

High-speed pressure controller Model CPC3050



WIKA data sheet CT 27.56

Applications

- High speed controlling
- End-of-Line production testing
- Pressure calibration
- Automotive
- Oil and Gas

Special features

- Control speed < 4 seconds for 25%FS steps
- Accuracy: 0.020% FS
- Range: -1 ... 210 bar (-15 ... 3,045 psi)
- PACE remote emulation
- Up to two individual transducer ranges

Description

Overview

The CPC3050 High-Speed Pressure Controller is designed with a primary focus on improving throughput in a manufacturing or calibration process. Offering pressure ranges as low as 0 ... 350 mbar (5 psi) up to 210 bar (3,045 psi), the CPC3050 can be the solution for multiple applications. This controller can be configured as a desktop or 19" rack-mount version. Capable of 2 internal reference transducers and a barometric reference, a single CPC3050 can provide a wide range of pressure control and also emulate both absolute or gauge pressure types. The two customizable transducer ranges provide more flexibility for customer needs and pressure range coverage.

Application

The CPC3050 has an accuracy of 0.020%FS and uses a regulator technology that is designed specifically for high speed pressure control; ideal for end of line testing of an automated production and manufacturing line. Along with the high speed, the 0.020% FS accuracy provides adequate calibration requirements for numerous devices designed for the automotive and oil/gas industry.



High-speed pressure controller, Model CPC3050

Functionality

The CPC3050 High-Speed Controller can be operated locally through a simple and intuitive menu that allows users to control and measure pressure. Additionally, it is capable of remote control with software that can drive all the same functions as local operation. Using serial, USB, Ethernet or GPIB, the CPC3050 can be completely setup to function automatically in a process and achieve optimal output of a manufacturing process. With the Mensor legacy command set, along with PACE emulated commands, it can also be a solution for previously defined remote software.

Design

The standard chassis is designed to be a desktop for bench work in a production or engineering environment. For integration into a more automated process, the sleek design fits in a 3U rack mount tray. Along with the same pressure port layout as many other Mensor controllers, the CPC3050 uses a common SAE 7/16-20 threaded pressure ports, which makes it very easy to find the appropriate pressure adapters for most applications.

Specifications

Model CPC3050

Reference pressure transducers model CPR3050

Pressure Range	Low Pressure (LP) ⁸⁾	High Pressure (HP) ⁷⁾⁸⁾
Accuracy ¹⁾	0.020% FS ²⁾	
Gauge pressure ³⁾	0 ... 5 up to 1,500 psi (0 ... 0.35 up to 100 bar)	0 ... 1,500 up to 3,045 psi (0 ... 100 up to 210 bar)
Absolute pressure ⁵⁾	0 ... 15 up to 0 ... 1,515 psi (0 ... 1 up to 0 ... 101 bar)	0 ... 1,515 up to 3,060 psia (0 ... 101 up to 211 bar)
Bi-directional pressure ³⁾⁴⁾	-2.5 ... 2.5 up to -15 ... 1,500 psi (-0.17 ... 0.17 up to -1 ... 100 bar)	-15 ... 1,500 up to 3,045 psi (-1 ... 100 up to 210 bar)
Calibration interval	365 days	
Optional barometric reference		
Function	The barometric reference can be used to switch pressure types ⁶⁾ , absolute <=> gauge. With gauge pressure transducers, the measuring range of the transducers must begin with -1 bar (-15 psi) in order to carry out a complete absolute pressure emulation.	
Measuring range	8 ... 17 psi abs. (552 ... 1,172 mbar abs.)	
Accuracy ¹⁾	0.020% of reading	
Pressure units	39 and two freely programmable	

1) It is defined by the total measurement uncertainty, with the coverage factor (k = 2) and includes 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 with recommended zero point adjustment every 30 days..

2) FS = Full Span.

3) Ranges from 1,500 to 3,045 psi will be sealed gauge transducers..

4) The negative portion of a bidirectional range has the same accuracy as the equivalent positive range.

5) The minimum calibrated range of absolute transducers is 600mTorr

6) For pressure type emulation, we recommend a native absolute pressure transducer, since the zero point drift can be eliminated through a zero point adjustment.

7) Minimum primary sensor range must be greater than 1,500/1,515 psi.

8) Secondary range must be within 10:1 ratio of the primary range.

Base Instrument

Instrument	
Instrument Version	Standard: desktop case Optional: 19" rack-mounting kit
Dimensions	See technical drawings
Weight	approx. 12.7 kg (28 lbs).
Display	
Screen	7.0" color LCD with resistive touchscreen
Warm-up time	approx. 15 min.
Connections	
Pressure connections	5 ports with 7/16"-20 F SAE and 1 port with 10-32 UNF female
Filter elements	The instrument has a 40-micron filter on all pressure ports.
Pressure port adapters	Standard: without Optional: 6mm tube, 1/4" tube, 1/4" female NPT, 1/8" female NPT, or 1/8" female BSP
Barometer port adapters	Standard: barb fitting Optional: 6mm tube, 1/4" tube
Permissible pressure media	Dry, clean air or nitrogen (ISO 8573-1:2010 class 5.5.4 or better)
Wetted parts	Aluminum: 6061-T6 / 2024-T4, Stainless Steel: 303 / 304 / 316 / 316L / 13-8 PH, Brass, Nickel, Buna-N, FKM/FPM, Tungsten carbide, Cerazur ceramic, PTFE, PEEK. Glass-filled epoxy, RTV, ceramic, silicone, silicone grease, urethane, 430FR, 300 series CRES.
Over pressure protection	Safety relief valve for regulator 3,600 psi. ¹⁾
Permissible pressure	
Supply port	110 - 120% FS or 10 psi (0.69 bar), whichever is greater.
Measure/Control port	105% FS primary transducer range

Base Instrument



Plumbing	≥0.11" (2.8 mm) ID for optimal performance
Voltage supply	
Power supply	AC 100 ... 120 V, 50/60 Hz; AC 220 ... 240 V, 50/60 Hz
Power consumption	max 150 VA
Permissible ambient conditions	
Compensated temperature range	0 to 50 °C (50 to 122 °F)
Operating temperature range	-20 to 70 °C (-4 to 158 °F)
Storage temperature range	-20 to 70 °C (-4 to 158 °F)
Humidity	5 ... 95% r.h. (non -condensing)
Mounting position	Horizontal
Control parameters	
Control stability	High Speed: < 0.025% FS primary transducer (Industrial mode: < 0.01% FS primary transducer)
Control modes	Industrial, High Speed (default), and Custom
Control time ⁷⁾⁸⁾	3-4 s
Control range	0 ... 100% FS
Minimum control pressure ⁹⁾	0.025 psi (0.0017 bar) over exhaust pressure or 0.05% FS, whichever is greater.
Overshoot	< 1% FS in High Speed mode (<0.5% FS in Industrial mode)
Test volume	0 ... 1000 cc

7) 25% FS pressure steps in High Speed mode in 50cc test volume.

8) Time includes default stable delay 0.5s.

9) Low point specification is vacuum region for absolute transducers.

Approvals and Certificates

Logo	Description	Country
	EU Declaration of Conformity EU Importer: WIKA, 63911 Klingenberg, Germany	European Union
	UKCA Declaration of Conformity Importer: WIKA Instruments Ltd, Unit 6 & 7 Goya Business Park, The Moor Road, Sevenoaks Kent, TN15 5GY	Great Britain

Certificates

Calibration ¹¹⁾	Standard: A2LA accredited calibration certificate (standard on factory) Optional: DKD/DAkkS calibration certificate
----------------------------	--

10) **Warning!** This is class A equipment for emissions and is intended for use in industrial environments. In other environments, e.g. residential or commercial installations, it can interfere with other equipment under certain conditions. In such circumstances the operator is expected to take the appropriate measures.

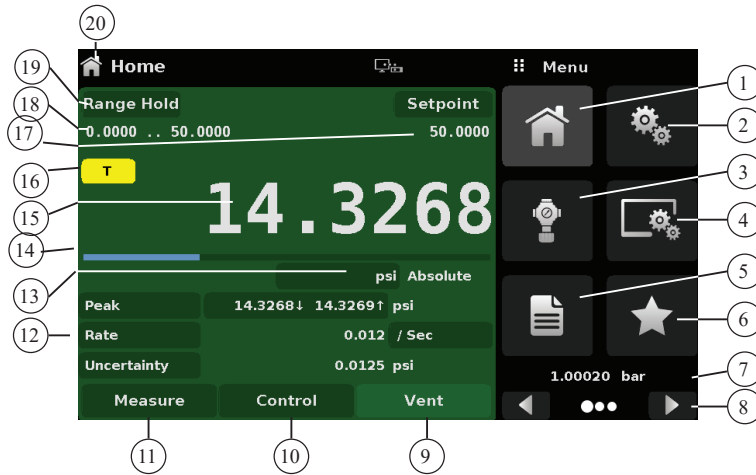
11) Calibration in a horizontal position/operating position.

Touchscreen and intuitive operator interface

Shortly after power-up, the standard main screen (see following picture) is displayed. In this menu screen, one can switch between the operating modes using the buttons **MEASURE** (11), **CONTROL** (10) and **VENT** (9). The instrument is a precision pressure controller, whose setup (incl. optional functions) can be easily configured via the touchscreen.

Standard desktop/main screen

v



① Home application

② General settings

③ Control settings

④ Display settings

⑤ Programs

⑥ Favorites

⑦ Barometric pressure reading (optional)

⑧ Menu scroll features forward / back

⑨ **VENT**

Immediately vents the system, including the test assembly connected to the Measure/Control port, to atmosphere.

⑩ **CONTROL**

In control mode the instrument provides a highly accurate pressure at the Measure/Control port of the respective channel at the desired set point.

⑪ **MEASURE**

In measure 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 will be maintained/locked).

⑫ Auxiliary displays either peak, rate or alternate units

⑬ Current pressure unit and type

⑭ Optional bar graph

⑮ Current measuring value

⑯ Tare function

⑰ Entered set point

⑱ Pressure range of the transducers

⑲ Selection of the active transducer or auto-range

⑳ Current application name

Automatic Contamination Prevention System (A-CPS)

Active decontamination

The Automatic CPS can be mounted either in a wall/ rack mount configuration by the keyholes (Figure 8.6.1-A) on either or both side of the accessory or placed on a steady surface as a desktop accessory.

The DUT can be mounted either on top of the accessory for convenient test stand setup or on the back of the accessory for connection with a pressure hose (Figure 8.6.1-B). The not connected port should be sealed by the plug provided to ensure no leakage.

The pressure connection to the Measure/ Control port of the CPC3050 is established by a pressure tube with 7/16" SAE adapters. The Automatic CPS is powered by the CPC3050 using a 3 meter long flexible cable which connects to the Automatic CPS Backplate on the instrument.



A-CPS Specifications

Operating Conditions

Maximum operating pressure	3,065 psig (211 bar gauge)
Maximum operating temperature	80 °C (176 F)

Voltage Supply

Power supply	12 VDC
Power consumption	13 VA

Pressure Connection

To the M/C port of CPC3050	1 port with 1/4" tube adapted to 7/16"- 20 F SAE
To the DUT	2 ports with Standard: 7/16" - 20 F SAE Option: 6 mm tube fitting, 1/4" tube fitting, 1/4" female NPT fittings, 1/8" female NPT fittings or 1/8" female BSP fittings

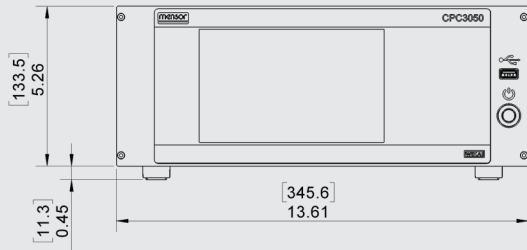
Dimensions & Weight

Dimensions	5.5 in x 10.5 in x 5.5 in (W x H x D)
Weight	3.99 kg (8.8 lbs)

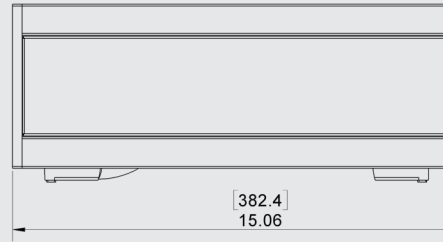
Dimensions mm (in)

Desktop Case

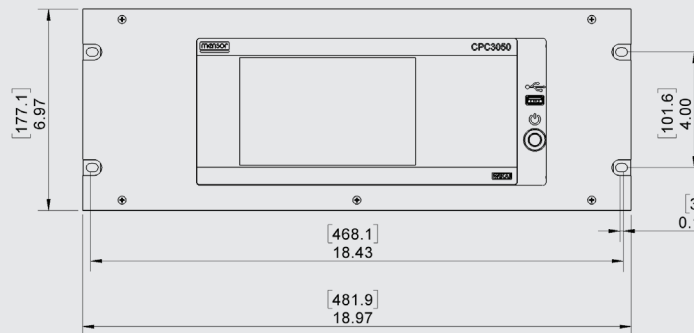
Front view



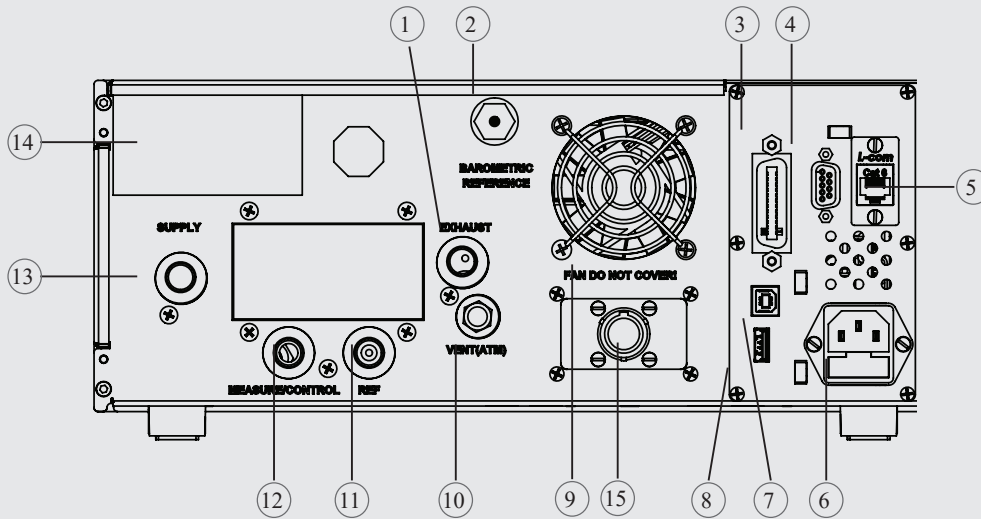
Side view



19" rack-mounting kit, front view



Electrical and pressure connections - rear view



- | | |
|---|--------------------------------------|
| ① Exhaust port (7/16-20 UNF) | ⑨ Fan |
| ② Barometric reference port (10-32 UNF) | ⑩ Vent (ATM) |
| ③ IEEE-488 interface | ⑪ Reference port (7/16-20 UNF) |
| ④ RS-232 interface | ⑫ Measure/Control port (7/16-20 UNF) |
| ⑤ Ethernet port | ⑬ Supply port (7/16-20 UNF) |
| ⑥ Power supply | ⑭ Instrument label |
| ⑦ USB interface (instrument) for remote communication | ⑮ Automatic CPS connector |
| ⑧ USB interface (host) for service | |

Accessories

Accessories for CPC3050	Order code
Description	CPX-A-C4
19" rack mount kit with side panels	-R-
Barometric reference, measuring range 8 ... 17 psi abs, 0.02% rdg.	-6-
Barometric reference, measuring range 552 ... 1172 mbar abs, 0.02% rdg.	-P-
Barometric reference, measuring range 552 ... 1172 hPa abs, 0.02% rdg	-Q-
Calibration adapter for barometric reference, power supply and software	-5-
Carrying case	-7-
Adapter set 1/8" female BSP fittings (4x)	-B-
Adapter set 1/4" tube fittings (4x)	-I-
Adapter set 6mm tube fittings (4x)	-M-
Adapter set 1/4" female NPT fittings (4x)	-N-
Adapter set 1/8" female NPT fittings (4x)	-S-
Kit - block and bleed valve, ≤ 6000 psi	-8-
Kit - coalescing filter, ≤ 3600 psi	-9-
Automatic CPS (Contamination Protection System)	-A-
Replacement filter for automatic CPS	-2-
Ordering information for your enquiry:	
1. Order code: CPX-A- 2. Option:	↓C4 []

Scope of delivery

- High speed pressure controller model CPC3050 (desktop case)
- Operating instructions
- 1.5 m (5 ft) power cord
- A2LA calibration certificate (standard on factory)

Options

- Pressure adapters
- Interface cable
- Coalescing filter
- Block and bleed valve
- Pressure booster
- DKD/DAkkS calibration certificate
- Barometric calibration sled and software

Ordering Information

CPC3050 / Instrument version / Pressure application / Pressure unit / Type of pressure / Start of measuring range / End of measuring range / Type of certificate / Pressure adapter / Carrying case / Additional order information

© 2023 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.
The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.
In case of a different interpretation of the translated and the English data sheet, the English wording shall prevail.



Mensor LP

201 Barnes Drive
San Marcos, TX 78666 • USA
Tel. (+1) 512 3964200-15
Fax (+1) 512 3961820
E-Mail sales@mensor.com
www.mensor.com



Imported to Europe by:

WIKAI Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg • Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de

Imported to UK by:

WIKAI Instruments Ltd,
Unit 6 & 7 Goya Business Park,
The Moor Road, Sevenoaks
Kent, TN15 5GY