Precision Pt100 Simulator

Model 4506
Model 4506 S

Available with DAkkS Certificate if required

Description
The unit consist a high-quality switch with precision wire-wound resistors made of MANGANIN®. 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 accordance with.

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 artificial 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 W up to 100 kΩ are possible.

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

- 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
Technical Data

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

* At www.burster.com you will find a well-prepared inquiry and order form that simplifies your inquiries and orders. Check-out product 4506 and download form from the downloads area.

Simulation range: 24 fixed temperature values
Calibration: according to DIN EN 60751 (ITS 90)
Accuracy: ± (0.082 + 0.0003 · t) in °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:
thus 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 mΩ
short circuit switching
Switch contacts:
electrolytic copper plated with silver
Connection:
4 wire technology
Housing:
good shielding against electric interferences
Weight:
c. 800 g

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

<table>
<thead>
<tr>
<th></th>
<th>2 Wire Termination</th>
<th>3 Wire Termination</th>
<th>4 Wire Termination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional resistance</td>
<td>≤ 8 mΩ</td>
<td>≤ 4 mΩ</td>
<td>no additional error</td>
</tr>
<tr>
<td>Additional temperature error</td>
<td>≤ 0.02 K</td>
<td>≤ 0.01 K</td>
<td></td>
</tr>
</tbody>
</table>

Example of application: Calibration of a controller

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.