

## Power and Flexibility

- Twelve standard techniques including the all new Galvanodynamic Sweep and Zero Resistance Ammeter Function
- View up to Four Plots on a Single Screen
- Create and Save Custom Graphs
- Presentation/Publication Quality Graphics
- Perform Corrosion Data Analyses to determine Tafel Slopes, E<sub>corr</sub>, I<sub>corr</sub>, R<sub>p</sub>, and Corrosion Rate, even during Data Acquisition
- Controls Princeton Applied Research GPIB and USB Potentiostats
- Conveniently Copy/Paste Data and Graphs, even during the acquisition
- Autoexecute provides unattended, sequenced experimental control, and can sequence experiments with other PowerSuite techniques (such as EIS)
- Easy importation of M352 SoftCorr III files

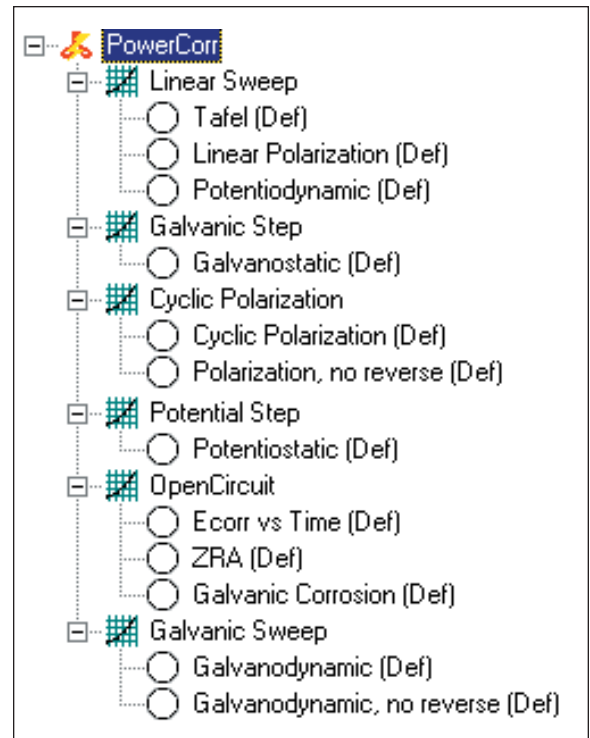
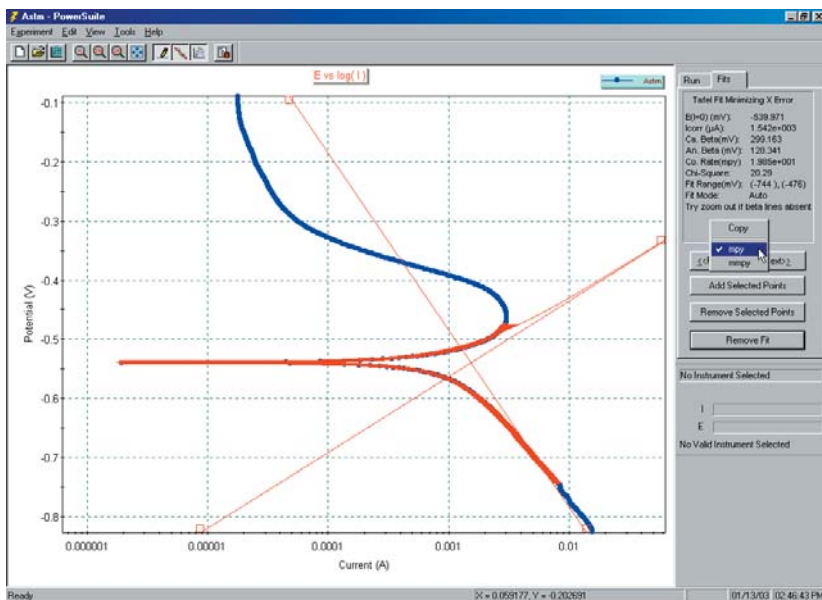
Discover the power of a true 32-bit Windows program with the PowerCORR Corrosion Measurement Software module for our electrochemistry PowerSuite software platform. Take advantage of all the new features including powerful wizards, new graphics and data presentation formats and easy-to-use import/export tools for both graphs and data.

# Discover the Power in *PowerCORR* 32-Bit

**PowerCORR begins a whole new chapter in our long tradition of providing corrosion software to the materials characterization community.**

The latest module release for the PowerSuite Electrochemistry package is the new PowerCORR software. This package is our premier Corrosion Measurement Software and is designed to run a wide range of electrochemical corrosion techniques (as shown in the box on the right).

Techniques such as Linear Polarization, Tafel, and Cyclic Polarization are complemented with **data analysis tools** such as Line Fit, LP Fit, and Tafel Fit. Just select the data points you want to use for the fit, right-click, and fit! When combined with sample information on area, density, and equivalent weight, these techniques and tools can provide all the information needed for determination of corrosion rate, polarization resistance, Tafel Slopes, and other key result values.

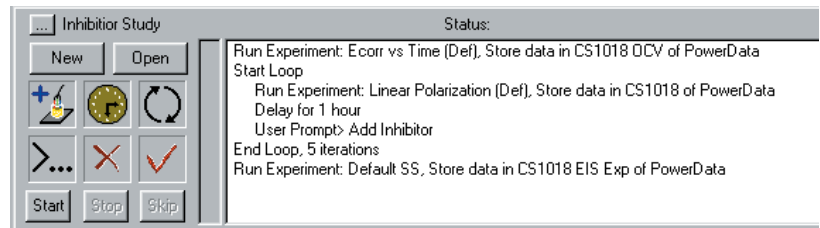


**Two new techniques** have been added to our Corrosion Measurement Software. The Galvanodynamic Sweep allows the user to set up an experiment where the current is controlled and allowed to sweep or step, while the potential is measured. The Zero Resistance Ammeter function allows the user to perform measurements to examine the effect of coupling dissimilar metals and to perform some types of electrochemical noise measurements. With the PARSTAT 2263, and its simultaneous measurement of potential and current, real noise experiments can be performed.

For those experiments where the solution resistance can cause a bias in the data, select the **Current Interrupt IR Compensation** technique to apply the potential you intended to apply.

Adding the corrosion techniques into PowerSuite allows the user to utilize the powerful **Autoexecute Batch Processing** built into the software. Now users can implement an easy to use "drag and drop" feature to sequence any corrosion technique with any other electrochemical technique available in PowerSuite. Use the Autoexecute feature in PowerCORR to perform different corrosion experiments or techniques in a sequence, run multiple cycles of a particular technique with time delays between each cycle, or combine DC and EIS techniques in the same routine. With PowerCORR, you have the power!

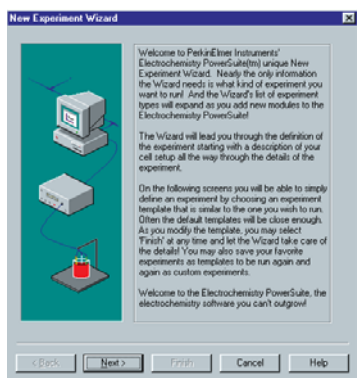
PowerCORR is compatible with data acquired from M352 SoftCorr III. Simply use "Database Management" to **import an M352 file** and it quickly and easily adds it to any database of your choosing. The data is then available for display, calculation and processing like any file acquired in PowerCORR.



# Windows Corrosion Measurement Software

PowerSuite, our 32-bit Windows 95/98/NT/2000/XP application software, provides a simple, flexible and extremely powerful software interface to perform corrosion techniques with Princeton Applied Research Instrumentation.

PowerSuite's unique data storage format using a Microsoft Access database makes a number of other powerful features available to PowerSuite. They include making changes to some experimental parameters on the fly, performing fits on data as it's being collected, searching data files based on comments added by the user, and exporting data and plots to other programs such as Excel or PowerPoint.

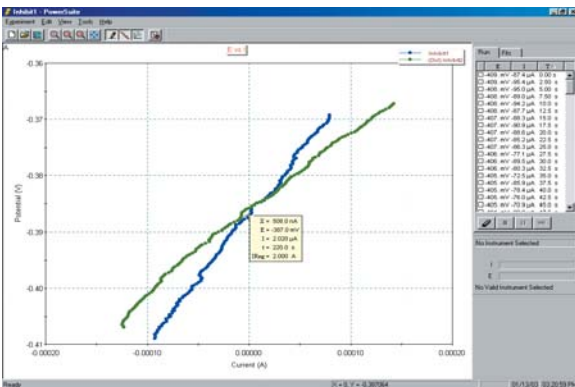


For new users, the "New Experiment Wizard" guides you through a step by step process to configure all aspects of the experiment. Once you have a setup that is to be repeated over several experiments, it can be "Saved as a Template...", recalled, and executed without having to re-enter information with each use.

PowerSuite's dominant feature is the graphical capabilities that provide tremendous flexibility with data presentation. Up to **four plots** can be viewed simultaneously on the screen without opening a separate viewing program. Several default plots are available, and the user has the ability to modify each or create and save their own custom graphs according to their criteria. A wide variety of

parameters are available for plotting, as well as the ability to add a second Y-axis or view the plot in 3-D. The user can select the data symbols/lines desired, and change the color of any plot.

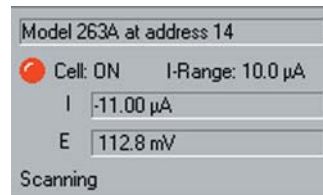
Additional **graphical features** allow for the data of any axis to be mathematically changed (by choosing either +, -, /, or \* the axis values) using the Data Factors feature. This feature can be used to change a reading in amps to microamps for data comparison purposes, or it can be used to convert a potential reading acquired from an ancillary component (such as a temperature probe) through the Auxiliary Input into its proper values (such as °C).



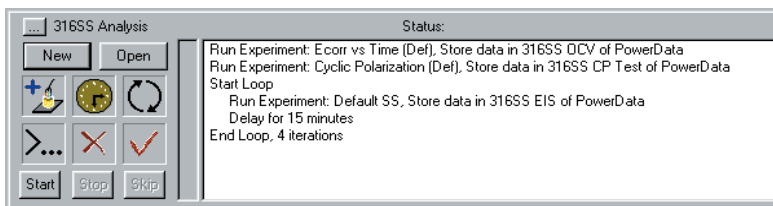
**Overlaid data** from prior experiments can appear on up to four different graphs simultaneously. You can even place the overlay data on the plots prior to acquiring the data, which allows the user to compare the two data sets as the experiment progresses! The graphical properties of the overlaid data can also be modified in terms of color or plot style. Any overlaid data can be selected to become the "active" data file, at which point the current "active" file becomes an overlay, and full data analysis can be performed on what was an overlay! A number of graphical and analytical features are available by right-clicking on any graph and selecting from a full complement of options.

The "Hover" window feature in PowerSuite provides you with a unique information window for any data point, even during the acquisition. Just position the cursor near a data point and the Hover box will appear, providing detailed information on that data point determined by the type of plot being examined.

The **Experiment Bar** provides a live interface to the experiment. The control buttons on the Experiment Bar's Run tab allow the user to start, stop, or pause an experiment. The Fits tab on the Experiment Bar provides the information on Line Fits, Circle Fits, Rp Fits, Tafel Fits, Peak Analysis, etc., depending on the data being analyzed. An Instrument Toolbar provides information on the ID of the instrument being controlled, the cell on/off status, current scale, as well as the current and potential measurements.



The **Autoexecute Bar** gives you even more automated control over PowerSuite. Experimental templates can be entered into control windows for execution, along with time delays, loops, and even user prompts. Any template can be added to an Autoexecute sequence, allowing a user to run, for example, both DC and AC corrosion techniques in the same sequence! An Autoexecute can be created and saved for repeated use to allow the user to work while away from the instrument, increasing productivity and throughput.





## PowerCORR Specifications

**Potentiostat Setup Parameters** (Not all parameters apply to all techniques and are subject to change without notice)

Instrument Model	273/273A	263A, 6310A, BES	283	PARSTAT 2263	VersaStat II
Conditioning Time	0–32767 s	0–32767 s	0–32767 s	0–32767 s	0–32767 s
Conditioning Potential	±8 V	±8 V	±8 V	±10 V	±8 V
Passivation Time	0–32767 s	0–32767 s	0–32767 s	0–32767 s	0–32767 s
Initial Delay, Drift	0.01 mV/s to 100 mV/s	0.01 mV/s to 100 mV/s	0.01 mV/s to 100 mV/s	0.01 mV/s to 100 mV/s	0.01 mV/s to 100 mV/s
Initial Delay, Time	0–32767 s	0–32767 s	0–32767 s	0–32767 s	0–32767 s
Initial/Final Potential	±10 V	±10 V	±10 V	±10 V	±10 V
Fixed Current Range	1 nA–1 A	1 nA–200 mA*	10 pA–100 mA	2 nA–200 mA	100 nA–200 mA
Max. Current	1 A	200 mA*	100 mA	200 mA	200 mA
Resolution	2 pA	2 pA * 2 A w/ 94	20 fA	2 pA	200 pA
Scan Rate, Max.	5 V/s	5 V/s	5 V/s	5 V/s	5 V/s
Scan Rate, Min.	10 µV/s	10 µV/s	10 µV/s	10 µV/s	10 µV/s
Scan Increment, Min. (Technique Dependent)	0.025 mV	0.025 mV	0.025 mV	0.025 mV	0.025 mV
Scan Range	±2 V	±8 V	±8 V	±10 V	±2 V
Step Time, Min.	4 ms	4 ms	4 ms	4 ms	4 ms
No. of Points/Curve	1–3000	1–3000	1–3000	1–10,000	1–3000
Rise Time Setting	Speed or Stab.	Speed or Stab.	Speed or Stab.	Speed or Stab.	N/A
616 Rotation Speed	0–8000 RPM	0–8000 RPM* * w/98	0–8000 RPM	0–8000 RPM	N/A
Step 1 Time, Min.	4 ms	4 ms	4 ms	4 ms	4 ms
Step 1 Time, Max.	2 Ms	2 Ms	2 Ms	2 Ms	2 Ms
Time/Data Point, Max.	1000 s	1000 s	1000 s	1000 s	1000 s
Time/Data Point, Min.	4 ms	4 ms	4 ms	4 ms	4 ms
Vertex Potential 1	±10 V	±10 V	±10 V	±10 V	±8 V
Filters	5.3 Hz I & E 590 Hz I & E	5.3 Hz I & E 590 Hz I & E I/E	5.3 Hz I & E 590 Hz I & E I/E	5, 50, 500, 5k, 50k, 500k Hz I & E Bandwidth Filter	I/E
Step 1 Current	21 nA–1 A	21 nA–200 mA* *2 A w/94	210 pA–100 mA	21 nA–200 mA	210 nA–200 mA
Current Interrupt (Max. IR E Correction)	±4 V (w /96 or /97)	±4 V	±4 V	±4 V	±4 V
Stop On Parameter	User spec.	User spec.	User spec.	User spec.	User spec.
Line Sync.	Yes	Yes	Yes	No	Yes

### Computer Requirements:

Pentium II  
64 MB RAM  
50 MB available HDD space  
CD-ROM drive  
Microsoft Windows® 95/98/2000/NT/XP

### Interface Card (GPIB Instruments only)

National Instruments AT-GPIB/TNT, PCII/IIA,  
PCMCIA GPIB card and NI 488.2 Driver

Specifications subject to change  
031004



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