detailed engineering, manufacture, supply, inspection & testing at Bidder's work, packing, transportation, loading and unloading, delivery to site.

All equipment, system and services covered under this specification shall comply with all current applicable statutory regulations and safety codes in the locality where the equipment is proposed to be installed. The equipment and systems shall also conform to the latest version of applicable codes, standards and regulatory norms on the date of offer made by the Bidder unless otherwise indicated. Nothing in this specification shall be construed to relieve the Bidder of this responsibility.

2. **SYSTEM DESCRIPTION AND SCOPE:**

2.1. This specification covers complete design, Engineering, manufacture, Factory acceptance test (FAT), transportation, supply, inspection of prewired metering panels.

2.2. SMART meters shall be HPL make HST52 model number meeting specification requirement given in Annexure -1

Smart meter supply will be in TPCODL Scope, Only Provision for meter fixing inside Panel is to be provided.

Preferred makes of components inside Metering Panels:

S.No	Component	Make
1.	Thermostat and space heater	APT / Girish
2.	Disconnecting links	Elmex make KLTD4 / Connectwell make CDBT4U
3.	TTB of 3P4W	DAV / IMP make and 4SB model

2.3. **General Requirement:**

Bidder must agree for handing over, to Owner, all project related drawings in AutoCAD format only. The pdf versions of above drawings shall also be submitted for formal approval process. Acceptance (without any deviations) of minimum quality requirements defined in SQP & technical specifications.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 2 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

1	Maximum ambient temperature	55 deg C
2	Max. Daily average ambient temp	45 deg C
3	Min Ambient Temperature	0 deg C
4	Maximum Humidity	95%
5	Average Annual Rainfall	150cm
6	Average No. of rainy days per annum	120
7	Altitude above MSL not exceeding	1000m
8	Wind Pressure	300 Km/hr
9	Earthquakes of an intensity in horizontal direction	Equivalent acceleration of 0.3g
10	Earthquakes of an intensity in vertical direction	Equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

TPCODL service area has **heavy saline conditions along the coast and High cyclonic Intensity winds with speed up to 300 Km ph**. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

4. CODES AND STANDARDS:

The design, manufacture and performance of the Metering Panels shall comply with all the requirements of the latest editions of international codes and standards applicable. Given below are the acceptable code and standards. The Bidder shall take Owners approval for use of other codes & standards.

S. No.	Standard No.	Standard Title
1.	State Electricity regulation/Metering guidelines	As applicable in respective states.
2.	IEC 62052-11	Electricity metering equipment (AC) – General requirements, tests and test conditions- Part 11: Metering equipment.
3.	IEC 60529	Standard for Ingress Protection for Prewired panels.

5. DESIGN REQUIREMENT:

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 3 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

Metering panels shall be suitably equipped with following requirements

- 5.1. Panel enclosure shall comply to IP55 with Top Canopy for outdoor installation. Type test report for the same shall be submitted by the bidder with the bid itself which shall be within 5 years from bid submission date.
- 5.2. The panel shall be of the GI with Painted enclosed Outdoor, floor mounted, Simplex type (W = 800 mm, D = 600 mm, H = 2315 mm) with single glass door for front. All the devices shall be panel mounted inside the panel. All equipment mounted inside the panels shall be completely wired to the terminal blocks ready for external connection.
- 5.3. Panel sheet thickness shall be maintained above 2 mm for non-load bearing members and the load bearing sheet shall be more than 3 mm including base frame, gland plate and blanking plate. The Panels shall be provided with anti-vibration pad.
- 5.4. Enclosure panel shall be powder coated.
- 5.5. Each panel shall be prewired for installation of 6 nos Smart meters irrespective of number of meters requirement for particular project. Complete supply and wiring of CT, PT, AC, TTB's etc. inside each metering panel shall be for 6 nos of meters.
- 5.6. For Smart meter wiring, Set of wires of proper sizes with ferruling to be wired & terminated at TTB side and for Smart meter side all wires from TTB to be tied with PVC Cable Ties.
- 5.7. Cable entries shall be from bottom. Suitable removable cable gland plate shall be provided on the cabinet for this purpose. Necessary number of cable glands shall be supplied/fitted onto this gland plate. Cable glands shall be screw-on type and made of brass.
- 5.8. Bottom and gland plate details:
Bottom plate with two opening size 275mm x 550mm Two gland plates of size 315mm x 590mm.
- 5.9. The metering panel shall be provided with power socket, toughened glass inspection window and provided with labels on the front and rear indicating the panel designation.
- 5.10. The panel shall be provided with cable entry facilities and removable gland plates at required locations. The wiring shall be secured in the cable trays and troughs with covers. All TBs shall have covers including TBs with disconnecting type links.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 4 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

- 5.11. Round lugs to be used for CT, PT & AC wiring.
- 5.12. Metering panel wiring shall be as per owner's practices. Wiring shall be carried out with multi- stranded, Copper, FRLS, 1100V grade PVC having oxygen index 29 and temp. index of 250 Deg. Wiring inside the panel shall be kept in plastic trays.
- 5.13. Following sizes of wires shall be used:

CT wiring	2.5 sqmm	R/Y/B/Black
PT wiring	2.5 sqmm	R/Y/B/Black
1-ph AC wiring	1.5 sqmm	R/Black
Earthing	2.5 sqmm	Green

- 5.14. All TBs shall be disconnecting type of Elmex / Connectwell make KLTD4 / CBTD4U type.
- 5.15. TB grouping for each meters shall be provided.
- 5.16. All panel internal wires shall be connected at top of the TB. The bottom of the TB shall be left for field wiring. Enough depth and width of vertical and horizontal cable trays shall be provided considering bunch of external cable entry into panel. All wires terminated on TBs shall be with sleeved ring type or 'O' type crimped lugs only.
- 5.17. Test Terminal Block (TTB) of DAV / IMP make and of model 4SB, shall be used to provide testing facility even in service condition.
- 5.18. Separate grounding Link shall be provided.
- 5.19. Panel sealing arrangement shall be provided.
- 5.20. Bunching of wires at meters shall be designed in such a way that meter terminal block cover can be fixed properly.
- 5.21. Pad locking arrangement shall be provided on door for long term durability.
- 5.22. All metallic parts shall be properly earthed to the earth busbar.
- 5.23. Earthing busbar (25 x 3 mm) and earthing bolts shall be provided. All the earth connections to earth busbar shall be nut bolt type with washer. Screw type connection is not acceptable.
- 5.24. Strip type space heaters of adequate capacity shall be provided for each panel. Heaters shall be complete with rotary type Auto ON-OFF thermal switch, a single pole MCB with overload and short circuit protection, link on the neutral and a thermostat to cut off the heaters at 45 deg
C. The space heaters shall be covered with protective mesh. The panels shall have 240V, single phase, 50 Hz, 8 Watt LED light fixtures for interior illumination controlled by ON/OFF switches and 240V, 1 phase, 3 pin receptacles.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 5 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

- 5.25. Panel shall be designed in such a way that all component/ equipment's operate satisfactorily without exceeding their respective maximum permissible temperature rises under temperature conditions prevailing within the cubicles.
- 5.26. Lifting hook, danger sticker, name plate with Order details, wiring plan pocket shall be provided.
- 5.27. Test Terminal Block (TTB) shall be of 3 phase 4 wire and shall have screw type connections at the back plate. Safe distance between studs is expected for better wiring with continuous rating at 50 degree Celsius.
- 5.28. For proper wiring connections, safe distance between Back Connection Screws (studs) is expected, approximate dimensions between Screws / studs used for CT connections is 17 mm and approximate dimensions between Screws / studs used for PT connections is 20 mm).
- 5.29. Back Connection Screws (studs) should be fix type i.e. Screw (studs) are first fixed in threaded holes provided on TTB and then removable Nuts and Washers are provided on these back connection Screws (studs).

6. LAYOUT REQUIREMENTS

The layout of the Metering panels shall be such that the wiring and terminal blocks are properly visible and all terminals and links are easily accessible. Proper wiring trufs and covers shall be provided. Lug crimping and tightness shall be proper. No protruding parts and pointed edges shall be eliminated after completion of wiring.

SAFETY REQUIREMENT

All equipment, system and services covered under this specification shall comply with all currently applicable statutory regulations and safety codes in the locality where the equipment is proposed to be installed. Double earthing arrangement to be provided.

7. OPERATIONAL AND MAINTENANCE REQUIREMENT

7.1. OPERATIONAL REQUIREMENT

The Operational requirements of the Metering System: The cutout of meters should be at such height that the readings are visible from ground level and meters should be easily accessible for data downloading.

7.2. MAINTENANCE REQUIREMENT

- Panel wiring should be done neatly with proper identification, tagging and labeling on

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 6 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

the terminals and wires, to make the maintenance / modifications hassle free.

- Panels shall be factory pre-wired for fast and reliable installation. Required accessories and components shall be pre-installed.
- Durable enclosures shall provide high tolerance for external force and protect it well.
- Metering panels shall be plug and play type high quality components like fuses, MCBs, disconnecting type Elmex make KLTD4 / Connectwell make CDBT4 type links and terminal blocks with round lug wires.
- All pre-wiring shall be clearly labelled with color-coded terminal blocks and grounding.
- CT TB to be installed such that after dropping the link it should be come downward.
- PT cable lug should be ring type.
- Ring type lug with insulated sleeve to be used in CT secondary terminal, lug should have small OD so that the gap between secondary terminal S1 and S2 should be enough to avoid secondary shorting.
- Bidder to ensure that, in the event of replacement of any meter shall not require the shutdown of other meters in the same panel.

8. **TECHNICAL PARAMETERS OF EQUIPMENT INCLUDING DATA SHEET**

As mentioned in design requirement point no 4.

DATA SHEET

Sr. No.	Description	Tata Power's specification/ Requirement	Bidder's qualification requirement
1	Smart Meter (Meter will be in TPCODL scope)	Only Provision for Meter fixing arrangement to be provided inside Panel. For Make and Model (HPL Make HST52 316mmX190mmX95mm (L X B X W)	
2	Type of panel (Simplex) with single glass door for front	Yes	
3	Sheet steel (GI sheet)	GI Sheet Enclosure With Power coated (RAL 7032)	
4	Locking and sealing arrangement required	Yes	
5	Thickness of sheet steel		
a	Base (mm)	HDG frame 3mm width and 75 x 50 mm size	

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 7 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

b	Side and tops (mm)	2 mm	
c	Front and rear (mm)	3 mm	
d	Base channel provided	Yes	
e	Anti-vibration pad provided	Yes	
6	Degree of protection provided	IP55 with Top Canopy	
7	Cable entry (Bottom/top)	Bottom	
8	Thickness of gland plate	3 mm	
9	Accessories provided (Yes/No)		
a	MCB for controlling 240 V AC of Panel	Yes	
b	Cubicle Space Heater with Thermostat	Yes. APT / Girish make	
c	Plug Point with ON-OFF switch	Yes	
d	LED Lightening Fixture with cover and ON-OFF Lighting switch	Yes	
e	Nameplates front and rear	Yes	
f	Acrylic labels for each equipment	Yes	
10	Overall dimension of each panel (L X D X W)	800 X 600 X 2315	
11	Earthing Bus Material & Size	Tinned Copper 150 sqmm (25x6 mm)	
12	Design ambient temperature	72deg C	
13	Terminal blocks		
a	Make & Model	Elmex make KLTD4 / Connectwell CBTD4U type	
b	Disconnecting type which falls with gravity	Yes	
c	Terminal numbering provided	Yes	

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 8 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

	(Yes/No)		
d	10% spare terminal provided in each panel	Yes	
e	Wiring / Terminal block voltage grade	1.1kV	
f	Test terminal block (TTB)	DAV / IMP make and 4SB model	
14	Internal panel wiring		
a	Multi-strand copper wires provided (Yes/No)	Yes	
b	Size & Colour of CT wiring	2.5 sqmm R/Y/B/Black phase wise	
c	Size & Colour of PT wiring	2.5 sqmm R/Y/B/Black phase wise	
d	Size & Colour of Earthing wiring	2.5 sqmm Green	
15	Provision for wiring and cutout for 6nos of Smart meters per panel	Yes	

9. **QUALITY REQUIREMENTS. INSPECTION. TESTING**

Bidder should comply with the standard quality plan and field quality plan as provided by TPCODL.

9.1 **Factory Acceptance Test:**

FAT shall include the following as per Quality & testing plan:

- 9.1.1 Dimensional checks as per approved GA
- 9.1.2 Bill of material verification.
- 9.1.3 Panel door locking arrangements.
- 9.1.4 Panel sealing arrangement
- 9.1.5 Functional tests including AC supply checks
- 9.1.6 Auxiliary circuit checks
- 9.1.7 Wiring continuity checks

9.2 **Routine Tests**

Routine tests shall be carried out on all components as per quality & test plan.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 9 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

9.3 Type Tests:

Ingress Protection Test at CPRI/ ERDA/ Govt. Owned NABL Lab. Type Test Validity shall be as per CEA guideline.

9.4 Site Test:

All commissioning tests shall be carried out on all components as per field quality & test plan.

9.5 PERFORMANCE REQUIREMENTS

TEST PROCEUDURE

Test Procedures (for FAT) shall be prepared by the vendor to test the specified functional and performance requirements of the system, 6 months prior to actual test for Owners approval.

10. PRE-DISPATCH INSPECTION:

Equipment shall be subjected to inspection by a duly authorized representative of the TPCODL. Inspection may be made at any stage of manufacture at the option of the purchaser and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. Supplier shall grant free access to the places of manufacture to TPCODL's representatives at all times when the work is in progress. Inspection by the TPCODL or it's authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL. Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL
- c) Invoice in duplicate
- d) Packing list
- e) Drawings & catalogue
- f) Guarantee / Warrantee card
- g) Other Documents applicable)

11. INSPECTION AFTER RECEIPT AT STORE:

The material received at TPCODL Store will be inspected for acceptance and shall be liable for rejection if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Project Engineering department.

12. GUARANTEE PERIOD:

The supplier shall give Guarantee for the satisfactory functioning of the material / equipment as per specification, for a minimum period of **48 months from date of commissioning or 60 months from the last date of receipt of material in good condition at departmental store for each consignment whichever is earlier**. The bidder shall be liable to undertake

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 10 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

the replacement or rectify defects at his own cost within mutually agreed timeframe. The bidder shall further be responsible for free replacement for another period of three years from the end of guarantee period for any “latent defect” if noticed and reported to purchaser.

13. PACKING:

Bidder shall ensure that all equipment covered by this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit.

14. TENDER SAMPLE:

Not Required

15. TRAINING:

Not Required

16. QUALITY CONTROL:

The bidder shall submit with the offer, assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and after finishing, bought out items and fully assembled component and equipment including drives. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's or its nominated representative engineer shall have free access to the manufacturer/sub-supplier's works to carry out inspections.

17. MINIMUM TESTING FACILITY:

The manufacturer should have all the testing facilities at their works to carry out all the routine & acceptance test including partial discharge test as mentioned below. List of plant & machinery and test equipment available at manufacturer's works should necessarily be submitted along with tender.

18. MANUFACTURING ACTIVITIES:

CAT-A/CAT-B approval is required for GTP/Drawing for manufacturing process.

19. SPARES, ACCESSORIES & TOOLS:

Not Applicable.

20. DRAWING & DOCUMENTS:

Following drawings and documents shall be prepared based on

TPCODL specifications and statutory requirements and shall be submitted with the bid:

- a) Completely filled in Technical Particulars
- b) Signed & Stamp of the Specification
- c) All Type Test Reports as per specifications
- d) Clause-wise compliance of the specification
- e) General description of the equipment and all components including brochures.
- f) General arrangement for Metering cubicle
- g) Foundation plan
- h) Bill of material
- i) Experience List and Performance Certificate

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Outdoor Type)		
Doc. No	ENG-ELC-118	Eff. Date: 13-12-2024	
Rev. No	00	Page 11 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

Bidder shall be submitted after issuance of order:

- a) Completely filled in Technical Particulars
- b) Signed & Stamp of the Specification
- c) Clause-wise compliance of the specifications
- d) Compliances during technical evaluations
- e) General arrangement for Metering cubicle
- f) Power flow diagram
- g) Foundation plan
- h) Bill of material

All the documents & drawings shall be in English language.

21. GENERAL TECHNICAL PARTICULAR:

Clause-wise compliance of the complete specification.

22. SCHEDULE OF DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. **Unless** specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

Sl. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above

Seal of the Company:

Signature

Designation

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 1 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

1. **INTRODUCTION:**

The Technical specification covers the complete design, detailed engineering, manufacture, supply, inspection & testing at Bidder's work, packing, transportation, loading and unloading, delivery to site.

All equipment, system and services covered under this specification shall comply with all current applicable statutory regulations and safety codes in the locality where the equipment is proposed to be installed. The equipment and systems shall also conform to the latest version of applicable codes, standards and regulatory norms on the date of offer made by the Bidder unless otherwise indicated. Nothing in this specification shall be construed to relieve the Bidder of this responsibility.

2. **SYSTEM DESCRIPTION AND SCOPE:**

2.1. This specification covers complete design, Engineering, manufacture, Factory acceptance test (FAT), transportation, supply, inspection of prewired metering panels.

2.2. SMART meters shall be HPL make HST52 model number meeting specification requirement given in Annexure -1

Smart meter supply will be in TPCODL Scope, Only Provision for meter fixing inside Panel is to be provided.

Preferred makes of components inside Metering Panels:

S.No	Component	Make
1.	Thermostat and space heater	APT / Girish
2.	Disconnecting links	Elmex make KLTD4 / Connectwell make CDBT4U
3.	TTB of 3P4W	DAV / IMP make and 4SB model

2.3. **General Requirement:**

Bidder must agree for handing over, to Owner, all project related drawings in AutoCAD format only. The pdf versions of above drawings shall also be submitted for formal approval process. Acceptance (without any deviations) of minimum quality requirements defined in SQP & technical specifications.

3. **CLIMATIC CONDITIONS OF THE INSTALLATION:**

1	Maximum ambient temperature	55 deg C
---	-----------------------------	----------

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 2 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

2	Max. Daily average ambient temp	45 deg C
3	Min Ambient Temperature	0 deg C
4	Maximum Humidity	95%
5	Average Annual Rainfall	150cm
6	Average No. of rainy days per annum	120
7	Altitude above MSL not exceeding	1000m
8	Wind Pressure	300 Km/hr
9	Earthquakes of an intensity in horizontal direction	Equivalent acceleration of 0.3g
10	Earthquakes of an intensity in vertical direction	Equivalent to seismic acceleration of 0.15g (g being acceleration due to gravity)

TPCODL service area has **heavy saline conditions along the coast and High cyclonic Intensity winds with speed up to 300 Km ph**. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

4. **CODES AND STANDARDS:**

The design, manufacture and performance of the Metering Panels shall comply with all the requirements of the latest editions of international codes and standards applicable. Given below are the acceptable code and standards. The Bidder shall take Owners approval for use of other codes & standards.

S. No.	Standard No.	Standard Title
1.	State Electricity regulation/Metering guidelines	As applicable in respective states.
2.	IEC 62052-11	Electricity metering equipment (AC) – General requirements, tests and test conditions- Part 11: Metering equipment.
3.	IEC 60529	Standard for Ingress Protection for Prewired panels.

5. **DESIGN REQUIREMENT:**

Metering panels shall be suitably equipped with following requirements

5.1. Panel enclosure shall comply with IP54 for indoor installation. Type test report for the same

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 3 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

shall be submitted by the bidder with the bid itself which shall be within 5 years from bid submission date.

- 5.2. The panel shall be of the CRCA with Painted enclosed Indoor, floor mounted, Simplex type (W = 800 mm, D = 600 mm, H = 2315 mm) with single glass door for front. All the devices shall be panel mounted inside the panel. All equipment mounted inside the panels shall be completely wired to the terminal blocks ready for external connection.
- 5.3. Panel sheet thickness shall be maintained above 2 mm for non-load bearing members and the load bearing sheet shall be more than 3 mm including base frame, gland plate and blanking plate. The Panels shall be provided with anti-vibration pad.
- 5.4. Enclosure panel shall be powder coated.
- 5.5. Each panel shall be prewired for installation of 6 nos Smart meters irrespective of number of meters requirement for particular project. Complete supply and wiring of CT, PT, AC, TTB's etc. inside each metering panel shall be for 6 nos of meters.
- 5.6. For Smart meter wiring, Set of wires of proper sizes with ferruling to be wired & terminated at TTB side and for Smart meter side all wires from TTB to be tied with PVC Cable Ties.
- 5.7. Cable entries shall be from bottom. Suitable removable cable gland plate shall be provided on the cabinet for this purpose. Necessary number of cable glands shall be supplied/fitted onto this gland plate. Cable glands shall be screw-on type and made of brass.
- 5.8. Bottom and gland plate details:
Bottom plate with two opening size 275mm x 550mm Two gland plates of size 315mm x 590mm.
- 5.9. The metering panel shall be provided with power socket, toughened glass inspection window and provided with labels on the front and rear indicating the panel designation.
- 5.10. The panel shall be provided with cable entry facilities and removable gland plates at required locations. The wiring shall be secured in the cable trays and troughs with covers. All TBs shall have covers including TBs with disconnecting type links.
- 5.11. Round lugs to be used for CT, PT & AC wiring.
- 5.12. Metering panel wiring shall be as per owner's practices. Wiring shall be carried out with multi- stranded, Copper, FRLS, 1100V grade PVC having oxygen index 29 and temp. index of 250 Deg. Wiring inside the panel shall be kept in plastic trays.
- 5.13. Following sizes of wires shall be used:

CT wiring	2.5 sqmm	R/Y/B/Black
-----------	----------	-------------

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 4 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

PT wiring	2.5 sqmm	R/Y/B/Black
1-ph AC wiring	1.5 sqmm	R/Black
Earthing	2.5 sqmm	Green

- 5.14. All TBs shall be disconnecting type of Elmex / Connectwell make KL TDM4 / CDBT4U type.
- 5.15. TB grouping for each meters shall be provided.
- 5.16. All panel internal wires shall be connected at top of the TB. The bottom of the TB shall be left for field wiring. Enough depth and width of vertical and horizontal cable trays shall be provided considering bunch of external cable entry into panel. All wires terminated on TBs shall be with sleeved ring type or 'O' type crimped lugs only.
- 5.17. Test Terminal Block (TTB) of DAV / IMP make and of model 4SB, shall be used to provide testing facility even in service condition.
- 5.18. Separate grounding Link shall be provided.
- 5.19. Panel sealing arrangement shall be provided.
- 5.20. Bunching of wires at meters shall be designed in such a way that meter terminal block cover can be fixed properly.
- 5.21. Pad locking arrangement shall be provided on door for long term durability.
- 5.22. All metallic parts shall be properly earthed to the earth busbar.
- 5.23. Earthing busbar (25 x 3 mm) and earthing bolts shall be provided. All the earth connections to earth busbar shall be nut bolt type with washer. Screw type connection is not acceptable.
- 5.24. Strip type space heaters of adequate capacity shall be provided for each panel. Heaters shall be complete with rotary type Auto ON-OFF thermal switch, a single pole MCB with overload and short circuit protection, link on the neutral and a thermostat to cut off the heaters at 45 deg
C. The space heaters shall be covered with protective mesh. The panels shall have 240V, single phase, 50 Hz, 8 Watt LED light fixtures for interior illumination controlled by ON/OFF switches and 240V, 1 phase, 3 pin receptacles.
- 5.25. Panel shall be designed in such a way that all component/ equipment's operate satisfactorily without exceeding their respective maximum permissible temperature rises under temperature conditions prevailing within the cubicles.
- 5.26. Lifting hook, danger sticker, name plate with Order details, wiring plan pocket shall be provided.
- 5.27. Test Terminal Block (TTB) shall be of 3 phase 4 wire and shall have screw type connections at the back plate. Safe distance between studs is expected for better wiring with continuous rating at 50 degree Celsius.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 5 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

- 5.28. For proper wiring connections, safe distance between Back Connection Screws (studs) is expected, approximate dimensions between Screws / studs used for CT connections is 17 mm and approximate dimensions between Screws / studs used for PT connections is 20 mm).
- 5.29. Back Connection Screws (studs) should be fix type i.e. Screw (studs) are first fixed in threaded holes provided on TTB and then removable Nuts and Washers are provided on these back connection Screws (studs).

6. LAYOUT REQUIREMENTS

The layout of the Metering panels shall be such that the wiring and terminal blocks are properly visible and all terminals and links are easily accessible. Proper wiring trufs and covers shall be provided. Lug crimping and tightness shall be proper. No protruding parts and pointed edges shall be eliminated after completion of wiring.

SAFETY REQUIREMENT

All equipment, system and services covered under this specification shall comply with all currently applicable statutory regulations and safety codes in the locality where the equipment is proposed to be installed. Double earthing arrangement to be provided.

7. OPERATIONAL AND MAINTENANCE REQUIREMENT

7.1. OPERATIONAL REQUIREMENT

The Operational requirements of the Metering System: The cutout of meters should be at such height that the readings are visible from ground level and meters should be easily accessible for data downloading.

7.2. MAINTENANCE REQUIREMENT

- Panel wiring should be done neatly with proper identification, tagging and labeling on the terminals and wires, to make the maintenance / modifications hassle free.
- Panels shall be factory pre-wired for fast and reliable installation. Required accessories and components shall be pre-installed.
- Durable enclosures shall provide high tolerance for external force and protect it well.
- Metering panels shall be plug and play type high quality components like fuses, MCBs, disconnecting type Elmex make KLTD4 / Connectwell make CDBT4 type links and terminal blocks with round lug wires.
- All pre-wiring shall be clearly labelled with color-coded terminal blocks and grounding.
- CT TB to be installed such that after dropping the link it should be come downward.
- PT cable lug should be ring type.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 6 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

- Ring type lug with insulated sleeve to be used in CT secondary terminal, lug should have small OD so that the gap between secondary terminal S1 and S2 should be enough to avoid secondary shorting.
- Bidder to ensure that, in the event of replacement of any meter shall not require the shutdown of other meters in the same panel.

8. TECHNICAL PARAMETERS OF EQUIPMENT INCLUDING DATA SHEET

As mentioned in design requirement point no 4.

DATA SHEET

Sr. No.	Description	Tata Power's specification/ Requirement	Bidder's qualification requirement
1	Smart Meter (Meter will be in TPCODL scope)	Only Provision for Meter fixing arrangement to be provided inside Panel. For Make and Model (HPL Make HST52 316mmX190mmX95mm (L X B X W)	
2	Type of panel (Simplex) with single glass door for front	Yes	
3	Sheet steel (Cold Rolled)	CRCA With Power coated (RAL 7032)	
4	Locking and sealing arrangement required	Yes	
5	Thickness of sheet steel		
a	Base (mm)	HDG frame 3mm width and 75 x 50 mm size	
b	Side and tops (mm)	2 mm	
c	Front and rear (mm)	3 mm	
d	Base channel provided	Yes	
e	Anti-vibration pad provided	Yes	
6	Degree of protection provided	IP54	
7	Cable entry (Bottom/top)	Bottom	

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 7 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

8 .	Thickness of gland plate	3 mm	
9 .	Accessories provided (Yes/No)		
a .	MCB for controlling 240 V AC of Panel	Yes	
b .	Cubicle Space Heater with Thermostat	Yes. APT / Girish make	
c .	Plug Point with ON-OFF switch	Yes	
d .	LED Lightening Fixture with cover and ON-OFF Lighting switch	Yes	
e .	Nameplates front and rear	Yes	
f .	Acrylic labels for each equipment	Yes	
1 0 .	Overall dimension of each panel (L X D X W)	800 X 600 X 2315	
1 1 .	Earthing Bus Material & Size	Tinned Copper 150 sqmm (25x6 mm)	
1 2 .	Design ambient temperature	72deg C	
1 3 .	Terminal blocks		
a .	Make & Model	Elmex make KLTD4 / Connectwell CBTD4U type	
b .	Disconnecting type which falls with gravity	Yes	
c .	Terminal numbering provided (Yes/No)	Yes	
d .	10% spare terminal provided in each panel	Yes	
e .	Wiring / Terminal block voltage grade	1.1kV	
f .	Test terminal block (TTB)	DAV / IMP make and 4SB model	
1 4 .	Internal panel wiring		
a .	Multi-strand copper wires provided (Yes/No)	Yes	

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 8 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

b	Size & Colour of CT wiring	2.5 sqmm R/Y/B/Black phase wise	
c	Size & Colour of PT wiring	2.5 sqmm R/Y/B/Black phase wise	
d	Size & Colour of Earthing wiring	2.5 sqmm Green	
15	Provision for wiring and cutout for 6nos of Smart meters per panel	Yes	

9. QUALITY REQUIREMENTS, INSPECTION, TESTING

Bidder should comply with the standard quality plan and field quality plan as provided by TPCODL.

9.1 Factory Acceptance Test:

FAT shall include the following as per Quality & testing plan:

- 9.1.1 Dimensional checks as per approved GA
- 9.1.2 Bill of material verification.
- 9.1.3 Panel door locking arrangements.
- 9.1.4 Panel sealing arrangement
- 9.1.5 Functional tests including AC supply checks
- 9.1.6 Auxiliary circuit checks
- 9.1.7 Wiring continuity checks

9.2 Routine Tests

Routine tests shall be carried out on all components as per quality & test plan.

9.3 Type Tests:

Ingress Protection Test at CPRI/ ERDA/ Govt. Owned NABL Lab. Type Test Validity shall be as per CEA guideline.

9.4 Site Test:

All commissioning tests shall be carried out on all components as per field quality & test plan.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 9 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

10. PRE-DISPATCH INSPECTION:

Equipment shall be subjected to inspection by a duly authorized representative of the TPCODL. Inspection may be made at any stage of manufacture at the option of the purchaser and the equipment if found unsatisfactory as to workmanship or material is liable to rejection. Supplier shall grant free access to the places of manufacture to TPCODL's representatives at all times when the work is in progress. Inspection by the TPCODL or it's authorized representatives shall not relieve the supplier of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL. Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL
- c) Invoice in duplicate
- d) Packing list
- e) Drawings & catalogue
- f) Guarantee / Warrantee card
- g) Other Documents applicable)

11. INSPECTION AFTER RECEIPT AT STORE:

The material received at TPCODL Store will be inspected for acceptance and shall be liable for rejection if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Project Engineering department.

12. GUARANTEE PERIOD:

The supplier shall give Guarantee for the satisfactory functioning of the material / equipment as per specification, for a minimum period of **48 months from date of commissioning or 60 months from the last date of receipt of material in good condition at departmental store for each consignment whichever is earlier**. The bidder shall be liable to undertake the replacement or rectify defects at his own cost within mutually agreed timeframe. The bidder shall further be responsible for free replacement for another period of three years from the end of guarantee period for any "latent defect" if noticed and reported to purchaser.

13. PACKING:

Bidder shall ensure that all equipment covered by this specification shall be prepared for rail/road transport (local equipment) and be packed in such a manner as to protect it from damage in transit.

14. TENDER SAMPLE:

Not Required

15. TRAINING:

Not Required

16. QUALITY CONTROL:

The bidder shall submit with the offer, assurance plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and after finishing, bought out items and fully assembled

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 10 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

component and equipment including drives. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's or its nominated representative engineer shall have free access to the manufacturer/sub-supplier's works to carry out inspections.

17. MINIMUM TESTING FACILITY:

The manufacturer should have all the testing facilities at their works to carry out all the routine & acceptance test including partial discharge test as mentioned below. List of plant & machinery and test equipment available at manufacturer's works should necessarily be submitted along with tender.

18. MANUFACTURING ACTIVITIES:

CAT-A/CAT-B approval is required for GTP/Drawing for manufacturing process.

19. SPARES, ACCESSORIES & TOOLS:

Not Applicable.

20. DRAWING & DOCUMENTS:

Following drawings and documents shall be prepared based on

TPCODL specifications and statutory requirements and shall be submitted with the bid:

- a) Completely filled in Technical Particulars
- b) Signed & Stamp of the Specification
- c) All Type Test Reports as per specifications
- d) Clause-wise compliance of the specification
- e) General description of the equipment and all components including brochures.
- f) General arrangement for Metering cubicle
- g) Foundation plan
- h) Bill of material
- i) Experience List and Performance Certificate

Bidder shall be submitted after issuance of order:

- a) Completely filled in Technical Particulars
- b) Signed & Stamp of the Specification
- c) Clause-wise compliance of the specifications
- d) Compliances during technical evaluations
- e) General arrangement for Metering cubicle
- f) Power flow diagram
- g) Foundation plan
- h) Bill of material

All the documents & drawings shall be in English language.

21. GENERAL TECHNICAL PARTICULAR:

Clause-wise compliance of the complete specification.

TPCODL TP CENTRAL ODISHA DISTRIBUTION LIMITED	TATA POWER CENTRAL ODISHA DISTRIBUTION LIMITED, ODISHA		
	TECHNICAL SPECIFICATION		
Doc. Title	Technical Specification For Pre-wired Metering Panels (Indoor)		
Doc. No	ENG-ELC-119	Eff. Date: 13-12-2024	
Rev. No	00	Page 11 of 11	
Prepared by: Kapil Baweja & Nirojanalini Garnaik	Reviewed By: Amaresh Mishra	Reviewed By: Khajan Ch. Bhardwaj	Released By : Pourush Garg

22. SCHEDULE OF DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. **Unless** specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications:

SI. No.	Clause No.	Details of deviation with justifications

We confirm that there are no deviations apart from those detailed above

Seal of the Company:

Signature

Designation