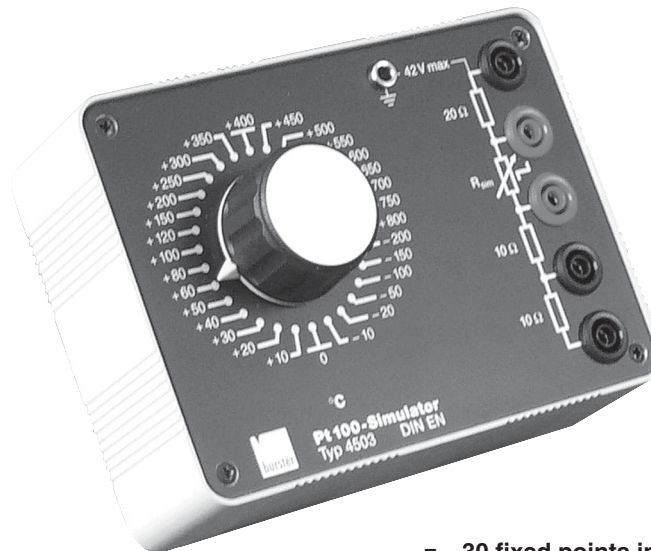


# Pt 100 Simulators

**Model 4503E/S/SE**  
**Model 4504/E**

Code:	4503 E
Manufacturer:	burster
Delivery:	ex stock/6 weeks
Warranty:	24 months



- 30 fixed points in a wide temperature range
- Calibration to DIN EN 60751
- Simulation of cable resistances up to 40  $\Omega$
- Resistor material MANGANIN<sup>®</sup>, TK < 10 ppm/K
- Compact easy to handle alu-housing

**4503-E**

## Application

An instrument that accurately simulates the Pt 100 resistance thermometer over a wide temperature range is very useful for the testing of industrial temperature measuring and control devices. Pt 100 simulators of the types 4503, 4503 S and 4504 are the answer to such requirements. A special advantage of these simulators is the direct reading of the 30 calibration points in centigrades (0 °C), whereby any trouble some checking with tables is rendered unnecessary.

The standard simulator type 4503 has 30 fixed calibration points within a range from - 200 °C to 800 °C. Many years of experience have shown the need for the Pt 100 simulator type 4504 with 30 calibration points within a restricted range from - 30 °C to 100 °C. Such a restricted temperature ranges is of great interest, e. g. for the food industry. In dairies, breweries, at ice-cream factories and similar plants the Pt 100 simulator type 4504 is the measuring instrument for daily use. Also this simulator is used in industries associated with household appliances, in power and heating plants and the like. Wherever measuring and control devices at individual temperature points require adjustment and testing the Pt 100 simulator type 4503 S should be employed. In these instruments the selector switch is programmed with 30 temperature calibration points as individually given by the user. The type 4503 covers a range from - 200 °C to 850 °C.

The Pt 100 simulators are small-sized, rugged and designed for field applications. A functional leather carrying case, which is available as an accessory, serves to protect the instrument. Pt 100 simulators are also well-suited for laboratory use.

## Description

A compact, sturdy alu-housing, provided with 4 mm terminals in industrial standard, accommodates a high-class switch with wire-wound precision resistors of MANGANIN<sup>®</sup>. By way of this selector switch 30 fixed temperature values according to DIN EN 60751 (specification for the resistance thermometer Pt 100) are simulated. The simulated resistor value which corresponds to the selected temperature will be picked up at the output terminals "R<sub>sim</sub>". Another three terminal sockets serve to simulate connecting cable resistances between 0 and 40  $\Omega$ . The selector switch of type 4503 S is programmed with 30 temperature calibration points as individually given by the customer within a range from - 200 °C to + 850 °C. The resistance material MANGANIN<sup>®</sup> used in the instrument has a temperature coefficient of < 10 ppm. Therefore the ambient temperature needs not to be taken into account.

## YSI 400 Simulator

With the simulator type 4503S-MET 400 medical thermometers can be calibrated on the basis of MET 400 and/or YSI 400.

## Technical Data

Model	Kind of simulation	Adjustable temperature values in [°C]						Delivery time
<b>4503</b>	Pt 100 standard	- 200	- 150	- 100	- 50	- 20	- 10	ex stock
		0	+ 10	+ 20	+ 30	+ 40	+ 50	
<b>4503 E*</b>		+ 60	+ 80	+ 100	+ 120	+ 150	+ 200	
		+ 250	+ 300	+ 350	+ 400	+ 450	+ 500	
		+ 550	+ 600	+ 650	+ 700	+ 750	+ 800	
<b>4503 S</b>	Pt 100 according to customer specification	Please indicate 30 values within the range from - 200 to + 850 °C						approx. 6 weeks
<b>4503 SE*</b>								
<b>4504</b>	Pt 100 standard	- 30	- 25	- 20	- 15	- 10	- 8	ex stock
		- 6	- 4	- 2	0	+ 2	+ 4	
<b>4504 E*</b>		+ 6	+ 8	+ 10	+ 15	+ 20	+ 25	
		+ 30	+ 35	+ 40	+ 45	+ 50	+ 55	
		+ 60	+ 65	+ 70	+ 80	+ 90	+ 100	
<b>4592</b>		Functional case for all types of Pt-simulators						ex stock
<b>4503S</b>	MET 400 and/or	0	+ 10	+ 20	+ 30	+ 35	+ 37	approx. 8 weeks
<b>MET 400</b>	YSI Series 400	+ 39	+ 41	+ 45	+ 50	0 Ω		

\* built-in version (without case)

Temperature values: see table

Calibration: according to DIN EN 60751

Accuracy in:

$$\pm (0.082 + 0.0003 \cdot t) \text{ in } ^\circ\text{C} [t = \text{input value in } ^\circ\text{C}]$$

for  $t > - 50 \text{ } ^\circ\text{C}$

$$\pm (0.16 + 0.0006 \cdot t) \text{ in } ^\circ\text{C, from } t - 200 \text{ } ^\circ\text{C to } - 50 \text{ } ^\circ\text{C}$$

Simulation of connecting cable resistances: 0, 5, 10, 20, 25, 30, 40 Ω

Coefficient: < 10 ppm/K  
for each temperature value a wire-wound  
MANGANIN®-resistor is used

Longterm stability: 0.02 % over years

Precision switch: short-circuit switching

Switch contacts: electrolytic copper plated with silver and gold

Housing: aluminium case for good shielding  
against electric interferences

Weight: approx. 600 g

### Order Examples

Pt 100 simulator **model 4503 S / - 40, - 15, 0, + 15 ... °C (30 values)**

Pt 100 simulator, built-in version, - 200 °C to + 800 °C, **model 4503 E**

### DKD Calibration Certificate

DKD stands for "Deutscher Kalibrierdienst" = German Calibration Service.

burster präzisionsmeßtechnik maintains a calibration station for determining electric measuring factors, which is affiliated to the Deutsche Kalibrierdienst (DKD). Supervised by the Physikalisch-Technische Bundesanstalt (PTB) of Braunschweig, the calibration station at burster is authorized to issue calibration certificates. The measuring results and uncertainties in measurement as shown in the calibration certificate are determined by standards and measuring instruments which in turn are subject to a periodical check and comparison with the official standard specifications of the Federal Republic of Germany. Proof of the official calibration is the calibration certificate itself and a calibration mark is applied to the test piece.

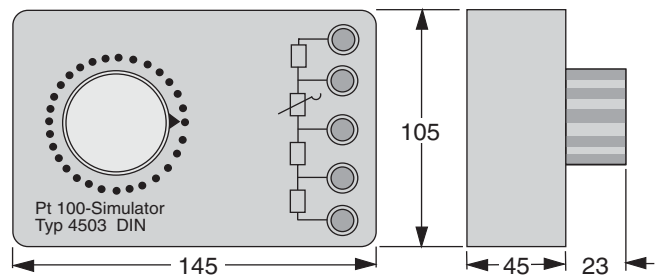
The calibration certificate shows the resistance referring to the temperature values, according to IEC 751 (IPTS-68), as well as the uncertainty of each temperature value in the temperature from -200 °C to + 850 °C the uncertainties for the described Pt 100 simulators are  $\pm 3 \text{ mK}$  to  $\pm 17 \text{ mK}$ .

**Order Code: 45 DKD-....** (...=type of simulator to calibrate)

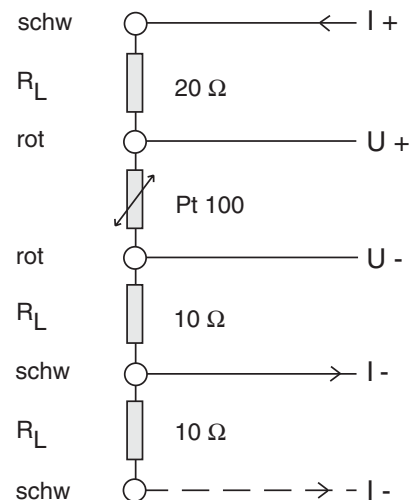
**Order Code: 45 DKD-4503 S**

When ordering fill-in type

### Dimensions



### Application



### Proprietary Calibration Certificate

Please refer to DKD Calibration, but the accuracy is reduced  
Order code **44WKS-...**