

**INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE  
2A & 2B. Raja S.C.Mullick Road  
Jadavpur, Kolkata 700 032**

**Tender Notice No.: PSU/AKN/SB/SI/OC-11/2013/14/58 dated 02.12.2014**

**Sub: Electrochemical Analyzer/workstation**

Sealed tender in two bids system (**Technical Bid & Price bid**) is invited from bonafide, resourceful and eligible manufacturers/exclusive distributors of "**Electrochemical Analyzer/workstation**".

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

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

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| <b>Tender Notice Number</b>                                | <b>PSU/AKN/SB/SI/OC-11/2013/14/58 dated 02.12.2014</b> |
| <b>Last date and time of submitting tender</b>             | <b>24<sup>th</sup> December, 2014 at 12.30 P.M.</b>    |
| <b>Pre bid meeting to discuss technical specifications</b> | <b>9<sup>th</sup> December, 2014 at 4.00 P.M.</b>      |
| <b>Date and time of opening tender</b>                     | <b>24<sup>th</sup> December, 2014 at 3.30 P.M.</b>     |
| <b>Place of Opening Tender</b>                             | <b>at JC Bose Meeting Room</b>                         |
| <b>Contact</b>   | <b>psuakn@iacs.res.in</b>                              |

The technical bids will be opened first to evaluate the technical specifications of the equipment thereafter, the Price bids of only technically qualified bidders will be opened. The date of opening the Price Bids will be intimated to the short-listed bidders at their contact addresses. The rest of the bids will be rejected.

**A). TECHNICAL BID:**

**Electrochemical Analyzer/workstation**

**Potentiostat**

- 2- or 3 or 4 electrode configuration
- Maximum potential:  $\pm 10$  V
- Maximum current:  $\pm 250$  mA continuous,  $\pm 350$  mA peak

- Compliance Voltage:  $\pm 13$  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:  $\pm 1$  mV,  $\pm 0.01\%$  of scale
- Measured current resolution: 0.0015% of current range, minimum 0.3 fA
- Input bias current:  $< 20$  pA

### Galvanostat

- Galvanostat applied current range: 3 nA -  $\pm 250$  mA
- Applied current resolution: 0.03% of applied current range
- Measured potential resolution: 0.0015% of measured range

### Electrometer

- Reference electrode input impedance:  $1 \times 10^{12}$  ohm
- Reference electrode input bandwidth: 10 MHz
- Reference electrode input bias current:  $\leq 10$  pA @  $25^\circ\text{C}$

### Waveform Generation and Data Acquisition

- Fast waveform update: 10 MHz @ 16-bit
- Fast data acquisition: dual channel 16-bit ADC, 1,000,000 samples/sec simultaneously

### 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:  $1 \mu\text{s}$
- 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

### Other Features

- Automatic and manual iR compensation
- Digital input/output lines programmable through macro command
- Flash memory for quick software update
- Serial port or USB selectable for data communication
- Cell control: purge, stir, knock
- CV simulation and fitting program, user-defined mechanisms
- Impedance simulation and fitting program
- Maximum data length: 256K-16384K selectable

## Techniques

- Cyclic Voltammetry (CV)
- Linear Sweep Voltammetry (LSV)
- Chrono Amperometry (CA)
- Chrono Coulometry (CC)
- Bulk Electrolysis with Coulometry (BE)
- Open Circuit Potential – Time (OCPT)
- Limited version of CV simulator
- IR Compensation
- External Potential Input
- Auxiliary Signal Measurement Channel

## Photovoltaic studies

Software provision for measurement of I-V measurements, I max, Pmax, Fill factor etc

## Electrode:

- 4 glass cells
- one cell top
- Pt Working Electrode-1No
- Ag/AgCl Reference (aq) – 1No
- Pt Wire Counter Electrode -1No

Warranty: 1 year

## Optional Items

- The system should be upgradable to Impedance spectroscopy and battery charge- discharge system in future.
- System should have provision to use in Spectroelectrochemistry in future
- Latest computer compatible with instrument software

**System configuration: I3 Processor, 4GB RAM,1TB Hard Drive,19” LED Monitor, DVD Writer ,Keyboard & Mouse & speaker**

## **B) PRICE BID:**

1. Price Bid: The price bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly superscribed as "PRICE BID" on the outer cover of the envelope as already detailed above. The price bids of only technically qualified bidders will be opened and they will be intimated the date and time of opening of price bids at their email id-(s). Rest of the bids will stand rejected.

2. Price: Price to be quoted both on FOB/EX-WORKS/CIF basis for foreign currency or in Indian currency. Name of the particular port from where our authorized forwarder will lift the consignment must be mentioned clearly with FOB price.

### 3. Bid Security (EMD):

An Account Payee Demand Draft of Rs. 8,000/- (Rupees eight thousand only) in the name of "Indian Association for the Cultivation of Science" is to be furnished by the bidders, as Bid Security money or Earnest Money Deposit (EMD).

4. The Demand Draft for the Bid-Security money should have at least 45 (forty five) days validity period after the opening of the Bids.

5. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

### 6. Performance Security:

An Account Payee Demand Draft of an amount 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.

### (C) General Instructions:

1. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof. **"Electrochemical Analyzer/workstation"** should clearly be written on the envelope.

2. 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 visit the website ([www.iacs.res.in/tender](http://www.iacs.res.in/tender)) for any amendment.

3. Payment: 100% against delivery and successful installation subject to submission of performance guarantee.

4. Warranty: Minimum 3 years with annual maintenance contract (free of additional charge)

5. Installation/Demonstration /Application Training at site: Free of cost by the supplier

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

7. Service facility: Supplier should mention their details of service setup and Manpower in Kolkata who are responsible for after sales support. Response time should be within 24 hours

8. The tender submitted shall remain valid at least for three months from the date of opening the tender. Validity beyond three months from the date of opening of the tender shall be by mutual consent

9. The tender should accompany a compliance chart. A technical compliance chart should also be provided following the given format:

| Serial Number | Tender Specification | Specification of your offered chemicals | Extent of compliance |
|---------------|----------------------|---|----------------------|
|               |                      |   |                      |

10. The rate should be inclusive of all taxes, transportation etc. Nothing extra will be paid in addition to the quoted rate.

11. The model number, make, and a printed literature of the product shall be submitted positively.

12. Proposed delivery schedule should be mentioned clearly.

13. Manufacturers/exclusive distributors/vendors should have history of supplying this type of instrument to this or other Scientific Organization.

14. Authorized Dealership Certificate is must in case of principal manufacturing company is not quoting directly.

15. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.

16. Incomplete tenders will be summarily rejected

17. For any clarification regarding technical specifications, etc. please send your queries to "**Prof. A.K. Nandy**" <psuakn@iacs.res.in>

18. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of technical bids will be the following working day at the appointed time.

19. **Acceptance of Tender:** IACS authority does not bind itself to accept the lowest tender and reserves the right to reject any or all the tenders received without assigning any reason thereof.

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

**REGISTRAR**