

THE COMPACT POTENTIOSTAT FOR EDUCATION & TRAINING

# Potentiostat & Galvanostat Scholar



The Scholar is a compact potentiostat and galvanostat **for education, training, and basic electrochemical measurement tasks.**

It combines **potential measurement, potentiostatic polarisation** and **galvanostatic control** in a compact system with clear, easy operation.

With its high reference electrode input resistance, fast regulation, and precise control in the millivolt range, it supports reproducible measurements with low susceptibility to operating errors.

## Your benefits at a glance

- **For education and training:** classical electrochemical experiments in teaching and laboratory environments
- **Three operating modes:** potential measurement, potentiostatic mode, galvanostatic mode
- **4-quadrant operation:** can be used both as a current source and a current sink
- **Stand-alone or integrated:** internal control source of  $\pm 4000$  mV and external control input
- **Monitor outputs for potential and current:** for integration into data acquisition systems
- **Two model versions:** Scholar E up to  $\pm 50$  mA, Scholar T up to  $\pm 150$  mA



## Operating Principle

Scholar can be operated with its internal control source of  $\pm 4000$  mV or driven by an **external control voltage**. **Potential and current** are displayed directly on the instrument.

Additional **monitor outputs for potential and current** allow connection to external measuring and data acquisition systems.

DEVELOPED FOR CLASSICAL ELECTROCHEMICAL EXPERIMENTS

# Specification Scholar

## Potentiostat

Control input resistance	100 k $\Omega$
Potential control range	$\pm 12$ V
Open loop gain	> 1000 000 (dc)
Roll-off	20 dB / Dekade
Unity gain bandwidth	200 kHz typ.
Small signal rise time	2 $\mu$ s (closed loop, ohmic load, 90%)
Slew Rate	10 V/ $\mu$ s
Volllastaussteuerung bis	> 50 kHz
Power limits per model	Scholar E: max. $\pm 12$ V, max. $\pm 50$ mA Scholar T: max. $\pm 12$ V, max. $\pm 150$ mA
Current ranges	200 mA bis 2 $\mu$ A in 7 Dekaden
Current to voltage conversion	Better than 0.2% up to 20mA, better than 0.5% up to 150 mA

## Internal control voltage source

Range	$\pm 4000$ mV
Tolerance	0,2% $\pm 1$ LSB
Temperature coefficient	< 10 <sup>-4</sup> /°C
Drift	< 10 <sup>-4</sup> /1000 h

## Dimensions an power supply

Dimensions	225 x 215 x 80 mm
Power supply (external unit)	90-230 V, 50/60 Hz, output 12V 450 mA

## Potential buffer

Input impedance	> 10 <sup>11</sup> $\Omega$ , 1 pF parallel (cable capacitance compensated)
Potential range	$\pm 4$ V
Input bias current	< 10 pA bei 25°C
Unity gain bandwidth	10 Mhz typ.
Small signal rise time	< 10 <sup>-6</sup> s
Slew Rate	10 V/ $\mu$ s
Noise (0-250 kHz)	< 30 $\mu$ V rms

## Options

- MYDAQ USB-Interface:** 2  $\times$  16 bit AD converter and 2  $\times$  16 bit DA converter
- LabVIEW-measurement application:** for easy integration into computer-based measurement setups

## Typische Anwendungen

- Potential measurements, e.g. corrosion potential and redox potential
- Potentiostatic polarisation for recording stationary current-potential curves
- Galvanostatic control, e.g. thickness measurement of electroplated surfaces
- Characterisation of batteries and investigation of galvanic cells
- Polarographic analysis and experiments on cathodic protection

**We will be pleased to advise you on integrating the Scholar into your test setup. Contact us directly or request an individual quotation.**

