PguTouch

IPS
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Overview

Potentiostat, Galvanostat

- ±200 mA, ±10 V
- Portable
- Computerized
- For lab usage or outdoor experiments
- Special evaluation routines
- Implemented methods:
  - EPR
  - LPR
  - CoulCount (ECN)

Description

The ***PguTouch*** is our new potentiostat/galvanostat in a complete new design. Instruments and knobs were replaced by a modern LCD-touch display. Core of the instrument is a powerful ARM Cortex microcontroller that is much faster and uses less power. A 4-chanel 24 bit AD converter for measurement and a 26-bit DA converter for the scanner give the features of a high-quality lab instrument to the device. The Ethernet connection allows a very flexible communication between computer and potentiostat. A WLAN interface for wireless communication with the potentiostat is in preparation.

The device can be connected with a computer to our ***EcmWin Software*** and work like a normal potentiostat. But the instrument can also be “loaded” with routines (so-called sequences) that allow the stand-alone mode in the field basically with all typical measurement modes like **OCP, Hold-, Scan-, Pulse** and a combination of these methods. Another feature is the measurement of electrochemical potential and current noise (impedance in preparation). Furthermore we designed the connection of 3 working electrodes that can measure in a multiplexed mode. More than one electrode material can used in a continuous process of measurement, for instance for the analysis of some specials in the field.

The controller of the potentiostat is equipped with a 2 GB SD card to save a lot of data. This feature can also be used in the laboratory so no computer for measurement is needed. It is possible to save the state of the actual measurement and in case of a power down a long time measurement can be restarted at the same point as the power breaks. The instrument can also be driven with an external battery power pack.

With maximum current of 200 mA and the lowest range of 10 nA, the user has a nice portable instrument with a good resolution of lower signals as well. The build-in touch panel with graphic display allows a comfortable operation of the instrument as well as the display of charts of the measured data.

Special evaluation routines are included, so the customer can use this for quality tests in several processes, for example for quality control of a galvanic bath during the coating of components for the car industry.

Equipment

- 4.3“ TFT display in a well shielded aluminum chassis
- RJ45-connector for communication to PC
- 7-pole circular connector for connection to electrodes
- 9 – 36 V DC power supply via AC adapter or battery pack (optional)
- Power consumption 5 – 8 W
- Micro USB for firmware update
- SD Card for saving measurement results
- Case (optional)

Technical Details

Supply voltage	9–36 V DC via wide range desktop power supply, double galvanically isolated (in floating mode) Power supply: Input: 100–240 V, 50–60 Hz, 620 mA max. Output: 24 V DC 1.25 A.
Modes	Potentiostat and Galvanostat
Impedance analyzer	In preparation, available spring 2020
Electrode connections	2, 3 electrode (CE, RE, WE, WE-Sense), +2 WE
Floating mode	Yes, switchable
Compliance voltage	±12 V
Maximum current	±200 mA
Polarization ranges	± 10 V potentiostatic, ±200 mA galvanostatic
Current ranges	9 ranges from 200 mA to 10 nA
Resolution	10 nA=10000 mV in 10 nA range, 1 pA=1 mV
Electrometer input impedance RE	10^{13} Ω
Bandwidth	10 kHz
ADC	24 bit, max. resolution 1µV
DAC	26 bit at ± 10 V → 330 nV steps
Accuracy of setvalue	< ±1 mV, ±0,01 %
Accuracy of measurement	< ±1 mV, ±0,01 %
Sample rate	Standard 100 Hz at 24 bit
Interface	Ethernet
Software	EcmWin, EcmView
Measurement	OCP, hold experiments, reversed scan cyclic voltammetry, chronoamperometry, sequence measurement with battery charging and discharging functions, measurement current density versus time, current density versus potential

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