

**Centre for Renewable Energy and Materials, University of Kerala  
Kariavattom Campus, Thiruvananthapuram – 695581, Kerala.**

**TENDER NO- RNE/PURCHASE/BTE/01/23**

Dated: -10-02-2023

**E-Tender Notice**

Quotations are invited for purchasing Battery testing system + Electrochemical workstation and accessories with following specification by the Centre for Renewable Energy and Materials, University of Kerala.

Start Date and time for submission of tender online	10.02.2023 : 5pm
Last date and time for submission of tender online	25.02.2023 : 5pm
Last date and time for submission of tender offline	27-02-2023 :10 am
Date and time of opening of tender	27-02-2023 : 11 am
Cost of tender document	Rs: 2124/-
Validity of tender	120 days
Completion/delivery period	60 days
Hard copies of the sealed tenders to be submitted to the office of	<b>The Hon. Director, Centre for Renewable Energy and Materials University of Kerala, Kariavattom Campus, Thiruvananthapuram - 695581</b>
For technical details contact	The Hon. Director, Centre for Renewable Energy and Materials, University of Kerala, Thiruvananthapuram, Ph. No. 8547067230 e-mail: smashibli@yahoo.com

## BATTERY TESTING SYSTEM + ELECTROCHEMICAL WORKSTATION AND ACCESSORIES

### Specifications of battery testing system + electrochemical workstation (Quantity: 1 No.)

- (1) Multi-channel electrochemical battery test system with 8 (or more) independent channels
- (2) At least the following electrochemical tests should be possible with
  - (a) At least two channels of the battery test system (i.e., these channels should work additionally as electrochemical workstation)  
(OR)
  - (b) one or more extra channels (in addition to eight sole battery test channels) working as the electrochemical workstation  
(OR)
  - (c) an additionally provided electrochemical workstation as a separate unit
- (Potentiostatic / Galvanostatic) LSV, CV, DPV, NPV, SCV, SWV, Chronoamperometry, Chronopotentiometry, Stripping analyses, Chronocoulometry, Mott-Schottky plots, Corrosion studies,
- AC voltammetry, Potentiostatic / Galvanostatic Impedance
- (3) Connection to PC using USB / LAN / Ethernet.
- (4) Battery tester current output:  $\pm 5\mu\text{A}$ -30mA or better in at least three ranges
- (5) Battery tester current accuracy:  $\pm 0.2\%$  of FS or better
- (6) Battery tester Min discharge voltage: 1.0V or lower
- (7) Battery tester CV output range:  $\pm 25\text{mV} \sim \pm 5\text{V}$  or better
- (8) Battery tester voltage accuracy:  $\pm 0.2\%$  or better
- (9) Workstation electrode connections: 4; WE, CE, RE, S and GND
- (10) Workstation current ranges:  $\pm 5\text{nA}$  to  $\pm 100\text{mA}$  or better in multiple ranges.
- (11) Workstation current accuracy: 0.2% or better
- (12) Measured potential range:  $\pm 5\text{V}$  or more in multiple ranges
- (13) Workstation potential accuracy: 0.2% or better
- (14) Workstation current compliance:  $\pm 100\text{ mA}$  or higher
- (15) Workstation compliance voltage:  $\pm 10\text{V}$  or higher
- (16) Impedance Frequency range: 10 $\mu\text{Hz}$  to 100kHz or better (in case high frequency is only 100kHz, it should be upgradable to at least 1MHz)
- (17) AC amplitude: 0.5 mV to 200 mV or better
- (18) Input impedance:  $>1\text{T}\Omega$
- (19) External signal input: 1 or 2 Analog input per channel,  $\pm 10\text{V}$ , 16bit resolution
- (20) Full software to support Electrochemical and battery testing techniques
- (21) Simulation and fitting software for impedance techniques with Graphical Equivalent Circuit Editor
- (22) Software should have the facility to show more than one graph in a single window
- (23) Free life time up gradation of the software
- (24) Minimum three years onsite warranty should be provided for both battery testing system and electrochemical workstation.

### Specifications of accessories:

- (1) Desktop for data collection from electrochemical workstation and battery test system – Intel core i5 processor, Windows 10 or 11 operating system, 16 GB RAM, LED display, Mouse, and Keyboard
- (2) Electrochemical cell stands with Teflon cap and purging tube – 1 No's
- (3) Glassy carbon Working electrode (diameter - 3mm) – 1 No's
- (4) Ag/AgCl reference electrode – 1 No's
- (5) Pt wire Counter Electrode (Specifications: Purity of Pt: > 99.95% • Overall length: 80 mm, including Pt wire (37 mm), Diameter of Pt wire: 1.0 mm
- (6) Coin cell parts 2032 – 50 sets
- (7) Suitable coin cell holders with cables should be provided for all channels.

### **General Conditions:**

1. The tender shall be submitted in the two bids viz. Technical Bid and Financial Bid. Only those qualified in technical bid will be eligible for participating in financial bid. A presentation regarding the technical specification and item to be supplied shall be done before the technical evaluation committee if requested. Price split up should be added in financial cover details.
2. The bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender as per Manufacturer Authorization Form and Indian agents of foreign principals, if any, who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the "Technical Specification".
3. The price should be inclusive of all taxes, duties, transportation, insurance, installation etc. Nothing extra will be paid in addition to the quoted rate. Any amount in Indian rupees for installation, commission, labour, service etc shall be entered in BoQ.
4. The make and a printed literature of the product shall submit positively.
5. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof.
6. **Compliance Statement:** Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures. **Vendors should provide clear brochures/data sheets about the software and its working. Also include adequate proof for the claim regarding the performance.**
7. **Reference:** Names of Institutes with contact person and telephone/email where similar equipment supplied by you in India [Preferably South India] shall be mentioned in the statement.
8. **Payment Terms:** after the supply installation and commissioning of the equipment.
9. **Validity of tender:** Tender submitted shall remain valid at least for 120 days from the date of opening the tender. Validity beyond 120 days, from the date of opening of the tender shall be by mutual consent.

10. **Delivery and installation:** Proposed delivery schedule should be mentioned clearly. Delivery and installation and training should be made for the Centre for Renewable Energy and Materials University of Kerala, Kariavattom Campus, Thiruvananthapuram without extra cost. University of Kerala will provide customs duty exemption certificates if required.
11. **Service facility:** Supplier should mention their details of service setup and manpower in Thiruvananthapuram who are responsible for after sales support.
12. The quoted item should be under **comprehensive warranty for 3 years.**
13. The undersigned reserves the right to reject any or all of the tenders received without assigning any reason thereof.

For any queries please contact: The Hon. Director, Centre for Renewable Energy and Materials, University of Kerala, Thiruvananthapuram, Ph. No. 8547067230

e-mail: smashibli@yahoo.com

**Documents to be Uploaded**

1. Signed Compliance Matrix
2. Detailed Technical Brochure
3. Under taking of support for warranty period.
4. BoQ
5. DD/Hard copy of Bank Guarantee if opted

**The Hon. Director,**

**Centre for Renewable Energy and Materials,**

**University of Kerala, Kariavattom Campus,**

**Thiruvananthapuram, Kerala, India – 695581.**