



Two PguTouch H2 systems: on the left with a large Devanathan cell with a volume of 1 L per side; on the right with a small Devanathan cell with a volume of 200 mL per side. The system on the right is significantly more affordable.

## Overview

### Potentiostat/Galvanostat

- Two PguTouch potentiostats/galvanostats:
  - one for charging
  - one for permeation measurement
- High resolution interface: 24 bit data acquisition, 26 bit scan resolution (330 nV)
- Communication via USB or Ethernet
- Main Power 24V via Plug-In Power supply or battery.
- In combination with a Devanathan cell a system for measuring hydrogen permeation through a (steel) plate can be established.

### Description

The **PguTouch H2** setup consists of two PguTouch potentiostats/galvanostats in combination with a Devanathan cell. It is predesigned for the use with our double cell for investigation of the hydrogen permeation. One PguTouch serves as galvanostat for the charging side while the other device acts as potentiostat for the hydrogen permeation measurement. For hydrogen permeation measurement, the devices are managed by the software. It controls the start/stop of the galvanostat when permeation will be undershot /exceed. A permeation measurement can be defined in advance and carried out automatically. This method can be repeated as many times as necessary.

A PguTouch includes a built-in measuring and automation system, the EcmWin measuring software and the evaluation software EcmView. The devices can be connected to a computer to our EcmWin Software and work like a normal potentiostat or the methods can be transferred which allow the stand-alone mode.

The connection to the computer is established via USB or Ethernet. The measuring module works with 24 bit A/D converters while the scanner works with 26 bit (step size 330nV).

## Technical details

<b>Output parameter</b>	
Compliance voltage	$\pm 12V$
Polarisation ranges	Potentiostat: $\pm 10V$ Galvanostat: $\pm 500mA$ ( $\pm 300mA$ continuous)
Current ranges	10 steps from 500 mA to 1 nA
Resolution	1 nA = 1000 mV in 1 nA range, 1 pA = 1 mV
<b>Supply parameter</b>	
Supply voltage	9–36 V DC via wide range desktop power supply Power supply: 100–240 V, 50–60 Hz
Supply current	620 mA
<b>General parameter</b>	
Modes	Potentiostat and Galvanostat
Impedance analyzer	Available with signal type sinus, square, triangle
Electrode connections	2, 3 electrode (CE, RE, WE), 2 WE
Floating mode	Yes, switchable
Electrometer input impedance RE	$10^{13} \Omega$ , $10^{15} \Omega$ on request
Bandwidth	100kHz
ADC	24 bit, max. resolution 1 $\mu V$
DAC	26 bit at $\pm 10 V \rightarrow 330$ nV steps
Resolution of setvalue	$< \pm 1$ mV, $\pm 0,01$ %
Resolution of measurements	$< \pm 1$ mV, $\pm 0,01$ %
Sample rate	Standard 100 Hz at 24 bit, 1 kHz at 16 bit
Interface	Ethernet/USB
Software	EcmWin, EcmView
Methods	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, H2 method
Additional inputs	none
Additional outputs	none