

**Department of Physics
Indian Institute of Technology
Hauz Khas, New Delhi-110 016**

Dated: 23/02/2015

NOTICE INVITING QUOTATIONS

Subject: Purchase of Potentiostat/Galvanostat with photo-electrochemical set up & accessories.

Invitation for Tender Offers Indian Institute of Technology Delhi invites online Bids (Technical bid and Commercial bid) from eligible and experienced OEM (Original Equipment Manufacturer) OR OEM Authorized Dealer for supply, installation & integration of Potentiostat/Galvanostat with photoelectrochemical set up & accessories with three years on site comprehensive warranty from the date of receipt of the material as per terms & conditions specified in the tender document, which is available on CPP Portal <http://eprocure.gov.in/eprocure/app>. The quotation should reach **Prof. Bodh Raj Mehta, Department of Physics, IIT Delhi, Hauz Khas, New Delhi – 110016** latest by **5:00 P.M. on March 20, 2015**.

Technical Specifications:

Electrochemical System (Potentiostat/Galvanostat) with photoelectrochemical set-up & related accessories, PC interface and all necessary electrochemical software for data acquisition and analysis. The system should have the ability to perform conventional electrochemical experiments such as Cyclic Voltammetry, Potentiostatic, Galvanostatic, Square wave, open circuit, chronoamperometry, chronopotentiometry, I-V characteristics, frequency response analyses, Electrochemical Impedance spectroscopy, photoelectrochemical measurements, IPCE, etc.

All necessary information (data, standards, and reference material) for calibration of the instrument must be provided.

S.No.	Item(s)	Description
1	Compliance voltage	± 14 V at 2 A
2	Current range	± 2 A
3	Voltage range	± 4.0 V
4	Gain Band width	4 MHz or more
5	Bandwidth of electrometer	> 4 MHz
6	Input impedance	>1 T Ohm // 8pF
7	Input Bias Current	< 1 pA
8	Current Ranges	100nA to 2A in several ranges
10	System rise time	< 250ns
11	Noise & Ripple	< 25 μ Vrms referred to external signal
12	Measured Potential resolution	0.3 μ V
13	Frequency Range	10 μ Hz to 4 MHz
16	Interface	USB/RS232 or other interface for PC
17	Electrode cell connections	2,3 or 4 electrode connections

18	Photo-electrochemical set-up	The photoelectrochemical assembly and software should be useful for I-V (photocurrent-voltage) and C-V (capacitance-voltage) measurements on photoelectrochemical and photovoltaic cells and devices such as dye sensitized solar cells at different illumination intensities, determination of maximum power point, etc. A separate computer controlled light sensor for solar simulator is required. Calibrated photodiode holder with calibration certificate should be provided. Data Analysis: The following parameters should be obtained, Short circuit current, open-circuit voltage, maximum power point, fill factor, efficiency of solar cell (power/light intensity),
19	EIS measurements: Frequency response analyzer including hardware and software.	<p>Frequency range: 10μHz to 1 MHz or better</p> <p>Frequency resolution: 0.003%</p> <p>Input Range (Bias voltage range): \pm 10 V</p> <p>AC amplitude: 0.2 mV to 350 mV rms in potentiostatic. 0.0002 to 0.35 times the current range in galvanostatic</p> <p>Bode plot, Nyquist plot, Epsilon plot, Mott-Schottky plot, Admittance plot. Equivalent circuit fitting, subtraction of elements, Kramers-Kronig test to determine the validity of measured data.</p>
20	Optional Accessories: QE/IPCE measurement system	To determine the Quantum efficiency/Incident photon to current conversion efficiency of solar/ photoelectrochemical cell consisting of Light Source (300-watt xenon arc lamp) Monochromator (fully configured and calibrated for wavelength range 200-1100nm with resolution of 0.1 nm) Digital Lock-In Amplifier, Current Pre-Amplifier, Filters, Reference Detector Software etc.
<p>21 System Software:</p> <p>Software should have a dedicated data analysis environment, large number of data analysis tools and an electrochemical spreadsheet to analyze the data, perform calculation and create new plots without having to export the files to a third-party software.</p>		

Essential Accessories:

(1) Connecting cables and other essential accessories should be included. Ag/AgCl Reference Electrodes for aqueous as well as organic electrolyte medium, Pt wire/flag counter electrode.

(2) Photo-electrochemical cell assembly with quartz window and place to fix the ITO Coated Glass Plate or Pt plate as a working electrode, Pt flag Counter electrode, Ag/AgCl reference electrode.

All necessary information (data, standards, and reference material) for calibration of the instrument along with manuals and installation of the instrument must be provided.

Terms & Conditions:

1. The quotations must have validity of at least three months.
2. Quotation must include insurance and air-freight charges, delivery period of the items addresses to The Indian Institute of Technology, Delhi, India (both FOB and CIF, New Delhi).
3. The products will be used for educational purposes. Any applicable academic institution discounts should be offered and stated.
4. Complete set of manuals for operation and servicing of the equipment should be given.
5. Clearly specify the installation requirements-such as space, power, environment (Temperature, humidity), etc.
6. If the bidder is an authorized dealer then the authorized Indian dealership certificate from the principles should be enclosed.
7. Warranty details must be given.
8. Payment will be through irrevocable Letter of Credit. No advance payment will be done.
9. In case the items are proprietary products of the company, a proprietary item certificate stating the same must be provided.
10. Training should be provided free of cost.
11. Institute reserves the right to accept or reject any or all the quotations without assigning reasons thereof.

A complete set of tender documents* may be Download by prospective bidder free of cost from the website <http://eprocure.gov.in/eprocure/app>. Bidder has to make payment of requisite fees (i.e. Tender fees (if any) and EMD) by demand draft in favour of Registrar, IIT Delhi payable at New Delhi.



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