Hand-held pressure indicator
For pressure and temperature measurements
Model CPH5000

Applications

- Calibration service companies and service industry
- Measurement and control laboratories
- Quality assurance
- On-site calibration

Special features

- Accuracy: 0.1 % FS (incl. calibration certificate)
- Data logger with high measuring rate and large memory
- Chart preview directly on the instrument

Hand-held pressure indicator, model CPH5000

Description

Extensive application possibilities
For the model CPH5000 hand-held pressure indicator, the model CPT5000 external reference pressure sensors with measuring ranges up to 1,000 bar [14,500 psi] and a model CTP5003 temperature probe with -196 ... +500 °C [-321 ... +932 °F] are available. Therefore, it is particularly suitable as a test instrument for applications such as process technology, machine building, etc. The digital indicator automatically detects the measuring range of the connected pressure sensor and guarantees a highly accurate pressure measurement.

Functionality
The CPH5000 can be used for measuring gauge and absolute pressure, as well as for differential pressure measurement and temperature measurement tasks. Various measuring units can be set on the instrument, and the LC display also offers a chart preview of the recorded measured data.

An integrated data logger and various other functions such as Min., Max., Hold, Tare, zero point correction, alarm, power-off, peak value detection, mean value filter, ensure that the CPH5000 can be used for many different applications. The large display with backlighting and a long battery life complete the special features of the CPH5000.

Software
In addition to the function as mass storage, the WIKA-Cal calibration software is available for calibration tasks and display of the logger data. WIKA-Cal also offers, over and above PC-supported calibration, the management of the calibration and instrument data in an SQL database. A USB-C interface is available for the data transfer.

Data sheets showing similar products and accessories:
Precision digital pressure gauge; model CPG1500; see data sheet CT 10.51
Hand spindle pumps; CPP series; see data sheet CT 91.05
WIKA-Cal calibration software; see data sheet CT 95.10

Specifications for digital indicator model CPH5000

Basic information	
Electrical connection	
Number of inputs	■ 2 inputs for CPH5000-S2 ■ 3 inputs for CPH5000-S3
Connection type	M12 female connector, 5-pin
Interface	USB-C
Functions	
Functions can be activated via button press	■ Min./Max. memory ■ Hold ■ Tare ■ Zero point adjustment ■ Data logger (start/stop)
Functions can be activated via menu	■ Min./Max. alarm (audible/visual) ■ Sea level (barometric pressure) ■ Power-off function ■ Data logger ■ Sample rate ■ Mean value filter
Mean value filter	1 ... 120 seconds, adjustable
Sample rate	1 measurement/s (50 Hz sensor rate)
Real-time clock	Integrated clock with date
Leak tests	Pressure rate display, logging via data logger
Data logger	■ Up to 1 million data sets ■ Each data set contains date and time stamps and measurements of all channels ■ Data is stored in CSV files or can be read via WIKA-Cal
Voltage supply and performance data	
Auxiliary power	4 x AA NiMH rechargeable batteries External DC 5 V via USB-C
Battery voltage	DC 4.95 V
Current consumption	10 mA typical
Battery life	Typically > 200 h (without backlighting). The effective service life depends on the number and type of sensors connected.
Battery status display	Icon in display
Case	
Material	■ Impact-resistant ABS plastic ■ TPE gripping surfaces ■ Polyester front foil from polyester
Ingress protection	IP67 (with cable connected)
Weight	Approx. 375 g [0.83 lb] (incl. batteries and protective cover)
Sensor compatibility	Compatible with model CPT5000 reference pressure sensors Compatible with temperature probe model CTP5003

Digital display

Display	
Display range	■ -19999 ... 19999 digits ■ Display of the measured values for each channel ■ Live chart view ■ Visual alarm
Backlighting	Can be activated via button press Illuminated dot matrix LC display
Type of display	■ Plain text LC display, multilingual ■ Display of two units and additional information ■ Size: 42 x 50 mm [1.654 x 1.969 in] ■ Multilingual
Menu languages	Adjustable via menu ■ English ■ German ■ Spanish ■ French ■ Italian
Units	
Pressure	Adjustable via menu ■ mbar ■ bar ■ psi ■ Pa ■ kPa ■ MPa ■ mmHg ■ inHg
Temperature	Adjustable via menu ■ °C ■ °F

Communication

Interface	USB-C
Interface cable	■ Without ■ USB-C to USB-A; length: 1 m [3.28 ft]

Electrical connection

Connection type	M12 female connector, 5-pin
Ingress protection	IP67 (with cable connected)
Sensor connection cable (plug-and-play)	■ Without ■ Length 1 m [3.28 ft] ■ Length 3 m [9.84 ft] ■ Length 5 m [16.4 ft]

Electrical connections to the digital indicator

Model CPH5000-S3; 3 connection channels

1. Connection of channel (CH3)
2. Connection of channel (CH2)
3. Connection of channel (CH1)

Operating conditions	
Operating temperature	0 ... 45 °C [32 ... 113 °F]
Storage temperature range	
Without rechargeable battery	-25 ... +65 °C [-13 ... +149 °F]
With rechargeable battery	-20 ... +40 °C [-4 ... +104 °F]
Humidity	0 ... 95 % relative humidity
Condensation	Non-condensing
Ingress protection of the complete instrument	IP67 (with cable connected)
EMC (HF field) [1]	EN 61326 emission (group 1, class B) and immunity (basic environment)

1) For proper grounding in the sense of electromagnetic compatibility (EMC), it is crucial that all components of a plant are grounded in the low-frequency range (LF) as well as in the high-frequency range (HF) in order to ensure a uniform reference potential.

Specifications for reference pressure sensor model CPT5000

Basic information	
Case	
Material	Stainless steel 1.4404 (316L)
Weight	Approx. 280 g [0.62 lb]
Electrical connection	Connector M12, 4-pin
Connection to the CPH5000 (plug-and-play)	Via extension cable for connection of the sensors ■ Length: approx. 1 m [3.28 ft] ■ Length: approx. 3 m [9.84 ft] ■ Length: approx. 5 m [16.4 ft]
Ingress protection	IP67 (with cable connected)

Accuracy specifications	
Accuracy [1]	0.1 % FS
Reference conditions	
Ambient temperature	15 ... 25 °C [59 ... 77 °F]
Humidity	45 ... 75 % relative humidity
Mounting position	Vertical mounting position, process connection facing downwards.
Compensated range	10 ... 60 °C [50 ... 140 °F]

1) It is defined by the total measurement uncertainty, which is expressed with the coverage factor (k = 2) and includes the following factors: the intrinsic performance of the instrument, the measurement uncertainty of the reference instrument, long-term stability, influence of ambient conditions, drift and temperature effects over the compensated range during a periodic zero point adjustment.

Pressure ranges, gauge pressure

bar	
0 ... 0.4	0 ... 25
0 ... 0.6	0 ... 40
0 ... 1	0 ... 60
0 ... 1.6	0 ... 100
0 ... 2.5	0 ... 160
0 ... 4	0 ... 250
0 ... 6	0 ... 400
0 ... 10	0 ... 600
0 ... 16	0 ... 1,000

psi	
0 ... 5	0 ... 300
0 ... 10	0 ... 500
0 ... 15	0 ... 1,000
0 ... 20	0 ... 1,500
0 ... 30	0 ... 2,000
0 ... 50	0 ... 3,000
0 ... 100	0 ... 6,000
0 ... 150	0 ... 8,000
0 ... 200	0 ... 14,500

Pressure ranges, absolute pressure

bar abs.	
0 ... 1	0 ... 10
0 ... 1.6	0 ... 16
0 ... 2.5	0 ... 25
0 ... 4	0 ... 40
0 ... 6	-

psi abs.	
0 ...15	0 ... 100
0 ... 20	0 ... 150
0 ... 30	0 ... 200
0 ... 50	-

Pressure ranges, vacuum and compound measuring range

bar	
-1 ... 0	-1 ... 10
-1 ... 0.6	-1 ... 15
-1 ... 1.5	-1 ... 25
-1 ... 3	-1 ... 40
-1 ... 5	-

psi	
-14.5 ... 0	-5 ... +5
-14.5 ... +15	-8 ... +8
-14.5 ... +40	-3 ... +0
-14.5 ... +70	-5 ... +0
-14.5 ... +130	-8 ... +0

→ Other measuring ranges on request.

Further details on: Measuring range		
Overpressure limit		
3 times	< 25 bar	< 360 psi
2 times	> 25 ... ≤ 600 bar	> 360 ... ≤ 8,700 psi
1.5 times	> 600 ... ≤ 1,000 bar	> 8,700 ... ≤ 14,500 psi
Vacuum resistance	Yes	

Process connection		
Standard	**Thread sizes**	**Possible measuring ranges**
EN 837	■ G ¼ B ■ G ⅜ B ■ G ½ B ■ M20 x 1.5	≤ 1,000 bar [≤ 14,500 psi]
ANSI / ASME B1.20.1	■ ¼ NPT ■ ½ NPT	≤ 1,000 bar [≤ 14,500 psi]

Further details on: process connection		
Pressure port diameter / Restrictor	3.5 mm [0.138 in]	
Process connection adapter	→ On request	
Other versions		
Oil- and grease-free [1]	Residual hydrocarbon per ASTM G93-19, level F (< 1,000 mg/m²)	
Oxygen, oil- and grease-free	Residual hydrocarbon per ASTM G93-19, level C (< 66 mg/m²)	
Material		
Wetted parts	■ Stainless steel 1.4404 (316L) ■ Sensor: Elgiloy® 2.4711	
Internal pressure transmission medium	For measuring ranges ≤ 40 bar [≤ 500 psi]	Synthetic oil

1) Specifications in accordance with technical information IN 00.41

Operating conditions	
Place of use	For indoor and outdoor use
Operating altitude	2,000 m [6,562 ft] above sea level
Operating temperature	-20 ... +60 °C [-4 ... +140 °F]
Storage temperature range	-20 ... +80 °C [-4 ... +176 °F]
Humidity	0 ... 95 % relative humidity
Condensation	Non-condensing
Ingress protection	IP67 (with cable connected)
EMC (HF field) [1]	EN 61326 emission (group 1, class B) and immunity (basic environment)

1) For proper grounding in the sense of electromagnetic compatibility (EMC), it is crucial that all components of a plant are grounded in the low-frequency range (LF) as well as in the high-frequency range (HF) in order to ensure a uniform reference potential.

Specifications for temperature probe model CTP5003

Basic information	
Temperature ranges	-196 ... +500 °C [-321 ... +932 °F]
Probe characteristics	
Probe type	Immersion probe
Type of measuring element	Pt100
Connection method	4-wire connection
Dimensions	
Sensor cable	Length: 2.0 m [6.56 ft]
Sensor length	Ø 3 x 300 mm [Ø 0.12 x 11.81 in]
Handle	130 mm [5.12 in] (incl. bend protection)
Material	
Wetted parts	Sheath material of the probe tube: AISI 316
Handle	Polyamide (PA6-GF30) Santoprene® bend protection Both up to +120 °C [248 °F]
Sensor cable	PVC
Weight	Approx. 110 g [0.24 lb] with a cable length of 2 m [6.56 ft]

Accuracy specifications	
Measurement accuracy	±0.05 K at 0 ... 100 °C [32 ... 212 °F]
Response time (T63)	3 s
Reference conditions	
Ambient temperature range	23 ±2 °C [73 ±2 °F]
Humidity	40 % relative humidity ±25 % relative humidity
Characteristic curve determination	IEC 751 / EN 60751

Electrical connection	
Connection type	M12 female connector, 4-pin
Ingress protection	IP67 (with cable connected)
Sensor voltage	UART (TTL 3.3 V) Current 1 mA typical

Operating conditions of temperature probe model CTP5003	
Medium temperature range	-196 ... +500 °C [-321 ... +932 °F]
Ambient temperature range	Max. 120 °C [248 °F] (grip and bend protection)
	-20 ... +105 °C [-4 ... 221 °F] (sensor cable)
Storage temperature range	-25 ... +70 °C [-13 ... +158 °F]
Humidity	0 ... 95 % relative humidity
Condensation	Non-condensing
Permissible media	Depending on the material compatibility of the sheath material with the media
Immersion depth	Observe the maximum temperature of the handle
EMC (HF field) [1]	EN 61326 emission (group 1, class B) and immunity (basic environment)

1) For proper grounding in the sense of electromagnetic compatibility (EMC), it is crucial that all components of a plant are grounded in the low-frequency range (LF) as well as in the high-frequency range (HF) in order to ensure a uniform reference potential.

Approvals

Logo	Description	Region
CE	**EU declaration of conformity for CPH5000**	European Union
	EMC directive EN 61326 emission (group 1, class B) and immunity (basic environment)	
	RoHS directive	
CE	**EU declaration of conformity for CTP5003**	European Union
	EMC directive EN 61326 emission (group 1, class B) and immunity (basic environment)	
	RoHS directive	
CE	**EU declaration of conformity for CPT5000**	European Union
	EMC directive EN 61326 emission (group 1, class B) and immunity (basic environment)	
	Pressure Equipment Directive Module A, internal production control	
	RoHS directive	

Certificates

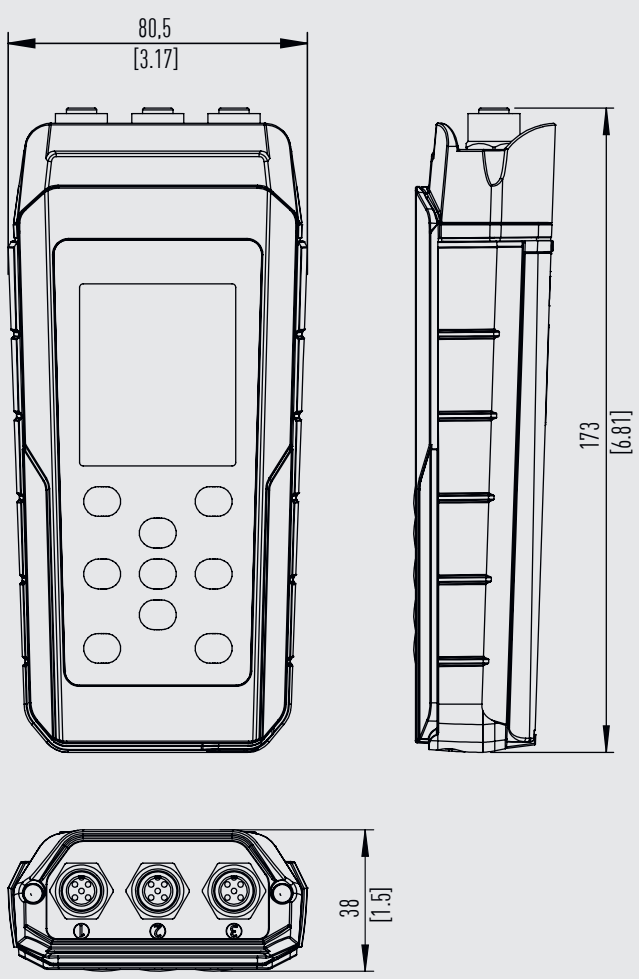
Description	
Certificates	3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)
Calibration	
Pressure [1)]	■ Without ■ 3.1 inspection certificate per DIN EN 10204 ■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)
Temperature	■ Without ■ DAkkS calibration certificate for a probe at 0 °C, 50 °C and 100 °C ■ DAkkS calibration certificate for a probe with 3 to 6 test points according to specification ■ DAkkS calibration certificate for a probe according to customer specifications
Recommended calibration interval	1 year (dependent on conditions of use)

1) Calibrated in vertical mounting position with process connection facing downwards

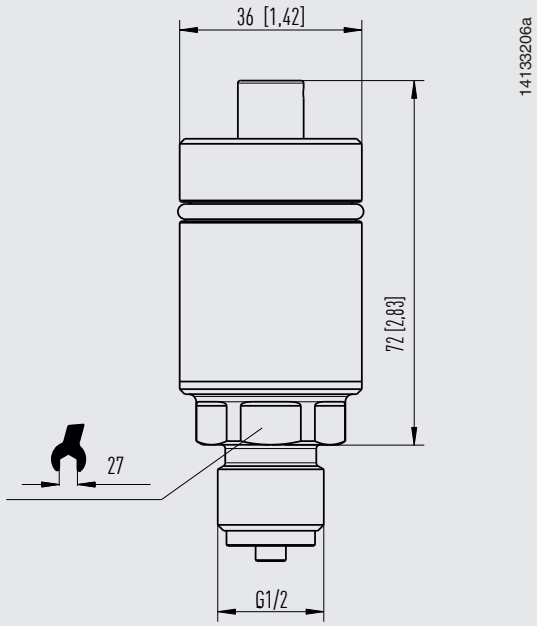
→ For approvals and certificates, see website

Dimensions in mm [in]

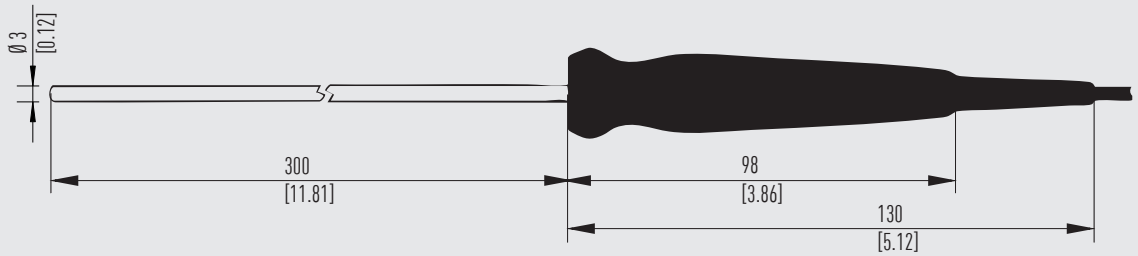
Digital indicator



Reference pressure sensor model CPT5000

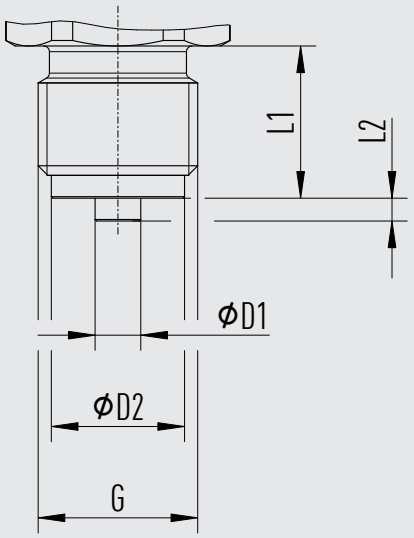


Temperature probe model CTP5003



Process connections in mm [in]

EN 837 with spigot



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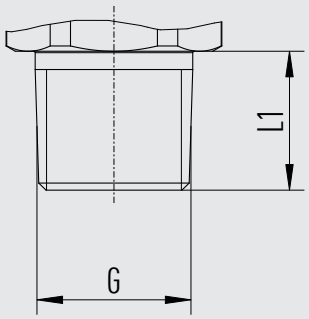
G	L1	L2	D1	D2
G ¼ B	13 [0.51]	2 [0.08]	5 [0.19]	9.5 [0.374]
G ⅜ B	16 [0.63]	3 [0.12]	5.5 [0.22]	13 [0.512]
G ½ B	20 [0.79]	3 [0.12]	6 [0.24]	17.5 [0.689]
M20 x 1.5	20 [0.79]	3 [0.12]	6 [0.24]	17.5 [0.689]

ANSI/ASME B1.20.1



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G	L1
¼ NPT	13 [0.51]
½ NPT	19 [0.75]

WIKA-Cal calibration software

Easy and fast creation of a high-quality calibration certificate

WIKA-Cal calibration software serves for the creation of logger protocols or calibration certificates for pressure measuring instruments. The demo version is available for a cost-free download.
To switch from the demo version to a licenced version, a USB dongle with a valid licence must be purchased.
The preinstalled demo version changes automatically to the selected version when plugging in the USB dongle and remains available as long as the USB dongle is connected to the PC.

- The user is guided through the logger or calibration process
- Management of calibration data and instrument data
- Intelligent preselection via SQL database
- Menu languages: German, English, Italian, French, Dutch, Polish, Portuguese, Romanian, Spanish, Swedish, Russian, Greek, Japanese, Chinese
  More languages are due with software updates
- Customer-specific complete solutions possible
- Maximum degree of automation in connection with our CPx series

The supported instruments are continuously expanded and even customer-specific adaptations are possible.

→ For further information, see data sheet CT 95.10

Two WIKA-Cal licences are available together with one hand-held

The WIKA-Cal calibration software is available both for reading the logger data stored in the hand-held as well as for online calibrations together with a PC. The scope of software functions depends on the selected licence.
Several licences can be combined on one USB dongle.

Cal-Template (demo version)	Cal-Template (light version)	Log-Template (full version)
Fully automatic calibration	Semi-automatic calibration	■ Live measured value recording for a certain period of time with selectable interval, duration and start time ■ Readout of the integrated data logger of the hand-held ■ Creation of logger protocols with graphic and/or tabular representation of the measuring results in PDF format ■ Possibility of exporting measuring results as CSV file
Limitation to two measuring points	No limitation of the measuring points approached	
■ Creation of 3.1 inspection certificates per DIN EN 10204 ■ Calibration data can be exported to Excel® template or XML file ■ Calibration of pressure measuring instruments		

Ordering information for your enquiry:		
Is available for a cost-free download	WIKA-CAL-LZ-Z-Z	WIKA-CAL-ZZ-L-Z
	WIKA-CAL-LZ-L-Z	

Accessories and spare parts

Description [1]		Order code
		CPH-A-50-
	**Rechargeable battery** NiMH rechargeable batteries 4 x 1.5 V AA	-A-
	**Interface cable** USB type C to USB-A Length: 1.0 m [3.28 ft]	-M-
	**Sensor connection cable** Length: approx. 1.0 m [3.28 ft]	-S-
	Length: approx. 3.0 m [9.84 ft]	-T-
	Length: approx. 5.0 m [16.40 ft]	-U-
	**Plastic case** For 1 hand-held, max. 3 pressure sensors and accessories Dimensions: 340 x 275 x 83 mm [13.39 x 10.83 x 3.27 in]	-K-
Ordering information for your enquiry:		
	1. Order code: CPH-A-50- **2. Option:**	⇓ **[ ]**

1) The figures are an example and may change depending on the state of the art in design, material composition and representation.

Description [1]		Order number
	**Temperature probe model CTP5003** Ø 3 x 300 mm [Ø 0.12 x 11.81 in]	14819213

1) The figures are an example and may change depending on the state of the art in design, material composition and representation.

Scope of delivery

- Hand-held pressure indicator model CPH5000-S2 or S3, including 4 x AA-NiMH rechargeable batteries
- Choice of sensors
- Sensor connection cable
- USB cable
- Calibration certificate
- Operating instructions

Ordering information

CPH5000 / Instrument version / Additional cable for reference pressure sensor / Software / Interface cable / Test pump / Transport case / Further approvals / Additional ordering information

CPT5000 / Unit / Measuring range / Accuracy / Process connection / Wetted parts / Special design features / Type of certificate / Pressure adapter / Further approvals / Additional ordering information

To order the temperature probes, the order number is sufficient.

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