

A powerful and easy instrument series ...



... for your pulsed electroplating applications

Electroplating - Thin Films - Electrochemical Sensors - ...

The EPP (400 et 4000) series is specifically designed for electroplating applications. These instruments are very efficient for plating either in the potentiostatic or dynamic mode or in the galvanostatic or dynamic mode.

You can connect the **EPP** directly to the PC with a USB port 2.0. The alternative Ethernet communication allows installation on a Local Area Network. Moreover, each channel has analog inputs / outputs to manage external instruments (QCM) and record the generated data.

The EPP is monitored with **EC-Lab (v9.16) software**. It offers a technique builder to create protocols and many analysis tools. The EPP is the only instrument in its category capable to switch quickly from a potential control to a current control.

General Specifications :

- Current ranging from 1 nA up to 400 mA with a 760 pA resolution (76 fA with low current option)
- 20 V Adjustable Reference Voltage
- Resolution: 300 μ V programmable down to 5 μ V by adjusting the dynamic range

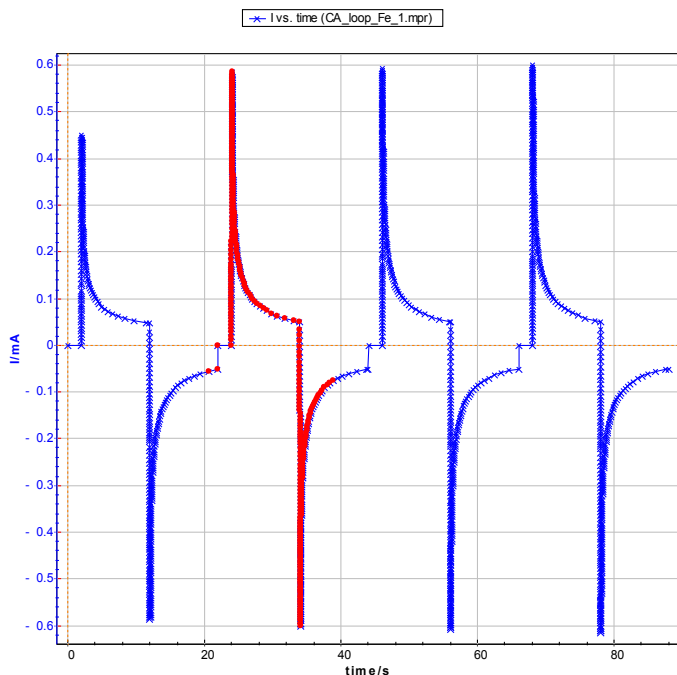
EC-Lab: a powerful monitoring software

The EPPs are provided with EC-Lab® software (v9.16). This software offers several techniques included in a “**technique builder**” and several tools to build complex protocols. The created protocols can be saved as “**Customs Applications**”.

MP and MG techniques are made with blocks that can be linked with a table to the user's convenience. Each parameter can be modified while the experiment is running. All the modifications made are automatically saved in the raw data file. The toolbars and the windows can be adjusted by the user.

Technique builder

- ◆ Modular potentiostat (MP)
Potentiostatic and dynamic
- ◆ Modular galvanostat (MG)
galvanostatic and dynamic
- ◆ Loop
- ◆ Trigger in
- ◆ Trigger out
- ◆ Wait



The technology of the EPP series allows the user to define data sampling and recording conditions without any limit on the recorded data point number. The EPP is a complete autonomous instrument during the experiment thanks to its operating system.

EC-Lab software offers several graphic tools: linear fit, min/max determination, integral.

The graphic window can be shared into different graphs. Each one is active and independent from the others. The user can at the same time follow the experiment evolution and analyze data previously stored.

This window can have a double Y-axis. Axes can be modified by the user. A “Axis processing” option allows less conventional plots. The properties to configure traces (color, style, ...) and units are available for the user.

Potentiostat/Galvanostat board

• Cell Control

Converters: 16-bit dynamic DAC; 12-bit attenuation DAC ; 12-bit shift DAC

Compliance Voltage: 20V range adjustable from ± 10 V to 0-20 V

Maximum Current : ± 400 mA continuous with thermal shut-down protection, ± 2.4 A in peak for EPP-400

± 4 A continuous with thermal shutdown for EPP-4000

Maximum potential resolution : 300 μ V on 20 V, range programmable down to 5 μ V on 200 mV.

Maximum current resolution : 0.004 % of the dynamic range, programmable down to 760 pA on the 10 μ A range

Accuracy (DC): < 0.1% FSR*

Rise time (10% - 90%): < 2 μ S (no load)

• Current measurement

Converter : 16-bit

Ranges: ± 10 μ A, ± 100 μ A, ± 1 mA, ± 10 mA, ± 100 mA, ± 1 A (limited to ± 400 mA DC)

Resolution : 0.004 % of range

Acquisition Speed : 200,000 samples/second

Accuracy (DC) : < 0.1% FSR*

• Potential measurement

Converters: 16-bit ADC ; 12-bit DC shift DAC's

Ranges: ± 2.5 V, ± 5 V, ± 10 V plus ± 10 V adjustable

Resolution : 0.0015 % of the range, up to 75 μ V

Acquisition Speed: 200,000 samples/second

Accuracy (DC) : < 0.1% FSR*

• Reference Electrodes

Inputs: 3 potential measurements leads, with 2 differential voltage measurements

Impedance: 10^{12} ohms in parallel with 20 pF

Bias current : < 5 pA

• Additional Inputs/Outputs

Each potentiostat/Galvanostat board has the following inputs / outputs :

2 analog inputs: 16-bit resolution with automatic ranges of ± 2.5 V, ± 5 V, ± 10 V

1 external input trigger: TTL level

1 external output trigger: TTL level

• Power : 85-264 V AC, 47-440 Hz

Specifications subject to change

*FSR: Full Scale Range