

HIGH CURRENT POTENTIOSTAT / GALVANOSTAT

WENKING MODEL HP 99 - 50



- ▶ Current up to ± 55 A
- ▶ Compliance Voltage up to ± 8 V
- ▶ Option: PC Interface

Model HP 99 - 50 is a potentiostat designed especially for high current applications. A maximum power output of 400 Watts, ± 8 V at ± 50 A makes this potentiostat most powerful for battery and solar power research. Its control speed (20 kHz bandwidth) and phase linearity makes this instrument to a most powerful research instrument for high current electrochemistry. The potentiostatic control stage is based on our high power laboratory potentiostat HP 96, which combines high reference electrode input resistance and fast response in its control circuit, with a special designed high - current - MOSFET power stage. The power stage and the potentiostatic stage are housed in 19" rack with separate power stage and potentiostat. An internal control voltage source and two control inputs allow to superimpose or mix different signals.

The HP 99 - 50 can be operated as potentiostat, controlling the potential of a working electrode with respect to a reference electrode, or as galvanostat, controlling the current through the working electrode, last not least as controlled voltage source, with controlled voltage between working electrode and auxiliary electrode. The current - to - voltage converter operates in four decadic ranges from 50 A, 5 A, 500 mA and 50 mA, so even very low currents can be measured.

Optionally, a switch interface is available for operation mode setting and range setting. The four - point - current measurement produces error - free data.

SPECIFICATIONS HP 99 - 50

Line 3 x 230 V (3 phase), 3 x 400 VA

CONTROL VOLTAGE SOURCE

Range $\pm 1000, 2000$ and 4000 mV
Accuracy $\pm 0.1\%$ deviation from the total range selected
Temperature coefficient $3 \times 10^{-5}/^{\circ}\text{C}$
Drift per 1000 hours $< 0,1 \%$, readjustable

POTENTIOSTAT AMPLIFIER

Control input resistance $100 \text{ k}\Omega$ }
Superimposing accuracy $0,1\%$ } both inputs
Control input range $\pm 8 \text{ V}$ }
Open loop gain $> 5 \times 10^5$ at d. c.
Roll - off 20 dB/decade of frequency
Unity gain crossover 20 kHz
Small signal rise time $< 20 \mu\text{s}$ (closed loop, resistive load)
Slew rate $0.4 \text{ V} / \mu\text{s}$
Full power output 5 kHz
Noise referred to control input $50 \mu\text{V rms}$, ripple negligible
Current output noise and ripple $< 2 \mu\text{A rms}$ (reduced by external bandwidth clipping)
Drift referred to control input $100\mu\text{V} / 10 \text{ h}, 200\mu\text{V} / 100\text{h}, 10\mu\text{V} / ^{\circ}\text{C}$
Current ranges $50 \text{ A}, 5 \text{ A}, 500 \text{ mA}, 50 \text{ mA}$
(correspond to $2.0 \text{ V} \pm 1 \%$ output voltage)
Recorder Output Current 2 V (full range)

Power Stage

Max. Current 55 A
Operating limits $\pm 12 \text{ V}, \pm 55 \text{ A}$, rated 6.4 V at 50 A

Option Interface

Functions Operation Modes (OCP, Potentiostat, Galvanostat)
Range Setting
Level quasi - TTL - compatible (5 V)
Others Transfer of analogue signals to a A/D - D/A converter
(e.g. Keithley KPCI - series)

Dimensions: $505 \times 380 \times 385 \text{ mm}$ (W x D x H), Weight 40 kg