

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A & 2B, Raja S.C.Mullick Road, Jadavpur, Kolkata-700032**

Tender Notice No. PSU/SM/14/24 dated 10.06.2014

Sealed tender in two bids system (technical bid and price bid) is invited from bonafied resourceful and eligible manufacturer/exclusive distributor/vendors for **Electrochemical Workstation**.

Part-I (Technical Bid) of the tender should contain technical specifications in details as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price as mentioned in the technical bid. The technical bid and price bid are to be submitted separately sealed envelopes distinctly marked accordingly and both to be put inside another envelop, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach the office of **Polymer Science Unit, Indian Association for the Cultivation of Science (IACS), 2A and 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

Tender Notice No.	PSU/SM/14/24 dated 10.06.2014
Last date and time of submitting tender	07/07/2014 at 12.00 Noon
Pre-bid meeting to discuss technical specification	27.06.2014 at 12.30 P.M.
Date and time of opening tender	7/07/2014 at 03.00 PM
Place of opening tender	In the office of Dr .S. Malik , IACS
Contact	e-mail: psusm2@iacs.res.in Tel. +91-33-24734971 (Extn. 1564)

The **technical bids** will be opened first to judge/evaluate the technical specifications of the said instrument thereafter the **price bids** of only technically qualified bidders will be opened

Technical Bid Evaluation: The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as '**TECHNICAL BID**' on the outer cover of the envelope as already detailed above.

Electrochemical Workstation along with accessories. (Technical specifications)

I. General specifications

i) Electrochemical Workstation:

Electrochemical Workstation with Potentiostat/Galvanostat should be suitable for general purpose electrochemical measurements, kinetic with Corrosion, Impedance, Fuel cell, Battery Charge/Discharge studies. It should have following specific capabilities:

- Cyclic Voltammetry (CV)
- Linear Sweep Voltammetry (LSV) with stripping
- Differential pulse voltammetry with Stripping
- Tafel Plot (TAFEL) potentiodynamic deactivation, pitting corrosion, corrosion rate, linear Polarisation, Corrosion current etc.
- Chrono Amperometry (CA)
- Chrono Coulometry (CC)
- Bulk Electrolysis with Coulometry (BE)
- AC Impedance (IMP)
- Impedance – Time (IMPT) (Mott-Scottsky)
- Impedance – Potential (IMPE)
- Chrono Potentiometry (CP)
- Chronopotentiometry with Current Ramp (CPCR)
- Multi-Current Steps (ISTEP)
- Potentiometric Stripping Analysis (PSA)
- Open Circuit Potential – Time (OCPT)
- Galvanostat
- Galvanostatic charge/Discharge with single or multiple cycle
- Voltage vs current density curves
- Limited version of CV simulator
- Impedance Simulator with fitting
- IR Compensation
- External Potential Input

Auxiliary Signal Measurement Channel

AC Impedance Plots with Simulation

- Bode : $\log Z$ vs $\log(\text{freq})$
- Bode : Phase , vs $\log(\text{freq})$
- Bode : $\log Z''$ & Z' vs $\log(\text{freq})$
- Bode : $\log Y$ vs $\log(\text{freq})$
- Nyquist ; Z'' vs Z'
- Admittance; Y'' vs Y'
- Warburg: Z'' & Z' vs $\omega^{1/2}$ ω -angular frequency
- Z' vs $\omega Z''$
- Z' vs Z''/ω

Cot (phase) vs ω

ii) Software:

Window based suitable software with complete control of Electrochemical Workstation

iii) Electrode: Pt working electrode: 1No

GC Working Electrode: -2No

Ag/AgCl reference (aq): 2 No

Ag/AgCl reference (Non aq): 2 No

Pt wire counter electrode : 1 No

Electrode polishing kit : 1No

iv) Potentiostat_ Parameters

2- or 3 or 4 electrode configuration

Maximum potential: ± 10 V

Maximum current: ± 2 A

Compliance Voltage: ± 13 V

Potentiostat rise time: $< 1 \mu\text{s}$, $0.8 \mu\text{s}$ typical

Applied potential resolution: 0.0015% of potential range

Applied potential accuracy: ± 1 mV, $\pm 0.01\%$ of scale

Measured current resolution: 0.0015% of current range, minimum 0.3 fA

Input bias current: < 20 pA

v) Galvanostat_ Parameter

Galvanostat applied current range: 3 nA - 2A

Applied current resolution: 0.03% of applied current range

Measured potential resolution: 0.0015% of measured range

vi) Electrometer_ Parameters

Reference electrode input impedance: 1×10^{12} ohm

Reference electrode input bandwidth: 10 MHz

Reference electrode input bias current: ≤ 10 pA @ 25°C

vii) Experimental Parameters

CV and LSV scan rate: 0.000001 to 10,000 V/s
Potential increment during scan: 0.1 mV @ 1,000 V/s

CA and CC pulse width: 0.0001 to 1000 sec
CA and CC minimum sample interval: 1 μ s
DPV pulse width: 0.001 to 10 sec
IMP frequency: 0.00001 to 1 MHz
IMP amplitude: 0.00001 V to 0.7 V rms

viii) Optional

The system may be upgradable to Bipotentiostat
System may have provision to use in photoelectrochemistry in future

ix) Warranty : 2 years (Minimum)

Please SUBMIT ITEMIZED QUOTES with separate pricing for each accessory.

Technical compliance chart should be provided following format*

Sr.No.	Tender specification	Your offered instrument specification	Extent of compliance
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Tender will not be accepted if the technical compliance chart is not provided following the above format.

User List: The supplier should provide a list of current users (with contact no. Email address etc) for the quoted item in India.

Service facility: Trained technicians should install the instrument and ensure that it is operating correctly and within specifications. User training at site should also be provided. Supplier should mention their details of service setup that are responsible for after sales support.

2. PRICE BID

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should kept in a separate sealed envelope duly super scribed as '**PRICE BID**' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of opening at their e-mail Ids. Rest of the bidders will stand rejected.

PRICE: Price to be quoted on CIF Kolkata basis.

3. BID SECURITY:

1. An Account payee Demand Draft/Pay Order for Rs. **20,000/-** (Rupees twenty thousand only) drawn in favour of “**Indian Association for the Cultivation of Science**” is to be furnished by the bidders except those who are registered with the Central Purchase Organizations, National Small Industries Corporation or the concerned Ministry or Department, as Bid Security money or Earnest Money Deposit (EMD).
2. The Demand Draft for the Bid-Security should have at least 90 (ninety) days validity period of opening of the bids.
3. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

4.PERFORMANCE SECURITY:

An Account Payee Demand Draft of 10% of the order value in the name of “**Indian Association for the Cultivation of Science**” is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money will be refunded to successful bidder on receipt of the Performance security money.

GENERAL INSTRUCTIONS

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening the tender shall be by mutual consent.
2. The tender should accompany a compliance chart.
3. The rate should be inclusive of all taxes, transportation etc. Nothing will be paid in addition to the quoted rate.
4. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
5. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally to visit the website (www.iacs.res.in/tender) for any amendment.
6. **Payments:** 100% against delivery and successful installation or in advance subject to submission of performance guarantee.
7. **Warranty:** Minimum 2 years with 1 year AMC (after completion of warranty) along with original manufacture date declaration by the original manufacturer of the specific instrument.
8. **Installation/Demonstration/Application training** at site: Free of cost by the supplier.

9. **Service facility:** In Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should be within 24 hrs.
10. The model number, make and a printed literature of the product shall submit positively.
11. Proposed delivery schedule should be mentioned clearly.
12. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations.
13. Authorised dealership certificate should provide in case of principal manufacturing company is not quoting directly.
14. Guarantee certificate, users manuals etc. Are to be handed over to the user after successful commissioning of the system.
15. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
16. In case of any dispute, the decision of IACS authority shall be final and bidding on the bidders.
17. For any clarification regarding technical specifications, information etc., please send your queries to Dr. S. Malik (E-mail: psusm2@iacs.res.in).
18. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

REGISTRAR