

GUARANTEED TECHNICAL PARTICULARS OF A.C. Three Phase Four Wire LT CT Operated Smart Energy Meter (For DT and Consumer meter Metering)		
Sl. No.	Item Description	Bidder to confirm
1	Name of manufacturer	To be mentioned by OEM
2	Type (Model No) Name & Number	To be mentioned by OEM
3	Standard Applicable	IS-16444-Part2, IS-15959(Part-3)
4	Rating	
(a)	Accuracy Class	Class 0.5S As per IS 16444(P-2)
(b)	Rated Voltage	3*240 V Phase to Neutral (70% to 120%)
(c)	Rated Current	IB= -/5A, I _{max} = 10A
(d)	Rated Frequency	50 Hz ±5%
(e)	Power Factor	Zero (lag) to Unity to Zero (lead)
(f)	Meter Constant (Imp/KWH)	Meter Manufacturers to specify
(g)	DLMS category	DLMS category shall be D3 as per clause no. 9.4 of IS16444 part 2
(h)	Variation of voltage at which meter functions normally	Accuracy requirement of variation of voltage as per clause no. 6.10.2 of IS 16444 Part 2
5	Maximum Continuous Current(A)	As per IS 16444 part 2 clause 6 (i.e. upto I _{max})
6	Running under No Load	No load test As per IS 16444 part 2 clause 6.12 and IS 14697 Cl No.11.4
7	Short time Over Current (for10mili second)	As per clause 6.10.3 of IS 16444 part 2
8	Starting Current	0.1 % of I _b at rated voltage and unity power factor
9	Power loss at rated frequency & Reference temperature	
(a)	Current circuit at rated current	As per IS 16444-P2
(b)	Voltage circuit at rated current	As per IS 16444-P2
(c)	Power Consumption of meter excluding communication module	As per IS 16444-P2
10	Maximum Demand	
(a)	Parameter	kW, kVA
(b)	Integration Period	30 min (Shall be configurable for 15 min or 30 min)
(c)	Resetting Options	Auto Resetting: 24:00Hrs. of the last day or 00:00 Hrs. of the first day of each calendar month and Resting through communication channels.
11	Type of material used	This requirement shall be complied with as per cl. No. 6.0 of IS 16444. However in TS High Grade polycarbonate or equivalent is envisaged and same is being provided
(a)	Base	This requirement shall be complied with as per cl. No. 6.0 of IS 16444. However in TS High Grade polycarbonate or equivalent is envisaged and same is being provided
(b)	Meter cover	This requirement shall be complied with as per cl. No. 6.0 of IS 16444. However in TS High Grade polycarbonate or equivalent is envisaged and same is being provided
(c)	Terminal Block	This requirement shall be complied with as per cl. No. 6.0 of IS 16444. However in TS High Grade polycarbonate or equivalent is envisaged and same is being provided
(d)	Terminal cover	This requirement shall be complied with as per cl. No. 6.0 of IS 16444. However in TS High Grade polycarbonate or equivalent is envisaged and same is being provided
(e)	Screw	
	(i)Material	Nickel plated Brass
	(ii)Size	As per relevant IS Standards/CBIP 325
12	Internal diameter of Terminal Hole	As per relevant IS Standards/CBIP 325
13	Centre to Centre clearances between Adjacent terminals	As per relevant IS Standards/CBIP 325
14	Type of Register	LCD suitable for operation up to 80°C
(a)	No. of Digits	8 (integer only)
(b)	Size of Numerals	10 X5mm (minimum)
15	Reading on power off condition	Meter shall be able to display reading during power outage with backup power through the push button provided on the meter.
16	Type of undetectable terminal cover	Terminal cover shall be hinge type.
17	Tamper conditions	Meter shall comply all the tamper conditions as per Annexure-II

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18	Calibration LED and other LED/Icon	(1) The meter shall have suitable blinking LED test out put accessible from the front. (2) The test out put should be suitable for use with sensing probe used with test bench or Electronic Reference Standard Meter. (3) The test output should also work as operating indicator for meter. (4) Output device shall be suitable for optical scanning for test purpose. PLEASE CONFIRM
19	Electromagnetic compatibility (EMC/EMI severity level)	Complied as per IS16444-P2
20	Effect on accuracy of external electromagnetic interference of electrical discharge	Complied as per IS16444-P2
21	Effect on accuracy of external magnetic field	This requirement shall be complied as per cl.6.12 of IS 16444. The requirements of tests to be conducted during FAT shall be complied with as per IS 16444 and shall also be complied with as per CBIP 325
22	Ref. Temperature	27 °c
23	Temperature range of operation	As per clause no. 8.1 of IS 14697 i.e. -10 °C to 55 °C
24	Humidity	as per IS 14697 clause 8.2
25	Influence Quantities	As per IS 16444: Part2
26	Drift in accuracy of measurement with time	There shall be No drift in accuracy in measurement with time
27	Fixing arrangement of name plate	The meter shall have name plate beneath meter cover such that the name plate cannot be accessed without opening the meter cover and without breaking the seals of the meter cover or laser printed on the meter cover and the name plate shall be marked indelibly. The name plate marking shall not fade with lapse of time. The basic marking on the meter nameplate shall be as under : - Manufacturer's name and trade mark - Type designation - Serial number (to be Given by MGVCCL) - Month and Year of manufacture - Reference voltage - Rated & Maximum Current - Principal units of measurements (KWH) - Meter constant (imp/kWh) - 'BIS' Mark (Applicable for Indian meter manufacturers only) - Accuracy Class of meter (class-0.5s) - Purchase Order No. & date - Guarantee period : - "Property of Madhya Gujarat Vij Co. Ltd. (MGVCCL) - Bar Code /QR code identification shall contain details of (i) The make , (ii) Sr no and (iii) Model/type
28	Type of body	The meter shall be projection type and dust and moisture proof. The meter base & cover shall be made out of unbreakable, high grade, fire resistant, reinforced Polycarbonate material so as to give it tough and non breakable qualities. The meter body shall be type tested for IP 51 degree of protection as per IS 12063 against ingress of dust, moisture & vermin.
29	Calibration	Software calibrated at factory. No provision for calibration at site.
30	Maximum Demand	kW & kVA
31	Load Survey	The parameters shall be as per IS 15959 part 3 clause no. 12 with 30 min IP for 35 days.
32	Time of Use (In case of net-meter both export & import parameters to be measured)	As per IS 15959: Part 3 (as applicable)
32	Measuring Elements	Meter will have four measuring elements – three in phase and One in neutral path
33	Communication and Communication Protocol	Communication technology as per requirement, with communication protocol as per IS16444-P2, IS 15959 (Part -3)
34	Plug-in Communication Module	The Smart Meters shall be having a dedicated sealable slot for accommodating plug-in type bi - directional communication module which shall integrate the respective communication technology (RF/ Cellular) with the Smart Meters, leading to easy adaptability for network interfaces (WAN/NAN). The Plug-In module shall be field swappable/ replaceable with the same technology.
35	Remote Firmware Upgrade	As per IS 15959 (Part 2): 2016
36	Real Time Clock (RTC)	As per IS 16444: Part 2 / IS 15959: Part 3/As per IS 14697 annexure G time drift per annum shall be maximum up to 5 min.

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37	Data Retention	As per Clause no. 6.6 of IS 16444 part 2 for 10 years
38	Battery Backup	Meter shall be supplied with separate battery backup for RTC. Meter shall be supplied with Two separate battery one for RTC and one for operating meter/on demand reading in power off condition.
40	Limits of error	As per IS 16444: Part-2
41	Display parameters	As per attached display parameter sheet
42	Parameters to be measured	As per IS 16444: Part2/ IS 15959: Part 3(as applicable)
43	Tamper/Event recording	As per Annexure-II
44	Alarm	As per IS 16444/IS15959 Part 3 (as applicable)
45	Anti-tamper features	As per IS 15959 part 3
46	Programmability	As per IS 15959 Part 2
47	Impulse Voltage	6 KV; As per Is 16444(Part-2) clause no. 6.10.6
48	MD reset	It shall be provided as per relevant clause of IS 14697
49	No. of tamper events	Minimum no. of tamper events shall be 400
50	TESTS	
a	Routine tests As per IS:14697 and specification	As per IS 16444 part 2 and IS 14697
b	Acceptance tests As per IS:14697 and as per MGVCL requirement	As per IS 16444 part 2 and IS 14697
c	Type tests To be submitted	As per IS 16444 part 2 and IS 14697
e	BIS license To be submitted-BIS NO & date of validation to be mentioned.	
51	Digital Input (For DTs)	No. of DIs are as follows: 04 Nos. DI for 4V(DC) with common return, 10 mA
52	Sealing of meter cover to Base	Provision of Sealing for Meter Base to Cover is different from OEM to OEM. However all the Meter OEM's shall provide provision for minimum of 2 no. seals for sealing of Meter Base to Cover. This is pertinent mention here that, as per TS, The meter Base & cover shall be ultrasonically welded / Chemically welded or other suitable bonding technology and it will not be possible to remove the cover from the base without evidence of damage. Void Seals requirement - As Complied by PESL