

BioStat™ Nitric Oxide System

Nitric oxide (NO) is an important signaling molecule that acts in many cell types to regulate a diverse range of physiological processes. It has now been shown to play a role in neurotransmission, immune defense, apoptosis and blood vessel contractility.

Nitric oxide is a short-lived molecule with a half-life of a few seconds. With a diverse range of potential cellular targets, a large number of biological systems utilize it as a regulatory molecule. It has been implicated directly or indirectly in stroke, cardiovascular and neurodegenerative disease. An important property of NO is that it rapidly reacts with superoxide anion (O_2^-) to form a peroxynitrite anion ($ONOO^-$) and peroxynitrous acid ($ONOOH$) which is harmful to biological systems

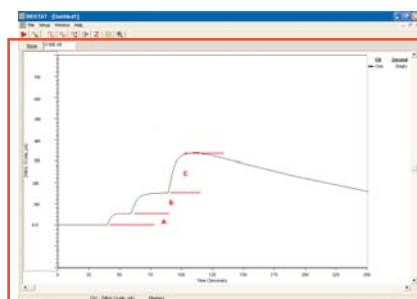
Because of its short biological life time, traditional analytical approaches are not practical. Indirect measurements such as nitrate and nitrite lack temporal resolution, sensitivity and specificity. The use of trapping molecules suffers many of the same problems. Because of the fast response time, electrode sensors are an ideal approach.

The BioStat System is a state-of-the-art, DSP-based, multi-mode potentiostat that uses flexible small electrodes that make measurement of NO practical. With the BioStat NO System you can measure NO concentrations at biologically relevant levels with a choice of sensors either from ESA or virtually any other source.

Flexible

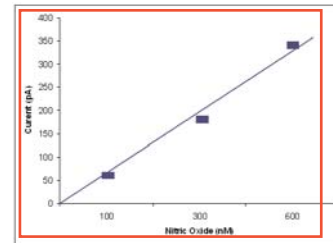
The BioStat System is designed to be used with a wide range of electrochemical sensors and electrodes. It allows precise amperometric or voltammetric measurements to be made independently on up to four channels. Total electrical isolation of each channel assures independent recording with ultra-low noise. The BioStat System can handle signals of either polarity employing either two or three electrode configurations.

The BioStat System uses a high quality solid all-metal case giving it exceptional robustness. The shielding of the case provides immunity from external interference. Surface mount technology insures reliability. The system can be used flat on the bench or in a vertical configuration. Its extremely small size (about size of a paperback book) requires little lab-bench space. Power is 12 volts DC from an external adapter supplied from 100-240 V AC without any need for adjustment.



Response of an NO sensor to NO produce during calibration.

ESA *BioStat* Multi-mode Potentiostat



Easy to Use Software

The software takes less than 5 minutes to load from the CD onto any computer with the Windows® 2000 or later operating system. On-screen menus and pop-ups make it easy to use. The software provides comprehensive data analysis capability even while data is being collected. Data is easily exported to allow post-run analysis using other software applications.

Although configured for NO measurement, the BioStat system is extremely versatile and can be used for any multi-channel, isolated data acquisition.

Specifications

Number of Channels	4
Electrode Configuration	2 or 3
Operational Modes	Amperometric, Voltammetric, Temperature
Input Signal Polarity	Bipolar
Input Signal Configuration	Single-ended
Range Settings:	
For Amperometric Mode	± 1 nA to ±1 mA
For Voltammetric Mode	± 5000 mV
For Temperature Mode	± 100°C
Measurement Accuracy:	
For Amperometric/Voltammetric Mode	0.1% x full scale (10 fA in nA range)
For Temperature Mode	± 0.1°C
Activation Voltage Range	-2000 mV to +2000 mV
Input Impedance	≥ 10 ¹² Ohm
Baseline Noise	10 ⁻⁶ x full scale of selected range
Resolution	10 ⁻⁵ x full scale of selected range
Operating System – host computer	Windows® 2000 or later
Power Supply	9 to 30 VDC 10 W unregulated
Instrument Dimensions	35 x 166 x 125 mm
Weight	0.65 kg

Specifications subject to change without notice.

Ordering Information

BioStat™ NO System

Includes: a BioStat System (P/N 67-0001) and one package of two 600micron tip NO sensors (P/N 67-0017)

Part Number

67-0012



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