

Simulator KA 7531



**Simulator
for Pt100, thermocouples,
mV, V, mA, Hz
Option PC interface**

Technical features

- Universal manual simulator for simulating temperature sensors and process variables when testing measuring instruments, regulators, and other equipment
- Pt100 simulation with 5 fixed resistors in 4-conductor technology
Voltage and thermocouples simulation with 15-bit D/A converter
Current simulation with 15-bit D/A converter
Frequency and pulse generator with quartz-crystal oscillator
Continuity check with settable threshold
- All signals are available at the same time.
- Signals can be set either manually or automatically, in step or ramp form.
- All signals and all the programming can be shown on the illu-

minated graphics display.

- Connection of peripherals via ALMEMO® clamp connectors, cable with anti-kink protective sleeve and strain relief
- Power supply via battery, mains unit, USB cable ZA 1919-DKUV or connection to RS422 network distributor with connector ZA5099-FSV
- Modern, compact housing - also suitable for DIN top-hat rail mounting
- Option of PC-controlled operation via all ALMEMO® data cables.

Technical data

Signal Pt100	5 discrete resistance values in 4-conductor technology 0 / 50 / 100 / 200 / 300 °C
Accuracy	±0.1°C
Temperature drift	0.01°C / K
Signal voltage	15-bit DAC electr. isolated load > 1 MΩ
-10 to +60.000 mV	load > 100 kΩ
-3 to 10.000 V	
Accuracy	± 0.05% ± 0.05% of final value
Temperature drift	20 ppm / K
Time constant	100 μs
Thermocouples	type K, N, T, J (ITS90) resolution: 0.1K type S, R, B (ITS90) resolution: 1K
Accuracy:	± 0.05% ± 0.05% final value
CJ - temperature:	-30..100°C
Signal current	15-bit DAC electr. isolated load < 500 Ω
0 to 20.0 mA	
Accuracy	± 0.05% ± 0.05% of final value
Temperature drift	20 ppm / K
Time constant	100 μs

signal frequency	1..4000Hz, 0.01..10.00kHz, 0.1..40.0kHz, 1..100kHz
Pulse width	1 to 99 %
Accuracy	corresponds to the resolution
Pulse range	
Period	2μs...99.999 ms, 2ms...99.999 s
Pulse	1μs...99.998 ms, 1ms...99.998 s
Accuracy	0.01 %
Continuity	current approx. 1 mA
Threshold	0 to 1000 mV
Power supply:	10..12V DC
Battery:	3 Mignon Alcaline
Current consumption	(Battery): approx. 30 mA
Voltage and Current output: with illumination:	approx. 80mA + 4 x IOU, approx. 40mA additional
Display	graphics 128 x 64 (55 x 30 mm)
Illumination	2 white LEDs
Keypad	7 silicone keys (4 soft-keys)
Housing	(LxWxH) 127 x 83 x 42 mm ABS (-10 to +70 °C), 290 g
Operating range:	
Operating temperature:	-10 ... +50 °C
(Storage temperature:	-20 ... +60 °C)
Ambient humidity:	10 ... 90 % rH (noncondensing)

Displays (examples)

```
SIMULATOR KA 7531 V6.01
P0: Pt100      100.0 °C
P1: 0-10 V     5.000 V
P2: 0-20 mA   12.000 mA
P3: 0-4000Hz  1000 Hz
P4: continuity Yes 36 mV
CONFIG *ON
```

Main menu

```
* DEVICE CONFIGURATION *
Device address: 00
Baud rate:      9600Bd
Language:      english
Illumination:  ✓ duration: 20s
contr. 50%    UBat: 4.5V
MENU *ON
```

Device configuration

```
P4: Continuity Yes
Function: steps individually
36 mV
Threshold: 100mV
F1 *ON
```

Continuity tester

```
P0: Output Pt100
Function: steps individually
100.0 °C
F1 S *ON
```

Pt100 resistance values

```
P1: Output TC NiCr-Ni type K
Function steps individually
500.0 °C
Step: 0100.0°C U: 20.644mV
F1 S TC *ON
```

NiCr-Ni step generator

```
P3: Output Frequency 4000Hz
Function: steps individually
1000 Hz
Pulse width: 50%
Step: 01000Hz
F1 S F *ON
```

Frequency pulse generator

```
P1: Output 0 - 10V
Function steps automatically
5.000 V
Step: 01.000 V duration 10s
START F1 S *ON
```

0 to 10 V step generator

```
P3: Output 0-20mA
Function steps automatically
START: 4.000 mA
Stop: 15.000mA duration: 30s
F1 S *ON
```

0 to 20 mA ramp generator

Accessories

	Order no.
ALMEMO® clamp connector (for Pt100 or universal use)	ZA1000TS
ALMEMO® connecting cable with 2 banana plugs and 2 test probes	ZA1000TK
Mains adapter 12 V / 2 A	ZA1312NA10
USB data cable, electrically isolated	ZA1919DKU
As above but with 9 V supply, not electr. isol.	ZA1919DKUV
V24 data cable, electrically isolated	ZA1909DK5
Fixture for top-hat rail mounting	ZB2490HS
Rubber guard, gray	ZB2490GS2

Options

	Order no.
Factory calibration certificate for Simulator KA7531: Electrical Calibration compared reference standards that are traceable to national standards. Calibration in 6 ranges: Pt100 (5 points), and (3 points each) voltage 10 V, voltage 50 mV, current 20 mA, thermocouple type K, frequency Hz, Package Offer	KE9006W
addressable PC interface	OA7531I

Included as standard

	Order no.
Simulator, 5 sockets for Pt100, thermocouples or -4 to 10 V, 0 to 20 mA, frequency, continuity tester, Graphics display and keypad, sockets DC, A1, batteries, including manufacturer's test certificate, 1 ALMEMO® clamp connector (for Pt100) and ALMEMO® and ALMEMO® connecting cable with 2 banana plugs and 2 test probes	KA7531I