ProcessCalibrator
Model CPH6000

Applications
- Calibration service companies and service industry
- Maintenance facilities
- Measurement and control laboratories
- Quality assurance

Special features
- Digital indicator with easily interchangeable reference pressure sensors (sensor can also be attached externally)
- Measuring ranges from -1 ... 6,000 bar (-14.5 ... 87,000 psi)
- Accuracy: 0.025 % (incl. calibration certificate)
- Calibration and pressure-switch test functions
- Software and complete service cases (incl. pumps) available

Description
Handling
For a solution that always matches the application, there are many pressure sensors to choose from, with accuracies of up to 0.025 % and measuring ranges up to 6,000 bar (87,000 psi), which can be interchanged quickly and without tools. In addition to being fixed to the instrument, the reference pressure sensor can, optionally, be used externally via an approx. 1.2 m (4 ft) long connecting cable. If the reference pressure sensor on the instrument is changed, then the digital indicator will recognise the new measuring range and so this saves the operator from having to configure it via the menu.

Functionality
In the setup menu there are 3 operating modes to choose from:
MEASURING, CALIBRATION and PRESSURE SWITCH-TEST. In the CALIBRATION and PRESSURE SWITCH-TEST modes, a menu assistant supports the user during each operation and records, for example, the calibration data from several calibrations or automatically calculates the switch hysteresis. To power the test item and to read its measurement signals, there are electrical inputs and outputs which are protected from adverse conditions in the field by captive protection caps.

Software
For the evaluation and documentation of the calibration data stored in the CPH6000, WIKA-Cal calibration software is available. 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. For data transfer, an RS-232 and a USB interface are available.
## Specifications

### ProcessCalibrator model CPH6000

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<tr>
<th>Sensor technology</th>
<th>1 reference pressure sensor (interchangeable without tools)</th>
<th>Option: external operation via 1.2 m (4 ft) cable</th>
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<tbody>
<tr>
<td>Measuring range</td>
<td></td>
<td></td>
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<tr>
<td><strong>Gauge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>-0.25 ... +0.25</td>
<td>-0.4 ... +0.4</td>
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<td>-1 ... +0.6</td>
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<td></td>
<td>-1 ... 2.5</td>
<td>-1 ... 3</td>
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<td></td>
<td>0 ... 6</td>
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<td>0 ... 400</td>
<td>0 ... 600</td>
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<tr>
<td></td>
<td>0 ... 1,000</td>
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</tr>
<tr>
<td><strong>psi</strong></td>
<td>-4 ... +4</td>
<td>-6 ... +6</td>
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<tr>
<td></td>
<td>-14.5 ... +14</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>0 ... 5800</td>
<td>0 ... 72,500</td>
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<tr>
<td></td>
<td>0 ... 87,000</td>
<td>0 ... 87,000</td>
</tr>
<tr>
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<td>0 ... 1,450</td>
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<tr>
<td>Accuracy of the measuring chain</td>
<td>0.025 % FS ²</td>
<td></td>
</tr>
<tr>
<td><strong>Gauge</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>0 ... 1,600</td>
<td>0 ... 2,500</td>
</tr>
<tr>
<td></td>
<td>0 ... 4,000</td>
<td>0 ... 5,000</td>
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<td>psi</td>
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<td>0 ... 58,000</td>
<td>0 ... 72,500</td>
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<td>0 ... 87,000</td>
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<tr>
<td>Accuracy of the measuring chain</td>
<td>0.1 % FS ²</td>
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<td><strong>Absolute pressure</strong></td>
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<tr>
<td>bar abs.</td>
<td>-0.8 ... 1.2</td>
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<td>0 ... 0.4</td>
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<td>0 ... 60</td>
<td>0 ... 90</td>
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<td>0 ... 145</td>
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<tr>
<td>Accuracy of the measuring chain</td>
<td>0.025 % FS ²</td>
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<tr>
<td><strong>Overpressure limit</strong></td>
<td>(dependent on the measuring range)</td>
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<tr>
<td>3 times; &lt; 25 bar</td>
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<tr>
<td>2 times; &lt; 25 bar ... ≤ 600 bar</td>
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<tr>
<td>1.5 times; &gt; 600 bar ... ≤ 2,500 bar</td>
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</tr>
<tr>
<td>1,2 times; &gt; 2,500 bar</td>
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<tr>
<td>3 times; &lt; 360 psi</td>
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<tr>
<td>2 times; &gt; 360 psi ... ≤ 8,700 psi</td>
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<tr>
<td>1.5 times; &gt; 8,700 psi ... ≤ 36,260 psi</td>
<td></td>
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</tr>
<tr>
<td>1,2 times; &gt; 36,260 psi</td>
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<tr>
<td>Types of pressure</td>
<td>Relative pressure, (absolute pressure from 0 ... 25 bar abs. (0 ... 360 psi abs.) and vacuum from -1 ... 39 bar (-14.5 ... 550 psi))</td>
<td></td>
</tr>
<tr>
<td>Sensor compatibility</td>
<td>Compatible with model CPT6000 reference pressure sensors</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1) Items in curved brackets are optional extras for an additional price.
2) Calibrated at 23 °C (74 °F) and in vertical mounting position, pressure connection facing downwards.
## Digital indicator model CPH6000

### Display
- **Display**: Large TFT colour screen for the display of reference and test signals and additional information
- **Display resolution**: up to 6 digits; adjustable
- **Pressure units**: mbar, bar, psi, kPa, MPa, mmHg, cmHg, inHg, mmH2O, cmH2O, mH2O, inH2O, kg/cm² and a customer-specific unit (freely selectable dependent on measuring range)

### Functions
- **Operating mode**: MEASURING, CALIBRATION and SWITCH-TEST
- **Functions**: MEASURING, CALIBRATION and SWITCH-TEST
- **Measuring rate**: 2 values/s
- **Menu languages**: English, German, Spanish, French, Italian, Russian (settable)

#### CALIBRATE function
- **Memory capacity**: up to 16 test items
- **Test points/test item**: up to 32 comparison points

#### SWITCH-TEST function
- **Switch points**: Determination of the switch point and automatic calculation of the hysteresis

#### Measuring input, voltage 3)
- **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**: 1.0 mV

#### Measuring input, current 3)
- **Measuring range**: 0 ... 20 mA; 4 ... 20 mA
- **Resolution**: up to 6 digits; adjustable
- **Accuracy**: 5.0 µA

### Output
- **Voltage supply**: DC 24 V [load: max. 50 mA; min 20 mA] (can be activated via menu)

### Power supply
- **Supply**: Internal Lithium-Ion rechargeable battery (charging time: < 6 h)
- **Battery life**: approx. 20 hours of operation

### Permissible ambient conditions
- **Operating temperature**: 0 ... 50 °C (32 ... 122 °F) 4)
- **Storage temperature**: -20 ... +70 °C (-4 ... +158 °F)
- **Relative humidity**: 0 ... 85 % r. h. (non-condensing)

### Communication
- **Interface**: RS-232 and USB

### Case
- **Material**: impact-resistant ABS plastic, membrane keypad, transparent screen
- **Ingress protection**: IP54 (with protection caps closed)
- **Dimensions**: see technical drawing
- **Weight**: approx. 850 g (1.87 lbs.)

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3) Factory calibration certificate (optional: DKD/DAkkS calibration certificate).
4) The power supply is only intended for a temperature of 0 ... 45 °C (32 ... 113 °F) approved
### Reference pressure sensor model CPT6000

| Pressure 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 |

### Material

- **Wetted parts**: Stainless steel (with measuring ranges > 25 bar ... ≤ 1,000 bar (> 360 ... ≤ 14,500 psi), Elgiloy® in addition)
- **Internal transmission fluid**: Synthetic oil (only for measuring ranges up to 25 bar (360 psi)) [Halocarbon oil for oxygen variants] 5)

### Sensor specifications

- **Accuracy per year**: ≤ 0.025 % FS (only with CPH6000)
- **Compensated range**: 0 ... 50 °C (32 ... 122 °F)

### Permissible ambient conditions

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

### Case

- **Material**: Stainless steel
- **Connection to the CPH6000**: 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. 230 g (0.5 lbs.)

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(1) Items in curved brackets are optional extras for an additional price.

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

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### Approvals

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<th>Description</th>
<th>Country</th>
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<td>EN 61326 emission (group 1, class B) and interference immunity (portable measuring equipment)</td>
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<td>EN 61326 emission (group 1, class B) and interference immunity (industrial application)</td>
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<td>PS &gt; 200 bar, module A, pressure accessory</td>
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<tr>
<td>CPA</td>
<td>Metrology/measurement technology</td>
<td>China</td>
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</table>


**Certificates**

<table>
<thead>
<tr>
<th>Certificate</th>
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</thead>
</table>
| Calibration | Standard: 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

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**Dimensions in mm (in)**

Digital indicator CPH6000

Manuel quick-release clamp for easy changeover of the sensor.
Dimensions in mm (in)

Reference pressure sensor CPT6000

Electrical connections to the digital indicator

1. Power supply DC 24 V ¹)
   (activated via menu)
2. Measuring input ¹); voltage
3. Measuring input ¹); current or switch test
4. Mains supply/charge socket
   (rechargeable battery will be charged automatically)
5. Interface USB/RS-232

¹) Connection: 4 mm test sockets
Electrical connection for: CALIBRATION

2-wire test item

Example: mA signal test item without its own power supply (24 V must be activated via menu)

Example: mA signal test item with its own power supply available

3-wire test item

Example: mA signal test item without its own power supply (24 V must be activated via menu)

Example: V signal test item with its own power supply available

Electrical connection for: SWITCH-TEST

Potential-free switches

Types of switch:
- Normally closed / normally open
- Low/High window
User interface

1. Setup menu
2. Selection and entry confirmation
3. One step back
4. Clear entry
5. Entry acknowledgment
6. Numeric keypad

Switch on via pressing any button.
Switch off via menu item in main menu.

Menu structure

Operating modes

MEASURING with/without test item

CALIBRATION

SWITCH-TEST

Configuration: MEASURING

Configuration: CALIBRATION

Configuration: SWITCH-TEST
Operating modes: MEASURING, CALIBRATION and SWITCH-TEST

Operating mode: MEASURING

A) with fixed reference pressure sensor

B) with external reference pressure sensor

Measuring: 13:26
Reference: 0,000 10,000 bar

Test item: 0,003 6,000 bar
Dev.: 0,006 bar

with/without display of test item

Features
- Up to 6 display digits
- 15 pressure units + 1 programmable unit
- Programmable functions: Min./Max./Tare/Filter/Alarm/
  Altitude correction
- The display of the test item measured value is also possible as an original electrical signal (mA/V)

Applications
- Measurement of operating/process pressures
- Comparative measurements with test items (power supply and display for the test item through the CPH6000)
- Min. and Max. memory (e.g. for leak testing)
- Alarm function for safety testing

Operating mode: CALIBRATION

A) Record calibration data

B) Record calibration data on a PC and print the calibration certificate

Calibration: 13:26
Reference: 0,000 10,000 bar

Test item: 0,003 6,000 bar
Dev.: 0,004 bar

Features
- Calibration assistant
- Programmable altitude correction
- Recordable calibration temperature

Applications
- On-site calibration of pressure sensor and pressure measuring instruments (without PC)
- A calibration assistant guides you easily through the calibration (following DKD/DAkkS). With this, the data sets, including date and time, are recorded within the CPH6000. Prior to calibration, the calibration steps can be entered directly on the instrument or downloaded via WIKA-Cal software.

PC software available
- WIKA-Cal calibration software for creating calibration certificates

Operating mode: SWITCH-TEST

With switch-test assistant

Switch Test: 13:24
Reference: 0,000 10,000 bar

Status: ✓

Features
- Switch-test assistant
- Automatic calculation of the hysteresis

Applications
- Convenient checking of pressure switches
- A pressure switch-test assistant conveniently guides the operator through the checking and automatic calculation of the switch hysteresis.
Complete test and service cases

Calibration case with model CPH6000
ProcessCalibrator and model CPP30 hand test pump
for pressures -0.95 ... +35 bar (-28 inHg ... 500 psi)
consisting of:
- Transport case with model CPH6000 ProcessCalibrator
- Model CPP30 pneumatic hand test pump; -0.95 ... +35 bar
  (-28 inHg ... 500 psi)
- Sensor cable for external operation of sensor
- Test-cable set with connection terminals
- Charger
- Interface cable
- Sealing set
- Spaces for several CPT6000 reference pressure sensors

Available measuring ranges see specifications.

Calibration case with model CPH6000
ProcessCalibrator and model CPP1000-L hand spindle
pump for pressures up to 1,000 bar (14.500 psi)
consisting of:
- Transport case with model CPH6000 ProcessCalibrator
- Model CPP1000-L hydraulic hand spindle pump up to
  1,000 bar (14.500 psi)
- Sensor cable for external operation of sensor
- Test-cable set with connection terminals
- Charger
- Interface cable
- Sealing set
- Spaces for several CPT6000 reference pressure sensors

Available measuring ranges see specifications.

Basic version incl. pneumatic pressure generation

Basic version incl. hydraulic pressure generation

Basic version

Basic version incl. pneumatic pressure generation

Basic version incl. hydraulic pressure generation
**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 has to be purchased.

The pre-installed demo version automatically changes to the selected full version when the USB stick is inserted and is available as 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 to software updates

For further information see data sheet CT 95.10

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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.
Scope of delivery

- Process Calibrator model CPH6000
- Battery charger
- Test-cable set with various connection terminals
- 3.1 calibration certificate per EN 10204
- Choice of sensors

Options

- DKD/DAkkS certified accuracy
- Sensors for oxygen applications

Accessories

Connection adapters

- Various pressure adapters
- MINIMESS® quick-connect process connection system

Power supply

- Battery charger

Connection cables

- Test-cable set with various connection terminals
- USB or RS-232 interface cable

Pressure generation

- Pneumatic test pumps
- Hydraulic test pumps

Test cases

- Various calibration cases incl. pressure generation

Software

- WIKA-Cal calibration software

Ordering information

CPH6000 / Ingress protection / Additional cable for reference pressure sensor / Software / Interface cable / Test pump / Transport case / Additional order information

CPT6000 / Operating pressure range / Unit / Measuring range / Accuracy / Process connection / Special design features / Type of certificate / Additional order information

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