



राष्ट्रीय प्रौद्योगिकी संस्थान मणिपुर
NATIONAL INSTITUTE OF TECHNOLOGY MANIPUR

Imphal, Manipur, Ph.(0385) 2058566 / 2445812

E-mail : director@nitmanipur.ac.in , Website : www.nitmanipur.ac.in

An Autonomous Institute under Ministry of Education, Govt. of India.

No. NITM/(7-Proj/Herojit/SERB-CRG/2022/ 470

Imphal, the 18th May, 2022

NOTICE INVITING TENDER FOR SUPPLY OF ELECTROCHEMICAL WORKSTATION.

National Institute of Technology Manipur invites sealed Tender/Quotations from reputed Firms/Agencies/Manufacturer/Authorized Dealer **FOR SUPPLY OF ELECTROCHEMICAL WORKSTATION AT NIT MANIPUR** in two-bids systems i.e, Technical bid and Financial bid.

The sealed Tender/Quotations should reach to **"The Registrar (i/c), National Institute of Technology Manipur"** on or **before 3.00 p.m. of 08/06/2022**. Incomplete or those received without Tender Fee, EMD, and after due date and time shall be summarily rejected.

National Institute of Technology Manipur reserves the right to extend the date, or cancel the tender, accept or reject any/all quotations or not to purchase all or any of the items without assigning any reason thereof. The EMD of successful/unsuccessful tenderers shall be returned without interest. Tender will be opened on **09/06/2022 at 1:00 p.m.** in the presence of the tenderers or their representatives, if they so desire, at NIT Manipur. The complete Tender document and terms & conditions are available in the institute web site <http://www.nitmanipur.ac.in> & **eProcurement**. Detail specification of the item/items is given in **Annexure-I**.

Note: Any addendum/corrigendum/notifications will be published in the Institute website: www.nitmanipur.ac.in.

Sl.	Details	Date	Time
1	Notification of Tender	18/05/2022	1:00 P.M.
2	Last date for submission /deposit of Tender	08/06/2022	3:00 P.M.
3	Opening of Technical Bid	09/06/2022	1:00 P.M.
4	Opening of Financial Bid	09/06/2022	2:00 P.M.

(Dr. Th. David Singh)
Registrar (i/c), NIT Manipur

SPECIFICATION FOR THE ELECTROCHEMICAL WORKSTATION

A compact size expandable potentiostat / galvanostat is required that could be hand-carried across different labs as and when required. The specifications should be as follow:

Technical Specifications

- Compliance voltage: Standard ± 16 V or better at ± 8 A current
Note: Adjustable compliance voltage configurations should be mentioned separately
- Maximum Output Current: ± 8 A or better at ± 16 V.
- Output Voltage Range: ± 10 V or better
- Maximum scan rate: 800V/s with 25 mV steps – Required
- Measured current accuracy: 0.0005% of current range without unchanging compliance voltage
- Built-in Current Integrator: We require to separate faradaic current from capacitive current and also directly measure integrated charge in real-time rather than current
- Built-in Electromagnetic Noise filter: The system hardware must have internal third order Sallen-key filters for removing background noise that cannot be removed by simple measures such as faraday cage
- Measured Potential Resolution: 4 μ V or lesser
- Potentiostat Rise/fall Time: < 400 ns or lower
- Interface: USB interface for connection with PC.
- Input bias current: < 2 pA
- Bandwidth of electrometer: > 2 MHz
- Input impedance of electrometer: > 90 GOhm or better

Electrochemical Impedance Spectroscopy: Qt. 1

- Applied Frequency Resolution: 0.005%
- At 1 Hz frequency, impedance of 0.01 Ω must be determined with 0.3° Phase accuracy & 0.3 % measured impedance accuracy. i.e – Measured impedance = 0.01 \pm 0.00003 Ω - Required
- Frequency Range with External Waveform generator: 10 μ Hz to 7 MHz
- Frequency Range with PSTAT/GSTAT: 10 μ Hz to 1 MHz at a maximum current of ± 8 A currents
- Required – Real time fit-simulation, live lissejous plots, live 3D plotting.
- Preferred Option in near future – An Advanced EIS software that selects equivalent circuit by itself and allows touch free fitting and simulation

The system must have capability for hybrid measurements such as E-SPR, S-ECM, Spectro-electrochemistry, IMPS-IMVS, EQCM, etc. It should have TTL triggering, ADC, DAC based communication ports.

Electrochemical Cell Accessory: A 50 mL total volume three electrode set-up is required with following features:

- Gas tight construction with flangeless fittings (PEEK)
- A combination of chemically inert and organic solvent resistive materials including (i) PEEK: lid, electrode plugs and gas fittings, (ii) glass: chamber and RE body, (iii) FFKM O-Rings (iv) FEP tubing and (v) Epoxy resin: WE electrode body.
- 2 mm GC electrode, Ag/AgCl aqueous and non-aqueous electrode, platinum wire counter Electrode; Gas purging facility

Software

The system software must have capability for hybrid measurements such as Spectro-electrochemistry, E-SPR, SECM, IMPS-IMVS, EQCM, etc. It should have TTL triggering, ADC, DAC based communication ports. The Software must be able to be downloaded to unlimited computers, free updates & fully windows based. Software should be capable of supporting a wide variety of electrochemical techniques as mentioned below:

Corrosion: Linear polarization with Tafel Slope Analysis, Polarization resistance evaluation, Electrochemical Noise analysis, critical pitting technique, **electrochemical frequency modulation**, hydrogen permeation analysis etc.

R. Harjit Singh

Battery & Supercapacitor Analysis: Rectangular CV analysis at varying scan rates for pseudo capacitor analysis, complete charge and discharge with built in integration and 'linkable' cut-offs, Galvanostatic charge discharge with cycle number vs specific capacitance plot, Voltage measurement on counter electrode, GITT, PITT, etc.

Solar Cell / Fuel Cell Studies: Linear polarization, I-V plotting with automatic determination for max power point & fill factor, IMPS-IMVS evaluation, EQE / IPCE Analysis, Charge extraction, Photo-current response, Mott-Schottky plots for single frequency scan, automated band-gap analysis, etc.

Electro-catalysis / Electro-deposition: ORR analysis using RDE/RRDE at varying rotation speeds and built-in Kotecky-levich plot generation, HER and OER Tafel based analysis for water splitting, Carbon dioxide reduction analysis, default plug-n-play protocol for spectro-electrochemistry based LSV, CV and Chrono evaluation, Galvanostatic CV and Chrono, ASV, DPSV, etc.

Trace Metal Analysis / Polarography: DPSV, ASV, Chrono Coulometry, etc.

Sensors: Automated one-click protocol for CV and LSV analysis at varying scan rates, fully automated single click amperometric detection protocol, EIS measurement with real-time equivalent circuit fit option, etc.

3D Based Live Plotting: Powerful graphic engine with useful features such as vector graphics, individual axis scaling, overlays, multiple Y-axes, plot addition, real-time 3D with zooming and rotation. Minimum 10+ plot could be plotted simultaneously.

Warranty: 1 year + 2 years AMC free or 3 Years Manufacturer's Warranty Certificate

Note: Vendor should be an authorized provider of sophisticated high-precision potentiostat/galvanostat systems for past 15 Years or more with a

- A proven track record in multiple countries and national institutes
- Standard quality certifications such (ISO 9001)
- 10+ past installations of similar systems in India in past two years.

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Instruction to Bidders

1. The tenderers are required to submit Earnest Money Deposit of Rs. **25,000/- (Rupees twenty five thousand) only** which is refundable and a non-refundable tender fee of **Rs. 500/- (Rupees five hundred) Only** in the form of Demand Draft/Banker's Cheque in favour of Director, NIT Manipur payable at State Bank of India, Secretariat Branch, Imphal should be submitted along with the Tender documents. Tenders without EMD and Tender Fee will be rejected. EMD shall be exempted for MSME.
2. Offer in the financial bid should be written in English and price should be written both in figures and words. The offer should be typed or written in ink pen or ball pen. Use of pencil will be ignored. The relevant supporting documents as required must be enclosed.
3. Tenders should be submitted in two parts. (i) Part – I (Technical Bid) & (ii) Part – II (Financial Bid). Envelope of Part – I should be superscripted as **“Technical Bid for supply of Electrochemical Workstation”** and Envelope of part – II should be superscripted as **“Financial Bid for Supply of Electrochemical Workstation”**
4. Envelope of technical bid & financial bid should be individually sealed and placed in third envelope to be sealed and **superscribed** as **“TENDER FOR SUPPLY OF ELECTROCHEMICAL WORKSTATION”** along with Advt. No. in bold letters at the top of the envelope should reach to **The Registrar (i/c), National Institute of Technology Manipur** on or before **3.00 p.m. of 08/06/2022**. Incomplete or those received without Tender Fee, EMD and after due date and time shall be summarily rejected. National Institute of Technology Manipur reserves the right to extend the date, or cancel the tender, accept or reject any/all quotations or not to purchase all or any of the items without assigning any reason thereof.
5. No tender will be entertained by E-mail or FAX.
6. **Tender documents will be opened on 09/06/2022 at 1:00 PM** in the Conference Hall of the Institute in the presence of the tenderer(s) or their authorized representative(s), who are present at the scheduled date and time.
7. In the event of the due date of receipt and opening of the tender being declared as a holiday for the Institute, then due date of receipt / opening of the tender will be the next working day at the same time.
8. The tenderers are requested to read the tender document carefully and ensure to comply with all the instructions herein. Non-compliance of the instructions contained in this document may disqualify the tenderer from the tendering exercise.
9. Payment shall be made only after receipt of the materials/articles in good and working conditions as per specifications and after satisfactory installation and commissioning of the equipments/machinery/accessories.
10. Delivery should be made within 30 (thirty) days from the date of issue of purchase order.

Sd/-
Registrar (i/c), NIT Manipur



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ANNEXURE - II

TECHNICAL BID (PRE-QUALIFYING REQUIREMENT)

SUPPLY OF ELECTROCHEMICAL WORKSTATION

1	Name of the Firms/Agencies/Manufacturer/Authorized Dealer	
2	Registered Office address Telephone Number Fax Number e-mail	
3	Correspondence/contact address	
4	Details of Contact Person (Name, designation, address etc.) Telephone Number (including Mobile No) Fax Number, e-mail	
5	Is the firm a registered company? If yes, submit documentary Proof. Year and Place of the establishment of the company	
6	Former name of the Company, if any.	
7	Is the firm *Government/ Public Sector Undertaking *Propriety firm *Partnership firm (if yes, give partnership deed) *Limited company or limited corporation *Member of a group of companies(if yes, give name and address and description of other companies) * Subsidiary of a large corporation (if yes give the name and address of the partner organization) If the company is subsidiary, state what is the involvement of the parent company in the project.	
8	GST Certificate of the firm	
9	Is the firm registered under Labour Laws Contract Act? If yes, submit valid registration certificate.	
10	Attach the organizational chart showing the structure of the organization. Total number of employees	
11	Details of EMD Fee in favor of Director, NIT Manipur (Attach copy of proof)	EMD Fee: Rs.
11	Latest Income Tax Clearance Certificate	
12	Are you registered with any Government/ Department/ Public Sector Undertaking as Small Scale Industry (if yes, give details)	



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ANNEXURE - III

Item	Quantity	Technical Details	Amount (Rs)
Electrochemical Workstation	1 (one)	As specified in Annexure - I	
		GST.....%	
		Total Amount	

(Rupees in words.....)