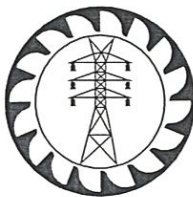


071-4: 2022

CEB  
SPECIFICATION

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**MEDIUM VOLTAGE MULTI-FEEDER  
SUMMATION METERING SYSTEM**



**CEYLON ELECTRICITY BOARD  
SRI LANKA**



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## SPECIFICATION FOR MEDIUM VOLTAGE MULTI-FEEDER SUMMATION METERING SYSTEM

### 1.0 SCOPE

This Specification covers the general requirements of the design, manufacture, operation and testing of Medium Voltage Multi-Feeder Summation Metering System along with the other relevant equipment as specified herein.

1. Medium Voltage two Feeder Summation Metering System complete with enclosure and accessories.

### 2.0 SYSTEM PARAMETERS

(a)	Nominal voltage (U)	400 V	11 kV	33 kV
(b)	System highest voltage (Um)	415 V	12 kV	36 kV
(c)	System frequency	50 Hz	50 Hz	50 Hz
(d)	Method of earthing	Effectively earthed	Effectively earthed for overhead systems and resistive earth for underground cable system	Non-effectively earthed
(e)	System fault level	25 kA	25 kA	25 kA

### 3.0 SERVICE CONDITIONS

(a)	Annual average ambient temperature	30 °C
(b)	Maximum ambient temperature	40 °C
(c)	Maximum relative humidity	90%
(d)	Environmental conditions	Humid tropical climate with heavily polluted atmosphere
(e)	Operational altitude	From M.S.L. to 1900 m above M.S.L.
(f)	Isokeraunic (Thunder days) level	100 days

### 4.0 APPLICABLE STANDARDS

The equipment and components supplied shall be in accordance with the latest editions of the standards specified below and amendments thereof.

(a)	IEC 62052-11:2020	Electricity metering equipment - General requirements, tests and test conditions - Part 11: Metering equipment
(b)	IEC 62053-22:2020	Electricity metering equipment - Particular requirements - Part 22: Static meters for AC active energy (classes 0,1S, 0,2S and 0,5S)
(c)	IEC 62053-23:2020	Electricity metering equipment - Particular requirements - Part 23: Static meters for reactive energy (classes 2 and 3)
(d)	IEC 62058-11:2008	Electricity metering equipment (AC) - Acceptance inspection - Part 11: General acceptance inspection methods
(e)	IEC 62058-31:2008	Electricity metering equipment (AC) - Acceptance inspection - Part 31: Particular requirements for static meters for active energy

		(classes 0,2 S, 0,5 S, 1 and 2)
(f)	IEC 62052-21:2004	Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Part 21: Tariff and load control equipment
(g)	IEC 62056-21:2002	Electricity metering - Data exchange for meter reading, tariff and load control - Part 21: Direct local data exchange
(h)	IEC 62056-5-3:2017	Electricity metering data exchange - The DLMS/COSEM suite - Part 5-3: DLMS/COSEM application layer
(i)	IEC 62056-6-1:2017	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-1: Object Identification System (OBIS)
(j)	IEC 62056-6-2:2017	Electricity metering data exchange - The DLMS/COSEM suite - Part 6-2: COSEM interface classes
(k)	IEC 60529:2013	Degrees of protection provided by enclosures (IP Code)

Any other standards applicable for the equipment and components mentioned herein, shall be provided with the offer.

**However, in the event of discrepancy, details given in this CEB specification supersede above standards.**

## 5.0 BASIC FEATURES

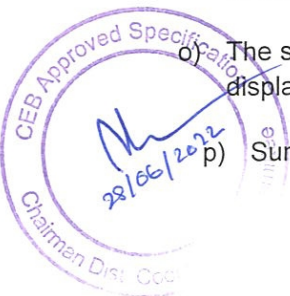
### 5.1. Summation Metering System

- a) The summation metering system is used for commercial metering purpose for multi-feeder summation applications in Medium Voltage level. This system shall be placed in a suitable enclosure with parameters specified in Clause 5.2.
- b) The summation metering system shall comprise of, but not limited to, separated/ integrated feeder metering system and summation of feeder metering system. The energy meters used in this application shall conform to Programmable Static Energy Meter - CT/VT connected of accuracy 0.2s for active energy, specified in CEB Specification 071-1:2022 (or latest).
- c) The technical parameters for Combined Metering Transformer Unit used by CEB in this application is specified in CEB Specification 006:2021.
- d) All the technical parameters including (but not limited to) measuring parameters, communication methodology and display sequence with regard to feeder metering system shall comply with the CEB specification 071-1:2022.
- e) The summation system shall process the data from feeder metering system to provide following parameters:
  - i) Cumulative Summated active energy import total
  - ii) Cumulative Summated active energy export total
  - iii) Cumulative Summated active energy import fundamental
  - iv) Cumulative Summated active energy export fundamental
  - v) Cumulative Summated reactive energy lag while active import
  - vi) Cumulative Summated reactive energy lead while active import
  - vii) Cumulative Summated reactive energy lag while active export





- viii) Cumulative Summated reactive energy lead while active export
  - ix) Cumulative Summated apparent energy (while active import)
  - x) Cumulative Summated apparent energy (while active export)
  - xi) Cumulative Summated apparent demand (while active import)
  - xii) Cumulative Summated apparent demand (while active export)
- f) The Summation system shall calculate the concurrent apparent demand from the incremental active and reactive energy readings of feeder metering system. The maximum demand of the system shall be the maximum of average demands each over a demand integration period of fifteen (15) minutes, over a period of month. Facilities shall be provided for demand calculation using both Block method and Sliding Window method.
- g) It shall be possible to have a common MD reset operation, which shall be performed in the summation system. During this common MD reset operation, MD of all the feeder metering system and summation system shall get reset concurrently. Thus, all feeder metering system and summation system shall remain synchronized to each other. Further, it shall not be possible to perform individual MD reset operation in feeder metering system.
- h) Maximum Demand Reset: Following provisions shall be available for MD reset function
- i) Auto billing at predefined date and time
  - ii) Manual via MD reset button
  - iii) Authenticated transaction through suitable high-level software/ MRI
- i) Summation metering system shall have capability to detect and notify whether each feeder metering system is functioning healthy or not. It shall also detect the auxiliary power supply presence and other tampering events. Such events shall be recorded in an event log.
- j) Operating power supply for the summation system shall be from auxiliary power supply (60-240 V AC) from the feeder metering system with sufficient redundancy measures. The manufacturer shall indicate the source of the auxiliary power supply with details.
- k) The summation metering system shall have a built-in calendar and clock, having an accuracy of five minute per year or better. The calendar and clock shall be correctly set at the manufacturer's works. An automatic backup for continued operation of the calendar-clock shall be provided through a long-life battery/ies, which shall be capable of supplying the required power for at least two years under meter un-powered conditions.
- l) A real time clock (as master clock) shall be available for summation metering system for time synchronizing purposes. Full details of real time clock and time setting procedure shall be provided with the offer.
- m) The summation system shall have TOD registers for active energy import and export, apparent energy import and export and apparent MD import and export. Minimum four time of day registers can be defined. It shall be possible to program number of TOD registers and TOD timings through suitable high-level software/ MRI as an authenticated transaction.
- n) Display shall be available (with backlight) to view summated parameters similar to that used in energy meters prescribed above. Necessary means shall be provided for moving forward/backward from one display to the other via soft keypad. It should be possible to easily identify the single or multiple displayed parameters through legends on the metering system display.
- o) The summation system shall display on demand the parameters (in addition to the parameters displayed in feeder metering system) as per Annex A:
- p) Summation system shall have a non-volatile memory in which the following shall be



automatically stored for each successive 15-minute integration period block:

- i) Summated active power (import)
  - ii) Summated active power (export)
  - iii) Summated reactive power (import)
  - iv) Summated reactive power (export)
  - v) Summated apparent power (while active import)
  - vi) Summated apparent power (while active export)
- q) 15-minute average of above parameters shall be available for last forty-five (45) days minimum. There shall be a facility in the meter to select average/ maximum/ minimum/instantaneous of the values to be recorded in Load Profile.  
It shall be possible to select either energy or demand view at Base Computer Software (BCS) end. The load survey data should be available in the form of charts as well as in spreadsheets. The BCS shall have the facility to give complete time synchronized load survey data both in numeric and graphic form.
- r) Billing parameters: The predefined date and time for registering the billing parameters of shall be 00.00 hours of the first day of each calendar (billing) month. The summation system shall store following parameters corresponding to defined bill dates for up to last 12 months:
- i) Summated active energy import total
  - ii) Summated active energy export total
  - iii) Summated apparent energy (while active import)
  - iv) Summated apparent energy (while active export)
  - v) Concurrent Maximum Demand Apparent (while active import)
  - vi) Concurrent Maximum Demand Apparent (while active export)
- s) Remote communication of summation metering system shall be in accordance with the clause 5.1.3. of the specification - Programmable Static Energy Meter - CT/VT connected of accuracy 0.2s for active energy, specified in CEB Specification 071-1:2022 (or latest)

## 5.2. Enclosure for Summation Metering System

- a) All the equipment related to summation metering system and ancillary equipment shall be housed in an indoor steel enclosure. Offered enclosure shall be suitable to accommodate necessary hardware related to two feeders.
- b) The enclosure shall be in IP 43 category as per IEC 60529 (minimum). It shall be completed with all necessary internal wiring (including communication wiring), terminal plates, cable glands for cable entry, wiring trunkings for small wiring and multi core cables. Wiring trunkings shall be of adequate sizes for accommodating incoming and outgoing cables as required.
- c) Manufacturer shall provide all the details regarding dimensions, auxiliary equipment, enclosure wiring, earthing, lighting, painting and other relevant accessories with the offer. Manufacturer shall get the prior approval from CEB for the enclosure including all related features and equipment.
- d) The door shall have a handle lock and sealing arrangement. Hinged door with glass windows will be provided at the front of the panel for viewing the display of all the energy meters. It will also have a handle lock and sealing arrangement.
- e) The enclosure shall have facility to connect earth wires enclosure earthing purposes.
- f) Terminal blocks shall be designed to withstand rated current required which shall be conform with the CT and VT cable sizes.





- g) All internal wiring (preferably with copper wires) shall be approved by CEB. Details on internal wiring shall be provided with the offer.

## 6.0 REQUIREMENTS FOR SELECTION

### 6.1. Quality Assurance

The manufacturer shall possess ISO 9001:2015 or latest Quality Assurance Certification for the design, manufacture and testing Programmable Static Energy Meters/Summation Units. The certificate shall be valid throughout the delivery period of this bid. In the event the meters are manufactured in a plant under the license of the manufacturer, the manufacturing plant shall possess ISO 9001:2015 or latest Quality Assurance Certificate for manufacturing and testing of Programmable Static Energy Meters. The Bidder shall furnish a copy of the ISO certificate certified as true copy of the original by the manufacturer, along with the offer

Each meter to be tested and calibrated at a meter testing laboratory having ISO/IEC: 17025:2005 and properly sealed with security synthetic seal with identification number. Test reports shall be dispatched to the purchaser before inspection.

The proof documents with regard to the accreditation to the above facility in accordance with ISO/IEC 17025:2015 shall be submitted along with the bid.

### 6.2. Manufacturing Experience

The manufacturer shall have minimum of 10 years' experience in manufacturing Programmable Static Energy Meters conforming the IEC 62053-21. The manufacturer shall have supplied Programmable Static Energy Meters to minimum of 10 Electricity Authorities/Utilities out of which at least 5 are from outside the country of manufacture during last 7 years.

The manufacturer shall furnish a list of Authorities/Utilities to whom meters were supplied during the past 7 years, indicating their names, addresses and contact details clearly. The purchaser reserves the right to communicate with Electricity supply authorities/utilities to whom meters have been supplied with regard to the performance of the meters.

If the manufacturer has supplied similar items to CEB for the last 5 years with proven sales records; without any adverse performance records, he/she such manufacturers will be exempted from above requirements.

### 6.3. Type Tests

The (following) Type Test Certificates conforming to the above referred standards or any other international standard which is not less stringent, issued by an accredited independent testing laboratory acceptable to the CEB shall be furnished with the offer. Type Test Certificates shall clearly indicate the relevant standard, items concerned, showing the manufacturers identity, type No. /catalogue No. and basic technical parameters. In case if the submitted type tests are according to any other international standard which is not less stringent than the specified, then the copy of the used standard in English shall be submitted with offer.

Proof of accreditation and accreditation scope by a national/ international authority shall be forwarded with the offer. Test certificates shall be complete including all the pages as issued by the testing authority. Type test certificates shall be in English language. Parts of test certificates shall not be acceptable.



The following type test certificates conforming to IEC 62052-11 in case of all energy meters shall be furnished with the offer.

- a) Test of electrical requirements.
  - i) Test of Power consumption.
  - ii) Test of influence of supply voltage.
  - iii) Test of influence of short-time over current.
  - iv) Test of influence of self-heating.
  - v) Test of influence of heating.
  - vi) Test of insulating properties.
  - vii) Impulse voltage test

In addition certificates of impulse test done for 10 kV peak has to be submitted.

- b) Test for electromagnetic compatibility (EMC).
  - i) Radio interference measurements.
  - ii) Fast transient burst test.
  - iii) Test of immunity to electromagnetic HF fields.
  - iv) Test of immunity to electrostatic discharges.

- c) Test of climate influences.

- i) Dry heat test.
- ii) Cold test.
- iii) Damp heat cycle test.
- iv) Solar radiation test.

- d) Tests of mechanical requirements.

- i) Vibration test.
- ii) Shock test.
- iii) Spring hammer test.
- iv) Tests of protection against penetration of dust and water.
- v) Test of resistance to heat and fire.

- e) Test of Accuracy Requirement.

- i) Test of influence quantities.
- ii) Test of no load condition.
- iii) Test of starting condition.
- iv) Test of meter constant.

For additional electronic equipment EMC compliance as per IEC 61000-4-30 shall be provided.

## 7.0 INFORMATION TO BE FURNISHED WITH THE OFFER

The following shall be furnished with the offer.

- (a) Technical details in English clearly identifying the offered items, but not limited to:

- (i) The Comprehensive catalogues,
- (ii) The dimensional drawings,
- (iii) Schematic diagrams,





- (iv) Calculations, graphs and tables
  - (v) Literature describing the operational features
  - (vi) Name plate drawing to scale, incorporating the particulars called for in clause 10.2
  - (vii) Constructional & mounting details with electrical clearances
  - (viii) A copy of the manual of the software.
  - (ix) Materials used for components & relevant literature and electrical properties and mechanical properties
- (b) ISO 9001:2015 or latest Quality Assurance Certificate in accordance with clause 6.1.
- (c) Manufacturer shall furnish a list of supplies with supplied item, purchaser (specifying address contact persons and contact details, country), year & quantity to prove his manufacturing experience and outside the country sales in accordance with Clause 6.2.
- (d) Type Test Certificates in accordance with the clause 6.3.
- (e) Duly filled and signed 'Annex - B: Schedule of Technical Requirements and Guaranteed Technical Particulars'.
- (f) Other relevant Technical Details, protection operating curves and Calculations.
- (g) Certificate of compliance to DLMS issued by DLMS association
- (h) Certificate for service life as per clause 8.1

**Not furnishing above documents and details may result in offer being rejected.**



## **8.0 PERFORMANCE GUARANTEES AND WARRANTY**

### **8.1. Certificate of Service Life**

"Ofgem" certification or other equivalent certification issued by an independent electricity regulating institution certifying a minimum service life shall be provided with the offer.

### **8.2. Warranty**

Manufacturer shall provide 5 year warranty to CEB for the meters and accessories from the date of FOB dispatch of the meters to CEB stores. Manufacturer should forward the duly signed Warranty Certificate together with the letter of acceptance of the award. The format of the Warranty Certificate is given in Annex C.

When the meters become defective within first two years of warranty they shall be replaced free of charge. The meters become defective after two years during the warranty period shall be repaired or replaced free of charge.

CEB shall not remove the meter cover for any purpose such that CEB has the right to claim under warranty in the event of any defect in the meter. Manufacturer shall honor the conditions in the warranty certificate accordingly.

## **9.0 SAMPLES**

One sample of meter with manufacturer's seals, all accessories for remote communication (if requested in the price schedule) and copy of the meter reading software with meter reading cable shall be handed over to the Purchaser along with the offer. The software provided with the sample shall have the full functionality in order to facilitate evaluation of the product.

The sample of the successful Bidder will be retained and the samples of the unsuccessful bidders will be returned once the award is made.

## 10.0 PACKING AND LABELING/MARKING

### 10.1. Packing

Each meter shall be individually packed in a Cardboard Box using bubble wrapping to prevent damage due to rough handling and about 25 meters shall be packed in cardboard boxes. Each packing shall indicate the Type (CT or CT/VT), Rating and Serial Nos. of the meters.

Technical Literature in English language on the installation, calibration and maintenance shall be supplied with each set of meters and they shall be descriptive and self-explanatory, complete with necessary connection diagrams and drawings.

The final packing requirements for the overall consignment are given in bid document.

### 10.2. Identification and Labeling/Marking

The meter shall be marked indelibly, legibly and in a weatherproof and abrasion proof manner as follows:

- (a) Words "Property of CEB" with a mark "Warranty 5 Y" shall be marked on the nameplate.
- (b) A serial number (which will be indicated at the time of placing the order)
- (c) Ratings: voltage  $U_0/U$  ( $U_m$ )/ current / size / capacity
- (d) Diagram of connections (This diagram shall also show the sequence for which the meter is intended, preferably inside the meter terminal cover)
- (e) Standard adopted
- (f) Product type
- (g) year of manufacture, manufacturer's name or trade mark, warranty period
- (h) Any other markings stipulated in clause 5.12 of IEC 62052-11

## 11.0 INSPECTION AND TESTING

### 11.1. Routine Test

The Routine Test Certificates conforming to the relevant standards (depending on the choice of the applicable standards) shall be furnished for the observation of the Engineer appointed by CEB at the time of inspection.

In addition, the routine test certificates shall be sent with the shipment of cables. Routine tests carried out for all meters and each consignment of meters shall accompany one set of routine test results recorded in tabular form. If the test results are recorded in separate sheets all such sheets pertaining to each consignment shall be bound together as one volume.

### 11.2. Inspection

The Successful bidder shall make necessary arrangements for inspection by an Engineer appointed by the CEB and also to carry out in his presence necessary Acceptance tests on procured item and material without any additional cost. Acceptance test reports shall be a part of the shipping document. CEB may waive off the inspection either with the condition of witnessing the acceptance tests by an independent body acceptable to CEB or completely. In such a situation a notice of waive off will be issued in advance to the supplier.



### 11.3. Acceptance Test

visual inspection, dimensional checks, sample tests specified in the relevant standards, selected type tests and the routine tests conducted for the selected sample in addition to the complete routine test reports shall form the acceptance test report.

Additionally, following test as per IEC 62058-11 and IEC 62058-31 shall be witnessed by the representative of the Purchaser.

- a) Test of insulation properties.
  - i. A.C. Voltage Test.
- b) Tests of Accuracy requirements.
  - i. Test of Meter Constant.
  - ii. Test of Starting condition.
  - iii. Test of No load condition.
  - iv. Limits of error due to variation of current.
  - v. Limits of error due to influence quantities (Voltage variation, voltage unbalance, harmonics in voltage and current, external magnetic fields).
- c) Verification of accuracy of energy/demand readings of the summation system

### 12.0 ANNEXES

- Annex A - Display Parameters of the Summation Metering System
- Annex B - Schedule of Technical Particulars -To be Filled by the Manufacturer
- Annex C - Warranty Certificate for Energy Metres offered.
- Annex D - Non - Compliance Schedule.





Display Parameters of the Summation Metering System

1. Display Test
2. Current Time
3. Current Date
4. Cumulative Total Active Import Energy
5. Cumulative Active Import Energy (Rate 1)
6. Cumulative Active Import Energy (Rate 2)
7. Cumulative Active Import Energy (Rate 3)
8. Cumulative Total Active Export Energy
9. Cumulative Active Export Energy (Rate 1)
10. Cumulative Active Export Energy (Rate 2)
11. Cumulative Active Export Energy (Rate 3)
12. Maximum Demand (MD)
13. MD Occurrence Date and Time
14. History 1: Cumulative Total Active Import Energy
15. History 1: Cumulative Active Import Energy (Rate 1)
16. History 1: Cumulative Active Import Energy (Rate 2)
17. History 1: Cumulative Active Import Energy (Rate 3)
18. History 1: Maximum Demand (MD) Import
19. History 1: MD Import Occurrence Date and Time
20. History 1: Cumulative Total Active Export Energy
21. History 1: Cumulative Active Export Energy (Rate 1)
22. History 1: Cumulative Active Export Energy (Rate 2)
23. History 1: Cumulative Active Export Energy (Rate 3)
24. Last MD Reset Date and Time
25. Second Last MD Reset Date and Time





## Annex- B

**SCHEDULE OF TECHNICAL REQUIREMENTS AND GUARANTEED TECHNICAL PARTICULARS**  
(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer)

		CEB Requirement	Offered
1.	Name of Manufacturer		
2.	Country of manufacture		
3.	Model No./ Catalogue Ref. No.		
	<b><u>FEEDER METERS</u></b>		
4.	Accuracy Class of Meter (Active)		
5.	Accuracy Class of Meter (Reactive)		
6.	Type	(3Ø 4 wire)	
7.	Method of Measurement	3 Watt Meter	
8.	Applicable Standards	As per clause 4.0	
9.	Standard rated Current	5 A	
10.	Rated Maximum Current (Imax)	1.2 times of the rated current	
11.	Reference voltage and operating range	400 V	
12.	Starting Current of Meter	As per clause 5.6 section c) of 071-1:2021	
13.	Limit of errors when operating in the full power factor range		
14.	Reference Temperature and Temperature coefficient		
15.	Insulation Level		
	(a) Power Frequency Withstand voltage for 1 min	4 kV	
	(b) Impulse Voltage at 1.2/50 µsec	10 kV	
16.	Power Losses	As per clause 5.4.1 of 071-1:2021	
17.	Temperature rise as per IEC 62052-11	As per clause 5.4.4 of 071-1:2021	
18.	Type of register		
19.	Meter sampling rate		
20.	Sampling rate for load profile data	30 s or less	
21.	No. of digits in the LCD display	Minimum 7 including a decimal	
22.	Size of numbers in the LCD display	Minimum 8mm high and 4 mm width	
23.	Type of meter and terminal base		
24.	Type of meter cover and terminal cover	As per clauses 5.2.1 & 5.2.3. of 071-1:2021	
25.	Bore size of the terminals and number of screws provided	As per clause 5.2.2 of 071-1:2021	
26.	Degree of Protection (IP Category)	IP 51 (minimum)	
27.	Battery life time of calendar clock battery	10 years (minimum)	
28.	Whether the type test certificates furnished in complete form, from recognized testing authority? indicate the deviations if any	As per clause 6.3 of 071-1:2021	

29.	Whether the meters conforming to the Clause 5.0. ? Indicate the deviations if any	As per clause 5.0 of 071-1:2021	
30.	Whether the display is non-volatile memory type?	Yes	
31.	Memory retention period (months)	12 months	
32.	Whether the Certificate of quality assurance conforming to ISO 9001:2008 or latest furnished?	Yes	
33.	Whether the certificate of ISO/IEC 17025:2005 accreditation certificate furnished	Yes	
34.	Whether the active indicator provided (flashing light)	Yes	
35.	Whether the Blinking LEDs analogues to the watt-hour and var-hour consumption provided	Yes	
36.	Indicate the extra facilities available with the meters. Attach separate sheet		
37.	Whether the Acceptance tests as per clause 11.3 is carried out by the manufacturer as per CEB standard 071-1	Yes	
38.	Whether remote reading of meter is possible via a GSM and GPRS/3G/4G connection	Yes	
39.	Whether the software as per clause 5.0 (f) and clause 5.1.3.3, including relevant manuals, is provided as per CEB standard 071-1	Yes	
40.	Whether the certification provided as per clause 8.1 as per CEB standard 071-1?	Yes	
41.	Whether markings as per clause 10.2 provided as per CEB standard 071-1?	Yes	
42.	Facilities provided by remote operation		
	a) To programme each meter	Yes	
	b) To take the relevant meter reading individually	Yes	
	c) To reset the maximum demand	Yes	
	d) To get an error message when the meter is fully faulty tampering indication etc and the date and time of occurrence of such event	Yes	
	e) To download stored data from meter	Yes	
43.	Type of modem	Dual band GSM modem (900/1800 MHz) GPRS/3G/4G modem	
44.	Maximum speed of modem		
45.	Number of events that modem can send during a main supply failure		
46.	Download data to be stored in a DBMS	Yes	
47.	Tamper proof SIM card holder available	Yes	
48.	Whether all information as per clause 7.0 of CEB standard 071-1 finished with the offer?	Yes	
49.	Guaranteed Life Span of meters, communication modules etc.	10 years minimum	
50.	Warranty for meters and accessories	5 years minimum	
	<b><u>SUMMATION SYSTEM</u></b>		
51.	Whether Summation System is integrated or separately provided?	Integrated or separate	
52.	MD Reset provisions a. Auto b. Manual	As per clause 5.1	

53.	Demand integration period	As per clause 5.1	
54.	Method of concurrent apparent demand/ energy calculation	As per clause 5.1	
55.	Load survey parameters recorded in summation unit	As per clause 5.1	
56.	Billing parameters recorded in summation unit	As per clause 5.1	
57.	Daily Midnight parameters recorded in summation unit	As per clause 5.1	
58.	Communication Capability for a. Local reading On demand Remote reading	As per clause 5.1	
59.	Communication ports	As per clause 5.1	
	<b><u>Enclosure of Summation Metering System</u></b>		
60.	Dimensions of the enclosure		
61.	Ingress Protection Class		
62.	Whether enclosure conforms with clause 5.2?		
63.	State extra features provided with the enclosure, if any?		

.....  
Signature of the Manufacturer and seal

.....  
Date

I/We certify that the above data are true and correct

.....  
Signature of the Bidder and seal

.....  
Date





### Warranty Certificate

General Manager,  
Ceylon Electricity Board,  
50, Sir Chittampalam A Gardiner Mawatha,  
Colombo 2,  
Sri Lanka.

.....(hereinafter called the Manufacturer ) shall make good by repair or, at our option by replacement, defects which, under proper use and in accordance with any instruction issued by us, as appeared in the contract of our supply or manufacture within a period of not more than sixty (60) months after the original FOB dispatch date (When the meters become defective within first two years of warranty they shall be replaced free of charge. The meters become defective after two years during the warranty period shall be repaired or replaced free of charge.) Provided that:-

- a) All meters having Serial Nos. From .....To .....  
Supplied by the Manufacturer for the CEB Tender No ..... is  
Handled, installed and commissioned in a manner as agreed to by the Manufacturer and the Ceylon Electricity Board and operated at the designed normal operating conditions at all times for which it was intended.
- b) We are notified of the alleged defect first coming to the purchaser's notice and within the warranty period.
- c) The defective meter(s) is /are returned promptly to our Agent in Sri Lanka free of charge if we so require and we shall return new or repaired meter(s) free of charge to the original contract delivery point unless otherwise arranged within 03 months period from notification.
- d) Any unauthorized handing; repairs or alteration to the meter(s) shall invalidate this warranty.
- e) If it is found that the meter has been mishandled, neglected and / or modified in any way during the storage period, the warranty in general will become null and void.

The warranty applied only to goods and services carried out by the Manufacturer or with the Manufacturer approval.

Yours faithfully,

.....  
Signature of the Bidder and seal / Date

.....  
Signature of the Manufacturer and seal / Date





### Non-Compliance Schedule

On this schedule the bidder shall provide a list of non-compliances with this specification, documenting the effects that such non-compliance is likely to have on the equipment life and operating characteristics. Each non-compliance shall be referred to the relevant specification clause.

Clause No.	Non-Compliance

.....  
Signature of the Manufacturer

.....  
Date

I/We certify that the above data are true and correct

.....  
Signature of the Bidder and seal

.....  
Date

