

# Precision Pt100 Simulator

Model 4506

Model 4506 S

Available with  
DKD Certificate  
if required



4506 EN

- 24 set temperature values
- Calibration per DIN EN 60751
- Resistor material: ZERANIN®, TK < 2 ppm/K
- Pt100, Pt500, Pt1000

## Application

The precision Pt100 simulator is used wherever measuring instruments or controlling systems have to be tested or calibrated with great precision.

The standard version model 4506 simulates 24 set temperature values. Totally different temperature ranges are required in the case of special applications, such as in the food industry the medical science etc. Model 4506 S is recommended for these applications and can be fitted with 24 temperature values according to customer specifications.

A distinctive feature of these simulators is their simple operation. The resistance values required for simulation are directly set in °C. There is no need to use tables.

Today in many cases a certificate is needed more than ever for force measurements .

This certificate is available under order code 45DKD-... .

## Description

The unit consists of a high-quality switch with precision wire-wound resistors made of ZERANIN®. Installed in a handy and sturdy metal case. In DIN EN 6075 standard values for resistance thermometers (Pt100). 24 pre temperature values are simulated using the selector switch according to. The simulated resistance value, corresponding in its value to the individually set temperature, is picked up at the "R<sub>sim</sub>" output socket. The four-wire connecting system permits the connection of a separate current and voltage path. Therefore supply line resistance is eliminated and does not appear in the measurements.

The 24 temperatures are chosen to provide several calibration points suitable for the most measuring instruments. The resistors are carefully artificially aged before trimming. This special process and trimming about half the tolerance guarantee a long-term stability of < 0.01 % for years. The material used for the resistors, ZERANIN®, has a temperature coefficient of less than 2 ppm/K. Because of this, there is no need to take care about the ambient temperature.

NTC and other measurements of resistance in ranges up to 100 kΩ are possible.

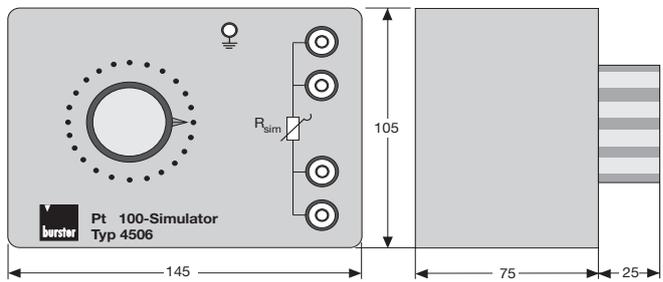
**Technical Data**

Model	Adjustable temperature values in °C						Delivery time
<b>4506</b>	- 100	- 50	- 30	- 10	± 0	+ 10	ex stock
	+ 20	+ 40	+ 60	+ 80	+ 100	+ 110	
	+ 130	+ 150	+ 170	+ 190	+ 220	+ 250	
<b>4506 E*</b>	+ 280	+ 300	+ 350	+ 400	+ 450	+ 500	
<b>4506 S</b>	Please indicate the 24 values desired.						6 - 8 weeks
<b>4506 SE*</b>	In the range from - 200 °C to 850 °C it is possible to verify every value.						
<b>4506 S-500</b>	Pt 500 - simulator. Please indicate 24 values in the range from - 200 °C to + 850 °C in this range every value is possible.						6 - 8 weeks
<b>4506 S-1000</b>	Pt 1000 - simulator. Please indicate 24 values in the range from - 200 °C to + 850 °C in this range every value is possible.						6 - 8 weeks
<b>4591</b>	Functional leather case						ex stock
<b>45 DKD-4506</b>	DKD Calibration Certificate for model 4506						+ 2 weeks
<b>45 DKD-4506 S</b>	DKD Calibration Certificate for model 4506 S						+ 2 weeks

\*built-in version (without case)

Simulation range: 24 fixed temperature values  
 Calibration: according to DIN EN 60751 (ITS 90)  
 Accuracy: ± (0.06 + 0.0002 · t) in °C (t = input value in °C)  
 Temperature coefficient: < 2 ppm/K  
 for each temperature value a wire-wound ZERANIN®-resistor is mounted  
 Long-term stability: 0.01 % over years  
 Precision switch: in very low-ohmic design ≤ 0,8 mΩ, short circuit switching  
 Switch contacts: electrolytic copper plated with silver  
 Connection: 4-wire technology  
 Housing: grey aluminium case  
 good shielding against electric interferences  
 Weight: ca. 800 g

**Dimensions**



**Order Information**

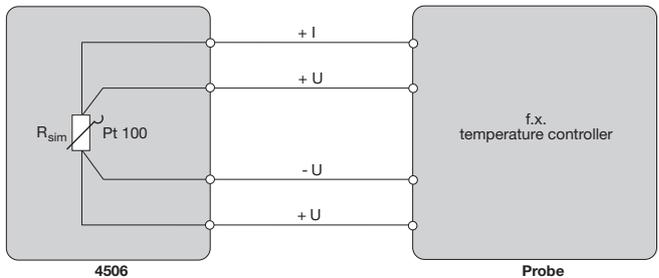
Pt100 simulator **Model 4506**  
 DKD Calibration Certificate **Model 45DKD-4506**  
 Pt100 simulator with customer specific values:  
**Model 4506S/ - 40, - 30, ... °C (24 values)**

**Accessories**

1 pair banana plugs (red/black) with clamp-connection **Model 4498**

	2-Wire Termination	3-Wire Termination	4-Wire Termination
Additional resistance	≤ 8 mΩ	≤ 4 mΩ	no additional error
Additional temperature error	≤ 0.02 K	≤ 0.01 K	

**Example of application: Calibration of a controller**



**DKD Calibration Certificate**

DKD means "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 DIN EN 60751 (ITS 90), as well as the uncertainty of each temperature value in the temperature from - 200 °C to + 850 °C the uncertainties for the described Pt100 simulators are ± 3 mK to ± 17 mK. Thus the calibration certificate of a simulator enables an exact control of the measuring device.