

TECHNICAL SPECIFICATIONS AND OTHER ALLIED REQUIREMENTS

Sl No.	Description of items	Quantity
File No.	PUR/398/HCRC/RM/E/2023-24	
1	Supply, Installation and Commissioning of Single Channel Electrochemical Work Station. (DETAILED SPECIFICATIONS AS PER ANNEXURE – I)	01 Set.

1. DELIVERY, INSTALLATION & COMMISSIONING:

The delivery, installation and demonstration are to be completed within 45 days from the date of issue of purchase order. The installation and demonstration shall be carried out by your expert- engineers of supplier/Manufacture. During fabrication & installation necessary training on operation and maintenance of the goods/system shall be imparted to relevant Scientist/Engineer/Technicians.

2. INSTALLATION AND DEMONSTRATION:

The Installation and Commissioning to be done by the Supplier within 15 days after delivery of goods at CSIR-CMERI, Durgapur-09, (W.B.)

3. PAYMENT TERMS:

100% payment shall be paid within 30 days after delivery, installation and commissioning of Single Channel Electrochemical Work Station and acceptance of the material upon submission of claim supported by the acceptance certificate issued by the purchaser.

4. BID SECURING DECLARATION FORM:

Bid Securing Declaration is to be submitted by the Bidder as per the format prescribed in the tender document.

5. WARRANTY:

02-years warranty to be provided by the supplier from the date of satisfactory installation of ordered goods.

6. MANUFACTURER AUTHORIZATION FORM:

Manufacturer Authorisation Form to be provided by the supplier.

7. PLACE OF DELIVERY:

CSIR-CMERI, M.G. Avenue, Durgapur- 713209, West Bengal.

8. MAKE IN INDIA CERTIFICATE FOR LOCAL CONTENT

Certificate for local content to be provided by the supplier in form 14 (Format attached along with Tender Document). Percentage of value addition & Name and address of the factory where the value addition was made should be mentioned clearly in the Form 14.

Single Channel Electrochemical workstation

Specifications:

General description:

- Chassis: Multichannel Single Chassis
- High Precision Columbic Efficiency Determination upto 10PPM
- One channel should have Electrochemical Impedance Spectroscopy (EIS) measurements with Equivalent Circuit Modelling (frequency range 10 μ Hz to 7 MHz)
- Internal Resistance Determination
- Software Controlled Data Acquisition with Minimum Sampling rate.
- Floating mode and Ground mode both should be available.
- EIS quality Indicator for measuring Total harmonic distortion and Noise to Signal ratio will be added advantage
- Options for measuring Ewe Vs ref and Ece Vs Ref both simultaneously
- CE to Ground and WE to Ground both modes should be available
- Onsite hardware calibration should be available

Application:

Sensor, Battery, Supercapacitor, General electrochemistry, Corrosion etc

Channel specification:

- Cell Connection: 2, 3, 4, 5 electrodes (+ ground) or more and atleast 1.5m Cell cable
- Compliance voltage: ± 12 V or better per channel
- Applied Voltage: ± 10 V or better per channel
- Maximum Output Current: ± 500 mA or better at ± 10 V per channel
- Current Ranges: 10nA to 1A ,
- Accuracy of applied and measured current: 0,1% of FSR
- Current resolutions: 10 pA on 10 nA range
- Resolution of applied potential: 1 μ V on 60mV range
- Voltage accuracy: 0.1 % of Full scale range
- Potentiostat Rise/fall Time: <500nS

- Frequency range: 10 μ Hz to 7 MHz
- Impedance accuracy of 1% & 1° at 1Hz
- Input Impedance: 1T Ω
- Gain bandwidth range of amplifier: 1 MHz
- Bandwidth of Potentiostat: 8 MHz
- Input bias current: 20pA
- Acquisition rate: 100000 samples/second
- Cyclic Voltammetry with scan rates 10 mV/Sec to 200V/Sec or better
- Ac Amplitude: 0.5mV – 2.5 V
- Interface for connection with PC: Ethernet LAN and USB
- Local Area Network to access Multiple Computers

Software:

- All Pulse technique, DPV, SWV, etc
- Galvanostatic Charge / Discharge (Including C rate control) with voltage vs. time Graph plots
- Multigraph window capable of displaying up to 10 graphs within a single window
- Customize variables graph plot for each axis
- Voltage vs. Capacity plot during Charge/Discharge Cycles
- At least 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 · Industrial CC-CV Method (Constant Current – Constant Voltage)
- Cyclic Voltammetry, Current Scan (Current/Galvano Dynamic), Voltage Scan (Potentiodynamic) Constant Power / Constant Resistance
- GITT and PITT Techniques
- Columbic Efficiency Determination with fitting tool
- Current Interrupt
- Rest Time
- Multiple loops
- Provision to connect and control External devices like Furnace, Thermal chambers
- Monitoring status of each Channel using Global Table/Summary Table
- Option to update the experimental setting parameters on current running experiment without pausing /stopping the channel/experiment
- Profile Importation to study Urban Life Cycle Tests
- Modify of the parameter while running experiment is possible
- Analysis tools like Integral, Circular or linear fit and Electro chemical EIS -Z fit is

EIS:

- At least one channel should have EIS measurement facility with frequency range 10 μ Hz to 7 MHz
- Real-time fit and simulation analysis as well as live data plotting option for simulation plot must be available as default software protocol.
- Real time measurement plots needed for Lissajous curve, Nyquist, Bode, Admittance and Dielectric & Mott-Schottky. The fit and simulation software should include basic options such as find circle, element subtraction and an equivalent circuit library with all the modern EIS equivalent circuit models.
- Minimum visible plots in real time should be 8 or more. EIS Modelling with Equivalent Circuit Fits. Simultaneous impedance measurement at counter electrode and working electrode.

Accessories:

- 1) Glassy carbon working electrode- 2 no
- 2) Ag/AgCl ref electrode- 2 no
- 3) Pt Wire counter electrode- 2 no
- 4) 50 ml Cell with Teflon cap- 1no
- 5) Data Acquisition system- 1no

Computers: Branded computer with core i5 11th generation processor, 8 Gb RAM-512 GB SSD, windows 10 Pro, Intel with 21 inch LED monitor.

UPS: Branded 1 KVA online UPS with LED display for 30 minutes backup

Warranty: 2-year standard warranty