

# POTENTIO - GALVANO - SCAN PGS 95

The economic solution for a compact electrochemical testing equipment

This combination of a rugged medium power 25 V / 2 A - potentiostat / galvanostat and a high - accuracy scanner represents an economically priced solution for a wide variety of electrochemical tests, preponderantly applied in electrochemical corrosion research and voltammetry. The analogue scanner produces infinite smooth, linear ramps. The mode of scan return, by either current or potential limit, is independent from the potentiostatic or galvanostatic mode, respectively. The scan rates range from 5 mV / h to 10 V/s. The scan potential or current settings can be varied within  $\pm 10$  volts or  $\pm 2$  A, respectively. Operating modes, either potential or current control, can be changed over by simple switching without variation of external cell connections. A superimposing control input allows additional external control, a special input is provided for IR - drop compensation.

The cell is connected by a 4- wire cable, especially designed for low phase distortion and high stability. For work with very low conductive environments, an external front buffer is optionally available, increasing the input impedance to  $10^{13}$  Ohms while detrimental capacities are practically eliminated.

Like most of our laboratory modes, the PGS 95 Bank Elektronik potentiostats is equipped with a classical analogue current meter. Analogue meters are most advantageous when dynamic currents shall be visualised.

The potential is displayed on a 3 3/4 digit LCD autoranging LCD meter.



- ▶ Potentiostat / Galvanostat 25 V / 2 A
- ▶ Built - in Scan Generator
- ▶ IR-drop compensation
- ▶ Manual and Computer - Control

# SPECIFICATIONS PGS 95

AC - power stabilisation range 115 / 230 V, 50 to 60 Hz, 100 W  
+ 10% and -15% of nominal line voltage

## Potential/Current -Buffer

Input impedance >  $10^{12}$   $\Omega$ , 5 pF in parallel  
Input range  $\pm 10$  V  
Input bias current less than  $10^{-11}$  A at 25 °C ambient temperature  
Bandwidth (-3dB) 2 MHz Pot.Control, 200 kHz Current Control  
Small signal rise time <  $3 \cdot 10^{-7}$  s Pot. Control,  $3 \cdot 10^{-6}$  Curr. Control  
Slew rate 5 V /  $\mu$ s  
Potential output / Current output single - ended, ground - referred, 1 k $\Omega$  output resistance  
Drift 200  $\mu$ V / 10 h, 500  $\mu$ V / 100h, 10 $\mu$ V / °C

**Option:** External Front Buffer, improves phase stability and increases input impedance to  $10^{13}$  Ohms

## Potentiostat (VA, PA)

Control input resistance 100 k $\Omega$   
Superimposing accuracy 0,1% both inputs  
Control input range  $\pm 10$ V  
Open loop gain typically 1 M at d. c. ( 1 V /  $\mu$ V)  
Roll - off 20 dB / decade of frequency  
Unity gain crossover 200 kHz approx.  
Small signal rise time less than 2  $\mu$ s (closed loop, resistive load, 90%)  
Slew rate 5 V /  $\mu$ s, 1 A /  $\mu$ s  
Full power output up to 25 kHz  
Noise referred to control input 30  $\mu$ V rms, ripple negligible  
Drift referred to control inputs 200  $\mu$ V / 10 h, 500  $\mu$ V / 100 h, 10  $\mu$ V / °C  
Operating limits  $\pm 30$  V or  $\pm 2,2$  A max.,  $\pm 25$  V at  $\pm 2,0$  A  
Output power max. 50 Watts

## Meter and recorder output circuit

Meter indication 3 3/4 digit autoranging meter for potential, analogue meter for current  
Current ranges (full scale deflection) 2A to 20  $\mu$ A in 6 decadic ranges  
Current output converter 2 V corresponding to full range, 0.2 % tolerance rising to 0.5 % in high ranges  
Potential output converter unity converting rate  $\pm 0.2$  % within the full range of  $\pm 2$  V

## Scan Generator

Mode of operation constant potential (resp. current), or ramp, or triangle  
Scanning rate 6 coarse positions for the slope 0.01, 0.1, 1, 10, 100, 1000 mV/s  
with overlapping fine adjustment, calibration, accuracy 2 %, attenuation 10  
Potentials settings Separately selectable in polarity and scan width, 1000 divisions of the dial correspond to  $1000 \text{ mV} \pm 0,2 \%$  in "Multiplier", position "1"  
Output multiplier multiplies potential and scanning rate with scale factor 0.5, 1, 2, 5, 10  $\pm 0,2 \%$   
Long term stability (output voltage)  $\pm 1$  mV multiplied with "Multiplier" factor output voltage  
Signal - to - noise ratio > 80 dB

## Option PC-G

Control interface for PGS 95, controlling current ranges, counter electrode mode (rest potential / potentiostatic operation) and potentiostatic / galvanostatic operation as well as scan start / stop functions. The interface has TTL-quasi-compatible (5 V) inputs and outputs, and provides the analogue output signals for current and potential together with the control signals on a Centronics 36 pin terminal at the rear panel. It fits best to our software modules (see separate leaflet)

Input lines 3 x range, BCD - coded, CE on/off, scan start, scan stop, ramp/triangle, pot/galv - mode  
counter electrode on/off and ranges are displayed on a LED-array  
ranges are switched by precision reed-relays, life > 1000,000 duty cycles

## Dimensions

Front panel 483 x 133mm, housing 540 x 155 x 382 mm, weight net 12 kg