

# Precision Pressure Controller/Calibrator

# DPC 3800

## Absolute, gauge or differential pressure

### Applications

- Calibration laboratories
- Service industries and calibration services
- Laboratories for research and development
- Pressure gauge, pressure switch and sensor manufacturing as well as transmitter calibration and creation of certificates
- Long-term measurements

### Construction

- **Pressure ranges**  
gauge pressure: -1 / +1 bar to -1 / +100 bar  
(-30 inHg / +15 psi to -30 inHg / +1500 psi)  
absolute pressure: 0 - 1 bar to 0 - 100 bar  
(0 - 15 psi to 0 - 1500 psi)  
differential pressure: ±30 mbar to ±300 mbar (±1 to ±10 inHg)  
measurement  
uncertainty (k = 2): better than 0.01 % FS,  
better than differential pressure ±0.03 % FS
- Pressure controller with precision pressure sensor
- Up to 3 precision sensors can be actuated automatically (plus barometric reference)
- Customised configurations of the pressure controller possible
- Very high measuring rate
- Colour touch screen, LED backlight
- Easily calibrated
- Modular construction
- Fully digital measuring instrument
- Automatic creation of test certificates via full version calibration software DynaCal

### Description

#### Application

The modular controller DPC 3800 is equipped with up to three precision sensors and an optional barometric reference. Due to a measurement uncertainty of 0.01 % FS of the entire measuring chain and its control stability of 0.003 % FS, this instrument is perfectly suited for the automatic calibration of pressure measuring instruments.

#### Functionality

This instrument stands out due to its up to three precision sensors that combine maximum precision with highest long-term stability. The DPC 3800 achieves a control stability of 0.003 % FS of the currently active pressure range.

The instrument is operated intuitively via touch screen. All advanced functions are accessible via submenus.

#### 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 software programmes, e.g. via LabVIEW®.

#### Communication

For integration in existing systems, an RS-232, Ethernet or optionally an IEEE-488.2 interface or an analogue output is available.

#### Complete Testing and Calibrating Systems

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

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### Technical Data

#### Pressure Ranges

Gauge pressure	-1 / +1 bar	-30 inHg / +15 psi
	-1 / +3 bar	-30 inHg / +50 psi
	-1 / +10 bar	-30 inHg / +150 psi
	-1 / +30 bar	-30 inHg / +500 psi
	-1 / +100 bar	-30 inHg / +1500 psi
	0 - 2 bar	0 - 30 psi
	0 - 5 bar	0 - 70 psi
Absolute pressure	0 - 20 bar	0 - 300 psi
	0 - 60 bar	0 - 800 psi
	0 - 1 bar	0 - 15 psi
	0 - 3 bar	0 - 50 psi
	0 - 10 bar	0 - 150 psi
Differential pressure	0 - 30 bar	0 - 500 psi
	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 sensors requires vacuum ranges for full functionality. Pressure range: 800 mbar to 1200 mbar abs. (12 psi 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

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 (0.24") Swagelok® tube fitting or connection adapter

**ARMANO**

ARMANO Messtechnik GmbH

#### Location Beierfeld

Am Gewerbepark 9 • 08344 Grünhain-Beierfeld  
Tel.: +49 3774 58 - 0 • Fax: +49 3774 58 - 545  
mail@armano-beierfeld.com

#### Location Wesel

Manometerstraße 5 • 46487 Wesel-Ginderich  
Tel.: +49 2803 9130 - 0 • Fax: +49 2803 1035  
mail@armano-wesel.com

[www.armano-messtechnik.com](http://www.armano-messtechnik.com)

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# Technical Data, Options, Scope of Delivery, Ordering Information

## 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

Interface: IEEE-488.2

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: 4...20 mA or 0...10 V,  
others upon request

## Instruction Sets

DPC 3800

Optional: alternative instruction sets possible,  
alignment to existing HOST software upon request

## 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

## Further Options

The DPC 3800 is equipped with 4 switching outputs that can be used for options. Furthermore, up to four precision sensors can be actuated.

### Option M

The following features were integrated:

- On and off switch for a vacuum pump
- Internal separation of regulator and test item
- An additional ventilation valve for the test item side

This option is suitable, for example, for pressure gauge adjustment.

### Option StdBy

A valve uncouples the regulator and the precision sensors from the test item connection. This option is required in order to operate several DPC pressure controllers in parallel.

### Option Rack (only in combination with Option StdBy)

With this option, several DPC pressure controllers can be combined in one controller unit. Sensors, e.g. barometers, can also be mirrored to connected DPC pressure controllers.

### Option Vac

With this option, a 24 V signal can be actuated in order to switch a vacuum pump on or off, for example.

## 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:

<b>Basic model</b>	DPC 3800
<b>Pressure range</b>	1. pressure range, e.g. 0 – 2 bar 2. pressure range, e.g. 0 – 30 bar 3. pressure range, e.g. 0 – 100 bar e.g. Option M

### Options

<b>Example:</b>	<b>DPC 3800, 0 – 2 bar, 0 – 30 bar, 0 – 100 bar, Option M</b>
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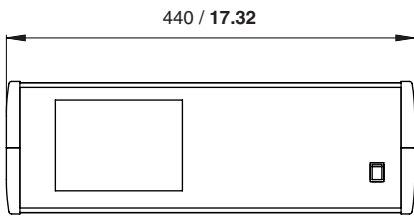
## Options

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

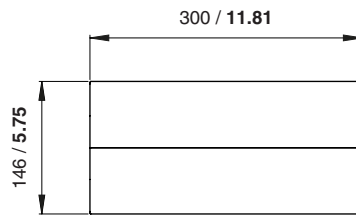
# Dimensional Data and Weight

## Dimensional Data in mm/inch

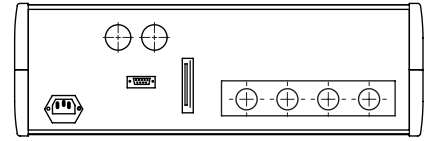
Front view



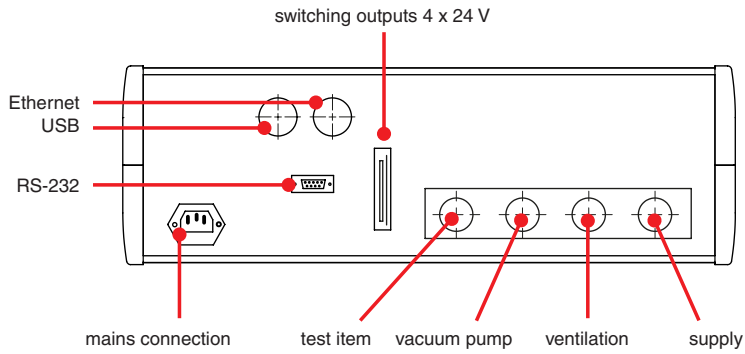
Lateral view



Back view



## Electrical connections and pressure connections – back



## Weight

Approx. 7.0 kg (15.43 lb)