

मालवीय राष्ट्रीय प्रौद्योगिकी संस्थान जयपुर

MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY, JAIPUR

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DIARY
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Page No.

कार्यालय टिप्पणी

NOTE SHEET

No.....

Dated:

CORRIGENDUM

This has the reference of our NIT No. **F5 (372)ST/MNIT/CEE/2016** dated **11.02.2017** for **HOT AIR OVEN** and **ELECTROCHEMICAL WORKSTATION (with Bi-potentiostat/ Galvanostat)**.

In continuation of this advertisement, the following amendments are hereby authorized as far as specification of the item is concerned:

*For **HOT OVEN***

: The capacity of OVEN may be read as ca. **115 Liters** in place of 175 Liters.

*For **ELECTROCHEMICAL WORKSTATION***

: *See the Annexure attached for revised specifications*

All other terms & conditions (including essentials) of our NIT will remain unchanged.

REGISTRAR

ANNEXURE

Instrument Name: ELECTROCHEMICAL WORKSTATION WITH BI-POTENTIOSTAT/GALVANOSTAT

SPECIFICATIONS

REVISED

- **2-, 3-or 4-electrode configuration**
- **Floating (isolated from earth) or earth ground**
- **Potential scan range: ± 10 V or better**
- **Applied potential resolution: 0.02% of potential range or better**
- **Measured current range: 200mA or better (continuous)**
- **Peak current: 300mA or better**
- **Compliance Voltage: ± 10 V or better**
- **Compliance Current: ± 200 mA or better**
- **Zero resistance ammeter**
- **Potentiostat rise time: ≤ 0.8 μ s**
- **Potentiostat bandwidth: 1M Hz or better**
- **Applied potential resolution: 0.0015 % of potential range or better**
- **Applied potential accuracy: $\leq \pm 2$ mV, $\leq \pm 0.02\%$ of scale**
- **Measured current range: ± 10 pA to ± 0.25 A in 12 ranges**
- **Measured current resolution: 0.002 % of current range or better; min. 30 fA**
- **Current measurement accuracy: $\pm 0.2\%$ of range or better**
- **Galvanostat applied current range: 50nA onwards ± 250 mA or better**
- **Applied current accuracy: $\pm 0.2\%$ of current range or better**
- **Input impedance (Ref. Electrode Galvanostat): 1×10^{12} ohm**
- **Applied current resolution: 0.03% of applied current range or better**
- **Measured potential resolution: 0.002 % of measured range or better**
- **Input impedance: 1 T Ω or better**
- **Bandwidth: 10 MHz or better**
- **Input bias current: ≤ 20 pA**
- **IMP frequency: 0.1 μ Hz to 1 MHz or better**
- **iR compensation: Automatic and manual**
- **Multiplexer: 8 channel**

INTEGRATED TECHNIQUES

- **Cyclic Voltammetry (CV)**
- **Linear Sweep Voltammetry (LSV) with stripping**
- **Tafel Plot (TAFEL), Linear Polarisation**
- **Chrono Amperometry (CA)**
- **Chrono Coulometry (CC)**
- **Bulk Electrolysis with Coulometry (BE)**
- **AC Impedance (IMP)**
- **Impedance – Time (IMPT)**
- **Impedance – Potential (IMPE)**
- **Chronopotentiometry (CP)**
- **Chronopotentiometry with Current Ramp (CPCR)**
- **Multi-Current Steps (ISTEP)**
- **Potentiometer Stripping Analysis (PSA)**
- **Open Circuit Potential – Time (OCPT)**
- **Galvanostat**
- **Limited version of CV simulator**
- **Impedance Simulator**

- IR Compensation
- External Potential Input
- Auxiliary Signal Measurement Channel
- Amperometric i-t Curve (i-t)
- RDE/RRDE Control (0-10 V or better output)
- Electrochemical Noise Measurement (ECN)
- CV Simulation and fitting program
- Impedance Simulation and fitting program
- AC Impedance Plots
- Battery Charge/Discharge
- PV Studies
- Institute Spectro-electrochemical study
- Double & Triple pulse techniques
- Hydrodynamic Voltammetry

Bode : $\log Z$ vs \log (freq.); Bode : Phase , vs \log (freq.); Bode : $\log Z''$ & Z' vs \log (freq.); Bode : $\log Y$ vs \log (freq.); Nyquist ; Z'' vs Z' ; Admittance; Y'' vs Y' ; Warburg: Z'' & Z' vs $w^{1/2}$ w-angular frequency; Z' vs $w Z''$; Z' vs Z''/w ; Cot (phase) vs $w^{1/2}$

SOFTWARE (LATEST WINDOWS BASED ACQUISITION S/W) FEATURES

- Software should have facility to record additional signal viz EQCM, bi-potentiostat etc. Import/export ASCII.
- Ready-to-use Vis & Generic interface for .Net applications should be included.
- Should have facility to display up to 4 plots simultaneously. Comparison with previous experiments should be possible while experiments are in progress.
- The software should support following basic electrochemical measurements:
 - ❖ Cyclic Voltammetry with scan rates from 10 μ V/Sec to 200V/Sec,
 - ❖ Sampled DC Voltammetry
 - ❖ Tafel Plots
 - ❖ Differential Pulse Voltammetry
 - ❖ Square Wave Voltammetry
 - ❖ Electrochemical methods like Chrono Amperometry, Chrono-Coulometry & Chrono-Potentiometry.
- Software should be upgradable Lifetime Free of Charges

- Glassy Carbon electrode diameter should be 6mm required in 2 (no.) units.
- Essential requirement is 2A or more current booster.
- 2 KVA UPS with one hour back up should be considered as an optional accessory.