

Final Clarifications/Amendments against Expression of interest floated vide No. MePDCL/CE (PMC)/Tech-040/2020-21/8 Dated 15.02.2021.

SL. No.	Reference:	As per EOI Document (Amended)	Clarifications/Amendments:
1	Clause 11.5: Page 9	"The terminal block should be made of high grade non-hygroscopic, fire retardant, fire resistant, glass reinforced polycarbonate with terminal holes of minimum dia. 5.5 mm for 1-phase staticmeter and minimum dia. 8.5 mm for 3-phase static meter and should be suitable to accommodate the insulation of the conductors meeting the requirement of IS13779/CBIP Report-325. The minimum centre-to-centre distance clearance between adjacent terminals should be 18 mm. The holes in the insulating material shall be of sufficient size to accommodate the insulation of conductor also. Terminal cover should have provision for sealing with at least one seal."	The Clause 11.5: Page 9 is further amended as "The terminal block should be made of high grade non-hygroscopic, fire retardant, fire resistant, glass reinforced polycarbonate with terminal holes of minimum dia. 5.5 mm for 1-phase static meter and minimum dia. 8.5 mm for 3-phase static meter and should be suitable to accommodate the insulation of the conductors meeting the requirement of IS13779/CBIP Report-325. The minimum centre-to-centre distance clearance between adjacent terminals should be 16 mm. The holes in the insulating material shall be of sufficient size to accommodate the insulation of conductor also. Terminal cover should have provision for sealing with at least one seal."
2	Clause 11.11: Page 10.	<p>"The meter should be fitted with CT for measuring current in the phase element. The neutral element may have either CT or SHUNT or HALL EFFECT SENSOR with proper isolation".</p> <p>The shunts used in the current circuit must be of high quality having high thermal stability and temperature co-efficient. They should be E-beam/spot welded.</p> <p>In case of Hall Effect Sensor, the meter should record as per requirement of Technical Specification in normal & tamper conditions and life of battery used for recording & display during single wire operation should be guaranteed for 10 years.</p>	The first para of the Clause stands further amended as "The meter should be fitted with CT or SHUNT for measuring current in the phase element for a single phase meter whereas for a three phase meter, the meter should be fitted with CT for measuring current in the phase element . The neutral element may have either CT or SHUNT or HALL EFFECT SENSOR with proper isolation". Other content of the clause remain the same.
3	Clause 15: Page 15.	<p>15.0 SCROLLING DISPLAY PARAMETERS:</p> <p>The manufacturer should provide 1 (one) push button for 1-phase meter and 2-push button for 3-phase meter. In case of three phase meter, one is for forward scrolling and the other for backward scrolling and this would be applicable for capacitive type scrolling mode.</p>	<p>The Clause "15.0 SCROLLING DISPLAY PARAMETERS" is further amended as follows;</p> <p>The manufacturer should provide 1 (one) push button (normal or capacitive type) for 1-phase meter and 2-push button (normal or capacitive type) for 3-phase meter. In case of three phase meter, one is for forward scrolling and the other for backward scrolling.</p>
4	Clause 17.1: Page 18 & 19	Clause 17.1: "The meter should be able to display the parameters in no-power condition by the use of push button and also should be able to upload the data to the MRI. This provision should be made in the form of rechargeable battery back-up and primary battery."	The Clause 17.1 stands further amended as "The meter should be able to display the parameters in no-power condition by the use of push button (normal or capacitive type) and this should also be able to upload the data to the MRI. This provision should be made in the form of primary battery."
5	Clause 17.2: Page 19	<p>METER READING AT POWER OUTAGE AND BATTERY:</p> <p>"17.2 The rechargeable battery shall be capable of back-up for display of parameters up to 720 hours from the instant of power failure".</p>	The Clause stands further amended as "17.2 The battery shall have a guaranteed life period of minimum 10 years."
	Reference:	As per EOI Document:	Clarifications/Amendments:
1	Clause 5.8 Page 26	The mounting arrangement of the meter in the meter box shall be by way of adjustable slotted stainless steel strips of thickness 3mm which shall be fixed on the base by providing raised groove with internal threads and 4 nos.of 4mm diameter, 8mm long full thread screws to suit mounting of the meters.	The Clause 5.8 is amended as "The mounting arrangement of the meter in the meter box shall be by way of three mounting pillars or adjustable slotted stainless steel strips of thickness 3mm which shall be fixed on the base by providing raised groove with internal threads and 4 nos.of 4mm diameter, 8mm long full thread screws to suit mounting of the meters."

In view of the clarifications and amendments made as indicated above, certain necessary modifications have been incorporated in the GTP formats. The amended GTP formats are also uploaded viz:

	Particulars	Excel File format:	Instructions:
1	GTPs OF AC SINGLE PHASE STATIC WHOLE CURRENT ENERGY METER WITH LCD DISPLAY OF ACCURACY CLASS 1.0	Annexure - 1A (Final Amendment)	Excel file format indicated have been uploaded in the MeECL website www.meecl.nic.in . Interested parties are to fill in the excel file format indicated, print, sign their GTP offer and submit along with their EOI. The soft copies of the above GTPs are also to be submitted in the Compact Disc along with their EOI.
2	GTPs OF AC THREE PHASE STATIC WHOLE CURRENT ENERGY METER WITH LCD DISPLAY OF ACCURACY CLASS 1.0	Annexure 1B (Final Amendment)	
3	GTPs OF METER BOX (POLYCARBONATE) SUITABLE FOR SINGLE PHASE & THREE PHASE STATIC ENERGY METER	Annexure - 1C: POLYCARBONATE BOX (Final Amendment)	
4	GTPs OF METER BOX (SMC) SUITABLE FOR SINGLE PHASE & THREE PHASE STATIC ENERGY METERS	Annexure - 1C :SMC BOX (Final Amendment)	

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Annexure - 1A (Final Amendment)			
GTPs OF AC SINGLE PHASE STATIC WHOLE CURRENT ENERGY METER WITH LCD DISPLAY OF ACCURACY CLASS 1.0			
Sl.No.	Description		To be filled by Manufacturer as Offered:
1	Name of Manufacturer		
2	Meter Type& Serial number		
3	Standard Applicable with latest amendments		IS: 13779/1999 IS: 12346/1988 IS: 14434/1998 IS: 15707 IS: 15959 CBIP Technical Report. 325 IEC: 62053-21
4	Rating		
	Accuracy Class	Class 1.0 or better	
	Rated Voltage	240V	
	Rated Current	Ib: 5.0A	
	Rated Frequency	50Hz \pm 5%	
	Power Factor	0.5 lag - Unity- 0.8 lead	
	Meter Constant (imp/KWh)	Manufacturer to specify	
5	i. Maximum continuous current rating (Amp)	600% of Ib	
	ii.Continuous current rating of terminals for two hours	150% I _{max}	
	iii.Running with no load & (-) 70 % to 120% of rated voltage	As per IS	
6	Short time over current for 10 milliseconds	As per IS	
7	Starting current at which meter shall run & continue to run	0.2% of Ib at rated voltage and unity power factor	
8	Power loss at rated frequency & reference temperature		
	i. Current circuit at rated voltage	Less than 4VA	
	ii. Voltage circuit at rated current	Less than 1.5W/10VA	
9	Display :		
	i. No. of digits	6+1	
	ii. Character height	8.0 x5.0 mm	
10	Continuous display	Yes (shall never be blanked out in all conditions except during power outage)	
11	Cycle of parameter display	15 seconds	
12	Scrolling mode	Forward only	
13	Auto display mode	Required	
14	Operational indication-LED	KWh	
15	Communication port	i. Optical Port	
		ii. RS-232 (RJ-11)	
16	Battery of Real Time Clock	10 year of guaranteed period.	
17	Memory	Manufacturer to specify	
18	Non volatile memory retention time in absence of power	10 (ten) years minimum.	
19	Memory capacity (MB)	Manufacturer to specify	
20	Perfomance of meter in tamper condition i. Incoming & Outgoing terminals interchange ii. Phase and neutral interchange iii. Incoming neutral disconnected. Outgoing neutral & Load connected to earth. iv. Incoming neutral connected to earth through resistor & load to earth v. Incoming (Phase & neutral) interchanged. load connected to earth vi. Incoming & Outgoing (phase & neutral) interchanged. load connected to earth.	The meter should work within the specified accuracy and energy is to be recorded in the forward direction	
21	Indication of above tamper condition	Auto/Push button (normal or capacitive type) scroll mode or Legend	
22	Provision to read in the absence of power	Required through battery & by the use of push button (normal or capacitive type).	
23	General & Constructional Requirement :		
	i. Base	i. High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 503R or equivalent)	
		ii. Shall conform to IP51/IP54 class degree of protection as per relevant standard.	

	ii. Meter cover	High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 943A or equivalent)	
	iii. Terminal Block	i. High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 503R or equivalent)	
		ii. As per IS:13779 & CBIP technical Report 325	
		iii. dia. of terminal holes = 5.5 mm (min)	
	iv. Terminal cover	High impact strength non-hygroscopic, fire retardant, fire resistant, glass reinforced transparent poly carbonate & non-detachable with hinges arrangement (LEXAN 943A or equivalent)	
	v. Screw Material	Zinc/nickel plated	
	vi. Screw Size	2 screw in each terminal of size not less than M4 & head of 6±2mm dia.	
24	Centre to centre clearances between adjacent terminals	16 mm (Minimum)	
25	Transducers		
	i. Input	CT or SHUNT in phase element	
		Voltage: PT less Potential provider.	
	ii. Output	LCD	
	iii. CT- number of turns	Manufacturer to specify	
26	Fixing/sealing arrangement		
	i. Fixing of meter	3 fixing holes (one at top & two at bottom under terminal block). The top fixing screw shall not be accessible after meter is fixed to the meter box base	
26	ii. Sealing of meter cover to Base	At least two fixing screws for fixing meter cover with the meter base shall be provided. Each screw shall have at least one hole for sealing arrangement. The arrangement should be in such a manner that any access to the working part of the meter body will not be possible without breaking/removing/ tamper the said seals.	
27	Type of hinged undetectable terminal cover	Shall be hinged	
28	Suitability of meter to sustain over votage	Should sustain	
29	Electromagnetic compatibility (EMI/EMC severity level)	As per IS : 13779/1999	
30	Effect on accuracy of external electromagnetic interference of electrical discharge, external magnetic field	Should work within accuracy as per latest IS & CBIP technical report 325 with latest amendment.	
31	Injection of DC supply in neutral	Error beyond ±4% will not be acceptable for conditions not specified in IS:13779/1999 & CBIP technical report 325	
32	Current reversal, neutral disturbance, magnetic disturbance, magnetic tamper, etc	Current related events:100 (min) Voltage related events: 100 (min) Others : 100 (min)	
33	Drift in accuracy of measurement with time	Should not drift	
34	Name plate details	As per IS : 13779/1999 Clause 7.1	
35	Approximate weight of meter	Manufacturer to indicate	
36	Type of mounting	Projection type	
37	Calibration	Meter shall be software calibrated at factory & there shall not be any mechanical form of calibration so that any adjustment in calibration is not possible after freezing the meter constant	
38	Mounting of components on PCB	Shall be SMT & ASIC type	
39	Tests & Test Conditions	As per Clause 12 of IS: 13779/1999 or its latest amendments	
40	Warranty of the meter:	Not less than 5½ years	

(Signature of Authorised Signatory)

Name:
Designation:
Address:

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Annexure 1B (Final Amendment)			
GTPs OF AC THREE PHASE STATIC WHOLE CURRENT ENERGY METER WITH LCD DISPLAY OF ACCURACY CLASS 1.0			
Sl.No.	Description	Minimum Requirement	To be filled by Manufacturer as Offered:
1	Name of Manufacturer		
2	Meter Type& Serial number		
3	Standard Applicable	IS: 13779/1999 IS: 12346/1988 IS: 14434/1998 IS: 15707 IS: 15959 CBIP Technical Report. 325 IEC: 62053-21	
4	Rating		
	Accuracy Class	Class 1.0 or better	
	Voltage circuit at rated current	240V Phase to neutral, 415 V phase to phase with $\pm 5\%$	
	Rated Current	Ib: 10.0A	
	Rated Frequency	50Hz $\pm 5\%$	
	Power Factor	0.5 lag - Unity- 0.8 lead	
	Meter Constant (imp/KWh)	Manufacturer to specify	
5	i. Maximum continuous current rating (Amp)	600% of Ib	
	ii.Continuous current rating of terminals for two hours	150% Imax	
	iii.Running with no load & (-) 70 % to 120% of rated voltage	As per IS	
6	Short time over current for 10 milliseconds	As per IS	
7	Starting current at which meter shall run & continue to run	0.2% of Ib at rated voltage and unity power factor	
8	Power loss at rated frequency & reference temperature		
	i. Current circuit at rated voltage	Less than 4VA	
	ii. Voltage circuit at rated current	Less than 1.5W/10VA per phase	
9	Display		
	i. No. of digits	6+1	
	ii. Character height	8.0 x5.0 mm	
10	Continuous display	Yes (shall never be blanked out in all conditions except during power outage)	
11	Cycle of parameter display	15 seconds	
12	Scrolling mode	Forward and Backward	
13	Auto display mode	Required	
14	Operational indication-LED	KWh & KVArh	
15	Communication port	i. Optical Port	
		ii. RS - 232 (RJ-11)	
16	Battery of Real Time Clock	10 year of guaranteed period.	
17	Memory	Manufacturer to specify	
18	Non volatile memory retention time in absence of power	10 (ten) years minimum.	
19	Memory capacity (MB)	Manufacturer to specify	
20	Performance of meter in tamper condition (i) Incoming & Outgoing terminals interchange (ii) Change of phase sequence (iii) Absence of neutral (iv) One or two or all three Phase current are reversed (v) Absence of two phases (vi) load drawn partially or fully through earth (vii) Presence of two wires	The meter should work within the specified accuracy and energy is to be recorded in the forward direction	
21	Indication of above tamper condition	Auto/Push button (normal or capacitive type) scroll mode or Legend	
22	Provision to read in the absence of power	Required through battery & by the use of push button (normal or capacitive type).	
23	Provision for time of day	Should be provided for at least 3 time zones	
24	General & Constructional Requirement :		
	i. Base	i. High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 503R or equivalent)	
		ii. Shall conform to IP51/IP54 class degree of protection as per relevant standard.	

	ii. Meter cover	High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 943A or equivalent)	
	iii. Terminal Block	i. High impact strength non-hygroscopic, fire retardant, fire resistant, UV stabilized poly carbonate (LEXAN 503R or equivalent)	
		ii. As per IS:13779 & CBIP technical Report 325	
		iii. dia. of terminal holes = 8.5mm (Min)	
	iv. Terminal cover	High impact strength non-hygroscopic, fire retardant, fire resistant, glass reinforced transparent poly carbonate & non-detachable with hinges arrangement (LEXAN 943A or equivalent)	
	v. Screw Material	Zinc/nickel plated	
	vi. Screw Size	2 screw in each terminal of size not less than M4 & head of 6±2mm dia.	
25	Centre to centre clearances between adjacent terminals	16 mm (Minimum)	
26	Transducers		
	i. Input	CT in phase element	
		Voltage : PT less Potential provider.	
	ii. Output	LCD	
	iii. C.T. – no. of turns	Manufacturer to specify	
27	Fixing/sealing arrangement		
	i. Fixing of meter	3 fixing holes (one at top & two at bottom under terminal block). The top fixing screw shall not be accessible after meter is fixed to the meter box base	
	ii. Sealing of meter cover to Base	At least two fixing screws for fixing meter cover with the meter base shall be provided. Each screw shall have at least one hole for sealing arrangement. The arrangement should be in such a manner that any access to the working part of the meter body will not be possible without breaking/removing/ tamper the said seals.	
28	Type of hinged undetectable terminal cover	Shall be hinged	
29	Suitability of meter to sustain over voltage i.e phase to phase voltage injected between phase & neutral	Should sustain	
30	Electromagnetic compatibility (EMI/EMC severity level)	As per IS : 13779/1999	
31	Effect on accuracy of external electromagnetic interference of electrical discharge, external magnetic field	Should work within accuracy as per latest IS 13779 & CBIP technical report 325 with latest amendment.	
32	Injection of DC supply in neutral	Error beyond ±4% will not be acceptable for conditions not specified in IS : 13779/1999 & CBIP technical report 325	
33	Current reversal, neutral disturbance, magnetic disturbance, magnetic tamper, etc	Current related events: 100 (min) Voltage related events: 100 (min) Others : 100 (min)	
34	Drift in accuracy of measurement with time	Should not drift	
35	Name plate details	As per IS : 13779/1999 Clause 7.1	
36	Approximate weight of meter	Manufacturer to indicate	
37	Type of mounting	Projection type	
38	Calibration	Meter shall be software calibrated at factory & there shall not be any mechanical form of calibration so that any adjustment in calibration is not possible after freezing the meter constant.	
39	Mounting of components on PCB	Shall be SMT & ASIC type	
40	Tests & Test Conditions	As per Clause 12 of IS: 13779/1999 or its latest amendments	
41	Warranty of the meter:	Not less than 5½ years	

(Signature of Authorised Signatory)

Name:
Designation:
Address:

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Annexure - 1C: POLYCARBONATE BOX (Final Amendment)			
GTPs OF METER BOX (POLYCARBONATE) SUITABLE FOR SINGLE PHASE & THREE PHASE STATIC ENERGY METER			
Sl.No.	Description	Minimum Requirement	To be filled by Manufacturer as Offered:
1	Material of meter box	Sheet moulding compound or Polycarbonate As per IS: 13410/1992 / 14434	
2	Colour :		
	a) Base	Opaque/transparent	
	b) Cover	Transparent or Opaque with viewing window as the case may be.	
3	Dimension of Box	To be provided by manufacturer	
4	Clearance from Meter surface (General tolerance) :		
	i. Left & Right side :	10 mm to 40 mm	
	ii. Bottom from Terminal block	70 - 80 mm	
	iii. Front :	10 mm minimum	
	iv. Back:	10 mm	
	v. Top :	10 mm minimum	
5	Inlet & Outlet opening at the bottom part of the LHS & RHS of Meter Box	i. upto 17mm dia. for 1-phase	
		ii. upto 30mm dia. for 3-phase	
6	Thickness of Meter box_base	2 mm (minimum)	
7	Thickness of Meter box_back & sides	2 mm (minimum)	
8	Sealing arrangement	2 Nos (minimum)	
9	Suitable for outdoor installation IP 54 or better	Yes /No	
10	U-shaped clamps/latches for holding the box with sealing arrangements	2 nos.	
11	Holes for mounting of meter box	4 nos. with screws of 6 mm dia. & 75 mm long (maximum)	
12	Meter mounting arrangement	As per Clause 5.8 (Page 26)	
13	Marking of Box	As per IS:14772/2000(Amended upto date)	
14	Tests	As per IS:14772/2000(Amended upto date)	
15	Weight of the Box (in Kg)	Manufacturer to specify	
16	Engraving/Sticker of "Property of MePDCL "	Yes	

(Signature of Authorised Signatory)

Name:
Designation:
Address:

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Annexure - 1C :SMC BOX (Final Amendment)			
GTPs OF METER BOX (SMC) SUITABLE FOR SINGLE PHASE & THREE PHASE STATIC ENERGY METERS			
Sl.No.	Description	Minimum Requirement	To be filled by Manufacturer as Offered:
1	Material of meter box	Sheet moulding compound or Polycarbonate As per IS: 13410/1992 / 14434	
2	Colour :		
	a) Base	Opaque/transparent	
	b) Cover	Transparent or Opaque with viewing window as the case may be.	
3	Dimension of Box	To be provided by manufacturer	
4	Clearance from Meter surface (General tolerance \pm 5mm) :		
	i. Left & Right side :	40 mm	
	ii. Bottom from Terminal block	70 mm	
	iii. Front :	30 mm	
	iv. Back:	10 mm	
	v. Top :	30 mm	
5	Inlet & Outlet opening at the bottom part of the LHS & RHS of Meter Box	i. upto 17mm dia. for 1-phase	
		ii. upto 30mm dia. for 3-phase	
6	Thickness of Meter box_base	2 mm (minimum)	
7	Thickness of Meter box_back & sides	2 mm (minimum)	
8	Sealing arrangement	2 Nos (minimum)	
9	Suitable for outdoor installation IP 54 or better	Yes /No	
10	U-shaped clamps/latches for holding the box with sealing arrangements	2 nos.	
11	Holes for mounting of meter box	4 nos. with screws of 6 mm dia. & 75 mm long (maximum)	
12	Meter mounting arrangement	As per Clause 5.8 (Page 26)	
13	Marking of Box	As per IS:14772/2000(Amended upto date)	
14	Tests	As per IS:14772/2000(Amended upto date)	
15	Earthing arrangement	1 no. earth bolt of 6 mm dia & 20 mm long with 2 nos. nuts & washers & 1 no. spring washer with earthing symbol.	
16	Weight of the Box (in Kg)	Manufacturer to specify	
17	Engraving/Sticker of "Property of MePDCL "	Yes	

(Signature of Authorised Signatory)

Name:
Designation:
Address: