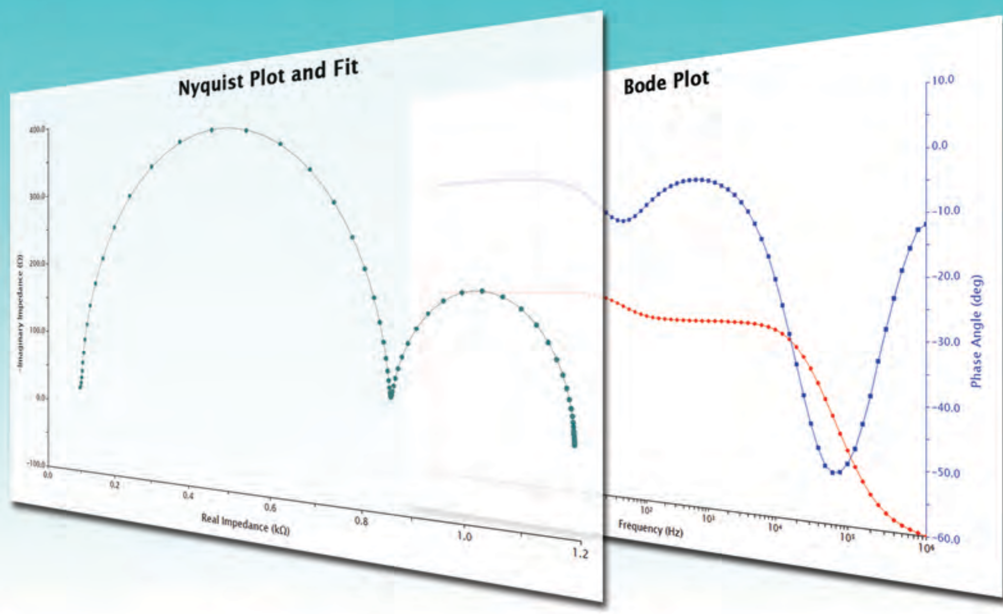
WaveDriver 200 Bipotentiostat with EIS

- Acquisition, modeling, fitting, and analysis in *one* software application
- Integrated bipotentiostat
- Fitting does not require initial circuit values
- Dynamic point selection and weighting for stubborn fits
- Multiple fitting methods
- Novel transmission line fitting module



PINE research

2741 Campus Walk Ave · Building 100 · Durham, NC 27705 · USA

+1 919.782.8320 pinewire@pineresearch.com pineresearch.com

Electrochemical Methods Available

Some methods require additional license, available upon request.*

Basic Methods
Open Circuit Potential (OCP)
Bulk Electrolysis (BE)

Potentiostatic Methods
Chronoamperometry (CA)
Double Potential Step Chronoamperometry (DPSCA)
Cyclic Step Chronoamperometry (CSCA)

Galvanostatic Methods
Chronopotentiometry (CP)
Ramp Chronopotentiometry (CRP)
Staircase Potentiometry (SCP)
Cyclic Step Chronopotentiometry (CSCP)

Voltammetric Methods
Cyclic Voltammetry (CV)
Linear Sweep Voltammetry (LSV)
Staircase Voltammetry (SCV)
Differential Pulse Voltammetry (DPV)
Square-Wave Voltammetry (SWV)
Normal Pulse Voltammetry (NPV)

Stripping Voltammetry
Stripping Voltammetry (ASV)
Differential Pulse Stripping Voltammetry (DPSV)
Square Wave Stripping Voltammetry (SWSV)

Spectrometer Methods*
Spectroelectrochemistry (SPECE)

Uncompensated Resistance Methods
Current Interrupt RU (CI-RU)
Positive Feedback RU (PF-RU)
Impedance RU (EIS-RU)

Rotating Methods*
Rotating Disk Voltammetry (RDE)
Rotating Disk Koutecky-Levich Series (KL-RDE)
Rotating Disk Electrolysis (BE-RDE)
Rotating Disk Chronopotentiometry (CP-RDE)
Rotating Disk Ramp Chronopotentiometry (RCP-RDE)
Rotating Ring-Disk Voltammetry (RRDE)
Rotating Ring-Disk Electrolysis (BE-RRDE)
Rotating Ring-Disk Koutecky-Levich Series (KL-RRDE)

Dual Electrode Methods
Dual Electrode Electrolysis (DEBE)
Dual Electrode Voltammetry (DECV)

Corrosion Methods*
Linear Polarization Resistance (LPR)
Rotating Cylinder Voltammetry (RCE)
Rotating Cylinder Electrolysis (BE-RCE)
Rotating Cylinder Eisenberg Study (EZB-RCE)
Rotating Cylinder Open Circuit Potential (OCP-RCE)
Rotating Cylinder Polarization Resistance (LPR-RCE)
Rotating Cylinder Chronopotentiometry (CP-RCE)
Rotating Cylinder Ramp Chronopotentiometry (RCP-RCE)

Impedance Spectroscopy New!
Potentiostatic Electrochemical Impedance Spectroscopy (EIS-POT)
Galvanostatic Electrochemical Impedance Spectroscopy (EIS-GAL)
Rotating Disk Electrochemical Impedance Spectroscopy (EIS-RDE)
Impedance Uncompensated Resistance (EIS-RU)
Mott-Schottky (EIS-MOTT)

Software & Interface Cable (included)

Software	AfterMath™ Data Organizer
Interface Type	USB 2.0
Cable	USB A/B cable (914 mm L)

Host PC Requirements (the PC is not included)

Operating System	Windows 10, 8, 7 with Microsoft .NET 4.0
Processor Speed	>1 GHz (32-bit or 64-bit) multi-core preferred
Physical Memory	>2 GB RAM
Display Resolution	1024 x 768 minimum

aftermath DATA ORGANIZER

Specification Overview

All specifications are subject to change at any time without notification.

Key System Details
Potentiostat (POT), Galvanostat (GAL), and Zero Resistance Ammeter (ZRA)

Cell Connections	2, 3, or 4 lead
Floating/Isolated from Earth	Yes
Minimum Voltage Resolution	78 µV
Minimum Current Resolution	3.13 pA
Slew Rate	10 V/µs (fastest speed setting)
Noise and Ripple	<10 mV_{RMS}
Analog/Digital Converters	16 bit
Compliance Voltage	±17 V
Input Leakage	<10 pA
Bandwidth (3 dB)	>15 MHz
Maximum Data Points	<10 million per experiment
Floating/Isolated from Earth	Yes
Instrument Dimensions	160 (w) x 255 (h) x 324 (l) mm
Instrument Weight	4.6 kg

iR Compensation
Impedance (EIS), Current Interrupt (CI), and Positive Feedback (PF)

Impedance/EIS

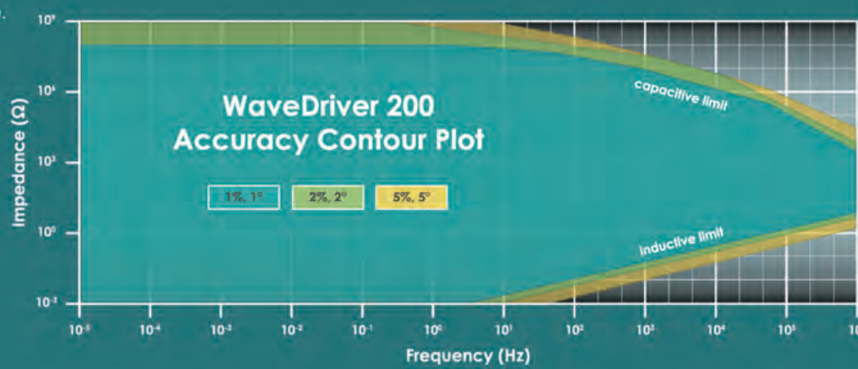
Frequency Range	100 µHz - 1 MHz
Frequency Stability	±10 ppm
Accuracy	see Accuracy Contour Plot
Data Presentation	Lissajous, Bode, Nyquist, Mott-Schottky
Data Analysis	Circuit Fit, Transmission Line, Kramers-Kronig
Circuit Fitting Methods	Modified Levenberg-Marquardt, Simplex, Powell
Circuit Fitting Options	Dynamic point selection, unity, parametric
Frequency Sweeping	linear, logarithmic, custom list

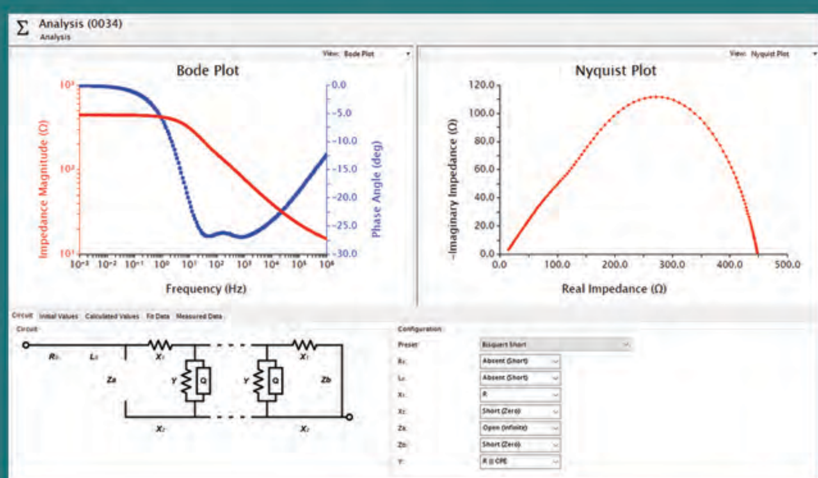
Applied/Measured Potential

Maximum Applied Potential	±15 V
DC Accuracy	±0.2% of setting; ±0.05% of range
Ranges	3 (±2.5 V, ±10V, ±15V)
Resolution at Each Range	78 µV/bit, 313 µV/bit, 469 µV/bit

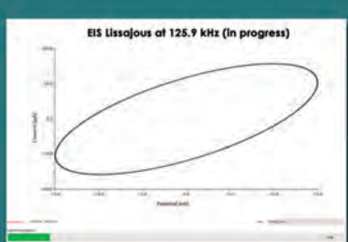
Applied/Measured Current

Maximum Applied Current	±1 A
Practical Working Range	±20 pA to ±1 A
DC Accuracy	±0.2% of setting; ±0.05% of range
Ranges	8 (±100 nA to ±1 A)
Resolution	0.0031% of full scale





- **Circuit fitting has been fully integrated into AfterMath Software, which means you acquire, analyze, organize, and store data in one application.**
- **Customize your own transmission line circuit and fit data with ease.**
- **Easily fit troublesome data using multiple fitting methods and weighting options.**
- **Best of all, fit your data without having to provide initial values for circuit elements.**



**Seamlessly change view during acquisition.
Lissajous plots indicate experimental progress.**

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