

## Simulator KA 7531-1



**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 illuminated graphics display.
- Connection of peripherals via ALMEMO® clamp connectors, cable with anti-kink protective sleeve and strain relief
- Power supply via battery or mains unit
- 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% of measured value ± 0.05% of final value
Accuracy	± 0.05% of measured value ± 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% of measured value ± 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% of measured value ± 0.05% of final value
Accuracy	± 0.05% of measured value ± 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 U6.01
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

ALMEMO® clamp connector (for Pt100 or universal use)  
 ALMEMO® connecting cable with 2 banana plugs and 2 test probes  
 Mains adapter 12 V / 2 A  
 USB data cable, electrically isolated  
 V24 data cable, electrically isolated  
 Fixture for top-hat rail mounting  
 Rubber guard, gray

## Order no.

ZA1000TS  
 ZA1000TK  
 ZA1312NA10  
 ZA1919DKU  
 ZA1909DK5  
 ZB2490HS  
 ZB2490GS2

## Options

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  
 addressable PC interface

## Order no.

KE9006W  
 OA7531I

## Included as standard

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

## Order no.

KA7531I