

Precision hand-held pressure indicator Model CPH6400

WIKA data sheet CT 14.01



for further approvals
see page 4

Applications

- Calibration service companies and service industry
- Measurement and control laboratories
- Quality assurance

Special features

- Digital indicator with easily interchangeable reference pressure sensors (plug-and-play)
- Measuring ranges from -1 ... 6,000 bar (-15 ... 75,000 psi) (vacuum and absolute pressure ranges also available)
- Accuracy: 0.025 % (incl. calibration certificate)
- Simultaneous pressure and temperature measurement with external Pt100 temperature probe
- Min, max, pressure rate and data logger function



**Precision hand-held pressure indicator
model CPH6400 with reference pressure sensor
model CPT6400**

Description

Features

A wide variety of reference pressure sensors, offering various measuring ranges of up to 6,000 bar (75,000 psi), are available to the operator, always ensuring a solution matched to the application. The individual sensors can be exchanged quickly and without tools (plug-and-play) and are automatically recognised by the digital indicator. Also, as an option, very accurate temperature measurement with a Pt100 temperature probe is possible. In addition, this instrument features a large, easily-read display with backlighting (on/off selectable), a durable case and simple, clear operation.

Functionality

In addition to mobile and high-precision pressure and temperature measurement, the CPH6400 also opens up other helpful applications e.g. recording of pressure and

temperature curves (via the logger function), leak testing (via the pressure rate function) and peak value determination (via the Min./Max. function).

Software

The WIKAL calibration software is available both for reading the logger data stored in the CPH6400 as well as for online calibrations in connection with a PC. Using this software, the calibration data is automatically transferred into a printable calibration certificate. Furthermore, WIKAL also offers, over and above PC-supported calibration, the management of the calibration and instrument data in an SQL database.

Complete test and service cases

For maintenance and service applications, various case systems are available. These include service cases with/without pressure generation, power supply unit/charger, connection adapter, etc.

Certified accuracy

For each reference pressure sensor and Pt100 temperature probe, the accuracy for the complete measuring chain is certified by a factory calibration certificate which accompanies the instrument. On request, a DKD/DakkS calibration certificate will be provided for this instrument.

Specifications Model CPH6400

Precision hand-held pressure indicator model CPH6400 (complete measuring chain)						
Sensor technology		1 reference pressure sensor (exchangeable without tools) ¹⁾				
Measuring range						
Gauge pressure	bar	-1 ... 0	-1 ... +0.6	-1 ... 1.5	-1 ... 3	-1 ... 5
		-1 ... 9	-1 ... 15	-1 ... 24	-1 ... 39	0 ... 0.25
		0 ... 0.4	0 ... 0.6	0 ... 1	0 ... 1.6	0 ... 2.5
		0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25
		0 ... 40	0 ... 60	0 ... 100	0 ... 160	0 ... 250
		0 ... 400	0 ... 600	0 ... 700	0 ... 1,000	
	psi	-15 ... 0	-15 ... +15	-15 ... 40	-15 ... 70	-15 ... 130
		0 ... 5	0 ... 10	0 ... 15	0 ... 20	0 ... 25
		0 ... 30	0 ... 50	0 ... 60	0 ... 75	0 ... 100
		0 ... 150	0 ... 200	0 ... 250	0 ... 300	0 ... 350
		0 ... 400	0 ... 500	0 ... 600	0 ... 700	0 ... 750
		0 ... 1,000	0 ... 1,450	0 ... 1,500	0 ... 2,000	0 ... 3,000
		0 ... 4,000	0 ... 5,000	0 ... 6,000	0 ... 7,500	0 ... 10,000
		0 ... 14,500				
Accuracy of the measuring chain ²⁾		0.025 % FS ³⁾				
Gauge pressure	bar	0 ... 1,600	0 ... 2,000	0 ... 2,500	0 ... 3,000	0 ... 4,000
		0 ... 5,000	0 ... 6,000			
	psi	0 ... 15,000	0 ... 20,000	0 ... 25,000	0 ... 30,000	0 ... 40,000
		0 ... 50,000	0 ... 60,000	0 ... 75,000		
Accuracy of the measuring chain ²⁾		0.1 % FS ³⁾				
Absolute pressure	bar abs.	-0.8 ... 1.2	0 ... 0.25	0 ... 0.4	0 ... 0.6	0 ... 1
		0 ... 1.6	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10
		0 ... 16	0 ... 25			
	psi abs.	0 ... 5	0 ... 10	0 ... 15	0 ... 20	0 ... 30
		0 ... 50	0 ... 60	0 ... 100	0 ... 150	0 ... 300
Accuracy of the measuring chain ²⁾		0.025 % FS ³⁾				
Overpressure limit (depending on measuring range)		3 times; < 25 bar 2 times; > 25 bar ... ≤ 600 bar 1.5 times; > 600 bar ... ≤ 2,500 bar 1.2 times; > 2,500 bar			3 times; < 360 psi 2 times; > 360 psi ... ≤ 8,700 psi 1.5 times; > 8,700 psi ... ≤ 36,260 psi 1.2 times; > 36,260 psi	
Pressure types		Gauge pressure, {absolute pressure from 0 ... 25 bar abs. (0 ... 360 psi abs.) and vacuum from -1 ... +39 bar (-14.5 ... 566 psi)}				
Sensor compatibility		Compatible with model CPT6400 reference pressure sensors				

{ } Items in curved brackets are optional extras for an additional price.

1) Up to 10 reference pressure sensors can be supported on each instrument (up to 10 calibration data sets).

2) 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.

3) Calibrated at 23 °C (74 °F) and in a vertical mounting position, pressure connection from below.

Precision hand-held pressure indicator model CPH6400 (complete measuring chain)

Temperature measurement	only for 2-channel version
Probe type	Pt100, 4-wire
Measuring range	-10 ... +50 °C (14 ... 122 °F)
Resolution	0.01 °C (0.02 °F)
Accuracy	0.05 K ⁴⁾

Digital indicator model CPH6400

Display	
Display	Large graphic display, with backlighting (on/off selectable)
Display resolution	up to 6 digits; selectable
Pressure units	bar, mbar, kPa, mmHg, inHg and kg/cm ² (depending on the measuring range, freely selectable)
Functions	
Measuring rate (pressure)	5 values/sec
Memory	Min./Max., integrated data logger
Functions via key press	Tare, change units
Menu functions	Min./Max. memory, pressure rate, zero adjustment for overpressure ranges, logger (start/pause/stop)
Data logger	Cyclic logger: Automatic recording of up to 1,000 pressure values (with 2-channel version: 500 pressure values and 500 temperature values) Cycle time: selectable from 1 ... 3,600 seconds
Voltage supply	
Power supply	internal Lithium-Ion rechargeable battery (charging time: < 6 h)
Battery life	approx. 25 hours of operation
Battery status display	Icon in display
Permissible ambient conditions	
Operating temperature	0 ... 50 °C (32 ... 122 °F)
Storage temperature	-20 ... +60 °C (-4 ... +140 °F)
Relative humidity	0 ... 85 % r.h. (non-condensing; at 50 °C / 122 °F)
Communication	
Interface	USB via interface cable
Case	
Material	Polyamide 12, membrane keypad, transparent panels
Ingress protection	IP65
Electrical connection	Sensor cable: bayonet connector, 7-pin Interface connector: bayonet connector, 5-pin
Dimensions	See technical drawing
Weight	approx. 480 g (1.06 lbs)

Reference pressure sensor model CPT6400

Process connection	≤ 1,000 bar (≤ 14,500 psi): G ½ B; {various connection adapters on request} > 1,000 bar (> 14,500 psi): M16 x 1.5 female, with sealing cone
Sensor data	
Accuracy per year	≤ 0.025 % of span (only with CPH6400)
Compensated range	0 ... 50 °C (32 ... 122 °F)
Material	
Wetted parts	Stainless steel (with measuring ranges > 25 bar ... ≤ 1,000 bar (> 360 ... ≤ 14,500 psi) Elgiloy® in addition)
Internal transmission medium	Synthetic oil (only for measuring ranges up to 25 bar (360 psi)) {halocarbon oil for oxygen versions} ⁵⁾

{ } Items in curved brackets are optional extras for an additional price.

4) Deviation between the set value and the actual value

5) For oxygen versions, the medium temperature must not exceed 60 °C (140 °F).

Reference pressure sensor model CPT6400

Permissible ambient conditions

Medium temperature	-20 ... +80 °C (-4 ... +176 °F) ⁵⁾
Operating temperature	-20 ... +80 °C (-4 ... +176 °F) ⁵⁾
Storage temperature	-40 ... +85 °C (-40 ... +185 °F) ⁵⁾
Relative humidity	0 ... 95 % r. h. (non-condensing)

Case

Material	Stainless steel
Connection to the CPH6400	Circular connector, 8-pin Option: External operation via 1.2 m (4 ft) connection cable (plug-and-play)
Ingress protection	IP65 (with cable connected)
Dimensions	See technical drawing
Weight	approx. 220 g (0,49 lbs.)

5) For oxygen versions, the medium temperature must not exceed 60 °C (140 °F).

Approvals

Logo	Description	Country
	EU declaration of conformity for model CPH6400 ■ EMC directive EN 61326 emission (group 1, class B) and interference immunity (portable measuring equipment) ■ RoHS directive	European Union
	EU declaration of conformity for model CPT6400 ■ EMC directive EN 61326 emission (group 1, class B) and interference immunity (industrial application) ■ Pressure equipment directive PS > 200 bar, module A, pressure accessory ■ RoHS directive	European Union
	EAC ■ EMC directive ■ Pressure equipment directive ■ Low voltage directive	Eurasian Economic Community
	GOST Metrology, measurement technology	Russia
	KazInMetr Metrology, measurement technology	Kazakhstan
-	MTSCHS Permission for commissioning	Kazakhstan
	BelGIM Metrology, measurement technology	Belarus
	UkrSEPRO Metrology, measurement technology	Ukraine
	Uzstandard Metrology, measurement technology	Uzbekistan
-	CPA Metrology, measurement technology	China

Certificates

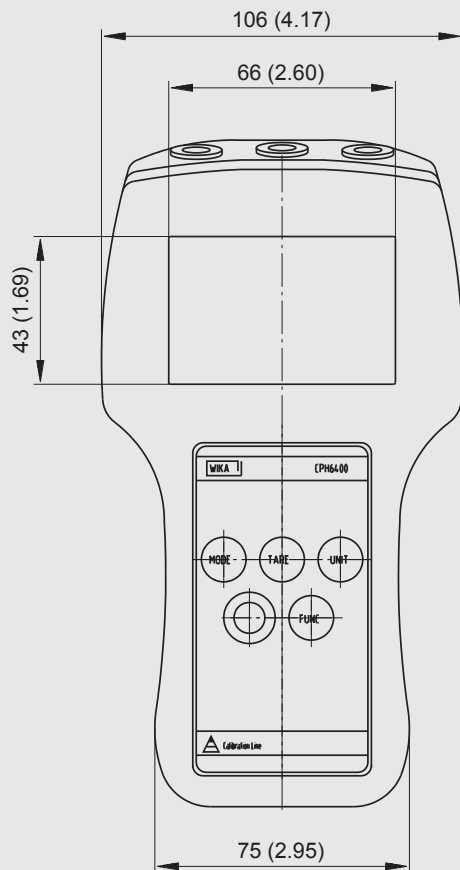
Certificate	
Calibration	Standard: 3.1 calibration certificate per EN 10204 Option: DKD/DakKS calibration certificate
Recommended recalibration interval	1 year (dependent on conditions of use)

Approvals and certificates, see website

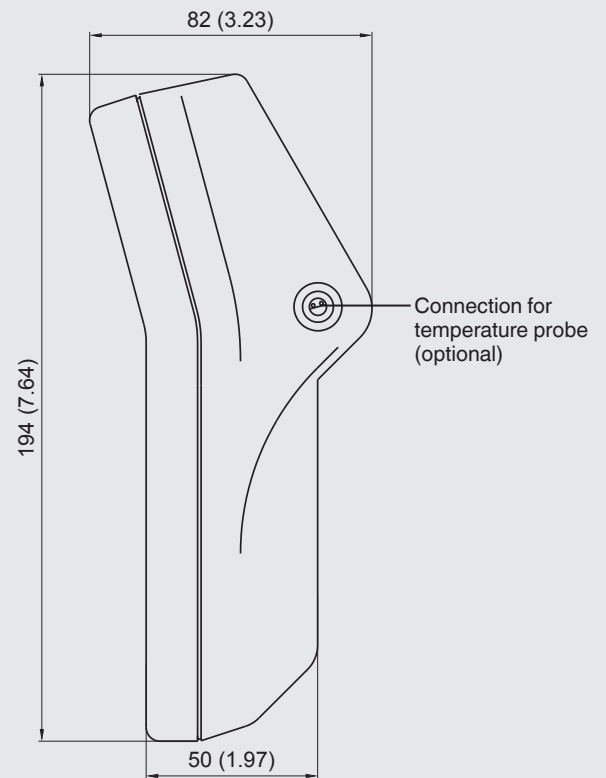
Dimensions in mm (in)

Digital indicator CPH6400

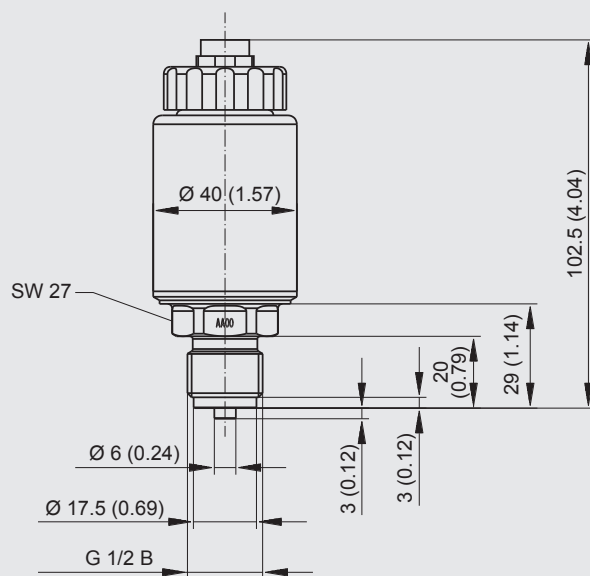
Front view



Side view (right)

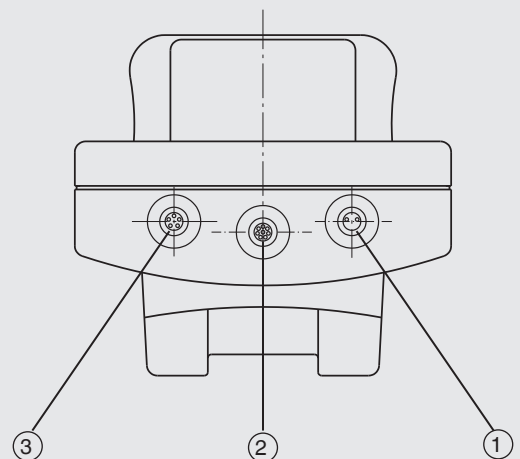


Reference pressure sensor CPT6400



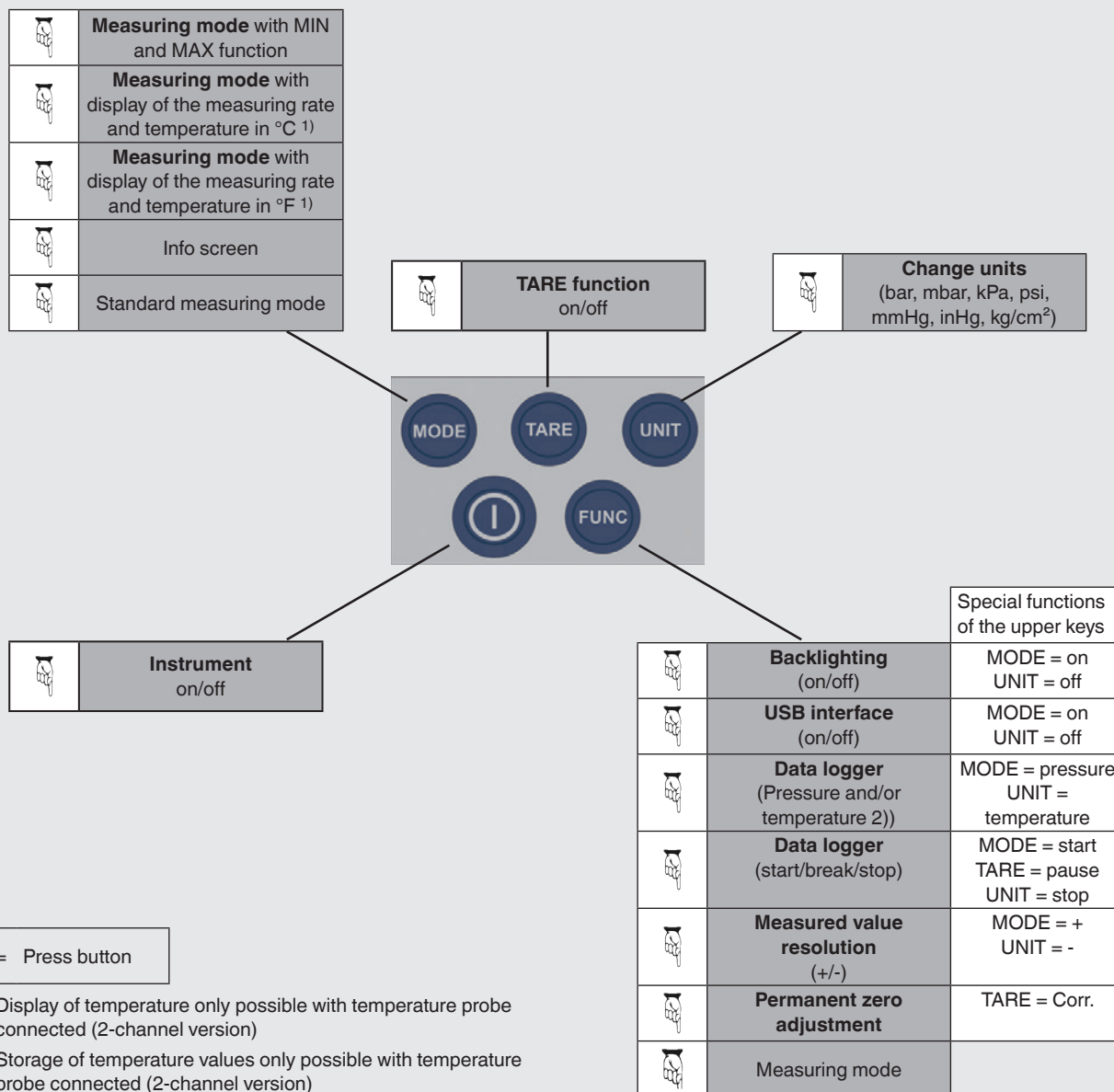
Electrical connections

Top view



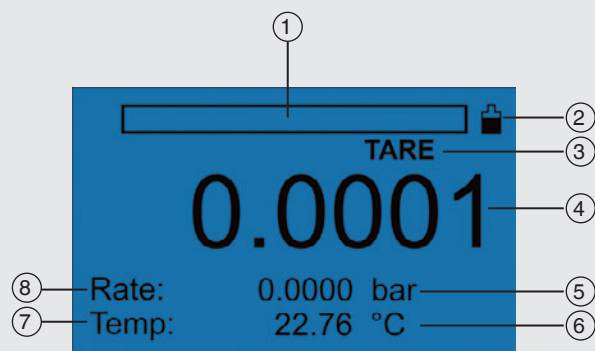
- ① Connection for power supply unit/charger
- ② Sensor connection
- ③ Interface connector

Keypad



Operation of the model CPH6400 hand-held pressure indicator

Display



- ① Bar graph
- ② Battery status display
- ③ TARE function (if activated)
- ④ Current measured pressure value
- ⑤ Pressure unit
- ⑥ Temperature unit (2-channel version)
- ⑦ Current measured temperature via the external temperature probe (2-channel version)
- ⑧ Display of the measuring rate

Temperature measurement with model CPH6400 precision hand-held pressure indicator

In addition to the proven external CPT6400 reference pressure sensor, an external Pt100 temperature probe can be connected in parallel. An accuracy of 0.05 °C can be achieved with this. The additional temperature extension is available as an option - as a basic unit, the CPH6400 remains a precision hand-held pressure indicator.

With the integrated data logger, pressure or temperature can be recorded, as well both measurands simultaneously. The evaluation from the data logger is carried out using Microsoft EXCEL®.

The simultaneous measurement and logging of pressure and temperature opens a wide range of possible applications for the CPH6400. For example, the instrument is thus ideally suited to leak testing, since now the influence of temperature can also be recorded for any pressure increase or pressure drop.



Model CPH6400 precision hand-held pressure indicator with model CPT6400 reference pressure sensor and temperature probe

Complete test and service cases



Basic version

Calibration case with model CPH6400 precision hand-held pressure indicator for pressure, consisting of:

- Plastic service case with foam insert
- Precision hand-held pressure indicator model CPH6400
- Sensor cable for external operation of sensor
- Charger
- Recesses for several CPT6400 reference pressure sensors

Available measuring ranges see specifications



Basic version incl. pneumatic pressure generation

Calibration case with model CPH6400 precision hand-held pressure indicator and model CPP30 hand test pump for pressures of -0.95 ... +35 bar (28 inHg ... 500 psi), consisting of:

- Service case with foam insert
- Precision hand-held pressure indicator model CPH6400
- Pneumatic hand test pump model CPP30; -0.95 ... +35 bar (-28 inHg ... +500 psi)
- Sensor cable for external operation of sensor
- Charger
- Recesses for several CPT6400 reference pressure sensors

Available measuring ranges see specifications



Basic version incl. hydraulic pressure generation

Calibration case with model CPH6400 precision hand-held pressure indicator and model CPP700-H or CPP1000-H hand test pump for pressures of 0 ... 700 bar (0 ... 10,000 psi) or 0 ... 1,000 bar (0 ... 14,500 psi), consisting of:

- Service case with foam insert
- Precision hand-held pressure indicator model CPH6400
- Hydraulic hand test pump
 - Model CPP700-H 0 ... 700 bar (0 ... 10,000 psi) or
 - Model CPP1000-H 0 ... 1,000 bar (0 ... 14,500 psi)
- Sensor cable for external operation of sensor
- Charger
- Recesses for several CPT6400 reference pressure sensors

Further specifications see data sheet CT 91.07.

WIKA-Cal calibration software

Easy and fast creation of a high-quality calibration certificate

The WIKA-Cal calibration software is used for generating calibration certificates or logger protocols for pressure measuring instruments and is available as a demo version for a cost-free download.

A template helps the user and guides him through the creation process of a document.

In order to switch from the demo version to a full version of the respective template, a USB stick with the template must be purchased.

The pre-installed demo version automatically changes to the selected full version when the USB stick is inserted and remains available so long as the USB stick is connected to the computer.



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- A calibration assistant guides you through the calibration
- Automatic generation of the calibration steps
- Generation of 3.1 certificates per DIN EN 10204
- Creation of logger protocols
- User-friendly interface
- Languages: German, English, Italian and more due with software updates

For further information see data sheet CT 95.10

Calibration certificates can be created with the Cal-Template and logger protocols can be created with the Log-Template.



Cal Demo

Generation of calibration certificates limited to 2 measuring points, with automatic initiation of pressures via a pressure controller.



Cal Light

Generation of calibration certificates with no limitations on measuring points, without automatic initiation of pressures via a pressure controller.



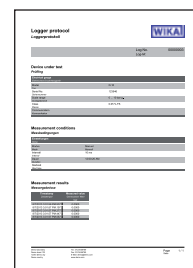
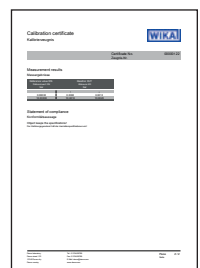
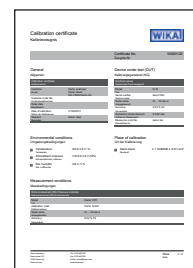
Log Demo

Creation of data logger test reports, limited to 5 measured values.



Log

Creation of data logger test reports without limiting the measured values.



Accessories	Order code
Battery charger (Euro standard, UK standard, US standard)	CPH-A-64-ZZZ4ZZZZZZ-Z
Sealing set, consisting of 4 x G ½ USIT seals, 2 x G ¼ USIT seals and plastic box	CPH-A-64-ZZZDZZZZZZ-Z
Sensor connection cable, approx. 1.1 m (3.3 ft)	CPH-A-64-ZZZSZZZZZZ-Z
Sensor connection cable, approx. 3.0 m (10 ft)	CPH-A-64-ZZZVZZZZZZ-Z
Hook set with magnet	CPH-A-64-ZZZBZZZZZZ-Z
Hand strap	CPH-A-64-ZZZCZZZZZZ-Z
USB interface cable	CPH-A-64-ZZZUZZZZZZ-Z
Plastic case for 1 x hand-held, 4 x pressure sensors, accessories	CPH-A-64-ZZZKZZZZZZ-Z
Transport case made of aluminium for 1 x hand-held, 5 x pressure sensors, 1 x pneumatic hand test pump CPP7-H or CPP30, accessories	CPH-A-64-ZZZLZZZZZZ-Z
Transport case made of aluminium for 1 x hand-held, 5 x pressure sensors, 1 x hydraulic hand test pump CPP700-H/ CPP1000-H, accessories	CPH-A-64-ZZZNZZZZZZ-Z
Transport case made of aluminium for 1 x hand-held, 5 x pressure sensors, 1 x hydraulic spindel pump CPP1000-L, accessories	CPH-A-64-ZZZMZZZZZZ-Z
WIKA-Cal calibration software	WIKA-CAL-ZZ-L-Z

Scope of delivery

- Precision hand-held pressure indicator model CPH6400
- Battery charger
- 3.1 calibration certificate per EN 10204
- Choice of sensors

Options

- 2-channel version (pressure and temperature measurement in a single instrument)
- Sensors for oxygen applications
- DKD/DAkkS calibration certificate

Ordering information

CPH6400 / Instrument version / Temperature probe / Temperature calibration / Holding fixture / Software / Interface cable / Test pump / Transport case / Further approvals / Additional ordering information

CPT6400 / Unit / Measuring range / Process connection / Special design features / Type of certificate / Further approvals / Additional ordering information

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