



Novocontrol Electrochemical Impedance Measurement System

- Advanced programmable analyzer for highly accurate impedance measurements
- Highly sophisticated potentiostat and galvanostat functions (± 10 V, ± 500 mA)
- Wide frequency range: 3 μ Hz ... 100 MHz (100 kHz, 1 MHz, 10 MHz, 50 MHz optional)
- Base accuracy 0.1 % |Z|; 1 % U, I; 0.03° phase (0.03 % |Z|, 0.1 % U, I; 0.006° optional)
- User-performed and software-assisted automatic self calibration and diagnosis compensates long term internal drift and verifies functionality.
- Higher harmonics measurements (providing both amplitudes and phases) to analyze non-linearity effects (optional)
- Powerful DETACHEM software for fully automatic measurements and sophisticated data visualisation
- Designed for easy, safe and fully automatic operation
- Computer connection via Ethernet
- Four-terminal BNC configuration

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NEISYS

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New Compact Analyzer for Electrochemical Impedance Spectroscopy

NEISYS is the latest Novocontrol development, a compact high-performance device for electrochemical impedance measurements. It combines modern potentiostatic and galvanostatic functions based on a digital control design with a state-of-the-art electrochemical impedance analysis system in a compact case of very small footprint. In its base version, we offer a versatile measurement device with specifications very well suited for many standard EIS applications at an affordable price.

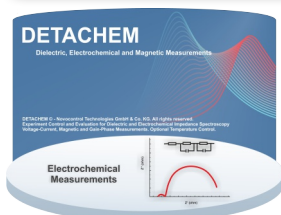
The standard configuration can be extended by various options (see below) to top-class performance (complete specification) wherever needed. Examples are high-measurement rates and higher frequency options, extended ranges and accuracy, and particular applications like non-linear spectroscopy/higher harmonics analysis. NEISYS comes with an easy-to-use software (running on contemporary Windows systems) with Ethernet as a both inexpensive and reliable system interface.

Performance

Using state-of-the-art digital processing techniques, NOVOCONTROL Technologies delivers formerly inaccessible performance, such as high input impedance, wide impedance range, and high phase angle resolution. These features create new opportunities for impedance spectroscopy applications. By separating the signal current and voltage sensing paths, the four-terminal configuration of the NEISYS analyzer, in particular, reduces the effects of lead inductance and stray capacitance which are particularly important in electrochemical applications.

At an affordable price, NEISYS delivers the performance required to run all kinds of electrochemical impedance measurements.

DETACHEM Software Support Included



DETACHEM, our new control and evaluation software, is included. It supports measurements in both frequency and time domains and allows a smooth start by offering various standard experiments which are set-up within minutes.

Specifications:

Ranges

Frequency: 3 μ Hz – 100 MHz *
 Impedance: 10^{-4} – 10^{12} Ω (16 decades)
 Capacitance: 10 fF – 1 kF
 Loss tangent: 10^{-4} – 10^4
 AC signal out: 2 μ Vrms – 7 Vrms
 DC bias out: ± 10 VDC, 500 mA max
 Signal generator output impedance: 0.5 Ω

Differential Voltage Inputs

Input impedance: 10^{12} Ω | 10 pF

Base Accuracy

Voltage, current in time domain mode:
 1 % (0.1 % optional)

[Impedance], [Capacity], [Inductance]:
 0.1 % (0.03 % optional)

Loss tangent: $5 \cdot 10^{-4}$ ($1 \cdot 10^{-4}$ optional)

Phase Angle: 0.03° (0.006° optional)

User Calibrations

Load, short, internal self calibration and diagnostics

*Optional, standard frequency range:
 3 mHz to 100 kHz

Options

NEISYS can be configured in various ways to reflect the particular application requirements:

Sample Rate Options (Time Domain)

10^5 Pts/s, 10^6 Pts/s, 10^7 Pts/s

Frequency Options

Max. frequency: 100 kHz, 1 MHz, 10 MHz, 50 MHz, 100 MHz

High Accuracy Option

- 0.1 % (time domain)
- 0.03 % (frequency domain)

Extended Functionality Option

- Arbitrary waveforms
- Adjustable current and voltage limits
- Sampling times adjustable in individual ramp intervals
- Higher harmonics
- Non-linear spectroscopy
- Fast measurement
- Low-frequency limit: 3 μ Hz