

TENTATIVE GUARANTEED TECHNICAL PARTICULARS
10-60 Amp. LCD Display THREE PHASE ELECTRONIC ENERGY METERS SUPPLY AND INSTALLATION

SL NO	CHARACTERISTICS	REQUIRED	TO BE FILLED BY THE BIDDER
1	Type of meter	Whole Current (3Phase-4Wire), 10-60A, 3 x 240 V	
2	Model / Make	L&T/Visiontek/HPL/Nakoda/ Secure	
3	Standards to which the meter shall confirm	IS13779	
4	Accuracy class	Class 1.0	
5	PF RANGE	ZERO LAG-UNITY-ZERO LEAD	
6	Over load capacity	150% of I _{max} (I _{max} = Maximum Current)	
7	Variation of voltage at which meter functions normally	70% to 120% of V _{ref} (240V)	
8	Dynamic range of Current	0.2% I _b to I _{max} (I _b = Base current)	
9	Display of Measured values and height of character	LCD with backlit 8 digit and read one tenth of kWh bright liquid crystal display and legend for parameter classification, Height of digit : Minimum 8mm	
10	Communication interfaces	Optical Communication port and LPRF(865-867MHz)	
11	Display of Cumulative MD	Should be available in meter display	
12	MD reset provisions	To be provided as follows: Auto mode, Manual mode, Through Communication mode Auto mode at 1st of every month at 00:00 hr Manual using MD reset button along with sealing provision and also through communication mode	
13	Display of MD resets along with date & Time	Previous 6 months MD values in KW with date and Time to be available in display	
14	Parameters to be Measured	1. Active ,Reactive and Apparent energies 2. All Inst Parameters like voltage,current,power & power factor 3. Mains frequency 4. MD in KW with occurrence date &Time 5. TOD Minimum 3 zones for all energies 6. TOD Minimum 3 zones for MDs with occurrence date & time	
15	Particulars of read out	Auto Display Parameters: 1. Cumulative KWH 2. Current month MD with date & Time 3. Instantaneous active load in KW 4. Instantaneous voltage,current and PF 5. RTC date & Time 6. Phase sequence Push button Display parameters: 1. Cumulative KWH 2. Current month MD with date & Time 3. Cumulative MD in kW 4. MD reset count 5. Histories 6 No. MD in kW with Date & Time 6. Instantaneous PF 7. Line frequency 8. RTC date & Time 9. Instantaneous Phase Voltages 10. Instantaneous phase currents 11. LCD segment check 12. Instantaneous Active power 13. Instantaneous Apparent Power 14. Tamper count 15. Cumulative TOD wise total active energies 16. Current TOD wise total MD	
16	Meter terminal block & max safe current	1. shall have extended transparent terminal cover with sealing provision 2. shall have connection diagram on terminal cover 3. Terminals and screws to withstand 150% of I _{max} (I _{max} = Maximum Current)	
17	Non volatile memory retention time in absence of Power	NVM shall have retention period of 10 Years	
18	Details of Memory capacity	512KB at least	
19	Details of ratings/capacities:		
	a) current rating b) Integration period c) Remote readout facility provision d) Communication protocol used e) Sealing provision for optical port f) Baud rate of transmission g) Required software to be loaded h) Data Security	a) 10-60A b) 30Minutes c) To be provided d) IS:15959 / IEC 1107 e) To be provided f) Minimum 9600 bits/Sec g) All softwares like Application software, BCS, Billing software for full data downloading, generation of bill as per tariff structure, uploading to computer for necessary analysis h) High level and low level passwords to be provided	
20	Details of Tamper Indications:	Segments or Icons for display if feasible	
21	Locking & Sealing Provisions	Shall be available for meter cover, Terminal cover, MD reset button, Optical port. Optical port on polycarbonate box shall have provision of mechanical locking for data communication through optical cable	
22	Certification	Shall have IS, BIS Certification, Meter shall have IS marking	
23	Guarantee for meter	5 years	

24	Billing History and Load Survey	12 billing registers with energy parameters (monthly and TOD) – kWh, kVAh, kVArh, maximum demand (kW, kVA), monthly average – voltage, current, power factor and power ON or OFF hours and the meter shall be capable of recording active, reactive and apparent energies for the last 60 power on days of load survey with integration period of maximum 30 minutes	
25	Tamper (Event) Detection and Logging	Current circuit open, current circuit short, current reversal, current imbalance, missing potential, potential imbalance, magnet tamper, neutral disturbance, cover opening with tamper indications either LED or LCD	
26	Enclosure Material	Polycarbonate material of following types shall only be used: Cover : LEXAN 943A or any superior grade Terminal Cover : LEXAN 943A or any superior grade Terminal block: The terminal block shall be of POLYCARBONATE of FR & glass filled quality Base : LEXAN 503R or any superior grade, Polycarbonate with 10 % glass filled The extended terminal cover shall be of transparent one and should have a minimum length of 60 mm from terminal base.	
27	Battery	The parameters (Cumulative kWh & present month MD in kW) shall be displayed with persistence time of 10 seconds and a separate primary battery to be provided for display using push button during power failures. The meter should have provision to read minimum two above parameters (kWh & MD) during no power condition using the push button for at least 24 hours. In any case RTC battery power should not be used for display under no power condition	
28	Name plate	shall contain the following details also along with the info as per IS. "Property of BHEL", PO no: & Guarantee period:	
29	Technical Specifications of Meter Box	1. Material withstanding temperature - Capable withstanding temperatures of boiling water for 5 minutes continuously without distortion or softening 2. Color - Polycarbonate/ Transparent 3. Push button - To facilitate for reading the parameters by manual push button on the meter, a slit with an external push button arrangement shall be provided at the front of the box. 4. Dimensions - Suitable to give clear view of meter display/name plate 5. No. of hinges – Two (Poly carbonate box shall be reusable with hinges but not push fit lock type) 6. Handle provision - To be provided 7. Sealing arrangement - Qty: 2 plastic seals for meter & Qty: 1 provision for terminal cover to be provided 8. Inlet & Outlets - One for inlet and one for outlet with suitable gland to be provided 9. Gasket - Communication cable from optical port to SBM cum CMRI instrument port shall also to be provided 10. Latches - 'U' clamp to secure it with the base of the box	
30	SBM CUM CMRI INSTALLED WITH API(Qty:04)	1. Qty:04 sets along with one set of related data cables for each instrument for both RF & optical communication with capability for reading meter data, shall be in the scope of agency. 2. Monthly billing data, Full data downloading availability from Optical & RF to SBM CUM CMRI shall be provided. 3. Should be capable to generate bill as per the tariff structure and bill format provided by BHEL.	
31	BCS/Billing software	1. BCS shall support all versions like Windows XP, Vista, Windows 2003,2007,2010 etc. 2. The Instrument shall have provision for detailed analysis and load survey on full data and TOD's	
32	Installation of Energy meters:	1. Each meter with polycarbonate box(in Vendor scope) and TPN MCB/4Pole isolator (BHEL free issue) shall be fitted on existing metallic panel after removal of existing meter. 2. All misc items like bolts, nuts, seals, Lugs etc are to be supplied by the supplier.	
33	Commissioning of RF meters:	1. Basically involves one time configuration of meters in the field for linking with SBM. 2. Linking with customer data base: Co relating the customer data base provided by BHEL with installed meters for billing after installation and bill printing 3. Supply and Installation of Basic computer software in existing computer systems for load survey of meter data. BCS shall support all versions like Windows XP, Vista, Windows 2003,2007,2010 etc	
34	Architecture for RF:	Bidders are to clearly mention their architecture and give details of it	
35	Bill generation and Distribution:	BHEL will provide tariff structure and bill format for bill generation for solution implementation. Bill generation and distribution process to be executed and demonstrated after commissioning of RF meters for 3 months.	
36	Pre Qualification criteria:	Either OEM or OEM nominated Bidder should have successfully executed the supply of minimum 100 RF meters (3- ph meters) with RF/advanced versions like GPRS, GSM modem conn at any DISCOM/PSUs/Govt Orgns/Private Organisations. PO copy and completion certificate of the same to be submitted along with the offer.	