Documenting multi-function calibrator Model CEP6100

Applications

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

Special features

- Store up to 21 test points from up to 50 test items
- Highest accuracy in class up to ± 0.01 % of reading
- Measuring and simulation of thermocouples (13), resistance thermometers (13), resistance, voltage, current, frequency, pressure and pulse trains
- Isolated mA/V measuring channel for complete transmitter calibration (measuring and simulation at the same time)
- Entry of customer-specific resistance thermometer coefficients

Documenting multi-function calibrator model CEP6100

Description

General information

The model CEP6100 documenting multi-function calibrator provides a feature set unmatched in high accuracy, hand-held calibrators in its price range. It provides the functions and accuracy associated with stationary laboratory equipment, and has everything needed for virtually any calibration task.

Documenting function

What makes this versatile calibrator best in class is the ability to fully document any calibration easily. With the CalLOG software, calibration certificates can be generated for the test items at the PC after calibration in the field.

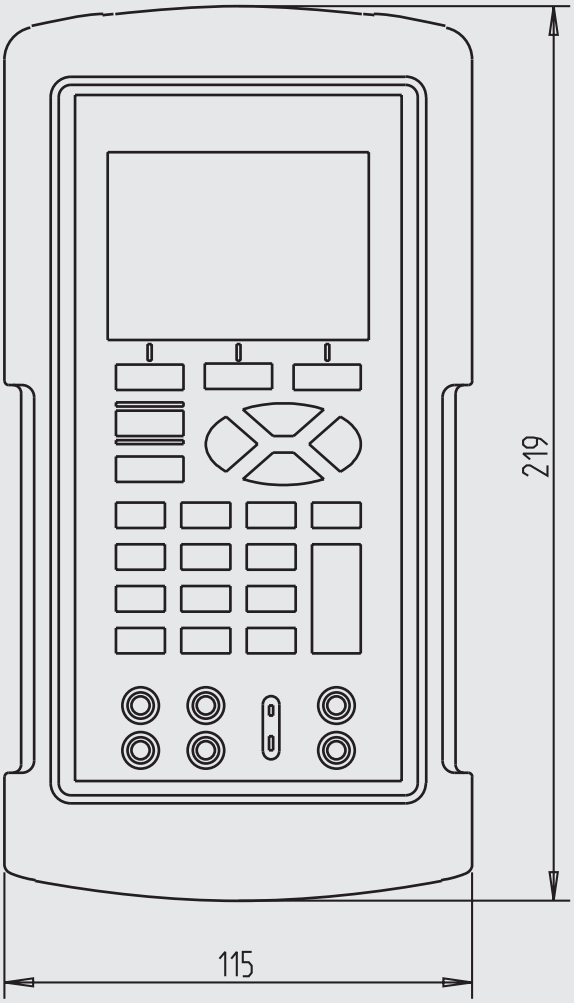
Features

The CEP6100 also features the ability to print calibration certificates right in the field, with no PC needed, using an optional portable certificate printer.

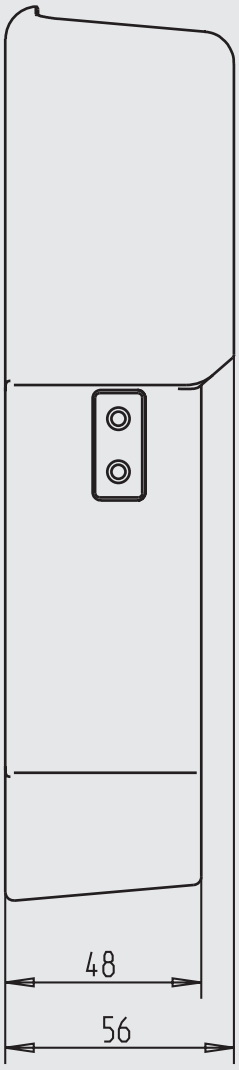
The CEP6100 enables to measure and simulate thermocouples, resistance thermometers, resistance, current, voltage, frequency, pressure and source pulse trains with a lightweight easy-to-use calibrator. A communications port compatible with different pressure modules is provided, as is an isolated mA/V measuring channel. An integrated 24 V supply power can drive 4 ... 20 mA loops up to 1000 Ω. Arrow keys combined with a large backlit, menu-driven graphics display offer a high quality but simple operator interface. A built-in 250 Ω resistor is provided for HART™ compatibility with smart transmitters and PLCs. Full fuseless protection and a serial communications port for full control with ASCII commands are just some of the additional features that make the CEP6100 the single, most indispensable tool available for virtually any calibration task. The CEP6100 is delivered in a protective rubber boot.

Dimensions in mm

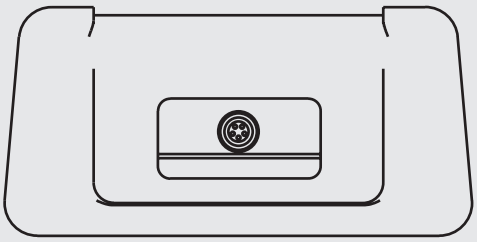
Front view



Side view



Top view



Specifications
Model CEP6100

Base instrument

Display	2-part with 10 digits and character size 8 mm
Stability	0.005 % of reading/°C outside of 23 °C ± 5 °C
Function of calibration	Store up to 21 test points from up to 50 test items
Input and output	
Resistance thermometer	Pt100 (385, 3926, 3916), Pt200, Pt500, Pt1000, Ni120, Cu10, Cu50, Cu100, YSI400, Pt10, Pt50
Thermocouples	Type J, K, T, E, R, S, B, L, U, N, C, XK, BP
Voltage signal	DC 0 ... 30 V
Current signal	0 ... 24 mA
Resistance	0 ... 4000 Ω
Frequency / Pulse	2 CPM ... 10.00 kHz
Pressure	dependent on pressure module
Special features	
Resistance thermometers frequency response	5 ms; works with all pulsed transmitters
Functions	Automatic step/ramp function, direct entry of customer-specific resistance thermometer coefficients, setpoint setting for each output function and built-in resistor for HART™ communications
Voltage supply	
Power supply	DC 24 V (for transmitter supply)
Batteries	DC 6 V, four AA standard batteries
Operating time	20 hours
Charge level indicator	displayed icon near the end of battery life
Permissible ambient conditions	
Operating temperature	-10 ... +50 °C
Storage temperature	-20 ... +60 °C

Communication

Interface	RS-232, USB with optional serial adapter

Case

Material	Plastic (with robust protective rubber boot)
Dimensions	220.9 x 106.6 x 58.4 mm
Ingress protection	IP 52
Weight	approx. 860 g

CE conformity / Certificates

EMC directive	2004/108/EC, EN 61326 emission (group 1, class B) and immunity (portable test and measuring equipment)
Calibration	3.1 calibration certificate per DIN EN 10204 (optional: DKD/DAkkS calibration certificate)

Input and output signals	Measuring range	Absolute measurement uncertainty (of measured value)	
Current signal			
■ Output	DC 0 ... 24.000 mA	0.01 % ± 2 µA	
■ Input	DC 0 ... 24.000 mA	0.01 % ± 2 µA	
Voltage signal			
■ Output	DC 0 ... 20.000 V	0.01 % ± 2 mV	
■ Input	DC 0 ... 30,000 V (isolated)	0.01 % ± 2 mV	
	DC 0 ... 20,000 V (non-isolated)	0.01 % ± 2 mV	
Resistance			Stimulus current
■ Output	5.0 ... 400.0 Ω	0.015 % ± 0.1 Ω	0.1 ... 0.5 mA
	5.0 ... 400.0 Ω	0.015 % ± 0.03 Ω	0.5 ... 3.0 mA
	401 ... 1500 Ω	0.015 % ± 0.3 Ω	0.05 ... 0.8 mA
	1501 ... 4000 Ω	0.015 % ± 0.3 Ω	0.05 ... 0.4 mA
■ Input	0 ... 400.00 Ω	0.015 % ± 0.03 Ω	
	401.0 ... 4000.0 Ω	0.015 % ± 0.3 Ω	
Frequency [2]			
■ Output	2.0 ... 600.0 CPM [1]	0.05 %	
	1.0 ... 1000.0 Hz	0.05 %	
	1.0 ... 10.0 kHz	0.25 %	
■ Input	2.0 ... 600.0 CPM [1]	0.05 %	± 0.1 CPM [1]
	1.0 ... 1000.0 Hz	0.05 %	± 0.1 Hz
	1.00 ... 10.00 kHz	0.05 %	± 0.01 kHz
Pulse [2]			
■ Output	1 ... 30,000 counts		
	2 CPM [1] ... 10 kHz		
Pressure			
■ Input	dependent on pressure module		

1) Counts per minute
2) Selectable amplitude of 1 ... 20 V based on a square wave

Input and output signals	Measuring range	Absolute measurement uncertainty (all errors incl.)	
Voltage signals in mV	-10.000 ... +75.000 mV	0.015 % of reading ± 10 µV	
Thermocouples		Without cold junction compensation	With cold junction compensation
■ Type J	-210.0 ... 0.0 °C	0.4 °C	0.6 °C
	0.0 ... 800.0 °C	0.2 °C	0.4 °C
	800.0 ... 1200.0 °C	0.3 °C	0.5 °C
■ Type K	-200.0 ... 0.0 °C	0.6 °C	0.8 °C
	0.0 ... 1000.0 °C	0.3 °C	0.5 °C
	1000.0 ... 1372.0 °C	0.5 °C	0.7 °C
■ Type T	-250.0 ... 0.0 °C	0.6 °C	0.8 °C
	0.0 ... 400.0 °C	0.2 °C	0.4 °C
■ Type E	-250.0 ... -100.0 °C	0.6 °C	0.8 °C
	-100.0 ... +1000.0 °C	0.2 °C	0.4 °C
■ Type R	0 ... 1767 °C	1.2 °C	1.4 °C
■ Type S	0 ... 1767 °C	1.2 °C	1.4 °C
■ Type B	600 ... 800 °C	1.2 °C	1.4 °C
	800 ... 1000 °C	1.3 °C	1.5 °C
	1000 ... 1820 °C	1.5 °C	1.7 °C
■ Type C	0.0 ... 1000.0 °C	0.6 °C	0.8 °C
	1000.0 ... 2316.0 °C	2.3 °C	2.5 °C
■ Type XK	-200.0 ... +800.0 °C	0.2 °C	0.4 °C
■ Type BP	0.0 ... 800.0 °C	0.9 °C	1.1 °C
	800.0 ... 2500.0 °C	2.3 °C	2.5 °C
■ Type L	-200.0 ... 0.0 °C	0.3 °C	0.5 °C
	0.0 ... 900.0 °C	0.2 °C	0.4 °C
■ Type U	-200.0 ... 0.0 °C	0.5 °C	0.7 °C
	0.0 ... 600.0 °C	0.3 °C	0.5 °C
■ Type N	-200.0 ... 0.0 °C	0.8 °C	1.0 °C
	0.0 ... 1300.0 °C	0.4 °C	0.6 °C

Input and output signals	Measuring range	Absolute measurement uncertainty (all errors incl.)
Resistance thermometer [1]		
■ Pt10 (385)	-200.0 ... -80.0 °C	0.76 °C
	-80.0 ... 0.0 °C	0.78 °C
	0.0 ... 100.0 °C	0.83 °C
	100.0 ... 300.0 °C	0.92 °C
	300.0 ... 400.0 °C	0.98 °C
	400.0 ... 630.0 °C	1.05 °C
	630.0 ... 800.0 °C	1.16 °C
■ Pt50 (385)	-200.0 ... -80.0 °C	0.16 °C
	-80.0 ... +300.0 °C	0.23 °C
	300.0 ... 400.0 °C	0.27 °C
	400.0 ... 630.0 °C	0.30 °C
	630.0 ... 800.0 °C	0.36 °C
■ Pt100 (385)	-200.0 ... -80.0 °C	0.08 °C
	-80.0 ... 0.0 °C	0.13 °C
	0.0 ... 100.0 °C	0.14 °C
	100.0 ... 300.0 °C	0.15 °C
	300.0 ... 400.0 °C	0.18 °C
	400.0 ... 630.0 °C	0.21 °C
	630.0 ... 800.0 °C	0.26 °C
■ Pt100 (3926)	-200.0 ... -80.0 °C	0.07 °C
	-80.0 ... 0.0 °C	0.10 °C
	0.0 ... 100.0 °C	0.11 °C
	100.0 ... 300.0 °C	0.13 °C
	300.0 ... 400.0 °C	0.17 °C
	400.0 ... 630.0 °C	0.19 °C
■ Pt100 (3916)	-200.0 ... -80.0 °C	0.07 °C
	-80.0 ... 0.0 °C	0.10 °C
	0.0 ... 100.0 °C	0.11 °C
	100.0 ... 260.0 °C	0.13 °C
	260.0 ... 400.0 °C	0.17 °C
	400.0 ... 630.0 °C	0.19 °C
■ Pt200 (385)	-200.0 ... -80.0 °C	0.35 °C
	-80.0 ... 0.0 °C	0.40 °C
	0.0 ... 100.0 °C	0.42 °C
	100.0 ... 300.0 °C	0.45 °C
	300.0 ... 400.0 °C	0.52 °C
	400.0 ... 630.0 °C	0.53 °C
■ Pt500 (385)	-200.0 ... -80.0 °C	0.15 °C
	-80.0 ... 0.0 °C	0.18 °C
	0.0 ... 100.0 °C	0.19 °C
	100.0 ... 260.0 °C	0.21 °C
	260.0 ... 300.0 °C	0.25 °C
	300.0 ... 400.0 °C	0.26 °C
	400.0 ... 630.0 °C	0.29 °C
■ Pt1000 (385)	-200.0 ... -80.0 °C	0.10 °C
	-80.0 ... 0.0 °C	0.12 °C
	0.0 ... 260.0 °C	0.14 °C
	260.0 ... 300.0 °C	0.17 °C
	300.0 ... 400.0 °C	0.19 °C
	400.0 ... 630.0 °C	0.22 °C
■ Ni120	-80.0 ... +260.0 °C	0.06 °C
■ Cu 10	-100.0 ... +260.0 °C	0.77 °C
■ Cu 50	-180.0 ... +200.0 °C	0.16 °C
■ Cu 100	-180.0 ... +200.0 °C	0.08 °C
■ YSI 400	15.0 ... 50.0 °C	0.05 °C

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

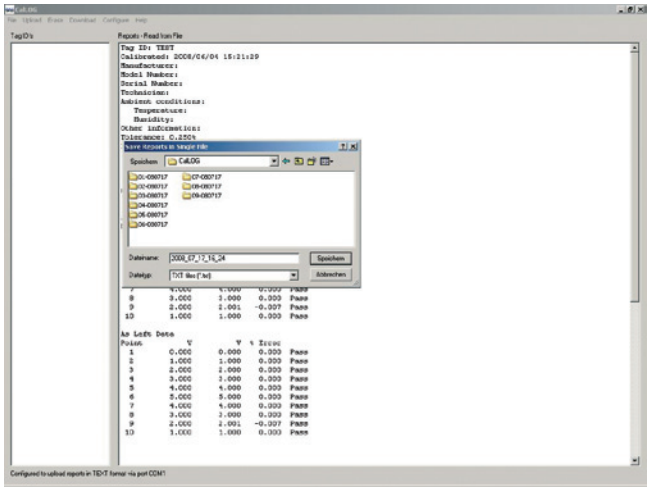
Function of calibration

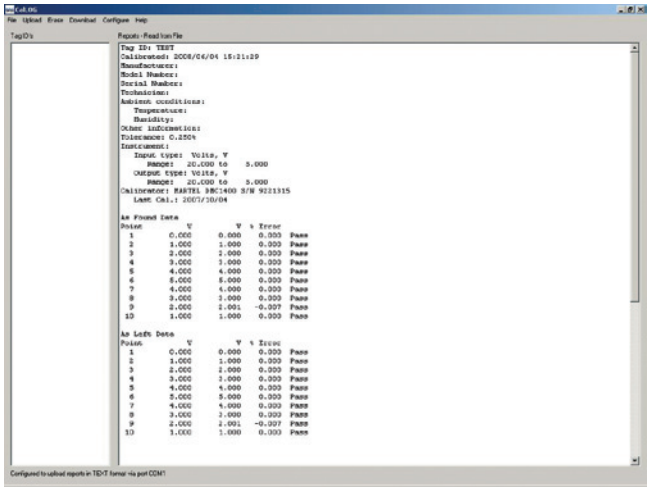
Adding documentation to your normal workflow is easy. Before you start a calibration, simply choose "DOCUMENT" from the calibrator operating menu. Then choose the calibrator input and output types. A neat feature is that you can choose input or output or both input and output. That allows you to calibrate and document virtually anything. Connect the calibrator to the instrument you are testing and use it as you normally would. After each calibration point, just press the "SAVE" key; as soon as you have finished the calibration, press the "DONE" key.

The calibrator will then prompt you to enter tag and instrument data, technician ID, ambient conditions and so on. Save this information and you have completed the "AS FOUND" part of your test. You can also choose to have the calibrator evaluate the "PASS/FAIL" status of the instrument by supplying an allowable error tolerance in terms of the full scale performance of the instrument. If the instrument passes, you can choose to copy the "AS FOUND" data to the "AS LEFT" data, and you have completely documented your calibration.

When the day's work is over, you can save the data to a PC. The CalLOG software, which is included in the scope of supply, allows to document and generate calibration certificates.

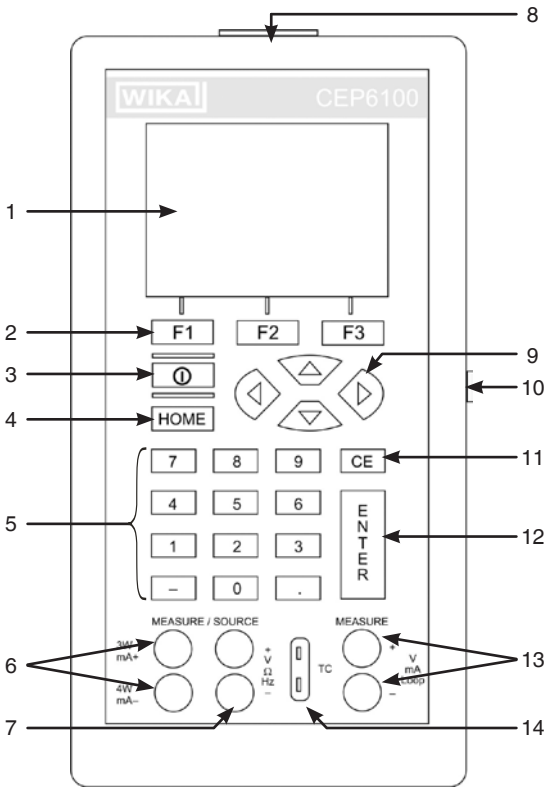
CalLOG will even organise your calibrations in subdirectories to keep your data in easy to find and retrieve status. With the CEP6100, it is all you need to have a complete, organised and paperless calibration system.





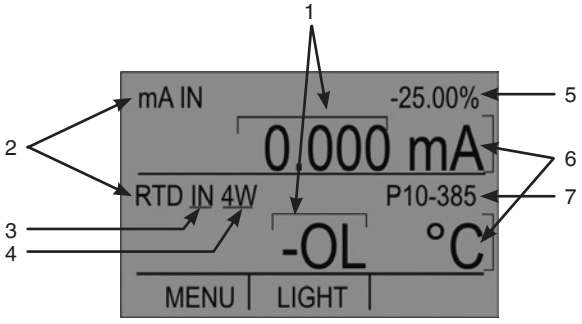
Overview of the CEP6100 operating elements

1) Display
2) Function keys, used to operate the menu bar at the bottom of the calibrator display
3) On/Off
4) HOME, returns to main menu
5) Numeric keys
6) Current, resistance thermometers (3-wire, 4-wire), input/output
7) Voltage, resistance thermometers (2-wire), frequency, pulse, input/output
8) Connection for external pressure module
9) Modification of individual digits of the output value; increase, decrease or ramp output value
10) Serial interface
11) Clear the input value
12) ENTER
13) Current and voltage input as well as output of 24 V voltage supply
14) Thermocouple input/output



Overview of the display

1) Numeric displays
2) Primary parameters
3) Input/output control
4) Additional settings
5) Display of the span
6) Units
7) Sensor type



Scope of delivery

- Documenting multi-function calibrator CEP6100
- Operating instructions
- Test cable, three sets (red/black)
- 3.1 calibration certificate per DIN EN 10204
- Four AA batteries
- Protective rubber boot
- RS-232 interface cable
- USB serial adapter
- Quick Start Guide
- CalLOG Software

Accessories

- 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
- Thermocouple wire kit J, K, T, E with plugs
- Thermocouple wire kit R/S, N, B with plugs
- Beryllium copper cable with low thermoelectric voltage (red)
- Beryllium copper cable with low thermoelectric voltage (black)
- Test cable, 1 set (red/black)
- Portable certificate printer, incl. charger, communications cable, roll of paper
- Service case

Option

- DKD/DAkkS certified accuracy

Complete service case model CEP6100 and optional accessories

Ordering information
Model / transport case / calibration / additional order details

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. (+49) 9372/132-0
Fax (+49) 9372/132-406
E-mail info@wika.de
www.wika.de

08/2011 GB