

**TPCODL**

TP Central Odisha Distribution Limited

**TPNODL**

TP Northern Odisha Distribution Limited

**TPSODL**

TP Southern Odisha Distribution Limited

**TPWODL**

TP Western Odisha Distribution Limited

**CENTRALIZED CONTRACTS GROUP****NIT No.: TPCODL/CCG/23-24/100000587****Corrigendum- I****NIT No. : TPCODL / CCG / 2023-24 / 100000587****Rate Contract - Supply of Single Phase BLE Meter (10-60 Amp) with Boxes for  
Tata Power Odisha Discoms****Dated 04<sup>th</sup> April 2024****Following changes in Calendar of Events in page no 6 of tender document is made;  
1.3 Revised Calendar of Events:**

(e)	Due date and time of receipt of Bids	<b>10.04.2024 [15:00 hrs]</b>
(f)	Date & Time of opening technical bids	<b>10.04.2024 [15:30 hrs]</b>
(g)	Date & Time of opening of Price of qualified bids	<b>To be notified to the successful bidders</b>

All other terms and conditions of the above tender shall remain unaltered.

**Yours faithfully,****-sd-****Head-Contracts  
CCG, Bhubaneswar**

**Format for Pre-Bid Queries**

**Tender No: TPCODL / CCG / 23-24 / 100000587**

**Tender Description: Rate Contract - Supply of Single Phase BLE Meter (10-60 Amp) with Boxes for Tata Power Odisha Discoms**

**Bidder :**

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response					
1	2	3	4	5					
1	4.35 / 32 of 305	Phase Indicator LED color: Phase indicator should be Green color LED / LCD	Kindly note that tender sample will be provided with backlight as Phase indicator and bulb icon shall be provided on LCD display during bulk supply. Kindly accept the same	Noted					
2	4.2 / 33 of 305	Abnormal magnetic field is defined as below: c) Permanent Magnet: Immune upto 0.5T and Event logging > 0.5T	Request to accept the magnetic influence in line with CBIP-325	As per CBIP 325					
3	4.2.3 / 33 of 305	The shielding around the meter shall be such that it does not get affected by high voltage and high energy or low energy impulse when comes in contact with meter from any side.	Suitable arrangement will be provided as per the meter design.	specification to be complied.					
4	4.2.2 & 4.2.4/ 33 of 305	<b>Electro Static Discharge (ESD):</b> Meter shall be immune up to 50 kV and shall record accurate energy as per IS-13779:1999/CBIP-325. <b>Meter shall log the event into memory and BCS as 'ESD' with date &amp; time stamp for any ESD greater than 50 kV with snap shot</b> , the event logging threshold values as per table no. 1 in clause 4.4.	Kindly note that meter shall be immune with application of ESD up to 35kV in line with CBIP-325. Kindly accept the same.	As per CBIP 325					
5	4.2.4 / 33 of 305	Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "ESD" with date and time stamp along with snapshot, the threshold values as per table no. 1 in 4.4.	Kindly note that meter shall be immune with the application of Jammer device, hence the event logging is not required. Kindly accept the same.	Noted					
6	4.2.5 / 33 of 305	The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, <b>micro waves like magnetron</b> etc.	Kindly note that magnetron is a non-standard device and behavior of meter with application of magnetron cannot be guaranteed. Also it may be hazardous to the person who perform the testing. Kindly accept the same.	This clause is deleted					
7	4.3.5 / 34 of 305	<b>Other tampers:</b> Current mismatch - Meter should logged current mismatch event as per thresholds in table no.1. Priority of logging this event in memory of meter is higher than earth tamper and <b>earth LED shall glow</b> as per its own logic Irrespective of this logic.	We will provide LCD icon for Earth indication instead of LED. Kindly accept.	Noted					
8	4.4.5 / 34 of 305	<b>Abnormal tamper conditions:</b> During abnormal & tamper conditions, the current shall be recorded as active current and line current. Each such event shall be provided with minimum count of as per table no.1 to avoid missing of data amidst usual events (like power failure) due to the limitation of FIFO.	Kindly accept current as per captured parameter list given in IS 15959 Part-2.	specification to be complied.					
9	4.4.7 / 35 of 305	<table border="1" data-bbox="479 1171 1077 1294"> <tr> <td data-bbox="479 1171 568 1294">Neutral Disturbance = 0 Hr 1 Min 0sec (ND)</td> <td data-bbox="568 1171 658 1294">Neutral Disturbance = 0 Hr 02 Min 0 sec (ND)</td> <td data-bbox="658 1171 875 1294">Voltage &gt;145% of Vref, Current &gt;10% Ib OR Frequency &lt; 47 Hz OR Frequency &gt; 53 Hz OR DC voltage /signal injection <b>[Defraud meter should not be started if all connection is intact and supply voltage is low]</b></td> <td data-bbox="875 1171 1010 1294">Voltage &lt;115% of Vref Current &gt;10% Ib AND Frequency &gt; 47Hz OR Frequency &lt; 52 Hz</td> <td data-bbox="1010 1171 1077 1294">25</td> </tr> </table>	Neutral Disturbance = 0 Hr 1 Min 0sec (ND)	Neutral Disturbance = 0 Hr 02 Min 0 sec (ND)	Voltage >145% of Vref, Current >10% Ib OR Frequency < 47 Hz OR Frequency > 53 Hz OR DC voltage /signal injection <b>[Defraud meter should not be started if all connection is intact and supply voltage is low]</b>	Voltage <115% of Vref Current >10% Ib AND Frequency > 47Hz OR Frequency < 52 Hz	25	1. In Neutral Disturbance Occurrence logic mentioned frequency lower and higher limits as 47Hz & 53Hz respectively, but in Restoration logic mentioned frequency lower and higher limits as 47Hz & 52Hz respectively. Here we understood that '52Hz' seems to be typographical error and it should be '53Hz' only. Kindly confirm 2. In Restoration logic frequency logic should be 'Frequency > 47Hz AND frequency < 53Hz'. Kindly confirm.	Noted
Neutral Disturbance = 0 Hr 1 Min 0sec (ND)	Neutral Disturbance = 0 Hr 02 Min 0 sec (ND)	Voltage >145% of Vref, Current >10% Ib OR Frequency < 47 Hz OR Frequency > 53 Hz OR DC voltage /signal injection <b>[Defraud meter should not be started if all connection is intact and supply voltage is low]</b>	Voltage <115% of Vref Current >10% Ib AND Frequency > 47Hz OR Frequency < 52 Hz	25					
10	5 / 36 of 305	<b>Measurement / Computing chip:</b> USA: Analog Devices, Cyrus Logic, Atmel, Phillips, Free scale semiconductor, South Africa: SAMES, Japan: NEC	Kindly add 'Renesas' since this is also a well reputed make	Noted					
11	5 / 36 of 305	<b>Display module:</b> Taiwan: Holtek, Singapore: Bonafied Technologies, Korea: Advantek, China: Xiamen, Truly Semiconductor	Kindly add 'Pixel, Tianma, Yeebo' since these are also a well reputed make s	Noted					


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12	5 / 37 of 305	<b>Electronic Components:</b> USA: National Semiconductors, Atmel, Phillips, Texas Instruments, Vishay, Japan: Hitachi, Oki, AVX or Ricoh, rea: Samsung	Kindly add 'Toshiba, Fairchild, Murata, Rohm, Siemens, Hitachi, Panasonic, Yageo, Diotec Phycom, Koshin' since these are also well reputed makes	Noted
13	5 / 37 of 305	<b>Battery:</b> Varta / Tedirun / Vitzrocell / Sanyo or Equivalent. Lithium with minimum guranteed life of 15 years	Kindly add 'Panasonic, EVE, Mitsubishi, Teckcell' since these are also well reputed makes	Noted
14	5 / 37 of 305	<b>Micro controller or RTC:</b> USA: Philips , Dallas, Atmel, Motorola, Japan: NEC or Oki	Kindly add 'Renesas' since this is also a well reputed make	Noted
15	5 / 37 of 305	<b>Temperature sensor:</b> USA: Philips , Dallas, Atmel, Motorola Japan: NEC or Oki	Kindly note that temperature sensor is microcontroller in-built. Kindly accept.	Noted
16	5.1.3, 5.1.4 / 37 of 305	Meter base shall be opaque with polycarbonate <b>LEXAN 500R or better</b> on prior approval from the Purchaser. Meter cover shall be transparent with polycarbonate <b>LEXAN 143R/943A</b> or equivalent on prior approval from the Purchaser.	Kindly accept equivalent material like LEXAN 143/143R for Meter base also which is accepted for Meter cover. We can achieve good ultrasonic welding if the same material is used for both Meter cover and base.	Noted
17	5.2.6 / 39 of 305	<b>Terminals, Terminal block:</b> To get the desired temp rise & avoid hot spots the design of the each terminal screw, terminal screw shall be with hex head screw / allen head screw & shall be operated with allen key or special key. The screw shall be of minimum 6mm dia.	Kindly accept Nickle/Tin plated grub screws alternatively which serves the utility purpose instead of hex head screw / allen head screw	Nickel Plated Brass screw to be provided .
18	5.2.8 / 39 of 305	Temperature sensor to be placed at a suitable location that the temperature inside meter could be sensed properly and the meter should be programmed in such way that on reaching the set threshold value (as per tamper table) the event should be logged in the meter.	Kindly note that temperature sensor is microcontroller in-built. Kindly accept.	Noted
19	5.5 / 40 of 305	<b>TOD feature:</b> The meter shall be capable of measuring Cumulative Energy (kWh), and MD (kW) with time of day (TOD) registers having 8 zones & 02 seasons (no. of zones & time slot shall be programmable by MRI / Android Device (HHU)/OTA with adequate security level. Current TOD	By default meter will be provided TOD with 2 seasons, however field configuration of TOD shall be provided through BCS / CMRI. Kindly accept.	TOD zones shall be shared during detailed engineering
20	5.7.3 / 41 of 305	Meter shall be capable for providing below mentioned general parameters in memory of the meter and BCS: Meter Serial number Firmware version Manufacture Name Manufacture Date (MM/YYYY) Meter Type Meter Class Meter Constant Meter Voltage Rating Meter Current Rating <b>TOD profile</b>	Kindly note that TOD profile will be provided in billing profile as per IS 15959 Part 1. Kindly accept.	Noted
21	5.8.1 / 42 of 305	<b>Auto Scroll/ Push button mode:</b> A. Post Paid without TOD B. Post-Paid with TOD	Kindly let us know the default display parameter requirement i.e. 'Post Paid without TOD' or 'Post-Paid with TOD'	This shall be shared during detailed engineering.
22	7.3 / 45 of 305	<b>Acceptance test:</b> Error measurements with 38 abnormal condition as per annexure I along with magnet, ESD and microwave (if not possible during inspection the meter from lot shall be tested at MTL )	Request to kindly consider 38 abnormal conditions as per Annexure 1 without magnet, ESD and microwave	Specification to be complied
23	5.3 / 59 of 305	<b>Meter Box:</b> <b>General Construction:</b> The box shall be provided with meter mounting arrangement along with MS plate on top for mounting the meter from different manufacturers, having different mounting dimensions. The top plate shall be fixed on the base taking care of the alignment with	Kindly note that mounting arrangement in the Box is suitable for our meters which are being offered against the present requirement. MS plate cannot be provided. Kindly accept.	Noted

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
24	5.6 / 59 of 305	<b>Meter Box:</b> <b>General Construction:</b> The number of pillars to be provided in box as per TPCODL different type of meters. If there is any change in existing meter design or new meter introduced, bidder shall provide meter mounting pillar accordingly in meter box with modification in their mould without any extra cost.	Kindly note that Visiontek make meter box is specifically designed for Visiontek meter and we generally supply our box along with our meter. However to make it universal which can fit for all the requirements leads to changing of mould which is practically not possible. Kindly accept the same.	Noted
25	5.7 / 59 of 305	<b>Meter Box:</b> <b>General Construction:</b> Metallic Hinges having Minimum length 40 mm with three screws.	Kindly accept with 30mm length with two screws which is suitable to withstand as per our mould design	Noted
26	5.8 / 59 of 305	<b>Meter Box:</b> <b>General Construction:</b> For holding and sealing the box, four U-shaped latches of approx..size 25 mm shall be provided on three side of box( two on right side and one each on top and bottom side).The latch shall be GI with minimum thickness of 1.2 mm. The latch shall be provided along with suitable clamp assembly in base as well as cover, such that these are fully covered by the latch after closing	Kindly accept with two u-shaped latches on right side of meter box with sealing provision.	2U-shaped latches SS/ GI to be provided
27	5.10 / 60 of 305	<b>Meter Box:</b> <b>General Construction:</b> The box shall be provided with four mounting (fixing) holes of 8 mm size. The screws and gitties of 6mm size with around 50mm length to be provided for mounting of box in each box in packed in a separate pack.	Kindly accept as per our design of 6.5mm size holes on top and minimum 4.5 mm on bottom.The Meter fixing screws of 4mm size and 24.5mm length are suitable to hold the meter with meter box in any conditions of wall (thickness) mounting.	Specification to be complied
28	Please refer, Clause no. 5.1, 'METER BODY'	Meter base shall be opaque with polycarbonate LEXAN 500R or better on prior approval from the Purchaser.  Similarly in next line, it has been mentioned that Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the Purchaser.	Comment: - Please also accept equivalent material like, LEXAN 143/143R for Meter base also. Since, the same material grade is also accepted for Meter cover. Since, it is also a superior grade material if using same material we can achieve good ultrasonic welding. Request you to please also consider the same.	Noted
29	Please refer, Clause no. 5.2.11, 'Terminals, Terminal Block	Internal diameter of the terminal holes shall be minimum 8.5 mm; minimum clearance between adjacent terminals shall be 10 mm. Depth of the terminal holes shall be of 22 mm.  Similarly in clause no. 4.27 "GENERAL TECHNICAL REQUIREMENTS" it is mentioned that Internal diameter of the terminal holes 8.5 mm (minimum) Depth of the terminal holes 22mm.	Comment: - Kindly note that depth of terminal holes shall be as per manufacturer design however hole diameter shall be minimum 8.5mm. Kindly accept he same as per IS 13779.  Note for Marketing:-In the Previous orders from TPCODL, Depth of the terminal holes 18 mm +/- 1 mm has been accepted.	Noted
30	Please refer clause no. 5.3 , 'GENERAL CONSTRUCTION S"	The box shall be provided with meter mounting arrangement along with MS plate on top for mounting the meter from different manufacturers.	Comment: -Mounting arrangement in the box is suitable for our meters which are being offered against the present requirement. MS plate arrangement cannot be provided.	Noted
31	Please refer clause no. 7.1 , 'TYPE TEST" Sr.No. 6	Resistance to Abnormal heat and fire/ Glow wire test (IS : 14772-2000). Parts of insulating materials which might be exposed to thermal stresses due to electric effects shall not be affected by abnormal heat and by fire. The compliance shall be checked by means of the glow wire test performed at 960 deg C, according to IS 11000(Part 2/sec 1) with no flame and glowing.	Comment:- We request you that please accept glow wire at 650 °C for the Meter Box. Since, as per IS: 14772, clause no.15, the mentioned value as 650°C for Glow wire test. Kindly confirm.	As per IS

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32	Please refer, Clause no. 6.0, 'Name plate and marking'	<p>The meter box shall be provided with durable and legible marking laser printed / embossing. The following shall be embossed / laser printed with "PO No with date", "PROPERTY OF TPNODL", "ITEM CODE NUMBER", The name plate shall be indelibly and distinctly marked with all essential particulars as per the relevant standards along with the following information :</p> <p>a) Manufacturer's name  b) Serial number  c) Month and Year of manufacturing  d) PO Number &amp; date  e) Property OF TPCODL-Odisha  f) Danger Sign</p>	<p>Comment: - We shall provide all the details with engraved/embossed on the Meter Box Cover. And the meter Serial number shall also be indelibly printed / marked on the meter box cover. Kindly confirm the acceptance.</p>	Specification to be complied
33	Please refer Clause no. 7.1 (12), UV Light Exposure (UL-746C)	<p>The sample when exposed to UV light as per the defined test method, shall comply to following</p> <p>a) Physical Properties: The average value of physical properties after the UV light exposure shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30%.  b) Flammability Test : After the UV light exposure, the flammability requirement of FV0 shall remain unchanged.  c) Flexural Strength: After the UV light exposure, Flexural strength shall not be lower than 70% of its initial value (without UV aging) i.e. the variation shall not be more than 30 %.</p>	<p>Comment: We request you to please also accept the UV ageing test for 200 hrs (ASTM G154). Please confirm.</p> <p>Note for marketing:- We have communicated with CIPET/ERDA/CPRI but the required test facility is still not available with them, this is for information and necessary action.</p>	Specification to be complied
34	<b>Brief integration plan:</b> Clause No. a (Page 61)	<p>Android mobile application including the api, sdk and other associated files are to be provided by the bidder. Any updates in this application are to be provided by the bidder, free of cost.</p> <p>TATA Power – DDL may also develop an android/web application for reading these BLE enabled energy meters, which shall integrate the SDK(s) provided by the bidder and other meter suppliers.</p>	<p>We will share the Android mobile api and sdk file to read Secure make BLE meters. We will provide support on application part for integration, bug fixing and technology compatibility. Any new feature requirement will not be considered as free of cost.</p> <p>Integration document and development timelines will be mutually agreed between Secure and Tata Power.</p>	Specification to be complied
35	<b>Brief integration plan:</b> Clause No. b (Page 61)	<p>Bidder shall provide an android mobile app (with its SDK file), which should be capable of doing the following activities for its own energy meters:</p>	<p>Secure will be provide mobile app for reading secure make BLE meters.</p>	
36		<p>i. take input from the aforementioned application regarding the</p> <ul style="list-style-type: none"> <li>•reading mode (Connected mode reading/ Walk-by Reading)</li> <li>•meter number(s) to be read</li> <li>•In case of connected mode reading – what all profiles of meter data are required (selectable)</li> </ul>	<p>Provided App will have both connected mode as well as walk by reading mode. Secure API/SDK will read complete data profile of meter as per DLMS structure in connected mode.</p> <p>Limited Billing parameter will be read in Walk by mode using BLE broadcast mechanism and same will be processed by backend system (Secure BCS)</p> <p>Provision to read selected profile will be available for scheduled meter reading.</p>	Specification to be complied
37		<p>ii. shall execute the entire data collection via Bluetooth from the energy meter(s) based on the inputs provided, as mentioned above and shall return the raw file (in native format) to the application</p>	<p>After complete reading, the App will transfer the meter data file to defined FTP/SFTP path.</p> <p>File format of meter data is .dmd extension. Which can be further converted to .cdf format using M-cubed 100 (BCS software)</p>	

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38	<b>Brief integration plan:</b> Clause No. d (Page 61)	The android mobile app should also have the feature of converting the meter data into XML, PDF formats and on-screen readable text.	As per the data security requirement any data conversion and viewing (XML/PDF) will be done at BCS after data downloading.  For spot billing application limited data exchange between utility billing app and Secure app will be based on Jason format.	Specification to be complied
39	<b>Brief integration plan:</b> Clause No. e (Page 61)	The android mobile application provided by bidder should have provision to be enabled to transfer these files to a central database (AMRDA/ HES or any other) of TATA Power – DDL.	For initial two app working mode reading data transfer will be part of supplied app. Once the sdk will integrated with utility App, then the data sync to backend need to be done by utility app.  Secure will provide the required API for the conversion of these reading data at backend.	Specification to be complied
40	<b>Brief integration plan:</b> Clause No. f (Page 61)	Bidder shall also provide the APIs from which these raw files could be converted into a common format such as XML and PDF there, that could then be consumed into TATA Power – DDL's billing engine and MDMS appropriately	We will share our BCS software (M-Cubed 100) or conversion API for converting raw data file of meter into .cdf format and can further convert this to XML/PDF format which can be consumed by DDL's billing engine and MDMS.	Specification to be complied
41	Clause No. 2(e) Hardware (Page 62)	In addition to the name-plate markings of the energy meter mentioned in clause 6.0 of the technical specification: i. It shall include: 'BLUETOOTH (BLE) Version 5.X enabled' in large and legible font (where the letter X denotes the relevant updated version number of Bluetooth 5) ii. The barcode/ QR code on the name-plate shall now contain the information – TPDDL MMY Y BLE XXXXXXXX (8-digit serial no.)	Saral IP design is very compact and hence the free space to print additional information on rating plate is not feasible. However, we will do the feasibility to print bare minimum information including QR code on rating plate.	specification to be complied
42	Clause No. 3(a) Connected Mode Reading (CMR) (Page 62)	In this reading mode the meter data reading shall be taken from only one energy meter at a time, via Bluetooth connection.	Complied, Full meter reading option is supported in API/SKD	Specification to be complied
43	Clause No. 3(c) Connected Mode Reading (CMR) (Page 62)	The parameters for which OBIS codes are not there as per IS 15959, the OBIS code list of TATA Power – DDL is to be followed.	Please share the specific parameters with OBIS codes which are not part of IS 15959.	OBIS code shall be shared in the time of detail engineering
44	Clause No. 4(a) Walk-by Reading (WBR) mode (Page 62)	In this reading mode, meter data reading shall be taken as a broadcast from 20-30 energy meters in the range of Bluetooth, simultaneously, while the meter reader is moving.	Complied, ( The App will read only those meters which are in BLE range)	specification to be complied
45	Clause No. 4(b) Walk-by Reading (WBR) mode (Page 62)	The data packet size and structure for this mode shall be much smaller and simpler. Thus, it does not need to be compulsorily as per DLMS. MIOS/DLMS or any other common data structure can be used.	Noted, BLE WBR data format will be as per the Secure BLE design. List or parameters will be shared to utility.	specification to be complied
46	<b>Cyber Security Requirement</b> Clause No: Vulnerability Assessment & Penetration Testing (Page 63)	Solution provider to conduct VAPT of the supplied solution from a 3rd party CERT-In empaneled security auditor and submit necessary reports to Tata Power-DDL and subsequently conduct confirmatory testing. The VA&PT report should consider all scenarios w.r.t Blue tooth enabled meters and mobile app.	Secure will provide the self-certified report for Vulnerability assessment and penetration on testing.	specification to be complied

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47	<b>Cyber Security Requirement</b> Clause No: Security Configurability (Page 63)	Solution provider to ensure secure logging is enabled for security events	NA	Specification to be complied
48	<b>Cyber Security Requirement</b> Clause No: Software/Firmware Upgrade (Page 63)	Solution provider to ensure all assets have update capability and can be updated quickly when vulnerabilities are discovered Solution provider to ensure update files can be transmitted in a secure manner Solution provider to ensure availability of necessary service, support and patches during the lifecycle of the project	As this solution is not an online solution So, only mobile application upgrades will be considered.	Specification to be complied
49	<b>Cyber Security Requirement</b> Clause No: Integration with On-prem SIEM/iNMS (Page 64)	Solution provider to assist in integration of logs with on-prem SIEM and iNMS solution. iNMS is from HP- Microfocus SIEM is from HP- Arcsight	In scope of Utility	specification to be complied
50	Scope	This specification covers the technical requirements of design, manufacturing, testing at meter manufacturer's works, packing, forwarding, supply and unloading at store/site of single phase two Wire, 230V 10-60A, whole current static energy meters of accuracy class 1.0 capable to communicate over Blue Tooth communication mode (here after referred as meters) along with hinge type meter box complete with all accessories for efficient and trouble free operation.	Meter reference Voltage rating would be 240V. Kindly accept the same	Reference voltage - 240V (Complies to 230V)
51	Technical specification for static Single phase WC meter / Clause No.2 ( c )	Clause no. 2.0 Application standards: c) IS 15959 (part-2 2011) o) IS 11731-1	This DLMS standard is applicable for Smart Meter, hence it is not applicable for this tender Please amend accordingly. Meter complies with IS11731 part 2 for determination of flammability of meter enclosures.	Specification to be complied.
52	Technical specification for static Single phase WC meter / Clause No.4.3	Clause no. 4.3 General Technical Requirements: Basic Current (Ib) & rated Maximum current (Imax) Ib= 10A; Imax= 60 Amps (Meter shall be able to continuously carry 120% of Imax Meeting the accuracy requirements)	Meter can continuously carry 120% of Imax however accuracy will be complying with IS13779. Kindly accept the same.	Specification to be complied
53	Technical specification for static Single phase WC meter / Clause No.4.15	Clause no. 4 4.15 Resistance to heat & fire The terminal block and Meter case shall ensure safety against the spread of fire. These should not be ignited by thermal overload of live parts in contact with them as per clause 6.8 of IS 13779. Fire retardant material shall be used	Terminal block is most important part as it undergoes thermal stresses due to over current/heating. Our meter's terminal block is V0 compliant plastic. Meter enclosure and terminal cover are made of LEXAN 143A/943 or equivalent material FV2 Compliant. It has to be noted that over current related heating affects the terminal block most. Not the meter cover or terminal cover.  Same should be acceptable	Noted

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54	Technical specification for static Single phase WC meter / Clause No.4 .23	<p>Clause 4 4.23 Self Diagnostic features The meter shall have indications for un satisfactory /non functioning of</p> <ol style="list-style-type: none"> <li>1. Real time clock</li> <li>2. RTC battery</li> <li>3. Non Volatile Memory</li> </ol>	<p>Status of RTC &amp; NVM will be available on meter display under “self diagnostic “display parameter. Also in case of NVM &amp; RTC failure meter will log the same as event along with date &amp; time. Status of RTC &amp; NVM not available at BCS ends in healthy condition. Self diagnostic will be available on Display only, as describe below:-</p>  <p>Self Diagnostic Where Value displayed place of “Good” if meter health is not good: Memory fail = 1, Low battery = 2 Bad battery = 4 RTC BAD= 8 If more than one condition persists then value comes some of this value. However in case of NVM failure &amp; Low battery event will also log &amp; can be viewed at BCS end. Same should be acceptable.</p>	<p>Clause 4 4.23 Self Diagnostic features The meter shall have indications &amp; logging in BCS for un satisfactory /non functioning of</p> <ol style="list-style-type: none"> <li>1. Real time clock</li> <li>2. RTC battery</li> <li>3. Non Volatile Memory</li> </ol>
55	Technical specification for static Single phase WC meter / Clause No.4 .27	<p>Clause no. 4 4.27 Internal diameter of the terminal holes: 8.5mm (sminimum) Depth of the terminal holes : 22 mm ± 1mm.</p>	<p>Internal diameter of terminal hole will be 8.5 mm &amp; depth of hole will be approx. 21 mm. It is sufficient to accommodate cable of desired current carrying capacity as per IS 13779</p>	Noted
56	Technical specification for static Single phase WC meter/ Clause No.4 .28	<p>Clause no. 4 4.28 Clearance between adjacent terminals- 10 mm(minimum)</p>	<p>Center to center 10 mm clearance from adjacent terminals is available, which meets the requirement of IS13779. Same should be acceptable</p>	Noted
57	Technical specification for static Single phase WC meter/ Clause No.4 .29	<p>Clause no. 4 4.29 a) Backlit LCD, Scrolling, 10 seconds for each parameter minimum 7 digits LCD display b) The back lit must be green in color.</p>	<p>a) Offered meter have 6 digit segmen, which is suitable to meets b) Color of backlight doesn't play any significant role, if meets the requirement of better visibility. Offered meter have White color Backlight. Same should be acceptable</p>	6 Digits without decimals is required and Other requirements are as per Specification
58	Technical specification for static Single phase WC meter/ Clause No.4 .31	<p>4.31) Software and communication compatibility The bidder shall supply software required for local HHU connectivity over Blue Tooth including the training required to use the software, free of cost. HHU can be MRI / Android Device (HHU).The meter shall be compatible to communicate with GSM/GPRS/RF modems in DLMS protocol. Meter shall be equipped with BLE 5.1 module to read the meters locally on walk by mode. Requisite mobile application integrable with BCS and Billing database..</p>	<p>Offered meter comply as per IS: 15959. The meter will have facility to data transfer locally through CMRI and remotely through GSM/GPRS Modem. Offered meter will be equipped with BLE 5.1 to read the meters locally on walk by meter. Suitable mobile app would be provided to read our make meters over Bluetooth.</p>	Specification to be complied. Required Mobile App, BCS software , CMRI software , all support for integration with TPXODL Billing App for walk by reading mode to be provided free of cost by the bidder. And for full data downloading by mobile app and retrieval of the data at the server end.



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59	Technical specification for static Single phase WC meter/ Clause No.4 .32	4.32) Calibration: Meters shall be software calibrated at factory and modifications in calibration shall not be possible at site by any means. However, parameters like RTC, TOD slots, DIP (billing & load survey), billing date, etc. shall be reconfigured through MRI / Android Device (HHU) and all relevant support required, shall be provided by the bidder, without any additional cost to TP (C/N/S/W) ODL, till the useful life of the meters	Meters will be software calibrated at the factory and modifications in calibration will not be possible at site by any means. However, parameters like RTC, TOD, billing date, Integration period will be reconfiguring through CMRI only and any other support will be provided without any additional cost to Tata power till warranty period. Android based BLE mobile app would be able to read the meters over Bluetooth. Display parameters are not field configurable as per IS 15959, same is not supported in offered meter.	Specification to be complied
60	Technical specification for static Single phase WC meter/ Clause No.4 .35	4.35) Phase Indication LED color Phase Indication should be Green color LED	Offered meter have White Color Backlight LCD display. This white backlight LCD would be on when the meter is power on or phase is available. Separate Green LED for phase indication is not required.	LCD icon for phase indication other specification to be complied as per TS
61	Technical specification for static Single phase WC meter/ Clause No.4 .36	4.36) EL LED Separate Earth leakage LED to be provided which shall only glow when there is a difference of 6.25 % between phase and neutral current & shall auto reset when the difference is lower than 6.10%	Offered meter have separate icon available on display for Earth load which would blink on display whenever earth load event occurs and difference of phase & neutral current is more than 6% Ib. Event will restore if difference of phase & neutral current is less than 6% Ib. The event icon would stop glowing and remain on display till meter reading so that it comes under notice of meter reader. The icon will reset after electronic meter reading	Specification to be complied. However Earth icon on LCD is acceptable.
62	Technical specification for static Single phase WC meter/ Clause No.4 .1.3 Communication capabilities	BLE Communication port shall be available for communication. Communication ports shall not be affected by any type of injection /unauthenticated signals and having proper sealing arrangement.	Offered meter have optical port available for local reading and remote reading using GSM/ GPRS modems. Meter have inbuilt facility for BLE to read the meters using mobile app. Separate BLE port is not available. Optical port available is having software locking available i.e authenticated password is required to access the meters, hence hardware locking/ sealing arrangement is not required hence not available.	Specification to be complied
63	Technical specification for static Single phase WC meter/ Clause No.4 .1.6 Communication capabilities	Bidder should also provide software for changing firmware of meters in mass. Any software / keys required to reprogram the meter and any other support for enabling TP (C/N/S/W) ODL to execute this option will be provided without any additional cost to TP (C/N/S/W) ODL.	Offered meter comply as per IS: 15959. We do not recommend firmware change of the meter however meter configuration changes allowed by IS 15969 are possible, e.g. TOD, Billing date etc.	Specification to be complied
64	Technical specification for static Single phase WC meter/ Clause No.4.2 Immunity against external influencing signals Magnetic field :	Magnetic field : Meter shall record accurate energy in case of any external influencing signals in line with IS 13779:1999 Cl.11.2 and variation in limits of error (upto 100% I <sub>max</sub> ) shall be as per the table 17 of IS 13779. Meter shall be immune to magnetic field such that it shall not affect the normal overall functionality However, in case of abnormal magnetic field as defined below meter shall perform as per the following actions: a) Meter shall log the event in its memory as "Magnet" with date and time stamp along with snapshot and the event logging threshold values as per table no. 1 in 4.4 b) The energy recording to shift on I <sub>max</sub> , V <sub>ref</sub> . with UPF.	Meter will record energy as per prevailing conditions in case of any external influencing signals in line with relevant clause of IS 13779:1999 & variation in limits of error (up to 100% I <sub>max</sub> ) will be as per relevant clause in IS13779. Meter will be immune to magnetic field such that it will not affect the normal overall functionality. However, in case of abnormal magnetic field as defined below meter will perform as per the following features: a) The offered meter will log the magnet event with date & time, in case metering is affected from magnetic field then meter will records energy at I <sub>max</sub> . Meter will have specific icon for magnet event on display. Persistence time for occurrence of magnet event is 20 seconds approx. Restoration is approx. 30 seconds. The offered Meter will have separate icon for magnet event on display which will remain till meter reading subject to restoration of event. Additionally suitable information/abbreviation will be display under "Present status of event other then CT & PT related event" in push button mode. b) Complied.	specification to be complied

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65	Technical specification for static Single phase WC meter/ Clause No.4.2.2 Immunity against external influencing signals Magnetic field :	4.2.2) Electrostatic Discharge (ESD) Meter shall be immune up to 50 kV and shall record accurate energy as per IS 13779:1999/CBIP-325. Meter shall log the event into memory and BCS as 'ESD' with date & time stamp for any ESD greater than 50 kV with snap shot, the event logging threshold values as per table no. 1 in clause 4.4.	Meter will remain immune up to 35kV and will record accurate energy as per IS-13779. Above 35 KV ESD either meter will remain immune or If get affected then. "Abnormal external interference" event along with date and time can be viewed at BCS end. Additionally suitable information/ abbreviation will be display under "Present status of event other than CT & PT related event" in push button mode	As per IS
66	Technical specification for static Single phase WC meter/ Clause No.4.2.2 Immunity against external influencing signals Electrostatic Discharge :	Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "ESD" with date and time stamp along with snapshot, the threshold values as per table no. 1 in 4.4	Against any external interference devices offered meter will complies as per IS 13779 & CBIP 325. " Meter will be immune to high/low frequency. If it gets affected, it will log event "abnormal external interference and can be viewed at BCS end.	as per IS & CBIP 325
67	Technical specification for static Single phase WC meter/ Clause No.4.2.5 Immunity against external influencing signals Electrostatic Discharge :	4.2.5 The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc.	Offered meter comply as per IS: 13779 for external fields. However meter does not complies against micro waves like magnetron.	Noted.
68	Technical specification for static Single phase WC meter/ Clause No.4.3 Neutral Disturbance & other tampers	4.3) Neutral Disturbance & other tampers 4.3.2 The meter shall not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately. DC injection shall be tested both in phase and neutral. Measurement by meter shall not get influenced by injection of Chopped signal/ DC signal/ DC pulse and any other pulse/ signal upto 330V (both +ve and -ve DC) and for any value beyond this of any low frequency and harmonics. Meter shall log the event into memory as 'Neutral Disturbance' with date & time stamp the thresholds are as per table no. 1 in 4.4 4.3.3 The meter shall record energy proportional to the actual current and V Ref (230V) at UPF when any of the tamper circuits enclosed as per annexure1 are used to tamper energy using any type of diode or a variable resistance or a variable capacitance, energy saving device; or any DC injection as per 4.3.2	4.3.2 The offered meter will not saturate on passage of direct current, which can cause the meter either to stop recording/ record inaccurately as per IS-13779. Under injection DC/DC pulse either meter will immune or if get affected meter will log ND event along with date and time also meter will record energy proportional to Actual current, reference Voltage and UPF. Persistence time for occurrence & restoration of ND event will be Approx 20 seconds. 4.3.3 On injection of spurious signals (DC signal etc.) into the neutral of the meter, meter will either remain immune or if get affected it will log neutral disturbance tamper with date and time also meter will record energy proportional to Actual current, reference Voltage and UPF.	Specification to be complied

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69	Technical specification for static Single phase WC meter/ Clause No.4.3.6 Neutral Disturbance & other tampers	Current mismatch - Meter should logged current mismatch event as per thresholds in table no.1. Priority of logging this event in memory of meter is higher than earth tamper and earth LED shall glow as per its own logic Irrespective of this logic. The tamper logic for the current mismatch event would be similar to the earth load event for offered meter.	Offered meter have separate icon available on display for Earth load which would blink on display whenever earth load event occurs and difference of phase & neutral current is more than 6% Ib. Event will restore if difference of phase & neutral current is less than 6% Ib. The event icon would stop glowing and remain on display till meter reading so that it comes under notice of meter reader. The icon will reset after electronic meter reading.	Noted. Earth icon on LCD is acceptable
70	Technical specification for static Single phase WC meter/ Clause No.4.4 Abnormal Tamper Conditions	Meter shall be immune to Influence of Magnet, ESD, Jammer as per clause 4.2 during all the tamper conditions of Annexure-I. The meter shall record forward energy in all 38 abnormal tamper conditions with above abnormal influencing signals. If value of Magnet is abnormal then, "Tamper event" shall be logged and energy shall be recorded at 100% of I <sub>max</sub> as per clause 4.2 in all the 38 Conditions of annexure- 1	For magnet influence Offered meter will either remain immune or if gets affected will log the event with date & time stamp and start recording energy at V <sub>ref</sub> , I <sub>max</sub> , UPF & suitable magnet icon would be available on meter display.  For influence of Jammer & ESD, meter will either remain immune or if gets affected will log Abnormal External influence event & can be viewed at BCS also suitable abbreviation would be available under present status of other tampers on meter display.	Speciification to be complied
71	Technical specification for static Single phase WC meter/ Clause No.4.4.5 Abnormal Tamper Conditions	For all tamper events the time stamp and snapshot parameters shall be recorded at the start time of event for occurrence (T1) and for restoration the time stamp and snapshot parameters shall be recorded at the end time of the event (T3) During abnormal & tamper conditions, the current shall be recorded as active current and line current. Each such event shall be provided with minimum count of as per table no.1 to avoid missing of data amidst usual events (like power failure) due to the limitation of FIFO.	The offered meter will capture the time as the start time occurrence or restoration of tamper, However event snapshot would be captured after confirmation of event, i.e. after persistence time of occurrence or restoration.	Speciification to be complied
72	Technical specification for static Single phase WC meter/ Clause No.4.5 Event Compartment.	Event compartments 4.5.1 The event compartments shall be such that all individual events count shall be available in BCS, and the same shall be over and above IS 15959 table 9. 4.5.2 The size of the event compartments should be such that all above events (in table no.1 and other required events defined in various clauses of this documents) are accommodated in the assigned event category compartment. i.e. if in case voltage compartment assigned to 4 number of events then the minimum size of this compartment should be such that it should accommodate sum of all maximum number of events as marked above table 1.	Offered meter have event logging as per IS 15959. Events within a compartment will be logged in FIFO basis. i. Voltage related event -50 Nos. ii. Current related events – 50 Nos. iii. Other Events -100 Nos. iv. Non roll over – Cover open (5 nos.) v. Power failure – 50 Nos. However, in case meter record tamper, it will log snap shot on confirmation of event i.e. either occurrence or restoration. Snap shot on confirmation of event i.e. either occurrence or restoration	Speciification to be complied
73	Technical specification for static Single phase WC meter / Clause No.5.0	Clause 5.0 General constructions 1.Measurement/ computing chips 2. memory chips 3. Display modulus 4.Optical port 6. Electronic components 7. battery 8. micro controller & RTC 9. Temperature sensor	1.Freescale or any reputed make 2. ROHM, Onsemi, Melexis or any reputed make 3. Tianma, or any reputed make. 4. Everlight or any reputed make. 6. Vishay, NXP, Yageo, Rohm,AVX etc or any reputed make 7. Tekcell, Mitsubishi, panasonic XENO Energy, EVE & any reputed make. 8. Mitsubishi,Tekcell, NXP or any reputed make 9. Inbuilt with microcontroller for temperature.	Noted

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74	Technical specification for static Single phase WC meter / Clause No.5.1	Battery Lithium with guaranteed life of 15 years	Internal battery would have a operating life of 5.5 years & shelf life of 2 years. Kindly accept the same.	Speciifcation to be complied
75	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	Meter Body 5.1.1 Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II) with FV0 Fire Retardant, self – extinguishing, UV stabilize, recyclable and Anti oxidation properties.	Meter will have single enclosure design. The meter case and ETBC will be FV2 Compliant & Meter terminal block will be FV0 compliant.	Speciifcation to be complied
76	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	5.1.2 The minimum thickness of the meter enclosure shall be 2mm.	The minimum thickness of the meter enclosure will be 2mm±0.2mm.	Speciifcation to be complied
77	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	5.1.3 Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent (i.e. chart of Lexan 500R compared with the alternative material) on prior approval from the TP (C/N/S/W) ODL. (the bidders should submit material data sheet in technical bid )	Offered meter have encapsulated design i.e. integrate base & cover. Meter case will be opaque with High grade polycarbonate LEXAN 143 or Equivalent. Terminal block material is made up of LEXAN 500R.	Noted
78	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	5.1.4 Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the TP (C/N/S/W) ODL. (If different material offered the bidders should submit material data sheet in technical bid	Offered meter have encapsulated design i.e. integrate base & cover. Meter case will be opaque with High grade polycarbonate LEXAN 143 or Equivalent. Terminal block material is made up of LEXAN 500R.	Noted
79	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	5.1.6 The meter body shall be sealed in such a way that opening of meter base and cover is possible only after breaking the seal(s).	Meter will have single case enclosure design i.e. integrated base & cover, hence sealing arrangement is not applicable between meter cover & base.	Noted
80	Technical specification for static Single phase WC meter/ Clause No.5.1 Meter Body	5.1.8 Unidirectional screws to be used on meter covers where ever required.	For single case enclosure design i.e. screw less design. Hence same is not applicable for our design.	Specification to be complied
81	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.1) After any attempts the terminal block should not be able to disengaged, opened or loosen from any side. Any attempt to disengage the terminal block should certainly damage the meter body with physical evidences. The damage evidences should be visible externally& should be traceable in such a way that attempts can be proved in court of law	Terminal block is chemically welded with meter body case (Break to open case).Any attempts to disengage the terminal block would certainly damage the meter body with physical evidence.	Specification to be complied

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82	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.3) Terminal block and terminal cover shall be of a material which complies with the requirements of IS11731 (part 1) method FH1. The material of which the terminal block is made shall be capable of passing the Heat Deflection temperature test given in ISO 75 for temperature of 135°C and pressure of 1.8 M Pa. Tested as per ISO 75-2/A or ASTM D648	Terminal block and terminal cover will be of a material which complies with the requirements of IS11731. The material of which the terminal block is made will be capable of passing the Heat Deflection temperature test for temperature of 120°C ± 10°C.	Specification to be complied
83	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.4) The terminal block shall be of opaque with polycarbonate LEXAN500R or equivalent (complying to above requirement) on prior approval from the TATA POWER-WODL. (If different material offered the bidders should submit material data sheet in technical bid )	The terminal block will be of opaque with polycarbonate LEXAN 500R or equivalent.	Noted
84	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.6 To get the desired temp rise & avoid hot spots the design of the each terminal screw, terminal screw shall be with hex head screw / allen head screw & shall be operated with allen key or special key. The screw shall be of minimum 6mm dia.	Offered meter has 2 terminal screws on each terminal. We will provide Combi-head/ cheeze head terminal screw of size M6 which is compatible with both flat bit & PZ2 type screwdriver.	Specification to be complied
85	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.8 Temperature sensor to be placed at a suitable location that the temperature inside meter could be sensed properly and the meter should be programmed in such way that on reaching the set threshold value (as per tamper table) the event should be logged in the meter.	Offered meter have facility for detection of Avg. Meter temperature in Kelvin in load survey data. However separate event logging of temperature is not available.	Specification to be complied
86	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.9 The manner of fixing the conductors to the terminals shall ensure adequate and durable contact such that there is no risk of loosening or undue heating. Terminals shall be preferably an alloy with Allen screw with at least 6 mm dia for better contact area. Terminal & screw should not be damaged during regular opening and tightening. (MS terminals not accepted)	For better grip of conductors' barrel type design will be provided and terminals will be made up of Brass for better conductivity. Connecting terminal: Brass Terminal Screws: Zn plated MS  We will provide Combi-head terminal screw of size M6 which is compatible with both flat bit & PZ2 type screwdriver.	Specification to be complied. MS is not acceptable
87	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.10 The Aluminum cable of 2x16sq.mm or 2X25sq.mm shall be used as service line. Hence the terminals shall be provided with Zinc plating or tinning or suitable compatible coating to avoid the bimetallic effect at the joints with Aluminium core of cable.	For better grip of conductors' barrel type design will be provided and terminals will be made up of Brass for better conductivity. Connecting terminal: Brass Terminal Screws: Zn plated MS	Specification to be complied. MS is not acceptable

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88	Technical specification for static Single phase WC meter/ Clause No.5.2 Terminals, Terminal Block	5.2.11 Internal diameter of the terminal holes shall be minimum 9.5 mm; minimum clearance between adjacent terminals shall be 10 mm. minimum Depth of the terminal holes shall be minimum 22 mm.	Internal diameter of the terminal holes will be approx. 8.5 mm & depth will be approx. 21 mm.	Noted
89	Technical specification for static Single phase WC meter/ Clause No.5.3 Terminal Cover	5.3.1 . Terminal cover should not have any cuts for incoming and outgoing wires. 5.3.3 The terminal cover shall be 45 to 55mm length from bottom of terminal block in line with meter base. 5.3.5 The terminal cover design should be such that the sealing screw locking provision on cover should have min dimension of 3mmx3mm. (Excluding seal lock hole)	Due to compact size of the meter, offered meter will have single U cut on ETBC Suitable to meets the requirement of IS 13779. Dimension of single U cut will be 50mm X 18mm. Terminal cover will be transparent with polycarbonate LEXAN 143 /943 or equivalent material. Terminal cover will be extended type & ETBC to Terminal bottom will be approx 40mm.	specification to be complied
90	Technical specification for static Single phase WC meter/ Clause No.5.4 Sealing of meter	Sealing of meter	Reliable sealing arrangement in offered meter will be provided to make the meter tamper evident and to avoid fiddling. The offered meter will have single case enclosure design hence welding is not required. However there will be provision for one nos. sealing arrangement between meter case & terminal block. Design of the meter will be such that only one hologram seals can be placed.  Design of the meter will be such that only one hologram seals can be placed i.e. either of manufacturer or of Purchaser.	specification to be complied
91	Technical specification for static Single phase WC meter/ Clause No.5.6 MD Integration	MD shall be recorded and displayed with minimum three digits before decimal and minimum two digits after decimal points. MD integration shall be BlockType Demand.	MD will be recorded and displayed with minimum two decimal points (2+3). MD integration shall be of fixed block type.	Noted
92	Technical specification for static Single phase WC meter/ Clause No.5.7 Parameters in BCS	Parameters in BCS Fail to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail	Offered meter have self diagnostic feature available on display. Status of RTC & NVM will be available on meter display under "self diagnostic "display parameter. Also in case of NVM & RTC failure meter will log the same as event along with date & time & can be viewed at BCS end	specification to be complied
93	Technical specification for static Single phase WC meter/ Clause No.5.7.1 Load Survey	Meter shall be capable of recording daily Energy (kWh), Demand (kW), kVAh and kVA from 00:00 to 24:00 Hrs. in BCS for 90 days. Midnight energy value of cumulative kWh, KVAh along with H1 kW and KVA along with daily consumption kWh should be available in meter memory for last 90 days.	The meter will be capable of recording load profile of 90 days@30 min IP for ON days with Phase voltage, greater element current, kWh, KW, KVAh, KVA. Meter will show calculated average power factor at BCS.  Offered meter records cumulative kWh and kVAh for mid night energy & load survey for 90 days.	Specification to be complied
94	Technical specification for static Single phase WC meter/ Clause No.5.7.2 Instantaneous Parameters	Instantaneous Parameters • Dump date and time • Cumulative power OFF duration • Temperature	• Meter reading date & time is available • Cumulative power ON duration is available& cumulative power off duration is available in BCS under separate counters tab. •Avg. Temperature would be available in load survey.  Meter date & time (dd / mm/ yyyy HH MM SS) & Meter reading date & time (dd /mm/ yyyy HH MM SS) will be available	Specification to be complied

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95	Technical specification for static Single phase WC meter/ Clause No.5.7.3 General Information	• Manufacture Date (MM/YYYY)	• Manufacturer year is available in general information.	Specification to be complied
96	Technical specification for static Single phase WC meter/ Clause No.5.7.6 Tamper Events	Tamper Events All events should be logged as per table no-1. The meter should not have any other event logging or any logic other than desired in specs. All other logics not mentioned in specs should be removed or disabled in meter firmware	Offered meter have tamper logging as per enclosed tamper logic sheet, these are hardcoded events which would remain along with other features hence the logics other than required in specifications cannot be disabled or removed. Kindly accept the same.	specification to be complied
97	Technical specification for static Single phase WC meter/ Clause No.5.8 Display Units	The kWh and kVAh registers shall have 7 digits LCD display and size of the digits shall be minimum 10mmx5mm (No decimal should be given) . Cumulative energy (kWh and kVAh) shall be displayed without decimal in auto scroll mode. (However decimal shall be available in push button mode for high resolution display for testing).	The kWh register will have 6 digits and size of the digits will be minimum 8.5mmx3.4mm. Cumulative energy (kWh) will be displayed without decimal in auto scroll mode. (However decimal digits will be available in push button mode for high resolution displays for testing, high resolution energy will be watt hour Wh & Vah with 5+1 resolution).	Noted
98	Technical specification for static Single phase WC meter/ Clause No.5.8.1 Display Units	Meter Sr. No. (The eight digit Serial no. to be displayed with sequence 2 + 6 digits at a time, completer no. in single shot is preferred)	Meter serial no. will be 10 digit alpha numerical type. Meter serial no. will be display in two different display parameters i.e 4+6	Noted
99	Technical specification for static Single phase WC meter/ Clause No.5.8.1 Display Units	Auto Scroll/ Pushbutton mode A. Post Paid without TOD Last Month (history 1 - 6) kWh Last Month (history 1 - 6) kVAh Last Month (history 1 - 6) MD kW with Date & Time Last Month (history 1 - 6) MD kVA with Date & Time	Only three histories of energy & MD's will be available at display. However, 12 months histories will be provided at BCS end.	Specification to be complied
100	Technical specification for static Single phase WC meter/ Clause No.5.8.1 Display Units	High Resolution kWh and kVAh up to min 4 digits after decimal should be provided in scroll lock provision.	high resolution energy will be watt hour Wh & Vah with 5+1 resolution)	Noted

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101	Technical specification for static Single phase WC meter / Clause No.4.4	<p>Other tampers:            Clause No. 4.4            single wire tamper            a) At a current of &gt;500mA under tamper condition of neutral missing (where battery is used for voltage reference). Meter will perform the fraud energy registration above 500mA assuming Vref (from battery) and UPF.            b) At a current of &gt;1 amps under tamper condition of neutral missing (where third CT is used for voltage reference). Meter will perform the fraud energy registration above 1A assuming Vref (from third CT) and UPF.            c) Condition no. 38 of Annexure I (Timer test): The timer operation duration on/off time for 30 seconds with constant current for 30 min.            d) Voltage &lt; 90V</p>	<p>In single wire event meter will record energy at Vref X actual current X UPF, When Load current is greater than 10% of Ib.</p> <p>a) Load current should be greater than 10% of Ib, Display will be in off state &amp; meter will continuously record energy at Vref X I actual X UPF.</p> <p>c) Meter will logged single wire event, and metering will be on Deficiency mode( Vref x (Summation of both current x UPF)            However LCD will be in Off state and on state as per timer.</p>	Specification to be complied
102	Technical specification for static Single phase WC meter / Clause No.5.8.1	<p>Clause No. 5.8.1            Push Button Mode of Display:            Meter Sr. No.            (The eight digit Serial no. to be displayed with sequence 2 + 6 digits at a time, completer no. in single shot is preferred)</p>	<p>Serial nos. will be in two separate displays because of LCD digit constraint</p> <p>The meter will have manufacturer specific 10 alpha-numeric digit serial no. So it will be display under two display parameters.            In first display last 6 digit &amp; second display first 4 digits (higher order) will display.</p> <p>Same should be acceptable</p>	Specification to be complied
103	Technical specification for static Single phase WC meter / Clause No.5.8.1	<p>Inst. Phase Power            Inst. Neutral Power</p>	<p>Metering NET active power is available on meter display. Kindly accept the same.</p>	Specification to be complied
104	Technical specification for static Single phase WC meter / Clause No.5.8.1	<p>High Resolution kWh -            High Resolution kVAh</p>	<p>High resolution would be available on meter display with 5+1 resolution &amp; in Wh , Vah.</p>	Noted



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105	Technical specification for static Single phase WC meter / Clause No.5.8.1	<p>Magnetic Tamper count  Latest Magnetic tamper occurrence date  Latest Magnetic tamper occurrence Time  ESD Tamper count  Latest ESD tamper occurrence date  Latest ESD tamper occurrence time  TC Open tamper count  TC Open occurrence date of very first event  TC open occurrence time of very first event</p> <p>“TAMPER” shall only be displayed on meter display if any of the following events is logged in memory. The Meter display should not get stuck on Tamper in any condition.</p> <p>S. NO. EVENT  1 MAGNET  2 ESD/Jammer  3 METER COVER OPEN</p> <p>Note: For display (3) of Auto scroll mode, “OK” implies that meter is working normally. i.e.  Tamper count is zero for above three tamper events and display ‘tamper’ if tamper count is any value other than “0” for above three tampers.</p>	<p>Cumulative tamper count display is available  Suitable information would be available under  Present status of voltage related tampers  Present status of current related tampers  Present status of other tampers (Magnet/ Abnormal external interference)  Also Last occurred tamper with date &amp; time  Last restored tamper with date &amp; time are available on meter display.  Kindly accept the same.</p>	Specification to be complied
106	Technical specification for static Single phase WC meter / Clause No.5.9	<p>5.9 Output Device  1. Phase LED: Phase Indication should be Green LED only.</p>	<p>The backlight LCD will not glow in absence of mains.  White backlight LCD would glow in cse of meter powered up.</p>	Noted
107	Technical specification for static Single phase WC meter / Clause No.5.10	<p>5.9 Output Device  3. Earth Leakage LED – The meter shall be provided with earth EL LED for Earth Leakage. The EL LED shall glow when there is a difference of 6.25 % between phase and neutral current &amp; shall reset when the difference is lower than 6.25%</p>	<p>Offered meter have separate icon available on display for Earth load which would blink on display whenever earth load event occurs and difference of phase &amp; neutral current is more than 6% Ib. Event will restore if difference of phase &amp; neutral current is less than 6% Ib. The event icon would stop glowing and remain on display till meter reading so that it comes under notice of meter reader. The icon will reset after electronic meter reading.</p>	Specification to be complied. Earth icon on LCD is acceptable.
108	Technical specification for static Single phase WC meter / Clause No.6.0.5	<p>Clause 6.0  Name plate and marking  The base color of Name plate shall be blue (as of TP (C/N/S/W) ODL logo)  Indelibly and distinctly marked with all essential particulars as per relevant standards along with the following.</p> <p>xiii. “Property of TP (C/N/S/W) ODL”  xiv. Purchase Order No. &amp; date  xv. Guarantee period.  xix. Firmware version for meter</p>	<p>Rating plate information’s will be laser printed on meter case as per IS: 13779.  Due to small size there is constraint in rating plate information.</p> <p>For customer specific information, there are two lines available. In each line max. 25 character including space can be provided.</p> <p>It will be same as previous supply of Tata power.</p>	Specification to be complied

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109	Technical specification for static Single phase WC meter / Clause No.6.	Clause 6.0 Name plate and marking However the following shall be printed in bar code/QR code on the meter nameplate. (shall be laser printed on name plate instead of any sticker ). All data shall be laser printed on meter along with Sr.NO and date of manufacturing. No sticker to be used to avoid loss of data in event of fire. Content Format for bar code: TPXODL MMYX XXXXXXXX (8-digit Serial no.) Bidders shall get approval on the barcode/QR code format offered	Due to small size there is constraint in rating plate information. However only meter serial no. would be available in Bar code. Kindly accept the same.	Specification to be complied						
110	Technical specification for static Single phase WC meter / Clause No.6.	xx.BLE Symbol	Saral IP design is very compact and hence the free space to print additional information on rating plate is not feasible. We will do the feasibility to print bare minimum information including QR code on rating plate. However we will take necessary approval for rating plate from the utility after receipt of PO. In addition to this, Suitable abbreviation for BLE will be available	Specification to be complied						
111	Technical specification for static Single phase WC meter / Clause No.7.3	Clause 7.3 Acceptance test ii. Test on limits of error with following loads <table border="1" data-bbox="479 708 860 746"> <tr> <td>120% 1 max (25A) UPF, 0.8 lead and 0.5 lag</td> <td>1 max (60A) UPF, 0.8 lead and 0.5 lag</td> <td>1/3 (10A) UPF, 0.8 lead and 0.5 lag</td> <td>0.5 Ib (5A) UPF, 0.8 lead and 0.5 lag</td> <td>0.1 Ib (1A) UPF, 0.8 Lead and 0.5 lag</td> <td>0.05 Ib (0.5A) UPF</td> </tr> </table>	120% 1 max (25A) UPF, 0.8 lead and 0.5 lag	1 max (60A) UPF, 0.8 lead and 0.5 lag	1/3 (10A) UPF, 0.8 lead and 0.5 lag	0.5 Ib (5A) UPF, 0.8 lead and 0.5 lag	0.1 Ib (1A) UPF, 0.8 Lead and 0.5 lag	0.05 Ib (0.5A) UPF	Acceptance test will be performed as per IS 13379.	Specification to be complied
120% 1 max (25A) UPF, 0.8 lead and 0.5 lag	1 max (60A) UPF, 0.8 lead and 0.5 lag	1/3 (10A) UPF, 0.8 lead and 0.5 lag	0.5 Ib (5A) UPF, 0.8 lead and 0.5 lag	0.1 Ib (1A) UPF, 0.8 Lead and 0.5 lag	0.05 Ib (0.5A) UPF					
112	Technical specification for static Single phase WC meter / Clause No.7.4	Clause 7.4 Special Test: The bidder shall ensure that API is compatible with TPC. 1) The bidder shall demonstrate the communication capability of the meter through communication modes as defined in the specification before conducting acceptance tests. The bidder shall ensure that API (Application protocol interface) is compatible with TP (C/N/S/W) ODL'S CFW.	Offered meter comply as per IS: 15959. Open protocol Same as per previous supply	Specification to be complied						
113	Technical specification for static Single phase WC meter / Clause No.7.5	Clause 7.4 Special Test: 2) Temperature rise test on terminal block will be valid as per clause 5.2.5 of this specification	Overload test can be performed at 120% of I <sub>max</sub> however accuracy will be complying with IS 13779	Specification to be complied						
114	Technical specification for static Single phase WC meter / Clause No.8	Clause 8.0 Type test certificates: From CPRI/ERDA or equivalent reputed laboratory as per relevant standards within 5 years.	Type test report for voltage rating 240V should be acceptable. We have Type test report for Material identification for CIPET, kindly accept the same.	Specification to be complied						
115	Technical specification for static Single phase WC meter / Clause No.11	Clause No. 11 Guarantee Bidder shall further be responsible for 'free replacement at site' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the TP (C/N/S/W) ODL	Offered meters will be guaranteed for a period for 5.5 years from the date of supply. No additional	Specification to be complied						

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
116	Technical specification for static Single phase WC meter/Scope / Clause No.12	<p>Clause no. 12 PACKING</p> <p>1. Bidder shall ensure that all material covered under 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. The material used for packing shall be environmentally friendly. Packing and transportation shall be as per IS 15707:206 clauses 9.1 and 9.2.</p> <p>2. Individual meter should be packed in separate box. Routine test report (with manufacturing company logo) of the individual meter shall be kept inside each card board carton of the meter.</p> <p>3. On back side of routine test certificate (RTC) the bidder shall print a picture of the meter with its small details like for consumer to know about meter.</p> <p>4. The softcopy of the routine test certificate of each meter to be provided with each lot to TP (C/N/S/W) ODL, MMG stores at Keshav Puram.</p> <p>5. The routine test certificate shall contain results &amp; all tests of clause no. 7.2 only.</p> <p>6. Bar code containing information of meter Sr. No should be pasted on the outer most box in which single / group of meters are transported</p>	<p>Standard Packing will be provided as per previous supply for Tata power.</p> <p>Routine test report will be provided in soft copy.</p>	Specification to be complied
117	Technical specification for static Single phase WC meter / Clause No.14	<p>Bidders are required to manufacture 04 numbers of sample meters as per the TP (C/N/S/W) ODL specification (sealed, unsealed and openable base and cover to view/test the inner circuits) and submit the samples (nonreturnable) along with bid for approval. These samples should be submitted at Meter Testing Lab of TP (C/N/S/W) ODL. The</p>	<p>We are requesting you please remove sample requirement from tender. As we are regular supplier of meter.</p>	Specification to be complied
118	Technical specification for static Single phase WC meter / Clause No.15	<p>Clause No. 15 Quality Control</p> <p>Prior to final testing and calibration, sample meters shall be subjected to aging test (i.e. meters will be kept in ovens for 24 hours at 55 Deg. C temperature and atmospheric humidity under real-life condition at its full load current. After 24 hours meter should work satisfactorily.</p>	<p>This test is not performs at our works.</p>	Specification to be complied
119	Technical specification for static Single phase WC meter / Clause No.18	<p>Clause no.18.0 Spares, accessories &amp; tools</p> <p>1. Bidder to be provides free of cost 02 nos of jig for retrieving data from memory of the meter with every new design of the meter. Jig should be such that NVM can be push fit on this jig &amp; data can be retrieving from this NVM.</p>	<p>No JIG will be provided. If required data can be retrieved at our works.</p>	Specification to be complied
120	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.1	<p>Clause no-1 SCOPE:</p> <p>This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site and performance of single phase polycarbonate meter box (Hinge Type) with all accessories for trouble free and efficient operation.</p>	<p>Meter box will be push to fit type. Kindly accept the same.</p>	Specification to be complied

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121	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5	Flammability requirement-FV0	We understand that Flammability requirement-FV0 is required for terminal block, where high temp is associated. Kindly amend the FV2 compliant formeter box	Specification to be complied
122	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5	<p>Clause no-5 GENERAL CONSTRUCTION</p> <p>a) Base : a) Polycarbonate equivalent to Lexan 943 A/ Makrolon 6457 transparent (no colour)</p> <p>b) Cover : b) Polycarbonate equivalent to Lexan 943 A/ Makrolon 6457 with clear transparent (no color)</p> <p>6 Thickness of box 2 mm (minimum)</p> <p>The material for base and cover shall be Lexan 943 A/ Makrolon 6457 or equivalent with 2 mm thickness.</p>	Box will made of LEXAN 500R/equivalent 6 Thickness of box 2 mm ±0.2mm Kindly accept the same.	Noted
123	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.3	<p>Clause No 5.3-</p> <p>The box shall be provided with meter mounting arrangement along with MS plate on top for mounting the meter from different manufacturers, having different mounting dimensions. The top plate shall be fixed on the base taking care of the alignment with the fixing holes provided in the base. The detail drawing of the mounting arrangement of all the meters shall be provided to successful bidders by the TPCODL.</p> <p>A generalized arrangement (Base of the box) for fixing of different makes of meter to be provided. Detailed Dimensional Drawing shall be provided with the Bid.</p>	Mounting arrangement will be not provided with meter box. Kindly accept the same.	Specification to be complied
124	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.4	<p>Clause 5.4-</p> <p>The meter shall be mounted with the help of MS plate such that it is centrally placed in the box and there shall be clearance of 25 mm between the meter and top of the box. A minimum clearance of 50 mm shall be maintained on both sides, between meter and box. A minimum clearance of 10mm at the back &amp; 15mm on the front shall be maintained. A minimum clearance of 50mm shall be provided from the terminal cover to the box to be provided.</p>	Meter have clearance as below: Both sides, Front , Back and top side: 10 mm terminal cover to the box : approx 70 mm	Specification to be complied
125	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.5	<p>Clause 5.5-</p> <p>The design of the meter box shall be such as to easy facilitate easy wiring and access to meter terminals. Nylon gland of internal diameter of around 25 mm shall be provided for I/C and O/G cables of size armoured 2Cx16. The holes for I/C and O/G cables shall be provided in left and right side of meter box at around 30-35mm from bottom corner.</p>	Cable gland of approx 20 mm size will be provided at the bottom of the box.	Specification to be complied. In case of Gland provided at bottom side , barrier plate to be provided so that direct access to meter terminal is not possible from outside of the box.

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
126	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.7	<p>Clause 5.7- The box cover shall be fixed to the base through two nos. Metallic Hinges having Minimum length 40 mm with three screws. The arrangement of the hinges shall be provided on left side of the box. The screws shall not be fixed from outside so that it cannot be visible from outside to avoid any manipulation. The overlapping on hinges should be such that its metallic portion should not be accessible from outside when closed, to achieve this the cover lapping to be provided. The box cover shall be openable by more than 120 degrees. All metallic parts should be well protected against corrosion.</p> <p>5.8- For holding and sealing the box, four U-shaped latches of approx. size 25 mm shall be provided on three sides of box (two on right side and one each on top and bottom side). The latch shall be GI with minimum thickness of 1.2 mm. The latch shall be provided along with suitable clamp assembly in base as well as cover, such that these are fully covered by the latch after closing. The clamp along with the latch shall be provided with a sealing hole such as to provide a sealing arrangement in the assembly and alignment of holes should be perfect so that seal wire may be easily installed.</p>	Meter box will be push to fit type. Kindly accept the same.	Specification to be complied
127	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.10	<p>Clause 5.10 - The box shall be provided with four mounting (fixing) holes of 8 mm size. The screws and gaskets of 6mm size with around 50mm length to be provided for mounting of box in each box in packed in a separate pack.</p>	Meter box have 3 fixing holes. Mounting screw will be provided separately (not with individual meter)	Noted
128	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.11	<p>Clause 5.11- Suitable overlapping (8 mm) shall be provided between base and cover to avoid access to the meter or its accessories inside the meter box by any means after sealing the box.</p>	Overlapping is sufficient enough to avoid access to the meter or its accessories inside the meter box by any means after sealing the box.	Specification to be complied
129	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.14	<p>Clause 5.14- The earthing bolt and the gland shall be connected with metallic GI plate of 1.2mm thick. This plate shall be placed inside of the box.</p>	GI plate will be not provided.	Earthing bolt not required

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130	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.6	<p>Clause 6.0- NAME PLATE AND MARKING The meter box shall be provided with durable and legible marking laser printed / embossing. The following shall be embossed / laser printed with "PO No with date", "PROPERTY OF TPCODL", "ITEM CODE NUMBER", The name plate shall be indelibly and distinctly marked with all essential particulars as per the relevant standards along with the following information :</p> <p>a) Manufacturer's name b) Serial number c) Month and Year of manufacturing d) PO Number &amp; date e) Property OF TPCODL-Odisha f) Danger Sign g) Call Centre No : 1912 (for any complaint)</p>	Only Manufacturer name and danger will be marked on meter box cover.	Specification to be complied
131	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.7.1	<p>Clause No.7.1- Type Test SI No-3 : Resistance to ageing, humid conditions, Ingress of solid objects and to harmful ingress of water (IS : 14772-2000 )</p>	Meter Box is complying with IP54 kindly accept the same.	Specification to be complied
132	TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.7.1	<p>Clause No.7.1- Type Test SI No: 12 UV Light Exposure (UL-746C)</p>	Tesst certificate for UV Light Exposure (UL-746C) is not available however Meter box is complying with IS14772 kindly accept the same.	Specification to be complied
133	Technical Specifications	<p>Clause No 11.0 <b>Latent Defect:</b> Hidden defects in manufacturing or design of the product supplied and which could not be identified by the tests conducted but later manifested during operation of the equipment are termed as latent defects. Associates shall further be responsible for 'free replacement' for another period of THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the Company.</p>	<p>Energy Meters are Guaranteed for 5 years from date of commissioning or 5.5 years from the date of supply which ever is earlier. Latent defect Guaranteed is agreed as 5.5 year is sufficient for any design defect.</p> <p>Request to remove this clause.</p>	Specification to be complied
134	GCC 10.0	<p>Clause No 10.1.1 <b>Price Reduction</b> Recover from the Vendor ascertained and agreed, genuine pre-estimate liquidated damages, and not by way of penalty, a sum equivalent to 1% (of total value of order) per week or part thereof for each week's delay, beyond the scheduled supply date each subject to maximum of 10% of the total order value, even though the Company may accept delay in supply after the expiry of the scheduled supply date.</p>	Request you to please accept the LD charges of 1% per week max. to 10% on undelivered portion.	Specification to be complied

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
135	Section A1 : Tender Notice including Instruction to Bidders Clause 5.0 Award Decision	Clause No 5 <b>Award Decision:</b> ..... Tata power reserves all the rights to award the contract to one or more bidders so as to meet the delivery requirement or nullify the award decision without assigning any reason thereof.	1. Minimum quantity to be quoted related information is not defined. 2. Qty may be awarded to one or more bidders, but at what percentage it would be divided, has not been defined.  Kindly clarify & amend	Specification to be complied
136	Section A1 : Tender Notice including Instruction to Bidders Clause 4.6 Award Decision	Clause 4.6 <b>Reverse Auction:</b> Tata Power reserves the right to conduct the reverse auction AND / OR Manual Negotiations for the products/ services being asked for in the tender. Only Technical Qualified Bids will be allowed to participate in e-auction. Date and time of e-auction will be intimated through E-Tender system to Authorized Person of Interested Bidder.	We will quote our best competitive prices. We will not be able to participate in RA. It is kindly request you to please amend the same	Specification to be complied
137	GENERAL TECHNICAL REQUIREMENTS 4.07, Page 30	Power Consumption : Voltage circuit: Maximum 1.5 W and 5 VA Current Circuit :Maximum 1VA	Please amend the clause to allow Power consumption to be as per IS 13779 Voltage circuit: Maximum 1.5 W and 10 VA Current Circuit :Maximum 4VA	As per IS
138	Clause 4.29(a), Page 31	Backlit LCD, Scrolling, 10 seconds for each parameter minimum 7 digits LCD display	Six-digit display will be provided.	Noted
139	Clause 4.31, Page 32	Software and communication compatibility: The bidder shall supply software required for local HHU connectivity over Blue Tooth including the training required to use the software, free of cost. HHU can be MRI / Android Device (HHU).The meter shall be compatible to communicate with GSM/GPRS/RF modems in DLMS protocol. Meter shall be equipped with BLE 5.1 module to read the meters locally on walk by mode. Requisite mobile application integrable with BCS and Billing database.	Software (Mobile APP) will be provided for Android Device only. HHU connectivity cannot be through Bluetooth. Meters are provided with optical port with DLMS protocol wherein external GSM/GPRS/RF modems can be connected.	Specification to be complied
140	Clause 4.35, Page 32	Phase Indication LED color: Phase Indication should be Green color LED	Phase indication not applicable for Single Phase meter. ICON is provided on the LCD display for indication of power availability.	Noted
141	Clause 4.36, Page 32	Separate Earth leakage LED to be provided which shall only glow when there is a difference of 6.25% between phase and neutral current	LCD indication will be provided	Noted
142	Communication capabilities and software feasibilities Clause 4.1.1, Page 32	The meter shall have facilities for data transfer locally through MRI/Android Device (HHU) (Using BLE port/Optical port/GSM/GPRS/RF modems/Cellular Modems).	Android Device (BLE supported) : Data can be downloaded using BLE port. Optical port : Data can be downloaded using GSM/GPRS/RF modems / Cellular Modems or MRI. (Meter will not have RF communication)	specification to be complied, RF is not required
143	Immunity against external influencing signals Clause 4.2.1, Page 33	Abnormal Magnetic field is defined as below: a) Continuous DC magnetic induction: >0.20 Tesla ± 5% (Value of the magneto motive force to be applied shall be generally >10000 AT. b) AC magnetic induction: >10 mili Tesla ( if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT) c) Permanent Magnet: Immune up to 0.5T and Event logging >0.5T.	As per IS-13779 & CBIP-325, meter will be immune to Stray magnets only. For abnormal magnets mentioned in 13779 & CBIP325, if the meter gets affected it will log at Imax as per the provision given in the standard.	As per CBIP 325
144	Clause 4.2.2 ESD, Page 33	The meter shall be immune to up to 50 kV and record accurate energy as per IS-13779:1999/CBIP-325. Meter shall log the event into memory and BCS as 'ESD' with date & time stamp for any ESD greater than 50 kV with snapshot	Meter is immune, logging will not be provided.	specification to be complied
145	Clause 4.2.4, Page 33	Meter should immune to high/low frequency jammer devices. Meter shall log the event in its memory as "ESD" with date and time stamp along with snapshot, the threshold values as per table no. 1 in 4.4.	Meters are immune to known jammer devices. Logging and display cannot be provided.	Specification to be complied

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146	Clause 4.2.5, Page 33	The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc.	Immunity to microwaves like magnetron cannot be guaranteed. Also logging for the same cannot be provided.	Microwaves - This clause is deleted.
147	Abnormal Tamper conditions Clause 4.4.1, Page 34	Meter shall be immune to Influence of Magnet, ESD, Jammer as per clause 4.2 during all the tamper conditions of Annexure-I.	Offered meters are not immune to Influence of Magnet as per clause 4.2 during all the tamper conditions of Neutral Missing (Single Wire) as per Annexure-I.  Request you to kindly remove this requirement of magnetic testing during Neutral Missing (Single Wire) conditions.  In all other tamper conditions as per Annexure -I , meter will record at I <sub>max</sub> whenever influenced by abnormal magnetic fields as defined in IS13779 & CBIP 325.	Specification to be complied
148	Clause 4.4.5	During abnormal & tamper conditions, the current shall be recorded as active current and line current.	During abnormal & tamper conditions, instead of Active current and line current, Phase Current & Neutral Current will be provided.	Noted
149	5. General Construction, Page 36	7. Lithium with a guaranteed life of 15 years	Battery life of guaranteed life of 10 years will be provided.	Specification to be complied
150	Clause 5.3.3, Page	The terminal cover shall be 45 to 55 mm length from bottom of terminal block in line with meter base.	30mm Terminal cover without cut will be provided.	specification to be complied
151	TOD Feature Clause 5.5, Page 40	TOD Feature : The meter shall be capable of measuring Cumulative Energy (kWh), and MD (kW) with time of day (TOD) registers having 8 zones & 02 seasons (no. of zones & time slot shall be programmable by MRI / Android Device (HHU)/OTA with adequate security level.	TOD zones and time slots can be programmed by CMRI. Programming of any parameters Over The Air (OTA) is not supported through Bluetooth communication.	Specification to be complied
152	Load Survey Clause 5.7.1, Page 41	Midnight energy value of cumulative KWh, KVAh along with H1 KW and KVA along with daily consumption kWh should be available in meter memory for last 90 days.	Cumulative Kwh, KVAh will be provided. Consumption data are derived parameters. Clarification is required on the requirement of H1 KW and KVA in Midnight data. We request to delete this requirement.	Noted
153	11. Guarantee, Page 46	Bidder shall further be responsible for 'free replacement at site' for another THREE years from the end of the guarantee period for any 'Latent Defects' if noticed and reported by the TP (C/N/S/W) ODL.	Latent Defect beyond Guarantee Period is not acceptable.	specification to be complied
154	Brief integration plan Page 54	d. The android mobile app should also have the feature of converting the meter data into XML, PDF formats and on-screen readable text.	Android App will transfer the data collected from the meter to server, which will generate the XML file. App does not support conversion of meter data to xml, pdf and on screen readable text.	specification to be complied
155	Brief integration plan Page 54	f. Bidder shall also provide the APIs from which these raw files could be converted into a common format such as XML and PDF there, that could then be consumed into TATA Power – XODL's billing engine and MDMS appropriately.	XML file shall be generated at the server level and the same can be integrated into XODL's billing engine and MDMS.	Specification to be complied
156	Brief Integration Plan - 2.a, Page 54	a. Bluetooth 5.0 or above is to be used in these energy meters, with backward compatibility.	Guaranteed range will be 10m for Bluetooth communication.	Specification to be complied
157	Annexure II Cyber Security Requirement Page 55	Solution provider to conduct VAPT of the supplied solution from a 3rd party CERT - In empaneled security auditor and submit necessary reports to Tata Power-XODL and subsequently conduct confirmatory testing. The VA&PT report should consider all scenarios w.r.t Blue tooth enabled meters and mobile app.	VAPT Test Report cannot be provided. However, we will provide the Procedures to be followed to ensure security of the products.	Specification to be complied
158	4.0 General Technical Requirements, Page 58	2. Degree of IP: 55 (For Box)	IP 54 will be provided.	Specification to be complied
159	Clause 5.4, Page 59	The meter shall be mounted with the help of an MS plate such that it is centrally placed in the box and there shall be a clearance of 25 mm between the meter and top of the box.	The meter will be mounted on Plastic projection available in the box instead of MS plate.	Noted



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160	Clause No. 4.07 Page No. 30	<b>Power Consumption :</b> Voltage circuit: Maximum 1.5 W and 5 VA Current Circuit :Maximum 1VA	Power consumption will be provided as per IS 13779 with latest amendment.	Noted
161	Clause No. 4.25 Page No. 31	<b>Alternate mode of supply to the meters:</b> In case of meter power failure , reading/data should be retrieved with the help of battery or other power Source.	In case of meter power failure , reading/data will be retrieved by optical communication with the help of battery.	Noted
162	Clause no 4.27 & Clause no 8.5 Page No. 31	Depth of the terminal holes : 25 mm	Depth of terminal hole will be 17.5 +/-1 mm.	Noted
163	Clause No. 4.30 Page No. 5	<b>Security feature:</b> Programmable facility to restrict the access to the information recorded at different security level such as read communication, write communication, firmware selection from remote etc.	Firmware selection from remote is not applicable as per IS 15959 Part 1 for Non Smart meter.	Noted
164	Clause No. 4.31 Page No. 31	<b>Software and communication Compatibility:</b> he bidder shall supply software required for local HHU connectivity over Blue Tooth including the training required to use the software, free of cost. HHU can be MRI / Android Device (HHU).The meter shall be compatible to communicate with GSM/GPRS/RF modems in DLMS protocol. Meter shall be equipped with BLE 5.0 and above module to read the meters locally on walk by mode. Requisite mobile application integrable with BCS and Billing database.	Android based application will be provided for HHU. Mobile app will be integrable with billing data base.	Specification to be complied. Required Mobile App, BCS software , CMRI software , all support for integration with TPXODL Billing App for walk by reading mode to be provided free of cost by the bidder. And for full data downloading by mobile app and retrieval of the data at the server end.
165	Clause No. 4.36 Page No. 32	<b>EL LED</b> Separate Earth leakage LED to be provided which shall only glow when there is a difference of 6.25 % between phase and neutral current & shall auto reset when the difference is lower than 6.10%.	LCD icon will be provided for Earth load indication on meter display in place of Earth LED.	Noted
166	Clause No. 4.1.4 Page No. 32	The XML files of downloaded data of the meters will be as per MIOS/DLMS standards. BLE 5.0 or better with supported Mobile application to read the meters locally on walk by mode.	XML conversion will be done at BCS end, BLE 5.0 and above supportable mobile app will be provided.	specification to be complied.
167	Clause No. 4.1.5 Page No. 32	The bidder shall supply software required for local (MRI /Android Device (HHU)/Laptop) & remote (AMI/AMR) connectivity including required training to use the software free of cost. Bidder shall provide the communication protocol / APIs as per MIOS/DLMS standards for communication with meter through local (MRI / Android Device (HHU)) / BCS as and when required by TATA POWER-XODL,free of cost during life time of meter. The bidder should provide DLMS compliance for communication with the meter at BLE port.	DLMS compliance certification will be provided at optical communication port and DLMS compliance on BLE port will be self certified.	Noted
168	Clause No. 4.1.6 Page No. 32	Bidder should also provide software for changing firmware of meters in mass. Any software / keys required to reprogram the meter and any other support for enabling TATA POWER-XODL to execute this option will be provided without any additional cost to TATA POWER-XODL.	Firmware upgradation will not applicable as per IS 15959 Part 2 for the non smart meter.	Specification to be complied. Required Mobile App, BCS software , CMRI software , all support for integration with TPXODL Billing App for walk by reading mode to be provided free of cost by the

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169	Clause No. 4.2.1 Page No. 33	<p><b>4.2.1 Magnetic Field:</b>  a) Meter shall log the event in its memory as "MAGNET" with date and time stamp within 2 minutes of application of abnormal magnetic field and shall start recording at 100% I<sub>max</sub> and after removal of magnet, back to normal recording within 2 minutes  b) Meter shall show "Magnet" in the display.  Abnormal Magnetic field is defined as below;  a) Continuous DC magnetic induction: &gt;0.27 Tesla ± 5%(Value of the magnetomotive force to be applied shall be generally &gt;10000 ATs, Should be immune up to 0.27Tesla)  c) Permanent Magnet: Immune up to 0.5T and Event logging &gt;0.5T</p>	We will be provided all magnetic tamper condition as per CBIP 325 with latest amendment.	As per CBIP 325
170	Clause No. 4.2.2 Page No. 33	<p>4.2.2 Electrostatic Discharge (ESD)  Meter shall be immune up to 50 kV and shall record accurate energy as per IS_13779:1999/CBIP-325. Meter shall log the event into memory and BCS as 'ESD' with date &amp; time stamp for any ESD greater than 50 kV with snap shot, the event logging threshold values as per table no. 1 in clause 4.4.</p>	Meter will log ESD tamper if meter gets affected.	Noted
171	Clause No. 4.2.3 Page No. 33	The shielding around the meter shall be such that it does not get affected by high voltage and high energy or low energy impulse when comes in contact with meter from any side.	Suitable arrangement will be provided as per the meter design.	Specification to be complied
172	Clause No. 4.2.5 Page No. 33	The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves like magnetron etc.	Meter will be immune up to some level, beyond that meter will log ESD tamper. However meter may not be immune or log any tamper for microwaves application.	Noted
173	Clause No. 4.3.3 Page No. 33	<p><u>Neutral Disturbance &amp; other tampers:</u>  The meter shall record energy proportional to the actual current and V Ref (230V) at UPF when any of the tamper circuits enclosed as per annexure1 are used to tamper energy using any type of diode or a variable resistance or a variable capacitance, energy saving device; or any DC injection as per 4.3.2</p>	In case of ND tampering condition, meter will record energy proportional to the actual current, Vref (240 Volt) and UPF.	Noted. However meter should not record at defraud metering when supply voltage is low & all the connections are intact.
174	Clause No. 4.3.5 Page No. 34	<p><u>Other tampers:</u>  Current mismatch - Meter should logged current mismatch event as per thresholds in table no.1. Priority of logging this event in memory of meter is higher than earth tamper and earth LED shall glow as per its own logic Irrespective of this logic.</p>	We request you to kindly accept Earth load indication on meter display for current mismatch tamper.	Specification to be complied. Meter should logged current mismatch event as per thresholds in table no.1. Priority of logging this event in memory of meter is higher than earth tamper and earth LED/LCD Icon shall glow as per its own logic Irrespective of this logic.
175	Clause No. 4.4.2 Page No. 34	<p><u>Abnormal Tamper conditions:</u>  All the tamper events as per following chart shall be logged in the memory of the meter with date and time stamp of occurrence and restoration along with instantaneous electrical parameter (Voltage, Current (phase and neutral ), energy (kWh &amp; KVAh), PF. The event register compartment size shall be as per table no.1</p>	Compartment of the events will be made as per IS 15959 Part 1.	specification to be complied.

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176	TABLE No. 1 Page No. 35	<p><b>Persistence Time for Occurrences-</b> Magnet = 0 Hr 5 Min 0 sec (MAG)</p> <p><b><u>Persistence Time for Restoration -</u></b> Magnet = 0 Hr 5 Min 0 sec (MAG)</p> <p><b><u>Threshold Value for Occurrence of Events-</u></b> &gt; 0.5 Tesla for permanent magnet OR DC magnetic induction &gt; 0.2T OR AC magnetic induction &gt; 10 mT</p> <p><b><u>Threshold Value for Restoration of Events -</u></b> &lt; 0.5 Tesla for permanent magnet OR DC magnetic induction &lt; 0.2T or AC magnetic induction &lt;10 mT</p> <p>Compartment Size – 25</p>	<p><b>Persistence Time for Occurrences-</b> Magnet = 0 Hr 0 Min 10 sec (MAG)</p> <p><b><u>Persistence Time for Restoration -</u></b> Magnet = 0 Hr 0 Min 10 sec (MAG)</p> <p><b><u>Threshold Value for Occurrence of Events-</u></b> As per CBIP 325 with latest amendment</p> <p><b><u>Threshold Value for Restoration of Events -</u></b> As per CBIP 325 with latest amendment</p> <p>Compartment – other related tamper</p>	As per CBIP 325
177	Clause No. 4.4.8 Page No. 36	The Cover Open tamper detection should be through heavy duty, sturdy micro switch such that it should not operate on vibration or impact during handling or testing.	The cover open tamper detection will be provide through carbon switch.	Specification to be complied
178	GENERAL CONSTRUCTION S Cl.No. 5 Page No. 36			
179	Measurement/ computing chips	USA: Anolog Devices, Cyrus Logic, Atmel, Phillips, Free scale semiconductor South Africa: SAMES Japan: NEC	Renesas	Noted
180	Memory chips	USA: Atmel, National Semiconductors, Texas Instruments, Phillips, Microchip Japan:Hitachi or Oki Swiss: STMicro	Onsemi, ROHM	Noted
181	Display modules	Taiwan: Holtek Singapore: Bonafied Technologies Korea: Advantek China: Xiamen, Truly Semiconductor	Tianma, Yeebo	Noted

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182	BLE port	USA: National Semiconductors Holland / Korea: Phillips Taiwan: MAXIM, Everlight Japan: Hitachi	TI, SI Lab	Noted
183	Electronic Components	USA: National Semiconductors, Atmel, Phillips, Texas Instruments, Vishay Japan: Hitachi, Oki, AVX or Ricoh Korea: Samsung	Toshiba, Fairchild, Murata, Rohm, Siemens. Hitachi, Panasonic. Yageo, Diotec Phycom, Koshin	Noted
184	Battery	Varta / Tedirun / Vitzrocell / Sanyo or Equivalent. Lithium with minimum guranteed life of 15 years	Panasonic, EVE, Mitsubhishi, Teckcell. guranteed life of 10 years	Noted, Battery life 15years is required
185	Micro controller and RTC	USA: Philips , Dallas, Atmel, Motorola Japan: NEC or Oki	Renesas	Noted
186	Temperature Sensor	USA: Philips , Dallas, Atmel, Motorola Japan: NEC or Oki	Renesas	Noted
187	Clause No. 5.2.8 Page No. 39	Temperature sensor to be placed at a suitable location that the temperature inside meter could be sensed properly and the meter should be programmed in such way that on reaching the set threshold value (as per tamper table) the event should be logged in the meter.	Temperature sensor will be inbuilt in microcontroller.	Noted
188	Clause No. 5.7 Page No. 41	<b>Parameters in BCS :</b> All these parameters (mention below clauses) shall be downloaded locally or remotely and interpreted in PC/Laptop. All the parameters shall be recorded and memorized in its Nonvolatile Memory (NVM). The corresponding nonvolatile memory shall have a minimum retention time of 10 years. Fail to be log in memory in the following conditions only in BCS not in display a) RTC fail b) NVM memory fail c) Battery fail	NVM fail will be provided on the meter display.	specification to be complied.
189		<b>Load Survey :</b> The meter shall be capable of recording 30 minutes average of the following parameters for at least last 90 days a) Phase Voltage b) Phase Current c) Neutral current d) PF e) kWh f) kVAh g) kW h) kVA	KW,KVA and PF will be derived at BCS end.	Noted

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190	Clause No. 5.7.2 Page No. 41	<b><u>Instantaneous Parameters:</u></b> Meter shall be capable of recording following Instantaneous parameter In Memory and should be available in BCS Meter Serial No Meter Type 1P 2W 10-60A	Meter Serial no. and Meter Type will be available in name plate Profile.	Noted
191	Clause No. 5.7.3 Page No. 41	<b><u>General Information:-</u></b> Meter shall be capable for providing below mention general parameters in memory and should be available in BCS Meter Serial number Firmware version Manufacture Name Manufacture Date (MM/YYYY) Meter Type Meter Class Meter Constant Meter Voltage Rating Meter Current Rating TOD profile	TOD profile will be provided in billing profile as per IS 15959 Part 1.	Noted
192	Clause No. 5.7.5 Page No. 42	<b><u>Transactions:</u></b> All the changes in software of meter to be logged along with date & time stamp and readings. Meter should do billing if any billing related transaction is done.	Meter will be logged the transaction event with date and time as per DLMS IS 15959 Part 1.	Noted
193	Clause No. 5.8 Page No. 20	<b><u>Display units</u></b> The display should be readable in direct sunlight. The back lit must be green in color for reading in sunlight. Phase Indication should be Green LED only.	LCD icon will be provided on meter display for phase indication in place of Phase LED.	Noted
194	Clause No. 5.8 Page No. 42	<b><u>Display units</u></b> The kWh and kVAh registers shall have 7 digits LCD display and size of the digits shall be minimum 10mmx5mm (No decimal should be given) .	The kWh and kVAh registers will have minimum 6 digits LCD display.	Noted
195	Clause No.5.8.1 Page No. 42	<b><u>Auto Scroll/ Push button mode</u></b> High Resolution KWh and KVAh up to min 4 digits after decimal should be provided in scroll lock provision.	We will be provided a suitable time for the high resolution parameters which could be stable for a time period.	specification to be complied.
196	Clause No. 5.8.1 Page No. 42	<b><u>Auto Scroll/ Push button mode:</u></b> <b><u>A. Post Paid without TOD</u></b> Meter Sr. No. (The eight digit Serial no. to be displayed with sequence 2 + 6 digits at a time, completer no. in single shot is preferred)	Two display parameter will be made for meter serial no. First display parameter will show first two digit of meter serial no. and second display parameter will show remaining part of the serial no.	Noted
197	Clause No. 5.8.1 Page No. 42	<b><u>Auto Scroll/ Push button mode:</u></b> A. Post Paid without TOD B. Post-Paid with TOD	Please clarify which type of display parameters is required by default. A. Post Paid without TOD or B. Post-Paid with TOD	This shall be shared during detailed engineering.
198	Clause No. 5.9 Page No. 42	<b><u>Output Device:</u></b> 1. Phase LED: Phase Indication should be Green LED only.	LCD icon will be provided on meter display for phase indication in place of Phase LED.	Noted

Sr. No.	Detailed Reference to NIT. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	Tata Power Response
199	Clause No. 5.9 Page No. 42	<b>3. Earth Leakage LED</b> – The meter shall be provided with earth EL LED for Earth Leakage. The EL LED shall glow when there is a difference of 6.25 % between phase and neutral current & shall reset when the difference is lower than 6.25%.	LCD icon will be provided on meter display for earth indication in place of Earth LED.	Noted
200	Brief integration plan	2. Hardware: a. Bluetooth 5.0 or above is to be used in these energy meters, with backward compatibility. Bluetooth communication range should be a minimum of 100 meters radius.	Bluetooth communication range will be a minimum of 30 meters radius	Specification to be complied
201	Terminals, Terminal Block 5.2.4	The terminal block shall be of opaque with polycarbonate LEXAN500R or equivalent	Terminal block will be provided PBT With 30% G.F	Noted
202	Meter Box			
203	Cl. No. 5.2 <b>General Construction</b>	The meter box shall have a taper corner for easy flow of rain water and shall have degree of IP55 for protection against dust and water.	IP54 box will be provided	specification to be complied.
204	Cl. No. 5.3 <b>General Construction</b>	The box shall be provided with meter mounting arrangement along with MS plate on top for mounting the meter from different manufacturers, having different mounting dimensions. The top plate shall be fixed on the base taking care of the alignment with the fixing holes provided in the base. The detail drawing of the mounting arrangement of all the meters shall be provided to successful bidders by the TPCODL. A generalized arrangement (Base of the box) for fixing of different makes of meter to be provided.	Mounting Pillars will provided for Meter fixing instead of MS Plate, Only Genus Meter mounting arrangement available	Noted
205	Cl. No. 5.4 <b>General Construction</b>	The meter shall be mounted with the help of MS plate such that it is centrally placed in the box A minimum clearance of 50mm shall be provided from the terminal cover & 70mm from terminal block to the box to be provided.	Clearance 75mm from T block to the box will be provided	Noted
206	Cl. No. 5.5 <b>General Construction</b>	Nylon gland of internal diameter of around 25 mm shall be provided for I/C and O/G cables of size armoured 2Cx10. The holes for I/C and O/G cables shall be provided in left and right side of meter box at around 30-35mm from bottom corner.	Plastic cable Gland will be provided at bottom side of box instead of Left & right side	Barrier plate to be provided in case the gland are provided from the bottom side. Direct access to meter terminal should not be possible form outside of the Box.
207	Cl. No. 5.6 <b>General Construction</b>	The number of pillers to be provided in box as per TPCODL different type of meters. If there is any change in existing meter design or new meter introduced, bidder shall provide meter mounting pillar accordingly in meter box with modification in their mould without any extra cost.	Pillars is suitable only for Genus Meter	Noted
208	Cl. No. 5.7 <b>General Construction</b>	5.7- The box cover shall be fixed to the base through two nos. Metallic Hinges having Minimum length 40 mm with three screws. The arrangement of the hinges shall be provided on left side of the box. The screws shall not be fixed from outside so that it cannot be visible from outside to avoid any manipulation.	Meter box have 2 Nos. Metallic Hinges having Minimum 15 to 25 mm length with two screws on left side of the box.	Noted

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209	Cl. No. 5.8 <b>General Construction</b>	For holding and sealing the box, four U-shaped latches of approx..size 25 mm shall be provided on three side of box( two on right side and one each on top and bottom side).The latch shall be GI with minimum thickness of 1.2 mm. The latch shall be provided along with suitable clamp assembly in base as well as cover, such that these are fully covered by the latch after closing. The clamp along with the latch shall be provided with a sealing hole such as to provide a sealing arrangement in the assembly and alignment of holes should be perfect so that seal wire may be easily install.	Meter box have 2 Nos U-shaped latches With size 25mm, Thickness Minimum 1 mm on the right side of Meter box.	Noted
210	Cl. No. 5.1.11 <b>General Construction</b>	<b>The box cover and base should have overlapping of more than 10mm long from inside and outside (Cover design should ensure the same)</b>	8±1 mm Overlapping will be provided between base and cover	Noted
211	Cl. No. 5.13 <b>General Construction</b>	The glands should be of 25 mm diameter and without inclined length but should have extended threads of 15mm inside box and a gland cap should be fixed on this gland from inside. The inside gland cap shall have opening of 18mm on the side of the earthing bolt incomer side and other side gland cap (outgoing) shall have 16mm opening.	We will provide PG29 collapsable glands at the bottom side.	Specification to be complied. In case of Gland provided at bottom side , barrier plate to be provided so that direct access to meter terminal is not possible from outside of the box.
212	Cl. No. 5.1 <b>General Construction</b>	The box shall be provided with four mounting (fixing) holes of 8 mm size. The screws and gitties of 6mm size with around 50mm length to be provided for mounting of box in each box in packed in a separate pack.	Meter box have 2 Nos. Key Hole on the top side and 2 Nos. 6mm dia Circular on the bottom side.	Noted
213	Clause No. 7.1.2 (Type Test) GTP 10 (e)	Provision for earthing (IS : 14772-2000) Enclosure shall be provided with a facility for permanent and reliable connection to earthing Earthing arrangement :Not required	Kindly confirm the earthing arrangement is required on meter enclosure box.	Earthing arrangement not required
214	GTP 10 (l)	4 Number Gitti and screws provided with M6 Screw with min. length 50mm	4 Number Gitti and screws AB8x32mm provided	Noted
215	GTP 10 (n)	Two nos. GI Hinges having Minimum length 40 mm with three screws	Meter box have 2 Nos. Metallic Hinges having Minimum 15 to 25 mm length with two screws on left side of the box.	Noted
216	GTP 10 (p)	Number of U-shaped GI clamp & latches – 4	2nos SS U clamp	Noted
217	GTP 10 (q)	GI U clamp with 1.2mm thickness on three sides having min.25mm length	SS U clamp 1.0mm Thk. - 2nos on right side	Noted
218	GTP 13	The both gland provided with inside gland cap	Plastic cable gland provided with rubber gasket	Noted