ASSAM ELECTRICITY GRID COPORATION LTD.

Request for Proposal

SUPPLY OF PORTABLE ELECTRONIC REFERENCE STANDARD ENERGY METER (ERS METER) FOR TESTING OF HT THREE PHASE ENERGY METERS

SCHEME

"AEGCL OWN SOURCE."

NIT NO. AEGCL/MD/CGM(TCC)/EMTESTINGKIT/2021/02

Chief General Manager (T&C, Comm.)

Regd. Office: 1st Floor, Bijulee Bhawan, Paltan Bazar, Guwahati-781001CIN: U40101AS2003SGC007238
Ph:- 0361-2739520/Fax:-0361-2739513 Web: www.aegcl.co.in

INDEX

ASSAM ELECTRICITY GRID CORPORATION LIMITED
Regd. Office : 1st Floor Bijulee Bhawan, Paltan Bazar, Guwahati-781001
CIN : U40101AS2003SGC007238
Phone No. 0361-2739520/ Fax : 0361-2739513 Web : www.aegcl.co.in

No: AEGCL/MD/CGM(TCC)/EMTESTINGKIT/2021/03 Dt : 10/06/2021

Notice Inviting Tender

A. Basic Details:

1. N.I.T. No: **AEGCL/MD/CGM(TCC)/EMTESTINGKIT/2021/02**
2. Name of Work: **SUPPLY OF PORTABLE ELECTRONIC REFERENCE STANDARD ENERGY METER (ERS METER) FOR TESTING OF HT THREE PHASE ENERGY METERS.**
3. Cost of Bid document: **1000/-**
4. Tender Category: **Supply.**
5. Tender Type: **Online**
6. Earnest Money Deposit (EMD): Rs. 59,970.00
7. Estimated Cost: **Rs. 35,38,238.00 Incl GST**

B. Critical dates and time

Description	Date & Time
Tender document publishing date	12.06.2021 17.00 hrs.
Bid Submission start date and time	14.06.2021 09:00 hrs.
Bid submission end date and time	28.06.2021 17.00 hrs
Technical Bid Opening Date & time	29.06.2021 15.00 hrs

Interested bidders may download the bidding documents from AEGCL's website: www.aegcl.co.in and or e-tender portal assamtenders.gov.in.

10/06/2021

Chief General Manager (T&C, Comm.)
Assam Electricity Grid Corporation Limited.

Memo No: AEGCL/MD/CGM(TCC)/EMTESTINGKIT/2021/03(a) Dated : 10.06.2021

Copy to :

1. P.S. to the Managing Director, AEGCL, Bijulee Bhawan, Paltan Bazar, Ghy-01. For his kind information.
2. The Deputy General Manager (IT), AEGCL, Bijulee Bhawan, Paltan Bazar, Ghy-01. For publication of NIT & Bid Documents in AEGCL official website.
3. The Deputy Manager, PRO, AEGCL,1th Floor, Bijulee Bhawan for publication in news paper.
4. Notice Board.

10/06/2021

Chief General Manager (T&C, Comm.)
Assam Electricity Grid Corporation Limited.

INFORMATION FOR BIDDERS

INFORMATION FOR BIDDERS

1. Introduction of the Tender Enquiry

Bids are invited from experienced, financially sound and reputed Original Equipment Manufacturers for design, manufacture and SUPPLY OF PORTABLE ELECTRONIC REFERENCE STANDARD ENERGY METER (ERS METER) FOR TESTING OF HT THREE PHASE ENERGY METERS FOR T&C WING , AEGCL

2. Name of work: Supply of PORTABLE ELECTRONIC REFERENCE STANDARD ENERGY METER as per relevant IS/IEC/EU standards against SOPD 2019-20.

3. Scope of Work

i. Supply of Portable ERS alongwith all the necessary spares and accessories confirming to relevant IS/IEC/EU and its latest amendments and in strict adherence to the terms and conditions of this bid.
ii. Submission of technical specification (GTP)/Manuals/Test Certificate/Drawings etc.
iii. Inspection, testing at manufacturer's factory by officer(s) deputed from AEGCL for this purpose, if ask for. The inspection call shall be intimated atleast 15 days in advance.
iv. Arrange demonstration of the Portable Electronic Reference Standard Meter at venues mutually agreed with the owner.
v. Site delivery, unloading, loading and handling of the meter test bench upto the delivery location should be the sole responsibility of supplier.

4. Submission of bid:

The bid shall be in two parts, i.e. (i) Techno commercial bid, (ii) Price bid and it should be submitted through the online portal www.assamtenders.gov.in only.

i. Techno-commercial bid

In the techno commercial bid, the bidders are required to submit copies of (i) Documentation fees (i) Earnest money deposit (iii) PAN, (iv) GST registration, (v) Guaranteed technical particulars (vi) Authorization by Manufacturer (vii) Annual Turn Over certified by C.A(Rs 70.0 lakhs average for last 3 yrs.) (viii) Order executing details of similar work. (ix) Type test report (as applicable) (x) Calibration certificate (duly calibrated at NABL accredited laboratory before supply and the date of calibration shall not be older than two months from the date of supply of the kit).

A set of the above documents must be sequentially uploaded for techno-commercial evaluation failing which it will be treated as non-responsive.

ii. Price Bid

The Price Bid shall be the offer price for supply (on FOR basis) and inclusive of all cost. Submission of Price Bid Schedule with all quantities and prices shall befilled up as per annexure provided in the detail bid document. **All quoted rate should be inclusive of GST and all taxes as applicable as per prevailing rate.**

Note :

a) In case of any difference found between the rates in figures and in words, minimum of the two will be considered. If the bidder does not accept the correction of the errors as above, his bid shall be rejected and the amount of bid guarantee/security will be forfeited.

b) The rates quoted shall be inclusive of all taxes, duties, carriage and insurance etc.

c) No separate declaration offering discount on price will be allowed. Offered price in the price schedule will be considered final for evaluation.

d) In the event of any bidder found to be involved in corrupt or fraudulent practices in competing for the bid, AEGCL shall reject the proposal. Even if any such thing is detected after award of contract, the contract will be cancelled forthwith without any notice and the PBG shall be invoked. Moreover, AEGCL shall declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for this bid, or in executing the contract.

e) Bidders shall upload their most competitive rates. It may please be noted that incomplete tenders shall not be accepted.

f) The Techno commercial bid shall be opened on the due date and due time (or on the next working day, in case of holiday) in presence of the bidders or their authorized representatives. Price bids of technically approved bidders will be opened on a separate date after due intimation.

g) Post revision of quoted rates, terms and conditions having direct or indirect impact on the quoted rates shall not be accepted and the offer would be rejected and earnest money shall be forfeited. Withdrawalof offer within the quoted validity period shall not be accepted and in that case earnest money shall be forfeited. Purchaser reserves the right for negotiation of rates, terms and conditions only.

h) Manufacturer authorization in case of an authorized dealer must be inscribed in the tender NIT.

5. Important Timeline

Description	Date & Time
Tender document publishing date	12.06.2021 17.00 hrs.
Bid Submission start date and time	13.06.2021 09:00 hrs.
Bid submission end date and time	22.06.2021 17.00 hrs
Technical Bid Opening Date & time	23.06.2021 15.00 hrs

Date of opening of Price Bids will be intimated subsequently to the Techno-Commercially qualifiedBidders.

6. All queries may be submitted to

The Chief General Manager (TCC)
AEGCL, Ground Floor, Bijulee Bhawan,
Paltan Bazar, Guwahati – 781 001.Email –
cgm.tcc@aegcl.co.in

7. Earnest Money Deposit (EMD):

The Earnest money as stipulated shall be submitted with the **Techno Commercial bid** in the form of**online mode only.** Any tender without earnest money in the form mentioned above, shall be rejected outright.The EMD shall be returned to the bidder(s) whose offer is not accepted within one month from the date of LoA(s) to the selected bidder(s). The EMD to the successful bidder shall be released on submission of Performance Bank Guarantee at the time of execution of the agreement. However, if the return of EMD is delayed for any reason, no interest / penalty shall be payable to the bidder.

8. Performance Guarantee.

The successful bidder shall have to deposit performance security in the form of Bank Guarantee from a scheduled commercial bank of RBI pledged in favour of Assam Electricity Grid Corporation Limited as per prescribed proforma for an amount equivalent to 10% (ten percent) of the awarded value. The BG

shall be furnished to the Chief General Manager (TCC), AEGCL along with acceptance of Letter of Intent (LOI). The validity of the BG shall be for a period of 60 (sixty) months beyond the scheduled date of completion of supply as per supply order with additional one month claim period. If the supplier fails or neglect to perform any of his obligations under the contract, the AEGCL shall have the right to forfeit in full or in part thereof at its absolute discretion the performance security deposit furnished by the supplier. No interest shall be payable on such deposits.

9. Eligibility Criteria and Basic Qualifying Requirements:

9.1. Technical

a) **Manufacturer's Authorization:** The Bidder must be either an OEM(Original Equipment manufacturer) or an authorized dealer/distributor/ representative of manufacture, documentary evidence to this effect shall be furnished by the bidder along with bid. In case, the Bidder is an authorized dealer/distributor, the bidder must submit Form- MA (Manufacturer's Authorization) with the bid (Annexure 1).

b) All the components of the complete from the OEM.

c) The bidder must have **at least 05 (Five) years' experience** of manufacturing, supply of similar instrument or other tool kits in various **state/ central PSU/** reputed private utilities/ Nationalized testing laboratories like CPRI/ERDA in India as on the date of bid opening. Necessary supporting documents have to be furnished along with the bid.

d) Items supplied by bidder must have valid **IS/IEC/ EU** Certification.

e) **The Bidder must confirm the support service or supplying spares of the offered** forat least next 5 years. The bidder must have 24 hours service support facility in India and details of such support facility shall be enclosed with the bid

f) The Bidder shall have suitable qualified personnel to fill positions required for contract implementations. The Bidder shall supply information of the key personnel, design & engineering staff, support staff, field staff giving details of experience

g) The plants manufacturing the items should have details of testing facilities available for conducting, a) The routine tests and b) the acceptance test. The manufacturer's laboratory must also have facilities for stage wise testing of parts during the manufacturing process. The details of these must also be provided in a statement. Facilities available if any for conducting type test also are to be furnished.

h) If any milestone of an existing project of AEGCL is not completed by the bidder in time or if any of the project awarded to the bidder has not been completed in time and if this delay is solely because of the fault of the bidder or for reasons attributable to him/her, the said bidder is barred from participating in any future tender issued by AEGCL till the missing milestone are achieved or the earlier awarded projects are completed.

i) The bidder/manufacturer must have sufficient infrastructure and manpower in India for providing complete and prompt after sales services including calibration of the offered items within reasonable time .The proof in this regard to be enclosed in the offer as per Annexure 3. In case the bidder is an authorized dealer of a foreign supplier, they shall have valid certificate for after sales and service support including calibration facility in India from their respective foreign agency.

j) The bidder shall have to demonstrate the performance of the offered item(s) at mutually agreed venue with the owner. Offered equipment that fails to meet the requirements of the bidding document to the satisfaction of the AEGCL engineers present during field demonstration shall not be accepted.

k) Performance & completion report must be not older than 5 years and type test report 5 years.

l) The undersigned on behalf of AEGCL reserves the right to withdraw the NIT, accept or reject any or all tenders or to split the work among different contractors without assigning any reason thereof and he is not bound to accept lowest value of the tender.

9.2. Financial

a) The Minimum Average Annual Turnover (MAAT) of the bidder for the last 3 (three) financial years shall be at least ₹ **70.00 lakhs** and the annual turnover must be certified by a registered Chartered Accountant. This should be supported by the copy of the income tax return submitted by the firm for the last three years.

b) The bidder shall furnish GST registration certificate, Employee Provident fund etc (wherever applicable).

c) The bidder shall furnish copy of their Pan Card. The card must be in the name of the firm if the bidder is a firm.

d) Formal authority, Registered/Notarized for signing the tender or other documents on behalf of the firm /individual shall be submitted along with the bid. In case of registered company Board's resolution of the company for authorized signatory should be furnished.

e) If the total work in hand against the works of AEGCL, the successor companies ASEB and other agencies exceed more than 3 (three) times the average annual turnover of the bidder, the bid shall be treated as **non-responsive.**

f) Power of attorney should be a registered/ notarized one.

g) Formal authority, Registered/Notarized for signing the tender or other documents on behalf of the firm /individual must be submitted along with the bid. In case of registered company Board's resolution of the company for authorized signatory should be furnished.

h) Notwithstanding anything stated herein above, AEGCL reserves the right to assess the capacity and capability of the bidder to execute the work, should the circumstance warrant such assessment in the overall interest of AEGCL.

10. Bid Capacity:

The Bidders who meet the minimum qualification criteria mentioned against Clause No. 9.1. AEGCL reserves the right to carry out the Bid Capacity assessment of the Bidders and the owner's decision shall be final and binding to the bidder.

11. The Bidder's offer shall include and substantiate its claimed data on qualifying requirements by uploading scanned original copies of valid supporting documents such as detailed below:

a) Original documents defining the constitution or legal status, place of registration, and principal place of business, written power of attorney of the signatory of the Bid to commit the Bidder.

b) Copies of **IS/IEC/EU** certification or any other credentials for the materials offered,

c) Qualifications and experience of key site management and technical personnel proposed for the Contract.

d) Reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years.

e) Evidence of adequacy of working capital for this contract (access to line (s) of credit and availability of other financial resources).

f) Authority to seek references from the Bidder's Bankers

g) Information regarding any litigation, current or during the last· five years, in which the Bidder is involved, the parties concerned, and disputed amount

h) Proposals of work methods and schedule in sufficient detail to demonstrate the adequacy of the bidders' proposals to meet the Employer's Requirements and the completion time.

i) Bidders have to provide a list of projects completed by them in last five years.

j) A detailed list of existing or ongoing supply works with APDCL/AEGCL & APGCL.

k) A detailed list of existing or ongoing supply works with other Central/State Utilities/Reputed Private Utility..

l) A detailed list of supply work completed/under implementation by the bidder in last 5 years need to be submitted alongwith necessary proof of execution and completion of the works.

12. ISO certification: The bidders manufacturing facilities preferably must have ISO certification with latest update.

Documentary evidence to this effect must be submitted with this bid. Any other certification with the bidder shall also be furnished.

13. LITIGATION HISTORY:

Bidders shall submit details of all the litigation, arbitration or other claims, whether pending, threatened, or resolved in the last five years, with the exception of immaterial claims with a cumulative impact of not more than 10 per cent of their total assets. The Employer may disqualify bidders in the event that the total amounts of pending or threatened litigation, arbitration or other claims represent more than 50 per cent of their total assets.

The bidder should not be blacklisted by any utility in India.

14. Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have :

- Made misleading or false representations in the forms, statements and enclosures submitted as a proof of the qualification requirements; and/or
- Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non-performance of the contractor, consistent history of litigation awarded against the Applicant or financial failure due to bankruptcy.
- Notwithstanding anything stated herein under, the purchaser reserves the right to assess the capacity and capability of the bidder to execute the work, should the circumstances warrant such assessment in the overall interest of the purchaser.

15. Evaluation and Award of work:

a) The evaluation of bids will be carried out, first of techno-commercial bid alongwith demonstration of the supply items at mutually agreed venues and thereafter opening the price bid of only those bidders who qualify and meet the technical requirements and successfully demonstrate their sample meters to the satisfaction of AEGCL Engineers.

b) In comparing bids and making awards, the purchaser will consider such factors as compliance with specifications, relative quality and adaptability of suppliers, the technology and process involved in production experience, financial soundness, records of integrity in dealing ability to furnish repair and maintenance services.

c) AEGCL reserves the right not to order/ award the job to the price-wise lowest party if the party during any part of evaluation is found technically or price wise non responsive.

d) AEGCL reserves the right to reject any / all bids without assigning any reasons thereof, the right to accept any bid or part of which is advantageous to AEGCL and to award the contract in single or phased manner to one party or split up amongst different bidders.

e) Information relating to the examination, clarification, evaluation and the comparison of the bids and recommendation for award of contract shall not be disclosed to the bidders or any person not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence AEGCL's processing of bids or award decision may result in the rejection of the bid.

f) Supply shall be started from the date as stated in the work order, failing which order will be cancelled without further correspondence.

g) Work may be allotted to more one or more responsive bidders at L1 rate.

h) In case of any discrepancy found in inspection/testing of the material ordered from this office, the order shall be cancelled.

16. Termination of work order:

Company reserves the right to terminate the work order at any stage in accordance with theCompany's General Condition of Supply and Erection in force.

17. Period of completion:

90 days (Ninety days) from the date of issue of supply order/LoA.

NB: The project being a time bound priority scheme the intending bidder who feel competent enough to complete within the stipulated period should only participate. No extension of work will be granted.

18. Terms of Payment:

18.1. All payment shall be made from the office of the MD, AEGCL. The bills after due verification and passing by the concerned consignee should be placed to the CGM (TCC) for payment. All billing transactions must be in strict adherence with AEGCL payments terms and clause. **Bank Guarantees (BG) submitted along with the bid or to be submitted should be from any branch of nationalized or scheduled Bank of RBI located in Assam**

18.2. Payment shall be released subject to the following conditions:-

i) Supply should be strictly conforming to relevant technical specifications.

ii) Proper submission of bills duly verified by the consignee along with all relevant documents viz., Goods Receipt Note (GRN) issued by the consignee, challan, Bill Passing Journal Voucher, etc. complete in every aspect in strict adherence to transactions in AEGCL system.

iii) The supplier should intimate the undersigned the dispatch of every consignment along with supporting documents for our record.

19. Guarantees and Penalties

a) Liquidated Damages (LD): The proposed work is on top priority of Government of Assam and therefore has to be completed within stipulated/agreed schedule. Any delay beyond that will attract penalty as per Company's General condition of supply and erection.

b) The ERS to be supplied shall be guaranteed individually for a period of 60(sixty) months from date of receipt at the designated locations. In case of detection of any defect in individual equipment or system as a whole, the same shall be replaced by the bidder free of cost within 15 days of intimation by the Company's representative.

c) Warranty from the manufacturer shall be produced along with manufacturer's test certificate for all equipment/ materials covered under Manufacturer's warranty.

20. Inspection:

All the materials to be supplied shall be tested /inspected at manufacturer's works by authorized officer/ Engineers of AEGCL before dispatching them to worksite. The OEM shall intimate the CGM(TCC) sufficiently in advance (at least 15 days) regarding the date of inspection of materials/ equipment at manufacturer's works. The materials shall be dispatched to the respective store only after receipt of dispatch clearance to be issued by the CGM (TCC) after satisfactory testing of the same.

The bidder shall have to submit type test reports of the meters supplied carried out at CPRI/ERDA or other internationally accredited laboratory.

21. Approvals/Clearances:

GTP and all technical aspects of ERS shall be approved by CGM (TCC), AEGCL.

22. Pre-bid meeting:

Prospective bidders are requested to be present in the Pre-bid meeting on the date mentioned in the NIT without fail, so that all kind of queries/ clarifications can be discussed. AEGCL will not accept any complain, request for correction/modification etc. after holding of pre-bid meeting.

23. Termination of contract on Contractor's default

If the Supplier neglect to execute the Works with due diligence and expertise or shall refuse or neglect to comply with any reasonable order given to him, in the Contract by the Purchaser in connection with the works or shall contravene the provisions of the Contract, the owner may give notice in writing to the supplier to make good the failure, neglect or contravention complained of. Should the supplier fail to comply with the notice within thirty (30) days from the date of serving the notice, then and in such case the Owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the supplier, may have neglected to do or if the owner shall think fit, without prejudice to any other right he may have under the Contract to take the work wholly or in part out of the supplier 's hands and re- contract with any other person or persons to complete the works or any part thereof the Owner shall be entitled to retain and apply any balance which may otherwise be due on the Contract by him to the contractor, or such part thereof as may be necessary, to the payment of the cost of executing the said part of the work or of completing the Works as the case may be. If the cost of completing of Works or executing a part thereof as aforesaid shall exceed the balance due to the contractor, the contractor shall pay such excess. Such payment of excess amount shall be independent of the liquidated damages for delay which the contractor shall have to pay if the completion of works' is delayed.

In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of works as defined in clause no.26 of GCSE

Such action by the Owner as aforesaid, the termination of the Contract under this clause shall neither entitle the contractor to reduce the value of the contract Performance Guarantee nor the time thereof. The contract Performance Guarantee shall be valid for the full value and for the full period of the contract including guarantee period.

24. Termination of contract on owners' initiative

The Owner reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled "Contractor's Default." The Owner shall in such an event give fifteen (15) days notice in writing to the Contractor of his decision to do so.

The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and contracts to the extent they are related to the work terminated and terms satisfactory to the Owner, stop all further sub-contracting or purchasing activity related to the work terminated, and assist the Owner in maintenance, protection, and disposition of the Works acquired under the Contract by the Owner.

In the event of such a termination, .the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstances prevalent at the time of termination.

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies the Owner is satisfied that the legal representatives of the individual contractor or of the proprietor of propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract, the Owner shall be entitled to cancel the Contract as to its uncompleted part without being in any way liable to payment of any compensation to the estate of deceased Contractor and/or to surviving partners of the contractor's firm on account of the cancellation of the contract. The decision of the owner that the legal representatives of the deceased contractor or surviving partners of the contractor's firm cannot carry out and complete the contract shall be final and binding on the parties.In the event of such cancellation, the Owner shall not hold the estate of the deceased Contractor and/or the surviving partner of the Contractor's firm liable to damages for not completing the Contract.

25. Frustration of contract

In the event of frustration of the contract of supervening impossibility in items of Section 56 of the Indian Contract Act, parties shall be absolved of their responsibility to perform the balance portion of the contract.

In the event of non-availability or suspension of funds for any reasons whatsoever (except for reason of willful or flagrant breach by the Owner and/or contractor) then the Works under the contract shall be suspended. Furthermore, if the Owner is unable to make satisfactory alternative arrangements for financing to the contractor in accordance with the terms of the Contract within three months of the event, the parties hereto shall be relieved from carrying out further obligations under the Contract treating it as frustration of the Contract. In the event Performance Bank Guarantee, the parties shall mutually discussto arrive at reasonable on all issues including amounts due to either party for the work already done on "Quantum merit" basis which shall be determined by mutual agreement between the parties.

26. Disclaimer:

While the Company will make every endeavor to extend necessary facilitation in expediting the work, the contractor shall be responsible to organize and arrange all necessary inputs right from mobilization activities up to completion of the project. Company will not entertain any failure / delay on such accounts. Also, Company will not be responsible for any compensation, replenishment, damage, theftetc. as may be caused due to negligent working, insufficient coordination with Government / non Government / Local Authority by the contractor and/ or his personnel deputed for work. The contractor shall take necessary insurance coverage under LIC/GIC etc. for his working personnel and the goods in store as well as in transit. The contractor will be deemed to have made him acquainted with the local working conditions at site(s) and fully provide for into the bid submitted.

27. If for any reason the last date of receiving and opening of tender or the date of pre-bid discussion is a declared holiday the next working day will be considered for receiving and opening of bid or pre bid discussion.

28. Terms and conditions, which are not specified, herein above will be governed by the AEGCL's General Conditions of supply and erection in force. AEGCL's General Conditions of supply and erection (GCSE) may be seen in our official website www.aegcl.co.in

AEGCL's General Conditions of supply and erection (GCSE) may be seen in our official website

Chief General Manager (TCC), AEGCL

BILL OF QUANTITIES AND PRICE BIDDINGSCHEDULE

Price Bid Format
(To be filled up by the bidder)

SN	Name of item	Na me of the T&C Wing for destination of item	Rate inclusive of F&I	GST	Total Rate for Door delivery at our T&C inclusive of loading, unloading, forward stacking, Freight & Insurance
			(A)	(B)	(C=A+B)
1	Portable ERS Meter (4 Nos) of ZERA/MTE/or Equivalent	1. Guwahati 2. Silchar 3. Dibrugrah 4. Samaguri			

Signature of the bidder
With Seal, Date, address and contact no.

TECHNICAL SPECIFICATION

TECHINICAL SPECIFICATION FOR 0.05 ACCURACY CLASS ERS TESTING KITS

1. General:

This Specification covers the general and standard requirements, technical data, design, engineering, manufacturing, assembly, inspection and testing at manufacturer's works, supply and delivery at stores of universal portable Electronic Reference Standard meter (ERS) with complete accessories of accuracy class 0.05 for measuring in the range of 1mA to 12 Amps in direct mode and of accuracy class 0.2s from 5mA to 120A at site as well as in Laboratory both for active and reactive energy.

2. Application:

Universal ERS meters shall be suitable for use with phantom load at Meter Lab/ site even at consumer's load and loading conditions for testing of , HT 3 phase 3wire or 4 wire Energy Meters static as well as E/M and shall be capable to measure the system parameters and to verify the accuracy of the energy meters in the laboratory and at site without disconnecting consumer supply.

3. Essential Requirement:

a. The Bidder should be a Manufacturer/ Accredited representative of the equipments and should have at-least 5 years' experience in design and manufacture of such equipment as on the date of opening of Techno Commercial bid. In case of dealers/accredited representative, an authorization Letter for quoting in this tender with mentioned tender no. shall be obtained from original manufacturer and submitted along with this bid

b. The Bidder / OEM must have supplied at least 5 nos. similar or better equipment to the any Govt. NABL accredited laboratory/Govt. utility in India during the preceding 5 financial years & Bidder shall submit satisfactory performance certificate for at least 3 Nos. such equipment showing satisfactory operation for at least two years.

c. The Bidder and OEM both should declare himself that his firm is not ever been black list from any PSU/JV organization with Central Govt. of any state Govt. / Govt. Discom / SEB's / any utility in India. Also bidder and OEM should not acquire any blacklisted firm.

d. The Bidder shall furnish Calibration Certificate of offered equipment. The Calibration certificate shall not older than five years issued by Govt. NABL accredited laboratories / any other National or International recognized laboratories.

e. Documentary proof furnished in support of Qualifying Requirement shall be Original/True certified copy.

f. Bidder shall submit notarized audited financial reports for the last three financial years. Annual Turnover of last three financial years shall not be less than 70 lakhs or equivalent.

g. The Bidder and OEM shall have ISO certification. A valid copy of ISO certificate should be enclosed with the Bid.

h. The Bidder or OEM should have its own service center and trained engineers dedicated for trouble shooting and technical support permanently posted in India. List of Plant and Machinery, tools and tackles to carry out service shall be submitted along with offer. In support of that copy of Annual Maintenance Contract (AMC) of minimum 5 Nos. of similar or better test systems from any govt. power utilities / govt. NABL laboratories shall be submitted.

4. Scope:

- A portable, universal type, light-weight, electronic, precision portable energy meter testing equipment which shall be capable of testing of all types of LT single phase 2 wire, 3 phase 3 wire /4 wire & HT 3 Phase 3 wire/4 wire, whole current static as well as electro mechanical and CT operated static as well as electromechanical energy meters in the range of 1 mA to 12 Amps in direct mode & via split core transformers (current circuits) in the range of 5mA to 120 Amps at lab as well as at site.
- The ERSS must have micro-processor unit with software support suitable for on line testing of all types of energy meters described in above clause at site having memory and capability of communication with the base computer. Computer software should be such that final data be converted for further processing to generate inputs & reports.
- The scope of the ERS meter is not limited to following type of meters but it should be capable of:
- Testing electronic meters/electro mechanical energy meters of any latest version including but not limited to the following types:
  - Ferraris (Induction) Meters with rotating disc.
  - Static Meters with flashing pulse output of LCD/LED.
  - Single Phase Active, Apparent and Reactive energy Meters.
  - Three Phase Active, Apparent and Reactive energy Meters.
  - Performing the following functions:
  - Verification of meter circuit connections using vectorial displays and instantaneous parameters.
  - Harmonic Analysis up to 40th harmonic i.e. the harmonic along with angle for each frequency and time domain with % distortion of each frequency and Total % THD.

The ERSS meters quoted and supplied shall be complete with all parts and accessories which are useful and necessary for its efficient electrical and mechanical safe operation and as such parts are deemed to be within the scope of the supply whether specifically mentioned or not.

5. Climatic Conditions:

The equipment to be supplied against this specification shall be capable of performing and maintaining the required accuracy for satisfactory continuous operation under all tropical conditions as mentioned below.

Sl. No.	Location	In the state
i.	Max. ambient air temperature (Deg. C)	50
ii.	Min. ambient air temperature (Deg. C)	7.5
iii.	Average daily ambient air temperature (Deg. C)	35
iv.	Max. Relative Humidity (%)	74
v.	Max. altitude above mean sea level (m)	1000
vi.	Average Annual rainfall (mm)	925
vii.	Max. wind pressure (kg./sq.m)	200
viii.	Isoceraunic level (days per year)	50
ix.	Seismic level (Horizontal acceleration)	0.3 g.
x.	Average No. of thunderstorms days/years	40
xi.	Average number of rainy days/years	90
xii.	Average number of months/tropical monsoon condition per year	3
xiii.	Noise level	45 dB

6. Standards Applicable:

Unless otherwise Specified elsewhere, the Portable Three Phase Calibrators shall conform to relevant clause of

the following standards in all respects including performance and testing thereof to the following Indian/ international Standards to be read with upto-date and latest amendments / revision thereof. In case certain details are not covered in these specifications other suitable Indian/ International Standard shall be applicable.

IS 15707: Testing, evolution, installation and maintenance of AC Electricity Meters-Code of Practice
IS 12346: Testing equipment for AC Electrical Energy Meters
IEC 60736: Testing equipment for Electrical Energy Meters.
IEC 61010-1:2002 For Isolation Protection

7. Supply System:

Sl. No.	Particulars	For HT application	For LT application
			Three Phase Meter
1	Supply voltage	110V+/-30% (phase to phase) for 3 phase 3 wire and 110V/√3+/- 30% for 4 wire phase to artificial neutral/star point	415V+/-30% (phase to phase) for 3 wire and 415/√3 +/- 30% for four wire.
2	Frequency	40 Hz to 70 Hz	40 Hz to 70Hz
3	Working range.	1 mA to 12 Amp	5 mA to 120 A (minimum)
4	PF range	0 Lag-Unity-0 lead	0 Lag-Unity-0 lead
5	Energy Recorded	Total Energy	Total Energy

- **Power Consumption:**

The apparent power consumption of the ERSS shall not be more than 1 VA in current circuit (with or without CT) and 5 VA in voltage circuit/phase when equipment power with auxiliary power supply. The auxiliary power consumption of the device shall be less than 30 VA.

- **Measurement Ranges**

Test Voltage Range	100 mV to 300 V (Phase to Neutral)
Test Voltage resolution	0.01 V to 0.0001 V (with dynamic decimal point)
Test Voltage Accuracy	0.03 % (30V to 300V)
Test Current range in direct mode	10 mA to 12 A (it should start measure from 1mA) 50 mA to 120 Amp with clamp on CT of 120 A. Test
Current resolution	0.001mA to 0.0001A (with dynamic decimal point)
Test Current accuracy	In direct mode 0.03 % (10mA … 12A) In clamp on CT Mode (120A) < 0.15 % (500mA … 120 A) < 0.3 % (50mA … 500mA)
Phase Angle measurement range	0 to 360 deg.
Power/energy measurement error	0.05% (in direct mode) (10mA to 12A) (Same for Active, Reactive and Apparent) 0.2 % (in clamp on CTs of 120 A) (50mA to 120A)
Power/energy measurement temperature drift	<10 PPM /K (for direct measurement up to 12 A)
Power /energy measurement stability	<100 PPM
Error in phase angle measurement	0.02 deg (in direct mode)
Frequency range	40 to 70 Hz
Resolution	0.01 Hz

- **Display:**

  The ERSS meter shall have inbuilt LCD display with backlit facility. The size of the display should be minimum 6" for displaying the vector diagram and it should be clearly readable and legible. The parameters to be displayed should be selectable though front panel switch. The reference meter shall display the following parameters.

- Phase to Phase voltage and phase to neutral Voltage
  - Equipment will have facility to measure and display active, reactive and apparent power, with sign for each phase.
- Total harmonic distortion.
  - Phase current
- Phase angle between voltage
    - Phase angle between voltage and current
    - Continuous updating of energy as per selected measuring mode during error
    - Testing using scanner or snap switch.
  - Active, Reactive and apparent power of each phase
  - Total Active, Reactive and apparent power
    - Power factor of each phase
      - Total power Factor
  - Frequency
  - Phase Sequence
    - Error in Percentage

Offered equipment shall have facility to view/monitor system parameters during performing the Error testing, Dial testing, Energy Resistor testing, Power (Demand) register testing, operating burden testing and current transformer testing, without interrupting the on-going testing.

- The ERSS shall have the facility to store minimum 500 test results along with following instantaneous parameters. The ERS meter shall have memory to record the test date. The error data up to at least 500 tests, shall be stored in meter memory and give flashing alarm when 90% of memory is used and these can be down loaded to computer using communication cord/pot (RS232) so that print outs of test results can be taken out with compatible software. The test data stored in the memory of the reference meter shall not be lost by roll over mode but after the memory is exhausted it should flash the message on the LCD display or it should have some other arrangement for such indication.
- Results of normal test (results of active energy and reactive energy), a minimum of 10 demand tests.

- Serial No. of meter under test (MUT), connected CT/PT ratio.
- Consumer identification i.e. consumer name & address and account number.
- Meter constant of MUT.
- No. of revolutions/pulses for which test is being carried out.
- Instantaneous voltage & line current of each phase.
- Energy logged/recorded by ERSS during test.
- Test duration in hour, minute and seconds (with time of commencement of test and completion).
- On occupation of all available memory space, ERSS shall display warning message.
- The energy flow direction.
- Total Harmonic Distortion and Harmonic power due to each harmonics.

8. Display resolution:

The Minimum Resolution for various parameters shall be as follows:

1	Voltage with resolution	0.01V to 0.0001 V (with dynamic decimal point)
2	Current with resolution	0.001mA to 0.0001A (with dynamic decimal point)
3	Power Factor with resolution of	0.001
4	Energy Measurement with resolution of (WH/VARH/VAH)	0.001 (minimum)
5	Frequency Measurement with resolution of	0.01 Hz
6	Polarity Connection of system	Indication of correct/error by vector diagram
7	Indication of utilization of the memory	To be provided
8	Instantaneous load (kW/kVAR/kVA)	0.001
9	Percentage error	0.01

9. Accuracy:

The accuracy of the ERSS shall be sufficient in any condition for testing kWH and kVArh parts of the energy meters of class 1 confirming to IS: 13779 or IEC 61036 in case of LT whole current meters class 0.5S and class 0.2 S conforming to IS-14697 or IEC 60687 for LT & HT Tri vector meters. The accuracy class of the ERSS unit shall be 0.05s in direct mode (from 10mA to 12A) and 0.2s with 120 A clamp on CT (from 500mA to 120A) min dia 11 mm for HT/LT consumers under all conditions of testing at site/Lab with either in direct mode or with clamp on CT mode.

10. Measurements Mode:

The ERSS shall have the following measurement modes to test LT & HT, CT operated meters and direct connected (whole current) type meters.

(a) Direct Mode:

The provision shall be made for testing of HT & LT-CT operated Energy meters using phantom load at meter testing lab as well as at site (i.e. on consumer load) without use of clamp on CTs i.e. with direct mode in 1 mA to 12 Amp range. External type measurement circuit/transducer will not be acceptable for field testing purpose

(b) Clamp-On (Split core current transformers) Mode:

Three Clamp-On type split core current transformers (CTs) for 5mA to 120 Amps shall be provided along with equipment to test CT operated energy meters in secondary side without disconnecting them from the circuit.

Above mentioned clamp on CTs shall be compensated for measurement in all four quadrants i.e. for Active, reactive and Apparent mode.

The measuring mode i.e. (a) & (b) above shall be selectable by using keyboard provided on the equipment.

The CTs should not saturate up to 120% of the highest rated current i.e. if 120% of highest rated current i.e. 100 A is applied for 30 minutes. The ERSS meter should not get damaged & after restoration of the normal conditions, it should continue to measure correctly within respective accuracy class.

11. Operating Mode:

- Manual Mode: The equipment shall have facility to test in manual mode using snap switch along with detachable lead as well as inbuilt snap switch to start and stop the test.

- Auto Mode : A scanner shall be provided along with the equipment to test electromechanical meters by sensing the rotor mark and static (electronic) meters by sensing the LED/LCD pulses. The scanner shall be provided with mechanical type fixing arrangement or any other arrangement suitable to test the meter in laboratory as well as at site. Scanner should be able to read correctly even in case of its alignment is deviating up to an angle of 15 degree. Of the axes of optical port.
- The equipment shall have facility to select measuring mode for fundamental or total power/energy for 3 phase 4 wire active, reactive and apparent measurements.

12. Constructional Features and General Requirements:

- Alpha – numeric keyboard for entering consumer particulars, meter make and serial number, meter constant, test revolutions or pulses and operating the equipment software program.
- Scanner/Optical sensor head along with detachable lead to be used to count revolutions of the disc in Ferraris Wheel meters and LED pulses in static meters.
- Snap switch along with detachable lead to be used as an alternative to scanner/sensor head.
- Articulating sensor head clamp to hold the scanner properly in front of the LED output or revolving disc.
- Electronic compensated clamp-on CTs which enable the testing without isolating or interrupting the supply of the consumer. The equipment shall have facility to interchange the clamp on CT without affecting the accuracy. There shall be only one port to connect compensated CTs 120A so that one time only one type of clamp on CT can be connected as per requirement at the time of testing to the equipment to prevent any malfunction due to mistake in CT connection in field.
- Equipment itself shall have handle to carry and for ease of operation.
- Voltage leads with injection type crocodile clips/any other suitable clamping arrangement with insulated leads. External type measurement circuit/transducer will not be acceptable for field testing purpose
- Indication LED/LCD screen or otherwise that ERS is in correct active mode.
- Equipment shall have facility to select measurement mode for fundamental power or total power for 4 wire Active, Reactive & Apparent measurement.
- Equipment shall have facility to select the calculation of apparent power either arithmetic or geometric for individual phases and for summation of all three phases.
- Equipment should have facility to display and store active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should have facility to measure THD
- Display of vector diagram for analysis of mains conditions and meter connections.
- ERSS shall be capable of indication display for the following conditions by vectorial diagram or Instantaneous values or Warning message.
    - Missing Potential
    - Missing current
    - Reverse current if any current is reverse.
    - Phase sequence if forward or reverse.
    - Over current.
    - Over Voltage.
    - Wiring/correct association of voltage and current.
    - Detection of circuit connection faults.
- The ERSS meter shall have two outputs.
    - A test output in the form of frequency on BNC socket for its own calibration.
    - Facility shall be provided in the form of potential free relay contacts to switch on & off the source for carrying out the dial test.
      (General arrangement drawing of Equipment shall be submitted along with bid which indicate the above mention outputs)

- The unit shall be powered either from the measuring circuit or from auxiliary single phase supply & shall not need any battery backup for its operation or data storage. However, the ERS shall be made functional on giving supply of 240 Volts +10% A.C. between phase to neutral for down loading the data to PC etc.
- The ERS meter shall measure and display a comprehensive analysis of three phase system showing instantaneous and integrated values of
- True RMS value for each Voltage and Current Input.
- Measurements of up-to 40th harmonic with display of effective active, reactive and apparent power due to each harmonic and % THD.
- Measurements of up-to 40th harmonic with display of phase currents, voltages amplitude in % w.r.t fundamental due to each harmonic and % THD.
- It should be possible to input external CT and PT ratios, i.e. measured parameters will be then shown as Primary values.
- The choice for following visual display to give a graphical analysis of the system under test shall be provided.
- Vectorial display of system parameters.
- Waveform display of voltage & current.
- Frequency spectrum display i.e. bar graph.
- Auto range of Current and Voltage inputs shall be provided.
- The ERS meter shall display the error (s) of the meter under test automatically.
- The ERS meter shall have a facility of a built in interface to an external printer.
- The ERS meter shall be packed in an ergonomically and aesthetically designed instrument case which can withstand the usual handling of field personnel and normal transportation.
- All the cords/connectors/accessories supplied along with the instrument must conform to IEC-1010 and the international standards of safety. Adequate built in features to protect the instrument itself from over-voltage shall be provided.
- The ERS meter shall have ASCII or similar support i.e. provision for converting data into ASCII or other popular and commonly available computer software programmes such that the data can be integrated with the Meter management system of the utility for ensuring error test record an periodical meter testing.

- Latest state of art technology for obtaining sustained accuracy, flawless, long, lasting service. It should be rugged enough to undergo handling in field conditions while being carried from place to place. It should therefore be convenient to carry and immune to vibrations or shocks due to transportation or handling. It should also be immune to external electrical and magnetic fields.
- The reference meter should also ensure:
  - Personal safety against electrical shock.
  - Personal safety against effect of excessive temperature.
  - Protection against spreading of fire.
  - Protection against fraud etc.
  - All parts vulnerable to corrosion should be given protective coating, which should not be liable to damage or lost due to normal handling.
  - Should be of low weight compact and of small size.
  - Protection against penetration of solid objects dust and water (degree of protection shall be IP-40).

13. Name Plate Data and Marking:

The equipment will exhibit the Nameplate (Metallic or any suitable material) at the appropriate place. Sr. No. of the equipment along with date of manufacturing as well as other technical details shall invariably be mentioned on the equipment as well as on the Hand bag.

14. Software:

Each reference meter shall be supplied along with PC software. The software shall be suitable for downloading the test results into compatible PC using serial interface data transfer (RS 232 port). The software shall have facility to generate the test report for individual testing and summary report of all test reports.

The offered software shall have facility to convert all stored test results in ASCII file format or similar non-editable format as required. The offered software shall be user friendly & menu driven. The supplier shall impart necessary training regarding installation and use of the above software.

15. Accessories:

Each universal ERSS reference meter shall be supplied along with the following accessories:

- One common/separate optical sensor (scanning head) for automatic testing, which can be used to sense disc revolutions in electromechanical meters as well as indicating LED in static meters including clamp on device and connection cable and scanning head carriage.
- Mounting arrangement (clamp) for the optical sensor.
- A set of voltage leads with insulated clips. External type measurement circuit / voltage transducer will not be acceptable for field testing purpose.
- Current leads to connect equipment in direct mode. External type measurement circuit / current transducer will not be acceptable for field testing purpose
- Serial communication cord with RS 232 connector to retrieve stored data from the equipment and download the same to a PC.
- Snap switch along with detachable lead as well as in built snap switch.
- Operating Manual in English.
- One adopter set with omega clip.
- One Mains cable.
- One standard calibration report.
- Data download software to read out the module for transfer and presentation of data.
- One set of 3 pieces error compensated Clamp on CT of 120A complete with connection cable for on-line testing. Any other accessories which may be required for complete and successful utilization of the equipment as per this specification shall be supplied.

Carrying Case:

Each Electronic Reference Standard Meter shall be supplied in Aluminum/ engineering plastic carrying case suitable for easy portability, rugged used and to prevent damaged during transit. The Electronic Reference Standard Meter should be immune to vibrations and shocks in normal transportation and handling.

16. Demonstration:

Demonstration of reference meter and PC software shall be given by company representative as and when required by purchaser.

17. Additional Indications:

Provision shall be made for the following additional indications:

- The Energy flow direction.
- Warning for over load beyond the limits specified in the voltage & current circuits.

18. Auxiliary Power Source:

The unit can be powered either from the measuring circuit or from an auxiliary single phase supply. In any case auxiliary power consumption of the device shall be less than 30 VA.

19. Circuit Protection:

Adequate protection fuses should be provide in for current circuits(s).

20. Shock and Vibration Protection:

The equipment must be immune to Vibration and dumping due to transport. Suitable transportation case shall be provided along with the equipment.

21. Test Certificate:

Routine test report, Calibration Certificate & operation manual is to be provided along with each meter. The routine test certificate of the equipment shall be provided along with each equipment and it will be in form of CD (Compact Disc).

22. Accuracy Test Report:

The bidder shall have to submit accuracy test report from CPRI/ERDA/any Govt. NABL or any International accredited laboratory of reference ERSS. The offer without accuracy test report shall not be considered for further evaluation. Also the test report shall not be older than 5 years from the date of tender.

23. Warrantee:

The offered equipment should be guaranteed for performance for a period of 12 Months from the date of commissioning or 18 Months from the date of receipt in stores, whichever date is earlier. The equipment found defective within the above guarantee period shall be repaired/ replaced by the supplier free of cost within one month of receipt of intimation.

24. After Sales Service:

The bidder has to indicate clearly what type after sales service will be provided within guarantee period and outside guarantee period and Address of Sales Service Centre, details of Engineers shall be submitted with offer.

GUARANTEED TECHNICAL PARTICULARS OF PORTABLE THREE PHASE ELECTRONIC REFERENCE STANDARD METER OF ACCURACY 0.05 IN DIRECT MODE AND 0.2s WITH CLAMP ON CTS 120 Amp FOR TESTING OF ENERGY METERS

Sl. No.	Item	Requirements	Remarks
1.	Name & address of Bidder with contact no.	Please specify name	
2.	Essential Requirement	As per Clause No. 2 Technical Requirement	
3.	Accuracy class	Class 0.05 in direct mode (from 10mA to 12A) and 0.2s with 120AClamp on CT (from 500mA to 120A) (split core current transformer) for both active and reactive energy. External type measurement circuit/transducer in voltage/current circuit will not be acceptable for field testing purpose.	
4.	Voltage range	100mV to 300V (Phase to Neutral) (Voltage circuit in-built in the equipment and without using any external measuring circuit/transducer.)	
5.	Current range	10 mA to 12A (it should start measure from 1 mA) 50 mA to 120Amp with clamp on CT of 120 A.	
6.	Measurement Ranges	Test Voltage Range 100mV to 300V (Phase to Neutral) Test Voltage resolution 0.01V to 0.0001 V (with dynamic decimal point) Test Voltage Accuracy 0.03 % (30V to 300V) Test Current range 10 mA to 12A in direct mode (it should start measure from 1mA) 50mA to 120Amp with clamp on CT of 120A Test Current resolution 0.001mA to 0.0001A (with dynamic decimal point) Test Current accuracy In direct mode 0.03 % (10mA … 12A) In clamp on CT Mode <0.15 % (500mA .. 120 A) (120A) < 0.3 % (50mA .. 500mA) Phase Angle measurement range 0 to 360 deg. Power/energy measurement error (Same for active, reactive and apparent measurement) In direct mode 0.05% (10mA to12A) In clamp on CT mode with CTs of 120A. 0.2 % (from 500mA to120A) Power/energy measurement temperature drift <10 PPM /K (for direct measurement up to 12 A) Power /energy measurement stability <100 PPM Error in phase angle measurement 0.02 deg (in direct mode) Frequency range 40 to 70 Hz	

		Resolution 0.01 Hz	
7.	Parameters displayed	• Phase to Phase voltage and phase to neutral Voltage • Equipment will have facility to measure and display active, reactive and apparent power, with sign for each phase. • Total harmonic distortion. • Phase current • Phase angle between voltage • Phase angle between voltage and current • Continuous updating of energy as per selected measuring mode during error testing using scanner or snap switch. • Active, Reactive and apparent power of each phase • Total Active, Reactive and apparent power • Power factor of each phase • Total power Factor • Frequency • Phase Sequence • Error in Percentage Offered equipment shall have facility to view/monitor system parameters during performing the Error testing, Dial testing, Energy Resistor testing, Power (Demand) register testing, operating burden testing and current transformer testing, without interrupting the on-going testing.	
8.	Display resolution	a. Voltage : 0.01V to 0.0001 V (with dynamic decimal point) b. Current : 0.001mA to 0.0001A (with dynamic decimal point) c. Power factor : 0.001 d. Energy : 0.001 e. Inst. Load: 0.001 (kW/kVArh/kVA). f. % error resolution : 0.01	
9.	Connection check	By vectorial diagram or Instantaneous values or Warning message. a. Missing current. b. Missing Potential. c. Reverse current if any current is reverse. d. Accidental connection of both types of measurement modes. e. Phase Association. f. Phase sequence. g. Over voltage. h. Over current.	
10.	Type of display	In built 6.4" LCD Graphical display.	
11.	Interfaces	a. RS232 connector for connecting to the PC b. Scanning head switch to count pulses. c. Remote snap switch to count pulses. d. Potential free relay contacts for dial test.	
12.	Memory	Minimum 500 test results.	
13.	Instantaneous parameters to be logged in memory during each test	a. Date & time stamp. b. S. No. of MUT c. Consumer identification. d. Meter constant of MUT. e. No. of revolution/Pulse for which test is being carried out. f. Instantaneous voltage of each phase. g. Instantaneous line current of each phase. h. Instantaneous frequency. i. Instantaneous power factor of individual phases & total P.F j. Energy logged by equipment (active, reactive & apparent). k. Instantaneous load in kW, kVA & kVAr. l. Test duration.	

		m. Percentage error of kWh, kVArh, kVAh.	
14.	Scanning head	Common for rotor mark & LED/LCD pulses. To sense pulses upto 1000 Hz.	
15.	Snap switch	Snap switch to operate equipment remotely.	
16.	Dial test facility	Relay output for dial test.	
17.	Key Board	16 Key Alphanumeric key pad maximum.	
18.	Accuracy Test Report	The bidder shall have to submit accuracy test report from CPRI/ERDA/any Govt. NABL or any International accredited laboratory of reference ERSS. The offer without accuracy test report shall not be considered for further evaluation. Also the test report shall not be older than 5 years from the date of tender.	

19.	Constructional Features and General Requirements:	• Alpha – numeric keyboard for entering consumer particulars, meter make and serial number, meter constant, test revolutions or pulses and operating the equipment software programme.
		  • Scanner/Optical sensor head along with detachable lead to be used to count revolutions of the disc in Ferraris Wheel meters and LED pulses in static meters
		  • Snap switch along with detachable lead to be used as an alternative to scanner/sensor head.
		  • Articulating sensor head clamp to hold the scanner properly in front of the LED output or revolving disc.
		  • Electronic compensated clamp-on CTs which enable the testing without isolating or interrupting the supply of the consumer. The equipment shall have facility to interchange the clamp on CT without affecting the accuracy. There shall be only one port to connect compensated CTs 120A so that one time only one type of clamp on CT can be connected as per requirement at the time of testing to the equipment to prevent any malfunction due to mistake in CT connection in field.
		• Equipment itself shall have handle to carry and for ease of operation.
		• Voltage leads with injection type crocodile clips/any other suitable clamping arrangement with insulated leads. External type measurement circuit / voltage transducer will not be acceptable for field testing purpose.
		• Indication LED/LCD screen or otherwise that ERS is in correct active mode.
		• Equipment shall have facility to select the calculation of apparent power either arithmetic or geometric for individual phases and for summation of all three phases.
		• Equipment should have facility to display and store active, reactive and apparent powers due to harmonics along with sign (to show the direction of flow of harmonics) and also should have facility to measure THD
		• Display of vector diagram for analysis of mains conditions and meter connections.
		• The equipment shall have facility to select measuring mode for fundamental or total power/energy for 3 phase 4 wire active, reactive and apparent measurements.	

20.	Measurement of Harmonics	Measurements up to 40th harmonic with display of 3 phase currents, 3 phase voltages effective active, reactive and apparent power due to each harmonic and % THD.	
21.	Accessories	Whether all accessories as per clause 15 of the specification are provided? Please furnish details.	

GUARANTEED TECHNICAL PARTICULARS

Guaranteed Technical Specification of Protable Electronic Standard Reference Meter Testing Equipment

Sr. No.	Particulars	Offered
1.	Name & address of Bidder with contact no.	
2.	Name and Address of the Manufacturer	
3.	Model	
4.	Country of origin (Chinese Make Not Allowed)	
5.	Essential Requirement: The offer of those tenderers, who fulfill following criteria, will only be considered: I. The bidder should be original manufacturer/sole authorized dealer/accredited representative of manufacturer of the tendered item. In case of dealers/authorized representative, an authorization Letter for quoting in this tender with mentioned tender no. shall be obtained from original manufacturer and submitted along with thisbid. II. In case the bidder is not an original manufacturer, the operating experience of the bidder shall be more than 5 years for supplying and providing after sales support of similar or better equipment to any Govt. power utilities or Govt. NABL accredited laboratories in India. III. The bidder must have supplied at least 5 Nos. of similar or better Meter Testing equipments during the last three financial years to any Govt. power utilities or Govt. NABL accredited laboratories in India. Necessary purchase order copies shall be submitted along with the bid. IV. Bidder should submit minimum 3 performance certificates of similar or better Meter Test Benches supplied in last 5 yearsand showing satisfactory operation of meter testing benches for at least 2 years at Govt. power utilities in India or Govt. NABL accreditedlaboratories in India. Purchaser has right to directly contact concerned regarding performance of the Meter test benches. V. Bidder shall have ISO 9001 (International Organization for Standardization) certification. A valid copy of ISO certificate should be enclosed in the bid. VI. The bidder shall possess the ISO/IEC 17025:2005(with latest amendments) certificate in India. It shall be enclosed with the bid. Any association with any Laboratory will not be considered. VII. The Bidder should declare that he is not been ever black listed /defaulter by any utility/ ESCOMs/ Distribution Company/ Laboratories/ Any department of State Government or CentreGovernment on record of poor performance such as not properly completing the contract, inordinate delays in supply completion, not supplying the items as per commitment of contract etc. The bid shall be rejected in case of providing false information on blacklisting. The Bidder or its OEM shall not change name or takeover any Blacklisted firm.	

6.	**REFERENCE STANDARD METER:** The class of accuracy of reference standard will be 0.05 for active and reactive ranges, over the entire measurement load range & independent of the measuring mode. Current range of reference standard will be 1 mA... 120 A direct connected and voltage range from 10-500 V (phase - neutral), selectable through PC. Reference standard shall have auto-range selection facility and facility of dial test (power dosing) and RS 232 serial communication port for communicating with PC. It must frequency output proportional to the power to calibrate against better standard. **Technical Data of Reference Standard Meter** **a) Measuring modes** • 3 wire active / reactive mode • 3 wire apparent • 4 wire active / reactive mode • 4 wire apparent **b) Frequency Range** Basic frequency 40... 70 Hz and total detectable frequency range0…3000 Hz **c) Voltage Range** 10 …500 V Phase to Neutral **d) Current Ranges** • 1 mA to 120 Amps. (working range) • 50 mA to 120 Amps. (measurement range) **e) Accuracy** • Voltage : 0.01 % for the range of 30 V to 500 V (P-N) • Current : 0.01 % (50 mA to 120 A)	

	: 0.02 % (10 mA to 50 mA) : 0.05 % (1 mA to 10 mA) • Power / Energy (For active and reactive) : 0.02 % at cos =1 or sin =1 (50mA to 120A) : 0.04 % at cos =0.5 or sin =0.5(50mA to 120A) : 0.04 % for the range of 2 mA to 50 mA atcos =1 or sin =1 The Accuracy will be same for Active and reactive measurement • Phase Angle Accuracy < 0.02 **f) Display :** The RSM will have following display following parameters. – True RMS value of each voltage & current input – Phase angle between voltage / current and defined reference – Power factor of each phase – Active , reactive & apparent power of each phase – Total active , reactive & apparent power – Phase Sequence – Frequency – Integration time The selection facility will be provided to select any parameters out of these parameters. The RSM will have facility to maintain last setting when it is switched off. **g) Integration time** Facility to select integration time between 1 to 99 second will be provided in the RSM. **h) Operation** Membrane key board with membranes push button to operate the RSM will be provided in the front of the RSM **i) Reference Channel** The RSM will have facility to select reference for phase angle measurement. Selection of reference will be provided manually &automatically. **j) Frequency output :** This will provide power proportional to frequency output to calibrate the reference standard against high or lower precision reference standard. This output will be in commonly used BNC type socket. **k) Temperature Coefficient:** Temperature coefficient of the reference meter will be<10 ppm /K. **l) Calibration:** The reference meter shall be provided along with calibration certificate from national/international accredited laboratory.	
7.	**SCANNING HEAD:** a) One photoelectric scanning head for each position suitable for reading the LED pulse output of the meters-under-test shall beprovided.	

	b) Each scanning head should be designed in such a way that the scanning head can be fixed easily in a position which would facilitate accurate and proper testing of the meter-under-test. c) The scanning head should be insensitive to ambient light. It should give optical indication of pulses by LED. d) The scanning head must be able to measure LED pulse output (as per IEC 62052-11, clause 5.11) of frequency up to 1 kHz. An Error Indication Device shall be mounted on each test position. The resolution of error indication shall be 4½ digits with decimal point configurable by software. There shall be provision on the error indication unit to reset the error or to repeat it if something is wrong. The same should have Acknowledgement function while doing testing of starting current and creep tests manually.	
8.	**SOFTWARE:** The operating of the test equipment, the display of the actual values, the processing and display of the test results and the print out of the test results, reports etc. should be effected by the associated Desktop PC (Personal Computer) system complete with licensed Windows based operating system, licensed proprietary software of the meter-testing equipment and a LaserJet printer having minimum specifications as given below to be supplied along with the meter testing system by the successful bidder. The licensed proprietary software of the meter-testing equipment shall be supplied installed on the PC. This software should be Windows based, user- friendly and menu driven, operated with the help of a mouse and keyboard in manual or automatic mode. The manual mode of operation of the licensed proprietary software of the meter-testing equipment shall allow, at least, performance of the following tasks: • Controlling of the source • displaying of test parameters (actual values) on PC screen • displaying the wave form of output voltage and current and harmonics analysis • Performance of the accuracy tests The automatic mode of operation licensed proprietary software of the meter testing equipment should have different modules to prepare meter test sequence so as to carry out the testing in fully automatic mode. These modules shall be designed in such a way that user can prepare the test sequence very easily. The licensed proprietary software of the meter-testing equipment shall allow, at least, performance of the following tasks: • User interface to operate the system • Easy to prepare test-tables by using " drag & drop" concept • Supervision and control of the test procedure • Supervision and display of the test current and voltage • Indication of the errors of the meters- under- test • Evaluation of the test results and generation of test reports • Manual testing and automatic testing facility • Facility to define test parameters in terms of percentage and absolute	

	terms • Facility to define error limit in two levels • Facility to protect the system from over voltage in manual mode and automatic mode • Facility to check meters for short circuit and open circuit conditions prior to starting of the testing in fully automatic mode for each sequence • Facility to interrupt the testing and restart it again • Password facility for administrator and operator with different levels • Print out facility of test-reports with desired header • Facility to take back-up of data • Software shall have facility for display of different output voltages and currents. • Facility to display the curve of test voltage and current in presence of harmonics. • Individual phase voltage • Individual phase current • Phase angle and power factor of symmetrical or asymmetrical star system • Total Power Factor • Individual phase power (Active , Reactive and Apparent) • Total Power (Active , Reactive and Apparent) • Frequency • Phase Sequence • Measurement mode • Vectorial display	

Bidder Seal & Signature.

ANNEXURE AND PROFORMA

PROFORMA OF BANK GUARANTEE FOR EARNEST MONEY

(To be stamped in accordance with Stamp Act)

The non-Judicial stamp paper should be in the name of issuing bank

Appendix 4 - Form of Performance Security

Bank Guarantee

(To be stamped in accordance with Stamp Act)

(The non-Judicial Stamp Paper should be in the name of issuing Bank)

Bank's Name:
Address of Issuing Branch or Office:
Email id and phone no for correspondence:
Beneficiary: Managing Director, AEGCL
Name and Address of Purchaser
Bid Security No.:

*WHEREAS*_____ *[name and address of Contractor]* (hereinafter called "the Contractor") has undertaken, in pursuance of LoA No. _____ dated _____ to execute _____ *[name of Contract and brief description of Works]* (hereinafter called "the Contract");

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized/scheduled bank for the sum specified therein as security for compliance with its obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible *to* you, on behalf of the Contractor, up to a total of _____ *[amount of Guarantee]* _____ *[in words],* such sum being payable in the currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ *[amount of Guarantee]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

BG expiry date:
BG clam date:

Bank's seal and authorized signature(s)

NOTE

1. All italicized text is for use in preparing this form and shall be deleted from the final document. An amount is to be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract.
2. This guarantee shall be valid upto 30 days beyond the Warranty Period as per the Contract.
3. For BG amount equal to or more than 50,000.00, BG should be signed by two bank officers to be valid.
4. ***Address of the banker with email and phone number for correspondence with banker should be clearly mentioned. Any correspondence related to the BG with the banker shall be made to the address mentioned in the BG***

ANNEXURE 1

Manufacturer's Authorization

[The bidder , in pursuant to Evaluation and Qualification Criteria shall require the manufacture to fill in this form in accordance with the instructions indicated . This letter of authorization should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. Please refer to notes at bottom]

[Manufacturer's Letterhead]

Date : **[insert date (as day, month and year) of Bid Submission]**

Bid No.**:[insert number of bidding process**]

To: [**Insert: full name of Purchaser]**

We [insert : **name of Manufacturer**]who are established and reputable manufactures of [insert: **name and/or description of the Goods**] having production facilities at [insert: **address of factory**] do hereby authorize [insert: **name& address of Bidder**] (hereinafter , the "Bidder")to submit a bid the purpose of which is to provide the following goods,manufactured by us,and to subsequently negotiate and sign the Contract:

A. ----------

B. ----------

C. ----------

We hereby extend our full guarantee and warranty in accordance with qualification criteria of the Special Conditions of Contract, for the above specified Goods supporting the Supply of specified Goods and fulfilling the Related Services by the Bidder against this Bidding Documents ,and duly authorize said Bidder to act on our behalf in fulfilling these guarantee and warranty obligations . Further ,we also hereby declare that we and , [insert **name of the Bidder**] have entered into a formal relationship in which , during the duration of the Contract(**including related services and warranty /defects liability**) we , the Manufacturer or Producer ,will make our technical and engineering staff available to the technical and engineering staff of the successful Bidder to assist that Bidder , on a reasonable and best effort basis, in the performance of all its obligations to the Purchaser under the Contract.

For and on behalf of the Manufacturer.Signed :
Date:

In the capacity of [insert: **title of position or other appropriate designation]** (**and this should besigned by a person having the power of attorney to legally bind the manufacturer**).

Date:……..

Place……..

(signature)……

(Printed Name)……

(Designation)……

(Common Seal)……..

……

Notes:

1) The letter of Undertaking should be on the letterhead of the Manufacturer and shall by a person competent and having **Power of Attorney to sign on behalf of the Manufacturer(**to be attached with this MA) to legally bind the Manufacturer**. It shall be included by the bidder in its bid.**
2) **Above undertaking shall be registered or notarized.**