



# Simulator

## Features:

*transducer calibrator and meter in one compact device*

*simulation of current source 0...22 mA*

*ammeter 0...100mA*

*simulation of voltage source 0...11V*

*voltmeter 0...50V*

*simulation of two-wire transmitters*

*testing of two-wire transmitters*

*simulation of potentiometer up to 1000 Ω*



## Application:

The universal hand-held SIMULATOR is the ideal solution to measure and simulate voltages, currents and resistances on-site. The device is used for the transmission of standard signals and for the measurement of calibration, test or control.

The SIMULATOR has a network-independent integrated supply to simulate currents or voltages. The range of application is divided as follows:

**Current or voltage transmitter** for the calibration and testing of loops and transducers.

**Two-wire simulator** (live-zero-transmitter; 4...20mA): the SIMULATOR can be used instead of a two-wire transmitter, in order to control or adjust the measuring circuit of the available feeding amplifier.

**Testing of a two-wire transmitter:** the device generates a voltage of approx. 13 V, current limiting can be adjusted by a potentiometer, the current output (4...20mA) appears on the LCD-display.

**Voltmeter and ammeter** with a resolution of 0,1 V respectively 0,1 mA. This mode allows a direct measurement of loops or devices to be checked.

**Simulation of a potentiometer transmitter:** the internal 10-step potentiometer is switched on the sockets and the device can be used as an adjustable resistor or potentiometer (1000 Ω).

**Please note:** in order to avoid destruction of the device, start first with selection of function, then plug in measuring lines.

## Function:

The value adjusted by the 10-step potentiometer is registered by an internal amplifier of the Simulator and is given out proportionally as current or voltage signal according to the position of the switch. The internal multimeter with LCD-display is switched on respectively and indicates the corresponding value. As far as current or voltage measuring functions are concerned the multimeter is directly switched on the connection sockets. If the supply voltage of the device is too small (battery operation approx. 8V) to reach the desired output value, an electronic voltage multiplication is activated automatically.

The state of charge of the accumulator (or battery) is also controlled. In case the accumulator is almost discharged, the display indicates "BAT". The provided mains adapter can be used for the charge of the accumulator as well as for mains supply. The charging with mains adapter is signalled via laterally integrated LED. When Simulator is switched off, the recharge time is approx. 15 hours. An integrated current- and voltage limiting protects against overload of the accumulator.



| Application                                      | Range                   | Switch   |          | Connection sockets |             |           |
|--|-------------------------|----------|----------|--------------------|-------------|-----------|
|  |                         | left     | right    | black              | red         | yellow    |
| Current transmitter                              | 0...22 mA<br>max. 600 Ω | current  | transmit | -                  | +           |           |
| Voltage transmitter                              | 0...11 V<br>min. 400 Ω  | voltage  | transmit | -                  | +           |           |
| Simulation of a (4...20 mA) two-wire transmitter | 0...22 mA<br>10...30 V  | 2-wire   | 2-wire   | -                  | +           |           |
| Testing of a two-wire transmitter (Poti 100%)    | max. 22 mA<br>13 V      | current  | transmit | -                  | +           |           |
| Amperemeter                                      | 0...100 mA<br>Ri = 10 Ω | current  | measure  | -                  | +           |           |
| Voltmeter  | 0...50 V<br>Ri = 100 kΩ | voltage  | measure  | -                  | +           |           |
| Potentiometer                                    | 0...1000 Ω              | optional | off/poti | start<br>ccw       | slider<br>S | end<br>CW |

### Characteristics of transmission:

|                          |                       |
|--------------------------|-----------------------|
| Linearity error (2-wire) | = 0,5% ( $\leq 2\%$ ) |
| Temperature error        | = 0,1%                |
| Load influence           | = 0,5%                |
| Zero point setting       | automatically         |
| Range setting            | 0...110%              |
| Setting time             | 50 msec.              |

### Electromagnetic compatibility law

Germany in accordance with  
EMC Directive: 2004/18/EG\*  
Low-Voltage Directive: 2006/95/EG

### Auxiliary power:

|        |                               |
|--------|-------------------------------|
| 12V DC | mains adapter                 |
| or     | standard rechargeable battery |
| or     | battery 9V                    |

**Please note: when battery operation  
don't plug in battery recharger!**

| Operating time    | accumulator | battery |
|-------------------|-------------|---------|
| 20 mA; load 300 Ω | 4 h         | 16 h    |
| 20 mA; load 600 Ω | 2 h         | 8 h     |
| 10 V; load 50 kΩ  | 16 h        | 64 h    |

### Environmental conditions:

|                        |             |
|------------------------|-------------|
| Storage temperature:   | -40...+70°C |
| Operating temperature: | 0...55°C    |

**Housing material:** ABS colour: white

Dimensions: 145 x 65 x 39 mm

### Accessories Simulator:

Simulator  
Mains adapter 230/12V  
NC-accu 9V/100 mAh

### Accessories:

Case size 20 x 17,5 x 10,5 cm  
including Simulator, mains adapter  
and measuring lines.

### Ordering information:

Simulator

Case



\* minimum deviations possible during HF-radiation influence.