

Pneumatic high-pressure controller

Model CPC7000



WIKA data sheet CT 27.63

Applications

- Automotive and avionics industry
- Industry (laboratory, workshop and production)
- Transmitter and pressure gauge manufacturers
- Calibration service companies and service industry
- Research and development laboratories

Special features

- Pressure ranges: 0 ... 700 bar (0 ... 10,000 psi)
- Control speed 30 s
- Control stability 0.008 % FS
- Accuracy down to 0.01 % IS (IntelliScale)
- Two year warranty

Description

Design

The CPC7000 pneumatic high-pressure controller provides a suitable calibration solution with its high accuracy class and wide pressure range. The instrument has one pressure regulator and can have up to three highly accurate transducers. The instrument can also have an optional barometric reference for gauge or absolute pressure emulation. This instrument can be specified as a desktop or as a 19" rack-mounted device.

Application

The CPC7000 offers many applications as a factory or working standard with its wide pressure range of 0 ... 700 bar (0 ... 10,000 psi) and high control stability of 0.008% FS with the specialized valve technology.

Functionality

The touchscreen, along with an intuitive user interface, provide maximum ease-of-use. The large number of menu languages add to its operability. In addition to specifying a certain pressure set point either by entering it via touchscreen or sending it via remote interface, the pressure can be changed in defined, programmable



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step sizes by using the STEP buttons. Moreover, the user can also easily create extensive test programs using the instrument menu. Depending on the application, the rate of control can be either preset to precision, high-speed or a user defined variable rate.

Software

The WIKA-CAL calibration software enables the convenient calibration of pressure measuring instruments and the generation of test certificates. Additionally, the instrument can also be remotely controlled using the serial command formats, the Mensor standard, SCPI or further optional command sets are available.

Complete test and calibration systems

On request, complete mobile or stationary test systems can be manufactured. There is an IEEE-488.2, RS-232, USB and an Ethernet interface for communication with other instruments, and thus the instrument can be integrated into existing systems.

Specifications

Model CPC7000

Reference pressure transducers		
Pressure range	CPR8000	CPR8050
Accuracy ¹⁾	Standard: 0.01 % FS ²⁾ Option: 0.01 % IS-50 ³⁾	0.01 % FS ²⁾
Gauge pressure	100 ... 400 bar (1,500 ... 6,000 psi) ⁴⁾	400 ... 700 bar (6,000 ... 10,000 psi)
Absolute pressure	101 ... 401 bar (1,515 ... 6,015 psi) ⁴⁾	401 ... 701 bar (6,015 ... 10,015 psi)
Calibration interval	365 days	365 days
Optional barometric reference		
Function	The barometric reference can be used to switch pressure types ⁵⁾ , absolute <=> gauge	
Measuring range	552 ... 1,172 mbar abs. (8 ... 17 psi abs.)	
Accuracy ¹⁾	0.01 % of reading	
Pressure units	39 and two freely programmable	
<p>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 adjustment.</p> <p>2) FS = Full span = end of measuring range - start of measuring range</p> <p>3) 0.01 % IS-50 accuracy: Between 0 ... 50 % of the full scale, the accuracy is 0.01 % of half of the full scale and between 50 ... 100 % of the full scale, the accuracy is 0.01 % of reading.</p> <p>4) Ranges from 1500 to 2000 psig will be sealed gauge transducers.</p> <p>5) For a pressure type emulation, we recommend a native absolute pressure transducer, since the zero point drift can be eliminated through a zero point adjustment.</p>		
Basic instrument		
Instrument		
Instrument version	Standard: desktop case Option: 19" rack-mounting kit	
Dimensions	see technical drawings	
Weight	approx. 40 kg (88.2 lbs) incl. all internal options	
Warm-up time	approx. 15 min	
Display		
Screen	8.9" color LCD with resistive touchscreen	
Resolution	4 ... 6 digits depending on range and units	
Connections		
Pressure connection	Standard: 5 ports with M16 x 1.5 female with sealing cone Optional: 2 ports with 9/16-18 UNF female Optional barometer: M12 x 1 female thread	
Filter elements	The instrument has a 20-micron filters on all pressure ports	
Permissible pressure media	Nitrogen 2.8 class or better	
Overpressure protection	Burst disc up to 1,000 bar (14,500 psi)	
Permissible pressure		
Supply port	107 ... 110 % FS at least 30 ... 50 bar (435 ... 725 psi) over nominal pressure, whichever is greater	
Measure/Control port	max. 105 % FS	
Voltage supply		
Power supply	100-120/200-240V, 50/60 Hz	
Power consumption	max. 140 VA	
Permissible ambient conditions		
Storage temperature	0 ... 70 °C (32 ... 158 °F)	
Humidity	5 ... 95 % r. h. (non-condensing)	
Compensated temperature range	15 ... 45 °C (59 ... 113 °F)	
Mounting position	horizontal	

Basic instrument

Control parameters

Control stability	0.008 % FS in a 25 ml test volume
Control time	30 s ⁶⁾
Control range	0 ... 100 % FS
Minimum control pressure	1 bar (14.5 psi)
Test volume	0 ... 50 ccm

Communication

Interface	Standard: Ethernet, IEEE-488, USB, RS-232
Command sets	Mensor and WIKA SCPI
Response time	approx. 100 ms
Internal program	up to 24 sequences with up to 99 steps each

6) Regarding a 10% FS pressure increase in a 25 ml test volume.

Certificate

Calibration ⁷⁾

Standard: Factory calibration certificate
Option: DKD/DAkkS calibration certificate

7) Calibration in a horizontal position/operating position.

Approvals and certificates, see website

Efficient operation in a wide pressure range

Up to three precision pressure transducers

The CPC7000 pneumatic high-pressure controller provides a high degree of flexibility by having up to three pressure transducers within the instrument. This allows the user to have a superior accuracy over a wider dynamic range of operation. Each transducer contains its calibration, characterization and communication functions and information.

The instrument can be equipped either with all gauge transducers or all absolute transducers. The highest transducer in the instrument must encompass the range of the smaller transducers.

Autoranging capability

The instrument is capable of automatically selecting between the installed transducers depending on the user's pressure set point. The transition between the transducers is automatic and provides the user a stable and seamless control.

Emergency venting

The CPC7000 pneumatic high pressure controller has emergency venting protocols when the front door is open or in case of a power failure. This ensures the operator's safety while working at high pneumatic pressures. Additionally the controller also vents any unused transducers.

These features make the instrument an efficient and safe controller to be used for various applications.



Pneumatic high-pressure controller, model CPC7000

Easy operation via touchscreen

Shortly after power-up, the standard home screen (see following figure) is displayed. In this menu screen, one can switch between the operating modes using the buttons **MEASURE** (13), **CONTROL** (12) and **VENT** (11) at the bottom of the screen.

Standard desktop / home screen

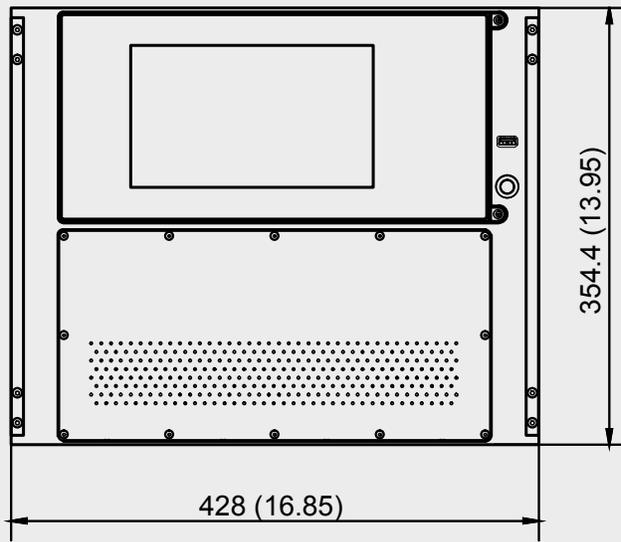


- | | |
|---|---|
| <ul style="list-style-type: none"> ① Home application ② General settings ③ Control settings ④ Display settings ⑤ Remote settings ⑥ Step settings ⑦ Sequences settings ⑧ Favorites ⑨ Menu navigation (forward/ back) ⑩ VENT
Immediately vents the system, including the test assembly connected to the Measure/Control port, to atmosphere. ⑪ CONTROL
In control mode the instrument provides a highly accurate pressure at the Measure/Control port in accordance with the desired set point. ⑫ MEASURE
In measuring mode, the pressure present at the Measure/Control port is measured with high accuracy (if you switch directly from CONTROL to MEASURE mode, the last controlled pressure in the connected test assembly within the instrument maintained/locked, and any connected piping. Temperature changes or external leakage may impact the pressure reading in this state.). | <ul style="list-style-type: none"> ⑬ Auxiliary displays either uncertainty, peak value, rate or alternative units ⑭ Current pressure unit and mode ⑮ Current measured value ⑯ Entered set point ⑰ Pressure range of the transducers ⑱ Selection of the active transducer or auto-range ⑲ Current application name ⑳ Set-point selection |
|---|---|

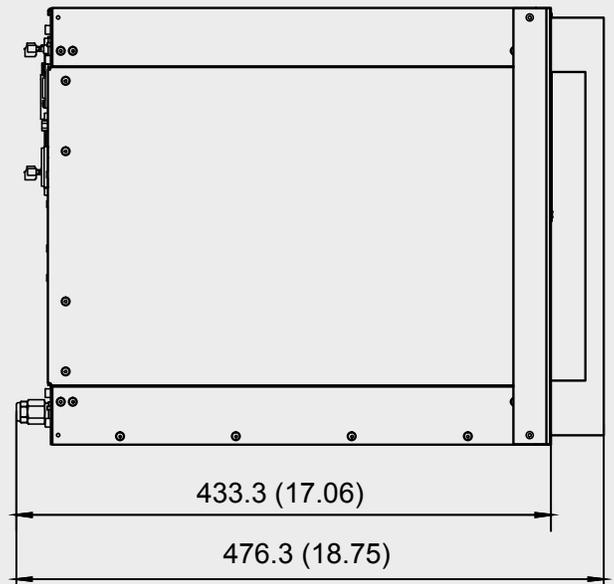
Dimensions in mm (in)

Desktop case

Front view

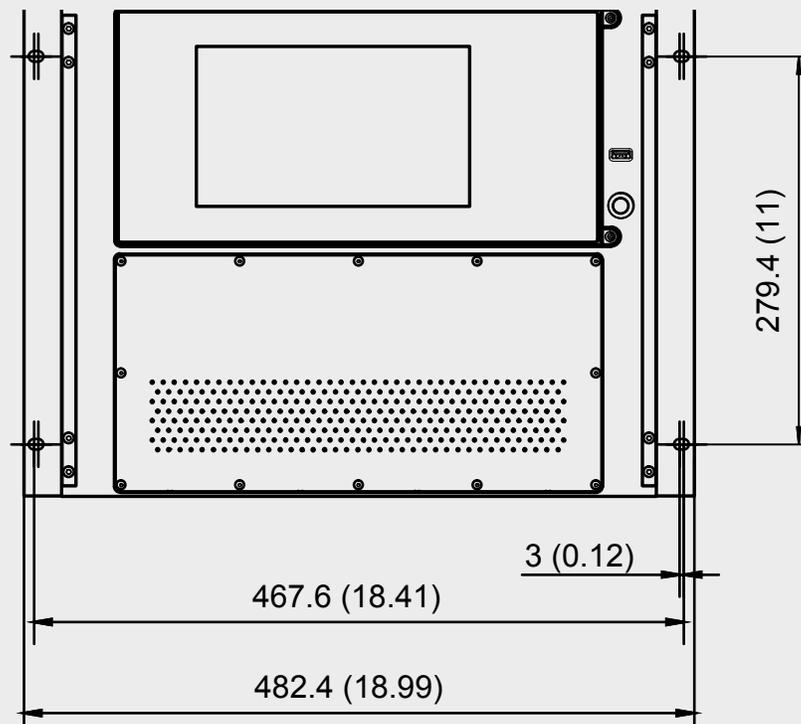


Side view (left)

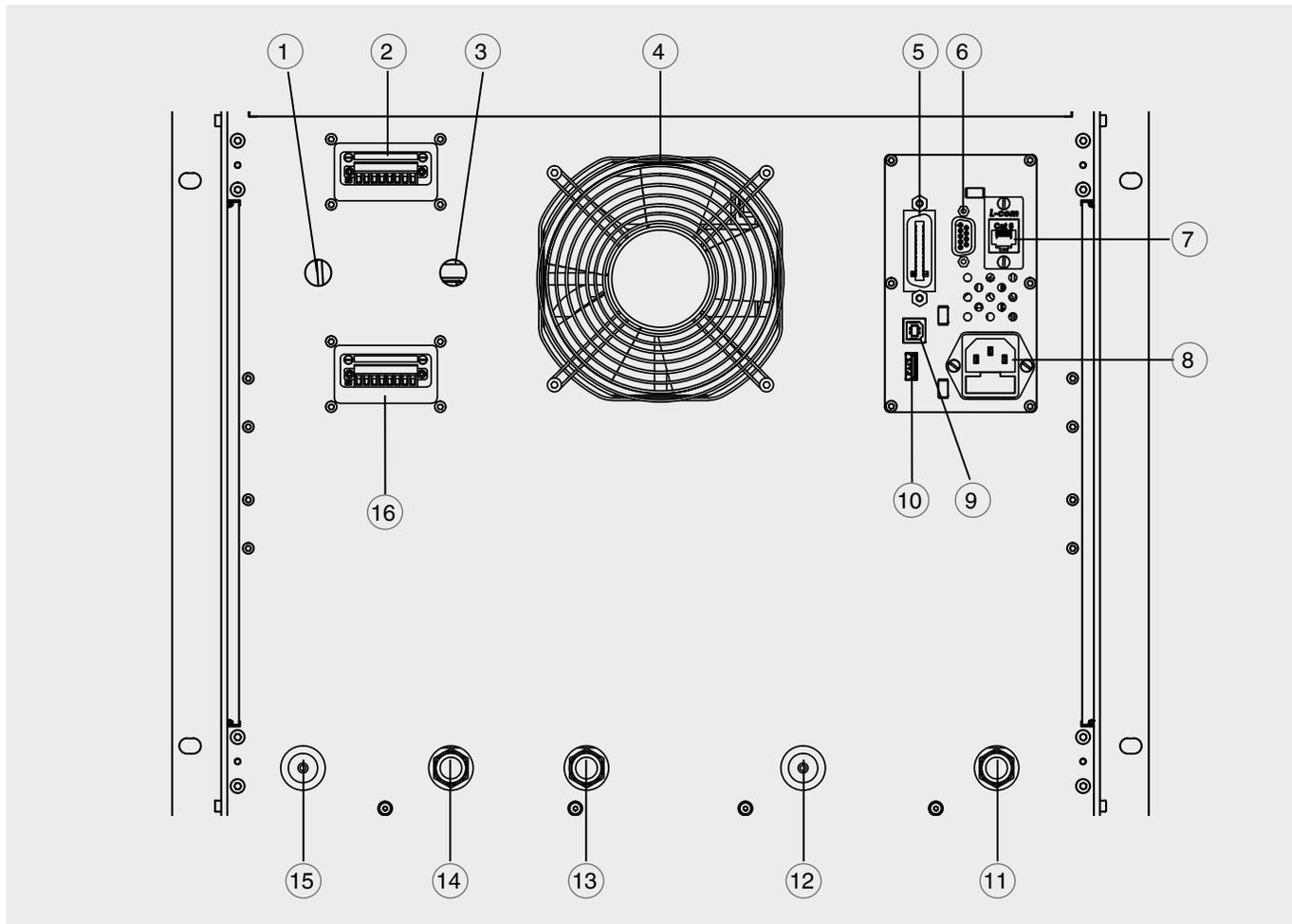


19" rack-mounting kit with side panels, front view

Front view



Electrical and pressure connections - rear view



- | | |
|--|---|
| ① Optional: Barometric pressure connection (M12 female thread) | ⑨ USB interface (instrument) for remote communication |
| ② Digital I/O 1-3 | ⑩ USB interface (host) for service |
| ③ Reference connection (M12 female thread) | ⑪ Vent pressure reference incl. muffler |
| ④ Fan | ⑫ Measure/Control port (M16 x 1.5 female with sealing cone) |
| ⑤ IEEE-488 interface | ⑬ Vent incl. muffler (ATM) |
| ⑥ RS-232 interface | ⑭ Controlled vent incl. muffler (ATM) |
| ⑦ Ethernet port | ⑮ Supply port (M16 x 1.5 female with sealing cone) |
| ⑧ Power supply | ⑯ Digital I/O 4-6 |

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 is available as long as the USB stick is connected to the computer.



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa
- 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.



Cal

Generation of calibration certificates with no limitations on measuring points, with automatic initiation of pressures via a pressure controller.



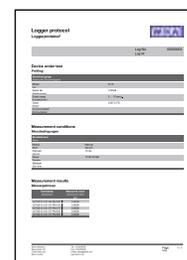
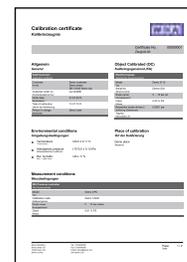
Log Demo

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

- Pneumatic high pressure controller model CPC7000 (desktop case)
- 1.5 m (5 ft) power cord
- Operating instructions
- Factory calibration certificate

Accessories

- Pressure booster Model 77
- Pressure adapters
- Interface cable
- Pressure booster for high-pressure supply
- WIKA-CAL calibration software

Options

- DKD/DAkkS calibration certificate
- Barometric reference
- Spare reference pressure transducer (CPR8050 or CPR8000)
- 19" rack-mounting kit with side panels
- Customer-specific system
- Adapters and fittings for pressure connections

Ordering information

Model / Case type / Instrument version / Reference pressure transducer 1 / Reference pressure transducer 2 / Reference pressure transducer 3 / Barometric reference / Type of certificate for the barometric reference / Further approvals / Additional ordering information

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