

# Precision Pt 100 Simulator

**Model 4506**

**Model 4506 S**

**Available with DKD Certificate if required**

Code:	4506 E
Manufacturer:	burster
Delivery:	ex stock
Warranty:	24 months
Issue:	1.10.2001



**4506-E**

- 24 set temperature values
- Calibration per DIN EN 60751
- Resistor material: ZERANIN<sup>®</sup>,  
temperature coefficient  $\leq 2$  ppm/K
- Pt 100, Pt 500, Pt 1000

## Application

The precision Pt 100 simulator is used wherever measuring instruments or controlling systems have to be tested or calibrated with great precision.

The standard design, 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 easy operation. The resistance values required for simulation are directly set in °C. There is no need to use look-up tables. In cases a certificate is being demanded more than ever for measurements. It is available under order code 45DKD.

## Description

The unit houses a high-quality switch with precision wire-wound resistors made of ZERANIN<sup>®</sup>. It is installed in a handy and rugged metal casing (with DIN sockets). 24 set temperature values are simulated using the selector switch in accordance with DIN EN 6075 standard values for resistance thermometers (Pt 100). 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. Supply lead resistance is therefore eliminated and does not appear in the measurements.

The 24 temperatures are chosen to provide several calibration points suitable for most measuring instruments. The resistors are subject to careful artificial ageing 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<sup>®</sup>, has a temperature coefficient of less than 2 ppm/K. Allowances for ambient temperatures are therefore superfluous.

**Technical Data/Order Information**

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

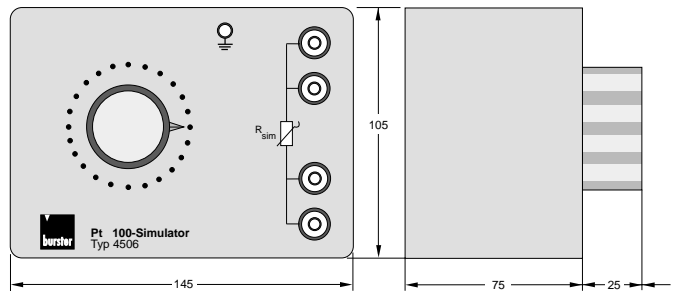
\* built-in version

Simulation range: 24 fixed temperature values  
 Calibration: according to DIN EN 60751 (ITS 90)  
 Accuracy:  $\pm (0.06 + 0.0002 \cdot t)$  in °C  
 (t = input value in °C)  
 or:  $\pm 0.0002 \cdot T$  in K  
 (T = input value in K)  
 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  $\leq 0.8$  mΩ, short circuit switching  
 Switch contacts: electrolytic copper plated with silver  
 Connection: 4-wire  
 Housing: aluminium case, beige  
 good shielding against electric interferences  
 Weight: approx. 800 g

**WKS Manufacturer Certificate**

please refer to DKD calibration, but the accuracy is reduced by approx. factor 3

**Dimensions**



**Accessories**

	2-wire termination	3-wire termination	4-wire termination
additional resistance	< 8 m Ω	< 4 m Ω	no additional error
additional temperature error	< 0.01 K	< 0.01 K	

**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 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 Pt 100 simulators are  $\pm 3$  mK to  $\pm 17$  mK. Thus the calibration certificate of a simulator enables an exact control of the measuring device.

**Order Code: 45 DKD-....** (please state simulator model to calibrate)

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

