Department of Materials Science & Engineering
Indian Institute of Technology Kanpur

Enquiry: MSE/KM/2018-2019/02   Dated 11-04-2018

Closing Date: 03-05-2018

Enquiry for purchase of advanced electrochemical system (Potentiostat) with high frequency capability

Sir / Madam,

With reference to the subject mentioned above, you are invited to submit the sealed quotation for advanced electrochemical system (Potentiostat). Detailed technical specifications are enclosed). Do not send the quotation through email.

Make sure that the quotation should be valid up to 90 days. You are requested to send quotation (sealed and in two bid system) for the above mentioned equipment with all details. All cost, terms and condition should be clearly mentioned in the quotation. If you are the only authorized company to provide the services then please enclose proper authorization with the quotation in this regard. Proprietary certificate should be enclosed with the quotation in case of proprietary item. Minimum warranty will be two year. Prior experience of supply in IIT system is essential. Rebate/discount for educational and research institute must be shown clearly. Delivery Period (maximum two months). Rates quoted must be for MSE IIT Kanpur including packing forwarding and freight. Indian bidder must be GST registered. Include separate quotation for recommended spares

Sealed and duly signed quotation must reach to Dr.Kallol Mondal, Professor, Department of Materials Science and Engineering, IIT Kanpur by **03.05.2018 before 5:00 PM**.

Dr.K.Mondal
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Technical Specifications for advanced electrochemical system (Potentiostat)

Minimum required specifications are given below:
- **Voltage compliance:** ± (25 - 30) V or better
- **Current compliance:** ± 1A or better
- **Applied voltage range:** ± (25 – 30) V or better
- **Potentiostat rise/fall time:** (54 – 58)ns or less
- **Potentiostat bandwidth:** (4 –7) MHz or higher
- **Applied voltage resolution:** ≤320nV for 10mV signal
- **Applied voltage accuracy:** ±(1 - 2)mV ± 0.2% of value
- **Measured Voltage accuracy** ±(1- 2)mV ± 0.2% of reading
- **Maximum scan rate:** (23 – 27) mV per step
- **Applied current range:** ± 1A or better
- **Min current (applied) resolution:** (4-8)pA or better
- **Electrometer bandwidth:** Min 10MHz
- **Electrometer input impedance:** 10^{13} to $10^{14}\Omega$
- **Measuring voltage resolution (min) in ±30V range:** (3-7) µV
- **Measuring current min range / resolution:** (25-35) fA
- **EIS mode:** Potentiostatic / Gavanostatic, mott-schottky
- **Frequency range:** 10µHz to 1MHz or better (preferably In-built) with less than 1% error
- **AC amplitude:** 0.1mV rms
- **Frequency sweep:** Linear /Logarithmic
- **Additional data acquisition for external devices like pH, Temp along with polarization data**

Software requirements:

Software should be capable to perform & analysis the following techniques

- *Open Circuit, Linear scan voltammetry, Cyclic voltammetry (single & Multiple), Staircase voltammetry*
- *Chronoamperometry, Chronopotentiometry, Chronocoulometry*
- *Recurrent potential and current pulses*
- *Pulse Voltametry techniques (Normal, reverse etc..)*
- *Zero resistance ammeter (ZRA)*
- *Galvanic Corrosion, Cyclic Polarization, Linear Polarization, Tafel, Potentiostatic, Potentiodynamic*
- *Galvanostatic, Galvanodynamic*
- *Batteries chanrge / discharge*
- *Potentiostatic EIS*
- *Galvanostatic EIS*
- *Internal resistance determination*
- *Charge / Discharge cycling, Charge / discharge operating with voltage / current/ resistance/ power*
- *Equivalent circuit fitting / modeling (**ZSimpWin Software**)*

Accessories requirements:

- **One 250ml electrochemical cell (Flat cell kit for corrosion test of flat samples) with one Ag/AgCl or saturated calomel Reference Electrode & one Pt Wire Counter Electrode** *(Cell capable of performing experiments at high temperature also will be preferred)*

- **Branded computer to operate the instrument, data acquisition and equivalent circuit fitting / modeling**