



Brief Operating Instructions Cerabar PMP21

Process pressure measurement

These Instructions are Brief Operating Instructions; they are not a substitute for the Operating Instructions pertaining to the device.

Detailed information about the device can be found in the Operating Instructions and the other documentation:

Available for all device versions via:

- Internet: www.endress.com/deviceviewer
- Smart phone/tablet: *Endress+Hauser Operations App*

Basic safety instructions

Requirements for the personnel

- Personnel must meet the following requirements to perform their tasks:
- ▶ Trained, qualified specialists must be suitably qualified to perform this function and task
 - ▶ Are authorized by the plant owner/operator
 - ▶ Are familiar with federal/national regulations
 - ▶ They must have read and understood the instructions in the manual, supplementary documentation and certificates (depending on the application) prior to starting work
 - ▶ Follow instructions and comply with basic conditions

Intended use

The Cerabar is used to measure absolute and gauge pressure in gases, vapors and liquids. The process-wetted materials of the measuring device must have an adequate level of resistance to the media.

The measuring device may be used for the following measurements (process variables)

- in compliance with the limit values specified under "Technical data"
- in compliance with the conditions that are listed in additional documentation such as the XA and this manual.

Product identification

Manufacturer address

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany
Place of manufacture: See nameplate.

Mounting

Mounting requirements

- No moisture may enter the housing when installing or operating the device, or when establishing the electrical connection.
- For M12 plug made of metal: Do not remove the protective cap (only in IP69 and Ex ec version) of M12 plug connection until shortly before electrical connection.
- Do not clean or touch the process membrane with hard and/or pointed objects.
- Do not remove the protection on the process membrane until just before installation.
- Always firmly tighten the cable entry.
- Point the cable and plug downwards where possible to prevent moisture from entering (e.g. rain or condensation water).
- Protect housing against impact
- For devices with a gauge pressure measuring cell and M12 or valve plug, the following applies:

NOTICE

Measured process variable

PMP21: Gauge pressure or absolute pressure

Operational safety

Risk of injury!

- ▶ Operate the device in proper technical condition and fail-safe condition only.
- ▶ The operator is responsible for the interference-free operation of the device.

Hazardous area

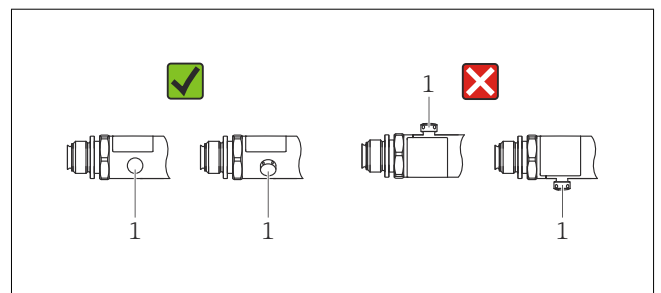
To eliminate the risk of danger to persons or the facility when the device is used in the approval-related area (e.g. explosion protection, pressure equipment safety):

- ▶ Check the nameplate to verify if the ordered device can be put to its intended use in the approval-related area.
- ▶ Observe the specifications in the separate supplementary documentation, such as the XA or SD, which is an integral part of these Instructions.

If a heated device is cooled during a cleaning process (e.g. by cold water), a vacuum develops for a short time and, as a result, moisture can enter the measuring cell through the pressure compensation element (1).

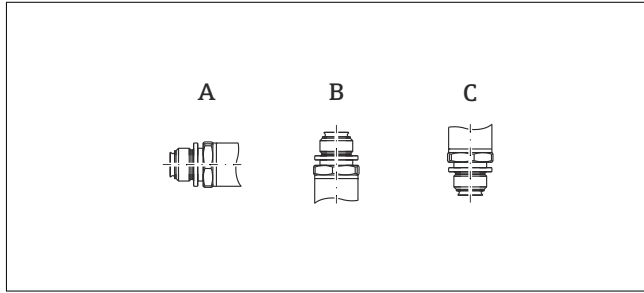
Device could be destroyed!

- ▶ Mount the device with the pressure compensation element (1) pointing diagonally downwards or to the side as much as possible.



Influence of the installation position

Any orientation is possible. However, the orientation may cause a zero point shift i.e. the measured value does not show zero when the vessel is empty or partially full, see the Operating Instructions.



Type	Process membrane axis is horizontal (A)	Process membrane pointing upwards (B)	Process membrane pointing downwards (C)
PMP21	Calibration position, no effect	Up to +4 mbar (+0.058 psi)	Up to -4 mbar (-0.058 psi)

Electrical connection

Connecting the measuring unit

Terminal assignment

⚠ WARNING

Risk of injury from the uncontrolled activation of processes!

- ▶ Switch off the supply voltage before connecting the device.
- ▶ Make sure that downstream processes are not started unintentionally.

⚠ WARNING

Supply voltage might be connected!

Explosion Hazard!

- ▶ Make sure that no supply voltage is applied when connecting.
- ▶ Switch off the supply voltage before connecting the device.

⚠ WARNING

An incorrect connection compromises electrical safety!

- ▶ In accordance with IEC/EN61010, a separate circuit breaker must be provided for the device.
- ▶ **Non-hazardous area:** To meet device safety specifications according to the IEC/EN61010 standard, the installation must ensure that the maximum current is limited to 500 mA.
- ▶ **Hazardous area:** The maximum current is restricted to $I_i = 100$ mA by the transmitter power supply unit when the device is used in an intrinsically safe circuit (Ex ia).
- ▶ When using the measuring device in hazardous areas, installation must also comply with the applicable national standards and regulations and the Safety Instructions or Installation or Control Drawings.
- ▶ All explosion-protection data are provided in separate Ex documentation that is available for order. The Ex documentation is supplied as standard with all devices approved for use in explosion hazardous areas.
- ▶ The maximum current is restricted to $I_i = 100$ mA by the transmitter power supply unit when the device is used in an intrinsically safe circuit (Ex ia).
- ▶ Protective circuits against reverse polarity are integrated.

Connect the device in the following order:

1. Check whether the supply voltage matches the supply voltage indicated on the nameplate.
2. Connect the device as indicated in the following diagram.

For devices with a cable connection: do not close reference air hose (see (a) in the following drawings)! Protect reference air hose against penetration by water/condensate.

Mounting location

Pressure measurement in gases

Mount the device with the shutoff device above the tapping point so that any condensate can flow into the process.

Pressure measurement in vapors

For pressure measurement in vapors, use a siphon. The siphon reduces the temperature to almost ambient temperature. Mount the device with the shutoff device at the same level as the tapping point.

Observe the max. permitted ambient temperature of the transmitter!

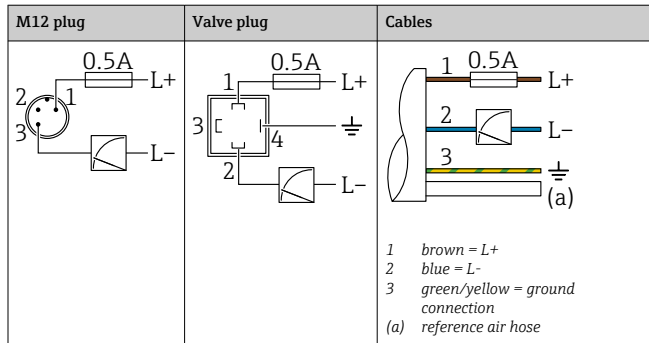
Pressure measurement in liquids

Mount the device with the shutoff device at the same level as the tapping point.

Level measurement

- Always install the device below the lowest measuring point.
- Do not install the device at the following positions:
 - In the filling curtain
 - In the tank outlet
 - in the suction area of a pump
 - Or at a point in the tank which could be affected by pressure pulses from the agitator.

4 to 20 mA output



For other connection options, see the Operating Instructions.

Supply voltage

⚠ WARNING

Supply voltage might be connected!

Explosion Hazard!

- ▶ When using the measuring device in hazardous areas, installation must comply with the corresponding national standards and regulations as well as the Safety Instructions.
- ▶ All explosion-protection data are provided in separate Ex documentation that is available for order. The Ex documentation is supplied as standard with all devices approved for use in explosion hazardous areas.

Electronic version	Supply voltage
4 to 20 mA output	10 to 30 V DC

Current consumption and alarm signal

Electronic version	Device	Current consumption	Alarm signal ¹⁾
4 to 20 mA output	PMP21	≤ 26 mA	> 21 mA

1) For MAX alarm (factory setting)