

# Portable pressure calibrator Model CPH7650

WIKA data sheet CT 17.02



## Applications

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

## Special features

- Measurement and electrical pressure generation at the touch of a button with integrated pump, from -0.85 ... +20 bar [-12 ... 290 psi]
- Accuracy: 0.025 % FS (incl. calibration certificate)
- Generation/measurement of 4 ... 20 mA, and DC 24 V voltage supply to power transmitters
- Robust case design, IP67



Portable pressure calibrator, model CPH7650

## Description

### General information

The portable pressure calibrator model CPH7650 is a compact, portable pressure calibrator, which has been designed for mobile use as well as for stationary workshop and laboratory testing. An integrated electrical pump enables you to generate pressures up to 20 bar [300 psi] and an integrated electrical module also enables you to supply transmitters or sensors with a current of max. 30 mA (voltage (idling) = DC 24 V), in addition to the traditional measurement of current and voltage signals.

### Accuracy

The exchangeable model CPT6000 reference sensor offers an accuracy of 0.025 % of span. The temperature compensation of the built-in sensor safeguards the accuracy for applications in the field. Readings can be displayed in one of 13 standard units.

### Features

With the portable pressure calibrator, not only are accurate pressure measurements possible, but also exact current and voltage measurements, as well as a DC 24 V voltage supply for test items are enabled. Pressure values and electrical measured values are simultaneously shown in the display. The calibrator is integrated into a robust, as well as dust and waterproof transport case. Thus the mobile pressure calibrator is particularly suited to use in harsh industrial environments.

The external universal power supply is designed for an operating voltage of AC 100 ... 240 V.

## Software

The WIKA-Cal calibration software is available for online calibrations in connection with a PC. Using this software, the data is automatically transferred into a printable calibration certificate. Furthermore, WIKA-Cal also offers, over and above PC-supported calibration, the management of the calibration and instrument data in an SQL database. A RS-232 interface is available for the data transfer.

## Certified accuracy

For the CPH7650, the accuracy is certified by a factory calibration certificate which accompanies the instrument. On request, we can provide a DKD/DAkkS calibration certificate for this instrument.

## Specifications Model CPH7650

Sensor technology				
<b>Measuring ranges <sup>1)</sup></b>				
Gauge pressure	bar	0 ... 10	0 ... 16	0 ... 20
	psi	0 ... 150	0 ... 300	
Absolute pressure	bar abs.	0 ... 10	0 ... 16	0 ... 20
	psi abs.	0 ... 150	0 ... 300	
Vacuum and +/- measuring range	bar	-1 ... 9	-1 ... 20	
	psi	-14.5 ... 130	-14.5 ... 300	
Overpressure safety <sup>2)</sup>	3 times			
<b>Accuracy</b>	0.025 % FS			
<b>Resolution</b>	5-digit			
<b>Temperature compensation</b>	15 ... 35 °C [59 ... 95 °F]			
<b>Temperature coefficient</b>	0.002 % of span/°C outside of 15 ... 35 °C [59 ... 95 °F]			
<b>Electrical safety</b>				
Resistance to overvoltage	Yes			
Short-circuit resistant	Yes			
Reverse polarity protection	Yes			
Voltage-resistant	up to DC 60 V			
<b>Input resistance</b>				
Current measurement	20 Ω			
Voltage measurement	1 MΩ			
<b>Measuring input, current</b>				
Measuring range	0 ... 20 mA; 4 ... 20 mA			
Resolution	up to 6 digits; adjustable			
Accuracy	0.015 % of reading ±2 μA (simulation and measurement)			
<b>Measuring input, voltage</b>				
Measuring range	DC 0 ... 1 V; DC 0 ... 2 V; DC 0 ... 5 V; DC 0 ... 10 V			
Resolution	up to 6 digits; adjustable			
Accuracy	0.015 % of reading ±2 mV (measurement)			
<b>Output</b>				
Voltage supply	DC 24 V / max. 50 mA (can be activated via menu)			




1) Via exchangeable model CPT6000 reference pressure sensors

2) The electrical pump can generate -0.85 ... +20 bar [-12 ... 290 psi].

Base instrument	
Pressure supply	-0.85 ... +20 bar [-12 ... 290 psi], via integrated electric pump
Pressure connection for test item	G ½" female thread
Permissible media	For dry, clean and non-aggressive gases
Power supply	
Battery type	Lithium-ion battery
Permissible ambient conditions	
Operating temperature	-10 ... +50 °C [14 ... 122 °F]
Storage temperature	-20 ... +60 °C [-4 ... +140 °F]
Humidity	35 ... 85 % r. h. (non-condensing)
Communication	
Interface	RS-232 via special interface cable USB via special interface cable (for configuration tasks)
Case	
Material	NK-7TM resin
Front panel	Aluminium
Ingress protection	IP67 (case closed) IP40 (case opened)
Dimensions	387.4 x 304.8 x 177.8 mm [15,25 x 12 x 7 in]
Weight	approx. 7 kg [15,5 lbs.]

Charger	
Input voltage	AC 100 ... 240 V, 50 ... 60 Hz
Output voltage	DC 9 V
Rated output current	1,280 mA
Permissible ambient conditions	
Operating temperature	0 ... 60 °C [32 ... +140 °F]
Storage temperature	-40 ... +85 °C [-40 ... +185 °F]
Humidity	5 ... 95 % r. F. (non-condensing)

## Approvals

Logo	Description	Country
	<b>EU declaration of conformity</b> ■ EMC directive ■ RoHS directive	European Union
	<b>GOST</b> Metrology, measurement technology	Russia
	<b>BelGIM</b> Metrology, measurement technology	Belarus

## Certificates

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

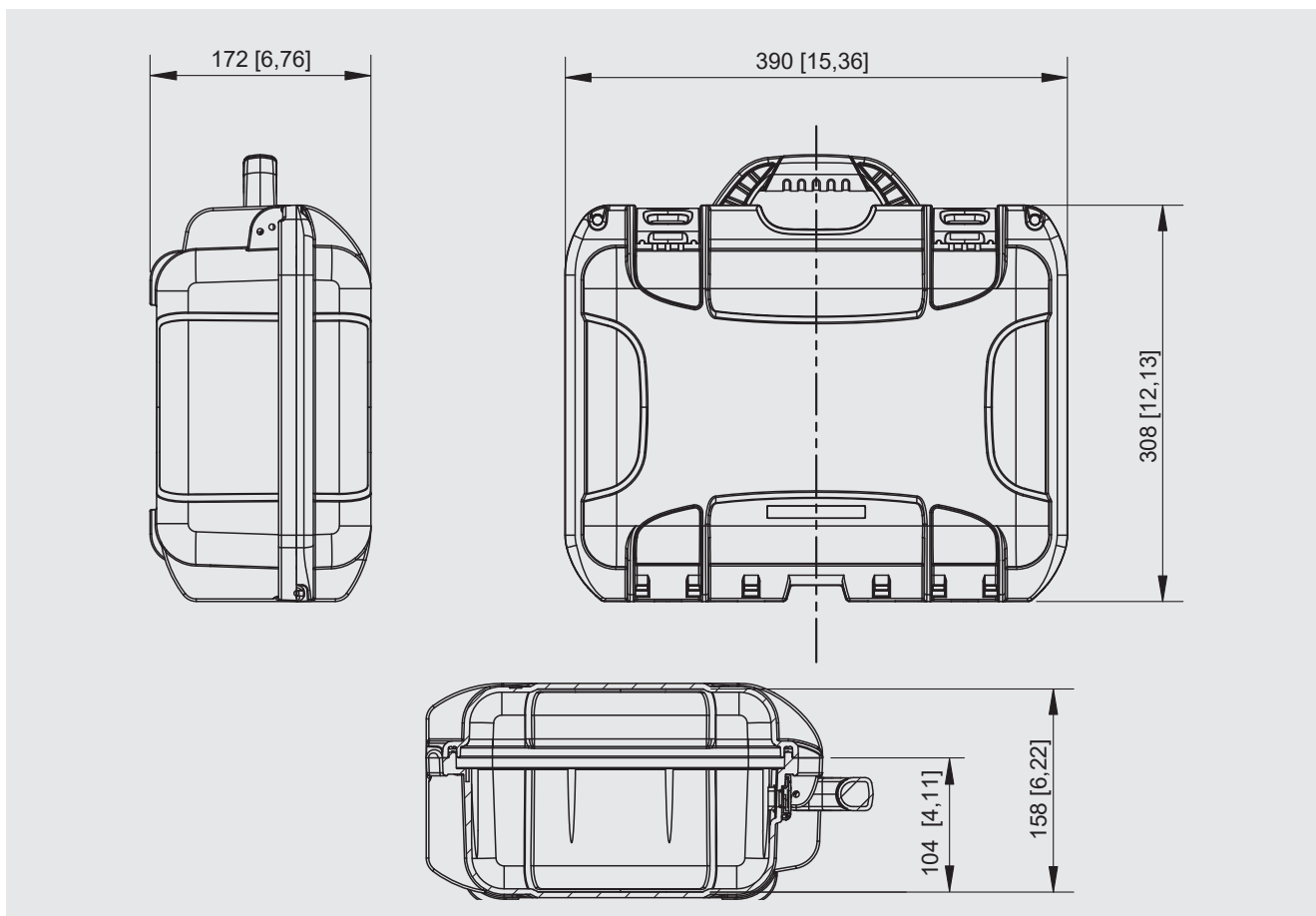
Approvals and certificates, see website

## Available pressure range and resolution

Pressure range and factors		
Gauge pressure	-1 ... +20 bar [-14.5 ... +300 psi]	
Overpressure safety	40 bar [580 psi]	
Unit	Conversion factor and resolution	
psi	1	300.00
bar	0.06894757	20.684
mbar	68.94757	20,684
kPa	6.894757	2,068.4
MPa	0.00689476	2.0684
kg/cm <sup>2</sup>	0.07030697	21.092
cmH <sub>2</sub> O (4 °C)	70.3089	21,093
cmH <sub>2</sub> O (20 °C)	70.4336	21,130
inH <sub>2</sub> O (4 °C)	27.68067	8,304.2
inH <sub>2</sub> O (20 °C)	27.72977	8,318.9
inH <sub>2</sub> O (60 °C)	27.70759	8,312.3
mmHg (0 °C)	51.71508	15,515
inHg (0 °C)	2.03602	610.81

Conversion factor in relation to the unit bar	
bar	1.00000E+00
mbar	1.00000E-03
psi	6.89475E-02
Pa	1.00000E-05
kPa	1.00000E-02
MPa	1.00000E+01
hPa	1.00000E-03
kg/cm <sup>2</sup>	9.80665E-01
mmH <sub>2</sub> O (0 °C)	1.33322E-03
mmH <sub>2</sub> O (4 °C)	9.80670E-05
cmH <sub>2</sub> O (4 °C)	9.80670E-04
mH <sub>2</sub> O (4 °C)	9.80670E-02
inH <sub>2</sub> O (60 °C)	2.48800E-03
cmHg (0 °C)	1.33322E-02
inHg (0 °C)	3.37690E-02

## Dimensions in mm [in]



## User interface



## Features

### Pressure supply

The CPH7650, through an integrated electrical pump, enables the provision of -0.85 ... +20 bar [-12 ... 290 psi]. With this, the operator can supply the test item to be calibrated with pressure on-site and does not need any separate pressure supply.

### Current and voltage

In addition to pressure, the portable pressure calibrator also measures and simulates 4 ... 20 mA current loop signals, can measure up to DC 30 V and features an internal DC 24 V voltage supply to power the transmitter being calibrated. The DC 24 V voltage supply is switchable for transmitters with mA as well as V output signal.

### Display

It can display two calibration values simultaneously. This means that the external reference sensor and electrical test item values (mA or V) can be displayed simultaneously. The instrument has a large graphic LC display with backlighting.

### Pressure ranges

The CPH7650 can be fitted with different reference pressure sensors, so that the pressure calibrator is suitable for the calibration of test items with different pressure ranges up to 20 bar [290 psi].

Each pressure range can be accurately generated with the integrated electric pump at the touch of a button. The fine adjustment is made with the integrated volume adjuster.

### Functions

The CPH7650 has a complete range of useful functions. Switch tests can be carried out and recorded. The deviation of the test item is directly calculated and indicated on the display. A damping function is available. Up to five frequently used instrument settings can be stored and retrieved by pressing a button.

### Robustness

The CPH7650 consists of a calibrator, which is built into a rugged service case. With this design, the portable pressure calibrator is suited to extremely harsh operating conditions.

## Dirt trap

The CPH7650 should only be used with dry and clean test items. Soiling of the integrated pump, for example, through contaminated test items, can lead to faults on the pump or require the pump to be cleaned.

By using the dirt trap specifically developed for the CPH7650, contamination of the integrated pump can be prevented.



## Using the dirt trap

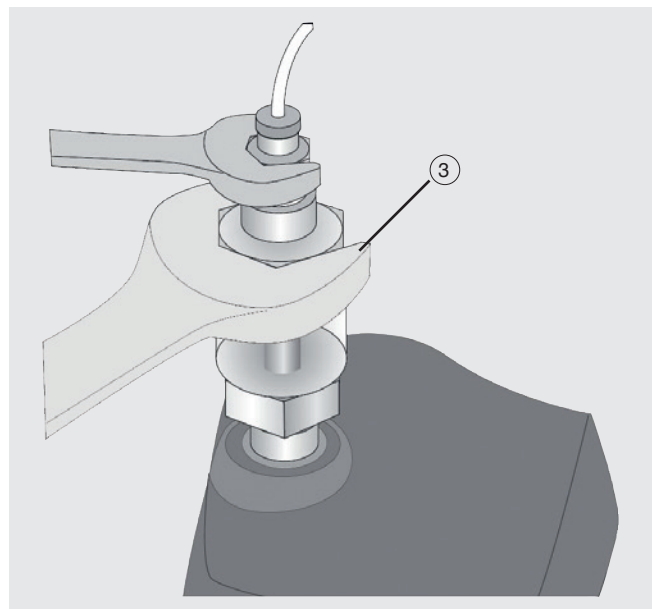
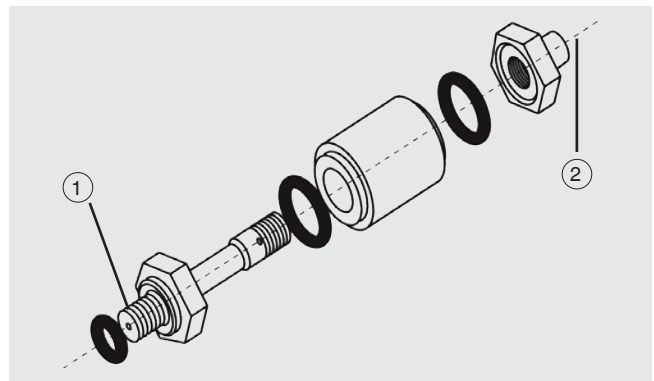
The dirt trap is attached, hand-tight, at the pressure connection of the calibrator. Sealing is achieved via the O-ring fitted on the G 1/2" male thread of the dirt trap. The maximum operating pressure is limited to 25 bar [360 psi].

The test item is mounted to the upper connection of the dirt trap, using a suitable sealing method.

As soon as moisture or dirt accumulates in the transparent chamber, the liquid should be drained via a drain valve and the chamber should be cleaned by subsequent dismantling.

Once the upper dirt trap connection has been unscrewed, the transparent acrylic chamber and the O-rings can be removed and cleaned with a clean cloth.

### Dirt trap



- ① Output to calibrator
- ② Input
- ③ 7/8" or 23 mm spanner

## 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. A demo version is available for free download.

To switch from the demo version to a licensed version, a USB dongle with a valid licence must be purchased.

The pre-installed 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 calibration or logger process
- Management of calibration data and instrument data
- Intelligent pre-selection via SQL database
- Menu languages: German, English, Italian, French, Dutch, Polish, Portuguese, Romanian, Spanish, Swedish, Russian, Greek, Japanese, Chinese  
More languages will be due with software updates
- Customer-specific complete solutions possible
- Maximum degree of automation in connection with our CPC 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 a 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 (light version)	Log-Template (full version)
<ul style="list-style-type: none"> <li>■ Semi-automated creation of calibration certificates for mechanical and electronic pressure measuring instruments</li> <li>■ Creation of calibration certificates 3.1 per DIN EN 10204</li> <li>■ Export of calibration reports to Excel® template or XML file</li> </ul>	<ul style="list-style-type: none"> <li>■ Live measurement recording for a certain period of time with selectable interval, duration and start time</li> <li>■ Readout of the integrated data logger of the hand-held</li> <li>■ Creation of logger protocols with graphic and/or tabular representation of the measurement results in PDF format</li> <li>■ Export of measurement results as CSV file possible</li> </ul>
Ordering information for your enquiry:	
WIKA-CAL-LZ-Z-Z	WIKA-CAL-ZZ-L-Z
WIKA-CAL-LZ-L-Z	

## Accessories

Special features		Order code
		CPH-A-75
	<b>Test cable set</b> <ul style="list-style-type: none"> <li>■ 1 x black</li> <li>■ 1 x red</li> </ul>	-A-
	<b>Sealing set</b> Consisting of: <ul style="list-style-type: none"> <li>■ 4 x G 1/2 USIT seals</li> <li>■ 2 x G 1/4 USIT seals</li> <li>■ Plastic box</li> </ul>	-B-
	<b>Sensor connection cable</b> for reference pressure sensor model CPT6000 Length 1.1 m [3.61 ft]	-C-
	<b>Adapter set "Standard"</b> Consisting of M28 x 1,5 male to G 1/4 female, 1/2 NPT female and 1/4 NPT female	-E-
	<b>Dirt trap set "CPH7650"</b> Consisting of: <ul style="list-style-type: none"> <li>■ Dirt trap</li> <li>■ Adapter G 1/2 male to G 1/8 female</li> <li>■ Adapter set G 1/8 male to G 1/2, G 1/4, 1/2 NPT and 1/4 NPT female</li> <li>■ Sealing set</li> </ul>	-F-
	<b>RS-232 interface cable</b>	-R-
	<b>USB interface cable</b>	-G-
	<b>Power supply unit</b> Meets the requirements of Euro standards, UK standards and US standards	-4-
<b>Ordering information for your request</b>		
1. Order code: CPH-A-75 2. Option:		↓ [ ]



## Scope of delivery

- Portable pressure calibrator model CPH7650
- Operating instructions
- Test cables
- Battery charger
- 3.1 calibration certificate per DIN EN 10204

## Option

- DKD/DAkkS certified accuracy

## Ordering information

CPH7650 / Reference sensor / Unit / Pressure type / Measuring range / Accuracy / Type of certificate / Calibration of electrical module / Additional adapter for test item / Software / Interface cable / Further approvals / Additional ordering information

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