

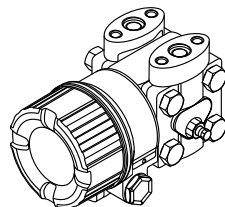
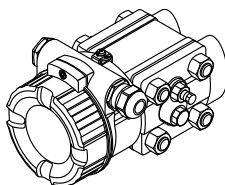
# Brief Operating Instructions

## Deltabar M PMD55

Differential pressure measurement

PROFIBUS PA

Differential pressure transmitter with metallic  
measuring cell



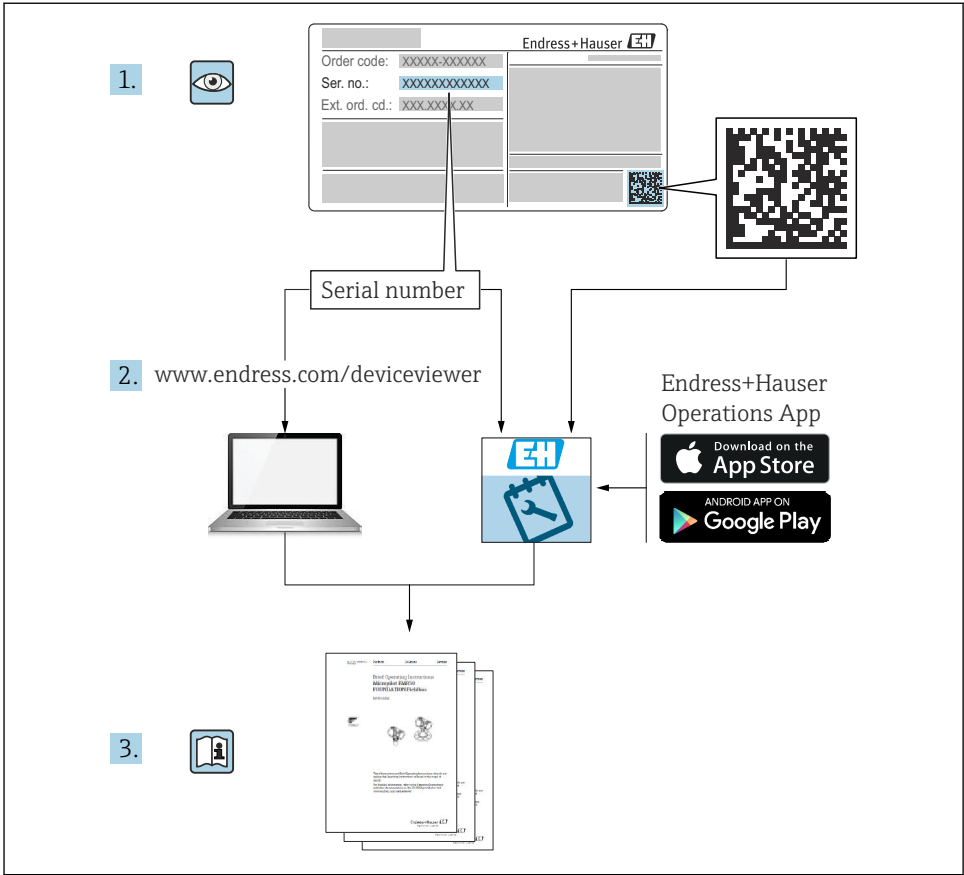
These Brief Operating Instructions are not a substitute for the Operating Instructions pertaining to the device.

Detailed information about the device can be found in the Operating Instructions and the additional documentation.

Available for all device versions via

- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smartphone/tablet: *Endress+Hauser Operations app*

# 1 Associated documentation



A0023555

## 2 About this document

### 2.1 Document function

The Brief Operating Instructions contain all the essential information from incoming acceptance to initial commissioning.

## 2.2 Symbols used

### 2.2.1 Safety symbols

#### **DANGER**

This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

#### **WARNING**

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.

#### **CAUTION**

This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.

#### **NOTICE**

This symbol contains information on procedures and other facts which do not result in personal injury.

### 2.2.2 Electrical symbols

#### **Protective earth (PE)**

Ground terminals that must be connected to ground prior to establishing any other connections.

The ground terminals are located on the interior and exterior of the device:

- Interior ground terminal: protective earth is connected to the mains supply.
- Exterior ground terminal: device is connected to the plant grounding system.

### 2.2.3 Symbols for certain types of information and graphics

#### **Symbols for certain types of information and graphics**

##### **Permitted**

Procedures, processes or actions that are permitted

##### **Forbidden**

Procedures, processes or actions that are forbidden

##### **Tip**

Indicates additional information



Reference to documentation



Reference to page



Visual inspection



Notice or individual step to be observed

**1, 2, 3, ...**

Item numbers

**1, 2, 3**

Series of steps



Result of a step

## 2.3 Registered trademarks

PROFIBUS PA®

Trademark of the PROFIBUS User Organization, Karlsruhe, Germany

# 3 Basic safety instructions

## 3.1 Requirements for the personnel

Personnel must meet the following requirements for 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
- ▶ They must follow instructions and comply with basic conditions

## 3.2 Intended use

The Deltabar M is a differential pressure transmitter for measuring differential pressure, flow and level.

### 3.2.1 Foreseeable incorrect use

The manufacturer is not liable for damage caused by improper or non-intended use.

Verification for borderline cases:

- ▶ For special fluids and fluids for cleaning, Endress+Hauser is glad to provide assistance in verifying the corrosion resistance of fluid-wetted materials, but does not accept any warranty or liability.

## 3.3 Workplace safety

For work on and with the device:

- ▶ Wear the required personal protective equipment according to federal/national regulations.
- ▶ Switch off the supply voltage before connecting the device.

### 3.4 Operational safety

Risk of injury!

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

#### Conversions to the device

Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers:

- ▶ If, despite this, modifications are required, consult with Endress+Hauser.

#### Repair

To ensure continued operational safety and reliability:

- ▶ Carry out repairs on the device only if they are expressly permitted.
- ▶ Observe federal/national regulations pertaining to repair of an electrical device.
- ▶ Use original spare parts and accessories from Endress+Hauser only.

#### Hazardous area

To eliminate a danger for persons or for the facility when the device is used in the hazardous area (e.g. explosion protection, pressure vessel safety):

- ▶ Based on the nameplate, check whether the ordered device is permitted for the intended use in the hazardous area.
- ▶ Observe the specifications in the separate supplementary documentation that is an integral part of these Instructions.

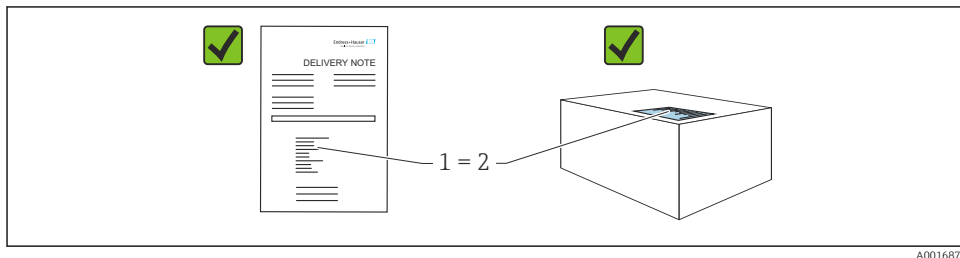
### 3.5 Product safety

This measuring device is designed in accordance with good engineering practice to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which they are safe to operate.

It fulfills general safety requirements and legal requirements. It also conforms to the EC directives listed in the device-specific EC declaration of conformity. Endress+Hauser confirms this fact by applying the CE mark.

## 4 Incoming acceptance and product identification

### 4.1 Incoming acceptance



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- Is the order code on the delivery note (1) identical to the order code on the product sticker (2)?
- Are the goods undamaged?
- Do the data on the nameplate correspond to the order specifications and the delivery note?
- Is the documentation available?
- If required (see nameplate): Are the safety instructions (XA) present?



If one of these conditions is not fulfilled, please contact your Endress+Hauser sales office.

## 4.2 Storage and transport

### 4.2.1 Storage conditions

Use original packaging.

Store the measuring device in clean and dry conditions and protect from damage caused by shocks (EN 837-2).

### 4.2.2 Transporting the product to the measuring point

#### **WARNING**

#### **Incorrect transport!**

Housing and membrane may become damaged, and there is a risk of injury!

- ▶ Transport the measuring device to the measuring point in its original packaging or by the process connection.
- ▶ Follow the safety instructions and transport conditions for devices weighing more than 18 kg (39.6 lbs).

## 5 Mounting

### 5.1 Mounting requirements

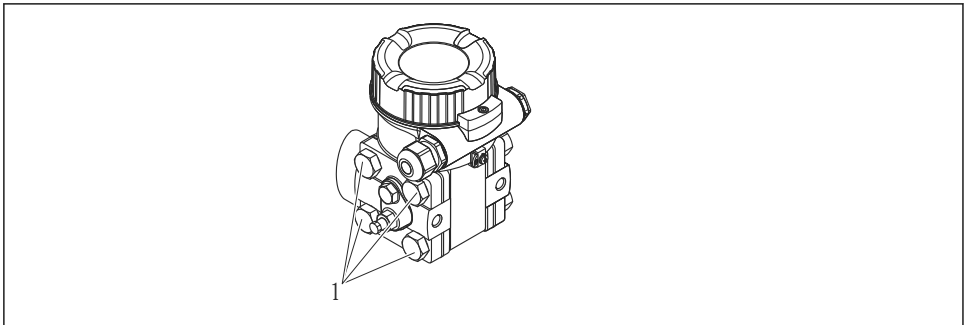
### 5.2 Installing the

#### NOTICE

#### Incorrect handling!

Damage of the device!

- Disassembly of the screws with item number (1) is not permissible under any circumstances and will result in loss of warranty.



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#### 5.2.1 Orientation

- Due to the orientation of the Deltabar M, there may be a shift in the measured value, i.e. when the container is empty, the measured value does not display zero. You may correct this zero point shift by a position adjustment in one of the following ways:
  - Via the keys on the electronics module (→ 16, "Function of the operating elements")
  - Via the operating menu (, "Position adjustment")
- Refer to the relevant national or international standards for general recommendations on laying the piping.
- Using a three-valve or five-valve manifold allows for easy commissioning, installation and maintenance without interrupting the process.
- When routing the impulse piping outdoors, ensure that sufficient anti-freeze protection is used, e.g. by using pipe heat tracing.
- Lay the piping with a monotonic gradient of at least 10 %.
- Endress+Hauser offers a mounting bracket for mounting on pipes or walls (, "Wall and pipe mounting (optional)").

#### Installation position for flow measurement

##### *Flow measurement in gases*

Mount the Deltabar M above the measuring point so that the condensate which may be present, can run off into the process piping.

### *Flow measurement in vapors*

- Mount the Deltabar M below the measuring point.
- Mount the condensate traps at the same level as the tapping points and at the same distance to the Deltabar M.
- Prior to commissioning, fill the impulse piping to the height of the condensate traps.

### *Flow measurement in liquids*

- Mount the Deltabar M below the measuring point so that the impulse piping is always filled with liquid and gas bubbles can run back into the process piping.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

## **Installation position for level measurement**

### *Level measurement in an open container*

- Mount the Deltabar M below the lower measuring connection so that the impulse piping is always filled with liquid.
- The low-pressure side is open to atmospheric pressure.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

### *Level measurement in a closed container*

- Mount the Deltabar M below the lower measuring connection so that the impulse piping is always filled with liquid.
- Always connect the low-pressure side above the maximum level.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

### *Level measurement in a closed container with superimposed steam*

- Mount the Deltabar M below the lower measuring connection so that the impulse piping is always filled with liquid.
- Always connect the low-pressure side above the maximum level.
- A condensate trap ensures constant pressure on the low-pressure side.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

## **Installation position for differential pressure measurement**

### *Differential pressure measurement in gases and vapors*

- Mount the Deltabar M above the measuring point so that the condensate which may be present, can run off into the process piping.
- The low-pressure side is open to atmospheric pressure.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

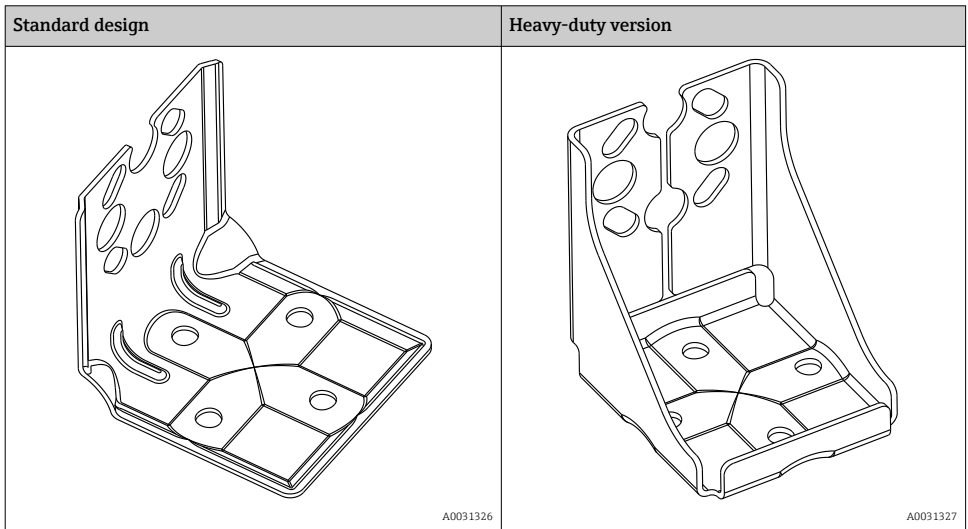


### Differential pressure measurement in liquids

- Mount the Deltabar M below the measuring point so that the impulse piping is always filled with liquid and gas bubbles can run back into the process piping.
- When measuring in media with solid parts, such as dirty liquids, installing separators and drain valves is useful for capturing and removing sediment.

### 5.2.2 Wall and pipe-mounting

Endress+Hauser offers the following mounting brackets for installing the device on pipes or walls:



The standard mounting bracket version is **not** suitable for use in an application subject to vibrations.

The vibration resistance of the heavy-duty version of the mounting bracket has been tested according to IEC 61298-3, see the "Vibration resistance" section in the Technical Information.

When using a valve block, the block's dimensions must be taken into account.

Bracket for wall and pipe mounting including retaining bracket for pipe mounting and two nuts.

Technical data (e.g. dimensions or order numbers for screws) see accessory document SD01553P/00/EN.

Please note the following when mounting:

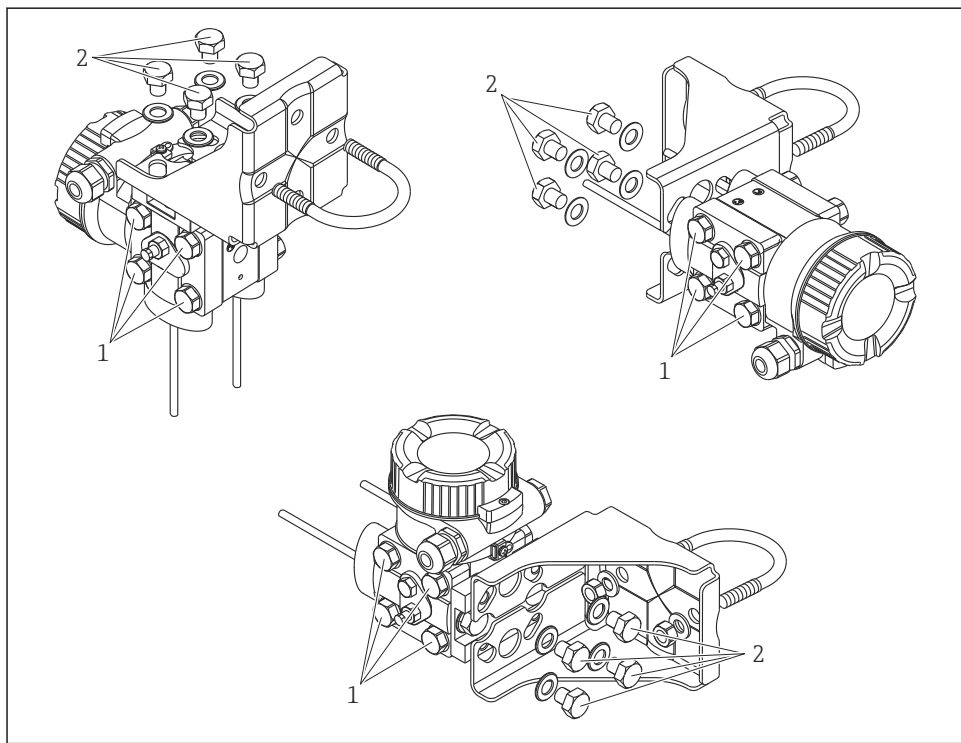
- To prevent the mounting screws from scoring, lubricate them with a multi-purpose grease prior to mounting.
- In the case of pipe mounting, the nuts on the bracket must be tightened uniformly with a torque of at least 30 Nm (22.13 lbf ft).
- For installation purposes, only use the screws with item number (2) (see the following diagram).

#### NOTICE

##### **Incorrect handling!**

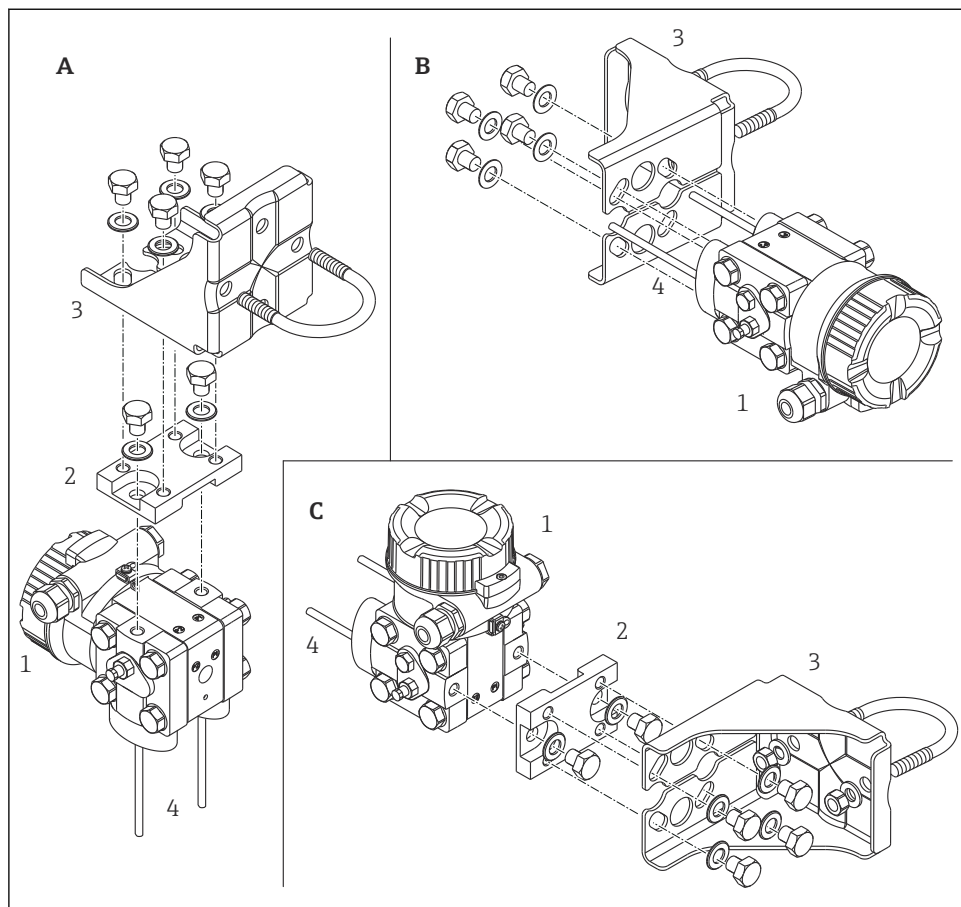
Damage of the device!

- Disassembly of the screws with item number (1) is not permissible under any circumstances and will result in loss of warranty.



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## Typical installation arrangements



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- A Impulse line vertical, version V1, alignment 90°  
 B Impulse line horizontal, version H1, alignment 180°  
 C Impulse line horizontal, version H2, alignment 90°  
 1 Deltabar M  
 2 Adapter plate  
 3 Mounting bracket  
 4 Pressure line

## 6 Electrical connection

### 6.1 Connecting requirements

#### 6.1.1 Shielding/potential equalization

- You achieve optimum shielding against disturbances if the shielding is connected on both sides (in the cabinet and on the device). If potential equalization currents are expected in the plant, only ground shielding on one side, preferably at the transmitter.
- When using in hazardous areas, you must observe the applicable regulations. Separate Ex documentation with additional technical data and instructions is included with all Ex systems as standard. Connect all devices to the local potential equalization.

### 6.2 Connecting the device

#### **WARNING**

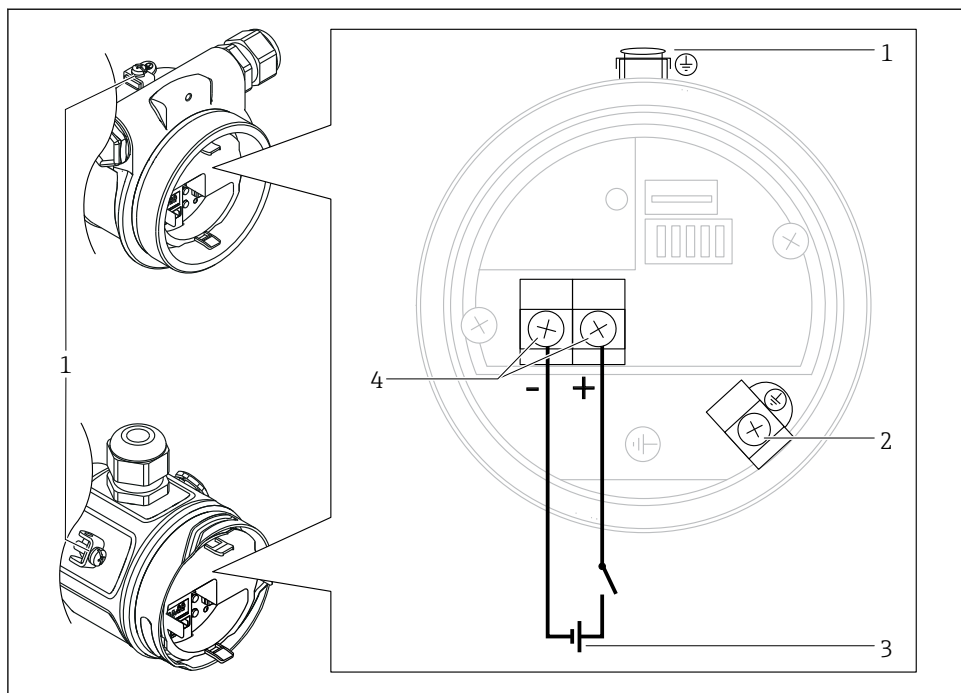
##### **Supply voltage might be connected!**

Risk of electric shock and/or explosion!

- ▶ Ensure that no uncontrolled processes are activated at the facility.
- ▶ Switch off the supply voltage before connecting the device.
- ▶ 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.
- ▶ In accordance with IEC/EN61010 a suitable circuit breaker must be provided for the device.
- ▶ Devices with integrated overvoltage protection must be grounded.
- ▶ Protective circuits against reverse polarity, HF influences and overvoltage peaks are integrated.

Connect the device in the following order:

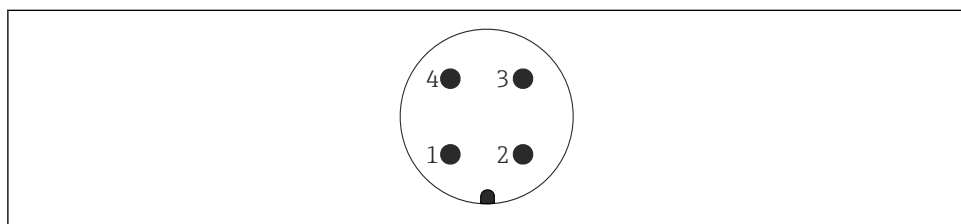
1. Check whether the supply voltage matches the supply voltage indicated on the nameplate.
2. Switch off the supply voltage before connecting the device.
3. Remove the housing cover.
4. Guide the cable through the gland. Preferably use a twisted, shielded two-wire cable.
5. Connect the device as indicated in the following diagram.
6. Screw down the housing cover.
7. Switch on the supply voltage.



A0029967

- 1 External ground terminal
- 2 Grounding terminal
- 3 PROFIBUS PA: Supply voltage: 9...32 VDC (Segment coupler)
- 4 Terminals for supply voltage and signal

### 6.2.1 Connection of devices with M12 plug



A0011175

- 1 Signal +
- 2 Not assigned
- 3 Signal -
- 4 Ground

6.2.2      **Supply voltage**

**PROFIBUS PA**

Version for non-hazardous areas: 9 to 32 V DC

6.2.3      **Current consumption**

11 mA ±1 mA, switch-on current corresponds to IEC 61158-2, Clause 21.


6.2.4      **Terminals**

- Supply voltage and internal ground terminal: 0.5 to 2.5 mm<sup>2</sup> (20 to 14 AWG)
- External ground terminal: 0.5 to 4 mm<sup>2</sup> (20 to 12 AWG)

6.2.5      **Cable specification**

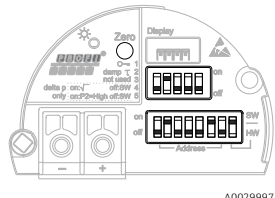

**PROFIBUS PA**

- Use a twisted, shielded two-wire cable, preferably cable type A.
- Cable outer diameter: 5 to 9 mm (0.2 to 0.35 in) depending on the cable gland used

 For further information on the cable specifications, see Operating Instructions BA00034S "PROFIBUS DP/PA: Guidelines for planning and commissioning", the PNO Guideline 2.092 "PROFIBUS PA User and Installation Guideline" and IEC 61158-2 (MBP).

7            **Operation options**

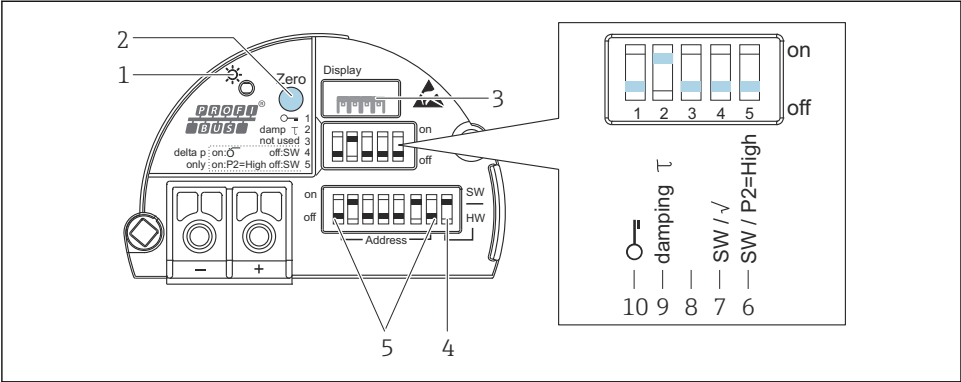
7.1        **Operation without an operating menu**

Operation options	Explanation	Graphic	Description
Local operation without device display	The device is operated using the operating keys and the DIP switches on the electronic insert.		→  15

7.1.1      **Position of operating elements**

The operating key and DIP switches are located on the electronic insert in the device.


PROFIBUS PA



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- 1 Green LED to indicate successful operation
- 2 Operating key for position zero adjustment (Zero) or reset
- 3 Slot for optional local display
- 4 DIP-switch for bus address SW / HW
- 5 DIP-switch for hardware address
- 6 DIP switch used to determine the high-pressure side
- 7 DIP switch used to control the output characteristics and measuring mode
- 8 Not used
- 9 DIP switch for switching damping on/off
- 10 DIP switch for locking/unlocking parameters relevant to the measured value

Function of the DIP switches

Symbol/ labeling	Switch position	
	"off"	"on"
 A0011978	The device is unlocked. Parameters relevant to the measured value can be modified.	The device is locked. Parameters relevant to the measured value cannot be modified.
damping τ	Damping is switched off. The output signal follows measured value changes without any delay.	Damping is switched on. The output signal follows measured value changes with the delay time τ. <sup>1)</sup>
Address	Set the device address using switches 1-7	
SW / HW	Hardware addressing	Software addressing

Symbol/ labeling	Switch position	
	"off"	"on"
SW/√	The measuring mode and output characteristics is defined by the setting in the operating menu. <ul style="list-style-type: none"> <li>■ "Setup" → "Measuring mode"</li> <li>■ "Setup" → "Extended setup"</li> </ul>	The measuring mode is "Flow" and the output characteristic is "Square root" regardless of the setting in the operating menu.
SW/P2= High	The high-pressure (+/HP) side is defined by the setting in the operating menu. ("Setup" → "High Press. Side")	The high-pressure side (+/HP) is allocated to the P2 pressure connection regardless of the setting in the operating menu.

- 1) The value for the delay time can be configured via the operating menu ("Setup" → "Damping"). Factory setting:  $\tau = 2 \text{ s}$  or as per order specifications.

### Function of the operating elements

Key	Meaning
<b>Zero</b> pressed for at least 3 seconds	<b>Position adjustment</b> Press key for at least 3 seconds. The LED on the electronic insert lights up briefly if the pressure applied has been accepted for position adjustment. See also the following Section "Performing position adjustment on site."
<b>Zero</b> pressed for at least 12 seconds	<b>Reset</b> All the parameters are reset to the order configuration.

### Performing position adjustment on site

- Operation must be unlocked.
- The device is configured for the "Pressure" measuring mode (Cerabar, Deltabar) or "Level" measuring mode (Deltapilot) as standard.
- The pressure applied must be within the nominal pressure limits of the sensor. See information on the nameplate.

Perform position adjustment:

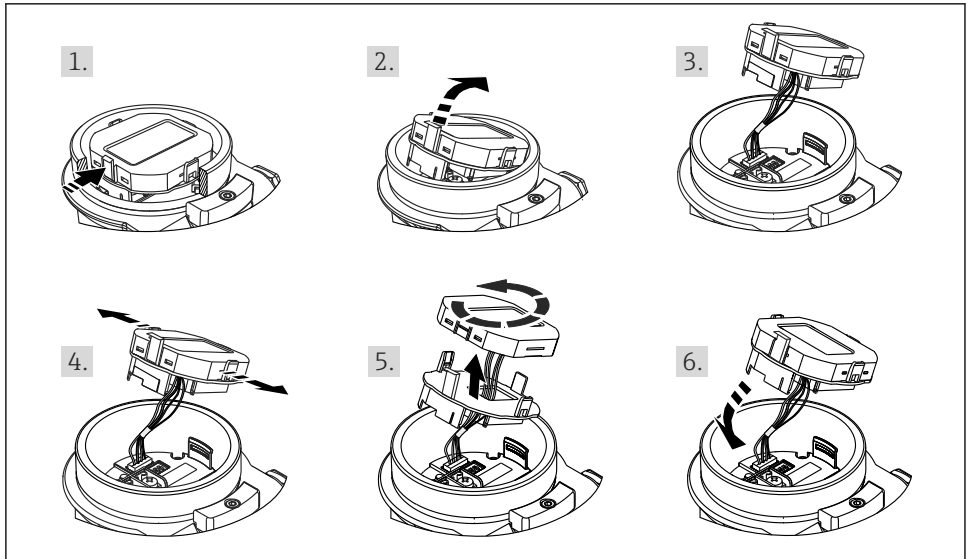
1. Pressure is present at the device.
2. Press key for at least 3 seconds.
3. If the LED on the electronic insert lights up briefly, the pressure applied has been accepted for position adjustment. If the LED does not light up, the pressure applied was not accepted. Observe the input limits. For error messages see the Operating Instructions.

## 7.2 Operation with device display (optional)

A 4-line liquid crystal display (LCD) is used for display and operation. The local display shows measured values, dialog texts, fault messages and notice messages. For easy operation the display can be taken out of the housing (see figure steps 1 to 3). It is connected to the device via a cable that is 90 mm (3.54 in) long. The display of the device can be turned in 90° stages



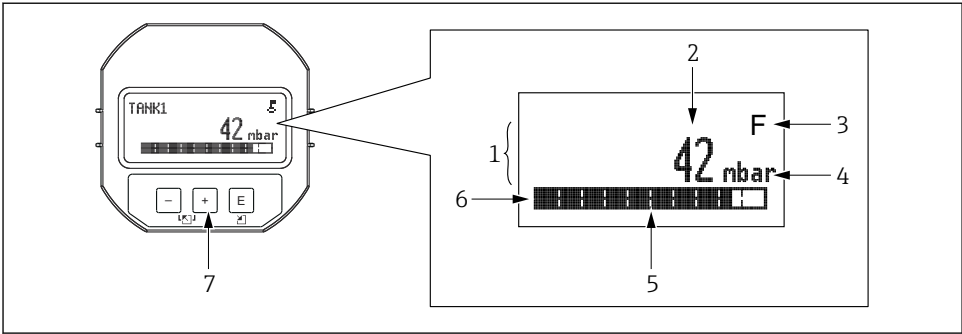
(see figure steps 4 to 6). Depending on the installation position of the device, this makes it easy to operate the device and read the measured values.



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#### Functions:








- 8-digit measured value display including sign and decimal point.
- Bar graph as graphic display of the standardized value of the Analog Input Block ("Scaling the output value (OUT Value)", figure)
- Three keys for operation
- Simple and complete menu guidance due to breakdown of parameters into several levels and groups
- Each parameter is given a 3-digit parameter code for easy navigation
- Possibility of configuring the display to suit individual requirements and preferences, e.g. language, alternating display, display of other measured values such as sensor temperature, contrast setting
- Comprehensive diagnostic functions (fault and warning message etc.)












A0030013

- 1 Main line
- 2 Value
- 3 Symbol
- 4 Unit
- 5 Bar graph
- 6 Information line
- 7 Operating keys

The following table illustrates the symbols that can appear on the local display. Four symbols may appear at the same time.





Symbol	Meaning
 A0018154	<b>Lock symbol</b> The operation of the device is locked. Unlock the device, .
 A0018155	<b>Communication symbol</b> Data transfer via communication
 A0030015	<b>Root symbol</b> Active measuring mode "Flow measurement" The root flow signal is used for the current output.
 A0013958	<b>Error message "Out of specification"</b> The device is being operated outside its technical specifications (e.g. during startup or cleaning).
 A0013959	<b>Error message "Service mode"</b> The device is in the service mode (e.g. during a simulation).
 A0013957	<b>Error message "Maintenance required"</b> Maintenance is required. The measured value remains valid.
 A0013956	<b>Error message "Failure detected"</b> An operating error has occurred. The measured value is no longer valid.

### 7.2.1 Operating keys on the display and operating module

Operating key(s)	Meaning
 A0017879	<ul style="list-style-type: none"> <li>▪ Navigate down in the picklist</li> <li>▪ Edit the numerical values or characters within a function</li> </ul>
 A0017880	<ul style="list-style-type: none"> <li>▪ Navigate up in the picklist</li> <li>▪ Edit the numerical values or characters within a function</li> </ul>
 A0017881	<ul style="list-style-type: none"> <li>▪ Confirm entry</li> <li>▪ Jump to the next item</li> <li>▪ Select a menu item and activate the edit mode</li> </ul>
 and  A0017879      A0017881	Contrast setting of local display: darker
 and  A0017880      A0017881	Contrast setting of local display: brighter
 and  A0017879      A0017880	<b>ESC functions:</b> <ul style="list-style-type: none"> <li>▪ Exit edit mode for a parameter without saving the changed value</li> <li>▪ You are in a menu at a selection level. Each time you press the keys simultaneously, you go up a level in the menu.</li> </ul>

### 7.2.2 Operating example: Parameters with a picklist











Example: selecting "Deutsch" as the language of the menu.

	Language	000	Operation
1	✓ English Deutsch		"English" is set as the menu language (default value). A ✓ in front of the menu text indicates the option that is currently active.
2	Deutsch ✓ English		Select "Deutsch" with  or  .
3	✓ Deutsch English		<ul style="list-style-type: none"> <li>▪ Select  to confirm. A ✓ in front of the menu text indicates the active option ("Deutsch" is now selected as the menu language).</li> <li>▪ Use  to exit the edit mode for the parameter.</li> </ul>

### 7.2.3 Operating example: User-definable parameters

Example: Setting the "Set URV (014)" parameter from 100 mbar (1.5 psi) to 50 mbar (0.75 psi).





Menu path: Setup → Extended setup → Current output → Set URV

	Set URV	014	Operation
1	<div>1 0 0 . 0 0 0</div>	mbar	The local display shows the parameter to be changed. The "mbar" unit is defined in another parameter and cannot be changed here.
2	<div>1 0 0 . 0 0 0</div>	mbar	Press  or  to enter the edit mode. The first digit is highlighted in black.
3	<div>5 0 0 . 0 0 0</div>	mbar	Use the  key to change "1" to "5". Press the  key to confirm "5". The cursor jumps to the next position (highlighted in black). Confirm "0" with  (second position).
4	<div>5 0 0 . 0 0 0</div>	mbar	The third digit is highlighted in black and can now be edited.
5	<div>5 0 ↵ . 0 0 0</div>	mbar	Use the  key to change to the "↵" symbol. Use  to save the new value and exit the edit mode. See next graphic.
6	<div>5 0 . 0 0 0</div>	mbar	The new value for the upper range value is 50 mbar (0.75 psi). Use  to exit the edit mode for the parameter. Use  or  to return to the edit mode.

7.2.4      **Operating example: Accepting the pressure present**

Example: Setting position adjustment.

Menu path: Main menu → Setup → Position adjustment

	Position adjustment	007	Operation
1	✓ Cancel Confirm		The pressure for position adjustment is present at the device.
2	Cancel ✓ Confirm		Use  or  to switch to the "Confirm" option. The active option is highlighted in black.
3	Adjustment has been accepted!		Use the  key to accept the applied pressure for position adjustment. The device confirms the adjustment and goes back to the "Position adjustment" parameter.
4	✓ Cancel Confirm		Use  to exit the edit mode for the parameter.

## 8 Commissioning

The device is configured for the "Pressure" measuring mode as standard.

The measuring range and the unit in which the measured value is transmitted correspond to the data on the nameplate.

### WARNING

#### **The permitted process pressure is exceeded!**

Risk of injury if parts burst! Warnings are displayed if the pressure is too high.

- ▶ If a pressure smaller than the minimum permitted pressure or greater than the maximum permitted pressure is present at the device, the following messages are output in succession (depending on the setting in the "Alarm behavior" (050) parameter): "S140 Working range P" or "F140 Working range P" "S841 Sensor range" or "F841 Sensor range" "S971 Adjustment"
- ▶ Only use the device within the sensor range limits!

### **NOTICE**


#### **The permitted process pressure is undershot!**

Messages are displayed if the pressure is too low.

- ▶ If a pressure smaller than the minimum permitted pressure or greater than the maximum permitted pressure is present at the device, the following messages are output in succession (depending on the setting in the "Alarm behavior" (050) parameter): "S140 Working range P" or "F140 Working range P" "S841 Sensor range" or "F841 Sensor range" "S971 Adjustment"
- ▶ Only use the device within the sensor range limits!


## 8.1 Commissioning with an operating menu

### 8.1.1 Selecting the language, measuring mode and pressure unit

Language (000)	
Navigation	 Main menu → Language
Write permission	Operator/Maintenance/Expert
Description	Select the menu language for the local display.
Selection	<ul style="list-style-type: none"> <li>■ English</li> <li>■ Another language (as selected when ordering the device)</li> <li>■ A third language where applicable (language of the place of manufacture)</li> </ul>
Factory setting	English

<b>Press. eng. unit (125)</b>	
<b>Write permission</b>	Operator/Maintenance/Expert
<b>Description</b>	Select the pressure unit. If a new pressure unit is selected, all pressure-specific parameters are converted and displayed with the new unit.
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH2O, mH2O</li> <li>■ inH2O, ftH2O</li> <li>■ Pa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ kgf/cm<sup>2</sup></li> </ul>
<b>Factory setting</b>	mbar or bar depending on the nominal measuring range of the sensor, or as per order specifications.

### 8.1.2 Position adjustment

<b>Corrected press. (172)</b>	
<b>Navigation</b>	 Setup → Corrected press.
<b>Write permission</b>	Operator/Maintenance/Expert
<b>Description</b>	Displays the measured pressure after sensor trim and position adjustment.
<b>Note</b>	If this value is not equal to "0", it can be corrected to "0" by the position adjustment.
<b>Pos. zero adjust (007) (gauge pressure sensors)</b>	
<b>Write permission</b>	Operator/Maintenance/Expert

<b>Description</b>	Pos. zero adjustment – the pressure difference between zero (set point) and the measured pressure need not be known.
<b>Example</b>	<ul style="list-style-type: none"> <li>■ Measured value = 2.2 mbar (0.033 psi)</li> <li>■ You correct the measured value via the "Pos. zero adjust" parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li> <li>■ Measured value (after pos. zero adjustment) = 0.0 mbar</li> <li>■ The current value is also corrected.</li> </ul>
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Confirm</li> <li>■ Cancel</li> </ul>
<b>Factory setting</b>	Cancel

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#### **Calib. offset (192) / (008) (absolute pressure sensor)**

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<b>Write permission</b>	Maintenance/Expert
<b>Description</b>	Position adjustment – the pressure difference between the set point and the measured pressure must be known.
<b>Example</b>	<ul style="list-style-type: none"> <li>■ Measured value = 982.2 mbar (14.73 psi)</li> <li>■ You correct the measured value with the value entered, e.g. 2.2 mbar (0.033 psi) via the "Calib. offset" parameter. This means that you are assigning the value to the pressure present 980.0 mbar (14.7 psi).</li> <li>■ Measured value (after pos. zero adjustment) = 980.0 mbar (14.7 psi)</li> <li>■ The current value is also corrected.</li> </ul>
<b>Factory setting</b>	0.0

## 8.2 Configuring pressure measurement



### 8.2.1 Calibration without reference pressure (dry calibration)


**Example:**

In this example, a device with a 400 mbar (6 psi) sensor is configured for the 0 to +300 mbar (0 to 4.5 psi) measuring range, i.e. are assigned 0 mbar and 300 mbar (4.5 psi) respectively.

**Prerequisite:**

This is a theoretical calibration, i.e. the pressure values for the lower and upper range are known.

 Due to the orientation of the device, there may be pressure shifts in the measured value, i.e. the measured value is not zero in an unpressurized state. For information on how to perform position adjustment, see →  21.

Description	
1	Select the "Pressure" measuring mode via the "Measuring mode" parameter. Menu path: Setup → Measuring mode   <b>WARNING</b> <b>Changing the measuring mode affects the span (URV)</b> This situation can result in product overflow. ► If the measuring mode is changed, the setting for the span (URV) must be checked in the "Setup" operating menu and readjusted if necessary.
2	Select a pressure unit via the "Press. eng. unit" parameter, here "mbar" for example. Menu path: Setup → Press. eng. unit
3	If necessary, scale the "OUT Value" of the Analog Input Block, , parameter descriptions for "Measured value scaling" and "Output scaling".
4	Result: The measuring range is configured for 0 to +300 mbar (0 to 4.5 psi).



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