

ProcessCalibrator Model CPH6000

WIKA data sheet CT 15.01



Applications

- Calibration service companies/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 0 ... 250 mbar to 0 ... 8,000 bar
- Accuracy: 0.025 % (incl. calibration certificate)
- Calibration and pressure-switch test functions
- Software and complete service cases (incl. pumps) available



ProcessCalibrator model CPH6000

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 8,000 bar, 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 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.

Complete test and service cases

For maintenance and service applications, various service case systems are available. These include service cases with or without pressure generation, charger, test-cable set, adapter, etc.

Certified accuracy

For each reference pressure sensor, the accuracy is certified by a factory calibration certificate which accompanies the instrument. On request, we are also pleased to provide a DKD/DAkkS calibration certificate for the instrument from our own DKD/DAkkS laboratory.

Specifications

ProcessCalibrator model CPH6000

| | | | | | | | | | | | |
|---------------------------------|--|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------------|------------------|--------------------|-----------------|
| Sensor technology | 1 reference pressure sensor (interchangeable without tools) ¹⁾ ; optional: external operation via 1.2 m cable | | | | | | | | | | |
| Measuring range | bar | 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 |
| Overpressure limit | bar | 1.6 | 2 | 4 | 5 | 10 | 10 | 14 | 35 | 35 | 80 |
| Burst pressure | bar | 2.4 | 2.4 | 4.8 | 6 | 12 | 12 | 20.5 | 40 | 42 | 96 |
| Accuracy of the measuring chain | 0.025 % FS ²⁾ | | | | | | | | | | |
| Measuring range | bar | 0 ... 25 | 0 ... 40 | 0 ... 60 | 0 ... 100 | 0 ... 160 | 0 ... 250 | 0 ... 400 | 0 ... 600 | 0 ... 1,000 | |
| Overpressure limit | bar | 80 | 80 | 120 | 200 | 320 | 500 | 800 | 1,200 | 1,500 | |
| Burst pressure | bar | 96 | 96 | 550 | 800 | 1,000 | 1,200 | 1,700 | 2,400 | 3,000 | |
| Accuracy of the measuring chain | 0.025 % FS ²⁾ | | | | | | | | | | |
| Measuring range | bar | 0 ... 1,600 | 0 ... 2,500 | 0 ... 4,000 | 0 ... 5,000 | 0 ... 6,000 | 0 ... 7,000 | 0 ... 8,000 | | | |
| Overpressure limit | bar | 2,300 | 3,500 | 5,000 | 6,000 | 7,000 | 8,000 | 10,000 | | | |
| Burst pressure | bar | 4,000 | 6,000 | 8,000 | 10,000 | 11,000 | 11,000 | 12,000 | | | |
| Accuracy of the measuring chain | 0.1 % FS ²⁾ | | | | | | | 0.15 % FS ²⁾ | | | |
| Types of pressure | Relative pressure, {absolute pressure measuring ranges from 0 ... 25 bar abs. and vacuum measuring ranges from -1 ... +39 bar} | | | | | | | | | | |
| Sensor compatibility | Compatible with model CPT6000 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) Calibrated at 23 °C 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, Pa, hPa, kPa, MPa, mmHg, cmHg, inHg, mmH ₂ O, cmH ₂ O, mH ₂ O, inH ₂ O, kg/cm ² and a customer-specific unit (freely selectable dependant on measuring range) |

Functions

| | |
|----------------|---|
| Operating mode | MEASURING, CALIBRATION and SWITCH-TEST |
| Measuring rate | 2 values/s |
| Functions | MEASURING, CALIBRATION and SWITCH-TEST Min/Max memory, Tare, Min/Max alarm (audible/visual), filter (running average), zero-point adjustment, PowerSave function |
| 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, voltage³⁾

| | |
|-----------------|---|
| 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 | 0.5 mV |

Measuring input, current³⁾

| | |
|-----------------|----------------------------|
| Measuring range | 0 ... 20 mA; 4 ... 20 mA |
| Resolution | up to 6 digits; adjustable |
| Accuracy | 1.6 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 |

3) Factory calibration certificate (optional: DKD/DAkkS calibration certificate).

Digital indicator model CPH6000

Permissible ambient conditions

| | |
|-----------------------|-----------------------------------|
| Operating temperature | 0 ... 50 °C |
| Storage temperature | -20 ... +70 °C |
| 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 | IP 54 (with protection caps closed) |
| Dimensions | see technical drawing |
| Weight | approx. 850 g |

Reference pressure sensor model CPT6000

| | |
|---------------------|--|
| Pressure connection | ≤ 1,000 bar: G ½ B; {various connection adapters on request} > 1,000 bar: M16 x 1.5 female, with sealing cone |
|---------------------|--|

Material

| | |
|-----------------------------|--|
| Wetted parts | Stainless steel (with measuring ranges > 25 bar ... ≤ 1,000 bar Elgiloy® in addition) |
| Internal transmission fluid | Synthetic oil (only for measuring ranges up to 25 bar) {Halocarbon oil for oxygen variants} 4) |

Sensor specifications

| | |
|-------------------|----------------------------------|
| Accuracy per year | ≤ 0.025 % FS (only with CPH6000) |
| Compensated range | 0 ... 50 °C |

Permissible ambient conditions

| | |
|-----------------------|-----------------------------------|
| Medium temperature 1) | -20 ... +80 °C 4) |
| Operating temperature | -20 ... +80 °C |
| Storage temperature | -40 ... +85 °C 4) |
| Relative humidity | 0 ... 95 % r. h. (non-condensing) |

Case

| | |
|---------------------------|---|
| Material | Stainless steel |
| Connection to the CPH6000 | Option: external operation via 1.2 m connection cable (plug-and-play) |
| Ingress protection | IP 65 (with cable connected) |
| Dimensions | see technical drawing |
| Weight | approx. 230 g |

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

4) For oxygen versions, the medium temperature must not exceed 60 °C.

CE conformity, approvals, certificates

CE conformity, CPH6000

| | |
|---------------|--|
| EMC directive | 2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (portable measuring equipment) |
|---------------|--|

CE conformity CPT6000

| | |
|------------------------------|--|
| Pressure equipment directive | 97/23/EC; module A |
| EMC directive | 2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application) |

Approvals

| | |
|--------|--|
| GOST-R | Import certificate, Russia |
| GOST | Metrology/measurement technology, Russia |

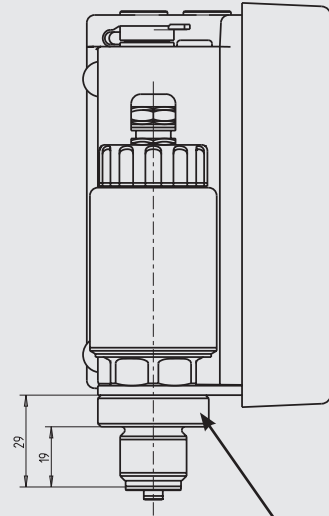
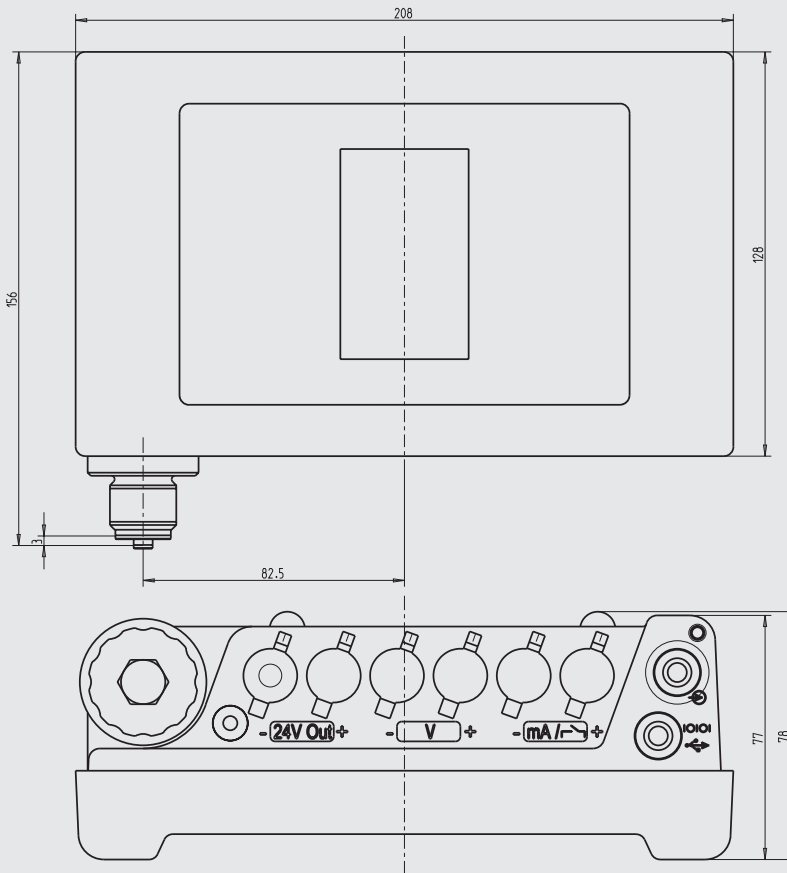
Certificates

| | |
|-------------|---|
| Calibration | Standard: 3.1 calibration certificate per DIN EN 10204 Option: DKD/DAkkS calibration certificate |
|-------------|---|

Approvals and certificates, see website

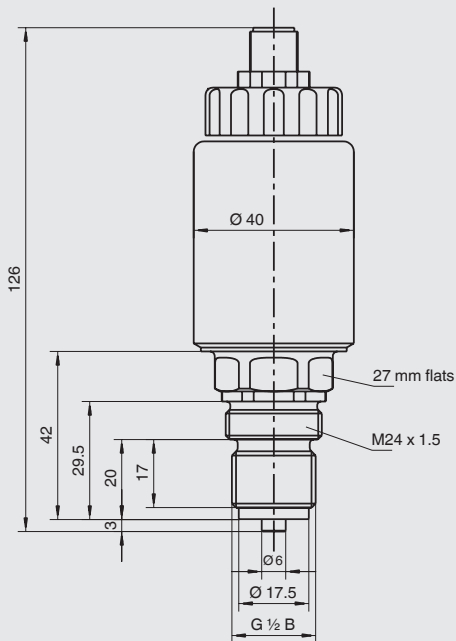
Dimensions in mm

Digital indicator CPH6000

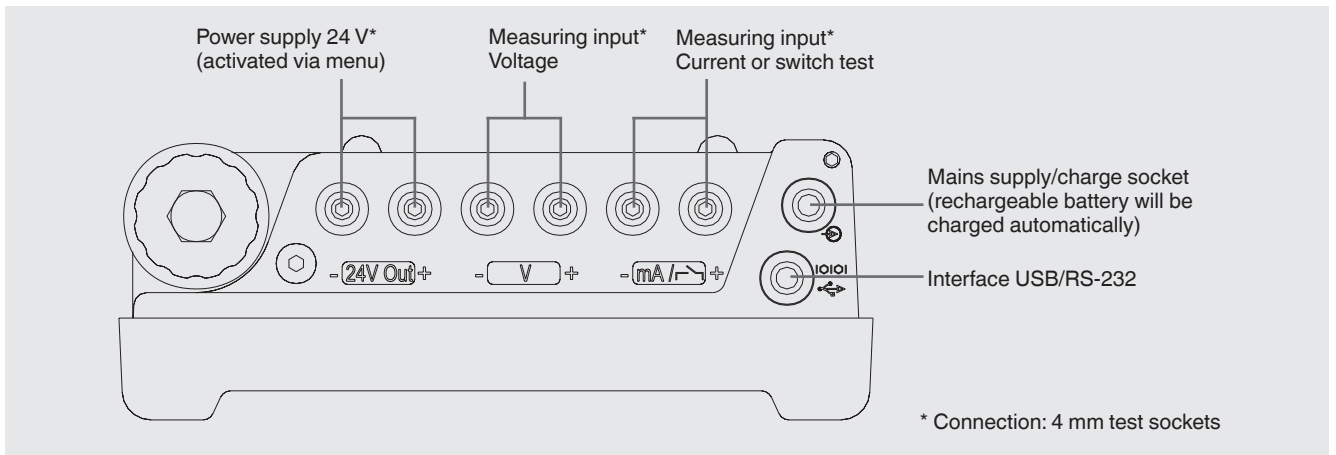


Manual quick-release clamp for easy changeover of the sensor.

Reference pressure sensor CPT6000

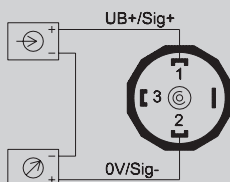


Electrical connections to the digital indicator



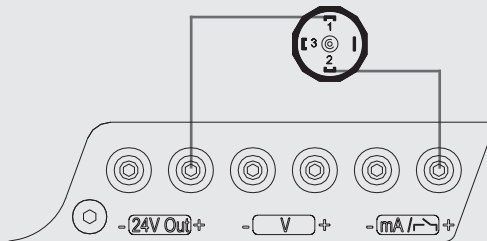
Electrical connection for: CALIBRATION

2-wire test item



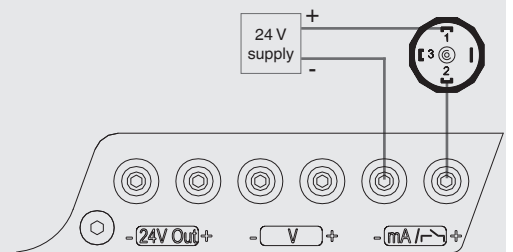
Example:

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

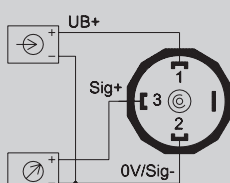


Example:

mA signal test item with its own power supply available

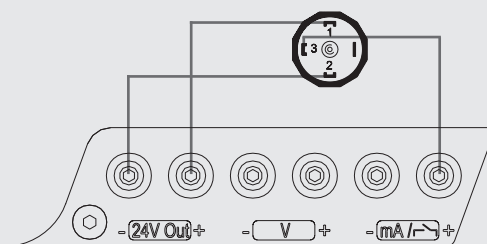


3-wire test item



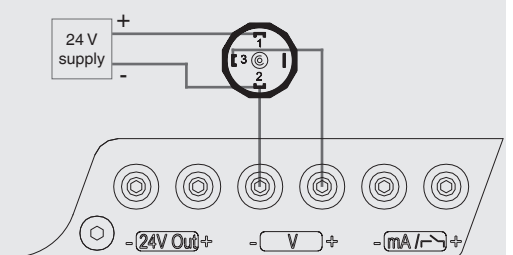
Example:

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

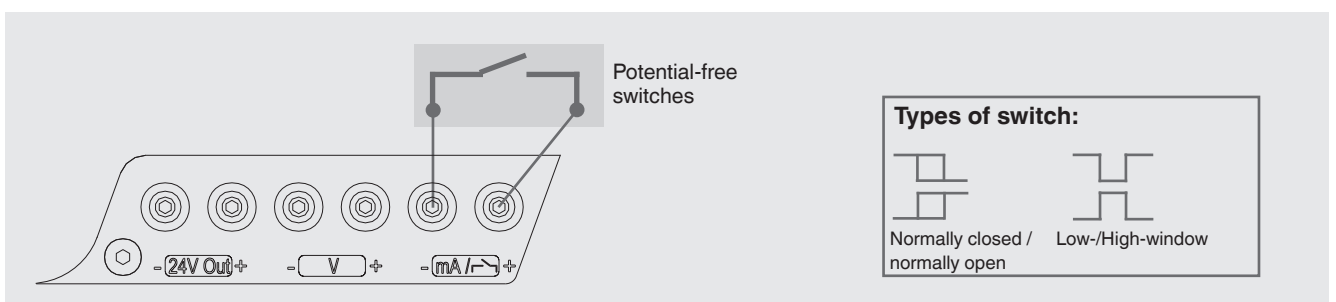


Example:

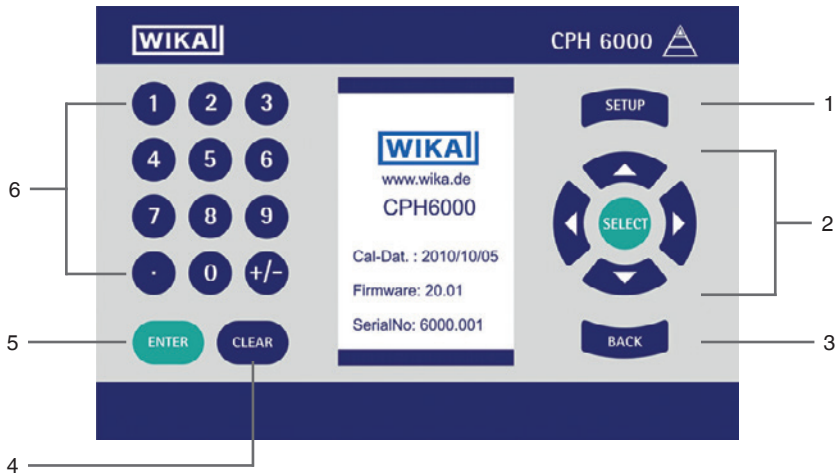
V signal test item with its own power supply available



Electrical connection for: SWITCH-TEST



User interface

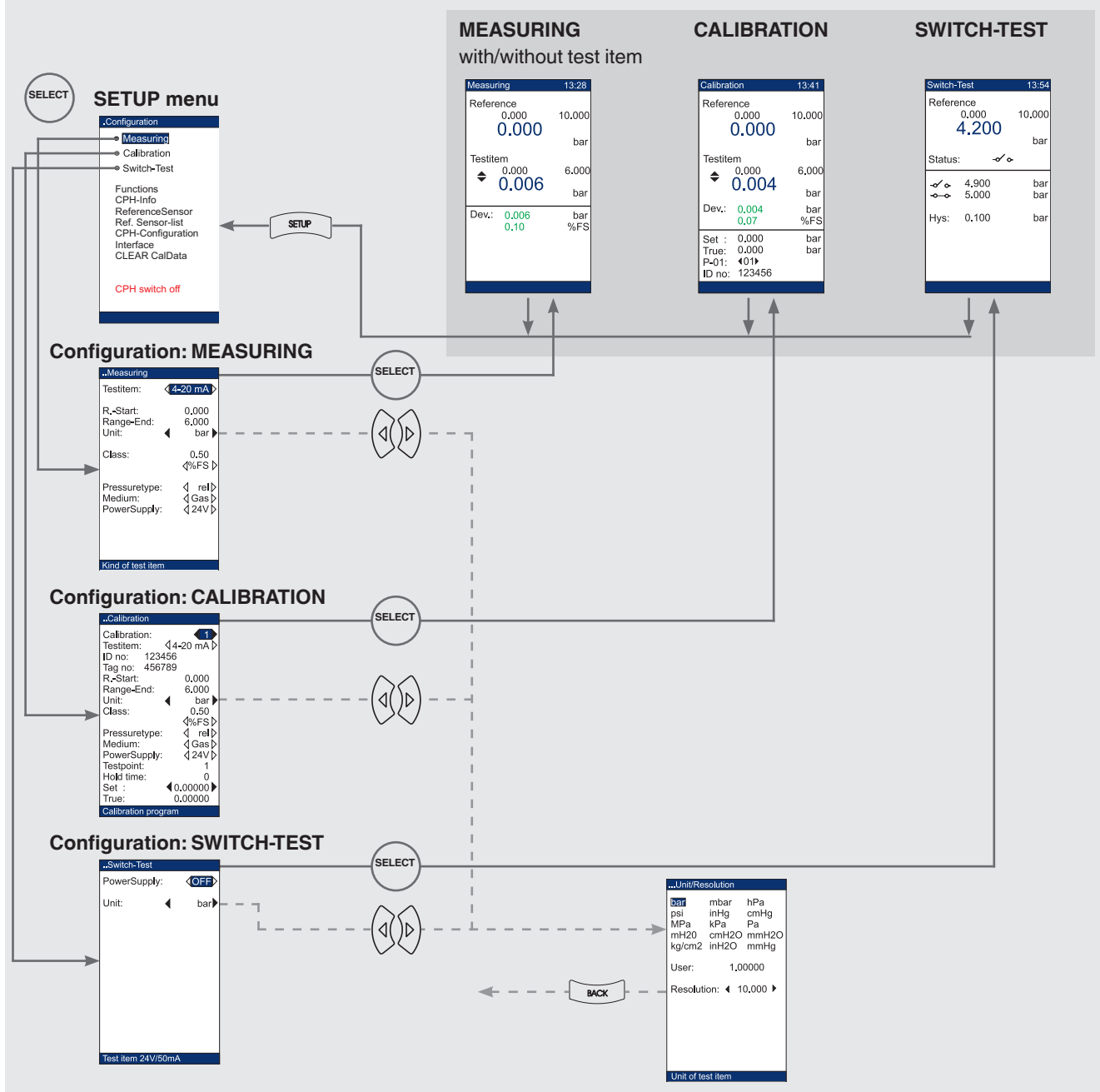


- 1 Setup menu
- 2 Selection and entry confirmation
- 3 One step back
- 4 Clear entry
- 5 Entry acknowledgment
- 6 Numeric keypad

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

Menu structure

Operating modes



Operating modes: MEASURING, CALIBRATION and SWITCH-TEST

Operating mode: MEASURING



A) with fixed reference pressure sensor



B) with external reference pressure sensor

| Measuring | | 13:28 |
|-----------|--------------|--------|
| Reference | 0,000 | 10,000 |
| | 0.000 | bar |
| Testitem | 0,000 | 6,000 |
| | 0.006 | bar |
| Dev.: | 0,006 | bar |
| | 0,10 | %FS |

with/without display of test item

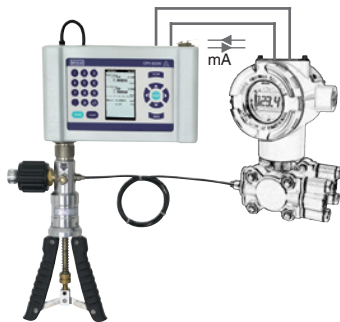
Features

- 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

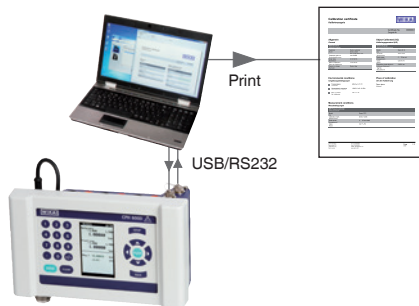
- Measurement of operating/process pressures
- Comparative measurements with test items (power supply and display for the test item through the CPH6000)
- Maximum and Minimum memory (e.g. for leak testing)
- Alarm function for safety testing

Operating mode: CALIBRATION



A) Record calibration data

| Calibration | | 13:41 |
|-------------|--------------|--------|
| Reference | 0,000 | 10,000 |
| | 0.000 | bar |
| Testitem | 0,000 | 6,000 |
| | 0.004 | bar |
| Dev.: | 0,004 | bar |
| | 0,07 | %FS |
| Set : | 0,000 | bar |
| True: | 0,000 | bar |
| P-01: | 001 | |
| ID no: | 123456 | |



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

Features

- Calibration assistant
- Programmable altitude correction
- Recordable calibration temperature

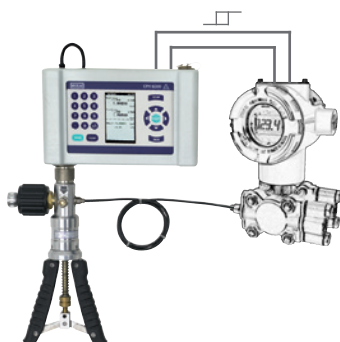
Applications

- 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 | | 13:54 |
|-------------|--------------|--------|
| Reference | 0,000 | 10,000 |
| | 4.200 | bar |
| Status: | | |
| | 4,900 | bar |
| | 5,000 | bar |
| Hys: | 0,100 | bar |

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



Basic version

Calibration case with model CPH6000 ProcessCalibrator for pressures consisting of:

- Plastic service case with foam insert
- ProcessCalibrator model CPH6000
- 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

Calibration case with model CPH6000 ProcessCalibrator and model CPP30 hand test pump for pressures -0.95 ... +35 bar consisting of:

- Transport case with model CPH6000 ProcessCalibrator
- Model CPP30 pneumatic hand test pump; -0.95 ... +35 bar
- 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. hydraulic pressure generation

Calibration case with model CPH6000 ProcessCalibrator and model CPP1000-L hand spindle pump for pressures up to 1,000 bar consisting of:

- Transport case with model CPH6000 ProcessCalibrator
- Model CPP1000-L hydraulic hand spindle pump up to 1,000 bar
- 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.

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 key with the template has to be purchased.

The pre-installed demo version automatically changes to the selected full version when the USB key is inserted and is available as long as the USB key 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 in accordance with 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.



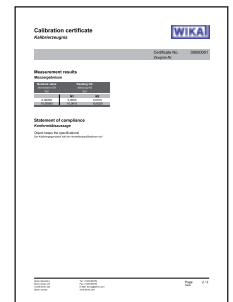
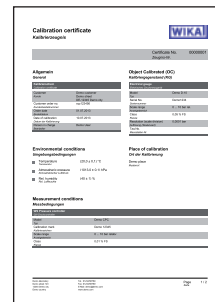
Cal Demo

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.



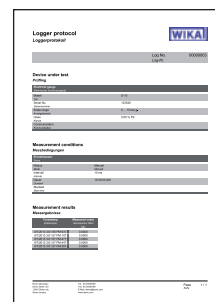
Log Demo

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



Log

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



Scope of delivery

- ProcessCalibrator 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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