

Pressure controller

Portable low-pressure version with integrated pressure generation, model CPC2000

WIKA data sheet CT 27.51

Applications

- Mobile calibration of low-pressure measuring instruments
- Provision of very low positive or negative pressures
- Accurate measurement of small overpressures or differential pressures

Special features

- Pressure ranges: 1 ... 1,000 mbar
- Accuracy: to 0.1 % FS
- Integrated, automatic pressure generation
- Portable, also usable without power supply unit due to Li-ion rechargeable battery
- Simple operation



Pressure controller, portable low-pressure version with integrated pressure generation, model CPC2000

Description

Application

The main applications for this instrument are in the areas of heating, ventilation, air-conditioning, filtration, clean room, and medical technology as a calibrator or as highly accurate measuring equipment and/or precise pressure transducer.

Functionality

The model CPC2000 low-pressure controller is a mains or battery-operated pressure controller with internal, automatic pressure generation and pressure reference. The pressure generation is achieved using an integrated, electric pump, which makes a positive and/or negative pressure available on both the hose connections. As soon as the instrument is switched on, a zero point correction is automatically carried out, so that a zero-point drift is eliminated.

The subsequent preparation of a calibration requires only a few settings. First, using the MENU button, select one of the stored pressure units and the variable pressure change step in the range of 0 ... 50 %.

Then, once the full scale has been entered in control mode, the pressure can be easily increased or decreased by the defined level using the direction buttons. To check whether the calibration setup or the test item has a leak, the LEAK button can be used. With this, the pressure is locked into the test setup and any pressure drop there might be, as well as the time this takes, is measured and displayed.

Interface

The instrument has an RS-232 and USB interface, enabling communication and data exchange with a PC.

Software

WIKA-Cal calibration software is available for the CPC2000. WIKA-Cal also offers, over and above PC-supported calibration, the management of the calibration and instrument data in an SQL database.

Certified accuracy

The accuracy of the instrument is certified by a factory calibration certificate. On request, a DAkkS calibration certificate will be provided for this instrument.

Specifications Model CPC2000

Reference pressure sensor		
Pressure range		
Gauge pressure	0 ... 1 mbar	<input type="checkbox"/> 0 ... 10 mbar <input type="checkbox"/> 0 ... 50 mbar <input type="checkbox"/> 0 ... 100 mbar <input type="checkbox"/> 0 ... 500 mbar <input type="checkbox"/> 0 ... 1.000 mbar
Accuracy ¹⁾	0.3 % FS ²⁾	0.1 % FS ²⁾
Calibration interval	365 days	

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 correction.

2) FS = Full span = end of measuring range - start of measuring range

Pressure controller	
Instrument	
Instrument version	Desktop instrument with carrying handle
Weight	4.6 kg [10.14 lb]
Warm-up time	Approx. 15 min
Ingress protection	IP20
Digital display	
Type of display	Backlit, multiline graphic display
Resolution	4 ... 5 digits, depending on range and units
Keyboard	Membrane keyboard
Menu languages	<input type="checkbox"/> German <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French
Measuring range	1 ... 1,000 mbar
Pressure type	Gauge
Functions	
Units	<input type="checkbox"/> Pa <input type="checkbox"/> bar <input type="checkbox"/> inH ₂ O <input type="checkbox"/> mmHg <input type="checkbox"/> kPa <input type="checkbox"/> mbar <input type="checkbox"/> inHg <input type="checkbox"/> Torr <input type="checkbox"/> hPa <input type="checkbox"/> psi
Zero point correction	<input type="checkbox"/> Automatic (at definable time intervals) <input type="checkbox"/> Manual (ZERO button)
Pressure generation	Internal, electric pump
Control parameters	
Control steps	<input type="checkbox"/> 0 ... 50 % individually adjustable <input type="checkbox"/> 100 %
Control speed	Approx. 5 s (dependent upon test volume)

Pressure controller	
Voltage supply and performance data	
Auxiliary power	DC 24 V, 1 A
Power consumption	24 VA
Battery type	Li-ion
Battery life	Approx. 8 h

Pressure connection	
Connections	6.6 x 11 mm [0.26 x 0.43 in] Hose diameter D = 6 mm [0.24 in]
Overpressure protection	<ul style="list-style-type: none"> ■ 5 times; ≤ 100 mbar ■ 2 times; > 100 mbar ... ≤ 1,000 bar
Pressure transmission medium	Ambient air
Material (wetted)	<ul style="list-style-type: none"> ■ Ni ■ Al ■ CuBe ■ PUR

Communication	
Interface	<ul style="list-style-type: none"> ■ RS-232 ■ USB
Baud rate	<ul style="list-style-type: none"> <li style="margin-right: 20px;">■ 1200 <li style="margin-right: 20px;">■ 9600 <li style="margin-right: 20px;">■ 28800 <li style="margin-right: 20px;">■ 56000 <li style="margin-right: 20px;">■ 2400 <li style="margin-right: 20px;">■ 14400 <li style="margin-right: 20px;">■ 38400 <li style="margin-right: 20px;">■ 57600 <li style="margin-right: 20px;">■ 4800 <li style="margin-right: 20px;">■ 19200
Response time	1 value/s

Operating conditions	
Operating temperature	10 ... 40 °C [50 ... 104 °F]
Storage temperature range	-10 ... +70 °C [14 ... 158 °F]
Humidity	< 90 % relative humidity (non-condensing)
EMC (HF field)	EN 61326 emission (group 1, class B) and immunity (industrial environments)

Approvals

Logo	Description	Region
CE	EU declaration of conformity	European Union
	EMC Directive EN 61326 emission (group 1, class B) and immunity (industrial environments)	
	RoHS directive	

Optional approvals

Logo	Description	Region
-	MChS Permission for commissioning	Kazakhstan
-	PAC China Metrology, measurement technology	China

Certificates

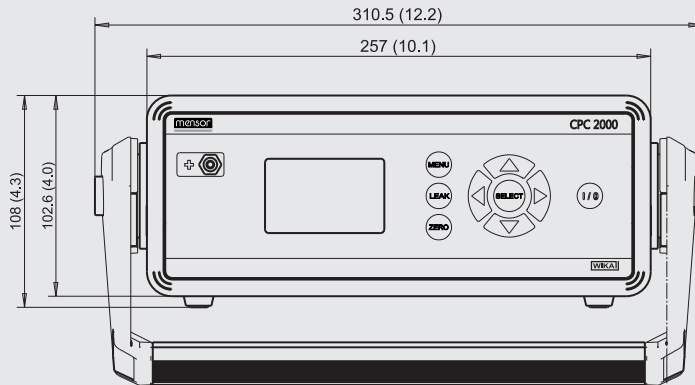
Description	
Calibration ¹⁾	<ul style="list-style-type: none">■ 3.1 inspection certificate per DIN EN 10204■ DAkkS calibration certificate (traceable and accredited in accordance with ISO/IEC 17025)
Recommended calibration interval	1 year (dependent on conditions of use)

1) Calibration in a horizontal position.

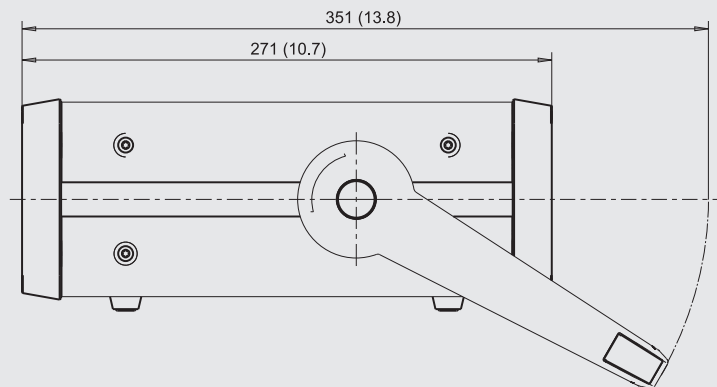
→ For approvals and certificates, see website

Dimensions in mm [in]

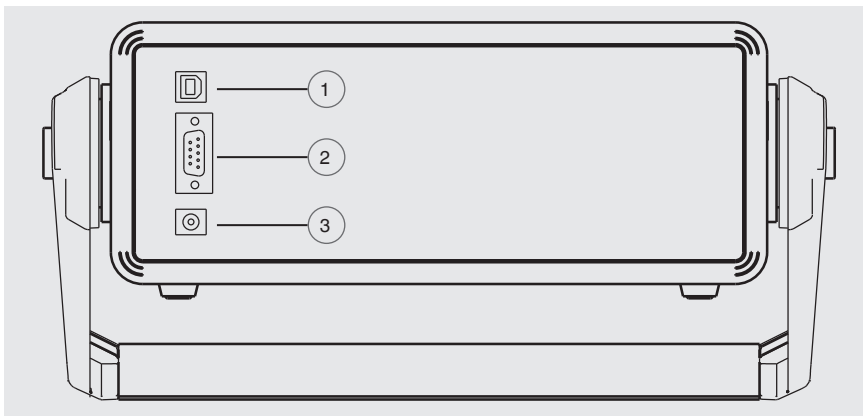
Front view



Left side view

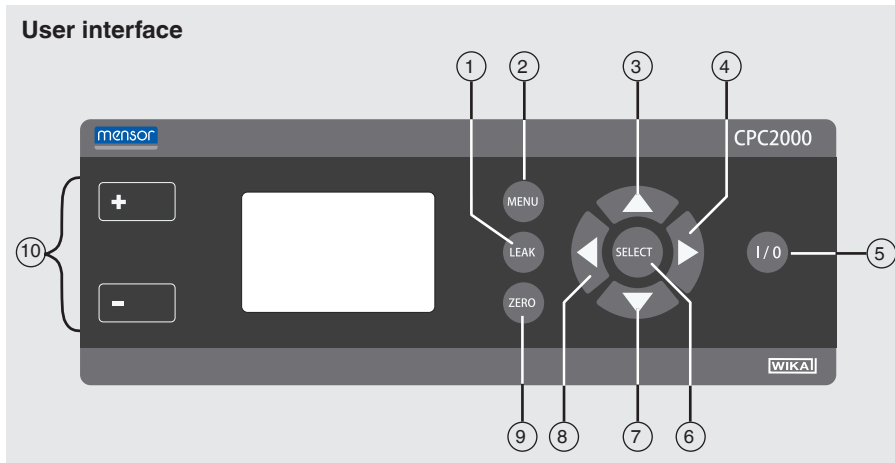


Electrical connections on the rear



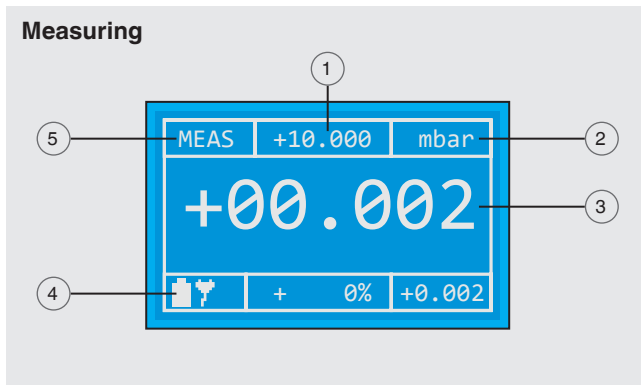
- ① USB interface
- ② RS-232 interface
- ③ Connection for power supply unit

Keyboard and display

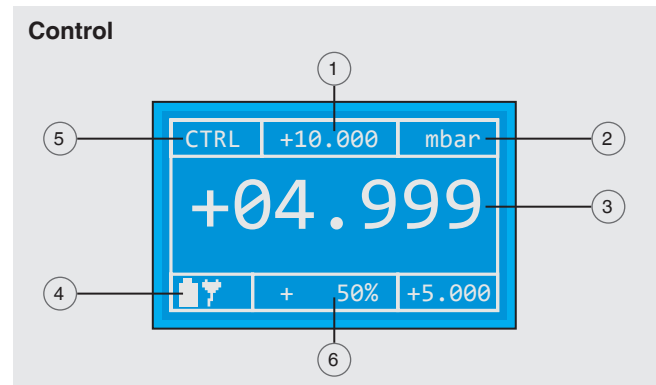


- ① In control mode: starts the leakage measurement, otherwise without function
- ② During the control process → Vent, otherwise select SETUP
- ③ Increase set point by x %
- ④ Set set point to 100 %
- ⑤ ON/OFF button
- ⑥ SELECT to confirm the entry
- ⑦ Decrease set point by x %
- ⑧ Set set point to 0 %
- ⑨ Zero point correction
- ⑩ Pressure connections

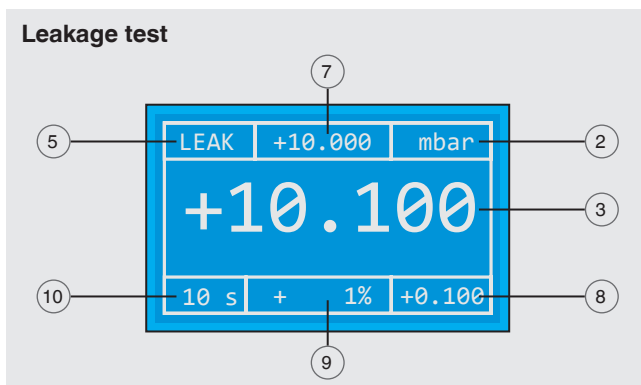
Possible modes and screen displays



In measuring mode, the pressure at the pressure connections is measured with great precision.



In control mode, pressures are supplied to the pressure connections with high precision. A set-point change (in a selectable step size) is made via the / buttons.



In test mode, the pressure drop / time in the connected test setup is determined.

- ① Full scale
- ② Pressure unit
- ③ Measured value
- ④ Battery status
- ⑤ Operating mode
- ⑥ Set point in % of full scale
- ⑦ Start value of the leakage measurement
- ⑧ Pressure drop
- ⑨ Pressure drop in % of the start value
- ⑩ Measurement duration

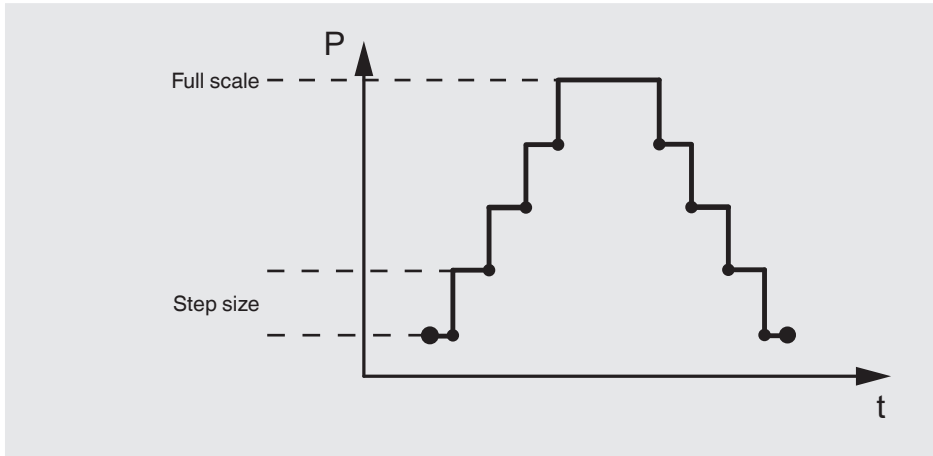
Menu and calibration procedure

I) General configuration via SETUP menu

SETUP menu items

- Select measuring range
- Select pressure unit (Pa, kPa, hPa, bar, mbar, psi, inH₂O, inHg, mmHg, Torr)
- Step size, freely selectable between 0 ... 50 % or 100 %
- Select the operating mode (MEAS, CTRL, AUTO)
- Select language (DE, EN, ES, FR)
- Controller settings (zero point correction, interface, display, auto mode, info)

II) Calibration cycle example



1. Defining the calibration cycle full scale (span)

MENU	
▶ RANGE	+10.000
UNIT	mbar
STEPS	50%
MODE	CTRL
LANGUAGE . . .	EN
SETTINGS	-->

To configure the full scale (span):

Select the digit via buttons

Change the digit via / buttons

2. Go back to the main screen and run through the calibration cycle in the defined step size (x %)

CTRL	+10.000	mbar
+04.999		
	+	50%
		+5.000

Change set point to x %:

Pressure change in % via / buttons

Change pressure to 100 % via button

Change pressure back to 0 % via button

⇒ The newly selected pressure rating will be controlled immediately after the set-point change.

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 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 calibration or logger 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 CPC series

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

→ For further information, see data sheet CT 95.10

Three WIKA-Cal licences are available together with one CPC series pressure controller

The WIKA-Cal calibration software is available 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)	Cal-Template (full version)	Log-Template (full version)
Fully automatic calibration	Semi-automatic calibration	Fully automatic calibration	<ul style="list-style-type: none"> ■ Live measured value recording for a certain period of time with selectable interval, duration and start time ■ 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		
<ul style="list-style-type: none"> ■ 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 request for a single licence:			
Is available for a cost-free download	WIKA-CAL-LZ-Z-Z	WIKA-CAL-CZ-Z-Z	WIKA-CAL-ZZ-L-Z
Ordering information for your request for a pair licence:			
Cal-Template (light version) together with Log-Template (full version)			WIKA-CAL-LZ-L-Z
Cal-Template (full version) together with Log-Template (full version)			WIKA-CAL-CZ-L-Z

Accessories and spare parts

Description	Order code
	CPX-A-C2
Robust transport case	-C-
Simple transport case	-E-
Spare power supply unit	-P-
RS-232 interface cable	-9-
Ordering information for your enquiry:	
1. Order code: CPX-A-C2 2. Option:	↓ []

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Scope of delivery

- Pressure controller, portable low-pressure version, model CPC2000
- Power supply unit
- Operating instructions
- Calibration certificate

Ordering information

Model / Measuring range / Accuracy / Type of certificate / Power cord / Further approvals / Additional ordering information

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