

**TPCODL Response to Prebid Querries**

Tender No : TPCODL/P&S/1000000128/2021-22

Supply of Single Phase, DLMS Compliant Energy Meter with Meter box

| SL NO                    | Detailed Reference to concerned Document . Please specify Document No / Clause No / Page No | Description as per Bid Document   | Query / Clarification / Deviation   | TPCODL Response                  |
|--------------------------|---|---|---|----------------------------------|
| 1                        | 2   | 3   | 4   | 5                                |
| <b>Techno-Commercial</b> |   |   |   |                                  |
| 1                        | GCC/Clause No13.3   | Clause No 13.3<br><b>Failure in Guarantee Period (GP):</b><br>Any repairs during the Guarantee Period shall be carried out by the Associate within 30 days of reporting the issue to Associate by TPCODL. However, if replacement of the Equipment is required, Associate shall notify the same to TPC within 7 days of reporting the issue by TPCODL.  | Since it's a customised product repair & replacement should be allowed within 45 days from the date of reporting for Odisha.  | Tender conditions to be complied |
| 2                        | GCC<br>13.6   | Clause No 13.6<br><b>Latent Defect:</b><br>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.                                     | 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.<br><br>Request to remove this clause. | Tender conditions to be complied |
| 3                        | GCC<br>14.0   | Clause No 14<br><b>LIQUIDATED DAMAGES:</b><br>For delay of each week and part thereof from the delivery schedule specified in the contract, 1% of contract value corresponding to undelivered quantity, provided full quantity is supplied within 130% of the original contract time. If full contractual quantity is not delivered within 130% of contract time for delivery, TPCODL has the right to levy LD on the entire contract value, subject to a maximum of 10% of the total contract value. | Request you to please accept the LD charges of 1% per week max. to 10% on undelivered portion.  | Tender conditions to be complied |
| 4                        | Clause 5.0 Award Decision   | Clause No 14<br><b>Award Decision:</b><br>..... TPC 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.<br>2. Qty may be awarded to one or more bidders, but at what percentage it would be divided, has not been defined.<br><br>Kindly clarify & amend                                     | Tender conditions to be complied |
| 5                        | TPCODL/P&S/1000000128/2021-22<br>Clause No-3.9  | Clause 3.9<br><b>Reverse Auction:</b><br>TPCODL reserves the right to conduct the reverse auction (instead of public opening of price bids) for the products/ services being asked for in the tender.   | 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  | Tender conditions to be complied |
| <b>Technical</b>         |   |   |   |                                  |
| 1                        | 5.3   | MS plate for different meter mounting arrangement   | MS plate can't possible to provide.<br>Meter mounting arrangement as per L+G 1P Mmeter with moulded 3 nos. pillars.<br>Kindly accept the same.  | Noted                            |
| 2                        | 5.4   | Meter shall be mounted on MS plate  | Meter mounting arrangement on moulded pillar as per L+G 1P Meter.<br>Kindly accept the same.  | Noted                            |
|                          |   | Minimum clearance 30 mm on both the sides   | 24 mm   | Specification to be complied     |

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| 4 | 5.7                           | Front 15 mm  | 12 mm  | Specification to be complied                               |
|   |                               | From Bottom 50mm   | 82 mm<br>We request you accept box clearance as per manufacturer standard design.  | Specification to be complied. Minimum 50mm to be provided. |
| 3 | 5.7                           | Metalic Hinge on left side of box of length 40mm   | We request you to accept Plastic hinge on left side of box of length: 32mm   | Specification to be complied                               |
| 4 | 5.8                           | 4 latch with sealing provision   | We request you to accept one latch on right side middle position or in the right side 2 nos. latch arrangement can be given. Kindly accept the same.         | Minimum 2nos. Latches to be provided.                      |
|   | 5.10                          | Four mounting holes of 8mm size  | As per our standard design, box has 2 key holes & 2 round holes of dia 6mm. Kindly accept the same.  | Noted  |
|   | 5.11                          | Suitable overlapping 8mm   | Overlapping is 6mm from inside & 8mm from out side. Kindly accept the same.  | Specification to be complied                               |
|   | 5.14                          | GI gland plate of 1.2mm thick  | GI gland plate of 1mm thick. Kindly accept the same.   | Noted  |
| 5 | 5.15                          | 25 mm diameter with 15mm extended threads  | As per standard PG25 gland (I/D: 20mm) with extended threads 8mm inside the box locked with plastic nut without gland cap available. Kindly accept the same. | Noted  |
| 6 | 5.17                          | The base of the box shall have multiple arrangements so that different of meters may also be fitted.   | Box has only option for fitment of L+G 1P Meter  | Noted  |
|   | 6.0                           | Name plate & marking   | Meter sr. no. month & year of mfg. will be inkjet printing others will be embossed. Kindly accept the same.  | Specification to be complied                               |
|   | (Clause No - 5 ) Page No : 31 | The bidder should provide DLMS compliance for Communication with the meter at Optical / RJ11 (RJ11 is optional). Optical Communication port shall be available for communication along with additional RJ11 port with specific pin configuration of utility along with sealing arrangement to communicate with GSM/GPRS/RF modems.                       | No RJ 11 port will be provided since its optional.   | Noted  |
|   | 4.32 Page No -30              | 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, billing date, display, tariff etc shall be reconfigure through CMRI and any other support will be provided without any additional cost to TPCODL till the useful life of the meters. | Transactions/configuration will be as per DLMS IS 15959. Kindly accept the same.   | Noted  |
| 7 | 9.0 Page No: 37               | Depth of terminal hole 25 mm   | As per our standard design, we shall provide 22 mm terminal hole which is sufficient to hold the service cable. Kindly accept the same.                      | Noted  |

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| 8  | 12.0 Page No-39    | Instantaneous Parameters:<br>Meter shall be capable of recoding following Instantaneous parameter<br>In Memory and should be available in BCS<br>Meter Serial No<br>Meter Type<br>Meter date and Time<br>MRI date and time<br>Dump date and time<br>Phase Current<br>Neutral current<br>Signed Power Factor<br>Instantaneous Load (KW, KVA)<br>Present Cumulative energy (KWH, KVAH)<br>Cumulative Tamper count<br>Cumulative Billing Count<br>Cumulative Power ON duration in minutes<br>Other Parameter as per IS15959 | We will provide Instantaneous Parameter as per DLMS IS15959.<br>In place of Phase current and Neutral Current in Instantaneous Parameter, we will provide Metering Current.<br><br>Kindly accept the same.   | Specification to be complied   |
|    | 12.0 Page No : 38  | Billing Information<br><br>TOD wise billing Information<br><br>Current + 12 Month History of Energy (KWH, KVAH, KVARH Lag, KVARH Lead)<br><br>Current + 12 Month History of Consumption (KWH, KVAH, KVAR Lag, KVAR Lead)<br><br>Current + 12 Month History of Demand (KW, KVA, KVAR Lag, KVAR Lead) along with date and time stamp<br><br>Current + 12 Month History of PF   | In single phase meter TOD wise reactive parameter ( Reactive energy and demand) will not be in use also its not part of DLMS 15959 for single phase meter so TOD wise Reactive Parameters will not be provide in current and History parameters.<br><br>Reactive Demand will not be possible also<br><br>Monthly History of PF IN TOD will not be provided.<br><br>Kindly accept the same. | Noted  |
|    | 5.0.5 Page No 33   | The cover open tamper detection should be through heavy duty sturdy micro switch.  | We will provide top cover open feature through our proprietary implementation for cover open event detection.<br><br>Kindly accept the same.   | Noted  |
|    | 5.0 Page No : 31   | Bidder should also provide software for changing firmware of meters in mass without any additional cost.   | Meter are factory calibrated and firmware cannot be updated in field to prevent any unauthorized access to meter.<br><br>Kindly accept the same.   | Noted  |
|    | 9                  | 5.0 Page No : 31   | Communication of the meter at optical port should be as per IS15959 (Part-2):2016  | Part 2 belongs to Smart Meter. We shall provide optical communication as per IS 15959 Part 1 |
| 10 | 6.0.2 Page No : 32 | The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves etc.  | Microwave immunity will not possible to provide.<br><br>Kindly accept the same.  | Noted  |
|    | 6.0.3 Page No : 33 | Neutral Disturbance : The meter shall record energy proportional to the current and V Ref (230V) when any of the tamper circuits enclosed as per annexure are used to tamper energy using a diode or a variable resistance or a variable capacitance energy saving device.   | Defraude voltage will be Vref ( 240 V) for defraude running of tamper.<br><br>Kindly accept the same.  | Noted  |
|    | 6.0.5 Page No : 33 | All the tamper events i.e. 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, pf , frequency etc )   | We shall provide tamper snapshot as per DLMS IS 15959.<br>Frequency will not be possible in snapshot.<br><br>Kindly accept the same.   | Noted  |
|    | 6.0.5 Page No : 33 | Meter shall store cumulative count and cumulative durations all the tamper event which have logged by meter from the date of energization till life of meter.  | Cumulative tamper duration will not be possible as tampers are FIFO based .<br><br>Kindly accept the same.   | Noted  |

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| 11 | 12.0 Page No : 39  | Load survey:<br>The meter shall be capable of recording load profile of 90 days 15 min IP for ON days only for following parameters.<br>Voltage<br>Phase Current<br>Neutral Current<br>PF<br>KWH<br>KVAH<br>KW<br>KVA  | In place of Phase Current and Neutral Current we will provide Metering Current.<br><br>Kindly accept the same.   | Specification to be complied   |
| 12 | 6.0.5 Page No : 33 | Abnormal and Tamper conditions:  | No restoration logic provided in tender specification. We shall provide suitable restoration logic in tender sample.   | Noted  |
|    | 7.0 Page No : 36   | 1. Measurement/ computing chips  | Please add Renesas in the list as it's a reputed make.   | Noted  |
|    | 7.0 Page No : 36   | 2. Memory chips  | Please add ST, Renesas, Adesto in the list these are reputed make.   | Noted  |
|    | 7.0 Page No : 36   | 3. Display Module  | Please add Hijing(Jiya) it's a reputed make.   | Noted  |
| 13 | 7.0 Page No : 36   | Optical Port   | Please add Everlite it's a reputed make.   | Noted  |
| 14 | 7.0 Page No : 36   | Battery  | Please EVE make also it's a reputed make.  | Noted  |
|    | Page- 39           | MID Night Energy:<br>Meter shall be capable of recording daily Midnight Energy(KWH, KVAH, KVARH Lag, KVARH Lead) and Demand(KW,KVA) 00:00 to 24:00 Hrs for 90 power ON days.   | Mid Night energy will be as per IS 15959 .<br>No reactive energy , demand will be provided.<br>Kindly accept the same.   | Noted  |
|    | Page- 39           | Instantaneous Parameters :<br>MRI date and time Dump date and time   | These are not the part of Instantaneous parameters. But these will be available in BCS.<br><br>Kindly accept the same.   | Noted  |
|    | Page- 39           | General Information: Meter Display Sequence  | We shall provide as per DLMS IS 15959. Meter display sequence will not be possible.<br><br>Kindly accept the same.   | Noted  |
| 15 | Page- 40           | Display digits shall be minimum 10mmx6mm   | Display digits should be manufacturer specific and we provide minimum 7.6mmx4.1mm. As per our standard design.<br><br>Kindly accept the same.                    | Noted  |
| 16 | 9.0 Page No: 37    | Terminal Cover with 4 U cuts to enable smooth insertion of cable in the terminals.   | Since Short terminal cover is the requirement as per specification so 4 U cuts will not be applicable. We will provide one C Cut.<br><br>Kindly accept the same. | U Cut Not required .<br>It should not be possible to access the meter terminal from outside of the box . |
|    | 6.0.5              | Tamper threshold and defraud metering  | Defraude metering will be on 240V.<br><br>Kindly accept the same.  | Noted  |
|    | 9.0 Page No : 37   | Terminals shall be preferably of MS cage clamp type  | We have our own design to firm grip of conductors with help of two screw.<br><br>Kindly accept the same.   | Noted  |
|    | 6.0.1 Page No: 32  | Abnormal Magnetic field is defined as below;<br>a) Continuous DC magnetic induction: >0.2 Tesla $\pm$ 5%(Value of the magneto motive force to be applied shall be generally >10000 ATs,<br>b) AC magnetic induction: Immune for 10 milli Tesla ( if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT<br>c) Permanent Magnet: Immune up to 0.5T and Event logging >0.5 | For magnetic influence we will comply as per CBIP 325 .<br><br>Kindly accept the same.   | Noted  |

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| 17 | 6.0.2 Page 32  | Electrostatic Discharge (ESD)   | Meter will be immune to ESD and Jammer. So no logging will be provided.<br><br>Microwave immunity will not be possible.<br><br>Kindly accept the same.  | Noted                        |
| 18 | 11.0 Page : 38   | MD shall be recorded and displayed with minimum three digits before decimal and minimum two digits after decimal points. MD integration   | MD will be 2+2 digit . 2 digit before decimal will be sufficient for 10-60A single phase meter.<br><br>Kindly accept the same.  | Noted                        |
|    | 6.0.3 Page No : 32   | Neutral Disturbance   | We shall provide ND occurrence and restoration time 1 minute.<br><br>Kindly accept the same.  | Noted                        |
|    | Technical specification for static Single phase WC meter / Clause No.2 ( c ) | Clause no. 2.0<br>Application standards:<br>c) IS 15959 (part-2 2011)   | This DLMS standard is applicable for Smart Meter, hence it is not applicable for this tender<br>Please amend accordingly.   | Noted                        |
|    | Technical specification for static Single phase WC meter / Clause No.4.3     | Clause no. 4.3<br>General Technical Requirements:<br>Basic Current (Ib) & rated Maximum current (Imax)<br>Ib= 10A; Imax= 60 Amps<br>(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 |
| 19 | Technical specification for static Single phase WC meter / Clause No.4.15    | Clause no. 4<br>4.15 Resistance to heat & fire<br>The terminal block & meter case shall ensure safety against the spread of fire.<br>These should not be ignited by thermal overload of live parts in contact with them as per clause 6.8 of IS 13379 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.<br><br>Same should be acceptable   | Specification to be complied |
| 20 | Technical specification for static Single phase WC meter / Clause No.4 .23   | Clause 4<br>4.23 Self Diagnostic features<br>The meter shall have indications for un satisfactory /non functioning of<br><br>1. Real time clock<br>2. RTC battery<br>3. Non Volatile Memory   | 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. Status of RTC & NVM not available at BCS ends in healthy condition.<br>Self diagnostic will be available on Display only, as describe below:-<br><br>Self Diagnostic<br>Where Value displayed place of "Good" if meter health is not good:<br>Memory fail = 1,<br>Low battery = 2<br>Bad battery = 4<br>RTC BAD= 8<br>If more than one condition persists then value comes some of this value.<br>However in case of NVM failure & Low battery event will also log & can be viewed at BCS end.<br><br>Same should be acceptable. | noted                        |

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|    | Technical specification for static Single phase WC meter / Clause No.4 .25  | Clause 4<br>4.25 Alternate mode of supply to meters.<br>In case of power failure reading data shall be downloaded with the help of battery of long life(min. 10 years)  | meter would have battery for metering, display and reading in the absence of mains supply or single-wire connection (5-year life)  | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.4 .27  | Clause no. 4<br>4.27<br>Depth of the terminals- 25mm  | Depth of terminal hole will be 21mm (approx). It is sufficient to accommodate cable of desired current carrying capacity.<br>Same should be acceptable.  | Noted |
|    | Technical specification for static Single phase WC meter/ Clause No.4 .28   | Clause no. 4<br>4.28 Clearance between adjacent terminals- 10 mm(minimum)   | Center to center 10 mm clearance from adjacent terminals is available, which meets the requirement of IS13779.<br>Same should be acceptable  | Noted |
| 21 | Technical specification for static Single phase WC meter / Clause No.4<br><br>Technical specification for static Single phase WC meter/ Clause No.5 | Clause No. 4<br>4.31 Software & communication capability:<br>The meter shall be compatible to communicate with GSM/GPRS/RF modems in DLMS protocol.<br><br>5.0 Communication capabilities and software feasibilities:<br>The meter shall have facilities for data transfer locally through CMRI (Using optical portGSM/ GPRS/RF modems).  | Offered meter comply as per IS: 15959. The meter will have facility to data transfer locally through CMRI and remotely through GSM/GPRS Modem. We understand that supply of external modem is not in the scope of this tender. Please confirm the same.                        | Noted |
| 22 | Technical specification for static Single phase WC meter / Clause No.4.32   | 4.32 Calibration<br>However parameter like RTC,TOD slots ,billing date, display, tariff etc shall be reconfigurable through CMRI  | Display parameters are not field configurable as per IS 15959, same is not supported in offered meter. Display parameters are not field configurable.<br>Same should be acceptable   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.4.34   | Clause no. 4<br>4.34 Ultrasonic welding<br>Meter cover and body should be ultrasonic / Chemical welded.   | The offered have encapsulated design/integrated meter and cover. Hence, ultrasonic welding will not applicable.<br>Meter case and terminal block will be chemically welded.<br>Please accept the same.   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.4.36   | Clause no. 4<br>4.36 Real Time clock:<br>Accuracy of RTC Should be as per CBIP-325 report and shall not vary by more than 6 min per year. RTC should be programmed by BCS and MRI   | Accuracy of RTC will be complying with CBIP-325 . Please accept the same.  | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.5  | Clause no. 5<br>Meter Optical port base of meter to be magnetic type.   | Meter have optical port base with groove to support the optical cable however it does not have magnetic base please accept the same. Same should be acceptable.  | Noted |
| 23 | Technical specification for static Single phase WC meter / Clause No.5  | Clause No. 5 Communication capabilities and software feasibilities:<br>The bidder should provide DLMS compliance for Communication with the meter at Optical / RJ11 (RJ11 is optional). Optical Communication port shall be available for communication along with additional RJ11 port with specific pin configuration of utility along with sealing arrangement to communicate with GSM/GPRS/RF modems. | The offered meter having two communication port<br>1) Optical port: authenticated password will be required for communication.<br>2) RS 232 (Micro USB) will be placed under sealable ETBC.<br>Sealing provision is not available on Optical port<br>Same should be acceptable | Noted |

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|  | Technical specification for static Single phase WC meter / Clause No.5      | <p>Clause No. 5 Communication capabilities and software feasibilities:<br/>The XML files of downloaded data of the meters will be as per MIOS standards.</p> <p>Bidder should provide communication protocol/API as per MIOS standards for communication with meter through local (MRI (HHU)/BCS as and when required by TPC , free of cost during life of meter.</p>   | <p>Offered meter comply as per IS: 15959.</p> <p>We will provide windows based common meter reading API for meter reading which will run at head end system and perform in transparent mode.</p> <p>We will provide reading software i.e. BCS &amp; CMRI reading software</p>  | Noted |
|  | Technical specification for static Single phase WC meter / Clause No.5      | <p>Clause No. 5 Communication capabilities and software feasibilities:<br/>Bidder should also provide software for changing firmware of meters in mass without any additional cost.</p> <p>API required for converting raw files to XML should also provide.<br/>Bidder must provide necessary support if required for integration of his meters with AMR/Ami systems of the utility whenever required.<br/>Bidder to supply protocol to read the meters supplied against, using intelligent GSM/GPRS/RF modems with store and forward feature without any additional cost. Bidder to provide API on MIOS standard to convert meter data in to XML and read API for hosting in server and modems GSM/GPRS/RF based for readings of meters from any third party manufactured modems. Bidder must provide necessary support if required during integration.</p> | <p>Offered meter comply as per IS: 15959.</p> <p>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.<br/>We will provide windows based common meter reading API for meter reading which will run at head end system and perform in transparent mode. We will provide MIOS based XML file of meter data, However integration is not in our scope.</p> <p>Please confirm the same.</p>  | Noted |
|  | Technical specification for static Single phase WC meter / Clause No.6.0.1  | <p>Clause: 6.0.1<br/>Magnetic field : 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:<br/>a) Meter shall log the event in its memory as "MAGNET" with date and time stamp within lmax and after removal of magnet, back to normal recording within 2 min.<br/>b) Meter shall show "Magnet" in the display.</p>  | <p>Meter with compliance to CBIP 325 for influence of magnetic induction shall also be acceptable. Meter would be immune and within permissible accuracy limits as per CBIP 325 and if meter gets affected it will log magnetic event with date and time and start recording at I Max.</p> <p>Magnet P time for occurrence &amp; restoration shall be 20-30 secs approx. to avoid tampering through any timer based tampering methods.<br/>Legend will be blink till tamper is persisting. On restoration of tamper Legend will remain steady state and stop blinking. After reading Legend will be reset.<br/>Additionally suitable abbreviation/information will be provided under "present status other then CT &amp; PT related events". Display parameter.</p> <p>Same should be acceptable</p> | Noted |
|  | Technical specification for static Single phase WC meter / Clause No.6 .0.1 | <p>Clause: 6.0.1<br/>Magnetic field :<br/>Abnormal magnetic field is defined as below:<br/>a) Continuous DC magnetic induction: &gt;0.20 Tesla±5% (value of the magneto motive force to be applied shall be generally&gt;10000 AT)</p>  | <p>Meter will compliance to CBIP 325 for influence of magnetic induction will also be acceptable. Either Meter would be immune and if meter gets affected it will log magnetic event with date and time and start recording at I Max.</p>  | Noted |

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| 25 | Technical specification for static Single phase WC meter / Clause No.6.0.1 | <p>Clause: 6.0.1<br/>Magnetic field :<br/>Abnormal magnetic field is defined as below:</p> <p>b) AC magnetic induction: Immune for 10 milli Tesla (if produced with circular metal core with square cross section as specified in CBIP latest report with 2800 AT</p> | <p>Meter will compliance to CBIP 325 for influence of magnetic induction will also be acceptable. Either Meter would be immune and if meter gets affected it will log magnetic event with date and time and start recording at I Max.</p>   | Noted |
| 26 | Technical specification for static Single phase WC meter / Clause No.6.0.1 | <p>Clause: 6.0.1<br/>Magnetic field :<br/>Abnormal magnetic field is defined as below:</p> <p>c) Permanent magnet: Immune up to 0.5T and event logging&gt; 0.5T</p>   | <p>Meter will compliance to CBIP 325 for influence of magnetic induction will also be acceptable.</p> <p>Immunity level up to 0.5 T is not guaranteed; under this condition Either Meter would be immune and if meter gets affected it will log magnetic event with date and time and start recording at I Max.</p>   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.6.0.2 | <p>Clause: 6.0.2<br/>Electrostatic Discharge (ESD)<br/>Meter shall be immune up to 50KV and shall record accurate energy as per IS: 13779:1999/CBIP 325. Meter shall log the event into memory as ESD with date and time stamp for any ESD greater than 50KV</p>      | <p>Offered meter will be immune under influence of spark up to 35KV. However the meter immune up to certain high level of spark. "Abnormal interference" event with date and time stamp will indicate ESD tampering.</p> <p>Offered meter is as per previous supplies, it is kindly requested to accept the same.</p> | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.6.0.2 | <p>Clause: 6.0.2<br/>Meter should be immune to high/low frequency Jammer devices. Meter shall log the event in its memory as "Jammer/ESD" with date and time stamp with snapshot.</p>   | <p>Against any external interference devices offered meter will complies as per IS 13779 &amp; CBIP 325. "</p> <p>Meter will be immune to high/low frequency. If it gets affected, it will log event "abnormal external interference.</p>   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.6.0.2 | <p>Clause No. 6.0.2<br/>The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves etc.</p>   | <p>Offered meter comply as per IS: 13779 for external environmental fields.</p> <p>Meter does not comply against micro wave test (magnetron).<br/>Accuracy &amp; functionality is not guaranteed against Magnetron.</p>   | Noted |

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| 27 | Technical specification for static Single phase WC meter / Clause No.6.0.3 | <p>Clause 6.0.3 to Neutral Disturbance<br/>The meter shall log in the memory as 'NEUTRAL DISTURBANCE' with date and time stamp and show 'ND' for Frequency variation below 47 Hz and above 53 Hz with time delay of 2 min and for Pulsating DC and Chopped AC of any value with time delay of 2 min.</p> <p>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.</p> <p>Measurement by meter shall not get influenced by injection of DC signal/ DC pulse upto 330V and for any value beyond this, the meter shall log the event into memory as 'NEUTRAL DISTURBANCE' with date &amp; time stamp after time delay of 2 min(occurrences and restoration time).</p> <p>The meter shall record energy proportional to the current and V Ref (230V) when any of the tamper circuits enclosed as per annexure are used to tamper energy using a diode or a variable resistance or a variable capacitance energy saving device. The measurement by meter shall not get influenced by injection of AC Voltages/Chopped signal/DC signal/ DC pulse of low frequency and harmonics. The meter should be immune to such Neutral Disturbance. In case the meter accuracy is disturbed under Neutral Disturbance, it should be able to log the event.</p> | <p>The offered meter remains immune up to specified limit of frequency i.e. approx <math>\pm 7\%</math></p> <p>Meter will remains either immune or if it gets affected metering functionality log ND event &amp; record energy at <math>V_{ref} \times \text{Actual current} \times \text{UPF}</math>. Accuracy will be <math>\pm 4\%</math>.</p> <p>Meter will have separate legend for neutral disturbance tamper on LCD display which will remain till metering reading subject to restoration of event.</p> <p>P time: 30 sec approx<br/>If voltage goes below 70%Vref, meter will log Low voltage event</p> <p>Offered meter is as per previous supplies, it is kindly requested to accept the same</p> | Noted                        |
| 28 | Technical specification for static Single phase WC meter / Clause No.6.0.4 | <p>Other tampers:<br/>Clause No. 6.0.4 single wire tamper<br/>When neutral is disconnected from both load side and supply side, the meter should record energy as per rated parameters (V ref). However, meter shall start registering energy</p> <p>a) At a current of &gt;500mA amps under tamper condition of neutral missing (where battery used for voltage reference). Meter will perform the fraud energy registration above 500mA assuming Vref (from battery) and unity power factor.</p> <p>b)Condition no. 38 of Annexure I ( Timer test ) : The timer operation duration shall be 30 seconds.</p>  | <p>In single wire event meter will record energy at <math>V_{ref} \times \text{actual current} \times \text{UPF}</math>, When Load current is greater than 10% of <math>I_b</math>.</p> <p>a) Load current should be greater than 10% of <math>I_b</math>, Display will be in off state &amp; meter will continuously record energy at <math>V_{ref} \times I_{actual} \times \text{UPF}</math>.</p> <p>b) Meter will logged single wire event, and metering will be on Deficiency mode( <math>V_{ref} \times (\text{Summation of both current} \times \text{UPF})</math> )<br/>However LCD will be in Off state and on state as per timer.</p>  | specification to be complied |
| 28 | Technical specification for static Single phase WC meter / Clause No.6.0.5 | <p>Clause No. 6.0.5<br/>All the tamper events i.e. 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, PF, frequency etc)</p>   | <p>Offered meter have event logging as per IS: 15959. We can define compartment size and events in the compartment. Events within a compartment will be logged in FIFO basis. However, in case meter record tamper, it will log snap shot on confirmation of event i.e. either occurrence or restoration. Snap shot will be Voltage, Line current, Neutral current &amp; Active &amp; apparent energy . However frequency will be not available in snapshot. It is kindly requested to accept the same.</p>  | Noted                        |
|    | Technical specification for static Single phase WC meter / Clause No.6.0.5 | <p>Clause No. 6.0.5<br/>Meter shall store cumulative count and cumulative durations all the tamper event which have logged by meter from the date of energization till life of meter.</p>  | <p>Cumulative tamper count is available but cumulative tamper durations are not available.<br/>Same is as per previous supplies; it is kindly requested to accept the same.</p>  | Noted                        |

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|    | Technical specification for static Single phase WC meter / Clause No.6.0.5 | Clause No. 6.0.5<br>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.                | Offered meter has light sensor based cover open detection such that it would not operate on vibration or impact during handling or testing  | Noted                        |
| 29 | Technical specification for static Single phase WC meter / Clause No.6.0.5 | Table for Events:   | <p>-Offered meter have event logging as per IS-15959. we can define compartment size and events in the compartment. Events within a compartment will be logged in FIFO basis.</p> <p>-Offered meter will be immune under influence of spark up to 35KV. However the meter immune up to certain high level of spark. "Abnormal interference" event with date and time stamp will indicate ESD tampering</p> <p>-For jammer compliance please refer our reply against sr.no. 22.</p> <p>Meter with compliance to CBIP 325 for influence of magnetic induction shall also be acceptable. Meter would be immune and within permissible accuracy limits as per CBIP 325 and if meter gets affected it will log magnetic event with date and time and start recording at I Max.</p> <p>-Persistence and restoration time of Magnet event shall be approx. 20-30 sec only. To avoid tampering thro timer circuits.</p> <p>In single wire event meter will record energy at <math>V_{ref} \times</math> actual current <math>\times</math> 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 <math>V_{ref} \times I_{actual} \times UPF</math>.</p> <p>b) Meter will have shunt In both Phase and Neutral i.e. is no Third CT is available for Voltage reference</p> <p>c) Meter will logged single wire event, and metering will be on Deficiency mode( <math>V_{ref} \times</math> (Summation of both current <math>\times</math> UPF)</p> <p>However LCD will be in Off state and on state as per timer</p> | Noted                        |
|    | Technical specification for static Single phase WC meter / Clause No.7.0   | Clause 7.0<br>General constructions<br>1.Measurement/ computing chips<br>2. memory chips<br>3. Display modulus<br>4.Optical port<br>6. Electronic components<br>7. battery<br>8. micro controller & RTC | <p>1.Freescale or any reputed make</p> <p>2. ROHM, Onsemi, Melexis or any reputed make</p> <p>3. Tianma, or any reputed make.</p> <p>4. Everlight or any reputed make.</p> <p>6. Vishay, NXP, Yageo, Rohm,AVX etc or any reputed make</p> <p>7. Tekcell, Mitsubishi, panasonic XENO Energy, EVE &amp; any reputed make.</p> <p>8. Mitsubishi,Tekcell, NXP or any reputed make</p>   | Noted                        |
|    | Technical specification for static Single phase WC meter / Clause No.7.0   | Clause 7.0<br>General constructions<br>Battery: Guaranteed life of 15 years   | Operating life of battery would be 5 years.   | specification to be complied |

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| 30 | Technical specification for static Single phase WC meter / Clause No.8   | <p>Clause 8.0<br/>Meter Body<br/>Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II)with FVo Fire Retardant, self extinguishing, UV stabilize, recyclable and Anti oxidation properties. The minimum thickness of the meter enclosure shall be 2mm.Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent on prior approval from the Purchaser. Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the Purchaser. Meter cover &amp; base shall be provided with continuous and seamless Ultrasonic/chemical welding such that it is not opened without breaking the enclosure. Front cover &amp; base shall be such that it is not possible to cut &amp; open the meter without certainly damaging the meter body and by no means shall an attempt to reassemble would not leave physical evidence. 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).<br/>Unidirectional screws to be used on meter covers where ever required.<br/>However single case meter body would be highly preferred. I.e. meter top cover and base shall be of single mould, thus nullifying the possibility of opening of meter case.</p> | <p>Meter will have single case enclosure.<br/>The meter case and ETBC will be FV2 Compliant &amp; Meter terminal will be FV0 compliant however it is not reinforced.</p> <p>Offered meter have opaque meter case &amp; terminal block with thickness <math>2 \pm 0.2</math> mm<br/>However material will be:<br/>Meter case: LEXAN 143A / 943 or Equivalent<br/>Terminal Block: LEXAN 500R/equivalent</p> <p>Meter will have single case enclosure design i.e. integrate base &amp; cover with break to open features . Hence, welding &amp; sealing is not applicable<br/>Same should be acceptable.</p> <p>For single case enclosure design screw are not required, it is kindly requested to accept the same</p> | Noted  |
|    | Technical specification for static Single phase WC meter / Clause No.9.0 | <p>Clause No. 9.0<br/>Terminal block and terminal cover shall be of a material which complies with the requirements of IS11731 (part 1) method FH1.</p>   | <p>Terminal block and terminal cover will be of a material which complies with IS13779</p>  | Noted  |
| 31 | Technical specification for static Single phase WC meter / Clause No.9.0 | <p>Clause No. 9.0<br/>Terminals shall be preferably of MS cage clamp type as per IS: 15707or of flat end screw with at least 9 mm dia of screw for better contact area.</p>   | <p>For better grip of conductors barrel type design will be provided and terminals will be made up of Brass for better conductivity.<br/>Connecting terminal: Brass<br/>Terminal Screws: Zn plated MS</p> <p>M6 with slotted head type terminal Screw will provided same as previous supply. It is kindly requested to accept the same.</p>   | Noted  |
| 32 | Technical specification for static Single phase WC meter / Clause No.9.0 | <p>Clause No. 9.0<br/>Depth of the terminal holes shall be of 25 mm. Terminal screws shall be of Zinc plated MS bottle type.</p>  | <p>Depth of the terminal holes will be of approx. 21 mm.<br/>Terminal screws will be of Zinc plated MS type. Kindly accept the same.</p>  | <p>Noted</p>   |
|    | Technical specification for static Single phase WC meter / Clause No.9.0 | <p>Clause No. 9.0<br/>Terminal cover shall be of short type and shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the Purchaser. Appropriate space shall be available for incoming /out going cables without damaging/stressing terminal cover (terminal cover design shall be as per the Purchaser approval). After sealing the cover, terminals shall not be accessible without breaking the seals. Terminal Cover with 4 U cuts to enable smooth insertion of cable in the terminals.</p>   | <p>Due to compact size of the meter, offered meter will have single U cut on ETBC Suitable to meets the requirement of IS 13779.<br/>Dimension of U cut will be 50mm X 18mm.<br/>Terminal cover will be transparent with polycarbonate LEXAN 143A/943 or equivalent material.<br/>Terminal cover will be extended type &amp; ETBC to Terminal bottom will be approx 40mm.</p>   | <p>U Cut Not required .<br/>It should not be possible to access the meter terminal from outside of the box .</p> |

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|    | Technical specification for static Single phase WC meter / Clause No.9.0 | Clause 9.0<br>Sealing of meter<br>One no polycarbonate seal and two nos hologram seals shall be provided by the bidder. All the seals shall be fixed on meter body by the bidder at his works before dispatch.   | We have provision of 1 PC Body seal and 1 Hologram seal, it is kindly requested to accept the same.   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.10  | Clause 10<br>TOD Feature<br>The meter shall be capable of measuring Cumulative Energy (KWh), KVarh Lag, Kvarh Lead, Kvah and MD (KW, KVA)with time of day (TOD) registers having 2 zones (no. of zones & time slot shall be programmable by CMRI with adequate security level).  | Meter have provision for measuring Cumulative Energy (KWh) and Kvarh only. However meter does not have provision to measure KVarh Lag, Kvarh Lead energy . Kindly accept the same.  | Noted |
| 33 | Technical specification for static Single phase WC meter / Clause No.11  | Clause no.11<br>MD Integration:<br>MD shall be recorded & displayed with Minimum three digits before decimal & minimum two digits after decimal points.  | Offered meter is required for 10-60A current rating. Hence MD registration with lesser digits can also suffice the requirement. MD (2+3) digits. Kindly accept the same.  | Noted |
| 34 | Technical specification for static Single phase WC meter / Clause No.12  | Clause no. 12.0<br>Parameters in BCS<br>All these parameters shall be downloaded locally or remotely. All the parameters shall be recorded in its NVM(Non Volatile Memory). NVM shall have minimum retention time of 10 Years. Below mention current, history billing data and at least 25 tamper event for each tamper shall be available In NVM.   | For remote external modem will required, however, we understand modem is not in our scope.<br>-Offered meter have event logging as per IS: 15959. We can define compartment size and events in the compartment. Events within a compartment will be logged in FIFO basis. | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.12  | Clause no. 12<br>Parameters in BCS<br>Billing Information<br>Current + 12 Month History of Energy (KWH, KVAH, KVARH Lag, KVARH Lead,)<br>Current + 12 Month History Consumption (KWH, KVAH, KVARH Lag, KVARH Lead)<br>Current + 12 Month History of Demand (KW,KVA, KVAR Lag, KVAR Lead) Along with date and time stamp<br><br>TOD wise billing Information<br>Current + 12 Month History of Energy (KWH, KVAH, KVARH Lag, KVARH Lead)<br>Current + 12 Month History of Consumption (KWH, KVAH, KVAR Lag, KVAR Lead)<br>Current + 12 Month History of Demand (KW, KVA, KVAR Lag, KVAR Lead) along with date and time stamp | However meter does not have provision to measure KVarh Lag, Kvarh Lead energy and same is not available at BCS. Kindly accept the same.   | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.12  | Clause No. 12<br>Load survey:<br>Following parameters for at least 90 days:<br>Phase voltage, phase current, neutral current, PF , kWh, KW,KVAH, KVA   | Offered meter will have load survey with Phase voltage, greater element current, kWh, KW, KVAh, KVA . However calculated average power factor will be provided at BCS. Same should be acceptable  | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.12  | Clause No. 12<br>MID Night Energy:<br>Meter shall be capable of recording daily Midnight Energy(KWH, KVAH, KVARH Lag, KVARH Lead) and Demand(KW,KVA) 00:00 to 24:00 Hrs for 90 power ON days.  | However meter does not have provision to measure KVarh Lag, Kvarh Lead energy<br><br>Kindly accept the same.  | Noted |

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| 35 | Technical specification for static Single phase WC meter / Clause No.12 | <p>Clause No. 12<br/>Instantaneous parameters:<br/>Meter shall be capable for following instantaneous parameters in memory and should be available in BCS.</p> <p>Meter date &amp; time<br/>MRI/PC date &amp; time<br/>Dump date &amp; time</p>  | <p>Following parameters will be available:-</p> <p>Meter date &amp; time (dd / mm/ yyyy HH MM SS) &amp; Meter reading date &amp; time (dd /mm/ yyyy HH MM SS) will be available</p>   | Noted |
| 36 | Technical specification for static Single phase WC meter / Clause No.12 | <p>Clause No.12<br/>General information<br/>Manufacture date (MM/YYYY)<br/>TOD Profile<br/>Meter Display Sequence</p>  | <p>Manufacturing Year will be available &amp; TOD profile showing timing and season, display sequence are not available.<br/>Only TOD profile will be available in TOD data at BCS end</p>  | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.13 | <p>Clause 13.0<br/>Display units<br/>The display unit shall be Pin type built in liquid crystal display. The LCD shall be STN construction suitable for maximum temp. Withstand 65 degrees. The LCD display shall be of STN type and viewing angle of 120 degree.</p> <p>The backlight must be green in color while in normal registration modes.</p> <p>The KWh register shall have minimum 6 digits and size of the digits shall be minimum 10mmx6mm. Cumulative energy (KWh) shall be displayed without decimal in auto scroll mode. (However decimal shall be available in push button mode for high resolution display(minimum 4digits after decimal) for testing). Separate mode for high resolution display to be provided with scroll lock facility.<br/>Persistence time for each parameter shall be 10 second.</p> | <p>It is requested to accept HTN type display with viewing angle of minimum 60 degree. backlit would be of white color<br/>For displaying multiple quantities on single display dimensions of every display will be equal.<br/>6 digit display with digit size of 8.5x3.4mm.<br/>However the legibility of the display should be such that the digits are clearly visible at a distance of 1.5 meter from the front of the meter request you to please accept the same<br/>High resolution display for energy will be in WH &amp; VAH and in (5+1) digits .Meter have scroll lock facility to lock the desired parameter.<br/>Kindly accept the same.</p> | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.13 | <p>Clause No. 13.0<br/>Push Button Mode of Display:<br/>2. Meter SI. No.</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.<br/>So it will be display under two display parameters.<br/>In first display last 6 digit &amp; second display first 4 digits (higher order) will display.<br/><br/>Same should be acceptable</p>  | Noted |
|    | Technical specification for static Single phase WC meter / Clause No.14 | <p>Clause No. 14.0<br/>Power ON indication- LED or Icon on LCD Display</p>   | <p>The backlight LCD will not glow in absence of mains.</p>   | Noted |
| 37 | Technical specification for static Single phase WC meter / Clause No.15 | <p>Clause 15.0<br/>Name plate and marking<br/>The base color of Name plate shall be white indelibly and distinctly marked with all essential particulars as per relevant standards along with the following.</p> <p>"Property of TPCODL"<br/>Purchase order no. &amp; date<br/>Guarantee period<br/>Firmware version for meter</p>   | <p>Rating plate information's will be laser printed on meter case as per IS: 13779.<br/>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>  | Noted |

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| 38 | Technical specification for static Single phase WC meter / Clause No.16       | Clause 16<br>Acceptance test  | Acceptance test will be performed as per IS 13379.  | specification to be complied  |
|    | Technical specification for static Single phase WC meter / Clause No.16       | Clause 16<br>Special Test:<br>The bidder shall ensure that API is compatible with TPC.<br>i. 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 TPC.   | Offered meter comply as per IS: 15959. Open protocol Same as per previous supply  | Noted   |
|    | Technical specification for static Single phase WC meter / Clause No.16       | Clause 16<br>Type Test:<br>iii. DC immunity test (injection both on phase and neutral terminal) with latest edition   | Can you please provide clarification about testing method and standard adopted.   | The meter should not saturate on passing of direct current, which can cause the meter either to stop recording or record inaccurately as per IS 13779. This test shall be carried in both phase and neutral, Meter shall record accurately within IS-13779 prescribed limits. |
|    | Technical specification for static Single phase WC meter / Clause No.16       | Clause 16<br>Special Test:<br>ii. Overload test at 120% of I <sub>max</sub> for accuracy under different abnormal condition as per as per annexure I.   | Overload test can be performed at 120% of I <sub>max</sub> however accuracy will be complying with IS 13779   | specification to be complied  |
| 39 | Technical specification for static Single phase WC meter / Clause No.17       | Clause 17.0<br>Type test certificates:<br>From CPRI/ERDA or equivalent reputed laboratory as per relevant standards within 5 years.   | Type test report for voltage rating 240V should be acceptable.<br>We have Type test report for Material identification for CIPET, kindly accept the same. | noted   |
| 40 | Technical specification for static Single phase WC meter / Clause No.19       | Clause 19.0<br>19 INSPECTION AFTER RECEIPT AT STORE:<br><br>The successful bidder shall submit two extra boxes (unpaid) per lot delivered, with serial nos. in continuation to the lot (lot size shall be 15,000 numbers or as defined in the order) to the Purchaser for further testing and confirmation in line with the specifications and the material shall be liable for rejection   | Please clarify the requirement of two extra boxes   | specification to be complied  |
|    | Technical specification for static Single phase WC meter / Clause No.20       | Clause No. 20<br>Guarantee<br>Bidder shall be 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 TPC.   | Offered meters will be guaranteed for a period for 5.5 years from the date of supply. No additional   | Noted   |
|    | Technical specification for static Single phase WC meter/Scope / Clause No.21 | Clause no. 21<br>PACKING<br>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.<br>Packing and transportation shall be as per IS 15707:206 clauses 9.1 and 9.2. Routine test report of the individual meter shall be kept inside each card board carton of the meter. Serial numbers of meters need to be mentioned in the form of barcodes on external surface of meter packing box. | Standard Packing will be provided as per previous supply for Tata power.  | Meter shall be prefitted in the meter box and packed as per requirement.  |

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|    | Technical specification for static Single phase WC meter / Clause No.23          | <p>Clause No. 23<br/>Quality Control<br/>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>  | This test is not performs at our works.  | specification to be complied             |
| 41 | Technical specification for static Single phase WC meter / Clause No.26          | <p>Clause no. 26.0<br/>Spares, accessories &amp; tools<br/>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>   | No JIG will be provided. If required data can be retrieved at our works.                         | specification to be complied             |
| 42 | Technical specification for static Single phase WC meter / Clause No.30 GTP      | <p>Clause No.30<br/>GTP<br/>53. RJ 11 Pin configuration as per TPC</p>  | Meter have additional RS232 port in form of Micro USB. Same should be acceptable.                | Additional port is optional requirement. |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.1   | <p>Clause no-1<br/>SCOPE:<br/>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>   | Meter box will be push to fit type. Kindly accept the same.                                      | Specification to be complied             |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5   | <p>Clause no-5<br/>GENERAL CONSTRUCTION<br/>a) Base : a) Polycarbonate equivalent to Lexan 943 A/ Makrolon 6457 transparent (no colour)<br/>b) Cover : b) Polycarbonate equivalent to Lexan 943 A/ Makrolon 6457 with clear transparent (no color)<br/>6 Thickness of box 2 mm (minimum)<br/><br/>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<br>6 Thickness of box 2 mm ±0.2mm Kindly accept the same. | Noted                                    |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.3 | <p>Clause No 5.3-<br/>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.<br/>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.                 | Noted                                    |

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| 43 | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.4  | <p>Clause 5.4-<br/>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.<br/>A minimum clearance of <b>30 mm</b> 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>   | <p>Meter have clearance as below:<br/>Both sides, Front , Back and top side: 10 mm<br/>terminal cover to the box : approx 70 mm</p>       | specification to be complied |
| 44 | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.5  | <p>Clause 5.5-<br/>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 |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.7  | <p>Clause 5.7-<br/>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 it metallic portion should not be accessible from outside when closed, to achieve this the cover lapping to be provided. The box cover shall be open able by more than 120 degrees. All metallic parts should be well protected against corrosion.<br/>5.8- 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.</p> | Meter box will be push to fit type. Kindly accept the same.   | Specification to be complied |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.10 | <p>Clause 5.10 -<br/>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.</p>  | Meter box have 3 fixing holes. Mounting screw will be provided seperately (not with individual meter)                                     | specification to be complied |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.11 | <p>Clause 5.11-<br/>Suitable overlapping (<b>8 mm</b>) 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 |
| 45 | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.5.14 | <p>Clause 5.14-<br/>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.  | Specification to be complied |

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| 46 | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.6   | Clause 6.0-<br>NAME PLATE AND MARKING<br>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 :<br>a) Manufacturer's name<br>b) Serial number<br>c) Month and Year of manufacturing<br>d) PO Number & date<br>e) Property OF TPCODL-Odisha<br>f) Danger Sign | Only Manufacturer name and danger will be marked on meter box cover.  | Specification to be complied |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.7.1 | Clause No.7.1-<br>Type Test<br>SI No-3 : Resistance to ageing, humid conditions, Ingress of solid objects and to harmful ingress of water (IS : 14772-2000 )   | Meter Box is complying with IP54 kindly accept the same.  | Noted                        |
|    | TECHNICAL SPECIFICATION FOR POLYCARBONATE METER BOX (HINGE TYPE) / Clause No.7.1 | Clause No.7.1-<br>Type Test<br>SI No: 12 UV Light Exposure (UL-746C)   | 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 |
| 47 | 2.c  | IS15959 Part 2:2016  | Applicable to Smart meters. Hence this should be removed  | Noted                        |
|    | 5  | Communication of the meter at optical port should be as per IS15959 (Part-2):2016  |   |                              |
| 48 | 4.27   | Depth of the terminal holes - 25mm   | We can provide 20mm±1mm.  | Noted                        |
|    | 9  | Depth of the terminal holes shall be of 25 mm.   |   |                              |
|    | 4.31   | The meter shall be compatible to communicate with GSM/GPRS/RF modems in DLMS protocol.   | GPRS/RF communication not provided  | Noted                        |
|    | 4.36   | Accuracy of RTC Should be as per CBIP-325 report and shall not vary by more than 6 min per year.   | As per CBIP-325, ±7 min/Yr is applicable  | Noted                        |
| 49 | 5  | The complete data shall be downloaded within 2 minutes.  | Complete data downloading may take up to 15 min   | Noted                        |
| 50 | 5  | The bidder should provide DLMS compliance for Communication with the meter at Optical / RJ11 (RJ11 is optional).   | We understand RJ11 port is optional and same will not be provided as per latest supplies.   | Noted                        |
|    | 5  | Optical Communication port shall be available for communication along with additional RJ11 port with specific pin configuration of utility   |   |                              |
|    | 5  | Bidder should also provide software for changing firmware of meters in mass  | Firmware cannot be changed in field, it has to be sent to factory for the same.   | Noted                        |
|    | 5  | API required for converting raw files to XML should also provide.  | Not applicable  | specification to be complied |
| 51 | 6.0.1  | Abnormal magnetic field is defined as below;<br>a) continuous DC magnetic induction: >0.27T ±5% (value of the MMF to be applied shall be generally >10000ATs, should be immune up to 0.27 Tesla)<br>b) AC magnetic induction: Immune for 10 milli Tesla...<br>c) Permanent Magnet: Immune up to 0.5T...  | As per CBIP-325 meter will be immune to Stray magnets only. For any abnormal magnets if the meter gets affected it will log at I <sub>max</sub> as per the provision given in the standard. | Noted                        |
|    | 6.0.2  | Meter should be immune to high/low frequency jammer devices. Meter shall log the event in memory as JAMMER/ESD   | Meter will be immune for jammer device. Logging and display cannot be provided.   | Noted                        |
|    | 6.0.2  | Micro waves like magnetron etc.  | Immunity to microwave cannot be guaranteed.   | Noted                        |

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| 52 | 6.0.3          | The meter shall record energy proportional to the current and V Ref (230V) when any of the tamper circuits enclosed as per annexure are used to tamper energy using a diode or a variable resistance or a variable capacitance energy saving device                 | Vref will be considered as 240V as per latest supplies  | Noted                        |
|    | 6.0.3 & 6.0.4  | Neutral Disturbance<br>Single Wire  | Error limit will be $\pm 4\%$   | Noted                        |
| 53 | 6.0.5          | All the tamper events i.e. 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, pf, frequency etc. )                      | Frequency will not be provided  | Noted                        |
| 54 | 6.0.5          | Meter shall store cumulative count and cumulative durations all the tamper event which have logged by meter from the date of energization till life of meter.   | Roll over may happen depending on the memory size   | Noted                        |
|    | 6.0.5<br>Table | Current Mis match   | This will be indicated as "NCT" in data.  | Noted                        |
|    | 6.0.5<br>Table | ESD/Jammer  | Meter will be immune to Jammer device, Logging provided for ESD above 50kV.                                   | Noted                        |
|    | 6.0.5<br>Table | Meter top cover open<br>Restoration - NA  | Tamper recovery is provided if top cover is fitted back to the meter, with recovery persistence time of 1min. | specification to be complied |
| 55 | 7.1            | Measurement/computing chips   | Renesas to be added   | Noted                        |
| 56 | 7.2            | Memory Chips  | Renesas, ST, ROHM to be added   | Noted                        |
|    | 7.3            | Display Modules   | Tianma, Yeboo, RCL, AV Display to be added.   | Noted                        |
|    | 7.4            | Optical Port  | Osram to be added   | Noted                        |
|    | 7.6            | Electronic Components   | Panasonic,Epcos, PRAN,MANN, Nippon,Lenon to be added  | Noted                        |
| 57 | 7.7            | Battery   | Panasonic, Mitsubishi, Eve, Maxell to be added  | Noted                        |
| 58 | 7.8            | RTC   | Renesas(Internal) to be added   | Noted                        |
|    | 8              | Meter body shall be made of unbreakable, high grade, fire retardant reinforced Insulating material (protective Class II)with FVo Fire Retardant ..  | Compliance to FV2 will be provided  | specification to be complied |
|    | 8              | The minimum thickness of the meter enclosure shall be 2mm.  | 2mm +/- 0.2mm will be provided  | specification to be complied |
|    | 8              | 2mm.Meter base shall be opaque with polycarbonate LEXAN 500R or equivalent on prior approval from the Purchaser. Meter cover shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the Purchaser.                            | Base - 143R<br>Top cover & Terminal cover - 123R<br>Terminal block - 503R                                     | Noted                        |
| 59 | 9.0            | Terminals shall be preferably of MS cage clamp type as per IS: 15707or of flat end screw with at least 9 mm dia of screw for better contact area.   | Conventional barrel type terminals with head size of 6mm dia will be provided                                 | Noted                        |
| 60 | 9.0            | Terminal cover shall be of short type and shall be transparent with polycarbonate LEXAN 143R/943A or equivalent on prior approval from the Purchaser. Appropriate space shall be available for incoming /out going cables without damaging/stressing terminal cover | 30mm terminal cover without cut will be provided as per latest supplies                                       | Noted                        |
|    | 9              | Terminal screws shall be of Zinc plated MS bottle type.   | Grub screws provided  | Noted                        |
|    | 11             | MD shall be recorded and displayed with minimum three digits before decimal and minimum two digits after decimal points.  | MD is provided 3+3 on Display   | Noted                        |
|    | 12             | Billing Parameters  | kVArh lead parameters will not be provided as per latest supplies   | Noted                        |
| 61 | 12             | Meter shall be capable of recording daily Midnight Energy(KWH, KVAH, KVARH Lag, KVARH Lead) and Demand(KW,KVA) 00:00 to 24:00 Hrs for 90 power ON days.   | Demand(KW,KVA) is provided in Block LS.<br>kVArh lead not provided as per latest supplies                     | Noted                        |
|    | 12             | General Information:-<br>TOD profile showing timing and seasons<br>Meter display sequence   | Will be provided in activity calendar<br>Will be part of special reports                                      | Noted                        |

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| 62      | 13   | The KWh register shall have minimum 6 digits and size of the digits shall be minimum 10mmx6mm.   | 10mm X 5mm will be provided   | Noted                                 |
|         | 13   | Separate mode for high resolution display to be provided with scroll lock facility.  | High resolution parameters are provided in Mode 3 with mode time out of 30 mins.  | specification to be complied          |
|         | 13   | High Resolution Display Cumulative Kwh (4 Digits after Decimal) shall be provided with scroll lock facility).  | High resolution parameters are provided in Mode 3 with mode time out of 30 mins.  | specification to be complied          |
| 63      | 13   | Auto scroll mode is restored after 30 sec, if push button is not operated.   | Manual mode time out is given as 1min as per latest supplies  | Noted                                 |
| 64      | 27   | Blue Tooth Meter Reading:<br>Inbuilt facility for blue tooth based meter reading is preferable.  | Will not be provided  | Noted                                 |
|         | 20   | The bidder shall be responsible for "Free replacement at site" for another period of Three year from the end of the GP for any "Latent Defect"   | We confirm GP for 60 months from commissioning and 66 months from supply which ever is earlier only   | Noted                                 |
|         | 4.3  | Flammability requirement FV0   | Complies to FV2   | specification to be complied          |
|         | 5    | Material   | 123R grade will be provided   | specification to be complied          |
| 65      | 5.7  | Metallic Hinges having Minimum length 40 mm with three screws ( The box cover shall be openable by more than 120 degrees)  | Metallic Hinges having Minimum length 25 mm with 2 Sealing holes to be Provided.<br>(The box cover shall be open able by more than 90 degrees)  | specification to be complied          |
| 66      | 5.12 | Box shall be provided with 1 no. earthing nut and bolt of size M8x35mm on the left hand side in the base of meter box for providing earth connection.  | M6 X 25 mm BOLT WITH<br>4 PLAIN WASHERS AND 2 NUTS Provided   | specification to be complied          |
|         | 5.5  | 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. | Plastic gland of internal diameter of 16 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 BOTTOM side of meter box at around 30-35mm from bottom corner. | specification to be complied          |
|         | 5.3  | 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.  | Meter Mounting arrangement Will be provided in Meter box base with Screw boses Mounting arrangement w.r.t Meter provided with meter Box   | Noted                                 |
|         | 5.8  | 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.  | 2 U-shaped latches of approx..size 25 mm shall be provided on one side of box .The latch will be of Steel Sheet with minimum thickness of 1.2 mm.   | Minimum 2nos. Latches to be provided. |
| 67      | 5.11 | Suitable overlapping (8 mm) shall be provided between base and cover   | Overlapping of 5mm will be provided   | Specification to be complied          |
| 2.0 (C) |      | Marking of Meter Box:  | Month and Year of manufacturing will not be provided  | Specification to be complied          |
|         |      | Applicable standards :<br>IS15959 Part 2 : 2016 : Data exchange for electricity meter reading , tariff and load control  | Kindly note that IS 15959 Part 2 is applicable for Smart meters. Hence we request you to kindly delete the same from specification.   | Noted                                 |

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| 68 | 5     | <p><b>Communication capabilities and software feasibility :</b></p> <p>a. The complete data shall be downloaded within 2 minutes.</p> <p>b. The bidder should provide DLMS compliance for Communication with the meter at Optical / RJ11 (RJ11 is optional). Optical Communication port shall be available for communication along with additional RJ11 port with specific pin configuration of utility along with sealing arrangement to communicate with GSM/GPRS/RF modems.</p> <p>C. Bidder should also provide software for changing firmware of meters in mass without any additional cost.</p> <p>d. The XML files of downloaded data from meter will be as per MIOS standards.</p> <p>e. API required for converting raw files to XML should also provided.</p> | <p>a. Complete data of 90days as per specifications required with minimum of 15 minutes for downloading.</p> <p>b. As provided RJ11 is optional we will comply with Optical port only for the design.</p> <p>c. Changing firmware of meter is not feasible and cannot be provided.</p> <p>d. File format will be EXCEL and PDF for report viewing.</p> <p>e. As the meter is DLMS protocol and hence API is not required from manufacturer. Kindly confirm above clarification.</p>                               | Noted                        |
|    | 6.0.1 | <p>Magnetic Field :</p> <p>Meter shall show "Magnet" in the display.</p>  | <p>We will provide with magnet sign during its influence. Kindly accept</p>   | Noted                        |
| 69 | 6.0.2 | <p>Electrostatic Discharge (ESD):</p> <p>a. Meter shall be immune up to 50 kV and shall record accurate energy as per IS13779:1999.Meter shall log the event into memory as 'ESD' with date &amp; time stamp for any ESD greater than 50 kV.</p> <p>b. Meter should be immune to high/low frequency jammer devices. Meter shall log the event in memory as jammer with date and time stamp along with snap shot</p> <p>c. The meter should be immune or log the tamper on application of any other higher magnetic field of any frequency waves, micro waves etc.</p>   | <p>a. Kindly note the ESD ignition coil jigs are generally available up to 35 KV. The meter shall remain immune kindly accept</p> <p>b. Meter will be immune for jammer device. Logging and display cannot be provided. Request to provide jammer details.</p> <p>c. Kindly note that meter may or may not be immune under influence of microwave since meter damaged in fraction of second hence logging is also not possible. We request you to kindly delete the requirement of immunity under micro wave.</p> | Noted                        |
| 70 | 6.0.3 | <p>DC injection shall be tested both in phase and neutral</p>   | <p>DC injection tamper is applied in neutral only (Outgoing terminal). Kindly confirm</p>   | specification to be complied |
|    | 6.0.5 | <p>Table no.1</p> <p>Abnormal and Tamper conditions:</p>  | <p>Table sheet has no clarification as the sheet is extended outside the page so we are considering previous T.S</p>  | Noted                        |
|    | 6.0.5 | <p>Meter shall have neutral CT/Shunt for tamper identification and analysis.</p>  | <p>Kindly accept the design with battery which will be suitable for tamper analysis.</p>  | specification to be complied |
|    | 6.0.5 | <p>Table No. 1:</p> <p>Top Cover Open: 5 no.</p>  | <p>As per IS15959:2011, Cover open is non roll over event and remain as non-recovery state. Request to amend the same as 1no.event instead of 5no.</p>  | specification to be complied |
| 71 | 6.0.5 | <p>Current Mismatch:</p> <p><math>In_{lp} \geq 20\% \text{ of } I_b \text{ and } In &gt; I_p</math></p> <p>Meter recording should be on higher of the current (either phase or neutral) if there is a mismatch</p> <p>Low Voltage:</p> <p>Voltage &lt; 70% of Vref and Current &gt; 2% of <math>I_b</math></p>  | <p>Current Mismatch icon will be of earth symbol indication where as Low Voltage icon in display will not be provided. However, event logging will be provided with manufacturer specific ID.</p>   | specification to be complied |

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| 72 | 6.0.5                     | Temperature rise tamper  | As considered there is no tamper logging for temperature as it is a withstanding result of components with error limits.   | specification to be complied                   |
|    | 6.0.5                     | Abnormal and Tamper conditions :<br>Each tamper compartment records are separate   | We will provide compartment wise as per IS15959:2011 (Amendment No. 2, March 2015) table 49 to 54. Kindly accept   | Noted  |
|    | 7                         | Components   | Please add following components also :<br>computing chip : Renesas/NXP<br>Memory chips: Renesas/ST Micro/Atmel/TI<br>Display : Everlite<br>Battery : EVE/Panasonic/Mitsubishi/Tekcell<br>RTC/Microcontroller : Renesas/NXP<br>Display : Hijing           | Noted  |
|    | 10                        | TOD Feature :<br>The meter shall be capable of measuring Cumulative Energy (KWh), KVarh Lag, Kvarh Lead, KVAh and MD (KW, KVA)with time of day (TOD) registers having 2 zones (no. of zones & time slot shall be programmable by CMRI with adequate security level).   | kWh and kVAh in single phase meters IS15959:2011 with latest amendments will be provided. The requirement of kVAh Lag & Lead to be deleted   | Noted  |
| 73 | 12                        | Parameters in BCS :<br>Billing information & TOD wise billing information :<br>Current + 12 Month History of Energy, consumption energy, demand in (KWH, KVAH, KVARH Lag, KVARH Lead,)<br><br>Load Survey :<br>kW , kVA<br><br>MID Night Energy<br>Meter shall be capable of recording daily Midnight Energy(KWH, KVAH, KVARH Lag, KVARH Lead) and Demand(KW,KVA)<br><br>General Information :<br>TOD profile showing timing and seasons<br>Meter display sequence | kWh and kVAh in single phase meters IS15959:2011 with latest amendments will be provided. The requirement of kVAh Lag & Lead to be deleted<br><br>TOD profile showing timing and seasons in meter display sequence may be deleted                        | Noted  |
| 74 | Meter Box<br>5.12<br>5.14 | Box shall be provided with 1 no. earthing nut and bolt of size M8x35 mm on the left hand side in the base of meter box for providing earth connection. The earth terminal shall be identified by means of the sign, marked in a legible manner on or adjacent the terminal<br><br>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   | As the design is polycarbonate box and hence earthing nut and bolt will not be provided. Kindly delete the requirement.<br><br>On polycarbonate metallic plate cannot be fixed because of difference material properties. Kindly delete the requirement. | specification to be complied                   |
|    | Meter Box<br>5.17         | The base of the box shall be provided with multiple arrangements so that different makes of meters may also be fitted.   | It is not possible to provide with different makes kindly accept and confirm   | Noted  |
|    | Meter Box<br>6.0          | Name Plate and marking :<br>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"  | Kindly clarify the ITEM CODE NUMBER details  | shall be provided during detailed engineering. |

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|  | Meter Box<br>7.1 | Type Test :<br>6. Resistance to Abnormal heat and fire/ Glow wire<br>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. | Kindly accept the type test report with 650 deg C as per IS14772 with latest amendment of meter enclosure. | specification to be complied |
|--|------------------|--|--|------------------------------|