

Office Note

Sub: Clarification regarding deviations for HT three phase four wire CT / PT operated 1 Amps or 5 Amps fully Static & AMR compatible Four Quadrant TOD Tri - vector Energy Meter as per Category B of IS: 15959 / 2011 amended upto date with Availability Based Tariff feature.

Ref:

1. MMC/T-NSC-02/0119/251 dtd. 24.04.2019 C1
2. CE/QC-T/MS-C-II/ABT/78 dtd. 03.06.2019 approved on 07.06.2019 C3-C5

With respect to the above, bidders have raised queries against technical specifications of HT three phase four wire CT / PT operated 1 Amps or 5 Amps with Availability Based Tariff feature. Accordingly, the remarks in accordance with reference (2) for the same given by this office are as below.

I. M/s Secure Meters Limited

Sr. No.	Particulars (Clauses of Technical Specification)	Deviation received	Remark
1	Clause no. 3.00 STANDARD TO WHICH METER SHALL COMPLY: CBIP Tech Report 88	The meter shall comply with CBIP 325 which is the latest amendment of the said standard. The CBIP Tech Report 88 is now obsolete. Moreover these Meters will be installed in MSEDCL Premises in a kiosk/cubicle where tampering by own staff in impossible.	Accepted. Clause 3.00 is modified as "STANDARD TO WHICH METER SHALL COMPLY: CBIP Tech Report 325"
2	Clause no. 5.01 The meter cover shall be secured to base by means of sealable unidirectional captive screws.	Request to optionally, consider Bi-directional sealing screws also as it does not affect the performance of the meter.	Not accepted
3	Clause no. 5.06 & 5.07 Independent sealing provision shall be made against opening of the terminal cover and front cover. It is necessary to provide unidirectional screws with two holes for sealing purpose. Poly-carbonate base and cover is ultra-sonically welded (continuous welding)	Due to the unique design Unidirectional screw not provided on ETBC as well as meter cover. Additionally we will be providing Terminal cover opening feature in the meter with logs in the BCS. As an alternate to Ultrasonic Welding, Push fit arrangement is provided, request your kind consideration and acceptance. We would also like to submit that the meter will have cover open feature detection in case of meter being opened.	(i) Clause no. 5.06 is modified as "Independent sealing provision shall be made against opening of the terminal cover and meter body cover. It is necessary to provide unidirectional screws for meter body cover and bidirectional screws for terminal cover with two holes for sealing purpose." (ii) Not accepted.
4	Clause no. 5.12 The meter accuracy shall not be affected by AC / DC magnetic field up to 0.2	We request you to accept magnet tests as per CBIP 325 which is the latest CBIP Report. Since these meters are ABT meters to be used for Grid metering/	Accepted. Clause 5.12 is modified as "The meter accuracy shall

	<p>Tesla on all the sides of meter i.e. front, sides, top and bottom of the meter as per CBIP publication No. 304 with latest amendments. Under influence of any magnetic field (AC / DC / Permanent) above 0.2 Tesla, if the accuracy of the meter gets affected, then the same shall be recorded as magnetic tamper event with date & time stamping. The energy recorded during such tamper shall be registered in a separate register in addition to main register.</p>	<p>Solar metering application & will be installed within MSEDCL controlled substations, there is no possibility of tamper occurrence with magnet. Hence we request that this clause be modified for compliance to CBIP 325.</p>	<p>not be affected by AC / DC magnetic field up to 0.2 Tesla on all the sides of meter i.e. front, sides, top and bottom of the meter as per CBIP publication No. 325 with latest amendments. Under influence of any magnetic field (AC / DC / Permanent) above 0.2 Tesla, if the accuracy of the meter gets affected, then the same shall be recorded as magnetic tamper event with date & time stamping. The energy recorded during such tamper shall be registered in a separate register in addition to main register"</p>
5	<p>Clause no. 5.21 The meter shall withstand any...</p>	<p>These are special application meters and are not designed for 35KV ESD compliance. Also these meters will be installed in MSEDCL Premises in a kiosk/cubicle where tampering by own staff is impossible. Hence the clause may please be deleted.</p>	<p>Not accepted.</p>
6	<p>Clause no. 5.24 The meter shall be provided with three ports for communication of.....</p>	<p>Additional connector will be provided as per the requirement of MSEDCL to match the pin configuration requirement. The same may please be considered.</p>	<p>Accepted by IT section.</p>
7	<p>Clause no. 5.28</p> <p>i) The meter shall measure, record and display total kWh energy and fundamental energy separately in Import mode.</p> <p>ii) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Import mode.</p> <p>iii) The meter shall measure, record and display total kWh energy and fundamental energy separately in Export mode.</p> <p>iv) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Export mode.</p>	<p>Apparent energy will be calculated either on Total Active or Fundamental Active energy. Hence any one type of calculation can be provided for both import & export mode.</p> <p>Following Active and Apparent energy parameters are provided:-</p> <ul style="list-style-type: none"> • Total Active import • Total Active Export • Fundamental Active import • Fundamental Active Export • Apparent import/export energy either calculated with total Active energy or fund. Active energy. 	<p>Not accepted.</p>

8	<p>Clause no.9.00</p> <p>(e) The meter shall be capable of detecting and recording occurrences and restoration for reverse current of any one phase w.r.t. two other forward phase or vice versa. The meter shall record energy with current available in these phases and average voltage and unity power factor with date & time of occurrence and restoration.</p>	<p>In current reversal condition the phase wise energy will be measured as per actual phase wise value of voltage, current & PF, However the resultant energy will be increment either import or export cumulative energy register.</p>	Not accepted
9	<p>Clause no. 9.00</p> <p>Current Missing: The meter shall be capable of detecting and recording occurrences and restoration of current below starting current value as a current missing event with phase identification for persistence time of 15 minutes. It shall also possess a current missing counter.</p>	<p>Minimum 1% of I-basic current limit can be configured, below which meter will log current missing event.</p> <p>However the starting current of meter is 0.1% of I-basic.</p>	Not accepted
10	<p>Clause no. 9.02</p> <p>Magnet Tamper</p>	<p>We request that it should be as per CBIP 325.</p>	Accepted
11	<p>Clause no. 9.02</p> <p>Current Bypass</p>	<p>Logic can be configured for Ib or I avg, not for higher of three currents as it will keep changing dynamically. Request your kind consieration.</p>	Not accepted
12	<p>Clause no. 11.03</p> <p>The decimal units shall not be displayed in auto scroll mode. However it shall be displayed in push button mode or alternate mode for high resolution display for testing.</p>	<p>Since all these meters will be read by AMR and no manual reading is not possible the auto & manual mode can have decimal digits.</p> <p>The resolution of energy & other instantaneous parameters with 11KV & -/5A commissioning will be as below:-</p>	Not accepted.

User Input	
Type	HT4
PrimV	11000
PrimC	5
SecV	110
Ib	5
Imax	10

Energy / Rate registers	00000000.1	kWh
Load Survey / Demand	00000.001	kWh

Hi-Resolution Energy	0000000.00001	kWh
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Voltage	00001	V
Current	00.001	A
Power	0000.1	kW
Frequency	00.001	Hz
Power Factor	0.001	Lag or Lead
Angle	000:00	Degrees:Minutes

13	Clause no. 11.05 Instantaneous parameters	<ul style="list-style-type: none"> Phase wise power is not possible to be provided on display. It will be available in BCS. For import there will be no sign, however for export "-ve" sign will be provided. 	<ul style="list-style-type: none"> Not accepted. Accepted
14	Clause no. 11.06 NORMAL DISPLAY (DEFAULT DISPLAY)	<ul style="list-style-type: none"> Apparent energy calculated with total active import-export will be provided on display as well as BCS end. Apparent energy will be either on total or fundamental. Both cannot be provided on display. 	<ul style="list-style-type: none"> Not Accepted. Clause no. 11.06 NORMAL DISPLAY (DEFAULT DISPLAY) parameters are modified with Total and fundamental parameters for both import and Export mode.
15	Clause no. 11.06 B. ON DEMAND DISPLAY (ALTERNATE MODE) 21. Average frequency for each successive 15 min block (00 to 99 for frequency from 48.5 to 51.5 Hz)	Only instantaneous frequency with three decimal digits will be displayed. Frequency coding will be available in BCS report.	Not Accepted. Also clause no. 11.06 (B)18 is modified as "Average frequency for each successive 15 min block (00 to 99 for frequency from 49.5 to 50.2 Hz)
16	Clause no. 12.01 BILLING DATA The daily load profile parameters shall be as per table 26 (except 4 & 5) of Annex D of IS: 15959 / 2011 AMENDED UP TO DATE for category B and is summarized as below...	Parameters as per table 26 of IS 15959 for category will be provided. TOD-wise parameters are not included.	Clause no. 12.01 BILLING DATA parameters are modified with Total and fundamental parameters for both import and Export mode.
17	Clause no. 12.03 ABT BILLING DATA: Following parameters shall be stored in non volatile memory automatically as ABT DATA. 2. Net kWh transmittal during each successive 15 min block up to second decimal with plus / minus sign. (PLUS sign when there is net kWh IMPORT to the beneficiary and NEGATIVE sign when there is net kWh EXPORT from the beneficiary.) 6. Cumulative kVARh transmitted for Voltage below 70 % condition at each midnight in eight digits including one decimal.	It will be stored in memory and can be viewed at BCS end, but not as separate section of ABT data. 2. There will be no sign for import, export will be with "-ve" sign. 6. 7. Parameters specified in sr. no. 1, 2 & 8 will be available in load survey data as per clause no. 12.04 for last 60 days on FIFO basis. Parameters specified in sr. no. 3, 4 & 5 will be available in daily load profile data (mid night) for last 40 days.	Sr. no. 2. There will be no sign for import, export will be with "-ve" sign is accepted. Rest not accepted.

	7. Cumulative kVARh transmitted for Voltage between 97% and 103 % Condition at each midnight in eight digits including one decimal.		
18	Clause no. 12.04 Interval for load survey shall be 15 minutes	According to SAMAST guidelines, Load Survey Integration period would change to 5 minutes. Hence, we request that even though meters are being procured currently with 15 minutes SIP, the same should also be configurable for 5 minutes SIP in the future in the field. Same needs to be incorporated in the specifications.	Accepted. Clause no. 12.04 is modified as Interval for load survey shall be 15 minutes or configurable for 5 minutes if required in future.
19	Clause no. 12.05 Programme Data	TOD zone timing, threshold values defined for tamper events not available on display as well as BCS end.	Not Accepted
20	Clause no. 12.06 TAMPER DATA: For above abnormal conditions the recording of events shall be on FIFO basis; however the un-restored events stored separately shall not be erased till restoration.	The events will be logged in their respective compartment of FIFO basis hence un-restored events will also be erased if not restored.	Not Accepted. Clause no. 12.06 can be achieved with specific OBIS code defined by the manufacturer.
21	Clause no. 15.07 The BCS software shall create one single file for the uploaded data Also there shall be a provision to give filenames while creating the file. Alternatively, the file to be downloaded shall be automatically...	There will be separate files of all meters reading. File name will be with "Meter.Sr.No._Date of downloading Activity_Time of downloading activity". Hence there is no possibility of overwritten of file. We do not have 01, 02 in file name.	Accepted by IT section
22	Clause no. 15.09 (vi) Category of Meter: Category B - HT (PT / CT) ABT Energy Meter. The lettering shall be bold in 3 mm font. • Warning in Marathi	<ul style="list-style-type: none"> • It will not be in bold. We request you to accept the same. • An ABT meter will not be kept in consumer premises/ easily accessible sites to general public & this warning sign will not be required. We hence request you to reconsider this requirement. 	Not Accepted
23	Clause no. 18.04 (b) OTHER ACCEPTANCE TESTS: (v) The meter shall withstand impulse voltage at 10 kV.	Meter does not comply with 10KV impulse voltage test. These meters will be installed in MSEDCL Premises in a kiosk/cubicle where tampering by own staff in impossible. Kindly consider.	Not Accepted

24	<p>Clause no. 18.04 (d) ACCEPTANCE TESTS FOR CONFIRMATION OF ABT FEATURE: (ii) 15 minutes block net active power registration. (iv) Net kVARh High registration in all four quadrants when voltage is 103% of VREF. (v) Net kVARh registration in all four quadrants when voltage is at VREF. (vi) Net kVARh Low registration in all four quadrants when voltage is 97% of VREF. viii) Test for confirmation of midnight energy banking in power ON & power OFF conditions.</p>	<ul style="list-style-type: none"> 15 minutes block net active <u>energy</u> registration will be provided. For Points (iv), (v) & (vi), is not as per the requirement of the SAMAST guidelines, Net VARh is to be measured. We have attached the specific clause from the guidelines for your reference. We request you to kindly amend the clause in compliance with the same. Mid night energy banking will be updated after next power up of meter, it will not update in power off conditions. 	<ul style="list-style-type: none"> Not accepted Clause is already modified as (iv) Net kVARh High registration in all four quadrants when voltage is above 103% of VREF (vi) Net kVARh Low registration in all four quadrants when voltage is below 97% of VREF Please refer technical specifications.
	-	We request you to add the requirement of Auxiliary Power Supply in GTP.	Accepted
	Point 74	Request you to remove the "External Battery" Clause w.r.t. Technical Specification Cl. No. 5.25.	Accepted
	Point 105	Request you to remove this point in accordance with the amended specification.	Accepted

II. M/s Larsen & Toubro Limited

Sr. No.	Particulars (Clauses of Technical Specification)	Deviation received	Remark
1.	<p>Clause no. 5.24 COMMUNICATION CAPABILITY: The meter shall be provided with three ports for communication of the measured / collected data as per IS: 15959 / 2011, i.e. a hardware port compatible with RS-232 and 485 specifications, RJ - 11 type which shall be used for remote access through suitable Modem (GPRS / GSM / LPR) 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 CMRI. RS-232 port or TCP / IP port as required on terminal block is also acceptable. Sealing arrangement for Optical & RS 232 port or TCP / IP port as required shall be provided. All the ports shall be able to</p>	<p>Meters to be provided with 3 com ports, please confirm which 1. Optical 2. RS 232 or TCP/IP 3. RS 485 As per DLMS optical port has priority over other com ports. However simultaneous communication can be provided with deviation on DLMS.</p>	Not accepted.

<p>2</p>	<p>communicate simultaneously</p> <p>Clause no. 5.28 i) The meter shall measure, record and display total kWh energy and total kVAh energy in Import mode. ii) The meter shall measure, record and display total kWh energy and fundamental energy separately in Export mode. iii) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Export mode.</p>	<p>Whether Fundamental energy req is asked only in export mode. Same is appearing in display.</p>	<p>Clause no. 5.28 is modified as below.</p> <p>i) The meter shall measure, record and display total kWh energy and fundamental energy separately in Import mode.</p> <p>ii) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Import mode.</p> <p>iii) The meter shall measure, record and display total kWh energy and fundamental energy separately in Export mode.</p> <p>iv) The meter shall measure, record and display total kVAh energy and fundamental energy separately in Export mode.</p> <p>Please refer technical specifications.</p>
<p>3</p>	<p>Clause no. 9.00</p> <p>The meter shall be capable of detecting and recording occurrences and restoration for reverse current of any one phase w.r.t. two other forward phase or vice versa. The meter shall record energy with current available in these phases and average voltage and power factor of remaining phases with date & time of occurrence and restoration.</p>	<p>Reversal shall be based only on sign or MAJORITY LOGIC? Why defraud registration for bi-directional ABT meter? In this logic it should be avg. PF of remaining two phases.</p>	<p>Majority logic.</p>
<p>4</p>	<p>Clause no. 11.06/5.10</p> <p>NOTE: (2) The meter display shall return to Auto scrolling Display mode (mentioned above) if the 'Display Hold' is inactive & 'Push button' is not operated for 60 seconds. (3) Manual display Hold / Unhold facility shall be provided. The meter shall return to Auto scrolling mode if Unhold activation is not done for 30 minutes.</p>	<p>Display hold cannot be provided. However 30 min timeout can be provided from mode 2 / mode 3 to auto scroll.</p>	<p>Since push button is not there for unhold facility, clause 12.01 (3) is deleted.</p>

7	Clause no. 15.08 Meter manufacturers should also need to submit Convert API (API3) as per MIOS universal standard along with Base Computer System free of cost. This API should be capable of converting both data i.e. AMR data collected from Read API (API1) and MRI data collected from CMRI.	DLMS meters are asked. API MIOS standard is not applicable.	Not accepted
8	Current Missing: The meter shall be capable of detecting and recording occurrences and restoration of current below starting current value as a current missing event with phase identification for persistence time of 15 minutes. It shall also possess a current missing counter.	Current below 1% Ib should be recorded as CT open as below 1% there is possibility of wrong detection of tamper due to noise levels.	Not accepted
9	CT Open : Zero Amps in one or two phases and current in at least 1 phase is > 5% Ib for 15 minutes.	Current below 1% Ib in one or two phases and current in at least 1 phase is > 5% Ib for 15 minutes	Not Accepted
10	10 slots for each tamper expect meter cover open....	As per IS15959 tampers are to be divided in following compartments only: 1) Voltage related 2) Current related 3) Other 4) Non-rollover	Accepted
11	Cl no. 8 - Calls for 3 types of reset Cl no. 11.07(v)- Calls for auto reset only	Please confirm what needs to be done. Please note MD reset types are not field programmable parameter as per IS15959	Not accepted. Clause 11.07 (iv) is modified as "MD resetting shall be auto as per clause no. 8.00 (iii). However for testing purpose manual resetting arrangement with resetting facility shall be provided as per clause no. 8.00 (ii)"
12	Influence of external magnetic field	CBIP 325 already superseded CBIP 304. In case of reversal & magnetic tamper above 0.2T I _{max} energy recording should be if respective registers only?	Accepted. Magnetic tamper shall be as per CBIP 325.
13	OBIS codes for parameters not defined in IS 15959	There are lot of parameters above IS15959 CAT-B meter. Manufacturer specific OBIS codes	OBIS Codes will be provided by IT section.

		will be provided for the same. Interoperability will be issue between different makes of meters.	
14	Auxiliary supply requirement	Please accept 88-260 V (AC/DC) also as 60-240V is given by one specific manufacturer only	Accepted. Clause 4.00 (19) is regarding Auxiliary power Source is added as "Meter shall be auxiliary powered. The same shall be of range 60-240V AC/DC (± 20 %) or 88-260 V AC/DC (± 20 %)"

M/s Genus Power Infrastructure Limited

Sr. No.	Particulars (Clauses of Technical Specification)	Deviation received	Remark
1.	The accuracy of the meter shall not be affected with the application of abnormal voltage / frequency generating device such as spark discharge of approximately 35 kV.	We request you to please remove this clause as these meters are installed in cubical.	Not Accepted.
2.	Frequency rating 50Hz +/- 3%	It shall be 50Hz +/-5%	Accepted. Clause 4.00 (2) is modified as "50Hz +/-5%"
3.	Meter Shall be Auxiliary Powered	It shall be as Meter shall be self powered with Auxiliary DC power supply, in the event of VT supply fails it shall automatically switch to DC auxiliary	Accepted. Clause 4.00 (19) is regarding Auxiliary power Source is added as "Meter shall be auxiliary powered. The same shall be of range 60-240V AC/DC (± 20 %) or 88-260 V AC/DC (± 20 %)"
4.	RJ-11 4-PIN	RJ-11t shall be standard RJ-11 of 6PIN with 1&6-Not connected, rest as per Specs 2 to 5PIN configuration-- please accept 6 pin also	Not accepted

Submitted for needful, please.

[Signature]
Chief Engineer (Testing & QC)

Chief Engineer (MM Cell)