PGU Stack

Overview

Potentiostat, galvanostat

- Modular design
- Current ranges from 2A to100 pA

Description

The ***PGU-Stack*** is a potentiostat/galvanostat in a modular design. Up to four modules can mounted in a standard 19 " 3U rack unit, respectively 8 modules in a 6U unit, or as shown on the picture above, 2 potentiostats with two speed controllers. But it can also be easily used in a desktop case.

The front page shows the control LED of the supply voltage, the Ethernet interface, a USB device connector (for future use) the selected range and the Lemo connector for connection of the measuring cell. At the back there is another USB port which serves as a programming interface (firmware update).

Power is supplied via an external desktop power supply. The input voltage range is from 9 to 18V so that the potentiostat can be operated as well by using a suitable cable as also on the 12V power supply in a car.
On the back side there is the plug for connecting the rotating electrode. Combined with our new speed controller for RDE, which is available in the same size, the user gets a very compact unit consisting of potentiostat/galvanostat, speed controller and rotating electrode.
With a compliance voltage of ±13V, a polarization voltage of ±10V and a current of ± 2A, the device has the typical key data for a standard potentiostat. The current is measured with a total of 12 ranges from 2A to 100pA.
Equipped with an interface with two 24-bit converters for data acquisition (potential and current are measured in absolute terms at the same time) and 26 bits for polarizing (330nV increment), measurements with high resolution and accuracy are performed. It supports all the standard features offered by our ***EcmWin*** software.
The connection to the computer is running via the Ethernet interface. Using a hub several devices can be connected to a computer.
The connection to the measuring cell is in 4-wire technology. Besides the usual ports counter-, reference and working electrode, there is also a "Working Sense" connection. This cable is plugged ideally with the working electrode; the purpose is to eliminate the line resistance. It is measured directly on the DUT.

Technical Details

Modes	Potentiostat and galvanostat
Supply voltage	12 V DC via wide range desktop power supply (100 – 240V, 47 - 43 Hz), double times galvanically isolated
Electrode connections	2, 3, 4, floating and grounded (switchable)
Compliance	± 13V/ ± 2000mA
Polarisation Range	± 10V (potentiostat), ± 2000mA (galvanostat)
Current Ranges	12 ranges from 2000mA to 100pA.
Resolution	100pA = 10.000mV in 100pA range, 10fA = 1mV 24 bit transformer triggers at 1µV, i.e. 1µV = 10aA
Input impedance RE	10^{13} Ohm
Control Outputs	None.
Bandwidth	50kHz
ADC	24 bit, max. resolution 1µV
DAC	26 bit at ± 10V 330nV steps
Resolution of Setvalue	0,2%
Resolution of Measurement	0,3%
Sample rate	Standard 500Hz at 24 bit, 5kHz at 16 Bit
Interface	Ethernet
Software	EcmWin, EcmView
Measurement	OCP, Hold experiments, reversed scan cyclic voltammetry , chronoamperometry, sequence measurement with battery charging and discharge functions, measurement current density versus time, current density versus potential

Two potentiostats with speed controller for RDE

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