

Precision High-Pressure Controller Model CPC8000-H



WIKA Data Sheet CT 28.05

Applications

- Pressure instrumentation manufacturers
- Calibration and service companies
- Industry (laboratory, workshop and production)
- Research and development laboratories
- National institutes and institutions

Special Features

- Pressure ranges: 600 / 1000 / 1600 bar
- Pressure medium: Hydraulic oil or water
- Control stability: 0.003 % FS
- Precision: 0.005 %
- Uncertainty of complete measuring chain: 0.01 % FS acc. to EA 10/17 (or DKD-R 6-1)

Description

Areas of application

With its high accuracy and control stability, the CPC8000-H hydraulic high-pressure controller is particularly suitable as a factory/working standard for the automatic testing and/or calibration of high-pressure measuring instruments of any kind. As a result of its robustness and reliability, further perfect applications are autofrettage tasks or cyclic pressure load tests. To operate the controller, apart from the electrical supply, only clean, dry compressed air is needed for the pneumatic control circuit. As a fluid media on the output side, either hydraulic oil or water can be used. On request different media are also available.

Functionality

Due to its special technology, pressure set-points within the controller are controlled quickly and smoothly. The set-point can be entered directly via the user-friendly keypad or can be transmitted through the controller's digital interface. Apart from the input of a defined set value via the keypad, the pressure can also be raised or lowered incrementally by means of programmable STEP and JOG buttons. The high-definition TFT colour display has been designed to



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be particularly clear, allowing up to 4 windows to be viewed at any one time, as well as various functions, such as min, max, etc., to be activated.

Communication interface

For communication and/or data exchange with a PC, the instrument has an RS-232 and an IEEE-488.2 interface. These digital interfaces enable software-controlled operation of the controller, e.g. fully-automatic calibration procedures or the execution of special test routines, which can be generated through programs such as LabVIEW®, etc..

Complete test and calibration systems

If required, customer-specific test facilities and/or turnkey systems, including software, can also be manufactured.

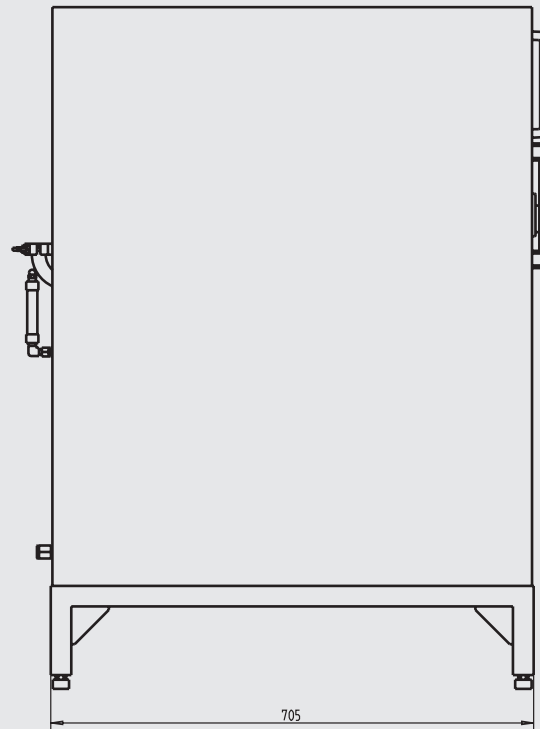
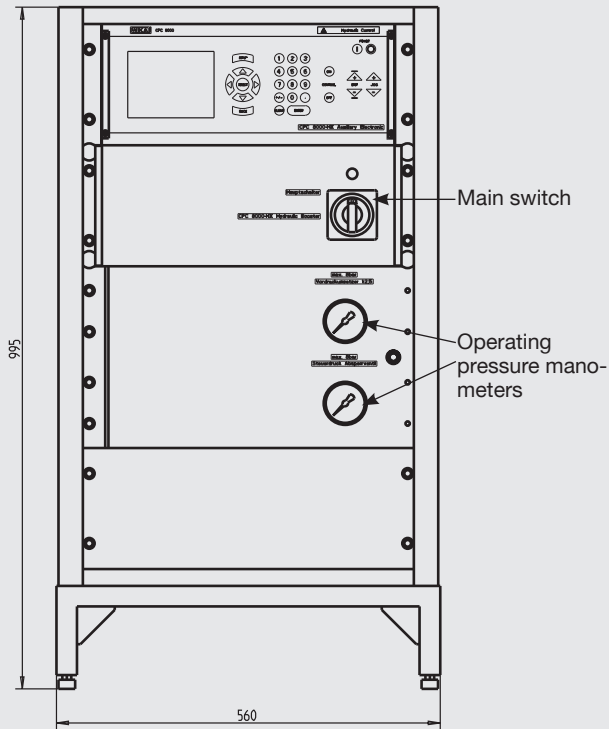
Calibration certificates

The accuracy of the equipment is certified by a factory calibration certificate. If desired a DKD Calibration Certificate can also be provided for the equipment using our own DKD laboratory.

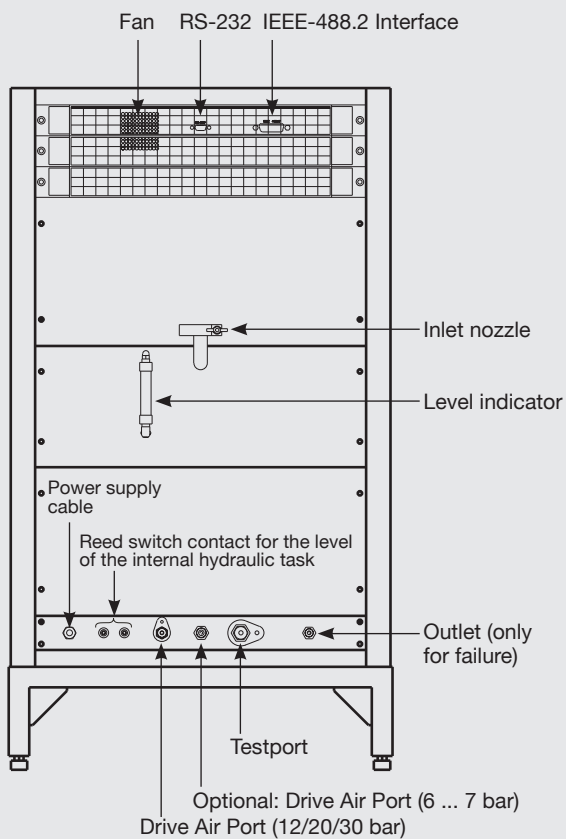
Dimensions in mm

Front view

Side view



Rear view



Specifications

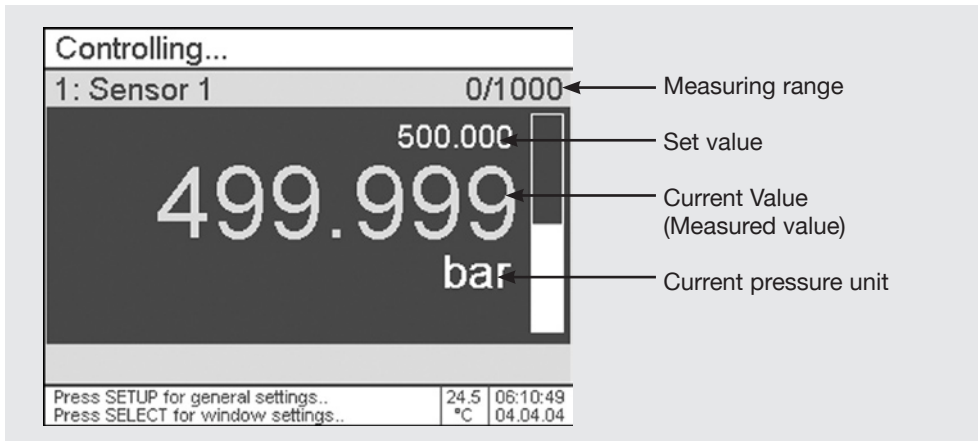
CPC8000-H

Measuring range	bar	600 1000 1600
Overpressure safety	bar	660 1100 1660
Precision	%	0.005
Accuracy	% FS	0.01
Pressure type		positive overpressure
Pressure units		17 standard pressure inputs + 3 programmable
Control stability	%	0.003
Slew Rate	sec	approx. 40 - 55
Control range	% FS	20 ... FS
Max. allowable control volume displacement (after bleed priming)	ccm	20 (out of a total volume of up to 1000 ccm)
Test port (working pressure)		
■ Pressure ports		¼" SNOTRIK® tube fitting
■ Pressure medium		Hydraulic oil or water
Drive air port (pressure supply)		
■ Pressure port		6 mm Swagelok tube fitting
■ Pressure medium		clean, dry air
■ Pressure supply	bar	approx. 12 / 20 / 30 (for 600 / 1000 / 1600 bar version)
■ Overpressure protection		safety valves, scaled to 120 % of FS
Optional drive air port 2 (pressure supply) *		
■ Pressure port		for 8 mm hoses
■ Pressure medium		clean, dry air
■ Pressure supply	bar	approx. 7.5
Instrument format		19" plug-in housing with 16 HE (optional in casing)
Screen		TFT-display (320 x 240 Pixel)
Screen division		Windows 1, 2 or 4
Measured value display	Digits	up to 7
Measuring rate	Values / sec.	8
Keypad		membrane keypad
Digital interface		RS-232 and IEEE-488.2
Supply voltage	AC	230 V ± 10 %, 50/60 Hz; (optional: AC 115 V)
Permissible pressure		
■ Drive air port	%	100 ... 110 (FS of the supply pressure specification)
■ Test port	% FS	maximum 110
Permissible media		
■ Drive air port		clean, dry air
■ Test port		non-corrosive liquids
Permissible		
■ Ambient temperature	°C	15 ... 35
■ Medium temperature	°C	10 ... 40
■ Storage temperature	°C	0 ... 70
■ Air humidity	%	35 ... 85 relative humidity without condensation
Ingress protection		IP31
Mass	kg	approx. 50 - 65 (dependent on format)
Dimensions		see technical drawings
CE-Mark		declaration of conformity
Calibration		incl. 3.1 calibration report according to DIN EN 10 204

* If only approx 7.5 bar is available as pressure supply source, this optional port and an external pressure intensifier of 1 to 4 at drive air port 1 is required.

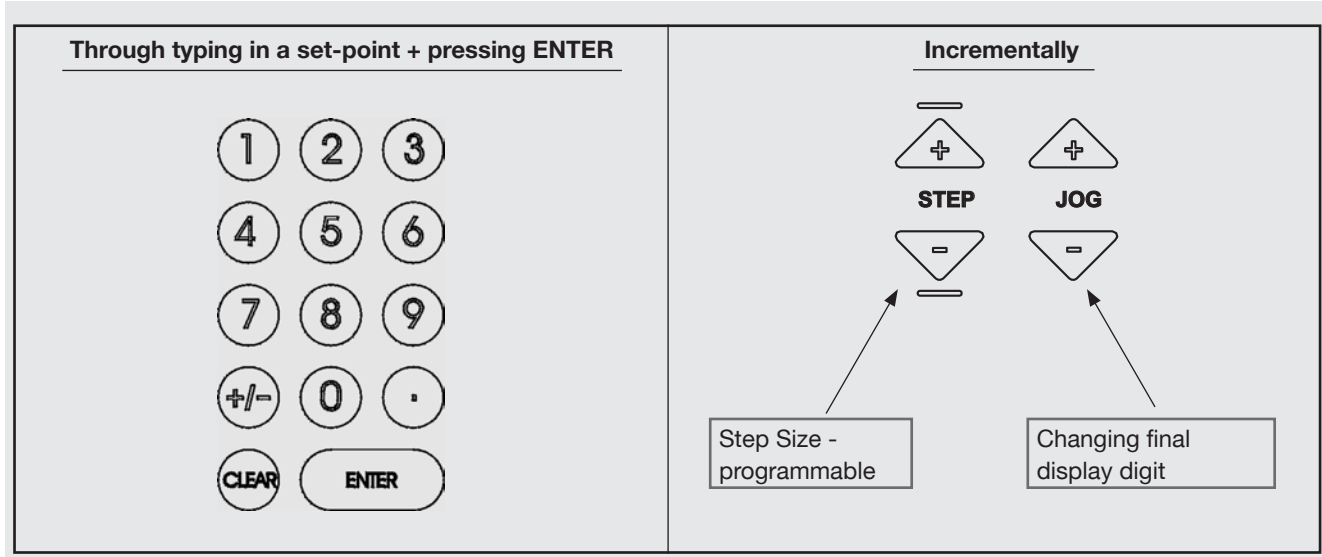
Operation of the CPC8000-H

1. Display



On the display of the CPC8000-H the set value and the current measured value (actual value) are clearly displayed. The colour of the measured value changes from white to green immediately the controller achieves the set value in accordance with the accuracy class. Decimal places can be increased or decreased via the menu (altogether up to 7 full digits can be displayed).

2. Setting values using the keypad



A pressure (set value) can simply be input via the keypad and confirmed by pressing the enter key. Optionally, the pressure can also be changed incrementally using the STEP and JOG buttons.

3. Setting values using the digital interface



For PC driven operations, e.g. automatic calibration procedures, the required set value can also be set via the digital interface. For this, the high-pressure controller has an RS-232 and an IEEE-488.2 interface on the back. The interface instruction set is based on standard SCPI commands, which can be communicated by one's own program or through standard software e.g.: LabView®.

Performance characteristics of the CPC8000-H

Outstanding control concept

The controller consists of a pneumatic primary circuit - and a hydraulic feed back secondary circuit. The widely proven CPC8000 needle-valve unit forms the heart of the pneumatic primary circuit. A pressure increment unit multiplies the pressure of the primary circuit and supplies a corresponding high-precision pressure at the test port of the hydraulic secondary circuit.

Bleed Priming function

The bleed priming function ensures the control circuit is automatically filled (10 ... 12 bar), so that even larger test volumes do not represent a problem.

Highest precision

The high accuracy of the pressure supply is ensured by a precision high-pressure sensor in the hydraulic secondary circuit, whose measured value drives the control unit on the primary circuit.

Adaptive to the operating conditions

Through the menu option: Controller adaption, the controller optimises itself automatically to the current conditions of the test assembly and thus ensures the optimal control performance.

Ease of use

The streamlined and intuitive menu structure is implemented clearly through the colour graphic display, ensuring the instrument is extremely user-friendly.

User-friendly measured value display

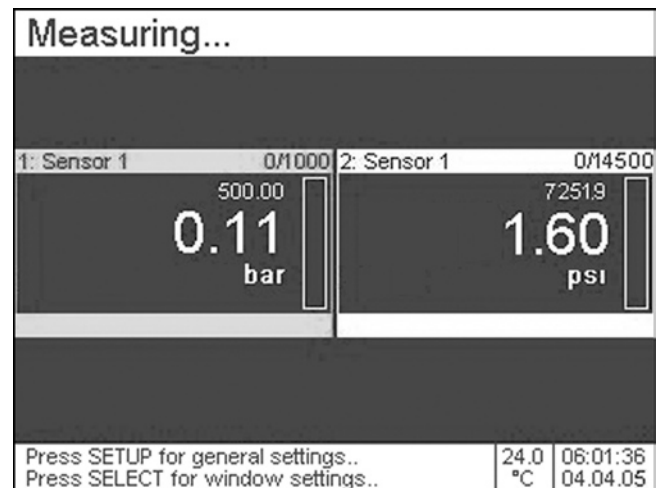
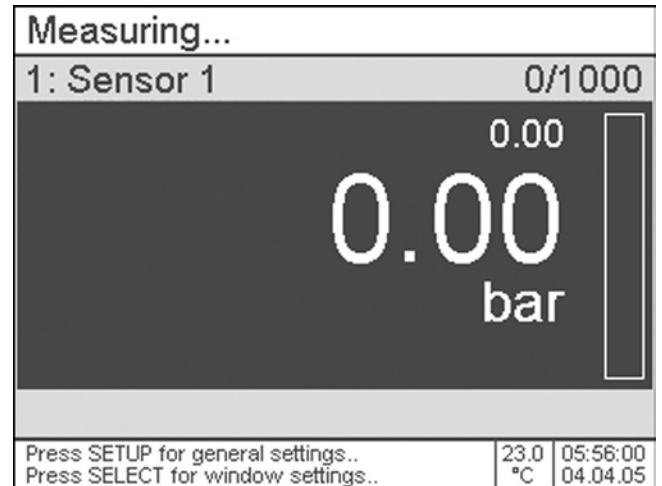
Up to 4 display windows, each with full 7-digit measured-value indication, can be displayed on the large colour screen. It allows you to choose from 17 standard and 3 programmable units of pressure.

Long-term stability and low maintenance

Due to its high-quality, precision, high-pressure sensor, the equipment features excellent measuring accuracy and long-term stability. In addition, its special needle-valve technology ensures noise- and wear-resistant pressure control.

Useful menu functions for wide-ranging applications

- Minimum-Storage
- Maximum-Storage
- HOLD
- ZERO
- Average
- Limits with visual alarm
- Pressure rate (pressure change/time)
- Zero point/Offset correction



Configuration possibilities for display

Scope of supply

- Precision high-pressure controller CPC8000-H
- Power supply cable 1.5 m with mains plug
- Operating instructions in English or German language
- 3.1 calibration report acc. to DIN EN 10 204

Options

- DKD calibration certificate
- Complete test or calibration system

Accessories

- Pneumatic pressure multiblier 1:4
- Interface cable
- Service tools

Products and Services within our Testing and Calibration Technology Program

- | | |
|---|---|
| ■ DKD calibration services for pressure | ■ DKD calibration services for temperature |
| ■ Repair of calibration units of all makes | ■ Temperature dry well calibrators |
| ■ Portable pressure measuring devices for testing and calibration tasks | ■ Calibration baths and furnaces |
| ■ Precision pressure measuring units and pressure controllers | ■ Temperature measuring instruments for testing and calibrating tasks |
| ■ Primary standards for pressure | ■ Precision thermometers |
| ■ Testing technology system solutions | ■ Primary standards for temperature |
| | ■ Consulting and training |

Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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