

**DEPARTMENT OF METALLURGICAL AND MATERIALS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI - 620 015**

10.12.2013

Minutes of the Pre-Bid conference

Tender Notification No.: NITT /F.NO: 001/UG LAB MODERNISATION/PLAN 2013-2014/MME

The pre-bid conference was held on 10.12.2013 at 11.30 a.m. in the committee room of MME and the following amendments are made. All other terms and conditions mentioned in the tender document remains same.


Based on the discussion, the committee recommends the following amendments to the specification.

Specification for Multipoint Electrochemical Surface Analyser

Original tender specification		Amended specification
ITEM	SEPCIFICATIONS	
Multichannel Potentiostat, Galvanostat, EIS analyzer	Should have the potential Electrochemical Research over a broad spectrum of applications	No Amendment
Number of channels and specification	<ul style="list-style-type: none"> • At least 4 channels required, It should have provision to add more channel later. • All channels should operate simultaneously, independently and synchronous mode. • Should be able to operate and perform both AC/DC techniques, • All channels should be electrically isolated; floating ground and should operate in single cell-multiple working electrode combination 	No Amendment
Potentiostat/Galvanostat	Should incorporates a differential electrometer with input impedance > 10^{12} ohms with < 5 pA, input bias current (typical) at 25° C. voltage range of the electrometer is ± 10 V	Should incorporates a differential electrometer with input impedance > 10^{12} ohms with < 10 pA, input bias current (typical) at 25° C. voltage range of the electrometer is ± 10 V
Compliance voltage & current	<ul style="list-style-type: none"> • Should Delivers up to 2A of current at ± 10-13 V compliance, without booster • Minimum current range of 4 nA, providing down to current resolution at 120fA... And options to measure in atto amps resolution range. • Applied voltage with high resolution 	<ul style="list-style-type: none"> • Should Delivers up to 2A of current at ± 10-12 V compliance, without booster • Minimum current range of 1-10 nA, providing down to current resolution at 500-800fA... And options to measure in atto amps resolution range.
Multi electrode Measurement	Should be Capable of performing two-, three-, and four-electrode measurements, with a DC Voltage scan of window.	No Amendment
Scan rate	Minimum Scan rate of 10000V/s or better,	No Amendment
Operating Features	<ul style="list-style-type: none"> • Synchronous A/D Input, for collecting DC voltage inputs from other devices, such as pH and temperature probes, or from a quartz crystal microbalance. • DAC output (+/- 10V) for control of rotating disk electrodes or other devices requiring a DC voltage • Capable of positive feedback iR compensation and Dynamic IR compensation 	

	<ul style="list-style-type: none"> Option for built in Frequency Response Analyzer (FRA) for performing EIS measurements in the frequency range of 10uHz-1MHz with selectable amplitudes from 0.1mV-1000mV Data acquisition at max. Frequency of 5 Lakhs samples per second, for recording high speed super capacitor instantaneous rapid kinetic reactions. Recording of additional auxiliary, non-synchronous DC voltage inputs 	<ul style="list-style-type: none"> Built in Frequency Response Analyzer (FRA) for performing EIS measurements in the frequency range of 10uHz-1MHz with selectable amplitudes from 0.1mV-1000mV
Auxiliary Interface hardware compatibility	<p>Possesses an Auxiliary Interface/ compatibility / additional hardware compatibility with following instrumentation for:</p> <ul style="list-style-type: none"> Connection to a static / hanging mercury electrode. Connections to a Faraday cage for stir and purge control. one TTL (trigger) input and minimum up to 4 TTL outputs for executing different other operations 	No Amendment
Data Acquisition System	<ul style="list-style-type: none"> Compatible data acquisition system with min 21 inch screen display with i5 or better processor, 8 GB RAM Hardware should support to perform Mott-Schottky 	Power Backup – Minimum 2 KVA online capability
Software Requirements	<ul style="list-style-type: none"> USB controlled system/ software 32-bit/ 64 bit Windows 7 or windows xp program for electrochemical experiments and analyses. Techniques Required: Corrosion, Rp,tafel,PR,Potential-Galvano static, Potential-Galvano dynamic, EIS CV,SWV, Multiple CV,CA,CC,CP,Pulse Voltammetry, NPV,DPV,RNPV, Charge/discharge and electrochemical noise analysis .etc Importantly to support Mott-Schottky, GITT, and PITT Overlay data files from multiple channels in a single graph: both during or after acquisition Create graphs of data using parameters from different channels or files All Text-based data files for easy export/import capabilities. 	No Amendment
Additional operation features requirements	<ul style="list-style-type: none"> Flexible experimental setup that provides sequencing capabilities useful Providing unattended, sequenced experimental control, with loops and delays within the sequence. Useful for charge/discharge/EIS sequences in battery research, or loops of a particular experiment to monitor trends over time Building custom waveforms, such as custom pulse trains with numerous steps at user-defined values or custom scans at differing scan rates and vertices. Controlling ancillary equipment (such as a water bath controller or multiplexer) between experiments should 	No Amendment

	<p>be possible to control other external instruments, without interrupting the main experiments running in between.</p> <ul style="list-style-type: none">• Convenient Copy/Paste feature for data and graphs that need to be exported to document, spreadsheet, or presentation.• Publication-quality graphics with the ability to change fonts, colors, symbols, etc.• Ability to view multiple plots (up to 9 easily viewable on standard 19" monitors) on a single screen, each customized to the users settings.• Ability to overlay data from different experiments, with the additional capability to overlay previously acquired data on specific real-time plots for on the spot comparisons	
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