

Precision RTD Simulator

Model 4530

Code:	4530 EN
Manufacturer:	burster
Delivery:	ex stock
Warranty:	24 months



- Simulation of Pt100, Pt200, Pt500, Pt1000, Ni 100 and Ni 1000 Sensors
- Accuracy 0.02 °C
- Temperature scales ITS 90, IPTS 68
- Real Ohm simulation
- Control manually or remotely via RS232/IEEE488

Application

The precision RTD simulator is used where measuring instruments or controlling means with high precision must be examined or calibrated.

The simulator is suitable for calibration laboratory and service centers which need a computer-controlled resistance decade for the automation of calibration procedures.

All standard platinum and nickel RTD can be simulated with very high accuracy according to scales ITS 90 or IPTS 68.

Temperature regulators, transducers etc. often supply a pulsed signal current in order to reduce the self-heating of the RTD. Devices with electronic simulation of RTD are therefore inclined to swinging and do not function with this application. Here, the advantage of the RTD simulator model 4530 becomes obvious as it can simulate the resistance sensor by real Ohm simulation without problems.

Of course the RTD simulator can be used also as classical resistance decade.

Description

The equipment comes in a sturdy aluminium housing. The keyboard and display are on the front plate. It makes 2-, 3- and 4-wire connection possible on the back side.

Pt100, Pt200, Pt500, Pt1000, Ni 100 or Ni 1000 can be selected by simple menu navigation. In addition, the selection of temperature scales ITS90 (DIN EN 60751) or IPTS 68 (DIN 43760) and two curves $\alpha = 0.385$ (European) or $\alpha = 0.392$ (US) is possible. After entry of the characteristic values the input of the temperature levels can be made very simply by the numeric keyboard. Presently set values are indicated in the display.

Relays with low thermovoltage and stable foil resistances with very small temperature coefficients are the heart of the simulator.

Technical Data

Range of temperature simulation: - 200 °C ... 850 °C
 Type of sensors: Pt100, Pt200, Pt500, Pt1000, Ni 100 and Ni 1000
 Temperature scales: ITS 90, IPTS 68
 PT sensors curves: or $\alpha = 0.385$ (DIN)
 $\alpha = 0.392$ (US)
 Pt sensors standards: DIN EN 60751
 Ni sensors standards: DIN 43760
 Resistance range: 16 Ω ... 10000 Ω
 Temperature coefficient: < 1 ppm/°C (16 Ω ... 2000 Ω)
 < 5 ppm/°C (2 k Ω ... 10 k Ω)
 Maximum power dissipation: 0,3 W
 Maximum current: 100 mA (16 30 Ω)
 50 mA (30 100 Ω)
 20 mA (100 500 Ω)
 10 mA (500 3000 Ω)
 5 mA (3000 ... 10000 Ω)
 Connection: 2-, 3- and 4-wire
 Terminals: 4 mm, gold plated terminals
 Remote control: RS232-interface,
 galvanically isolated, IEEE488
 Reaction time in remote mode: < 3 ms
 Power supply: power line (100-240 VAC)
 Operating time with accu: typical 6 h
 Customs temperature range: + 5 °C ... + 40 °C
 - within the specifications 23 °C \pm 5 °C
 Storage temperature range: - 10 °C ... + 50 °C
 Protection class: IP 20
 Dimensions (B x H x D): 250 x 100 x 390 [mm]
 Weight: 4.0 kg

Fehlergrenzen

Specified accuracy is valid after 10 minutes warm-up in temperature range 23 °C \pm 5 °C.
 Uncertainties include longterm stability, temperature coefficient, linearity, load and line regulation and traceability of factory to National calibration standards. Accuracy assigned in % is related to the set value. Specified accuracy is one year accuracy.

DKD-Calibration Certificate

The calibration certificate shows following 9 values:
 20 Ω , 50 Ω , 100 Ω , 200 Ω , 500 Ω , 1 k Ω , 2 k Ω , 5 k Ω and 10 k Ω .

Application



Resistance simulation

Range	Accuracy
16.0000 ... 400.00 Ω	0.003 % + 3 m Ω
400.00 ... 2000.0 Ω	0.005 %
2000.0 ... 10000 Ω	0.015 %

Pt sensor simulation

Temperature range	Accuracy			
	Pt100	Pt200	Pt500	Pt1000
- 200.000 ... 200.000 °C	0.02 °C	0.02 °C	0.02 °C	0.03 °C
200.000 ... 500.000 °C	0.03 °C	0.04 °C	0.06 °C	0.15 °C
500.000 ... 850.000 °C	0.04 °C	0.06 °C	0.15 °C	0.2 °C

Ni sensor simulation

Temperature range	Accuracy	
	Ni 100	Ni 1000
- 60.000 ... 250.000 °C	0.02 °C	0.1 °C

Line resistance simulation

Parts of the simulator are two resistors of nominal value 10 Ω and 20 Ω , which can be used as resistance simulation. Lead resistance accuracy is 0.1 %, maximum allowed current is 100 mA.

Oder Information

RTD-Simulator mit RS232, **Model 4530-V300**
 Desktop housing version, including power line adaptor,
 operation manual, application software and test certificate

RTD-Simulator with IEEE488, **Model 4530-V400**
 Desktop housing version, including power line adaptor,
 operation manual, application software and test certificate

19"-Rack mount kit (3Hu) **Model 2316-Z001**

DKD-Calibration Certificate **Model 45DKD-4530**