PguTouch

IPS
Elektroniklabor GmbH & Co. KG

Overview

The portable computer controlled Potentiostat/ Galvanostat for indoor and outdoor usage.

Description

The **PguTouch** is derived from our Pgu-MOD TP. This was our first version of a stand-alone potentiostat. In the meantime we have transferred our embedded interface software to a low consumption, powerful ARM Cortex microcontroller. Additional we developed an own interface with 24 Bit A/D converters for measurement and 26 Bit D/A converter for highest resolution of polarization values (300nV steps). The Ethernet connection allows a very flexible communication between computer and potentiostat. A WLAN interface is in preparation, we plan to finish it this year, so we can communicate wireless with the potentiostat.

The main idea of this instrument was to design a potentiostat/galvanostat that can be used in a lab as well as in the field. In a first step the device can be connected to our **EcmWin** Software and work like other potentiostats. But the instrument also can "preload" routines (so-called sequences) that allow the stand alone mode in the field basically with all typical measurement modes like OCP, Hold-, Scan-, Puls 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 four working electrodes that can measured in a multiplexed mode. More than one electrode material can be used in a continuous process of measurement, for different material analysis in the field.

The controller of the potentiostat is equipped with an 8 GB SD card, so we can also save a lot of data (this feature also can used in the lab, you need no computer for measurement).

We also save the state of the actual measurement. In case of a power down, we can restart a long time measurement at the same point as the power breaks (or you use a battery power pack to supply the instrument).

With a maximum current of 100mA, you have a good power for a portable instrument. The lowest range is 10nA, which it's a good resolution of lower signals.

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.

For the future we are planning to include some special evaluation routines that customer can use this for quality tests in several process. The older model was used for quality control of a galvanic bath during the coating of components for the car industry.

Equipment

- anodized aluminium chassis
- 4.3 " TFT display with 480 x 272 resolution
- RJ45-connector for network communication to PC
- Micro USB
- 7-pole circular connectors with threaded joint

Technical Details

Dynamic range	
Compliance voltage	±11V
Polarization range	+- 8V potentiostatic, +-100mA galvanostatic
Current range	8 Steps from 100mA up to 10nA
Input resistance	
Reference electrode	10^{13} Ohm
Internal resistance of ammeter	10^{-4} Ohm (current to voltage converter)
Interface	
Connection	Ethernet
Converter	1 A/D converter for multiplexed detection of U and I with 24 bit, resolution theoretically 1µV, practically ca. 50µV
Current measurement	10nA as current-proportional voltage of +- 10V results 1pA = 1mV, recorded with 24 bits for theoretically 1fA, practically 0,5 pA
Max. acquisition rate of the interface	100 Values per second per channel