



**JODHPUR VIDYUT VITARAN NIGAM LIMITED**  
**OFFICE OF THE SUPERINTENDING ENGINEER (MM&C)**  
**NEW POWER HOUSE, INDUSTRIAL AREA, JODHPUR –342 003**

**Corporate Identity Number (CIN)-U40109RJ2000SGC016483 GST No. 08AAACJ8578R1ZJ**

TELEPHONE: 0291-2651376

FAX: 0291-2746539

Mail Address: [semmcjdvn@gmail.com](mailto:semmcjdvn@gmail.com)

**SPECIFICATION NO. JDVVNL/SE/MM&C/TN-1783 FOR SUPPLY OF HT TRIVECTOR METERS WITH DLMS PROTOCOL OF ACCURACY CLASS 0.5S CATEGORY “C1” FOR CONSUMER METERING”.**

Tenders are hereby invited in e-tender system for purchase of HT Trivector Meters with DLMS protocol of Accuracy Class 0.5s category “C1”. Tenders are to be submitted online in electronic format on website <http://eproc.rajasthan.gov.in>. The details are as under-

S.No.	Name of Item	Quantity (Approx)	Estimated unit F.O.R. destination price in Rs. /No.
	<b>HT TRIVECTOR METERS WITH DLMS PROTOCOL</b>		
<b>1.</b>	<b>CATEGORY “C1”</b>	<b>2000 Nos.</b>	<b>3100.00</b>

<b>A.</b>	NIT No.	TN-1783
<b>B.</b>	Last date for receipt of tenders	26.04.2022 up to 12:00 PM
<b>C.</b>	Date & time of tender opening	26.04.2022 at 3:00 PM
<b>D.</b>	Cost of Specification	Rs. 2,950.00 (Two Thousand Nine Hundred & Fifty only) For MSME of Rajasthan: Rs. 1,475 (One Thousand Four Hundred & Seventy Five only)
<b>E.</b>	Processing of RISL	Rs. 1,000.00 per set (One Thousand only)
<b>F.</b>	Bid security	General Bidder: Rs. 1,24,000.00 Sick Unit of Rajasthan: Rs. 62,000.00 SSI unit of Rajasthan: Rs. 31,000.00*
<b>G.</b>	Validity	120 days from the next date of opening of techno-commercial bid.

\*In case SSI unit of Rajasthan quotes the less than the tendered quantity, then they are required to furnish Bid security @ 0.5% of the value of the quantity offered by them, failing which bid shall be considered non-responsive.

The micro, small & Medium Scale Industries of Rajasthan and sick Industries, other than Small Scale Industries, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR) shall furnish self attested documentary evidence duly attested by notary to claim the above.

**IMPORTANT DATES:**

S.N.	Events	Date & Time	Location
<b>1.</b>	Last Date of downloading of tender specifications	Up to 25.04.2022 (04:00 PM)	<a href="http://www.jdvn.com">www.jdvn.com</a> & <a href="http://www.eproc.rajasthan.gov.in">http://www.eproc.rajasthan.gov.in</a>
<b>2.</b>	Deposit of cost of:- (i) Tender Specifications (ii) Processing fee (iii) Bid Security	Up to 25.04.2022 (4:00 PM)	Office of Sr. A.O (Cash & CPC), JdVVNL, Jodhpur Office of SE(MM&C), JdVVNL, Jodhpur Sr.AO(MM&C), JdVVNL, Jodhpur
<b>3.</b>	Last Date & time of submission of electronic bid	Up to 26.04.2022 (12:00 PM)	<a href="http://www.eproc.rajasthan.gov.in">http://www.eproc.rajasthan.gov.in</a>
<b>4.</b>	Opening of Technical Bid	26.04.2022 (03:00 PM)	<a href="http://www.eproc.rajasthan.gov.in">http://www.eproc.rajasthan.gov.in</a>
<b>5.</b>	Opening of Price Bid	To be intimated separately to the qualified bidders	<a href="http://www.eproc.rajasthan.gov.in">http://www.eproc.rajasthan.gov.in</a>

**INDEX**

Section-I	Instructions to bidders	
Section-II	General Conditions of Contract	
Section-III	Technical Specification	
Schedule-I	Schedule of Requirement	
Schedule-II	Prices	
Schedule-III	Details of Standards.	
Schedule-III A	Pre Qualification Requirement (PQR)	
Schedule-III B	Bank Guarantee in lieu of sample	
Schedule-IV	Bill of Quantity (Price Schedule)	To be uploaded Online on website
Schedule IV A	Details of tendered quantity, quantity offered along with justification with reference to qualifying Requirement)	The Bidder is required to justify quantity offered as per qualifying Requirement.
Schedule V	Departure from Guaranteed Technical Particulars	
Schedule V A & VB	GTP of HT TVM & seal	
Schedule VI A	Departure from the requirement of Technical Specification.	
Schedule VI B	Departure from commercial terms & conditions of specification	
Schedule VII	List of Past supplies.	
Schedule VIIA	C.A. Certificate for Quantity Justification	
Schedule VIIB	Undertaking of CA	
Schedule VIII	Delivery schedule.	
Schedule IX	List of equipment & technical hands available with the tendering firm.	
Schedule X	General Particulars about the bid in brief	
Schedule XI	Format of Affidavit for Rajasthan MSME	
General	Amendments in ITB & GCC and addendum in ITB	
Appendix-A	Proforma for Bank Guarantee in lieu of Bid Security	
Appendix-B	Declaration by the bidder	
Annexure-A	Self attested undertaking	
Annexure-B	Tamper Logics for HT-TVM	
Annexure-H	Component Specification	

**NOTE:**

1. Tender documents will be made available on e-Tendering portal [www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in) The bidders, in their own interest are requested to read very carefully the tender document before submitting the bid only through online on website [www.eproc.rajasthan.gov.in](http://www.eproc.rajasthan.gov.in) . The bidders can download bid up to 04:00 p.m. one day prior to schedule date of opening of respective bid mentioned above documents and submit their bids online up to 12:00 p.m. on schedule of respective bid mentioned above.
2. Eligible bidders should submit their bid well in advance instead of waiting till last date, JdVVNL will not be responsible for non-submission of bids due to any website related problems.
3. The cost of Tender specification **Rs. 2950/-**(Non-Refundable) (50% for MSME of Rajasthan) to be paid by Demand Draft in Favour of the Sr. Accounts officer(Cash & CPC), JdVVNL, Jodhpur and tender processing fees **Rs. 1000/-** shall be payable by demand draft in favour of The Managing Director RISL, Jaipur ( Non- Refundable). **The bidders are required to deposit all these payments in the office of the SE(MM&C), JdVVNL, Jodhpur up to 4.00 PM one day prior to date of tendering** otherwise their bids are liable to be rejected.
4. The Bid Security amount (as applicable) to be paid by demand draft/banker's cheque in favours of SR.AO(CASH & CPC), JDVVNL, Jodhpur (Payable at jodhpur) 342003 **up to 4.00 p.m upto one WORKING day prior to schedule date of opening** of respective bid or Bank guarantee, in specified format, of a scheduled bank in favour of superintending Engineer (MM&C), JDVVNL, Jodhpur be deposited to the Sr. Accounts Officer (MM&C), JdVVNL, New Power House, Industrial Area, Jodhpur-342003 **up to 4.00 p.m. up to one WORKING day prior to schedule date of opening** of respective bid and obtain a receipt/acknowledgement thereof. No other mode of deposit shall be accepted. At the time of depositing the Bid Security amount or Bank Guarantee, the bidder shall also furnish self attested and duly attested by Notary, the documentary evidence of SSI/MSME unit of Rajasthan or of sick unit (as applicable) along with affidavit as per schedule XI on Non-Judicial Stamp of Rs. 100/-.

The Bank Guarantee against Bid Security be issued by Nationalized / Scheduled Bank. The same may be accepted after confirmation by issuing Bank. If any Bid Security Bank Guarantee not is proper format / not confirmed by the issuing Bank the same would not be accepted and the bidder would be immediately shorted out from bid process.

**SPECIFICATION****SCHEDULE-III (Volume-A)****TECHNICAL SPECIFICATION & SCHEDULE OF REQUIREMENT FOR SUPPLY OF 3 PHASE, 4 WIRE A.C. STATIC HT- TRIVECTOR ENERGY METER OF CLASS OF ACCURACY 0.5S OF CATEGORY C1 WITH DLMS PROTOCOL AGAINST TN-1783.****3.01 (A) SCOPE:**

- i) This specification covers the design, Engineering, manufacture, assembly, inspection, testing at manufacturers works before dispatch, supply and delivery at site/FOR destination anywhere in vicinity of Class **0.5S** accuracy static HT Tri-vector Meters with DLMS protocol for energy accounting, audit metering, boundary & tariff purpose along with software and interface cable as per requirement given in this specification. The HT Tri-vector meter should be 3-phase 4-wire type suitable for connection to a 3 phase 4 wires as well as 3-phase 3-wire system. The meter should be capable to record and display KWh, KVArh, KVAh and maximum demand in KVA for 3 phase 4 wire as well as 3 phase 3 wire AC balanced/unbalanced loads for a power factor range of zero (lagging) through unity up to zero (leading) as per requirement given in this specification.
- (ii) It is not the intent to specify completely herein all the details of the design and construction of material. The material shall, however, conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing for continuous commercial operation in a manner acceptable to the purchaser, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which in his judgment is not in accordance therewith. The offered HT TVM shall be complete with all accessories, software and components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order or not.
- (iii) The meter shall be ISI mark & bidder shall furnish the details of ISI license at the time of bid or within 60 days from the date of opening of bid.

**B) REQUIREMENT****HT TVM 0.5S, with DLMS Protocol**

category "C1" for consumer Metering: - **2000 Nos.**

**3.02 STANDARDS APPLICABLE:**

Unless otherwise specified elsewhere in this specification, the performance and testing of the meters shall conform to the following Indian/International Standards and all related Indian/International standards to be read with up to date and latest amendments/revisions thereof:

S. No.	Standard No.	Title
1.	IS 14697-1999 (With latest amendments)	: Specifications for AC Static Transformer Operated Watt-hour and VAR-Hour Meters, class 0.2S & 0.5S.
2.	CBIP technical report No. 325.	: Specification for AC Static Electrical Energy Meters. With latest amendments.
3.	IEC 62053-22-2003 IEC 62052-11-2003	: AC Static Watt-hour Meters for Active Energy, class 0.2S & 0.5S
4.	CBIP Technical Report No.111 Revised July 1996	: Specification for Common Meter Reading Instrument.
5.	IS: 9000	: Basic Environmental Testing Procedures for Electronic & Electrical items.
6.	IEC 62056(DLMS/ COSEM)	: Open protocol standard for communication of meter data.

7. IS: 15707 : Testing, Evaluation, Installation and maintenance of AC Electricity meters- Code of Practice
8. IS: ETD 13(6211) : Data Exchange for electricity meter reading, tariff and load control- companion specification.
9. IS: 15959:2011 : “Data Exchange for Electricity Meter Reading, Tariff And Load Control Companion Spec having all amendment”

Meters matching with requirements of other national or international standards, which ensure equal or better performance than the standards mentioned above, shall also be considered. When the equipment offered by the tenderer conforms to standards other than those specified above, salient points of difference between standards adopted and the standards specified in this specification shall be clearly brought out in the relevant schedule and copy of such standards along with their English translation shall invariably be furnished along with the offer.

### 3.03 CLIMATIC CONDITIONS:

The meters to be supplied against this specification should be capable of performing and maintaining required accuracy under extreme hot, cold, tropical and dusty climate and solar radiation typically existing in the state of Rajasthan (India). The meter shall be required to operate satisfactorily and continuously under the following tropical climate conditions: -

- |  |                    |
|--|--------------------|
| a) Maximum ambient air temperature                             | : 55° C            |
| b) Maximum ambient air temperature in shade                    | : 45° C            |
| c) Maximum temperature attainable by the meter exposed to Sun. | : 60° C            |
| d) Minimum ambient temperature in shade                        | : (-) 5° C         |
| e) Average daily ambient air temperature                       | : 40° C            |
| f) Maximum relative humidity.                                  | : 95%.             |
| g) No. of months of tropical monsoon condition                 | : 4 Months.        |
| h) Maximum attitude above mean sea level                       | : 1000 Meters.     |
| i) Average rain fall.  | : 10-100 cms.      |
| j) Maximum wind pressure                                       | : 200Kg/Sq. meter. |
| k) Isoceranic level (days/ year)                               | : 40               |
| l) Seismic level (Horizontal Accn.)                            | : 0.30 g.          |
| m) Permitted noise level                                       | : 45 db.           |

### 3.04 SUPPLY SYSTEM:

Rated Voltage (Vref) 3 x 63.5 V - Phase to Neutral (3 phase 4 wire system)  
(For HTTVM)  
(Through PT) 3 x 110 V - Phase to Phase Meter shall be programmed for PT ratio 11KV/110V (Ph.to Ph.)

Rated current (Ib) 3 x -/5 Amps  
(Connected through CT)

Multiplying factor to arrive at actual primary values wherever applicable shall be calculated from the CT and PT ratio of the installed CTs and PTs/CT ratio of the installed CT's.

### 3.05 POWER FACTOR RANGE:

The meter shall be suitable for full power factor range from zero (lagging) through unity to zero (leading). The meter should work as an active energy and reactive (lag and lead) energy meter. The Power Factor should be in the three decimal digit.

### 3.06 POWER SUPPLY VARIATION:

The supply system shall be 3x110V Phase to Phase, 3 phase 4 wires. The extreme power supply variations for which an operating meter should withstand without damage and without degradation of its meteorological characteristics when it is subsequently operated under its normal operating conditions shall be as follows: -

Specified operating range -0.8 to 1.15 V ref.  
Limit range of operation - 0.7 to 1.20 V ref.  
Frequency - 50 Hz. +/- 5%

However, the bidder can offer meter, which can withstand higher variations. The limit of power supply variations should be as per IS: 14697-1999.

### 3.07 ACCURACY:

Class of accuracy of the meter shall be 0.5S. The accuracy should not drift with time.

### 3.08 POWER CONSUMPTION:

(i) **Voltage circuit:** The active and apparent power consumption in each voltage circuit including the power supply of meter at reference voltage, reference temperature and reference frequency shall not exceed 1.0 Watt per phase and 8 VA per phase respectively.

(ii) **Current circuit:** The apparent power taken by each current circuit at basic current, reference frequency and reference temperature shall not exceed 1 VA per phase.

### 3.09 STARTING CURRENT:

The meter should start registering the energy at 0.1% Ib and unity power factor.

### 3.10 MAXIMUM CURRENT:

The rated maximum current of the meter shall be 200% Ib.

### 3.11 GENERAL AND CONSTRUCTIONAL REQUIREMENTS:

i) Meters shall be designed and constructed in such a way so as to avoid causing any danger during use and under normal conditions. However, the following should be ensured:-

- a) Personnel safety against electric shock
- b) Personnel safety against effects of excessive temperature.
- c) Protection against spread of fire.
- d) Protection against penetration of solid objects, dust and water.
- e) Protection against fraud.
- f) Protection against Pilferage.

ii) All the materials and electronic power components used in the manufacture of the meter shall be of highest quality and reputed make to ensure higher reliability, longer life and sustained accuracy.

iii) (a) The manufacturer should use application specific integrated circuit (ASIC) for metering functions.

(b) The meter should not have any form of mechanical adjustment such as trim-pots, potentiometer etc. for calibration. The meter shall be factory calibrated and no adjustment of calibration shall be possible at site by any means.

(c) The electronic components shall be mounted on the printed circuit board using latest Surface Mount Technology (SMT). The PCB material should be made of glass epoxy FR-4 grade conforming to relevant standards or better grade.

iv) All insulating materials used in the construction of meters shall be non-hygroscopic, non-ageing and of tested quality. All parts that are likely to develop corrosion shall be effectively protected against corrosion by providing suitable protective coating.

v) The meter shall have test output device in the form of calibrating LED accessible from the front and capable of being monitored conveniently with suitable testing equipment.

vi) The meter shall conform to the degree of protection IP 51 of IS: 12063/IEC: 60529 for protection against ingress of dust, moisture and vermin.

vii) The meter shall either remain immune to tamper through application of external magnetic field (AC electro magnet or DC magnet) as per value specified in CBIP 325 or if the metering gets affected then meter shall record energy at I<sub>max</sub>, rated voltage and unity P.F. as per CBIP 325 and same should also be logged as event.

viii) The meter should continue to function even if any spurious signals are injected on the neutral of the meter such as D.C signals through diodes etc. and /or High Frequency Signals.

ix) The meter shall be supplied with a transparent extended terminal-block cover (ETBC).

x) The meter shall have two push buttons, one for forward scrolling and other for reverse scrolling of different parameters available in push button mode.

xi) **Meter Base And Cover:**

- (a) The meter -base, meter cover; terminal block and ETBC shall be made of unbreakable, high grade, flame retardant polycarbonate with thickness more than 2.0 mm, and of good dielectric and mechanical strength. The material of meter base & terminal block shall be glass reinforced.
- (b) Meter cover and extended terminal block cover (ETBC) should be injection moulded in UV stabilized polycarbonate in natural colour. The ETBC shall be kept fully transparent and the meter cover except the window portion shall be semi-transparent / non-transparent/corrugated. The moulded meter case and terminal cover(s) should not change in colour, shape, size, and dimensions, when subjected to 200 hours on UV ageing test. It should withstand 650 deg. C glow wire test and heat deflection test as per ISO 75.
- (c) The manufacturer shall emboss/**engraved/screen printed** on the base/cover(s), the name of the material they have used in an abbreviated form e.g. PCFR 10 GF (to denote that they have used polycarbonate flame retardant 10 % glass filled polycarbonate).
- (d) The window portion shall be of transparent, unbreakable, silicon coated, scratch resistant surface UV stabilized polycarbonate material for easily reading all the displayed values/parameters, nameplate details and calibrating LED. It should not fade in course of time and become opaque causing inconvenience in reading. The window portion shall be ultrasonically welded with the meter cover such that it cannot be removed undamaged without breaking the cover.
- (e) The meter cover shall be ultrasonically welded with the meter base. The sample meter to be sent along with bid may not be ultrasonically welded with the meter base, as at the time of sample testing it has to be opened to ascertain conformity of meter as per specification. However, before commencement of supply, sample has to be got approved with ultrasonically welded meter by the successful bidder

xiii) **Terminal Block:**

(a) The detachable terminal block shall be moulded type made of non-hygroscopic, flame retardant material having good dielectric and mechanical strength. The moulded terminal block shall be made from best quality phenol formaldehyde or 10-20% glass filled polycarbonate material or any equivalent/better material conforming to FH-1 of IS 11731 (Part-I) having adequate insulating properties and mechanical strength with brass inserts for connecting terminals.

The terminal block should satisfy all the conditions specified in IEC-62052 & IS-14697 and shall be made from best quality phenol formaldehyde or 10-20% glass filled polycarbonate material or any equivalent/better material. The glass filled polycarbonate should fulfill the requirement of following tests

- (i) The flame retardant rating of VO as per UL94 testing.
- (ii) The glow wire temperature of 960 deg. C as per IS-11000 (part-2/Sec-1) or IEC 695-2-1.
- (iii) Heat deflection temperature (HDT) test of 135 deg. C.
- (iv) Ball pressure test at 125 deg. C.

(b) The terminal block, the ETBC and the meter case shall ensure reasonable safety against the spread of fire and shall not be ignited by the thermic overload of live parts in contact with them

c) The current circuit conductors of a meter shall be connected to its current terminals inside the meter terminal block adopting procedure prescribed either B-1 or B-2 of the recommended methods under Clause 6.4-Annexure-B of IS 14697. Any other method which meets this requirement in a better manner/way shall also be considered. The bidder should elaborate the arrangement adopted.

(d) The meter terminal block shall have tin- plated brass terminals/nickel plated.

The terminals shall have suitable construction with barriers and transparent cover to provide firm and safe connections of incoming and out going leads. The terminal screws shall have flat bottom so as not to pierce in the external conductors. The terminal be of suitable rating to carry continuous I<sub>max</sub> current and should be made of electroplated (or tinned) brass /nickel-plated and shall be of non-replicable type. Any other provision which meets this requirement in a better manner/ way shall also be considered. The bidder should elaborate the procedure adopted.

(e) (i) The manner of fixing the external conductors to the terminal block shall ensure adequate and durable contact such that there is no risk of loosening or undue heating. Screw connections transmitting contact force and screw fixings, which may be tightened and loosened several times during the life of the meter, shall screw into the body of brass terminal.

All parts of each terminal shall be such that the risk of corrosion is minimized. Two screws shall be provided in each current terminal for effectively clamping the external leads or thimbles. Each clamping screw shall engage a minimum of three threads in the terminal. The ends of screws shall not pierce and cut the conductors used. Electrical connection shall be so designed that contact pressure shall not be transmitted through insulating materials. If the manner of fixing of terminals is through thimbles/lugs/reducer type terminals. The supplier shall supply a set of the same along with each meter.

(ii) The internal diameter of the terminal hole shall be minimum 4.0mm. The holes in the insulation material of the terminal block, which form an extension of the terminal holes, shall be of sufficient size to accommodate the insulation of the conductors also. The clearance and creepage distance shall not be less than the values specified in clause 6.6 of IS 14697:1999.

Further, the supporting webs between two terminals of the terminal block should be sufficiently high to ensure that dust does not bridge the two neighboring terminals or a flash over does not take place.

f) The fixing screw(s) used on the ETBC for fixing and sealing of extended terminal cover shall be held captive on the terminal cover.

g) To facilitate sealing, a raised support arrangement with minimum 2 mm hole nearby sealing screws, which shall constitute an integral part of the terminal cover or a slot type arrangement underneath/alongside the sealing screw shall be provided.

xiv) The termination of current circuit wires inside the meter (i.e. CT primary conductor) on the terminal block shall be through lugs and washers of proper size. The loop length of the primary current circuit should be kept minimum. Alternatively the CT primary conductor may be flattened to form a 'lug' like shape for proper termination on terminal block without using lug or any other better arrangement may also be provided.

xv) The meter shall have minimum three fixing holes, one at the top and other two inside the terminal block. The top hole shall be key-hole type on the back of the meter base so that the hanging-screw is not accessible after fixing of the meter and it shall not be possible to remove the meter from the hanging-screw without removing the terminal cover and screw(s) from the terminal block. Any alternate better arrangement shall also be considered for acceptance.

The lower fixing holes shall be provided under the extended terminal cover. A set of fixing screws shall be supplied with each meter.

xvi) Extended terminal block cover shall be provided to ensure that the internal parts are not accessible for tampering etc. without breaking the seals. The ETBC shall be extended by Minimum 30 mm below the terminal block. A firm connection shall be established with in the meter case to energies the voltage circuit.

Arrangement for display, optical port, auxiliary supply source, push buttons for manual mode, meter nameplate and display sequence should be made in such a manner that it is accommodated in size of 170mm (W) x 140 mm (H) from opposite side of ETBC. This is required for facilitating of fixing of the HT /LT Tri-vector meter in HT panel box.

### 3.12 MANUFACTURING ACTIVITIES:

**All the material, electronics and power components, ICs used in the manufacture of the meter shall be of highest quality and repudiated make (as per Annexure-H) to ensure higher reliability, longer life and sustained accuracy. The verification of the components shall be carried out at manufacturer's works before offering material before inspection.**

i) The meter should employ latest technology such as Application Specific Integration Circuit (ASIC) to ensure reliable performance. The mounting of component on the PCB (Printed Circuit Board) must be SMT (Surface Mounted Technology) type by deploying the automatic SMT pick and place machine and reflow soldering process. The electronic component used in the meter shall be of high quality such that the meter shall remain in the accuracy class for at least up to 10 years. Further, the Bidder should own or have assured access (through hire, lease or subcontract) of above facilities.

ii) Quality should be ensured at the following stages:

a) At PCB manufacturing stage, each board shall be subjected to computerized bare board testing.

b) At insertion stage, all components should undergo computerized testing for conforming to design parameters and orientation.

- c) Complete assembled and soldered PCB should undergo functional testing using Automatic Test Equipments (Testing Jig)
- d) Prior to final testing and calibration, all electronic components of the meter shall be subjected to accelerated ageing test to eliminate infant mortality.
- iii) The calibration of meters shall be done in house.
- iv) The bidders should submit the list of all major components used in meter along with the offer.
- v) A detailed list of bought-out items, which are used in the manufacture of the meter, should be furnished indicating the name of firms from whom these items are procured. The bidder shall also give the details of quality assurance procedures followed by him in respect of the bought-out items.

### **3.13 SEALING ARRANGEMENT OF THE METER:**

Atleast two sealing screws shall be provided for proper fixing of meter cover so that access to the working parts shall not be possible without breaking the seals. One screw provided on left side shall be used by manufacturer to provide his own sealing with high quality double anchor polycarbonate seal bearing laser etched monogram of JdVVNL along with meter serial number and other provided on right side by purchaser, which should be left unsealed. Provision shall also be kept for one no. seal on terminal cover. All the sealing screws shall be captive type so that they cannot be detached when they are in open condition. The holes in the head of sealing screw shall be of min. 2mm dia. The sealing screws for meter base and cover shall be unidirectional and slot less (2 No.) .Two No. tamper indicative paper seal(s) on either side of the meter case shall be provided by the manufacturer. For this, at least two (2) Nos. seals on meter body and provision for, one (1) no. seal on meter terminal cover and one (1) no. seal on communication port shall be provided.

For the above sealing arrangement for the purchaser, the manufacturer shall provide at least one seal on the meter body at the factory after calibration and testing. Provision for all the seals should be provided on front side only. Rear side sealing arrangement will not be accepted. The Suppliers in their offer should explain the sealing arrangement.

### **3.14 MARKING OF METER:**

The meter terminal marking and mounting arrangement should be as per Indian installation practices. The marking on every meter shall be in accordance with Table 30 of ETD13(6211).

Every meter shall have nameplate beneath the meter cover such that the nameplate cannot be accessed without opening the meter cover and without breaking the seals of the meter cover and the nameplate shall be marked indelibly. The nameplate marking should not fade or otherwise be adversely affected by UV exposure with lapse of time.

**The TVMs shall have also marking of “DLMS meter on name plate.**

### **3.15 CONNECTION DIAGRAM & TERMINAL MARKINGS:**

The connection diagram of the meter shall be clearly shown for 3 phase 4 wire system as well as 3 phase 3 wire system, on inside portion of the terminal cover and shall be of permanent nature. The meter terminals shall also be marked and this marking should appear in the above diagram.

### **3.16 SOFTWARES AND INTERFACE BETWEEN METER & HHU:**

Adequate number of licensed copies of the following software shall be made available and shall be installed in HHU and Base Computer System (BCS) by the Supplier without extra cost. The Supplier shall impart necessary training regarding installation and use of the above softwares. The exact quantity of each type of software to be so supplied shall be intimated to the Supplier prior to/at the time of ordering subject to maximum 30 Nos./sets.

- i) Software for reading, down loading meter data, as well as configuration change activity in meter shall be as per Table 31 of ETD13(6211), normally resident in the Hand Held Unit (HHU); Software suitable for MS Window XP or higher version. The software shall be installed in and be compatible to all makes of the HHUs (Analogic/Sands/any other make) and PC/Laptop as well as supplied separately in the form of floppies/CDs.

**Presently following TOD time-zones are required in HT TVMS of Category “C1” for consumer Metering :-**



- i) **06.00 Hours to 10.00 Hours**
- ii) **10.00 Hours to 18.00 Hours.**
- iii) **18.00 Hours to 22.00 Hours**
- iv) **22.00 Hours to 24.00 Hours.**
- v) **24.00 Hours to 06.00 Hours**

ii) Configuration change activity (programming) should be enabled at BCS under multilevel password protected security system for specified/selected meter(s) identified by the meter serial number(s). Configuration change activity can only be possible after written consent of SE(M&P-ZPC), JdVVNL, Jodhpur and a password available with SE(M&P-ZPC), JdVVNL Jodhpur is to be entered first for enabling any configuration change activity. Without entering the password provided by SE(M&P-ZPC), JdVVNL, Jodhpur, configuration change activity shall not at all possible. Such configuration change in the meter shall be by meter-data reading such that entire meter data prior to change is downloaded from the meter before the change is effected in the meter. Details of minimum 10 such change/s (event/s) made in the meter shall be logged in the meter memory, each with date and time-stamp, and shall be capable of downloading through HHU and shall be available for viewing at the BCS end. The logging shall be roll-over type on first-in, first-out basis.

iii) *The meter data should download **with the speed of 9600BPS.***

Any future up gradation made by the supplier in any of the above software's shall also be provided free of cost.

**(a) Platform:**

The BCS should be executable on MS WINDOWS 95/98/2000/XP/VISTA or higher operating system. The BCS shall be suitable to run on IBM PC or compatible hardware platform.

**(b) Meter Data Display:**

i) The BCS should show electrical conditions existing at the time of reading the meter in tabular forms as well as in graphical format (Phasor diagram).

ii) All the information about energy, maximum demand and their respective TOD register readings, billing register readings and billing history readings should be shown in a manner which user can understand quickly, preferably in tabular format.

iii) All the load survey data should be available in numerical as well as graphical format. It should also be possible to view this data in daily, weekly and monthly formats. The load survey graph should show values where the cursor/pointer is placed for the selected or all parameters.

iv) All the information about tamper events should be accompanied with date and time stamping along with the 'snap-shots' (details) of the respective electrical conditions. This information should be displayed in the sequence in which it happened, in cumulative format as well as in summary format. The cumulative format should segregate a particular tamper

Information and summary report shall show count of tamper occurrence and the duration for which meter has remained under tamper condition.

v) The BCS should be capable of preparing *all available makes of HHUs* to read the meter information or for Configuration Change activity in the meter after entering the password provided by SE(M&P-ZPC) Jodhpur, as per Table 31 of ETD13(6211).

**(c) Support Display:**

There should be "user friendly" approach for viewing meter data for the reading collected now or for the reading collected in the past. All information about a particular consumer should be segregated and available at one place so that locating any consumer's past data is easy. It should be possible to locate/retrieve data on the basis of one of the following particulars:

- i) Consumer ID/Number.
- ii) Meter Sr. No.
- iii) Date of meter reading.
- iv) Location.

**(d) The Data Transfer:**

It should be possible to transfer the data to and from HHU through serial interface/port. *The data transfer shall be in the desired format, which suits to billing software of the Nigam.*

**(f) Security:**

The BCS shall have multi level password for data protection and security. The first level shall allow the user to enter the system. The different software features shall be protected by different passwords. The configuration of passwords shall be user definable. The software installed on one PC shall not be copiable on to another PC.

**3.17 SALIENT FEATURES:**

The meter shall have the following additional salient features:

i) It should be possible to check the healthiness of phase voltages by displaying all the voltages on the meter display.

ii) The meter display shall have phase indicators to indicate the status of phase voltages, which shall keep coming with every display.

iii) The meter should work accurately irrespective of phase sequence of the mains supply.

iv) It should be possible to check the correctness of connections of CT and PT to the meter with proper polarity. This shall be made available on HHU by displaying phasor diagram. For this purpose, a suitable software for field diagnosis of meter connections with the help of meter and HHU should be supplied as per Annex G15 of IS 14697/ 1999.

v) The meter should remain powered up and functional even when either of any two phases or any one-phase along with neutral is available to the meter.

vi) The meter should continue to record accurately as per prevailing electrical conditions even if the neutral of potential supply gets disconnected.

vii) In power on mode, meter shall have scroll lock facility to display any one desired parameter continuously from display parameter for 30 minutes, which will keep on displaying for 30 minutes or till the lock is released". Any parameters can be locked/unlocked by continuous pressing of forward & reverse Push button for 5 seconds.

viii) The meter should continue to function even if any spurious signals are injected on the neutral of the meter, such as D.C signals through diodes etc.

ix) The meter reading count should increase by one digit every time the meter is read successfully through HHU or computer or any other device and should be available at BCS end.

x) Cumulative Programmable Count: Meter should be capable to display the Cumulative Programmable Count. This count should increase by one digit whenever there is any programmed or meter data change in the meter *through HHU or computer or any other device and be available at BCS end as well as on meter display*. This count should not increment on any data read-only communication.

xi) The meter shall be capable of detecting condition of power-off if mains supply is not present. It shall record such occurrence and restoration of power failures as separate events in the meter memory with date and time stamp.

Meter shall record minimum **200 Nos.** of events of power failure for more than 5 minutes. Snapshot of electrical parameters is not necessary during this condition.

xii) The meter shall have provision to be read in the absence of power through an external /internal source as per provision of Annex G14 of IS 14697/1999 such that it should not be possible to damage the internal circuitry of the meter by applying any voltage on /through the device /port provided for powering up the meter in the absence of power supply. The bidder should explain the method adopted by them for this purpose in their offer.

Minimum 20 such events (either off or on) shall be logged in meter memory and be available for downloading through a CMRI for viewing at the BCS end. These events shall be logged in a separate compartment on roll-over, first-in, first-out basis. Electrical values snap shots shall not be required for the logging of Power -off / Power - on events.

xiii) The meter should be compatible to GSM/GPRS/CDMA technology for remote metering.

xiv) The meter should be compatible to data exchange for electricity meter reading/tariff/load control as per IS: 15959.

**3.18 DISPLAY OF MEASURED VALUES:**

The measured value(s) shall be displayed on seven segments, seven digits Liquid Crystal Display (LCD) display unit/register; having minimum character height of 8 mm. LCD to be of ‘STN’ (super tested pneumatic) type construction suitable for temperature 70 Deg.C continuously.

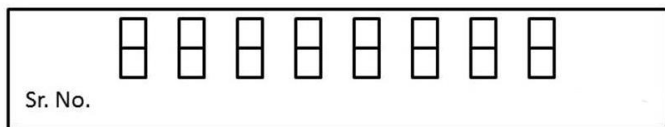
The data should not be lost in the event of power failure and should be stored in non-volatile memory. The non-volatile memory should retain data for a period of not less than 10 years under un-powered condition i.e. the non-volatile memory shall have a storage life (without use) of ten (10) years. Battery backup memory will not be considered as NVM.

It should be possible to easily identify the single or multiple displayed parameters through symbols/legend on the meter display itself or through display annunciator along with a separate legend plate fixed on the front face of the meter cover.

The register shall be able to record and display starting from zero, for a minimum of 1500 hours, the energy corresponding to rated maximum current at reference voltage and unity power factor. The register should not roll over in between this duration.

**3.19 METER SERIAL NUMBER:**

Meter serial number shall also be programmed in to meter memory for identification through HHU/meter reading print out. Serial No. of meter will be as under:-



**3.20 DISPLAY SEQUENCE:**

“The meter shall display the required parameters as per Table No. 27 of IS: ETD 13(6211): 2010 for category C1.

**(A) QUANTITIES TO BE MEASURED & DISPLAYED**

The meter shall be capable of measuring and displaying the following electrical quantities within specified accuracy limits for poly phase balanced or unbalanced loads:

- a) Instantaneous Parameters as per IS:ETD13(6211), such as phase and line voltages, currents, power factors, overall kVA, kW, kVAh, power factor, frequency etc as per details given in the table below and enclosed annexure.
- b) Block Load Profile Parameters such as kVAh/ kWh/ kVArh (lag / lead)/ Maximum Demand (MD) in kW/ kVA/ power factor/phase and line voltages/currents etc (minimum 5 parameters) as per details given in the table below and enclosed annexure.
- c) Daily Load Profile Parameters such as cumulative energy kWh (import/export)/cumulative kVAh (while kW- import/export)/cumulative energy kVArh as per details given in the table below and enclosed annexure.

In addition to above the meter shall also record the Name plate details, programmable parameters (readable as profile), occurrence and restoration of tamper events along with the parameters as per Clause No. 3.28 of this Specification.

Detail of category wise parameters requirement suitable for specific location such as feeder/DT metering,

interface points/boundary points is given in following tables of guidelines document enclosed as annexure: (as per IS: ETD 13(6211): 2010).

Category	Metering Nomenclature/Purpose	Parameter group	Annexure (Table No.) of IS: ETD 13(6211): 2010
A	Substation Feeder/ Distribution Transformer meter	Instantaneous parameters ( Auto scroll and push button mode)	C (22)
		Block Load Profile parameters	C (23)
B	Boundary/Ring fencing/Interface Meters	Instantaneous parameters( Auto scroll and push button mode)	D (24)
		Block Load Profile parameters	D (25)
		Daily Load Profile parameters	D (26)
C	HT Consumer Meters	Instantaneous parameters( Auto scroll and push button mode)	E (27)
		Block Load Profile parameters	E (28)
		Billing Profile parameters	E (29)
A,B&C	Substation Feeder/ Distribution Transformer/Boundary/Rin g fencing/Interface/HT	Name Plate details	F (30)
		Programmable Parameters	F (31)
		Event Conditions	G (32, 33,34,35,36, 37& 38)
A,B&C	Logging parameters for each of the event condition	Capture parameters for event as applicable (Event Log Profile)	G (39)

#### (B) DEMAND INTEGRATION PERIOD

The maximum demand integration period may be set at **30 minute**. Meter shall be programmable for integration period of **15minutes** also.

#### (C) MD RESET

It should be possible to reset MD by the following:

- Auto reset at 24:00 hrs at the end of each billing cycle .

#### (D) COMMUNICATION CAPABILITY

The meter shall be provided with two ports for communication of the measured/collected data as per guideline document enclosed in the annexure, i.e. a hardware port compatible with RS 232 or RS 485 specifications which shall be used for remote access through suitable Modem (GPRS/CDMA) and an Optical port complying with hardware specifications detailed in IEC-62056-21. This shall be used for local data downloading through a DLMS compliant HHU.

The RS 485 port shall be used at Substations suitable for multi-drop connections of the meter for exporting data to sub-station data logger/DCU/Computer and the remote end server. The RS 232 port shall be used at boundary points meters and Distribution Transformer meters capable to transfer and export data to the remote end server through suitable communication mediums (GPRS/CDMA). Both ports shall support the default and minimum baud rate of 9600 bps.

#### (E) HAND HELD UNIT (HHU)

To enable local reading of meters data a DLMS compliant HHU shall be used. The HHU shall be as per specification given in the enclosed guidelines document. It shall be compatible to the DLMS compliant energy meters that are to be procured/supplied on the basis of this specification. The HHU shall be

supplied by the meter manufacturer along with the meter @ **1% of ordered quantity**.

**The successful bidder shall supply HHU (as per specification) for DLMS TVMs within 30 days after finalization of approved specification.**

#### **(F) TAMPER & FRAUD MONITORING FEATURES**

The meter shall work satisfactorily under presence of various influencing conditions like External Magnetic Field, Electromagnetic Field, Radio Frequency Interference, harmonic Distortion, Voltage/Frequency Fluctuations, and electromagnetic High Frequency Fields etc. The meter should be immune to any type of radio frequency interference, harmonic distortion, voltage/ frequency fluctuations, electromagnetic high frequency fields and abnormal voltage/ frequency generating device.

Tamper details shall be stored in internal memory for retrieval by authorized personnel through either of the following:

- i) HHU.
- ii) Remote access through suitable communication network.

Minimum 200 numbers of events (occurrences & restoration with date & time) should be available in the meter memory.

#### **3.21 OUT PUT DEVICE:**

The meter shall have a test output accessible from the front and be capable of being monitored with suitable testing equipment. The operation indicator, if fitted, must be visible from the front. Test output device shall be provided in the form of one common LED for kWh, kVAh and optionally kVAh with the provision of selecting the parameter being tested. Alternatively, test output device in the form of separate LEDs for kWh, kVAh and optionally kVAh is also acceptable.

The relation between test output and the indication on display shall comply with the marking on the name plate (imp per kWh and imp per kVAh or kVAh).

The bidder shall state the necessary number of pulse count(s) to ensure measurement accuracy of at least 1/10<sup>th</sup> of class of the meter at the different test points.

The resolution of the test output pulse(s) should be sufficient to enable conduction of the starting current in less than 10 minutes and accuracy test at the lowest load with desired accuracy within 5 minutes.

#### **3.22 (A) MAXIMUM DEMAND (MD) REGISTRATION:**

The meter shall continuously monitor and calculate the average demand in KVA during the integration period set and the maximum, out of these, shall be stored along with date and time when it occurred in the meter memory. The maximum registered value shall also be made available on meter-display.

The maximum demand will be computed from the main apparent energy register.

The integration period shall be set as 30 minutes, on real time basis starting from 00.00 H

The principle of maximum demand calculation used by the Bidder should be explained in the offer.

#### **3.22 (B) Maximum Demand Registration and MD resets :**

Meter shall continuously monitor and calculate the average maximum demand of each demand interval time of 30 minutes on real time basis and maximum of these in a calendar month shall be stored. The maximum demand shall automatically reset at 24.00 hrs. of the last date of each calendar month for which minimum 30 years calendar shall be programmed by the manufacturer. The cumulative kWh should also be recorded at 24.00 hrs. on the last date of each calendar month for previous 6 months.

#### **3.23 MAXIMUM DEMAND RESET:**

The auto reset facility of MD at pre-defined date & time shall be provided. The meter shall log on in the meter memory, average value of voltage & current for 30 minutes integration period, the maximum demand reset count, which should increment by one digit every time the MD is reset.

**3.24 LOADS SURVEY CAPABILITY & BILLING POINT REQUIREMENTS:**

For category “C1” meter, load survey parameter shall be in KVA, current-IR, current-IY, Current-IB, block energy-KWh and block energy-KVAh. Load survey period shall be **75 days** with 30 minutes integration period.

**Meter Serial Nos. should be printed in each page of load survey sheet. The BCS parameters should not be editable.**

**The programmable parameters shall be as per table No. 31 of IS: ETD 13 (6211).**

**3.25 HARMONICS MEASUREMENTS:**

The accuracy of the meter shall not be affected by harmonics circulating in the system of magnitudes within permissible limits stipulated in relevant ISS/ IEC/ CBIP Standards and CEA Regulations-2004. **The meter shall display Total Energies as per IS: ETD 13(6211): 2010 and same shall be logged in meter memory and be capable to download at BCS end through HHU.**

**3.26 TAMPER AND FRAUD PROTECTION:**

The meter shall at least be immune to tampers elaborated in IS: 14697(Annexure G-10). The meter should have features to detect the occurrence and restoration of, at least, the following common ways of tamper and fraud:

**a) Missing Potential:** The meter shall be capable of detecting and recording phasewise occurrences and restoration events of missing potential (one phase or two phases) as on meter terminals which can happen due to intentional / accidental disconnection of potential links (leads) with date and time, along with the total number of such events for all phases. Absence of one or more phase voltage from mains side should not be recorded as missing potential.

**b) Neutral Disturbance:** The meter shall be capable of detecting occurrences and restoration of injection of spurious signals on the neutral of the meter, such as DC signals through diodes etc., which affect the meter functionality and energy recording

**c) Current Reversal:** The meter shall be capable of detecting and recording phase wise occurrences and restoration of current reversal of one or more phases

**d) Current Circuit Open (Failure):** The meter shall be capable of detecting and recording occurrences and restoration of opening (failure) of any one or two phases of current circuit when the meter is connected to a 3 phase 4 wire system or 3 phase 3 wire system. The No-load condition should not be recorded as tamper.

**e) Current Unbalance:** The meter shall be capable of detecting and recording occurrences and restoration of current unbalance as a tamper event only

The threshold values for voltage, current and power factor etc. for the purpose of logging occurrence and restoration of various type of tamper shall be as per Annexure `B`

**f) Magnetic Influences:**

The meter should record the presence of abnormal external magnetic fields alongwith date and time.

Snapshots (numerical values) of voltage, current, power factor and energy (kWh) readings as well as the date and time of logging of the occurrence and restoration of all tamper events, subject to meter-memory space as described herein under, should be logged in the meter-memory and available for retrieving through the meter's optical port via CMRI and downloading to the BCS.

**g) Cover Open Tamper** – If the meter cover is opened, the meter shall log this as tamper and shall display “Open” with date and time of such opening and should not restore in any condition (in power on as well as power off condition) in blinking display on the LCD alongwith other display parameters, so that it is immediately noticed by the meter reader and same shall be downloaded in CMRI.

**h) High voltage and high frequency-** The accuracy of the meter should not be affected with the application of abnormal voltage/ frequency generating device such as spark discharger of approximately 35 KV. The meter shall be tested by feeding the output of such device(s)to meter in any of the following manner for 10 minutes:-

- i) On phase and neutral terminals.
- ii) On any connecting wires of the meters.
- iii) Voltage discharge with 0 to 10mm spark gap.
- iv) Spark on meter body.
- v) At any place in load circuit.

The accuracy of the meter shall be checked before and after the application of above device(s) with site conditions.

### **3.27 TAMPER LOGIC:**

A properly designed meter tamper logic should be provided the tamper logic should be capable discriminating the system abnormalities from source side and load side and it should not log / record tamper due to source side abnormality.

There shall be three separate compartments for logging of different types of tampers as follows:

**Compartment No. 1:** 40% of total tamper memory space shall be allocated for the current related tampers.

**Compartment No. 2:** 40% of total tamper memory space shall be allocated for the potential related tampers .

**Compartment No. 3:** 20% of total tamper memory space shall be allocated for the other tampers i.e. magnetic influence and neutral disturbance related tampers etc.

Minimum 200 events (Occurrence & restoration as separate event) of all types of tampers with date & time shall be available in the meter memory on first in, first out basis.

### **3.28 TAMPER PERSISTENCE TIME:**

The persistence time for logging/registration of an occurrence of a tamper should be 5 minutes +/- 10 seconds. The persistence time for logging of restoration of tamper should not be more than 60 seconds and the cover open tamper should be logged instantaneously and shall not restore. The magnetic tamper occurrence/restoration time shall be of approx. 15 seconds.

### **3.29 ACCURACY REQUIREMENT:**

The accuracy of parameters measured by meters shall be tested in accordance with the relevant standards described in clause 3.02 of this specification. For apparent energy, accuracy testing shall be done in accordance with the provisions of Annexure G-7 of IS: 14697-1999. Time accuracy of the meter should be as per Annexure G-18 of IS: 14697-1999.

### **3.30 ELECTRICAL REQUIREMENT:**

The electrical requirement of the meter shall be as specified in the relevant Standards described in clause 3.02 of this specification.

### **3.31 ELECTROMAGNETIC COMPATIBILITY AND INTERFERENCE:**

The meter shall meet EMI/EMC requirement as specified in the relevant Standards described in clause 3.02 of this specification and shall also be protected against radiated interferences from either magnetic or radio frequency sources.

### **3.32 MECHANICAL REQUIREMENT:**

The meter shall be capable of meeting the mechanical requirement as specified in the relevant standards described in clause 3.02 of this specification.

### **3.33 CLIMATIC INFLUENCE REQUIREMENT:**

The meter shall meet the requirement of dry heat / cold / damp heat / cold / damp heat cyclic test as per the relevant standards described in clause 3.02 of this specification.

**3.34 MINIMUM TESTING FACILITIES:**

The tenderer should have the necessary testing facility for carrying out the following tests: -

- i. AC voltage test.
- ii. Insulation resistance test.
- iii. Test of limits of errors.
- iv. Test of meter constant.
- v. Test of starting condition.
- vi. Test of no load condition.
- vii. Repeatability of error test.
- viii. Test for power consumption
- ix. Vibration test.
- x. Tamper conditions-as per purchaser specification.
- xi. Shock test.

**Notes: -**

- a) Manufacturer should possess fully computerized Meter Test Bench system for carrying out the relevant routine/acceptance tests as well facility to generate Test Reports for each and every meter tested.
- b) Manufacturer should have duly calibrated Electronic Reference Standard (ERS) meter of class 0.05 accuracy or better. Where testing facilities do not exist at the Supplier's Works for Shock and Vibration Testing as per the relevant standards, these two tests may be carried out in accordance with the provisions of IS: 13010 with latest amendments.

**3.35 TESTS:**

The test reports/certificate/records for all type tests specified having been successfully performed on the type of the meter offered shall be submitted with the tender. The bidder shall clearly bring out the deviations from this specification clause whether on account of tests or manufacturing process or features incorporated in the meter. The tender lacking with above information and without supporting test reports for meter meeting the requirement of tests laid in this specification are likely to be rejected.

## a)- Type tests :

The Energy meter compatible with DLMS protocol offered shall be fully type tested at any NABL accredited test laboratories as per relevant standards .The bidder shall furnish two sets of type test reports along with the bid. Type test reports shall not be more than two years old from the date of opening of bid.

Beside above bidder should also submit the test report from CPRI, Banglore/Bhopal/ ERDA, Vadodara /government approved/ government recognized/NABL accredited laboratory along with the bid for the latest version of the "Indian standard on data exchange for electricity meter reading, tariff and load control-companion specification" ETD(13)6211 released by BIS.

## b)- Acceptance tests :

The Supplier in the presence of the Purchaser's representative shall carry out all acceptance tests as stipulated in the relevant standards. The following additional tests shall also be carried out on meters from each lot offered for inspection as per the relevant standards on selected samples:

- Shock test.
- Vibration test.
- Magnetic Induction of External Origin, and
- Verification of tamper and fraud detection features and threshold values as per specifications and subsequent agreement between the Supplier and Purchaser.

**Note:** Where testing facilities do not exist at the Supplier's works for shock and vibration testing as per the relevant standards, these two tests may be carried out in accordance with the provisions of IS: 3010 with latest amendments.

## c)- Routine test :

All routine tests as stipulated in the relevant standards shall be carried out and routine test certificates/reports shall be submitted to the Purchaser for approval and also placed inside individual meter packing.



**3.36 FIELD/LABORATORY TESTING OF METER:**

The supplier should furnish detailed write up for the procedure to be adopted for error testing of the meters in the laboratory and at site/field.

**3.37.1 SAMPLE ALONG WITH BID :**

The bidder shall furnish one sample of HT TVM of category C1 conforming to this specification duly sealed along with the routine test certificates directly in the office of the Superintending Engineer(M&P-ZPC), JdVVNL Jodhpur one day prior from the date of opening of Tender, If the sample(s) are not received the bid shall be considered as Non-responsive. In case sample meter submitted with bid don't conform the Type tests, Addl. Type Tests and Tamper tests of specifications/IS, the financial bid of offer shall not be opened

**Sample(s) meter shall be broken to verify components of the meter.**

One sample of HT-TVM of 0.5S class of category C1 along with HHU meeting the requirements of this specification should be furnished along with bid for checking and testing in our Meter Testing Laboratory at Jodhpur in presence of bidders representative or at independent test laboratory, at the discretion of purchaser.

After finalization of the tender, the bidder(s) will collect their sample(s) so submitted otherwise department does not hold itself responsible for safe custody of sample(s) so received. The offer received without sample(s) is liable to be ignored.

The meter cover shall be ultrasonically welded with the meter base. The sample meter to be sent along with bid may not be ultrasonically welded with the meter base, as at the time of sample testing it has to be opened to ascertain conformity of meter as per specification. However, before commencement of supply, sample has to be got approved with ultrasonically welded meter by the successful bidder.

The meter sample should be sealed with the bidder's seal(s). The details of logic and threshold values for various kinds of tampers as proposed and incorporated by the bidder in their meter samples shall be furnished along with the meter sample(s).

Tests to be conducted:

- i) Starting condition test.
- ii) Power consumption test.
- iii) Repeatability of error test.
- iv) Accuracy requirements.
- v) Voltage Variation Test (-30% to +20%).
- vi) Tamper and fraud protection test: Tests to prove compliance to this specification.
- vii) A.C. and D.C. Magnetic Immunity test.

**3.37.2 FURNISHING OF PRE- COMMENCEMENT SAMPLES:**

a) The successful bidder shall furnish one nos. pre commencement samples of each type of offered tri-vector meters fully meeting the requirement of specification directly in the office of the Superintending Engineer(M&P-ZPC), JdVVNL Jodhpur within **fifteen days** from the date of receipt of Purchase Order for Nigam's approval. The samples shall be tested at Nigam's own lab or CPRI/NABL accredited lab, at the discretion of the purchaser. The testing charges in case samples are send to third party lab, shall be borne by the supplier. The bidder shall supply the meters only after approval of pre-commencement of sample.

In case of major deviation in Electrical testing, physical features and communication capability, the supplier be allowed to furnish second set of sample. In case of failure of second set of sample, order may be cancelled with penalty @5% of Ex-works + taxes as applicable on the ordered quantity.

b) The purchaser shall reserve the right to pick up energy meter at random from the lot(s) offered and get the meter tested at third party lab i.e. CPRI /NABL accredited lab at the sole discretion of the purchaser . The supplier has no right to contest the test results of the third party lab or for additional tests and has to replace / take corrective action at the cost of the supplier.

It shall be responsibility of the supplier to arrange such test and purchaser shall be inform of the date and time of conduction of tests well in advance to enable him to witness such tests. Test charges of the testing authority for such successful type tests shall be borne by the purchaser and in case of unsuccessful type test, same shall be borne by the supplier.

**3.38 QUALITY ASSURANCE PLAN:**

The Bidder shall invariable furnish the following information along with bid, failing which his bid shall be liable for rejection. Information shall be separately given for individual type of material offered.

- i)- Statement giving list of important raw materials, names of sub-suppliers for the raw materials, list of standards according to which the raw materials are tested, list of tests normally carried out on raw materials in presence of Bidder's representative and copies of test certificates.
- ii)- Information and copies of test certificates as in (i) above in respect of bought out accessories.
- iii)- List of manufacturing facilities available.
- iv)- Level of automation achieved and list of areas where manual processing exists.
- v)- List of areas in manufacturing process where stage inspections are normally carried out for quality control and details of such tests and inspections.
- vi)- List of testing equipment available with the bidder for final testing of equipment specified and test-plant limitations, if any, vis-à-vis the type, special acceptance and routine tests specified in the relevant standards and this specification. These limitations shall be very clearly brought out in a separate schedule of deviations from specified test requirements.

The successful bidder shall within 30 days of placement of order, submit following information to the purchaser:

- i) List of raw materials as well as bought out accessories and the names of sub-suppliers selected from those furnished along with offers.
- ii) Type test certificates of the raw materials and bought our accessories if required by the purchaser.
- iii) Quality assurance plan (QAP) with hold points for purchaser's inspection. The quality assurance plan and purchasers hold points shall be discussed between the purchaser and bidder before the QAP is finalized.

The contractor shall operate systems, which implement the following:

- i) Hold point: A stage in the material procurement or workmanship process beyond which work shall not proceed without the documental approval of designated individuals or organizations. The purchaser's written approval is required to authorize work to progress beyond the hold points indicated in quality assurance plans.
- ii) Notification Point: A stage in the material procurement or workmanship process for which advance notice of the activity is required to facilitate witness. If the purchaser does not attend after receiving documented notification in accordance with the agreed procedures and with the correct period of notice then work may proceed.

The successful bidder shall submit the routine test certificates of bought out accessories and central excise passes for raw material at the time of routine testing if required by the purchaser and ensure that Quality Assurance requirements of this specification are followed by the sub-contractors.

The Quality Assurance programme of the contractor shall consist of the quality systems and quality plans with the following details:

- i)- Quality System :
  - The structure of the organization.
  - The duties and responsibilities assigned to staff ensuring quality of work.
  - The system for purchasing, taking delivery and verification of materials.
  - The system for ensuring quality workmanship.
  - The system for retention of records.
  - The arrangements for contractor's internal auditing.
  - A list of administration and work procedures required to achieve and verify contract's quality requirements. These procedures shall be made readily available to the project manager for inspection on request.
- ii)- Quality Plans :
  - An outline of the proposed work and programmed sequence.

- The structure of the contractor's organization for the contract.
- The duties and responsibilities assigned to staff ensuring quality of work.
- Hold and Notification points.
- Submission of engineering documents required by the specification.
- The inspection of materials and components on receipt.
- Reference to the contractor's work procedures appropriate to each activity.
- Inspection during fabrication/construction.
- Final inspection and test.

### **3.39 GUARANTEE:**

The equipments supplied should be guaranteed for their performance for a minimum period of five years from the date of commissioning or five and half years from the date of receipt in stores whichever date is earlier. The equipment found defective within the above guarantee period shall be repaired/replaced by the supplier free of cost within one month of receipt of intimation.

The supplier shall also furnish an undertaking that there shall be no drift in the accuracy class of the meter for a minimum period of 10 years from the date of supply.

The supplier shall arrange to provide free training at places as desired by the purchaser for use of meter/Computer Software etc. The supplier shall provide competent and timely after sales service support.

### **3.40 INSPECTION:**

The purchaser's representative may carry out the inspection during manufacture and before dispatch. The supplier shall keep the purchaser informed in advance, about the manufacturing program so that the purchaser can arrange for inspection.

The manufacturer shall grant free access to the purchaser's representative at a reasonable time, when the work is in progress. Inspection and acceptance of any equipment under this specification by the purchaser shall not relieve the supplier of his obligation of furnishing the equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

All acceptance tests including other special tests as given in this specification and inspection shall be gone at the place of the manufacturer unless otherwise especially agreed upon by the Bidder and Purchaser at the time of purchase.

The purchaser reserves the right to insist for witnessing the acceptance/routine testing of the bought out items.

The supplier shall give 15 days advance intimation to enable the purchaser to depute his representative for witnessing the acceptance and routine tests. Material shall be dispatched only after getting the dispatch authorization from the purchaser or his authorized representative, after successful inspection/testing.

The bidder shall afford the inspectors representing the purchaser all reasonable facilities without charge, to satisfy him that the equipment is being furnished in accordance with this specification during stage inspection, if any, and final inspection.

### **3.41 NUMBER OF SAMPLES AND CRITERIA FOR CONFORMITY:**

The recommended sampling plan and the criteria for acceptance of the lot shall be as per Annexure-E of IS: 14697:1999 for the type of meters covered in this specification.

### **3.42 PACKING:**

a)- The equipments shall be suitably packed in order to avoid damage or disturbance during transit or handling.

Each meter may be suitably packed in the first instance to prevent ingress of dust and moisture and then placed in cushioned carton of a suitable material to prevent damage due to shocks during transit. The lid of the cartoon may be suitably sealed. A suitable number of sealed cartons may be packed in a case of adequate strength with extra cushioning, if considered necessary. The cases may then be properly sealed against accidental opening in transit. The packing cases may be marked to indicate the fragile nature of the contents.

b)- The following information shall be furnished with the consignment :

- Name of consignee.

- Details of consignment.
- Destination.
- Total weight of consignment.
- Sign showing upper/lower side of the crate.
- Sign showing fragility of the material.
- Handling and unpacking instructions.
- Bill of material indicating contents of each package and spare materials.

### **3.43 DOCUMENTATION:**

All drawings shall conform to International Standards Organization(s) ISO 'A' series of drawings sheet/Indian Standards Specifications IS: 656. All drawings shall be in ink and suitable for microfilming. All dimensions and data shall be in S.I. Units.

List of drawings and documents: -

The bidder shall furnish the following along with bid:

- i) Two sets of drawings showing clearly the general arrangements, fitting details, electrical connections etc.
- ii) Technical leaflets (User's Manual) giving operating instructions for the meter.

The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.

Approval of drawings/work by purchaser shall not relieve the supplier of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revision of application standards, rules and codes of practices. The equipment shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and

purchaser shall have the power to reject any work or materials which in his judgment is not in full accordance therewith.

The successful Bidder shall, within 2 weeks of placement of order, submit three sets of final versions of all the drawings as stipulated in the purchase order for purchaser's approval. The purchaser shall communicate his comments/approval on the drawings to the supplier within two weeks. The supplier shall if necessary modify the drawings and resubmit three copies of the modified drawings for their approval. The supplier shall within two weeks submit 30 prints and 2 good quality report copies of the approved drawings for purchaser's use.

Eight sets of operating manuals/technical leaflets shall be supplied to each consignee for the first instance of supply.

One set of routine test certificate shall accompany each dispatch consignment.

The acceptance test certificates, in case pre-dispatch inspection or routine test certificates, in cases where inspection is waived, shall be got approved from the purchaser.

### **3.44 SCHEDULES:**

The tenderer shall fill in the following schedules, which are part and parcel of the tender specification and offer. If the schedules are not submitted duly filled in with the offer, the offer shall be liable for rejection.

Schedule' A-II' - Guaranteed Technical Particulars of HTTVM.

All deviations from the specification shall be brought out in the schedules of deviations (Schedule VI, VII). The discrepancies, if any between the specification and the catalogues and / or literatures submitted as part of the offer by the bidders shall also be brought out.

If it is observed that there are deviations in the offer in Guaranteed Technical Particulars other than those specified in the deviation schedules then such deviations shall be treated as deviations.

### **3.45 DELIVERY SCHEDULE:**

Commencement period 30 days from the date of receipt of purchase order and completion within 7 months at equal monthly rate from the date of approval of pre commencement sample. Firm is required to furnish pre commencement sample within 15 days of receipt of purchase order. The

delay in furnishing of pre commencement sample beyond 15 days shall be on the part of the supplier and such delayed period shall be reduced from the stipulated delivery schedule. It will be ensured by Nigam to convey approval of pre-commencement sample within 15 days of receipt of sample.

**3.46 ADDITIONAL ORDER**

Repeat orders for additional quantities, upto 50% of original ordered quantities, may be placed by the Nigam, on the same rates, terms and conditions given in the contract.

**3.47** In addition to the above following **additional features** are required in the meter:-

**Note-1.: HT TVM - 'C1' type**

1. Maximum demand in KVA is required for billing purpose.
2. Billing Parameters in the meter are required on push button mode as well as and BCS end report.
3. The history of first event of each type of tamper should be permanently retained in meter data record while following the FIFO System.

**Note-2 :** Following test are to be conducted during testing of pre-commencement sample and during inspection at the firms work:-

- i. Power factor calculation procedure to be ensured.
- ii. Forward logging feature in the meter to be ensured.

**3.48 :** A committee comprising of M&P wing and IT wing will examine the Communication capability of sample meter and CMRI with different make of meters supplied in the Discoms as per requirement of the technical specification at the time of approval of pre commencement sample. Common protocol will be ensured for all requirement DLMS parameters and the other non DLMS parameters of each supplier shall be able to be downloaded by their respective software.

**3.49 GENERAL INFORMATION :**

- (a) Frequent changes in specifications during currency of contract will be avoided and if required the same shall be effected on mutually agreed basis.
- (b) For any further query regarding DLMS protocol refer to document IS: ETD 13(6211): 2010 for Data Exchange for Electricity meter reading, tariff and load control.
- (c) Nigam is not averse to deciding tenders on differential prices to get better quality meters.
- (d) Rates of new firms will not form basis for rates of regular suppliers.

**3.50** As GST act has been effected from 01.07.2017, therefore, BOQ has been prepared accordingly with applicability of GST. Further, old tax structure wherever appearing in ITB/GCC/Specification may be replaced by GST as per notification.  
Further, GST registration number of Jodhpur Discom is 08AAACJ8578R1ZJ.

**3.51** Every Micro, Small & Medium enterprises of Rajasthan shall be required to submit an affidavit in schedule-XI, along with duly filled bid document

-----

Tamper Logics for HT-TVM

Persistence time: 5 Min.

Restoration Time : 1 Min. (60 Sec.)

Tamper Events	Occurrence	Restoration
1. Missing Potential		
a. Voltage	< 20% Vb	> 40% Vb
b. Current	> 10% Ib	Ignored.
2. CT Polarity Reversal		
a. Line Current in tampered phase	> 5% Ib (in reverse direction)	> 10% Ib (in forward direction)
b. Power Factor.	>0.1	>0.1
3. CT Open		
a. Line current in tampered phase	< 2% Ib	> 5% Ib.
b. Line current in other phases	> 10% Ib	>5% Ib.
c. Load current in tampered phase	> 10% Ib	Ignore
4. CT Bypass		
a. By Pass Current	> 20% Ib	< 10% Ib (current in tampered phase)
5. Current unbalance		
a. Maximum current – Minimum current	> 30% Ib	< 10% Ib
6. Neutral Disturbance		
a. DC current injected on neutral from load side by mean of electronic circuit using diodes after removal/ disconnection of neutral.	If meter detect voltage greater than 1.25 times of Vref.	removal of DC injection
7. Interference of Magnetic field		
a. Presence of Magnetic field	Magnetic field which affects accurate Meter recording.	removal of magnetic field.

COMPONENT SPECIFICATION

S. No.	Component	Requirement	Makes & Origin
1.	Current Element	E-beam/spot welded shunts shall be provided in the phase element and C.T. in the neutral. Alternatively, both the current elements (phase & neutral) shall have shunts with proper insulation. The meters should be with the current transformers / shunt as measuring elements.	Any make or origin conforming to IS-2705 and other make i.e. Redbourn Engg/Isabelle.
2.	Measurement of computing chips.	The measurement or computing chips used in the meter should be with the surface mount type along with the ASICs.	Analog Devices, Cyrus Logic, AMS, Atmel, Phillips. SAMES, NEC, Texas Instruments
3.	Memory Chips.	The memory chips should not be affected by the external parameters like sparking, high voltage spikes or electrostatic discharges.	Atmel, National Semiconductors, Microchip, Texas Instruments, Phillips, ST Hitachi or Oki, Teridian
4.	Display modules	a) The display modules should be well protected from the external UV radiations. b) The construction of the modules should be such that the displayed quantity should not disturbed with the life of display. c) The display should be clearly visible over an angle of at least a cone of 70°. c) It should be trans-reflective FSTN or STN Type industrial grade with extended temperature range.	Genda, Haijing, Holtek, Bonafied Technologies Korea : Advantek, Truly Semiconductor Success Hitachi, Sony.
5.	Electronic Components.	The active & passive components should be of the surface mount type and are to be handled & soldered by the state of art assembly processes.	National Semiconductors, Atmel, Phillips, Texas Instruments, Toshiba, Fairchild, Murata, Rohm, Siemens. Hitachi, Oki, AVX or Ricoh. Samsung.
6.	Battery	Lithium with minimum guaranteed life of 15 years.	Varta, Tedirun, Sanyo or National, Durocell
7.	RTC & Micro Controller.	The accuracy of RTC shall be as per relevant IEC / IS Standards.	Phillips, Dallas Atmel, Motorola, Microchip. NEC or Oki.
8.	P.C.B.	Glass Epoxy, fire resistance grade FR4, with minimum thickness 1.6 mm.	-
9.	Communication modules	Communication modules should be compatible for the RS232 ports	National Semiconductors, Hitachi, Texas

			Instruments, Philips, HP, Agilent
10.	Optical port	Optical port should be used to transfer the meter data to meter reading instrument. The mechanical construction of the port should be such to facilitate the data transfer easily.	National Semiconductors, Hitachi, Texas Instruments, Siemens, Agilent, Philips, Hp
11.	Power supply	The power supply should be with the capabilities as per the relevant standards. The power supply unit of the meter should not be affected incase the maximum voltage of the system appears to the terminals due to faults or due to wrong connections.	As Specified
12	Mechanical parts	The internal electrical components should be of electrolytic copper & should be protected from corrosion, rust etc. The other mechanical components should be protected from rust, corrosion etc. by suitable plating/painting methods.	

**The components equivalent or better than those mentioned in the list are also acceptable.**

-----



**(SECTION-III)****Volume B****TECHNICAL SPECIFICATION FOR DOUBLE ANCHOR TAMPER EVIDENT POLYCARBONATE SEALS TO BE PROVIDED ON BODY SEAL OF METER AGAINST TN-1783.****SCOPE:**

The specification covers the design, manufacture, testing at manufacturers works, supply and delivery at destination stores of Double Anchor Tamper Evident Poly-carbonate Seals for sealing of Meter body and terminal covers of energy meters, Meter Box, etc. with non-corrosive, non-magnetic stainless steel sealing wire. These seals shall also be used for sealing the meters, metering equipments and inspected materials.

The Double Anchor Tamper Evident Poly-carbonate Seals shall conform to the Nigam's specification as under:

**1. Material of Double Anchor Tamper Evident Poly-carbonate Seals :**

The raw material used for Double Anchor Tamper Evident Poly-carbonate Seals shall be of M/s. Dow Caliber Ltd., Switzerland (Grade-201- 15), M/s.GE Plastic, Singapore (Grade 143R), M/s. Dupont, Japan (Grade IV-20) or any other manufacturer having better properties as under :-

Sr. No.	Properties	Poly-carbonate
1	Melting temperature	280° C to 295 <sup>o</sup> C
2	USE	Engineering
3	Softness	Hard
4	Durability	Weather effect resistance
5	Transparency	Fully transparent (long time transparency)

**2. Service Conditions (Climatic Conditions) :**

The meters to be supplied against this specification should be capable of performing and maintaining required accuracy under extreme hot, cold, tropical and dusty climate and solar radiation typically existing in state of Rajasthan (India). The meter shall be required to operate satisfactorily and continuously under the following tropical climatic conditions.

1	Maximum ambient air temperature	55 deg.C.
2	Maximum ambient air temperature in shade.	45 deg.C
3	Maximum temperature attainable by the meter exposed to sun.	60 deg.C.
4	Minimum ambient temperature	(-) 5 deg.C.
5	Average daily ambient air temperature	40 deg.C.
6	Maximum relative humidity	95%

7	Number of months of tropical monsoon condition	4 months.
8	Maximum attitude above mean sea level	1000 meters.
9	Average annual rain fall	10-100 cm.
10	Maximum wind pressure.	200 kg/sq.m

### 3. Colour of Seal:

The female portion of the Polycarbonate Seal(s) shall be available in Clear /Red/Green colour and should be transparent (see through) type, which shall give complete visualization of its fixing mechanism and shall show clear indication if tampered.

### 4. Design and Construction of Seal:

- a) **Design:** The seal shall be Double Anchor (Push Fit) type tamper evident with double locking. There shall not be any change in size, shape or design of the seal than the approved samples. If the seal is found different than the approved design / shape / size, the same shall be out rightly rejected. The double anchor should not be so soft that it can be easily pressed before sealing, so that after pressing the seal can not be opened.
- b) **Thickness:** The wall thickness of seal should be minimum one (1)mm.
- c) **Serial No. of the Seal :**Serial No. of the Seal shall be as per Meter serial No. and shall be laser etched / embossed during moulding (it shall not be screen printed ) in contrast colour on one side of capsule body (female ). The Sr. No. shall also be laser etched / embossed on top of the male part . The laser etched printing shall be through complete thickness of the polycarbonate.
- d) **Monogram:** The seal shall have embossed/ laser etched printed of monogram of JdVVNL on front side and month and year of manufacture in figure embossed on the backside. The laser etched printing should be through complete thickness of polycarbonate.
- e) **Seal Wire:** The non-corrosive, non-magnetic stainless steel twisted wire (26 guage) confirming to IS: 280 shall be used. The seal wire shall not have affect of magnet i.e. it should not attract to magnet. The length of the sealing wire should be minimum 8” twisted two strand pull resistant stainless steel wire fixed to the seal. The diameter of each individual stand should be of 0.4 to 0.5 mm. dia and overall diameter of the seal wire shall be 0.9 to 1.0 mm. The No. of turns shall be minimum 20 per inch. The seal wire should be inserted at the female and male part during the process of moulding itself. It should be continuous and visible throughout the length of the wire. The wire shall be intact such that it can not be pulled out after sealing.

The seal wire insert hole should be just sufficient for passing the seal wire and hole of larger dia is discouraged.

- f) **Tolerance:** Tolerance to the tune of +/- 10% is allowed in respect of various dimensions and number of turns per inch of seal wire

### 5. General Construction:

The seal shall be capable to withstand temperature upto 147° C without any damage / deformation.

The seal shall be designed for a single use only and if tampered with the help of plier, knife or any other sharp instruments, the seal shall be damaged and due to its transparent property, the sign of internal tampering shall be easily detected. Also once opened, it can not be re-used. The seal shall be made in such a way that, it can be easily locked with the help of finger and thumb pressing no tools shall be required to close the seal in the laboratory or at site. Both

the parts shall be designed in such a way that they can not be separated and the attachment shall be flexible and shall not break. After inserting the seal wire through female part, the cap of the male part shall be fitted in the female part in such a way that it should not leave any space to avoid insertion of any sharp tools for opening of seal body of the female part in hot or cold condition. The seal shall have also the following features:-

- a) Tamper resistance and reliable.
- b) Environmentally safe as it does not contain any lead.
- c) Withstand long-term exposure to direct sunlight.
- d) Required no tools for installation.
- e) Transparent.
- f) Heat resistance.

## 6. Testing:

The seals shall be inspected / tested as a acceptance test at the manufacture's works before dispatch in presence of authorized representative of purchaser for the following tests:

- i) **Physical Dimensional Check-up :** The seal shall be subjected to visual check-up for verification of workmanship and other features as mentioned above including shape / design / dimensions as per approved drawing / samples.
- ii) **Boiling Water Test:** The seal when emerged in the boiling water for two hours there shall not be any affect on the seal and it shall remain intact condition i.e. the seal should not become soft, but instead should turn out to trail and easily break thus showing easily the tampering signs if it eventually happens. Even, with the help of any sharp instrument, pulling with plier i.e. by applying mechanical force, the male portion shall not come out from the female part (body seal). In case, it comes out, the same shall damage the seal, so that it can not be re-used.
- iii) **Pull Out Test:** After locking the seal, if the male part / insert is pulled with mechanical force with the help of plier or any other instrument, sharp instrument etc. at normal condition, the seal should not get unlocked without any damage and when such condition occurs, it should leave traces of tampering.
- iv) **Seal Wire :** In case, if someone tries to pull the seal wire and in any of the tests as mentioned above at (ii) & (iii) in that case the male / female portion of the seal should be damaged and the same can be seen visually being a transparent one.
- v) **Chemical Test:** The seals shall be kept in the concentrated acid for minimum one hour in locked condition. The same shall remain intact condition and if try to unlock the seal, the same shall be damaged.
- vi) **Temperature withstand test:** The seal should be capable to withstand temperature upto 147 deg. C without damage/deformation .

In short, if the seal is tested for any of the above tests, in no condition the male and female part shall be separated out without affecting / damaging the seal. In case, if they are separated, the seal shall have sufficient tamper evident. Also, if seal wire is pulled out from the seal in any of the above tests, it shall not come out from the seal without damaging seal.



## Schedule – I

**SCHEDULE OF REQUIREMENT**

Name of the Item	Approx. Quantity (Nos.)
<b>HT TRIVECTOR METERS OF CLASS 0.5s WITH DLMS PROTOCOL</b>	
<b>CATEGORY “C-1”</b>	<b>2000 Nos.</b>

**NOTE:-The quantities as mentioned in the schedule of requirements are tentative and may increase/decrease as per the requirement of the Nigam.**



SPEC/TN-1783/HT TVM Type C1 /P (29/66)

**SCHEDULE- II**

**PURCHASE OF HT TRIVECTOR METERS OF CLASS 0.5s WITH DLMS PROTOCOL  
AGAINST TN-1783**

**PRICE ARE 'FIRM'**



**JODHPUR VIDYUT VITRAN NIGAM LIMITED**

**A Govt. of Rajasthan Undertaking  
Prescribed technical specification for supply of**

(Name of Material/Equipment/Machinery/T&P etc.)

S.No.	Technical specification which material/equipment/Machinery/T&P shall confirm	Name of IS/other standard specification to which material should confirm	Other particularsto if any.
-------	--	--	-----------------------------

Certified that we agree to all the aforesaid technical specification except at S.No..... for which our technical specification shall be as under:-

S.No.	Technical specification which material/equipment/Machinery/T&P shall confirm	Name of IS/other standard specification to which material should confirm	Other particularsto if any.
-------	--	--	-----------------------------

**(Signature)**

Name & Designation  
withseal of the bidder.

**QUALIFICATION REQUIREMENT****ITEM- HT TRIVECTOR METERS OF CLASS 0.5S WITH DLMS PROTOCOL UNDER TN-1783**

The bidder should fulfil following qualifying requirements for successful participation in the tender along with relevant documentary evidence supporting each qualifying requirement without which the offer shall be considered non-responsive & rejected.

**1.0 STATUS OF BIDDER:-**

- a) The bidder should be a Manufacturer of offered items. The offers from Sole Distributor / Sole Selling Agent / Authorized Dealer shall not be entertained.
- b) The bidders should be qualified, not be insolvent, not be in receivership, not be bankrupt or being wound up, should not have affairs administered by a court or a judicial officers, should not have business activities suspended, should not be blacklisted or debarred by any utility/ government agency, should not have a conflict of interest. For this bidder is required to furnish a Declaration as per Appendix-B, on Rajasthan Non-judicial Stamp Paper of Rs. 100/ (excluding surcharge on Stamp Paper, as per rules).
- c) Old/ New suppliers:- Any bidder located within or outside the state of Rajasthan has participated for the first time in a particular Discom & meeting minimum qualification requirement and has supplied the tendered material/or of higher rating in other utility shall be treated as an old supplier. Rajasthan's firms although supplied in past but not meeting minimum quantity supplied criterion including altogether new units which have not supplied any quantity but having adequate & required manufacturing and testing facility and technical know-how of the tendered material shall be considered as new firms and would be eligible for trial order only.
- d)
  - (i). The bidder shall have BIS Certification for offered rating of meters as on date of bid opening. Bidder shall have to furnish the notarized copy of ISI License along with the bid.
  - (ii). Bidder must possess valid ISO:27001:2005 for information security management system and copy of which must be furnish before opening of price bid, failing which bidder shall be treated as non-responsive.
  - (iii). The bidder should have NABL accreditation for testing of meters for acceptance test as prescribed in IS:13779-1999 (with latest amendments). Documentary evidence is required to be submitted along with the bid. Firms not having NABL accreditation may be considered for trial order only. However if bidder submit NABL accreditation before opening of price bid, He shall be treated as regular supplier.
  - (iv). The bidder shall possess fully / semi-automatic computerized meter testing system with printer and static source and duly calibrated Electronic Reference Standard (ERS) meter of Class 0.1 Accuracy or better.

**2.0 PAST SUPPLY & PERFORMANCE CRITERIA :-**

The bidder shall meet both past supply and performance criteria as detailed below for opening of tenders:-

**2.01 PAST SUPPLY:-**

**2.01.01** The bidder is required to quote for minimum 10% of the tendered quantity failing which offer of the bidder shall be treated as Non-Responsive.

**2.01.02** The bidder should have designed, manufactured / fabricated, tested and supplied to utility / Discoms / Govt. Departments at least 2XQQ (QQ being the quoted quantity) of Tendered item in last three financial years from the date of opening of technical-commercial bid. In support of fulfilment of the past supply

criteria, the bidder shall furnish documentary evidence in the form of certificate from Chartered Accountant in the following manner:-

**Note:** Requirement of quantity manufactured, minimum quantity to be offered and amount of Bank Guarantee to be furnished shall be reduced to 25% for Rajasthan based units.

2.01.03 In support of fulfilment of the past supply criteria, the bidder shall furnish documentary evidence in the form of certificate from Chartered Accountant in the following manner:-

1. The CA certificate should be furnished by the firm duly notarized by the notary public along with the signature of CA.
2. The CA certificate should be furnished on the letter head of CA and information should be in prescribed format of QR.
3. The CA certificate should have the membership no. with name & address of the CA.
4. The CA certificate clearly indicate the quantity supplied, type of material supplied, voltage, current and accuracy class etc. of the material year wise.
5. The CA certificate should be signed by concerning firm/supplier along with seal.

Any deviation to format or information diverted format, will not be considered and rejected.

**Note:-** The material supplied and accepted for same or better rating for Turnkey projects to a licensed power utility/Govt. shall be considered for the purpose of evaluation criteria. The certificate given by C.A. shall indicate above quantity separately.

## 2.02 **PERFORMANCE CRITERIA:-**

- 2.02.1
- i) If a bidder has supplied up to 50% of ordered quantity in previous tender up to date of opening of subsequent tender and scheduled delivery period expired, the bid of such bidder will not be opened in the Discom for that item.
  - ii) However, if the supplies have been completed for a quantity more than 50% but not completed up to date of opening of subsequent tender and scheduled delivery period expired, the quantity equal to the quantity pending in previous tender for that item shall be reduced from the subsequent tender quantity to be allocated to the bidder.

## 3.0 **TYPE TEST CRITERIA & SAMPLE:-**

### 3.01 Type test

3.01.01 The bidder shall furnish valid and authenticated type test certificates of tendered item from a Govt. approved / a Govt. recognized / NABL Accredited laboratory / ILAC i.e. International Laboratory Accredited Laboratory / ILAC i.e. International Laboratory Accreditation Cooperation (in case of foreign laboratory) of similar rating and design of tendered material / equipment. Such type test certificates should not be older than 5 years as on the date of bid opening. For this purpose date of conducting type test will be considered.

The type test certificate by in house laboratory of tendering firm even if it is a Govt. approved / Govt. recognized / NABL accredited / ILAC accredited, shall not be accepted, in case of their own tender. This will not apply if tendering firm is Govt. company / public Sector undertaking.

The bidder should furnish documentary evidence in support of the laboratory whose type test have been furnished, that the said laboratory is a Govt. / a Govt. approved / a Govt. recognized / NABL accredited laboratory / ILAC accredited (in case of foreign laboratory).

The type test certificates shall be furnished either in original or copy duly attested by notary.

The bids of only those bidders shall be considered to be meeting the type test criteria who furnishes complete type test certificate with the bid as per above provision.



**3.02 Samples:-**

3.02.01) Samples along with bid – The bidder shall furnish one sample of HT TVM of category C1 conforming to this specification duly sealed along with the routine test certificates directly in the office of the Superintending Engineer (M&P-ZPC), JdVVNL Jodhpur one day prior from the date of opening of Tender, If the sample are not received the bid shall be considered as Non-responsive. In case sample meter submitted with bid don't conform the Type tests, Addl. Type Tests and Tamper tests of specifications/IS, the financial bid of offer shall not be opened

**Sample meter shall be broken to verify components of the meter .**

3.02.02) The bidder shall furnish BG/DD/Pay Order for Rs. 5.0 Lac and undertaking that in case an order is awarded, the samples before commencement of supply shall be furnished conforming fully to the requirement of this specification. In case the bidder fails to furnish sample conforming to our specification before commencement of supplies their Bank Guarantee/DD/Pay Order will be invoked / forfeited (Proforma for submitting undertaking a Bank Guarantee is enclosed at Schedule-IIIB). The initial validity of B.G. shall be nine months.

**4.0 Documents:-**

4.01) The bidder shall clearly indicate the deviations such as Technical Deviations & Commercial Deviations in the prescribed proforma only. The deviations indicated elsewhere in the bid shall not be accepted.

4.02) The bidder must clearly fill up each and every particular of Guaranteed Technical Particulars annexed with Technical Specification otherwise he will be responsible for Technical Non-Responsiveness.

4.03) The bidder should possess adequate testing facilities for carrying out routine & acceptance test of items as per relevant standard at their works. The bidder shall furnish documentary evidence in support for conducting routine & acceptance test.

**5.0 POOR RECORD OF PERFORMANCE AND DELIVERY :**

Severment of business relations will be done in case of following circumstances for the period and with the recovery mentioned against each:

i) When vendor does not accept order awarded on its accepted price and terms and conditions or does not comply with contractual formalities.	Forfeiture of EMD/cancellation of vendor registration to recover amount of EMD along with severment of business relations for three years from the date of issue of order.
ii) When vendor complies with contractual formalities but does not commence supplies.	Levy of maximum recovery on account of delay in delivery along with severment of relations for a period of 2 years from the date of issue of order or in next two bids whichever is later along with forfeiture of EMD / cancellation of vendor registration.

**6.0 (A) Black listing of a firm:**

After having given Show Cause Notice of 30 days, and having established & cogent reasons for blacklisting of the firm as given below, the firm should immediately be blacklisted for a period of 5 years indicating reasons of doing so, in the letter itself, and a copy of such blacklisting should be given to the firm, with the approval of CLPC:-

(i) There are sufficient and strong reasons to believe that the supplier or his employee has been guilty of malpractices such as manhandling/misbehaviour with Government official by supplier or his partner/employee, bribery, corruption or abatement of such a offence in a position where he could corrupt Nigam's official, fraud, vitiating fair tender process including substitution of or interpolation in tender, mis-representation, pilfer-aging or unauthorized use or disposal of Nigam's material issued for specific work etc.

(ii) Where a supplier or his partner or his representative has been convicted by a court of Law for offences involving moral turpitude in relation to the business dealing or where security considerations including suspected disloyalty to the Nigam/state so warrant the blacklisting.

(iii) If the State Bureau of Investigation or any other authorized investigating agency recommends for blacklisting after completing the investigation.

Note: - 1 If a supplier after having tendered for a supply or after negotiations gives application voluntarily vitiating the fair tendering process, it shall also tantamount to malpractice.

Note:-2 A register containing the reasons for blacklisting the supplier as also the names of all the partner of the suppliers and the allied concerns coming within the effective influence of the blacklisted supplier will be maintained.

Note: - 3 A register of black listed supplier will be maintained which will not only include suppliers enlisted with the Enlisting Authority but also black listed suppliers in Nigam.

Note :-4 A Black listed supplier (i) shall not be entitled for registration in any of the Discom (ii) shall not be awarded any supply order in future in any Discom during the notified period.(iii) his registration if any shall stand cancelled immediately and his registration security /EMD/S.D. shall stand forfeited. (iv) In case of blacklisting of the firm by any one of Discom for the cogent prescribed reason(s) as stipulated above, the same shall be applicable to all the three Discoms and as a consequence of blacklisting, all the pending orders to that firm, will be cancelled in all three (3) Discoms with immediate effect. However in respect of completed/executed contract G.P. obligations as well as other liabilities shall be fulfilled by the supplier.

**(B) Severment of Business relation:**

(a) After having given Show Cause Notice of 30 days, and having established & cogent reasons for Severment of business relation as given below, the firm should immediately be severed the business relations for a period of 2 to 3 years indicating reasons of doing so, in the letter itself, and a copy of such severment should be given to the firm, with the approval of CLPC:-

(i) The supplier continuously refuses to pay Nigam dues without showing adequate reasons and where the purchasing authority is satisfied that no reasonable dispute attracting reference to Settlement Committee or Court of Law exists for the supplier's action of non-supply.

(ii) When vendor does not accept LOI/detailed purchase order awarded on its accepted prices and terms & conditions or does not comply with the contractual formalities.

(iii) When vendor/supplier who otherwise completed contractual formalities but does not commence supplies on the date of opening of technical bid of the fresh tender/completion of schedule delivery period whichever is later.

**Note-1**-In case supplier does not deposit outstanding dues towards Nigam, even after completion of severment period, the period of severment will continue.

2. Severment done purely/ mainly on account of non-deposition of dues against the supplier/vendor/contractor could be lifted by CLPC, if the dues are deposited prior to the expiry of such severment period.

4. On severment of business, the EMD/SD/vendor registration security will be forfeited.

5. The orders in execution satisfactorily will not be cancelled other than the order on which severment have been done.

**(C) Debarment**

Reasons on which Debarment can be made:-

(i) The competent authority may debar the supplier on account of his performance or other disabilities, if it is no longer considered fit to remain under vendor registration as per his obligation under vendor registration.

(ii) If at any subsequent stage of inspection of firms after award of contract, it is found that firm does not have sufficient tech. staff or required/necessary technical equipments, the purchasing authority can debar the firm for one year or next tenders whichever is later. The debarment will be lifted only on re-inspection of firm's works; the defects noticed earlier are fully rectified to the satisfaction of Nigam.

(iii) When contract agreement executed and supplies commenced but could supply only up to 50% of ordered quantity and scheduled delivery period expired, then the firm can be debarred for one year or next tender whichever is later in that Discom only for that particular item/rating/capacity/size etc.

(iv) The suppliers who have been awarded contract for supply of material is not adhering to the periodic delivery schedule, the contract awarding authority reserve the right to terminate the contract and may debar the firm in participating in tender for a period of 2 to 3 years.

Note:-1. On debarment, the EMD/ SD/Vendor Registration security shall be forfeited.

(D) A Bidder debarred under section 46 of the RTTP Act 2012 shall not be eligible to participate in any procurement process undertaken by-

(a) any Procuring Entity, if debarred by the State Government; and

(b) a Procuring Entity if debarred by such procuring Entity

**7.0 APPEALS AND APPLICATIONS:-**

Appeal against the order of blacklisting, severment and debarment can be filed before BOD within a period of 3 months from the date of intimation. The letter of appeal will be addressed to the order placing authority. Who will process the case for placing the matter in B.O.D. with in a period 60 days. The BOD may reduce or waive the penalty, if sufficient reasons/supporting documents are furnished by the supplier.

**GENERAL CONDITIONS : - (ALL CONDITIONS BE DULY SIGNED & SEALED)**

All documents required in the prescribed format are to be furnished along with the bid itself only except an attested copy of BIS license (wherever it is required), failing which the bid will be summarily rejected.

-----



**Schedule – III -B**

**BANK GUARANTEE IN LIEU OF FURNISHING OF SAMPLE**  
**(NOT AS PER SPECIFICATION)**

**(On Rajasthan Non-Judicial Stamp Paper worth 0.25% of BG Value or maximum uptoRs. 25,000/-)**

**To**  
**The Superintending Engineer (MM & C),**  
**Jodhpur Vidyut Vitran Nigam Limited,**  
**New Power House Premises, Industrial Area,**  
**Jodhpur.**

Dear Sir,

Whereas Jodhpur Vidyut Vitran Nigam Limited, Jodhpur, (here-in-after called the purchaser) has issued a tender enquiry under TN.....for procurement of.....(name of material).

Whereas M/s. ...., (here-in-after called the bidder) has furnished a bid for supply of .....to the Superintending Engineer(MM&C), Jodhpur Vidyut Vitran Nigam Limited, Jodhpur, or his nominated officer(s).

Whereas in accordance with the provision of the specification of the aforesaid TN....., the bidder can deposit a bank guarantee in lieu of the requirement of furnishing the sample as per specification.

Whereas M/s. ...., (the bidder) have requested us (Name of the Bank) to furnish the bank guarantee, in lieu of the sample, for an amount equivalent to Rs. ....(in words also) only.

Under this Bank Guarantee, we (Name of the Bank) hereby undertake unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to the purchaser on his first demand without whatsoever right to objection on our part and without his first claim to the bidder, in the amount not exceeding (amount of guarantee in figures and words).

Payment pursuant to this undertaking will be demanded by the purchaser from the Bank and will be met by the Bank without question in the case in which the bidder, on receipt of the order and / or after the acceptance of this tender, makes default in furnishing the required sample. As to whether the occasion or ground has arisen for such demand the decision of the Superintending Engineer (MM&C), Jodhpur Vidyut Vitran Nigam Limited, Jodhpur shall be final.

The liability of the Bank shall not at any time exceed Rs. ....(Rupees .....

The undertaking will be determined on but will not withstanding such determination, continue to be in force till the expiry of 9 months from that date.

No indulgence or grant of time by the purchaser to the bidder without acknowledgment of the Bank will discharge the liabilities of the Bank under this guarantee.

The guarantee herein contained shall not be affected by any change in the constitution of the bidder.

All disputes arising under the said guarantee between the Bank and the bidder or between the bidder and the purchaser pertaining to the guarantee shall be subject to the jurisdiction of Courts only at JODHPUR in Rajasthan.

The Bank further undertake not to revoke this guarantee during its currency except with the previous consent of the Superintending Engineer (MM&C), Jodhpur VidyutVitrans Nigam Limited, Jodhpur.

Notwithstanding, anything contained herein before, the Bank's liability under this bank guarantee i.e. restricted to Rs..... (Rupees ..... ) and the guarantee shall remain in force upto ..... . Unless demand or claim in writing is presented on the Bank within nine months from that date, the Bank shall be released and discharged from all liabilities there-under. However, the validity of the Bank guarantee shall be extended as and when required by the purchaser.

IN WITNESS WHEREOF the Bank has executed these presents the day..... month..... and year .....

Yours faithfully,

(Bankers)

Witnesses:

1.



## SCHEDULE-IV `A`

**Must be filled-in by the tenderer and attach with technical bid (Part-I)**

To,

The Superintending Engineer (MM&C),  
Jodhpur VidyutVitrana Nigam Limited,  
Jodhpur.

Dear Sir,

With reference to your invitation to tender against specification No. JdVVNL/SE/MM&C/TN-1783 we agree to supply the following quantity:-

S. No	Particulars of item	Tendered Quantity (Nos.)	Qty. Offered	Justification of quantity offered as per Qualifying Requirement.	Status of Type Test Certificates.
1	2	3	4	5	6
<b>HT TRIVECTOR METERS OF CLASS 0.5s WITH DLMS PROTOCOL</b>					
1	<b>category "C1" for Consumer Metering</b>	<b>2000 Nos.</b>			

- The offer is valid for a period of 120 days from the date of opening of this tender.
- It is noted that the quantities as mentioned in the specification are approximate and we agree to supply any quantity as per your requirement.
- The prices are **FIRM** in all respect.
- The delivery shall strictly be in accordance with our delivery clause as given in **Schedule-VIII** of this specification. In case we fail to deliver the material as indicated in the clause No. 1.23 of G.C.C. (Schedule-II), we are liable to pay recovery for delay in delivery as per clause No. 1.24 of this Schedule-II of this specification.  
The material shall conform to your specification No. JdVVNL/SE/ MM&C/TN- **1783** and as per relevant ISS in all respect.
- We confirm that we agree to all the terms & conditions as well as the technical stipulations of your specification No. JdVVNL/SE/MM&C/TN-**1783** and there are no deviations other than as specified in the **Schedule VI (A&B)**.

Yours faithfully,

Signature of tenderer  
with stamp  
Dated



**JODHPUR VIDYUT VITRAN NIGAM LIMITED**

**A Govt. of Rajasthan Undertaking**

Statement of guaranteed technical particulars and other performance data for supply of  
 ..... (Name of material) against specification  
 no.....

---

S.No.      Particulars of technical & other performance data guaranteed.

---



---

Certified that we agree to all the aforesaid technical particulars and other performance data except following :-

---

S.No.	Particulars of technical & other Performance data	Reasons for deviations/departure.
-------	---	-----------------------------------

---



---

**(Signature)**  
 Name & Designation  
 with seal of the bidder

## SCHEDULE V A

**GUARANTEED PARTICULAR FOR 3 PHASE 4 WIRE HT TRI-VECTOR METER OF ACCURACY CLASS 0.5S WITH DLMS PROTOCOL.**

S. N.	Description	Requirements as per specifications.	Technical Particulars offered
1	Name of manufacturer and address and GST No.		
a)			
b)	Type /designation of meter offered		
c)	Class of accuracy of		
i.	KWh Recording	Class 0.5S	
ii.	KVArh Recording	Class 0.5S	
iii.	KVAh Recording	Class 0.5S	
iv.	KVA MD Recording	Class 0.5S	
d)	Standard applicable	IS: 14697 / IEC: 687 /CBIP-325 & as per IS:ETD 13(6211)	
e)	Whether meter bears BIS certification mark		
2	Type of meter (i.e. No. of element)	3 Phase 4 wire, HT, 3-element type meter.	
3	<b>RATING AND GENERAL PARTICULARS:</b>		
a)	Reference Voltage	110V (Phase to Phase) 63.5 Volts (Phase to Neutral) / 240V(Phase to neutral)	
b)	Basic current	5 Amps.	
c)	Maximum continuous current	10 Amps.	
d)	Power supply variation: Whether meter is suitable for working with following supply system variation.	Offered meters are capable to work satisfactorily under following range:	
i.	Specified operating range	0.8 to 1.15 V of Vref.	
ii.	Limit range operation	0.7 to 1.2 V of Vref.	
iii.	Frequency range	50±5% Hz. (Ref. freq. 50Hz)	
e)	Power factor range	0 lag – unity – 0 lead.(with three decimal digit)	
f)	Ambient temperature range	(-) 5°C to (+) 60° C	
g)	Whether meter base and cover are ultrasonically welded.		
h)	Material used for meter housing		
i.	Meter Base	Engineering plastic material will be used for meter base, cover, terminal block housing and terminal block cover. Terminal block cover will be transparent.	
ii.	Meter cover		
iii.	Terminal Block Housing		
iv.	Terminal block Cover (Transparent)		
i)	Whether components on the PCB are surface mounted ?	All components on the PCB will be of SMT type.	



j)	Whether all parts that are likely to develop corrosion are effectively protected against corrosion? if so, name the type of treatment for this purpose	Yes, protected with conformal coating on electronic component	
k)	Whether sealing arrangement provided on front side of meter for following: i. Meter Body ii. Terminal cover iii. M.D reset button (only if button provided) iv. Communication port Sealing arrangement should be explained.	Following type of sealing arrangement will be provided for offered meters: Arrangement of two seals (can be sealed by purchaser on front side.) Arrangement of two seals, which can be sealed by purchaser. MD reset push button not provided. Arrangement of one seal through optical cover, which can be sealed by purchaser.	
l)	Whether name plate provided on meter bear the information as per IS:ETD 13(6211).	All information as indicated in column 1 will be provided on meter rating plate.	
m)	Whether meter serial No is i. Programmed into meter memory for identification through HHU ii. Available on meter display. iii. Available thru bar code with month&year.	Yes to be programmed into meter memory for identification through HHU. Yes required. Yes required	
n)	Insulation resistance	As per the CBIP report No 325/IEC62052-11-2003.	
o)	A.C. (rms) withstands voltage for current circuits and metal case.	As per the CBIP report No 325/IEC62052-11-2003.	
p)	Burden and watt loss of voltage circuit per phase	As per CBIP report No.325 or IEC: 62052-11-2003	
q)	Burden of current circuit per phase	As per CBIP report No.325 or IEC: 62052-11-2003.	
r)	Size and material of current/potential /neutral terminal	Brass/ nickel M3/M4 size of screws will be provided for voltage, current & neutral terminals.	
s)	Terminal hole size for current	Appx. 4.5 mm $\pm$ 0.6mm	
t)	No. & size & material of screws for each current terminal	Two numbers M-4 size of screws.	
u)	Size of terminal hole for potential terminal.	Appx. 3.0 mm $\pm$ 0.5 mm	
v)	No. and size and material of screws for each potential terminal.	Two numbers of M-3size.	
w)	Whetherearthing terminal provided outside or inside the meter body.		

x)	Overall dimension of meter with $\pm\%$ tolerance.		
y)	Short time current withstands capability.	As per CBIP report No.325 or IEC: 62052-11-2003.	
z	Minimum centre-to-centre distance between adjacent terminals.	Minimum centre to centre distance between adjacent terminals will be 11.4 mm.	
4.	<b>DISPLAY SEQUENCE:</b>		
A)	Whether display parameters are available If Yes, please also describe method of displays:	<b>parameters will be displayed as per IS:ETD 13(6211) .</b>	
5 i)	Whether meter is provided with test output accessible from the front of the meter?	Yes, to be Provided in the form of a blinking LED.	
ii)	Details of test output device provided for kWh, KVARh & KVAh.	To be Provided in the form of single LED for all the three vectors. Pulses for Load >10% & for Load <10% to be provided.	
iii)	Necessary number of pulse count(s) to ensure measurement of accuracy of at least 1/10 of class of meter	Yes, it shall be possible to conduct accuracy test at lower load within its limits	
iv)	Whether it is possible to satisfactorily conduct accuracy test at lower load in less than 5 minutes and starting any test in less than 10 minutes.		
6	Whether meter is provided with a galvanically isolated communication port suitable for data transfer through either CMRI or a remote device or both.	Yes, galvanically isolated communication port is to be provided for reading data through CMRI and through external modem over telephone line.	
7. a)	Memory Type (Non volatile or battery backed)	Non volatile memory	
b)	Non volatile memory retention time in absence of power	Minimum 10 Years	
8.	Whether meter remains in powered up condition in the event of non-availability of any one of three potential and or neutral i.e. with any two potentials and neutral?	Yes, meter will remain powered up as long any two live wires are connected to the meter including Neutral or Not.	
9. i.	Maximum demand registration & load survey capability Integration period for maximum demand in KVA	30 minutes, block integration period. Real Time basis	
ii.	Basis of integration period calculation – real	<b>For category "A" meter,load</b>	

iii.  iv.	<p>time or other explain <b>Whether load survey for minimum 75 days with integration period of 30 minutes &amp; 35 days for 15 minutes integration period is provided for minimum five parameters for different categories.</b></p> <p>Whether load survey is provided in terms of bar chart as well as in spreadsheet?</p>	<p><b>survey parameter shall be current-IR , current-IY, Current-IB, block energy-KWh and block energy-KVAh. Load survey period shall be 75 days with 30 minutes integration period.</b></p> <p><b>For category "C" meter, load survey parameter shall be current-IR , current-IY, Current-IB, block energy-KWh and block energy-KVAh. Load survey period shall be 75 days with 30 minutes integration period.</b></p> <p>Yes, to be provided in the term of bar chart as well as in spreadsheet.</p>	
10  i. ii. iii.  iv.	<p>Whether following additional parameters are made available for viewing / printing at the BCS end</p> <p>Meter reading count.</p> <p>MD reset count</p> <p>Billing parameters as per IS:ETD 13(6211).</p> <p>Number of power failures and cumulative power failure duration.</p>	<p>Yes, to be Provided.</p>	
11  i.  ii.  iii.	<p>Whether meter is capable of registering</p> <p>TOD energy consumption &amp; apparent demand (KVA)?</p> <p>In built capacity for total time zones. How many zones presently defined?</p> <p>Is it possible to change time period for TOD zones through BCS with authentic pass word</p>	<p><b>Refer Annexure E Table No. 29 of IS : ETD 13(6211)</b></p> <p>Eight TOD energy &amp; demand registers.</p> <p>Yes, It shall be Possible through BCS with authentic password.</p>	
12  i)  ii)	<p>Whether meter is capable to measure and register</p> <p>Total energy i.e. fundamental + Harmonics energy?</p> <p>Whether BP active, Reactive and apparent energy are total</p>		
13	<p>Whether meter is capable of performing complete self-diagnostic check to ensure integrity of data memory location all the time? Explain how</p>	<p>Yes, NVM fail flag shall be available at BCS</p>	

14	Whether meter is capable of detecting following common ways of tampering: i. Missing Potential. ii. Neutral disturbance iii. Current ckt polarity reversal iv. CT short (Bypass) / Open. v. Current unbalance. vi. Magnetic Influence. vii. Cover Open tamper	Yes. Yes Yes. Yes Yes (if unbalance is greater than 30%) Yes Yes	
15	i) Whether meter functions even if anyone phase is not available. ii) Whether meter functions even if the spurious signals are injected on the neutral of the meter such as DC signals through diodes etc.	Yes. The meter should functions as long as any two wires are connected to the meter terminals. Yes, the meter functions even if the spurious signals are injected on the neutral of the meter such as DC signals through diodes etc.	
16	Whether snap shots (numerical values) of voltage, current, Power factor & energy (KWH) reading at the time of logging and restoration any tamper event are available at the BCS end to analyze the recorded tamper events?	Yes, Snap shots of individual voltages, currents, power factors, active energy at the time of tamper logging shall be available at BCS.	
17	<b>Minimum number of tampers events, which the meter can record. Explain tamper logic.</b>	<b><u>Compartment No. 1:</u> 40% of total tamper memory for the current related tampers.</b> <b><u>Compartment No. 2:</u> 40% of total tamper memory for the potential related tampers .</b> <b><u>Compartment No. 3:</u> 20% of total tamper memory for the other tampers .</b>	
18	Whether meter is designed in such a way that it would not record tamper under known system abnormal condition?	Yes.	
19	i) Persistence time for logging/ occurrence of tamper. ii) Persistence time for logging restoration of tamper.	5 minutes. Tampers will be restored with in <b>60 seconds.</b>	
20	Energy measurement details: - a) Type of registering mechanism b) No. of digits in registering mechanism	Electronic non-volatile memory & LCD display. Seven digit and additional characters for annunciation of displayed	

<p>c) Starting current at minimum rated voltage and unit power factor (% of Ib)</p> <p>d) Percentage error at unit power factor.</p> <p>i. 5% of rated current.</p> <p>ii. 20 to 200% of rated current.</p> <p>e) Percentage error at 0.5 lag. Power factor.</p> <p>i. 10% of rated current.</p> <p>ii. 20 to 200% of rated current.</p> <p>f) Percentage error with <math>\pm 5\%</math> variation in frequency:</p> <p>i. Percentage error with <math>\pm 5\%</math> variation in frequency at:</p> <p>g) Unity P.F.</p> <p>A) 0.5 Lag. P.F.</p> <p>i. Change of error due to variation in voltage.</p> <p>ii. At 20% above rated voltage, unity P.F. &amp; Rated current.</p> <p>B) i. 10% rated current.</p> <p>ii. At 20% below rated voltage, unity P.F. &amp; Rated current.</p> <p>h) i. 50% rated current.</p> <p>ii. 10% rated current.</p> <p>i. Change of error due to self heating at rated current and rated voltage and-</p> <p>ii. Unit PF</p> <p>iii. 0.5 lag P.F.</p> <p>Change of error under influence of external A.C. and D.C. magnetic field as per IS and specifications.</p>	<p>parameters. 0.1% of Ib.As per applicable standard. Percentage error at unit power factor:</p> <p>As per applicable standard. As per applicable standard. Percentage error at 0.5 lag power factor. As per applicable standard. As per applicable standard.</p> <p>Percentage error with <math>\pm 5\%</math> variation in frequency: As per applicable standard. As per applicable standard. Change of error due to variation in voltage: As per applicable standard. As per applicable standard</p> <p>As per applicable standard As per applicable standard As per applicable standard</p> <p>As per applicable standard As per applicable standard As per applicable standard</p>		
21	Year since when the design offered is in vogue.		
22	Reference of certification mark/license.		
23	Is the meter capable of recording correctly both under balance/unbalanced load conditions?	Yes	
24	The requisite details and description of facility to read meter in the absence of power.	In the absence of power, meter can be read through an external battery pack through inductive coupled arrangement as per IS.	
25	<p>Miscellaneous</p> <p>a) Is the meter independent of phase sequence i.e. can the meter record correctly even if the phase sequence of supply is changed.</p> <p>b) Is the meter capable of</p>	<p>Yes.</p> <p>As per relevant standard.</p>	

<p>c) recording correctly under low load conditions? If so up to what % of full load.</p> <p>d) Is the resetting of demand and read facility dependent on availability of main power supply?</p> <p>e) Whether Meter software residing in the meter is suitable for communication with HHU confirming to CBIP Technical Report No. 111?</p> <p>f) Whether meter reading count increase by one number every time the meter is read successfully.</p> <p>g) Whether meter is capable to withstand phase to phase voltage between any phase &amp; neutral</p> <p>h) Whether meter terminal cover is of extend type and transparent</p> <p>i) What type of indication provided for ascertaining healthiness of individual phases</p> <p>j) Whether meter continues to operate satisfactorily in absence on neutral</p> <p>k) What arrangement does the meter have for transferring data to HHU &amp; reading parameter on display in condition of total power failure</p> <p>l) Whether snap shot for following parameter are available at the time of registration of occurrence / restorations of any</p> <p>i. tamper Voltage</p> <p>ii. Current</p> <p>iii. Power factor</p> <p>iv. Energy reading (kWh I)</p> <p>l) Whether sample of offered meter has been furnished along with tender offer? If Yes give detail such as Serial No. type etc.</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Meter can be read in condition of total power failure through external battery pack.</p> <p>Yes, shall be available at BCS end.</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes required.</p>	
<p>26</p>	<p>Principle of operation of the meter outlining the method and stages of computation of various parameters starting from input voltage and current signals including the sampling rate application</p>	<p>It shall be supplier specific. Details shall be mentioned.</p>

27	Method adopted to transform voltage and current to the desired low values with explanation on devices used such as CT. PT or potential divider as to how they can be considered superior in maintaining ratio and phase angle for variation of influence quantities and during its service period	Details shall be mentioned.	
28	Detail of memory used in the meter if applicable should be furnished by the manufacturer	Non-volatile memory, suitable to meet requirement of this offer.	
29	<p>Details of programmable parameters facilities under the following categories</p> <p>i) Factory Programmable</p> <p>ii) User Programmable</p>	<p>All the feature's available in meter are Factory Programmable except user programmable features</p> <p>Following are user programmable</p> <p>a) Real Time Clock-Date and Time.</p> <p>b) Demand Integration Period.</p> <p>c) Profile capture Period.</p> <p>d) Single -action schedule for Billing Dates.</p> <p>e) Activity Calendar for Time Zones etc.</p>	
30	Whether meter cover is ultrasonically welded with meter base.	<p>i-Sample with offer-Not required US welded</p> <p>ii-Sample before commencement and supplies against PO- required US welded.</p>	

**SCHEDULE-V B****GUARANTEED TECHNICAL PARTICULARS FOR DOUBLE ANCHOR TAMPER EVIDENT  
TRANSPARENT POLYCARBONATE SEALS AGAINST TN-1783**

S. NO.	PARTICULARS	TO BE FURNISHED BY BIDDER
1	NAME & ADDRESS OF MANUFACTURER	
2	WORK'S ADDRESS	
3	RAW MATERIAL OF POLYCARBONATE SEALS	
4	PROPERTIES OF MATERIAL	
i)	USE	
ii)	SOFTNESS	
iii)	DURABILITY	
iv)	TRANSPARENCY	
5	COLOUR OF THE SEALS	
6	WHETHER DESIGN & CONSTRUCTION OF SEAL IS AS PER SPECIFICATION(GIVE DETAILS)	
7	THICKNESS OF SEAL	
8	WHETHER ETCHING/EMBOSSING OF SERIAL NO.IS AS PER SPECIFICATION (GIVE DETAILS)	
9	HETHER PRINTING OF MONOGRAM IS AS PER SPECIFICATION	
10	MAX. WITHSTAND TEMPERATURE (UPTO 147DEG.C.)	
11	WHETHER SEAL HAVE FOLLOWING PROVISIONS	
a)	TAMPER RESISTANT AND RELIABLE	
b)	ENVIRONMENTALLY SAFE AS IT DOES NOT CONTAIN ANY LEAD	
c)	WITHSTAND LONG TERM EXPOSURE TO DIRECT SUNLIGHT	
d)	REQUIRED NO TOOLS FOR INSTALLATION	
e)	TRANSPARENT	
f)	HEAT RESISTANCE	
12	GUARANTEE OF SEAL(MIN.2 YRS.)	
13	WHETHER SEAL IS PATENTED & COPY OF PATENT IS ENCLOSED.	
14	WHETHER SEAL WIRE IS PROVIDED IN THE SEALS AS PER SPECIFICATION.	



Schedule – VI (A)



**JODHPUR VIDYUT VITRAN NIGAM LIMITED**

**A Govt. of Rajasthan Undertaking**

**DEPARTURE/DEVIATION FROM TECHNICAL SPECIFICATION**

The bidder shall state under this schedule the departure from the Purchaser's specification in respect of technical is as under:-

---

S.No.	Main Deviations from Technical Specification.
-------	---

---

---

Certified that we agree to all the technical specification of the NIT except for the deviation to the extent indicated above.

**(Signature)**

Name & Designation  
with seal of the bidder.



**JODHPUR VIDYUT VITRAN NIGAM LIMITED**

**A Govt. of Rajasthan Undertaking  
DEPARTURE FROM COMMERCIAL TERMS & CONDITIONS OF THE  
SPECIFICATION**

The bidder shall state under this schedule the departure from the Purchaser's specification in respect of Commercial terms & conditions:-

---

S.No.	Main Deviations from Specification.
-------	-------------------------------------

---

---

Certified that we agree to all the commercial terms & conditions as laid down in General Conditions of Contract to the specification except for the deviation to the extent indicated above.

**(Signature)**

Name & Designation  
with seal of the bidder.



## JODHPUR VIDYUT VITRAN NIGAM LIMITED

**Schedule – VII**

### A Govt. of Rajasthan Undertaking LIST OF PAST SUPPLIES

The bidder shall state under this schedule whether material and equipments, similar to those offered in the tender have been previously supplied by him. A list shall be given of such orders executed by him together with information regarding the names of purchasing organizations, quantities supplied and when the supplies were effected. This list should be in form given below:-

S.No. of items supplied	Detailed particulars	Qty in Nos.	Order No. & Date	Name & details of purchasing authority	Date of Completion
1	2	3	4	5	6

If executed partially to be mentioned (Qty. in Nos..)	whether still to be executed	Delivery stipulated in order	Remark
7	8	9	10

**Note:** Separate schedules are to be furnished by the bidder for past supply to the **JVVNL/AVVNL/JdVVNL**, other State Electricity Boards and other Departments /Organisations.

**(Signature)**

Name & Designation  
with seal of the bidder.

**SCHEDULE-VIIA**

**TN-1783**

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that M/s. \_\_\_\_\_ (Complete with address) have manufactured and supplied the goods / equipments / material during the following financial year(s) to the Utilities / Government Departments / Discoms/ SEBs as detailed out below:

**FOR THE LAST THREE FINANCIAL YEAR FROM THE DATE OF OPENING OF TECHNO-COMMERCIAL BID.**

S.No	Financial year in which material supplied	Detailed Particulars of item(s) supplied	Name and particulars of purchasing authority	Order No. & date against which item(s) supplied	Unit	Ordered		Actual Supplied up to		Remarks
						Quantity	Value (Rs)	Quantity	Value (Rs)	
1	2	3	4	5	6	7	8	9	10	11

Signature ,  
Name & Designation  
With Seal of the Bidder  
Date \_\_\_\_\_

Place \_\_\_\_\_

Signature & seal of C.A  
Name :  
Address:  
Membership No.

UDIN NO.

The above particulars are true and correct based on explanations, records and books of accounts produced before us. Further the above certificate issued on the request of the company

CA Firm ( \_\_\_\_\_ )

**Note:- The C.A. certificate must be signed by the bidder and C.A. firm on the letter head of C.A. The details i.e. address of C.A. & membership No. shall clearly be mentioned on C.A. certificate. In case C.A. certificate is not signed by the bidder/furnished without membership No. & address of C.A. then same may not be considered for which responsibility rests with the bidder.**

**UNDERTAKING FOR CA CERTIFICATE (TO BE FURNISHED ON NON-JUDICIAL STAMP WORTH Rs.100/- & DULY NOTARIZED)**

I/WE UNDERTAKE THAT THE CA CERTIFICATE SUBMITTED AS PER THE REQUIREMENT OF PRE-QUALIFICATION REQUIREMENTS, FOR ADJUDGING THE PAST SUPPLIES ,UNDER THE SUBJECT TENDER, TN-\_\_\_\_\_ , IS CORRECT AND I, UNDERSIGNED WILL BE SOLELY RESPONSIBLE FOR ANY DEVAITION/ DISCREPANCY/ IN-CORRECT INFORMATION , IF EVER NOTICED IN THE CA CERTIFICATE.

FURHER, IN CASE, IF ANY DEVAITION/DISCREPANCY/IN-CORRECT INFORMATION IS NOTICED IN THE CA CERTIFICATE FURNISHED WITH THE BID, AT ANY STAGE DURING PROCESSING/ CURRENCY OF TENDER, DISCOM CAN TAKE THE ACTION AGAINST THE FIRM

M/s\_\_\_\_\_

\_\_\_\_\_AS PER THE RULES &

REGULATIONS.

**(SIGNATURE)**  
NAME & DESIGNATION  
WITH SEAL OF THE BIDDER



## JODHPUR VIDYUT VITRAN NIGAM LIMITED

Schedule –VIII

### A Govt. of Rajasthan Undertaking DELIVERY SCHEDULE

#### PART-A

The delivery schedule of the material by the Purchase Officer is as mentioned hereunder:-

Sr. No.	Particulars of Material	Commencement period	Rate of supply per month	Period for completion of delivery of entire material
1.	HT TRIVECTOR METERS OF CLASS 0.5s WITH DLMS PROTOCOL CATEGORY C1	After 30 Days from the date of receipt of detailed Purchase Order.	_____ Nos. per month (to be quoted by tenderer)	Completion in <b>Seven months</b> (equal monthly rate from the date of approval of pre commencement sample)

#### PART-B

In case bidder deviates from the delivery schedule mentioned by the purchaser in Part-A then the delivery schedule shall be indicated/mentioned by the bidder as under:-

S.No. of Material	Particulars of Material	Commencement period per Month.	Rate of supply per Month material	Period for completion of delivery of entire material
-------------------	-------------------------	--------------------------------	-----------------------------------	--

- Note:**
1. During the commencement period the process of model assembly and submission of B.O.M. for approval shall be got completed.
  2. During the commencement period the contractual formalities shall be got completed.

**(Signature)**

Name & Designation  
with seal of the bidder.

**Schedule – IX****JODHPUR VIDYUT VITRAN NIGAM LIMITED****A Govt. of Rajasthan Undertaking**

List of Equipments and Technical Hands Available with the Firm

(To be filled in by the bidders &amp; enclosed with the bid)

Manufacturers and / or their authorized agents who are quoting against this bid are requested to furnish the following information along-with the bid. The Purchaser will have the discretion to ignore the bid without the under noted particulars and/or ignore the bid particulars.

1.	Name and Address of Manufacturer (With landline, fax and mobile no.)	
2.	Official email ID	
3.	GSTIN No.	
4.	Whether firm is proprietorship/partnership/ Limited (Please give details and also enclose copy of memorandum of constitution of firm along with name of directors/ partners/proprietor & their address.	
5.	Place where works exist (indicate the name of the only one works from where you want to supply the offered material).	
6.	Details of machinery particularly with B.H.P. of each item installed.	
7.	Details of staff employed in the works	
8.	Date when started the manufacturing of item under reference	
9.	List of items manufactured.	
10.	Literature and drawings of items manufactured showing their description, size, design and other important technical particulars	
11.	Details of order so far, executed alongwith the names of organization to whom supplied.	
12.	Manufacturing capacity.	
13.	Is the workshop open for inspection by the representative of the board, if required?	
14.	Statement of financial resources and Banking Reference along with Balance-Sheet for previous two years	
15.	Testing facilities available for the manufactured articles in the testing laboratory of works.	
16.	Whether the Firm is a small/medium/large scale industry.	
17.	Registration No. with :-	
	i. Small Scale, National/State.	
	ii) DGTD	
	iii) State Industries Department	

**(Signature)**Name & Designation  
with seal of the bidder.

**Schedule - X****GENERAL PARTICULARS ABOUT THE TENDER IN BRIEF**

**JODHPUR VIDYUT VITRAN NIGAM LIMITED  
OFFICE OF THE SUPERINTENDING ENGINEER (MM)  
NEW POWER HOUSE INDUSTRIAL AREA, JODHPUR  
TELEPHONE: 0291-2742223 / FAX: - 0291-2746539**

**BID DOCUMENTS FOR PURCHASE OF HT TRIVECTOR METERS OF CLASS 0.5s OF  
CATEGORY C1 WITH DLMS PROTOCOL UNDERSPECIFICATION  
NO.JdVVNL/SE/MM&C/ TN-1783**

<b>A.</b>	NIT No.	TN-1783
<b>B.</b>	Last date for receipt of tenders	26.04.2022 upto 12:00 PM
<b>C.</b>	Date & time of tender opening	26.04.2022 at 3:00 PM
<b>D.</b>	Cost of Specification	Rs. 2,950.00 (Two Thousand Nine Hundred & Fifty only) For MSME of Rajasthan: Rs. 1,475 (One Thousand Four Hundred & Seventy Five only)
<b>E.</b>	Processing of RISL	Rs. 1,000.00 per set (One Thousand only)
<b>F.</b>	Bid security	General Bidder: Rs. 1,24,000.00 Sick Unit of Rajasthan: Rs. 62,000.00 SSI unit of Rajasthan: Rs. 31,000.00*
<b>G.</b>	Validity	120 days from the next date of opening of techno-commercial bid.

**\*In case SSI unit of Rajasthan quotes the less than the tendered quantity , then they are required to furnish Bid security @ 0.5% of the value of the quantity offered by them, failing which bid shall be considered non-responsive.**

**The micro , small & Medium Scale Industries of Rajasthan and sick Industries , other than Small Scale Industries , whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR) shall furnish self attestdocumentary evidence duly attested by notary to claim the above**

**VERY VERY IMPORTANT**

The bids not accompanied with qualification requirement, technical requirement indicated in the specification and other requirement given here under will be considered as incomplete offer and sufficient grounds for offer to be passed over:

1. Capacity, capability and competency proofing documents.
  - a. Capacity /orders of similar and higher rating of tendered equipment booked as on date of bidding with type and rating and construction details of equipment for which order received be indicated.
  - b. Copy of purchase orders of Erstwhile RSEB /SEB`S / Electric Utilities / Govt. Departments / Discom for similar or higher rating equipment latest executed.
2. Year wise past experience for last 5 years of similar or higher rating of tendered equipment.
3. The details of testing facilities available at the works and copies of latest type test certificates, carried out on similar ITEM.
4. Quality assurance plan.
5. Complete guaranteed technical particulars, out lines and general arrangement drawings along with Bill of Material.
6. Bids without Section-I, II, III & Schedules (I to X) shall be rejected.
7. Bids shall be furnished **through online**.
8. JdVVNL has the right to reject any offer on the basis of track record of poor performance in execution of previous order / equipment supplied /after sales service while evaluating the Techno-Commercial bid.
9. JdVVNL reserves the right to accept minor deviations in standard terms and conditions and also in technical and constructional features as specified in the technical specification **(Schedule-III)**.
10. Deviation of any kind shall not be quoted in price bid, if found quoted, the same shall be ignored.



12. The following facilities are to be provided by the supplier at his own cost to the inspecting officer of Nigam (JdVVNL):-
- i. Suitable accommodation.
  - ii. Local conveyance between arrival point, place of stay, works and departure point.
  - iii. The supplier shall assist in arranging return ticket and reservation on the request of the inspecting officer for which the payment shall be made by the inspecting officer. In case of joint inspection, single or shared double room accommodation shall be provided.

-----

**Schedule – XI**

**(TO BE FURNISHED ON NON-JUDICIAL STAMP WORTH Rs.100/- & DULY NOTARIZED)**

**FORMAT OF AFFIDAVIT**

I \_\_\_\_\_ S/o \_\_\_\_\_ Aged \_\_\_\_\_ Yrs. \_\_\_\_\_  
Residing at \_\_\_\_\_ Proprietor/Partner/Director of  
M/s \_\_\_\_\_ do hereby solemnly affirm and declare that:

(a) My/Our above noted enterprise M/s \_\_\_\_\_ has been issued  
acknowledgement of Entrepreneurial Memorandum Part II by the District Industries  
Centre \_\_\_\_\_. The acknowledgement No. is \_\_\_\_\_ dated  
\_\_\_\_\_ and has been issued manufacture of following items:

Name of Items	Production Capacity (Yearly)
(i)	
(ii)	
(iii)	
(iv)	
(v)	

(b) My/Our above noted acknowledgement of Entrepreneurial Memorandum Part-II has not been  
cancelled or withdrawn by the Industries Department and that the enterprise is regularly manufacturing the  
above items.

(c) My/Our enterprise is having all the requisite plant and machinery and is fully equipped to manufacture  
the above noted items.

(d) The present status of the firm is as per acknowledgment of Entrepreneurial Memorandum Part-II  
issued on the date of District Industries Center, \_\_\_\_\_.

Place \_\_\_\_\_

Signature of  
Proprietor/Director Authorized Signatory  
With Rubber Stamp and date

**VERIFICATION**

I, \_\_\_\_\_ S/o \_\_\_\_\_ Aged \_\_\_\_\_ Years residing at  
\_\_\_\_\_ Proprietor/ Partner/ Director of M/s  
\_\_\_\_\_ verify and confirm that the contents at (a), (b), (c)  
& (d) above are true and correct to the best of my knowledge and nothing has been concealed therein. So,  
help me God.

**DEPONENT**

**GENERAL**  
**Amendments in GCC & ITB**

- 1) Wherever EMD and Security Bank Guarantee (SBG), are appearing in the ITB, GCC & other Bidding Documents, same is hereby replaced by BID SECURITY as under:-

**BID SECURITY**

Bid security shall be 2% of the estimated value of subject matter of procurement put to bid. In case of Small Scale Industries of Rajasthan it shall be 0.5% of the quantity offered for supply and in case of sick industries, other than Small Scale Industries, whose cases are pending with Board of Industrial and Financial Reconstruction, it shall be 1% of the value of bid. Every bidder, if not exempted, participating in the procurement process shall be required to furnish the bid security as specified in the notice inviting bids.

**In case SSI unit of Rajasthan quotes the less than the tendered quantity, then they are required to furnish Bid Security @ 0.5% of the value of the quantity offered by them, failing which bid shall be considered non-responsive.**

The Bid Security amount (as applicable) to be paid by Demand Draft/Banker's Cheque in favour of SR. AO (CASH & CPC), JDVVNL, Jodhpur (payable at Jodhpur) 342003 **upto 4.00 p.m. upto one WORKING day prior to schedule date of opening** of respective bid or Bank Guarantee, in specified format, of a scheduled bank in favour of Superintending Engineer (MM&C), JDVVNL, Jodhpur, be deposited to the Sr.Accounts Officer (MM&C), JDVVNL, New Power House, Industrial Area, Jodhpur-342003 **upto 4.00 p.m. upto one WORKING day prior to schedule date of opening** of respective bid and obtain a receipt/acknowledgement thereof. No other mode of deposit shall be accepted. At the time of depositing the Bid Security amount or Bank Guarantee, the bidder shall also furnish self attested and duly attested by Notary, the documentary evidence of SSI unit of Rajasthan or of sick unit (as applicable) along with affidavit as per schedule XI on Non-Judicial Stamp of Rs. 100/-.

The Bank Guarantee against Bid Security be issued by Nationalized / Scheduled Bank. The same may be accepted after confirmation by issuing Bank. If any Bid Security Bank Guarantee not in proper format / not confirmed by the issuing Bank the same would not be accepted and the bidder would be immediately shorted out from bid process.

The Micro, Small & Medium Scale Industries of Rajasthan and sick industries, other than Small Scale Industries, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR) shall furnish self-attested documentary evidence duly attested by Notary to claim the above.

- 2) Wherever Performance Bank Guarantee (PBG) and Composite Bank Guarantee (CBG) are appearing in the ITB, GCC & other Bidding Documents, same are hereby replaced by PERFORMANCE SECURITY as under:-

**PERFORMANCE SECURITY:**

- (i) Performance security shall be solicited from all successful bidders except the department's of the State Government and undertakings, corporations, autonomous bodies, registered societies, co-operative societies which are owned or controlled or managed by the State Government and undertakings of the Central Government. However, a performance security declaration shall be taken from them. The State Government may relax the provision of performance security in particular procurement or any class of procurement.
- (ii) The amount of performance security shall be **five percent** of the amount of supply order in case of procurement of goods and services and **ten percent** of the amount of work order in case of procurement of works. In case of **Micro, small and Medium scale Industries** of Rajasthan it shall be **one percent** of the amount of quantity ordered for supply of goods and in case of sick industries, other than Small Scale Industries, whose cases are pending before the Board of Industrial and Financial Reconstruction (BIFR), it shall be **two percent** of the amount of supply order.

**3) VENDOR REGISTRATION:**

**The relaxation/exemption given to the registered vendors of the Nigam in respect of EMD/SBG, wherever appearing in the ITB, GCC & other Bidding documents, are hereby WITHDRAWN.**

**4) The indirect taxes i.e. Excise Duty, Service Tax, VAT/CST, Entry Tax etc. mentioned in G.C.C., may now be read as G.S.T.**

**5) Due Date of payment:**

Payment shall be due and payable by the purchaser in accordance with the provision of the contract within a reasonable period from the date of receipt of each invoice by the contractor / supplier duly supported by a certificate of the Engineer. The purchaser will take all possible effort to make payment to the contractor / supplier generally on 45<sup>th</sup> day after receipt of duly verified challans / receipts / bill in the office of paying authority {Sr. Accounts Officer (Cash & CPC) Jodhpur Discom, Jodhpur / Concerned Circle Accounts Officer} and completion of contractual formalities. But in case of delay in payment the purchaser shall not be liable to pay any interest on the outstanding amount to the contractor / supplier.

**6) The GST will be charge extra at the prevailing rate on all the settlement fees as applicable and amended time to time.**

**7) APPEAL:**

i. If any Bidder or prospective bidder is aggrieved that any decision, action or omission of the procuring entity is in contravention to the provisions of this Act or the rules or guidelines issued there under, he may file 1st & 2nd appeal under section 38 of RTPP Act-2012 to the following appeal authorities **within a period of ten days from the date of such decision or action, omission, as the case may be, clearly giving the specific ground or grounds on which he feels aggrieved:**

Sr.No	Type of Appeal	Name & Designation of appellate authority
1	First appeal	Chairman, Discoms
2	Second appeal	Energy Department, Government of Rajasthan

ii) The form of appeal shall be as per Rule 83 of RTPP Rules, 2013 and memorandum of appeal shall be filled as per form-1 as prescribed under RTPP Rules, 2013.

Fee for appeal: - Subject to rule 84 of the RTPP Rule 2013 the fee shall be as under:-

a. For First Appeal:- Rs. 2,500/- (Rupees Two Thousand Five Hundred Only)+GST.

b. For Second Appeal:- Rs. 10,000/- (Rupees Ten Thousand Only)+GST.

iii) It is further intimated that the fee shall be paid in the form of Demand Draft of Bankers Cheque of a Scheduled Bank payable in the name of Sr. Accounts Officer (Cash & CPC), JdVVNL, Jodhpur.

iv) Provided that after the declaration of a Bidder as successful the appeal may be filed only by a Bidder who has participated in procurement proceedings:

v) Provided further that in case a Procuring Entity evaluates the Technical Bids before the opening of the Financial Bids, an appeal related to the matter of Financial Bids may be filed only by a Bidder whose Technical Bid is found to be acceptable.

vi) The officer to whom an appeal is filed under para (1) shall deal with the appeal as expeditiously as possible and shall endeavour to dispose it of within thirty days from the date of the appeal.

vii) If the officer designated under para (1) fails to dispose of the appeal filed within the period specified in para (2), or if the Bidder or prospective bidder or the Procuring Entity is aggrieved by the order passed by the First Appellate Authority, the Bidder or prospective bidder or the Procuring Entity, as the case may be, may file a second appeal to Second Appellate Authority specified in the Bidding Document in this behalf within fifteen days from the expiry of the period specified in para (2) or of the date of receipt of the order passed by the First Appellate Authority, as the case may be.

8) The bidders should be qualified, not be insolvent, not be in receivership, not be bankrupt or being wound up, should not have affairs administered by a court or a judicial officers, should not have business activities suspended, should not be blacklisted or debarred by any utility/ government agency, should not have a conflict of interest. For this bidder is required to furnish a Declaration as per Appendix-C, on Rajasthan Non-Judicial Stamp Paper of Rs. 100/ (excluding surcharge on Stamp Paper, as per rules).”

9) In case the terms & conditions mentioned in PO, ITB & GCC are modified/differ from RTPP Act, then RTPP Act shall supersede

**ADDENDUM IN ITB**

**Addendum in the provision of Instruction to Bidder (ITB) in the clause No. 1.12.2 for quantity allocation as per award criteria of purchase manual in accordance to the clause no. 74 of RTPP rules:**

**1.12.2 (A) for quantity allocation****(i) Trial order under Para No. 22.17 (a) & (b) of purchase manual**

(a) Any bidder located within or outside the state of Rajasthan has participated for the first time in a particular Discom& meeting minimum qualification requirement and has supplied the tendered material/or of higher rating in other utility shall be treated as an old supplier. Rajasthan's firms although supplied in past but not meeting minimum quantity supplied criterion including altogether new units which have not supplied any quantity but having adequate & required manufacturing and testing facility and technical know-how of the tendered material shall be considered as new firms and would be eligible for trial order only. In case supply made to the licensed power utility outside India, the C.A. certificate furnished by the firm shall be considered.

Note:- The material supplied and accepted for same/higher rating for turnkey project (s) to a licensed power utility/Govt. shall be considered for the purpose of evaluating criteria. The certificate given by C.A. shall indicate above quantity separately.

(b) (i) The trial order for a particular item shall not generally exceed 10% of the total quantity considered for placement of order. This ceiling may, however, be relaxed by the corporate level purchase committee up to the extent of 30% to take the advantage of lower price where situation of differential price offering is arising.

(ii) The capacity & capability assessment of a bidder located outside state of Rajasthan who otherwise qualifies but is participating for the first time shall not be carried out.

Similarly, for the tendered item(s) where the valid BIS license is an essential qualification requirement and the bidder possesses the valid BIS but new to the utility. The capacity/capability assessment of such a bidder shall also not be carried out.

**(ii) Award criteria under Para No. 10.2 (iii) of purchase manual**

(a) In case of distribution transformers of rating 40 KVA and below, LT cables & conductors and fabricated steel items, order quantity may be distributed in the following manner:-

**20% to L1  
15% to L2  
10% to L3  
05% to L4**

50% to be distributed equally among other firms subject to the condition that not more than 5% of the quantity to be purchased will be allotted to any one of such firms. The balance, if any will be distributed in the same proportion as indicated above among the first four firms.

(b) In case of other items except poles, order quantity may be distributed in the following manner:-

**40% to L1  
20% to L2  
10% to L3  
06% to L4**

The balance quantity may be equally distributed among other firms subject to the condition that not more than 4% of the quantity to be purchased will be allotted to any one of such firm. The balance, if any will be distributed in the same proportion as indicated above among the first four firms.

(c) In case of poles, the order may be awarded on the basis of landed cost (material and transportation taken together). The allocation of quantity location/destination wise may be made among the eligible firms in equal proportion as far as possible

**APPENDIX-A**

Bank Guarantee No. \_\_\_\_\_.  
 Security Amount : \_\_\_\_\_.  
 Issued on dated : \_\_\_\_\_.  
 Valid upto : \_\_\_\_\_.  
 Claim upto / Grace period: \_\_\_\_\_.

**PERFORMA OF BANK GUARANTEE FOR BID SECURITY**

(Bank Guarantee in lieu of bid Security on non-judicial Stamp Paper of Rajasthan State of 0.25% of the B.G. value or Rs.25,000/-, whichever is less)

To,

The Superintending Engineer (MM&C),  
 Jodhpur VidyutVitaran Nigam Limited,  
 Jodhpur.

1. Whereas \_\_\_\_\_ (name of the Bidder) (hereinafter called "the Bidder") has submitted its bid dated \_\_\_\_\_ (date of submission of bid) for \_\_\_\_\_ (name of contract/ name of the material with Bid no. / TN No. \_\_\_\_\_) (hereinafter called "the Bid").
2. KNOW ALL PEOPLE by these presents that WE \_\_\_\_\_ (name and address of branch of Bank ) of \_\_\_\_\_ (name of country), having our registered office at \_\_\_\_\_ (addresses of bank) (hereinafter called "the Bank"), are bound unto \_\_\_\_\_ (name of Purchaser) (hereinafter called "the Purchaser") in the sum of Rs. \* \_\_\_\_\_ for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents sealed with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.
3. THE CONDITIONS of this obligation are :
  - i. If the bidder withdraws its Bid during the period of bid validity specified by the Bidder in the Bid Form; or
  - ii. If the bidder refuses to accept the correction of error in his Bid; or
  - iii. If the bidder, having been notified of the acceptance of its Bid by the purchaser during the period of bid validity:
    - a. Fails or refuses to execute the Contract Agreement within the time specified in purchase / work order, if required, or
    - b. Fails or refuses to furnish the performance security within the time specified in purchase / work order in accordance with the GCC, or
    - c. Fails to commence supply of goods or services or execute work as per purchase / work order within time specified.
  - iv. If the bidder breaches any provision of the Code of integrity specified in the RTPP Act and Chapter VI of the RTPP Rules.
4. We undertake unconditionally and irrevocably to guarantee as primary obligator and not as surety merely to pay to the purchaser a sum of Rs. \_\_\_\_\_ (in words Rs. \_\_\_\_\_) upon receipt of its first written demand, without the purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or all of the above three conditions specifying the occurred condition or conditions.
5. The decision of the Superintending Engineer (MM&C), Jodhpur VidyutVitaran Nigam Limited, Jodhpur shall be final whether breach has been committed on the right to demand the amount of guarantee from us which has accrued to the purchaser.
6. This guarantee shall not cease or determine, if the purchaser grants time or indulgence or vary the terms of the contract with the Contractor or without our consent or knowledge.
7. The guarantee herein contained shall not be affected by any change in the constitution of the Contractor.

8. We \_\_\_\_\_(Bank Name) further undertake not to revoke this guarantee during its currency except with the previous consent of the Superintending Engineer (MM&C), Jodhpur VidyutVitaran Nigam Limited, Jodhpur.

9. All disputes arising under the said guarantee between the Bank and the Nigam or between the Contractor and the Nigam pertaining to the guarantee, shall be subject to the jurisdiction of the Courts in Jodhpur, Rajasthan alone.

10. This guarantee will remain in force up to and including one hundred eighty (180) days after the date of the opening of bids, i.e. upto \_\_\_\_\_, with a further grace period of Ninety (90) days and any demand in respect thereof should reach the Bank not later than the above date.

Yours faithfully,

Bankers (EXECUTANT)

Signed by the above named Bank in presence of :  
(signature with full Name and Address)

Witness :

1. \_\_\_\_\_.

2. \_\_\_\_\_.

Attested by Notary Public, First Class Magistrate or directly confirmed by the executing Bank.

\* The Bidder should insert the amount of the guarantee in words and figures denominated in the currency of bid.

**Note :** In case the bid is submitted by a Joint Venture, the Bid Bank guarantee shall be in the name of Lead partner or in the name of joint venture partners submitting the Bid covering all the partners of the joint venture.



**APPENDIX-B**

**Declaration by the Bidder**

(On Rajasthan Non-Judicial Stamp Paper worth Rs.100/- + Surcharge on Stamp Paper as per rules)

In relation to my/ our bid submitted to SE (MM&C) JdVVNL, Jodhpur, For procurement of \_\_\_\_\_ in response to their notice inviting bids under TN- \_\_\_\_\_ I/We hereby declare that : -

We are qualified, not insolvent, not in receivership, not bankrupt or being wound up, not have affairs administered by a court or a judicial officers, not have business activities suspended, not blacklisted or debarred by any utility/ government agency, not have a conflict of interest.

Signed \_\_\_\_\_  
Name \_\_\_\_\_

In the capacity of \_\_\_\_\_

Duly authorized to sign the bid for an on behalf of :

Dated on \_\_\_\_\_ day of \_\_\_\_\_

Corporate Seal \_\_\_\_\_

\_\_\_\_\_

ANNEXURE-A

SELF ATTESTED UNDERTAKING TO BE GIVEN ON FIRM'S LETTER HEAD

We, the undersigned declare that:

1. Our firm, its affiliates of subsidiaries including any subcontractor or suppliers for any part of the contract have not debarred by the state government or the procuring entity or a regulatory authority under any applicable law.
2. We declare that we have complied with and shall continue to comply with the provision of the code of integrity including conflict of interest as specified for bidders in the RTPP Act 2012, RTPP Rules 2013 and the bidding document during the procurement process and execution of contract till completion of all our obligation under contract.
3. I/We possess the necessary professional, technical, financial and managerial resources and competence required by the bidding document issued by the procuring entity.
4. I/We have fulfilled my/ our obligation to pay such of the taxes payable to the Union and the State Government or any local authority as specified in the bidding document.
5. I/We are not insolvent, not in receivership, not bankrupt or being wound up, not have affairs administered by a court or judicial officers, not have business activities suspended, **not be blacklisted or debarred by any utility/ government agency**, not have a conflict of interest and not the subject of legal proceeding for any of the foregoing reasons.
6. I/We do not have, and our directors and officers not have, been convicted of any criminal offence related to my/ our professional conduct or the making of false statements or misrepresentations as to my/ our qualifications to enter into a procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings.
7. I/We do not have a conflict of interest as specified in the Act, Rules and the bidding document, which materially affects fair competition.

**Firm's Name**  
**Seal & Signature**