

INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

Electrochemical Workstation with Multichannel Chassis and EIS facility

Please send offers, **ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE**. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than **21.01.2019 at 15:00 hrs.** at the following address:

**To
Head
School of Energy Science and Engineering
Indian Institute of Technology Kharagpur – 721 302, West Bengal, India**

Earnest money of **Rs. 12000/-** is to be deposited in the form of Account payee Demand Draft in favours of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

Tender Reference	IIT/ES/EWS/SP/ 2018-19/EQ-9, Dated: 12.12.2018
Price of Tender Document	NIL
Last Date and Time for submitting the tender document	21.01.2019 at 15:00 hrs. (Extended) (Indian Standard time)
Time and Date of Opening of Technical Bids	21.01.2019 at 17:00 hrs.(Extended) (Indian Standard time)
Place of Opening Tender	Seminar Room , School of Energy Science and Engineering Indian Institute of Technology Kharagpur – 721 302, West Bengal, India
Address of Communication	As stated above
Contact Telephone Numbers	+91- 3222 – 260801
E-mail	sreeraj@iitkgp.ac.in

**DETAILED TECHNICAL SPECIFICATIONS FOR
Electrochemical Workstation with Multichannel Chassis and EIS facility:**

No. of channels required: 4 (2 Channels must have EIS facility) and possibility to add 1 or more channels in future for Potentiostat / Multichannel Facility

- 1) Compliance voltage: $\pm 12\text{V}$ or better
- 2) Applied Potential range: $\pm 10\text{V}$ or more
- 3) Current Ranges: 9 Ranges, $\pm 10\mu\text{A}$ to $\pm 1\text{A}$
- 4) Applied Current: $\pm 10\mu\text{A}$ to $\pm 500\text{mA}$ or more
- 5) Voltage Resolution: 1mV or better
- 6) Voltage Accuracy: $\pm 0.03\%$ of setting
- 7) Current Resolution: 760fA
- 8) Current Accuracy: $\pm 0.03\%$ of setting
- 9) Potentiostat Rise/Fall time: $< 500\text{ns}$ or better
- 10) Acquisition speed/ Data Sampling: 1,000,000 samples/second or better
- 11) Frequency range: $10\mu\text{Hz}$ - 6MHz or more
- 12) AC Amplitude: 0.5mV to 2V
- 13) Bandwidth of electrometer: 8MHz or better
- 14) Input Impedance: $1\text{T}\Omega$
- 15) Cell connection/Electrode Configuration: 2, 3, 4 or 5 Terminal Leads (+ ground)
- 16) Floating Mode: $10\text{M}\Omega$ || 10nF
- 17) Grounded Mode: $< 10\text{k}\Omega$
- 18) Analog Filtering: low pass 4 poles sallen-key filters - 5Hz , 1kHz and 50kHz
- 19) Auxiliary inputs/outputs : 2 Analog Inputs and 1 Analog Output, 2 Digital Inputs and 1 Digital Output to control external accessories like RRDE, Temperature Probe, Temperature and Humidity Chambers, etc.
- 20) Calibration Board: Calibration of potentiostat channel with cables should be available on-site and calibration reports must be printed as on when required.

- 21) Interface: Ethernet LAN /USB

Software's required

1. Fundamental Electrochemistry – OCV, CV, LSV, Batteries, Fuel cell/photovoltaic testing Techniques
2. GEIS, PEIS -Electrochemical Impedance Spectroscopy Technique
3. Corrosion software including LPR, Tafel etc.
4. Pulse software including DPV, NPV, RNPV, SWV etc
5. Equivalent EIS fitting circuit software
6. Analysis tools for Corrosion R_p and Tafel Fit, battery CED fit
7. 3D View should be available
8. 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)
9. Should include EIS Quality Indicators for an Impedance experiment validation and should fulfill various requirements for THD (Total Harmonic Distortion), NSD(Non Stationary Distortion) and NSR (Noise to Signal Ratio)
10. OEM Package and Lab View drivers should be available

PC requirement:

1. A compatible Laptop/Desktop Computer with I-5 or better processor, 4GB or better RAM, 500GB or better HDD with windows should be supplied with the instrument for Data collection.

GENERAL TERMS & CONDITIONS FOR SUPPLY OF THE STORES IN IIT KHARAGPUR

Please specifically indicate the following points in your quotations and comply the terms as mentioned hereunder:-

1. Tenders are invited complying the requirement for tender as detailed in the tender specification to be submitted in the Company's / Firms Letterhead neatly printed/ typed duly signed by authorized person with the seal of the bidders. All envelopes containing the tender should be properly sealed. Separate sealed envelopes should be used for Technical and Price Bid and indication to their effect may please be super scribed on the envelop.
2. Technical Catalogue/Leaflet should be enclosed without fail.
3. Please confirm whether you are authorized to quote on behalf of your principals and if so, please enclose a copy of such authorizations with your quotation.
4. Price Bids: Prices are to be quoted for door delivery at IIT Kharagpur, clearly showing the GST Rate. All prices should be quoted only in Indian rupees.
5. Period of Validity: Bids shall remain valid for acceptance for a period of 120 days from the date of opening.
6. Scope of supply: Should include Free Installation and Commissioning.
7. Payment Terms:
 - A) 90% Payment shall be released after receipt of goods in good order and condition and successful installation, thereafter certificate from the Concerned Head of the Department and balance 10% payment shall be released after submission of Performance Bank Guarantee (PBG) amounting to 10% of the purchase order value. The PBG will be drawn from any National / Commercial Bank valid for the Warranty Period plus sixty days.
 - B) Ensure Mentioning
 - i) Bank Details of the Beneficiary and Pan Number.
 - ii) Full Name and Address of the Beneficiary on whom order has to be placed.
8. Whether any Export License is required from your Government, if so, please confirm with details.
9. Country of origin of the goods is to be mentioned.
10. The Custom Duty Exemption (51/96) Certificate will be provided by the Institute on request by the vendor.

11. Liquidated Damages: The stores should be delivered/ dispatched to destination and ready for operation not later than the delivery date specified. If the supplier fails to deliver any or all the stores or perform the service by the specified date, liquidated damages at 1% per month or part thereof in respect of the value of stores will be deducted from the contract price subject to a maximum of 5%. Alternatively, the order will be cancelled and the undelivered stores purchased from elsewhere at the risk and expense of supplier.
12. Patent Rights: The supplier shall indemnify the purchase against all third party claims of infringement of patent, trademark or Industrial Design Rights arising from use of the goods or any part thereof in India.
13. Only those Bidders whose Bids have been technically found acceptable will be invited for participation in the Price Bid.
14. Those Bidders who do not receive any communication for participation in Price Bid opening meeting may presume that their Bid has not been accepted by the Institute.
15. Conditional offer will not be accepted.
16. Late Tenders received after the due date and time of submission as mentioned above shall not be accepted.
17. Bidders to enclose the following documents:-
 - A) Current Income Tax and Sales Tax Clearance Certificates and Pan No.
 - B) Banker's Solvency Certificate.
 - C) Summary of Audited Statement of Accounts for the last three years.
 - D) Customer Satisfaction Certificate from one such organization is to be attached with Technical Bid.
 - E) Name and Address of minimum three clients to whom such equipment have been supplied in the last three years should be mentioned.
18. Warranty / Guarantee: This comprehensive onsite Warranty / Guarantee shall remain valid for **36 months** after the goods (or any portion thereof as the case may be) have been delivered and commissioned to the final destination indicated in the contract.
19. Bidders should have supplied such instrument to IIT Madras or any reputed Institute/ Company. Should have International supply and service along with journal publication references.
20. Delivery Period: The stores should be supplied within 4-6 weeks from the date of issue of the Purchase Order.

21. The Institute does not bind itself to offer any explanation to those bidders whose Technical Bid has not been found acceptable by the Evaluation Committee of the Institute.
22. All Tenders (unless otherwise specified) are to be submitted / handed over to **Head, School of Energy science and Engineering ,Indian Institute of Technology, Kharagpur-721302**

IMPORTANT

- (a) IIT Kharagpur authority may accept or reject any or all the Bids in part or in full without assigning any reason and does not bind itself to accept the Lowest Bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.
- (b) Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.
- (c) In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.
- d) For any query pertaining to this Bid Document correspondence may be addressed to **Head, School of Energy science and Engineering ,Indian Institute of Technology, Kharagpur-721302**

LAST DATE FOR SUBMISSION OF SEALED BIDS: 07.01.2019

- 1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified Institute Holidays.
- 2) Fax, e-mail Tender will not be accepted.
- 3) The General Terms and Conditions as stated above relate to supply of stores/ equipment assets etc. and for specific service other terms and conditions of the Institute will apply.

FORMAT FOR PRICE BID

Format to be filled up by the Agency

Tender No. : _____

Dated: _____

1. Name of Tender: _____

2. Name of Firm/ Bidder : _____

3. Address : _____

4. Phone / Fax/ Mobile / E-mail : _____

Sl. No.	Description	Unit Basic Price (in Rs.)	GST	Total (All Inclusive) (in Rs.)
1.	_____ _____ Brand : Model:			

Signature of the Bidder with Seal