Appendix 5

Annexure E

1.0 SCOPE OF SUPPLY

The specification covers following for "Box with LTCT for LTCT operated Meter".

A. The design, manufacture, testing at manufacturer's works before dispatch, packing, delivery.
B. Necessary hardware to install the box and LTCT.
C. Submission of all necessary documents/ calibration certificates/ operation and installation manuals as required in this specification.

2.0. STANDARDS & CODES

Materials, equipment and methods used in the manufacturing of above mentioned equipment shall conform to the latest edition of following-

S.No.	Title	Indian Standard
2.1	IS 13411	Glass reinforced polyester dough moulding compounds
2.2	IS 13410	Glass reinforced polyester sheet Moulding compounds (SMC) - Specification
2.3	Latest Edition	Indian Electricity Act, 2003- Latest Amendments.
2.4	----	Latest Amendments Of CBIP Publication 325
2.5	Latest Edition	Indian Electricity Act 1910
2.6	----	CEA Metering Regulation Latest Amendments
2.7	----	CEA Regulation, Measures relating to Safety and Electric Supply- Latest Amendments
2.8	IS 14772	Enclosures for Electrical Installations
2.9	IS 15707	Testing, Evaluation, Installation And Maintenance Of Ac Electricity Meters — Code Of Practice
2.10	IS 8623 Pt-1	Specification for Low Voltage switch gear and control gear assemblies
2.11	IS 14772	General requirements for enclose for accessories for household and similar
2.12	IS 4249	Classification And Methods Of Tests For Non-Ignitable And Self-Extinguishing Properties Of Solid Electrical Insulating Materials
2.13	IS 4249	Classification and methods of test for non-ignitable and self extinguishing properties of solid electrical insulating materials
2.14	IS 8623	Specification for low voltage switch gear and control gear assemblies
2.15	IS 11731	Method of test for determination of flammability of solid electrical insulating material when exposed to an igniting source
2.16	IEC 62052-11	General requirements, tests and tests condition for metering equipment
2.17	IEC 61000-4-2	Electromagnetic compatibility

3.0. SERVICE CONDITIONS

Equipment to be supplied against this specification shall be suitable for satisfactory operation under the following conditions: -

S No.	ENVIRONMENTAL CONDITION	REQUIREMENT
3.1	Ambient air temperature	Highest 50 °C Average 40 °C
3.2	Minimum ambient air temperature	0 °C
3.3	Relative Humidity	100%
3.4	Operational Temperature range	0 °C to + 50 °C
3.5	Storage temperature Range	0 °C to + 70 °C

4.0. CONSTRUCTION REQUIREMENT

4.1	Type of Box	**a. Type1:** Upto LTCT of ratio 60/5A, 100/5A, 200/5 A, Material SMC **b. Type 2:** With LTCT of ratio 300/5A 400/5 A, Material SMC. **c.** Choice of type 1 and type 2 shall be provided in purchaser's requisition form with required ratio of LTCT.
4.2	Material	'SMC Box - ROHS Complaint & Halogen Free Certification' cab ne reviewed considering its environmental impact
4.2.1	Type1	a. SMC with grade S3S having Improved chemical, thermal, electrical, mechanical, low shrink and flame retardant properties as per IS 13410 b. SMC Top cover fitted with non – openable transparent polycarbonate window c. Base of enclosure body to have GI Mounting back Plate for added mechanical strength d. SMC of flammability grade V0 for both topcover and base. e. Top cover shall be SMC with transparent window and base shall be ofgrey shade. f. Minimum thickness of sheet shall for both top cover and base shall be 3.0 mm. g. Proper stiffeners shall be provided in both base and top cover.
4.2.2	Type 2:	a. SMC with grade S_3S having Improved chemical, thermal, electrical, mechanical, low shrink and flame retardant properties as per IS 13410 b. SMC Top cover fitted with non – openable transparent polycarbonate window

		c. SMC of flammability grade V0 for both top cover and base. d. Top cover shall be SMC with transparent window and base shall be of grey shade. e. Minimum thickness of sheet shall for both top cover and base shall be 3.0 mm. f. Proper stiffeners shall be provided in both base and top cover.
4.3	Method of closing box	a. Type 1: Top cover shall be fixed by sealable bolts on base of box. b. Type 2: Non detachable hinge type top cover with sealable U latches on base of box. U latches shall be galvanized.
4.4	Ingress Protection	IP55 for outdoor use.
4.5	Modem mounting	a. Metallic mounting strip shall be provided to mount modem and its antenna inside the same compartment of box. b. Arrangement shall be provided to power up modem through incoming side of primary busbar using fork type terminals.
4.6	LTCT	a. 3 Phase Cast resin low tension current transformer (LTCT) with bar type primary. b. LTCT shall be mounted inside box with suitable mounting arrangement. c. Secondary terminals of LTCT shall be non removable stud type suitable for 3 Phase energy meter.
4.7	Earth Bus bar	a. Suitable for 8 KA for 1 sec. b. All the metallic hardware/ parts except bus bar and secondary terminals shall be connected to earth bus bar using bolted connection or suitable jumpers. c. 2 no's earthing bolt of size M16 shall be provided to connect armour of incoming cable and consumer side earthing.
4.8	Gland plate	Min 2 mm
4.9	Incoming	a. Type1: Double compression PVC cable gland suitable for cable type A2XFY of size 150 Sqmm b. Type2: Double compression PVC cable gland suitable for cable type A2XFY of size up to 400Sqmm
4.10	Outgoing	a. Outgoing of primary bus bar shall be protruded outside the box. b. Suitable sealing shall be provided at exit of bus bars for outdoor use.
4.11	Box mounting arrangement	At least 03 numbers Galvanized Channels. Required hardware shall be provided.

4.12	Drawing	As per meter dimension
4.13	Bus Bar	Bus bar shall be tinned copper. Size of bus bar shall be suitable according to the CT ratio.
4.14	Total weight of the box with accessories	To be specified for each type of box

5.0. LOW TENSION CURRENT TRANSFORMER

5.1	Type	3 Phase and Neutral CTs in a single mould of cast resin.
5.2	CT Ratio	Type 1: 60/5 100/5 and 200/5 A Type 2: 300/5 and 400/5 A
5.3	Accuracy Class	0.5s
5.4	Instrument Security factor (ISF)	<=10
5.5	Burden	5VA
5.6	Insulation Level	660V/ 3KV
5.7	Power Frequency Withstand voltage	415 V/660 V
5.8	Short Time Rating	20 Times of rated primary current
5.9	Class of insulation	E
5.10	Max Temperature Rise	As per IS
5.11	Marking of terminals	a. Primary winding shall be designated as P1 and P2 to identify incoming and outgoing respectively. b. Secondary winding shall be marked as SR1, SR2, SY1, SY2, SB1, SB2 and SN1, SN2 for CT connections and R, Y, B for voltage connections. These marking details shall be engraved on cast resin at suitable place.
5.12	Primary Winding Type	Bar
5.13	Material of Conductor	Aluminum
5.14	Size of Conductor	Bidder need to specify. Calculation need to be provided in support of these this size.
5.15	Secondary winding	Wound
5.16	Material of conductor	Copper.
5.17	Size of conductor	Bidder need to specify. Calculation need to be provided in support of these this size.
5.18	Secondary terminals	Non removable stud type of material brass.

6.0. NAME PLATES

6.1	Box	a. Following details shall be provided on name plate of box i. Name of Purchaser's and Place ii. Name of Buyer/ Logo/ Trademark and Place iii. Serial no of equipment iv. PO no and Date v. Serial no of LTCT. vi. Ratio of LTCT b. Type 1: Name plate shall be laser printed on top cover of Box. c. Type 2: Name plate shall be screen printed on top cover of box. d. Danger Plate,
6.2	LTCT	a. Following information shall be provided on non-removable name plate of LTCT i. Serial no of LTCT ii. Ratio iii. Accuracy Class iv. Burden v. ISF vi. Insulation level vii. Frequency viii. STC

7.0. QUALITY ASSURANCE, INSPECTION & TESTING

7.1	Vendor's Quality Plan (QP)	To be submitted for Purchaser's approval.
7.2	Sampling Method	Sampling Method for quality checks shall be as per relevant IS/ IEC/ CBIP guidelines and Purchaser's prior approval shall be taken for the same.
7.3	Inspection Hold-Points	To be mutually identified, agreed and approved in Quality Plan.
7.4	Type Tests	a. Box-IS14772along with following additional tests: o Visual examination- As Per GTP/ approved drawing o Verification of dimensions & Marking -As Per GTP/ approved drawing o Test for Self Extinguishing Properties- IS:4249 Clause 3.5.1 o Flammability Test -IS:11731 Part 2 o U V Resistance Test -Din 53387 o Verification of Dielectric Properties -IS8623 b. IS 13410 with latest amendments fro SMC Box Enclosure c. Type test conducted from CPRI/ ERDA/ CIPET for required tests will be treated as valid.

		d. Type test certificate should be submitted along with offer for scrutiny. e. Any other component supplied in addition to box shall also be type tested as per IS /IEC if applicable. f. Type test report shall not be older than 5 years from the date of tender submission. g. Certificate wrt 'ROHS complaint' & 'Halogen Free material' from reputed third party lab h. LTCT- IS16227
7.5	Routine tests	a. Box- IS 14772 b. LTCT- IS 16227 Raw material certificates and Routine test certificates in accordance with relevant IS, shall be submitted during the inspection of lot.
7.6	Acceptance Tests	a. Box- IS 14772 b. LTCT- IS 16227 c. Purchaser reserves the right to formulate any other test method to verify guaranteed parameters of equipment.
7.7	Inspection	a. Purchaser reserves the right to inspect /witness all test at Seller's works at any time, prior to dispatch, to verify compliance with the specification/ standards. b. Manufacturer should have all the facilities/ equipment's to conduct all the acceptance tests. All the testing equipment should be calibrated. c. In-process and / or final inspection call intimation shall be given at least 15 days in advance to the purchaser.
7.8	Flammability Test	Flammability Test shall be carried out as per IS 11731 part 2 on sample randomly selected from BSES lot offered for inspection (01 no sample of the PO quantity) without any price implication to BSES from CPRI, ERDA or CIPET.

8.0. PACKING, SHIPPING, HANDLING & SITE SUPPORT

8.1	Packing Protection	The packing shall be fit to withstand rough handling during transit and storage at destination. The material should be properly protected against corrosion, dampness & damage.
8.2	Packing Identification Label	On each packing case, following details are required:
8.2.1	Individual serial number	

8.2.2	Purchaser's name	
8.2.3	PO number (along with SAP item code, if any) & date	
8.2.4	Equipment Tag no. (if any)	
8.2.5	Destination	
8.2.6	Manufacturer / Supplier's name	
8.2.7	Address of Manufacturer / Supplier / it's agent	
8.2.8	Description	
8.2.9	Country of origin	
8.2.10	Month & year of Manufacturing	
8.2.11	Case measurements	
8.2.12	Gross and net weight	
8.2.13	All necessary slinging and stacking instructions	
8.3	Shipping	The seller shall be responsible for all transit damage due to improper packing.
8.4	Handling and Storage	Manufacturer instruction shall be followed.
8.5	Detail handling & storage instruction sheet / manual to be furnished before commencement of supply	
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9.0. DEVIATIONS

9.1	Deviations	a. Deviations from this specification if any shall be given in writing with reference to clause no. and details of the alternate offer. b. In the absence of any list of deviations from the Seller, it will be assumed by the Buyer that the Seller complies with the Specification fully.

10.0. DRAWING SUBMISSION

Drawing submission shall be as per the matrix given below. All documents/ drawing shall be provided on A4 sheet in box file with separators for each section. Language of the documents shall be English only. Deficient/ improper document/ drawing submission may liable for rejection

SL	Detail of Document	Bid	Approval	Pre Dispatch
1	Name, mobile number and email id of authorized contact of bidder.	Required	Required	
2	Guaranteed Technical particulars (GTP)-Table 1	Required	Required	
3	Deviation Sheet, if any	Required	Required	
4	GA / cross sectional drawing showing all the views / sections	Required	Required	
5	List of accessories.	Required	Required	
6	01 no sample of offered type	Required	Required	
7	Manufacturer's quality assurance plan and certification for quality standards	Required	Required	

8	Type Test reports of offered model/ type/ rating	Required	Required	
9	Complete product catalogue and user manual.	Required	Required	Required
10	Supply list of offered/higher class CT/ PT analyzers to Power distribution utility/ Government organizations in India.	Required		
11	Purchase Orders, dispatch instructions, Goods receipt note etc. to prove supply of item against a particular contract.	Required		
12	Performance Certificate from other Power Utilities / other Government organizations where the item was supplied earlier within last Three Years.	Required		
13	Operation and maintenance Instruction as well as trouble shooting charts/ manuals		Required	Required
14	Inspection and test reports, carried out in manufacturer's works			Required
15	Routine Test certificates			Required
16	Calibration Certificate			Required

Table 1 : FORMAT OF GTP

Bidder shall furnish the GTP format with all details against each clause of this specification.
Bidder shall not change the format of GTP or clause description.
Bidder to submit duly filled GTP in hard copy format with company seal.

Clause No.	Clause Description	Manufacturer's Reply
1		
2		

Bidder / Vendor seal / signature ----------