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INDIAN INSTITUTE OF TECHNOLOGY KANPUR
DEPARTMENT OF CIVIL ENGINEERING

Dr. K. V. Harish
Assistant Professor

PO. IIT KANPUR-208016 (UP), INDIA

December 22, 2021

Closing Date: 07.01.2022

Enquiry no. CE/KVH/2021-22/DEC/01

Sealed quotations are invited for the supply and installation of the following equipment along with all relevant accessories.

1. COMPUTER CONTROLLED ELECROCHEMICAL WORKSTATION POTENTIOSTAT/ GALVANOSTAT/CORROSION ANALYZER OR EQUIVALENT (as per specification given in Annexure–I)

Kindly send your offer (original, signed with the name of signing authority) in a sealed envelope as per tender document (Annexure-I), for the above items mentioning the following:

1. Cost of the item (mention cost of each item separately) including installation charges with Technical specifications in detail
2. Cost of the accessories are to be mentioned separately
3. Freight, packing etc. charges
4. Warranty period, Delivery time, Payment terms etc.
5. Educational discount considering usage for teaching and research
6. Propriety Certificate, if applicable
7. Availability of local service support (details with contact number/e-mail).
8. Any other relevant details.

An early reply latest by **January 7, 2022** will be highly appreciated.

Thanking you...

Sincerely

K. V. Harish

I.I.T

INDIAN INSTITUTE OF TECHNOLOGY KANPUR

KALYANPUR, KANPUR-U.P.

208016

TENDER REFERENCE NO. : IITK/CE/STR/2021-22/DEC/01

BID SUBMISSION END DATE- 07.01.2022

TENDER DOCUMENTS

FOR

"PURCHASE OF COMPUTER CONTROLLED ELECROCHEMICAL WORKSTATION POTENTIOSTAT/ GALVANOSTAT/CORROSION ANALYZER OR EQUIVALENT"

INSTRUCTION FOR PROCUREMENT

1. **PREPARATION AND SUBMISSION OF BIDS :**

a. The bidder should submit the bid offline in two parts viz. Technical Bid and Financial Bid. Technical Bid should be in Cover-1 and Financial Bid should be in Cover-2.

2. **SUBMISSION OF THE BID :** All interested eligible bidders are requested to submit their bids offline to ***Dr. K. V. Harish (Assistant Professor), Department of Civil Engineering, IIT Kanpur, U. P. (208016)*** as per the criteria given in these document:

   a. Technical Bid should be in cover-1.

   b. Financial Bid should be in cover-2.

3. **TECHNICAL BID:** Signed and Scanned copies of the Technical bid documents as under must be submitted.

   List of Documents to be send (Under Cover-1) within the period of bid submission:-

   i. Copy of Bank details.

   ii. Copy of work experience.

   iii. Copy of certificate of GST.

   iv. Copy of specifications or brochures (if any).

   v. Copy of other document mentioned in tender document (if any)

   Please note that no indication of the rates/amounts be made in any of the documents submitted with the TC-BID.

4. **Financial Bid**

   a. The currency of all quoted rates shall be in either INR or foreign currency (please mentioned).

   b. In preparing the financial bids, bidders are expected to take into account the requirements and conditions laid down in this Tender document. It should include all costs associated with the Terms of Reference/Scope of Work of the assignment.

   c. The Financial Proposal should be inclusive of all applicable taxes, duties, fees, levies, and other charges imposed under the applicable laws. The rates quoted in the Tender are inclusive of all applicable taxes, duties etc. **except service tax.** The service tax component shall be re-immersible by the department after receipt of paid challans etc. if applicable.

5. **Last Date for Submission of Tender:**

   a. Offline bids complete in all respects, must be submitted on or before the last date and time specified in the schedule of events.

   b. The IIT, Kanpur may, at its own discretion, alter/extend the last date for submission of tenders.

6. **Bid Validity**

   a. All the Bids must be valid for a period of 90 days from the last date of submission of the tender for execution of Contract. However, the quoted rates should be valid for the initial/ extended period of the Contract from the effective date of the Contract. No request will be considered for price revision during the original Contract period.

   b. A bid valid for a shorter period shall be declared as non-responsive.

   c. In exceptional circumstances, prior to expiry of the original time limit, the IIT may request the bidders to extend the period of validity for a specified additional period beyond the original validity of 90 days. The request and the bidders' responses shall be made in writing. The bidders, not agreeing for such extensions will be allowed to withdraw their bids without forfeiture of their Bid Security.

7. **Modification / Substitution/ Withdrawal of bids:**

   a. No Bid shall be modified, substituted or withdrawn by the Bidder after the Bid 's due Date.

   b. Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid's due Date, unless the same has been expressly sought for by the Authority, shall be disregarded.

8. **Rejection of the Bid**: The bid submitted shall become invalid if:-

   a. The bidder is found ineligible.
   b. The bidder does not send all the documents as stipulated in the bid document.

9. **Payment Terms**:

   Payment will be release as per IIT Norms (i.e. 90% against delivery and 10% after successfully installation).

Tender document

Department of Civil Engineering
Indian Institute of Technology Kanpur
Kanpur (UP) 208016 India

Enquiry date: December 22, 2021

Enquiry No: IITK/CE/STR/2021-22/DEC/01

Offline quotations are invited for **COMPUTER CONTROLLED ELECROCHEMICAL WORKSTATION POTENTIOSTAT/ GALVANOSTAT/CORROSION ANALYZER OR EQUIVALENT.**

The detailed specification of the cluster is described below.

Dr. K. V. Harish
Department of Civil Engineering
Indian Institute of Technology Kanpur
Kanpur 208 016, India

Terms and Conditions:

1. The OEM submitting the proposal should be from well recognized company performing well in the last 3 years. It is desirable that at least 3 or more of advertised product should have been installed in other departments or organization or institutes in India. Details and list of these installations must be provided for better clarity.
2. The OEM should have direct support centers in India to provide technical support, advise and experts at the earliest possible if there are any early failures with equipment during its functioning at IIT Kanpur. In short, excellent and quick service during the first two years of purchase is expected.
3. All equipment must be compatible with Indian electrical standards and codes.
4. Engineering documentation on physical sizes and weights of all major and minor components that are felt important for the equipment may be specified/mentioned/submitted if required for clarification purpose.
5. Warranty & Support: Two-year comprehensive on-site warranty is desired. An appropriate cost for AMC for the equipment after two-year of its purchase may be included as a separate item.
6. Quotations must be valid for 90 days.
7. Delivery period will be 12 weeks.

8. IIT Kanpur is fully exempted from payment of GST on Imported Goods against our DSIR certificate.
9. IIT Kanpur is partially exempted from payment of Custom's Duty (We will provide Custom Duty Exemption Certificate, CD applicable is 5.5%).
10. TENDER Specific Manufacturer Authorization Form from OEM is required.
11. The price should be quoted as per node basis. The number of nodes may vary depending on the financial status at the time of ordering.
12. The Institute reserves the right of accepting or rejecting any quotations without assigning any reason thereof.
13. All prices should be *F.O.R.*
14. The information about any part of the main equipment or accessories should be provided by the OEM if required
15. If OEM is contacted during shortlisting process of bid, a demo must be provided at our location if incase requested by IIT Kanpur with no separate cost.
16. The complete installation of equipment must be done by OEM at IIT Kanpur.

Specifications of the COMPUTER CONTROLLED ELECROCHEMICAL WORKSTATION POTENTIOSTAT/ GALVANOSTAT/CORROSION ANALYZER OR EQUIVALENT:

- System should have min 2 channels Chassis to operate simultaneously.
- At least 1 channel should operate Potentiostat /Galvanostat/EIS mode.
- Should work in floating grounded mode when used in field / grounded cells/ auto clave etc

Hardware Specifications

Cell connection/Electrode Configuration: 2, 3, 4 or 5 Terminal Leads (+ ground)
Cell Cable 1.5M long or more
Compliance voltage: ±12V or better
Applied Potential range: ±10V or more
Voltage Resolution: 1μV or better
Max Current: 500mA or more
Current Ranges: Auto and Manual ranging from ±10nA to ±500mA or better
Voltage Accuracy: ±0.03% of setting or better
Current Resolution: 0.0033% of range or better

Current Accuracy: ±0.1% of range or better
Potentiostat Rise/Fall time: <500ns or better
Acquisition speed/ Data Sampling: 1,000,000 samples/second or better
EIS Frequency range: 10μHz-7MHz or more
AC Amplitude EIS: 0.5mV to 2V or more
Bandwidth of electrometer: 8MHz or better
Input Impedance: 1TΩ
Floating Mode and Grounding both should be available
Output to control external accessories like RRDE, Temperature Probe, Temperature and Humidity Chambers, etc. should be available
Calibration: Calibration of potentiostat channel with cables should be available on-site and calibration reports must be printed as on when required.
Interface: Ethernet LAN /USB

Possibility to Record/Measure and control Ewe (potential difference between Working and reference) and Ece (potential difference between Counter and Reference) simultaneously in one experiment and in real time

Software and Electrochemical Techniques :

Galvanostatic Charge / Discharge (Including C rate control) with voltage vs. time Graph plots

Multigraph window capable of displaying up to 50 graphs within a single window
Customize variables graph plot for each axis
Voltage vs. Capacity plot during Charge/Discharge Cycles

Atleast 3 limits and 3 recording conditions per sequence/cycle (ability to limit a cycle or changeover to next sequence with Time, Voltage/Current, Charge/Power all simultaneously)

Multiple recording conditions with "OR" commands
Industrial CC-CV Method (Constant Current – Constant Voltage),

Cyclic Voltammetry, Current Scan (Current/Galvano Dynamic), Voltage Scan (Potentio Dynamic), Constant Power / Constant Resistance

GITT and PITT Techniques Battery Characterization -Polarization Curve measurement/IV Testing/ Linear

Sweep Voltammetry should be available down to 0 Volt.

OCV/OCP, Cyclic Voltammetry, Chrono Amperometry, Chrono Potentiometry, Staircase Voltammetry, Corrossion – Linear and Cyclic Polarization, Pitting Corrossion, ZRA

Software should have the facility to record additional signal viz RRDE, EQCM, etc. Import/export ASCII. Ready-to-use Vis & Generic interface should be included. It should have the facility to display up to 8 plots simultaneously. Comparison with previous experiments (online) should be possible while experiments are in progress.

Analysis tools (peak, convection wave, integral), with classical fits (linear, circular) and CV fitting tool.

EIS measurements simultaneously on the working and on the counter electrodes.

EIS Software with facility for Equivalent Circuit fitting and simulation. Data presentation: Nyquist, Bode, Admittance, Dielectric, Mott-Schottky, Data analysis: Fit and Simulation, Find circle, Element subtraction, Kramers-Kronig,

Graphic Representation of Equivalent Circuit with user selectable circuit elements and their values in the circuit

Impedance fitting tool with battery diffusion elements available (restricted diffusion, restricted modified diffusion, restricted linear diffusion)

Modify on Fly should be available to update experimental setting parameters on current running experiment without pausing/stopping.

Should include Drift Correction in EIS Technique which corrects the drift of the system. It needs to be used when the system has not reached its steady-state regime (specifically for low frequencies measurements)

Should include EIS Quality Indicators for an Impedance experiment validation and OEM Package and Lab View drivers should be available

System software should be able to control and acquire the data from external / third party make instruments.

Manufacturer Experience, Installation & Training

- The manufacturer must have at least 15 years of experience in the field of electrochemical testing.
- Provide a list of IITs or government agencies, where similar equipment were supplied and their contact details.
- The equipment should be installed and commissioned by the supplier at IIT Kanpur at free of cost.
- Hands on training on the testing, data acquisition and basic maintenance of the equipment offered to be provided for a period of at least two full working days at IIT Kanpur.

- The manufacturer must have well-qualified technical support team.

Pre-order demonstration

- Before the final purchase order is released, demonstrations on linear polarization resistance and electrochemical impedance spectroscopy tests and data analysis on steel-cementitious specimens prepared in our lab are required.

ASSISTANCE TO BIDDERS:

Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contract person indicated in the tender. The contact number for the helpdesk is **0512-259-6247/7741** between 10:30 hrs and 17:00 hrs or email: **kvharish@iitk.ac.in**.