

Precision Pt100 Simulator

Model 4506
Model 4506 S

Code:	4506 EN
Delivery:	ex stock/8 weeks
Warranty:	24 months

Available with
DAkKS Certificate
if required



- 24 set temperature values
- Optionally with up to 24 customer specific temperature values
- Calibration per DIN EN 60751
- Resistor material: MANGANIN®, TK ≤ 10 ppm/K
- Pt100, Pt500, Pt1000
- Long-term stability of < 0.02 % for years

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 MANGANIN®. Installed in a handy and sturdy metal case. In DIN EN 60751 standard values for resistance thermometers (Pt100). 24 pre temperature values are simulated using the selector switch according to the standard. The simulated resistance value, corresponding in its value to the individually set temperature, is picked up at the "R_{sim}" 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 < 0.02 % for years. The material used for the resistors, MANGANIN®, has a temperature coefficient of less than 10 ppm/K. Because of this, there is no need to take care about the ambient temperature.

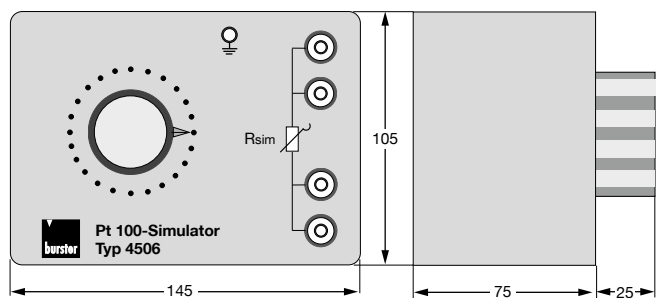
PTC as well as NTC and other simulations of resistance in ranges 10 Ω up to 100 kΩ are possible.

Technical Data

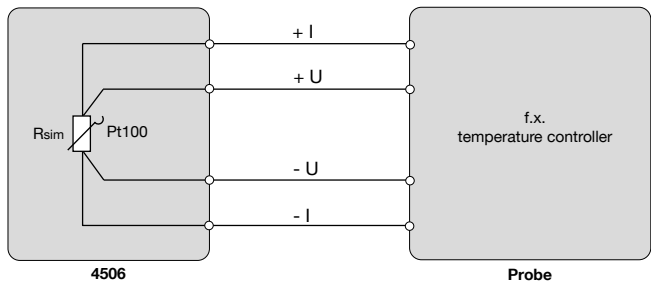
Model	Adjustable temperature values in °C	Delivery time																								
4506	<table border="0"> <tr> <td>- 100</td> <td>- 50</td> <td>- 30</td> <td>- 10</td> <td>± 0</td> <td>+ 10</td> </tr> <tr> <td>+ 20</td> <td>+ 40</td> <td>+ 60</td> <td>+ 80</td> <td>+ 100</td> <td>+ 110</td> </tr> <tr> <td>+ 130</td> <td>+ 150</td> <td>+ 170</td> <td>+ 190</td> <td>+ 220</td> <td>+ 250</td> </tr> <tr> <td>+ 280</td> <td>+ 300</td> <td>+ 350</td> <td>+ 400</td> <td>+ 450</td> <td>+ 500</td> </tr> </table>	- 100	- 50	- 30	- 10	± 0	+ 10	+ 20	+ 40	+ 60	+ 80	+ 100	+ 110	+ 130	+ 150	+ 170	+ 190	+ 220	+ 250	+ 280	+ 300	+ 350	+ 400	+ 450	+ 500	ex stock
- 100	- 50	- 30	- 10	± 0	+ 10																					
+ 20	+ 40	+ 60	+ 80	+ 100	+ 110																					
+ 130	+ 150	+ 170	+ 190	+ 220	+ 250																					
+ 280	+ 300	+ 350	+ 400	+ 450	+ 500																					
4506S*	Please indicate the 24 values desired. In the range from - 200.00 °C to + 850.00 °C it is possible to verify every value.	6 - 8 weeks																								
4506S-500*	Pt500 simulator. Please indicate the 24 values desired. In the range from - 200.00 °C to + 850.00 °C it is possible to verify every value.	6 - 8 weeks																								
4506S-1000*	Pt1000 simulator. Please indicate the 24 values desired. In the range from - 200.00 °C to + 850.00 °C it is possible to verify every value.	6 - 8 weeks																								
4591	Functional leather case model 4591	ex stock																								
45DKD-4506	DAkKS Calibration Certificate for model 4506	+ 2 weeks																								
45DKD-4506S	DAkKS Calibration Certificate for model 4506S	+ 2 weeks																								

Simulation range: 24 fixed temperature values
 Calibration: according to DIN EN 60751 (ITS 90)
 Accuracy: $\pm (0.082 + 0.0003 \cdot t)$ in °C for $t > - 50$ °C
 $\pm (0.16 + 0.0006 \cdot t)$ in °C for $t - 200$ °C to $- 50$ °C
 (t = input value in °C)
 Operating temperature range: + 5 °C ... ± 23 ... + 50 °C, to 80 % relative humidity, non condensing
 Storage temperature: 0 ... 60 °C
 Winding structure: wound acc. to chaperone, therefore especially low inductions
 Temperature coefficient: ≤ 10 ppm/K
 for each temperature value a wire-wound MANGANIN®-resistor is mounted
 Long-term stability: 0.02 % over years
 Precision switch: in very low-ohmic design ≤ 0.8 m Ω , 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



Example of application: Calibration of a controller



Order Information

Pt100 simulator **Model 4506**
 DAkKS 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 m Ω	≤ 4 m Ω	no additional error
Additional temperature error	≤ 0.02 K	≤ 0.01 K	

DAkKS Calibration Certificate

The calibration laboratory D-K-15141-01-00 from burster präzisionsmesstechnik is accredited and monitored by the office DAkKS (Deutsche Akkreditierungsstelle GmbH) according ISO 17025. It can prove his status by an accreditation certificate and is authorized to issue a calibration certificate with the logo DAkKS and with the logo DKD (Deutscher Kalibrierdienst).

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 ± 45 mK. Thus the calibration certificate of a simulator enables an exact control of the measuring device.

