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| **ELECTROCHEMICAL CORROSION ANALYZER** | **Name of the equipment:** Electrochemical Corrosion Analyzer **Make & Model:**CH Instruments Inc., USACHI608E Potentiostat/Galvanostat**I-Stem Registration ID-** **3224881** **Category of Instrument**Electrochemical Instrument**Types of Analysis / Testing**Corrosion Testing**Application:** Studying the corrosion resistance of various metals and alloys.**Description of Instrument**A Corrosion testing equipment. |

**Booking Details**

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| **Book through I-STEM:** <https://www.istem.gov.in/>**Slot Booking Link**[I-STEM Slot Booking link for External User](https://www.istem.gov.in/equipment-info/24881/Potentiostat-Electrochemical-Corrosion-Analyzer-with-Work-Station) | **Booking available for**Internal and External Both**Requisition form for** InternalExternal |

**Contact Details**

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**Features, Working Principle and Specifications**

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| **Potentiostat*** Zero resistance ammeter
* 2- or 3- or 4-electrode configuration
* Floating (isolated from earth) or earth ground
* Maximum potential: ±10 V
* Maximum current: ±250 mA continuous, ±350 mA peak
* Compliance Voltage: ±13 V
* Potentiostat rise time: < 1 μs, 0.8 μs typical
* Applied potential ranges (volts): ±0.01, ±0.05, ±0.1, ±0.65, ±3.276, ±6.553, ±10
* Applied potential resolution: 0.0015% of potential range
* Applied potential accuracy: ±1 mV, ±0.01% of scale
* Applied potential noise: < 10 μV rms
* Measured current range: ±10 pA to ±0.25 A in 12 ranges
* Measured current resolution: 0.0015% of current range, minimum 0.3 fA
* Current measurement accuracy: 0.2% if current range >=1e-6 A/V, 1% otherwise
* Input bias current: < 20 pA

**Galvanostat*** Galvanostat applied current range: 3 nA - 250 mA
* Applied current accuracy: 20 pA ±0.2% if > 3e-7A, ±1% otherwise
* Applied current resolution: 0.03% of applied current range
* Measured potential range (volts): ±0.025, ±0.1, ±0.25, ±1, ±2.5, ±10
* Measured potential resolution: 0.0015% of measured range
 | **Galvanostat****Electrometer*** Reference electrode input impedance: 1x1012 ohm
* Reference electrode input bandwidth: 10 MHz
* Reference electrode input bias current: <= 10 pA @25°C

**Waveform Generation and Data Acquisition*** Fast waveform update: 10 MHz @ 16-bit
* Fast data acquisition: dual channel 16-bit ADC, 1,000,000 samples/sec simultaneously
* External signal recording channel at maximum 1 MHz sampling rate

 **Experimental Parameters*** CV and LSV scan rate: 0.000001 to 10,000 V/s
* Potential increment during scan: 0.1 mV @ 1,000 V/s
* CA and CC pulse width: 0.0001 to 1000 sec
* CA and CC minimum sample interval: 1 μs
* True integrator for CC
* DPV and NPV pulse width: 0.001 to 10 sec
* SWV frequency: 1 Hz to 100 kHz
* i-t sample interval: minimum 1 μs
* ACV frequency: 0.1 Hz to 10 kHz
* SHACV frequency: 0.1 Hz to 5 kHz
* FTACV frequency: 0.1 Hz to 50 Hz, simultaneously acquire 1st, 2nd, 3rd, 4th, 5th, and 6th harmonics ACV data
* IMP frequency: 0.00001 Hz to 1 MHz
* IMP amplitude: 0.00001 V to 0.7 V rms
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**Type of Sample Required for Analysis / Testing (Quantity, Pre-Preparation, State etc.) Guidelines for Sample Submission – User Instructions**

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| * Sample Type: Metals, Alloys and Conductive materials
* Pre-preparation: The sample should be clean & polished.
* Dimensions for the sample: Should be a flat surface that must cover a circular hole with diameter 10 mm and thickness must not exceed 10 mm and should have a minimum thickness of 1 mm.
* Type of Samples to be Analysed - Metallic
* Maximum No. of Samples Accepted at a Time- 1
* Minimum No of Days Required for Analysis – 2 Days
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**User Charges Rs. (GST Extra)**

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| **Internal** | **External Academic Institutes** | **National R&D Lab** | **Industry** |
| 200/- per hour | 500/- per hour + GST | 500/- per hour + GST | 500/- per hour + GST |