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GEM/2022/B/1908208 DT 31.01.2022

Bid End Date/Time: 17-02.2022, 14:00:00

Bid Opening Date/Time: 17-02.2022, 14:30:00

Technical Specifications of electrochemical workstations

PC controlled Potentiostat/Galvanostat designed for Electrochemical Research over a broad spectrum of applications.

1. Detailed specifications

1. Cell Connections: 2, 3 or 4 terminals plus ground
2. Applied & Measured Current: 400mA or better as standard without using booster.
3. Standard Voltage Compliance: $\pm 12V$ or better
4. Applied & Measured Voltage Range: $\pm 10V$ or better.
5. Applied Potential Resolution $\leq 300 \mu V$ (typical for $\pm 10 V$ signal)
6. Voltage & Current Accuracy: $\pm 0.2\%$ or better
7. Lowest Current range $\pm 10nA$ with resolution of $150fA$ or better
8. Scan Rate: $1mV/s$ to $1000V/s$ or better;
9. Electrometer Input impedance $\geq 10^{11}\Omega$
10. Electrometer Bandwidth $\geq 4MHz$
11. Impedance Frequency Range: $10\mu Hz$ to $1MHz$ or better
12. Signal rise/fall time: $< 350ns$ or better
13. Minimum Time Base: $5\mu s$ or better
14. Minimum Potential Step: $1\mu V$ or better
15. Electrometer Leakage Current: $\leq 5pA$
16. Communications Interface: Universal Serial Bus (USB) or Ethernet
17. Digital Inputs / Outputs, Auxiliary Voltage Input, DAC voltage Output should be available.
18. Cell Cable 2 M long for the instrument.
19. Possibility to upgrade to high current upto 10 A for future expansion
20. Complete Analysis software for CV & EIS circuit fitting should be provided. The impedance fitting tool should have at least 3 different fitting algorithms
21. Software should have the facility to record additional signal viz. R RDE, EQCM, etc. Import / export ASCII.

22. Ready-to-use Vis & Generic interface should be included. It should have the facility to display upto 8 plots simultaneously. Comparison with previous experiments (online) should be possible while experiments are in progress.
23. Self-calibration of the channel and technical support/trouble shooting should be available

2. Software Capabilities – Electrochemical Techniques :

The instrument should be able to perform various voltammetry, corrosion, impedance and energy studies. The following software capabilities are required.

Open Circuit, Linear Scan Voltammetry, Cyclic Voltammetry (single & Multiple cycles), Staircase Linear Scan Voltammetry, Staircase Cyclic Voltammetry (single & Multiple cycles), Chronoamperometry, Chronopotentiometry, Chronocoulometry, Recurrent Potential Pulses, Recurrent Galvanic Pulses, Square Wave Voltammetry, Differential Pulse Voltammetry, Normal Pulse Voltammetry, Galvanic Corrosion, Cyclic Polarization, Linear Polarization, Tafel, Electrochemical Noise, Potentiostatic, Potentiodynamic, Galvanostatic, Galvanodynamic, Constant Current, Constant Potential, Constant Resistance, Constant Power, Current CCDPL, Power CCD, Charge-Discharge, CC-CV, GITT, PITT, Electrochemical impedance spectroscopy (EIS), Potentiostatic EIS, Galvanostatic EIS, Mott – Schottky

3. Computer details:

Desktop Computer with the following configuration to be supplied: intel – i5 (10th Gen) Processor, 24 MB Cache up to 4.6 GHz, Dedicated 4GB Graphics card, 16GB DDR4 RAM, 512 GB-SSD, 21 Inch, Windows 10 Pro & MS Office.

5. Warranty for the equipment and software : 2 Years

6. Other important details

1. The proposed equipment model in the bid should be available in their company website with all the detailed specifications mentioned in the technical bid
2. Bidder should provide data point wise compliance detail along with technical specifications.
3. The seller should provide the complete list of buyers contact address with contact numbers from the academic institutions or industrial sector for the last 3 years. The indenter will decide the potentiality of the equipment based on the comments received from the previous buyers.

4. The seller should demonstrate all the technical specifications and applications mentioned in the bid with different type of samples vary from metal oxides, polymers, composites, and hybrid materials
5. The equipment should be certified by ISO and other certifying agencies
6. The final decision of selecting the equipment will be decided by the indenter.