

Automatic Calibration System

Absolute, gauge or differential pressure

DPC 4800

barotec[®]
KALIBRIERTECHNIK

Applications

- Transfer standard for calibration laboratories
- High-precision pressure source and pressure reference for the construction of test benches
- Actuator and reference in modern PLC topologies
- Laboratories for research and development
- Production means in pressure gauge, pressure switch and sensor manufacturing
- Tool for transmitter calibration and creation of certificates
- Long-term measurements

Construction

- Controlling and measuring test pressures with a single device
- Up to 3 precision sensors can be actuated automatically (plus barometric reference)
- Customised configurations of the pressure controller possible
- Very high measuring rate
- Very large control volumes possible
- Large colour touch screen, LED backlight
- Modern interfaces for PLC automation environments
- Easily calibrated
- Modular construction
- Fully digital measuring instrument
- Automatic creation of test certificates via full version calibration software DynaCal

Description

Application

As precision standard in calibration laboratories, as working standard in test shops or as high-speed pressure controller in pressure test benches.

Functionality

Due to its numerous configuration possibilities, the pressure controller DPC 4800 can be configured for your particular application. The DPC 4800 can be equipped with up to three precision sensors and an optional barometric reference. In Auto mode, the DPC 4800 automatically selects the precision sensor, which is most suitable for the control task. Calibrations are automatically carried out in the pressure range, which is most suitable for the task. The instrument is operated via a 178 mm (7") colour touch screen. The menu design allows for a navigation from the main menu. The structure and the design of the menus provide an intuitive operation of the DPC 4800. All advanced functions are accessible via submenus with central control elements provided in each submenu.

Software

Besides the full version calibration software DynaCal, which allows for comfortable calibration of pressure measuring instruments, including automatic creation of test certificates, the user is able to create own user programmes, e.g. via LabVIEW[®].



Integration in Test Benches

The DPC 4800 has a compact industrial housing compatible with the 19" rack format, it includes interfaces and communication standards, thus simplifying integration with automation solutions. The DPC 4800 can be supplied with a PROFINET connection. Other industrial automation protocols are supported as well.

Complete Testing and Calibration Systems

Fully mobile or stationary test benches can be manufactured upon customer request.

Available Versions

The DPC 4800 is available in three versions meeting different market requirements. Each version controls and calibrates overpressure, vacuum and absolute pressure fully automatic.

DPC 4800 A (all-rounder)

Up to 3 pressure ranges + barometer
Measurement inaccuracy ($k = 2$): 0.02 % FS + 0.02 % rdg
Control accuracy: 0.015 %

DPC 4800 A+ (all-rounder plus)

Up to 3 pressure ranges + barometer
Measurement inaccuracy ($k = 2$): 0.008 % FS + 0.006 % rdg
Control accuracy: 0.008 %

DPC 4800 P (precision)

Up to 3 pressure ranges + barometer
Measurement inaccuracy ($k = 2$): 0.006 % FS + 0.003 % rdg
Control accuracy: 0.005 % (optional 0.003 %)

For all versions, precision sensors within the following pressure range limitations are available

Overpressure:	-1 / +1 bar to 0 – 230 bar (-30 inHg / +15 psi to 0 – 3000 psi)
Absolute pressure:	0 – 1 bar to 0 – 100 bar (0 – 15 psi to 0 – 1500 psi)
Differential pressure ¹⁾ :	±30 mbar to ±300 mbar (±1 inHg to ±10 inHg)

¹⁾ measurement inaccuracy of 0.03 % FS or 0.03 % of span

Technical Data, Options, Scope of Delivery, Ordering Information

Technical Data

Pressure Ranges

Gauge pressure	-1 / +1 bar	-30 inHg / +15 psi
	-1 / +2 bar	-30 inHg / +30 psi
	-1 / +3 bar	-30 inHg / +50 psi
	-1 / +5 bar	-30 inHg / +70 psi
	-1 / +10 bar	-30 inHg / +150 psi
	-1 / +20 bar	-30 inHg / +300 psi
	-1 / +30 bar	-30 inHg / +500 psi
	-1 / +60 bar	-30 inHg / +800 psi
	-1 / +100 bar	-30 inHg / +1500 psi
	0 – 160 bar	0 – 2500 psi
Absolute pressure	0 – 230 bar	0 – 3000 psi
	0 – 1 bar	0 – 15 psi
	0 – 3 bar	0 – 50 psi
	0 – 10 bar	0 – 150 psi
	0 – 30 bar	0 – 500 psi
Differential pressure ¹⁾	0 – 100 bar	0 – 1500 psi
	±30 mbar	±1 inHg
	±100 mbar	±3 inHg
	±300 mbar	±10 inHg

Optional Barometric Reference

The barometric reference is required for the change of absolute pressure ⇔ gauge pressure. A pressure controller with relative reference sensor requires vacuum ranges for full functionality.

Pressure range: 800 mbar to 1200 mbar abs. (12 to 17 psi abs.)

Accuracy: 0.008 % FS

Pressure Units

23 fixed and 1 freely programmable

Instrument Version

Desktop case

Optional: 19" rack mounting with side panels incl. mounting kit

Display

Screen division: actual value, reference value, steps, keypad, control mode

Resolution: 6 digits

Keypad: colour touch screen

Warm-up time: <10 minutes

Response time: approx. 10 ms

Pressure Range

Max. 3 pressure ranges and barometric reference

Pressure Connections

G 1/8" female

Optional: 6 mm Swagelok® tube fitting or connection adapter

Medium

Clean, dry, non-corrosive, non-combustible and non-oxidising gases

Overrange Protection

150 % of the largest pressure range

Optional: external pressure relief valves

Supply Voltage

Auxiliary energy 88...264 V AC, 47...63 Hz

Permissible Ambient Conditions

Operating temperature: +10 °C to +40 °C (+50 °F to +104 °F)

Storage temperature: 0 °C to +70 °C (+32 °F to +158 °F)

Relative humidity: 0 to 95 % r. h. (non-condensing)

Compensated

temperature range: +15 °C to +35 °C (+59 °F to +95 °F)

Communication

Interfaces:

RS-232, USB, Ethernet

Optional

Interfaces:

IEEE-488.2, PROFINET, EtherCAT

Analogue output (16 bit):

0...1 V, 0...5 V, 0...10 V or 4...20 mA

Switching outputs:

24 V DC PWM or TTL level

Analogue inputs (16 bit):

4...20 mA or 0...10 V,

others upon request

Instruction Sets

DPC 3800/DPC 4800 Rev. B communication protocol

Optional: Instruction sets from other manufacturers can be

implemented and an alignment to existing test bench software is possible.

Approvals and Certificates

EMC directive 2014/30/EU, DIN EN 61 326-1 emission (group 1, class A) and stability (industrial sector)

Calibration certificate 3.1 according to DIN EN 10 204,

Optional: internationally traceable calibration certificate (e.g. DAkkS)

Options

- Portable case
- Dirt traps
- Medium separators
- Pressure generators
- Vacuum pumps

Scope of Delivery

- Precision pressure controller/calibrator
- Full version calibration software DynaCal
- Mains cable 1.5 m
- Operating instruction
- Calibration certificate 3.1 according to DIN EN 10 204

Ordering Information

Please specify in your order:

Basic model

DPC 4800 (version A, A+, P)

Pressure range

1. pressure range, e.g. -1 / +2 bar

2. pressure range, e.g. -1 / +10 bar

3. pressure range, e.g. -1 / +40 bar

Options

e.g. barometric reference,
19" installation frame

Example:

DPC 4800 A+, -1 / +2 bar,

-1 / +10 bar, -1 / +40 bar,

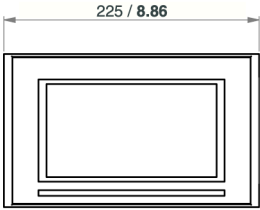
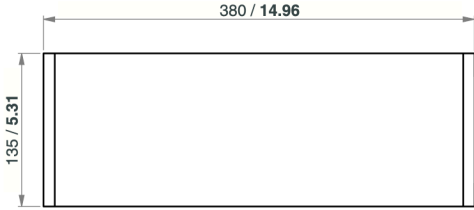
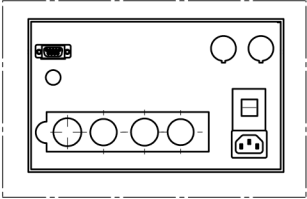
barometric reference,

19" installation frame

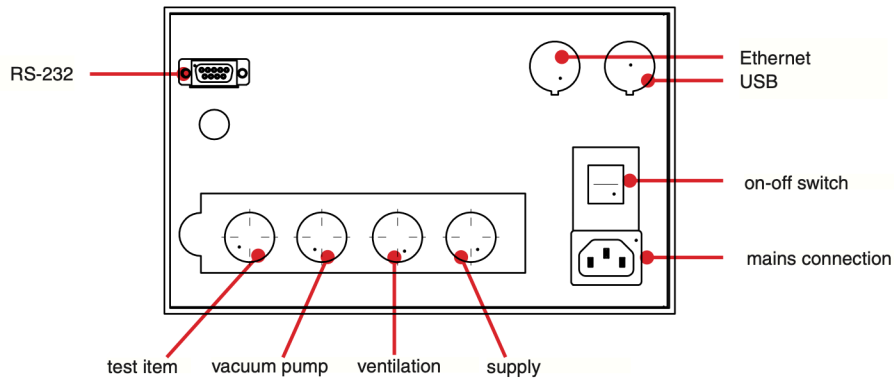
¹⁾ measurement inaccuracy of 0.03 % FS or 0.03 % of span

Dimensional Data and Weight

Dimensional Data in mm/inch

Front view	Lateral view	Back view
		

Electrical connections and pressure connections – back



Weight

Approx. 7.0 kg (15.43 lb)