

Hand-held temperature calibrator Model CEP3000

WIKA data sheet CT 82.01

Applications

- Calibration service companies and service industry
- Measurement and control laboratories
- Industry (laboratory, workshop and production)
- Quality assurance

Special features

- High accuracy of up to ± 0.4 °C for type J thermocouples and ± 0.3 °C for 4-wire Pt100 resistance thermometers (overall error)
- Measures and simulates eleven different thermocouples and eleven different resistance thermometers
- The resistance thermometer simulation works with all pulsed (Smart) transmitters
- Stores up to nine set values for each output function
- Robust design and simple operation

Description

General information

The model CEP3000 hand-held temperature calibrator is an ideal instrument to handle all your temperature calibration tasks in a rugged, inexpensive package. It combines virtually all widely-used thermocouples and resistance thermometers in one instrument. You will never have to worry about there being a temperature device that you cannot calibrate. This is especially true for the calibration of smart or pulsed resistance thermometer transmitters, where many other calibrators fail to work or work with reduced accuracy specifications.

Extensive applications

There are a range of application possibilities for the CEP3000. It can be used for calibration in industry (laboratories, production, workshops), in calibration service companies and in quality assurance.



Hand-held temperature calibrator model CEP3000

Design

The capability for temperature calibration of the model CEP3000 includes thermocouples and resistance thermometers. In addition, the CEP3000 also enables the calibration of resistances. In the thermocouple and resistance thermometer mode, the measurement and simulation of eleven different thermocouple and eleven resistance thermometer types is possible.

The CEP3000 also offers a set-value function. Up to nine set values can be set for each output function in non-volatile memory. The target values can be recalled separately. An automatic step function for some or all of the stored set values is also available.

In addition, this instrument stands out through its easy-to-read display (selectable backlighting), its durable casing and its simple and easy operation.

Specifications

Model CEP3000

Base instrument

Display

Display 2-line with 8 digits and 10 mm high characters

Input and output

Number and type four banana-plug inputs for resistance thermometers and one thermocouple plug input

Resistance thermometer (RTD) Pt100 (385, 3926, 3916), Pt200, Pt500, Pt1000, Ni120, Cu10, Cu50, Cu100, YSI400

Thermocouples Types J, K, T, E, R, S, B, L, U, N, P

Voltage signal -10 ... +75 mV

Resistance 0 ... 3,200 Ω

Special features

Resistance thermometer IEX range 0.01 ... 3 mA

Resistance thermometer frequency response 10 ms; works with all pulsed transmitters

Set value input nine for each thermocouple type and nine for each resistance thermometer type

Functions automatic step function, setting of set values for each output function

Voltage supply

Power supply 4 x 1.5 V AA batteries

Battery life 30 hours

Battery status indication Icon in display for low battery level

Permissible ambient conditions

Operating temperature -10 ... +50 $^{\circ}\text{C}$

Storage temperature -40 ... +60 $^{\circ}\text{C}$

Relative humidity 0 ... 90 % r.H. (non-condensing)

Case

Material Plastic (with robust protective rubber boot)

Ingress protection IP 52

Dimensions 220.9 x 106.6 x 58.4 mm

Weight approx. 850 g

Approvals and certificates

CE conformity

EMC directive 2004/108/EC, EN 61326 emission (group 1, class B) and immunity (portable test and measuring equipment)

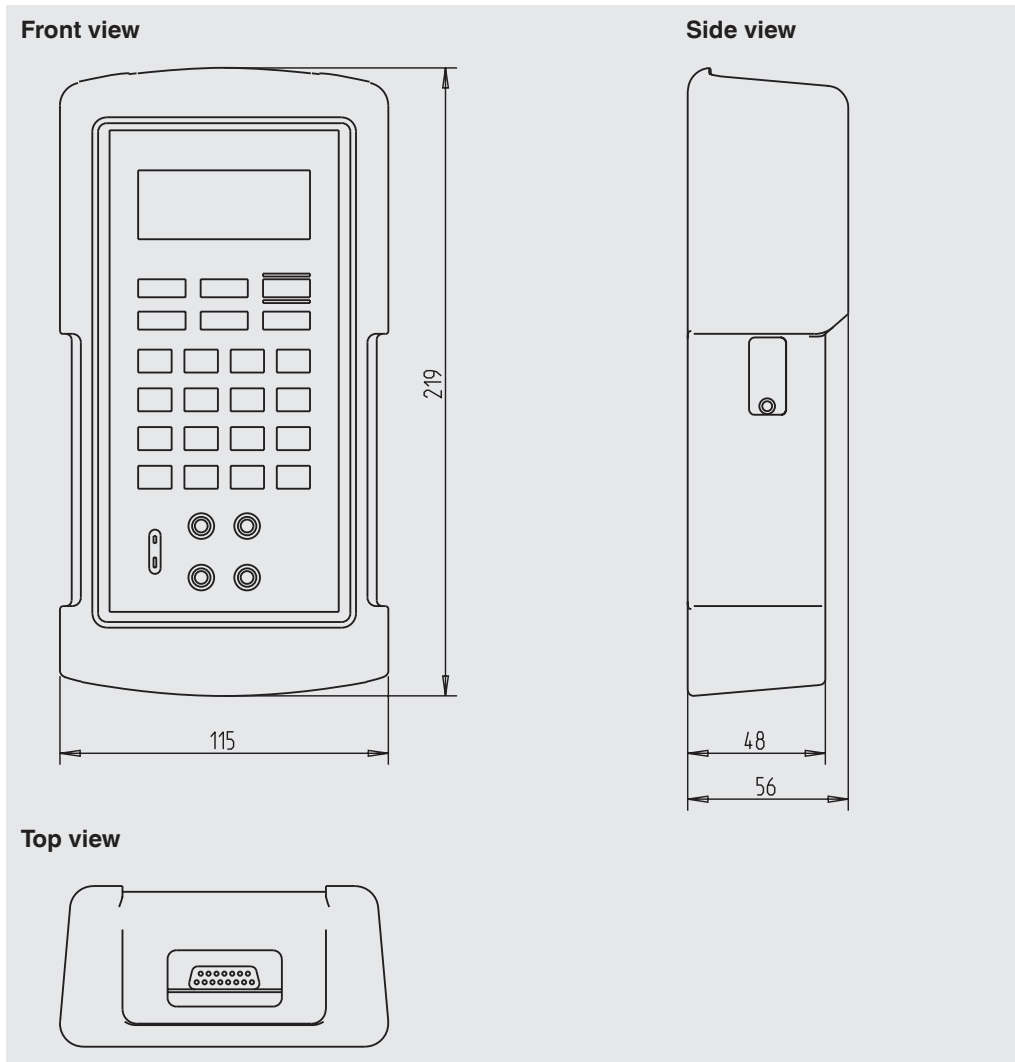
Certificate

Calibration 3.1 calibration certificate per DIN EN 10204
optional: DKD/DAkkS calibration certificate

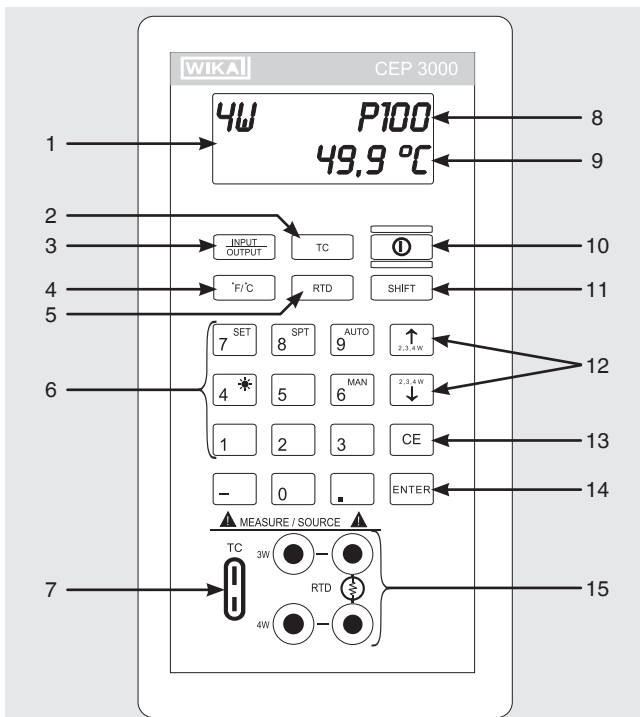
Input and output signals	Measuring range	Absolute measurement uncertainty (all errors incl.)	
Voltage signals in mV	-10.00 ... +75.00 mV	0.015 % of reading ±20 µV	
Thermocouples		With cold junction compensation	
Type J	-200.0 ... 0.0 °C 0.0 ... 1,200.0 °C	0.6 °C 0.4 °C	
Type K	-200.0 ... 0.0 °C 0.0 ... 1,370.0 °C	0.8 °C 0.5 °C	
Type T	-200.0 ... 0.0 °C 0.0 ... 400.0 °C	0.8 °C 0.5 °C	
Type E	-200.0 ... 0.0 °C 0.0 ... 950.0 °C	0.5 °C 0.4 °C	
Type R	-20 ... 0 °C 0 ... 500 °C 500 ... 1,750 °C	2.4 °C 1.7 °C 1.3 °C	
Type S	-20 ... 0 °C 0 ... 500 °C 500 ... 1,750 °C	2.4 °C 1.7 °C 1.4 °C	
Type B	600 ... 800 °C 800 ... 1,000 °C 1,000 ... 1,800 °C	2.1 °C 1.7 °C 1.3 °C	
Type L	-200.0 ... 0.0 °C 0.0 ... 900.0 °C	0.45 °C 0.4 °C	
Type U	-200.0 ... 0.0 °C 0.0 ... 400.0 °C	0.7 °C 0.45 °C	
Type N	-200.0 ... 0.0 °C 0.0 ... 1,300.0 °C	1.1 °C 0.6 °C	
Resistance thermometer ¹⁾			
Pt100 (385)	-200.0 ... +800.0 °C	0.33 °C	
Pt100 (3926)	-200.0 ... +630.0 °C	0.3 °C	
Pt100 (3916)	-200.0 ... +630.0 °C	0.3 °C	
Pt200 (385)	-200.0 ... +630.0 °C	0.8 °C	
Pt500 (385)	-200.0 ... +500.0 °C 500.0 ... 630.0 °C	0.3 °C 0.4 °C	
Pt1000 (385)	-200.0 ... +100.0 °C 100.0 ... 680.0 °C	0.2 °C 0.3 °C	
Ni120 (672)	-80.0 ... +260.0 °C	0.2 °C	
Cu 10	-100.0 ... +250.0 °C	2.2 °C	
Cu 50	-180.0 ... +200.0 °C	0.5 °C	
Cu 100	-180.0 ... +200.0 °C	0.3 °C	
YSI 400	15.0 ... 50.0 °C	0.1 °C	
Resistance			Excitation current
Output	5.0 ... 400.0 Ω	0.15 Ω	0.1 ... 0.5 mA
	5.0 ... 400.0 Ω	0.1 Ω	0.5 ... 3 mA
	401 ... 1,500 Ω	0.5 Ω	0.05 ... 0.8 mA
	1,501 ... 3,200 Ω	1.0 Ω	0.05 ... 0.4 mA
	Input	0.00 ... 400.00 Ω	0.1 Ω
	401.0 ... 1,500.0 Ω	0.5 Ω	
	1,501.0 ... 3,200.0 Ω	1.0 Ω	

1) Absolute measurement uncertainty based on a 4-wire circuit

Dimensions in mm



Front foil of the model CEP3000 hand-held temperature calibrator



- 1) Display
- 2) Switching through all the existing thermocouple types
- 3) Switching between measuring mode and simulation mode
- 4) Switching between °C and °F
- 5) Switching through all the existing resistance thermometer types
- 6) Numeric keys
- 7) Thermocouple input/output
- 8) Mode display
- 9) Temperature display
- 10) On/Off
- 11) Activate the sub-functions of the respective keys
- 12) Select between 2-, 3- or 4-wire measurement; changing the last digit during the temperature simulation
- 13) Clear the input value
- 14) ENTER
- 15) Resistance thermometer input/output

Scope of delivery

- CEP3000 hand-held temperature calibrator
- Operating instructions
- Test cable, two pairs (red/black)
- 3.1 calibration certificate per DIN EN 10204
- Four AA batteries
- Protective rubber boot

Option

Certificates

- DKD/DAkkS certified accuracy

Accessories

Voltage supply

- Battery charger set, including four rechargeable AA batteries, quick charger, power cord, adapters
- Battery set, consisting of four rechargeable AA batteries
- AC mains adapter/charger

Test cable

- Thermocouple wire kit J, K, T, E with plugs
- Thermocouple wire kit R/S, N, B with plugs
- One pair of cables (red/black)

Miscellaneous

- Service case

Ordering information

Model / Carrying case / Calibration / Additional order details

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The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.

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