

BiStat 3200

Bipotentiostat/galvanostat with
true 2-channel measurement capability

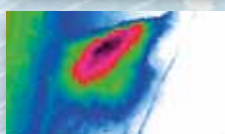


APPLICATIONS

- Electrocatalyst studies
- Dual electrode voltammetry
- Ring-disk electrode studies
- In-vivo studies of neurotransmitters
- Electrode titrations with dual microband electrodes



BiStat 3200



High quality, digital scanning bipotentiostat system for demanding research applications with true 2-channel measurement capability.

Its small footprint allows it to be used in a variety of applications and environments where space is at a premium.

The BiStat 3200 provides the features found in a traditional laboratory based instrument, in a dual design. The BiStat 3200 can operate as two independent isolated instruments or as a bipotentiostat/bigalvanostat.

A five working electrode screened multi electrode cable is available for the BiStat 3200.

This allows up to five working electrode connections to be addressed sequentially.

The instrument may be operated from its front panel using the dual keypads and LCD displays or connected to a Windows™ based computer via the supplied USB cable. When connected to a personal computer the instrument is supported by the UiEChem™ and UiECorr™ software for electrochemistry and corrosion research applications.

An Activex® control is available for users who wish to interface the BiStat 3200 with bespoke software applications and development environments such as LabView™.

The BiStat 3200 is a high quality, digital scanning bipotentiostat system for demanding research applications.

FEATURES

- True 2-channel measurement capability:
 - independent control of applied potential or current on both channels,
 - independent control of current ranges on both channels,
 - independent control of experimental technique and parameters on both channels
- Single USB connection to PC
- Isolated, floating working electrodes on both channels (options)
- Backlit LCD displays of potential and current
- Full suite of electrochemical and corrosion techniques
- RDE control for Levich plot (option)
- ZRA mode

UiEChem™/UiECorr™ package software

Monitoring software dedicated to bipotentiostat applications.

The UiEChem™/UiECorr™ software supplied with the BiStat 3200, is a comprehensive and fully featured package which encompasses a wide selection of standard electrochemical techniques. All this is combined with an easy-to-use graphics interface. After a technique has been selected a waveform diagram is displayed showing the structure of the experiment. At the same time the user can enter in the experimental parameters, set the sampling rate, number of cycles and current autoranging. The software automatically configures itself to the number of potentiostat channels installed in the BiStat 3200 unit.

Autosequencing

The UiEChem™/UiECorr™ software provides a flexible, intuitive interface for running multiple experiments in a user-defined sequence. Once the sequence is started the experiments are run automatically, one-at-a-time, in the order in which they appear in the sequence. The user can choose the experimental technique to include in a sequence and choose what the configuration for each experiment should be. The data is acquired automatically during the sequence and saved to disk. In addition, the user can specify that the sequence waits for a set amount of time between experiments by inserting a delay and include loops so that a group of one more experiments is repeated a set number of times. The sequencing supports also advanced functionality such as analogue triggering. The sequencing facilities may also be used in your own programming language via the optional Activex® control.

Graphic display & analysis

A standard graphics display is provided for each technique and we have added the ability for the user to define their preferred format for each technique from a simple template. The UiEChem™ software features a peak analysis routine which is easy to use and utilises sophisticated routines and algorithms to provide a comprehensive data analysis package. The routines are accessible from the main software package and do not require the data to be exported. The routine can treat data from single cycle, multi-cycle and multi-channel experiments.

Advanced waveform generation

The BiStat 3200 modules are capable of generating complex and repetitive waveforms with precision timing. The instrument has a sequenced waveform generator which generates waveforms based on a sequence of steps. Each step may comprise a waveform which includes pulses, linear sweeps and arbitrary waves. The waveform generator has a timing resolution of 125 microseconds and will seamlessly sequence from one step to the next.

Analogue triggering capability

The BiStat 3200 modules have a real time analogue triggering facility. The triggering can be configured to execute on high or low thresholds of current, potential or auxiliary voltage. The triggering provides sub millisecond timing accuracy and can offer both pre and post trigger data as required.

R(R)DE controller (option)

The RC10V control can provide remote software control of the electrode speed and rotation direction with a variety of rotator models. The rotator speed can be set directly in software using the Rotator Velocity experiment included with the controller. Alternate steps in the sequence set the rotational velocity and perform voltammetric experiments. The sequence is completed with the Levich analysis experiment step. This extracts data from the voltammograms and plots the linear regression response. The diffusion coefficient is then calculated from the response.

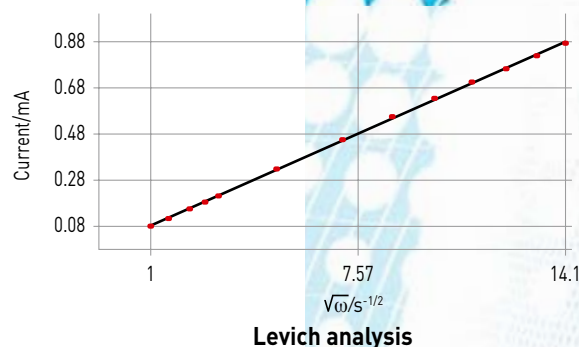


UiEChem™:

- Cyclic Voltammetry,
- Linear Sweep Voltammetry,
- Chronoamperometry,
- Chronopotentiometry,
- Square Wave Voltammetry,
- Normal Pulse Voltammetry,
- Differential Pulse Voltammetry

UiECorr™:

- Ecorr vs Time,
- Linear Polarization Resistance (LPR),
- Tafel Plot,
- Potentiostatic Polarization,
- Galvanostatic Polarization,
- Potentiodynamic Polarization,
- Zero Resistance Ammetry (ZRA)



Specifications



* Subject to max 131 k data points.
Pictures and specifications
subject to change



BISTAT 3200

General

Channel number	2
Display	2 graphic LCD 160 x 100 pixels. Back light: blue LED
Cell connections	2 or 3 and earth
Floating measurements	yes with isolation option
Maximum ADC sample rate	100 kHz
Maximum time record	unlimited*
Scan rate	1 μ V/s to 10 V/s
Minimum pulse duration	125 μ s

Working electrode

Maximum current	± 20 mA
Current ranges	1 nA/V to 10 mA/V in 8-decade ranges
Maximum resolution	61 fA
Compliance voltage	± 8 V

Reference inputs

Connections	differential electrometer
Maximum voltage measurement	± 2 V with factory option to ± 8 V
Maximum resolution	61 μ V
Input impedance	$10^{11} \Omega$ 5 pF
Input bias current	<10 pA

Counter electrode

Voltage polarisation range	± 2 V [can be customized at factory, up to ± 8 V]
Current polarisation range	± 20 mA
Maximum compliance	± 8 V
Rise time	1 V/ μ sec into 1 k Ω

Mechanical and electrical

Line voltage	100 V to 240 V, 47 to 63 Hz
Power	120 VA max.
Dimensions	450 x 140 x 320 mm (W x H x D)
Weight	14 kg
Safety complies	BS EN 61010
EMC complies	BS EN 61326

Temperature range

Operating	5° to 30°C
Specified accuracy	10° to 30°C
Storage	-25° to 70°C

PC requirements

Processor	Pentium IV 1 GHz
Memory	1 GB Ram (min.)
Disk space	50 MB
PC communications	USB (2.0) ; interface cable supplied
Operating system	Windows™ XP Professional™, Vista Business™, Windows 7 or Windows 8

RC10V (option)

Support for any rotator with analog input

Output potential range	± 10 V
Output potential accuracy	better than 0.5%
Output potential resolution	14-bit [1.3 mV]
Output impedance	less than 100 Ω
Output slew rate	minimum 1 V/100 ms
PC connection	standard USB (cable supplied)
Rotator connection	4 mm banana plugs [2-off supplied]
Power	USB powered, +5 V @ <200 mA
Dimensions	80 x 25 x 120 mm (W x H x D)
Weight	0.2 kg

Product designed and manufactured by Uniscan Instruments Ltd, a Bio-Logic SAS company