Products   Solutions   Services

Brief Operating Instructions
Dosimass

Coriolis flowmeter

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 other documentation:

- Internet: www.endress.com/deviceviewer
- Smartphone/tablet: *Endress+Hauser Operations app*

Endress+Hauser 🎯

People for Process Automation

Serial number

1.

2. www.endress.com/deviceviewer

Endress+Hauser
Operations App

3.

A0023555

Table of contents

1   About this document

1.1   Symbols

1.1.1   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 potentially dangerous situation. Failure to avoid this situation can result in serious or fatal injury.

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

NOTICE
This symbol alerts you to a potentially harmful situation. Failure to avoid this situation can result in damage to the product or something in its vicinity.

1.1.2   Symbols for certain types of information

Symbol	Meaning	Symbol	Meaning
✔	**Permitted** Procedures, processes or actions that are permitted.	✔✔	**Preferred** Procedures, processes or actions that are preferred.
✘	**Forbidden** Procedures, processes or actions that are forbidden.	🛈	**Tip** Indicates additional information.
📖	Reference to documentation	📄	Reference to page
🖼	Reference to graphic	1., 2., 3.…	Series of steps
↳	Result of a step	👁	Visual inspection

1.1.3   Electrical symbols

Symbol	Meaning	Symbol	Meaning
⎓	Direct current	∼	Alternating current
≂	Direct current and alternating current	⏚	**Ground connection** A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.

Symbol	Meaning
⏚	**Potential equalization connection (PE: protective earth)** 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: potential equalization is connected to the supply network. • Exterior ground terminal: device is connected to the plant grounding system.

1.1.4   Tool symbols

Symbol	Meaning	Symbol	Meaning
✪ ✎	Torx screwdriver	◖ ✎	Flat-blade screwdriver
✚ ✎	Phillips head screwdriver	⬡ ✎	Allen key
✎	Open-ended wrench		

1.1.5   Symbols in graphics

Symbol	Meaning	Symbol	Meaning
1, 2, 3,...	Item numbers	1., 2., 3....	Series of steps
A, B, C, ...	Views	A-A, B-B, C-C, ...	Sections
⟨EX⟩	Hazardous area	⬡̸	Safe area (non-hazardous area)
≈➡	Flow direction		

2   Safety instructions

2.1   Requirements for the personnel

The personnel must fulfill the following requirements for its tasks:
▶ Trained, qualified specialists must have a relevant qualification for this specific function and task.
▶ Are authorized by the plant owner/operator.
▶ Are familiar with federal/national regulations.
▶ Before starting work, read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
▶ Follow instructions and comply with basic conditions.

2.2 Intended use

Application and media
The measuring device described in this manual is intended only for the flow measurement of liquids and gases.

Depending on the version ordered, the measuring instrument can also be used to measure potentially explosive [1], flammable, toxid and oxidizing media.

Measuring instruments for use in hazardous areas, in hygienic applications, or where there is an increased risk due to pressure, are specially labeled on the nameplate.

To ensure that the measuring instrument is in perfect condition during operation:
▶ Only use the measuring instrument in full compliance with the data on the nameplate and the general conditions listed in the Operating Instructions and supplementary documentation.
▶ Using the nameplate, check whether the ordered device is permitted for the intended use in the hazardous area (e.g. explosion protection, pressure vessel safety).
▶ Use the measuring instrument only for media to which the process-wetted materials are sufficiently resistant.
▶ Keep within the specified pressure and temperature range.
▶ Keep within the specified ambient temperature range.
▶ Protect the measuring instrument permanently against corrosion from environmental influences.

Incorrect use
Non-designated use can compromise safety. The manufacturer is not liable for damage caused by improper or non-designated use.

⚠ WARNING

Danger of breakage due to corrosive or abrasive fluids and ambient conditions!
▶ Verify the compatibility of the process fluid with the sensor material.
▶ Ensure the resistance of all fluid-wetted materials in the process.
▶ Keep within the specified pressure and temperature range.

NOTICE

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 as minute changes in the temperature, concentration or level of contamination in the process can alter the corrosion resistance properties.

Residual risks

⚠ CAUTION

Risk of hot or cold burns! The use of media and electronics with high or low temperatures can produce hot or cold surfaces on the device.
▶ Mount suitable touch protection.

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1)   Not applicable for IO-Link measuring instruments

2.3   Workplace safety

When working on and with the device:
▶ Wear the required personal protective equipment as per national regulations.

2.4   Operational safety

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

2.5   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 it is safe to operate.

It meets general safety standards and legal requirements. It also complies with the EU directives listed in the device-specific EU Declaration of Conformity. The manufacturer confirms this by affixing the CE mark to the device..

2.6   IT security

Our warranty is valid only if the product is installed and used as described in the Operating Instructions. The product is equipped with security mechanisms to protect it against any inadvertent changes to the settings.

IT security measures, which provide additional protection for the product and associated data transfer, must be implemented by the operators themselves in line with their security standards.

3   Incoming acceptance and product identification

3.1   Incoming acceptance

On receipt of the delivery:

1. Check the packaging for damage.
   ↳ Report all damage immediately to the manufacturer.
     Do not install damaged components.

2. Check the scope of delivery using the delivery note.

3. Compare the data on the nameplate with the order specifications on the delivery note.

4. Check the technical documentation and all other necessary documents, e.g. certificates, to ensure they are complete.

ℹ If one of the conditions is not satisfied, contact the manufacturer.

3.2   Product identification

The device can be identified in the following ways:
- Nameplate
- Order code with details of the device features on the delivery note
- Enter the serial numbers from the nameplates in the *Device Viewer* (www.endress.com/deviceviewer): all the information about the device is displayed.
- Enter the serial numbers from the nameplates into the *Endress+Hauser Operations app* or scan the DataMatrix code on the nameplate with the *Endress+Hauser Operations app*: all the information about the device is displayed.
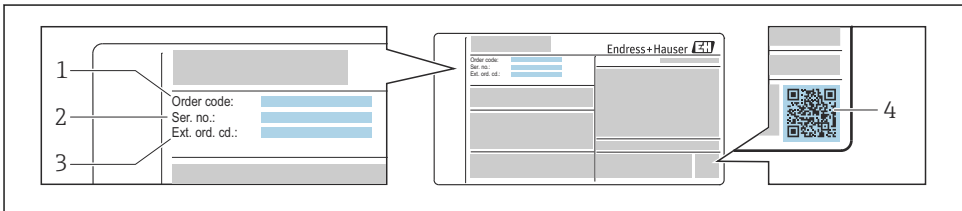
A0030196

🖂 *1   Example of a nameplate*

1   Order code
2   Serial number
3   Extended order code
4   2-D matrix code (QR code)

> For detailed information on the data on the nameplate, see the Operating Instructions for the device.

4   Storage and transport

4.1   Storage conditions

Observe the following notes for storage:
▸ Store in the original packaging to ensure protection from shock.
▸ Do not remove protective covers or protective caps installed on process connections. They prevent mechanical damage to the sealing surfaces and contamination in the measuring tube.
▸ Protect from direct sunlight. Avoid unacceptably high surface temperatures.
▸ Store in a dry and dust-free place.
▸ Do not store outdoors.

Storage temperature → 🖺 15

4.2   Transporting the product

Transport the measuring instrument to the measuring point in the original packaging.

> Do not remove protective covers or caps installed on process connections. They prevent
> mechanical damage to the sealing surfaces and contamination in the measuring tube.

4.3   Packaging disposal

All packaging materials are environmentally friendly and 100% recyclable:
• Outer packaging of device
  Stretch wrap made of polymer in accordance with EU Directive 2002/95/EC (RoHS)
• Packaging
  • Wood crate treated in accordance with ISPM 15 standard, confirmed by IPPC logo
  • Cardboard box in accordance with European packaging guideline 94/62/EC, recyclability
    confirmed by Resy symbol
• Transport material and fastening fixtures
  • Disposable plastic pallet
  • Plastic straps
  • Plastic adhesive strips
• Filler material
  Paper pads

5   Mounting

5.1   Mounting requirements

5.1.1   Mounting position

Installation point
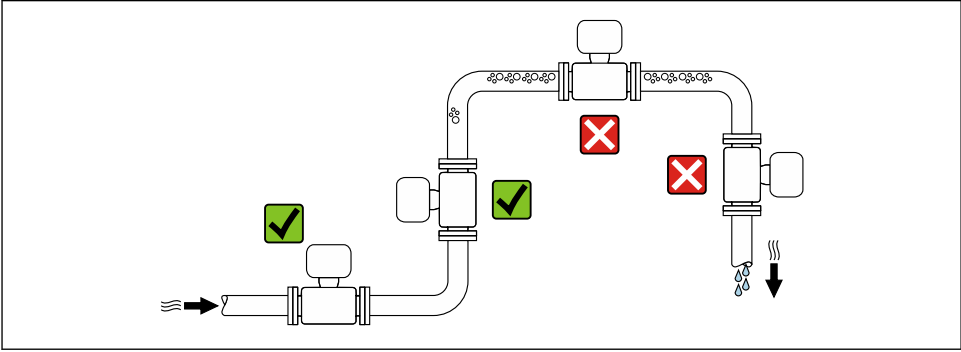
A0028772

Installation in down pipes

However, the following installation suggestion allows for installation in an open vertical pipeline. Pipe restrictions or the use of an orifice with a smaller cross-section than the nominal diameter prevent the sensor running empty while measurement is in progress.
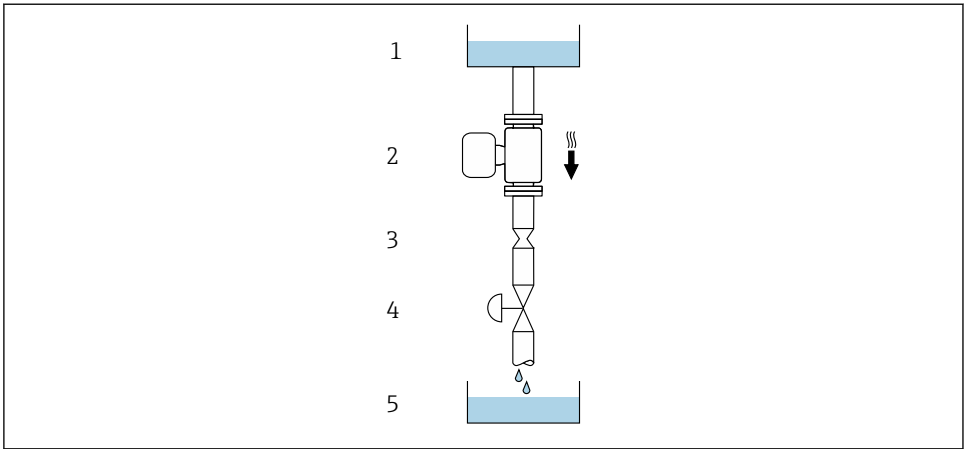
A0028773

⊡ *2   Installation in a down pipe (e.g. for batching applications)*
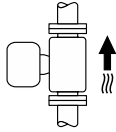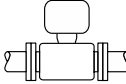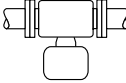
1   Supply tank
2   Sensor
3   Orifice plate, pipe restriction
4   Valve
5   Filling vessel

DN		Ø orifice plate, pipe restriction	
[mm]	[in]	[mm]	[in]
1	$\frac{1}{24}$	0.8	0.03
2	$\frac{1}{12}$	1.5	0.06
4	$\frac{1}{8}$	3.0	0.12
8	$\frac{3}{8}$	6	0.24
15	½	10	0.40
25	1	14	0.55
40	1 ½	22	0.87

Orientation
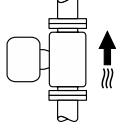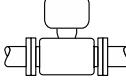
The direction of the arrow on the sensor nameplate helps you to install the sensor according to the flow direction.
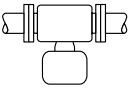
Recommended orientation for DN 1 to 4 ($\frac{1}{24}$ to $\frac{1}{8}$ ")

	Orientation		Recommendation
A	Vertical orientation	A0015591	☑☑ [1]
B	Horizontal orientation, transmitter at top	A0015589	☑ [2]
C	Horizontal orientation, transmitter at bottom	A0015590	☑ [3]
D	Horizontal orientation, transmitter at side	A0015592	☑

1) This orientation is recommended to ensure self-draining.
2) Applications with low process temperatures may reduce the ambient temperature. To maintain the minimum ambient temperature for the transmitter, this orientation is recommended.
3) Applications with high process temperatures may increase the ambient temperature. To maintain the maximum ambient temperature for the transmitter, this orientation is recommended.

Recommended orientation for DN 8 to 40 ($\frac{3}{8}$ to 1½")

	Orientation		Recommendation
A	Vertical orientation	A0015591	☑☑ [1]
B	Horizontal orientation, transmitter at top	A0015589	☑☑ [2]

	Orientation		Recommendation
C	Horizontal orientation, transmitter at bottom	A0015590	☑☑ 3)
D	Horizontal orientation, transmitter at side	A0015592	✖

1)   This orientation is recommended to ensure self-draining.
2)   Applications with low process temperatures may reduce the ambient temperature. To maintain the minimum ambient temperature for the transmitter, this orientation is recommended.
3)   Applications with high process temperatures may increase the ambient temperature. To maintain the maximum ambient temperature for the transmitter, this orientation is recommended.

Horizontal orientation for DN 8 to 40 (³⁄₈ to 1½")

If a sensor is installed horizontally with a curved measuring tube, match the position of the sensor to the fluid properties.
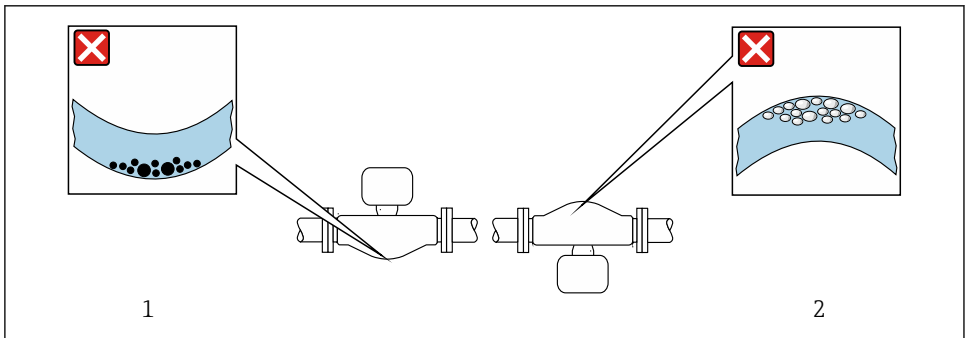
🖼 *3   Orientation of sensor with curved measuring tube*

1   Avoid this orientation for fluids with entrained solids: Risk of solids accumulating
2   Avoid this orientation for outgassing fluids: Risk of gas accumulating

Valves

Never install the sensor downstream from a filling valve. If the sensor is completely empty this corrupts the measured value.

Correct measurement is possible only if the piping is completely filled. Perform sample fillings before commencing filling in production.
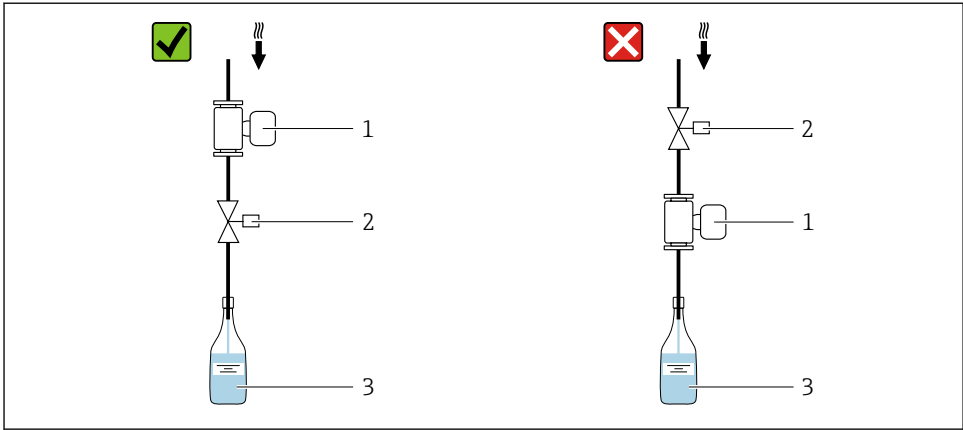
1   Measuring device
2   Filling valve
3   Vessel

Filling systems

The pipe system must be completely full to ensure optimum measurement.
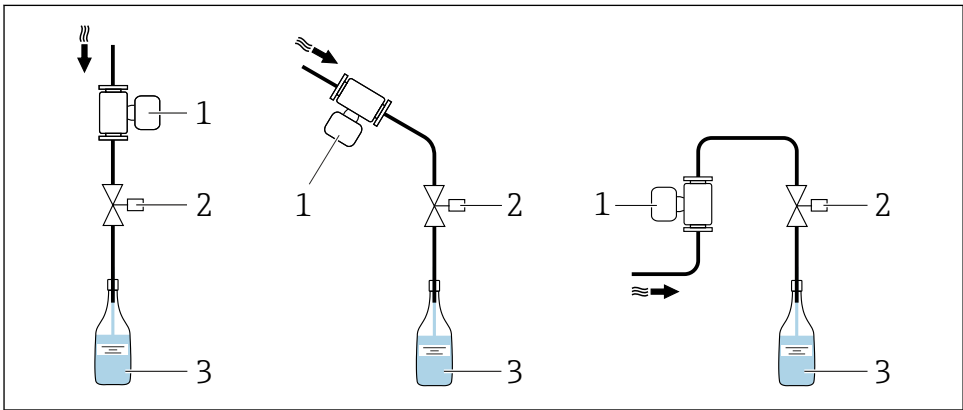
⊡ 4   *Filling system*

1   Measuring device
2   Filling valve
3   Vessel

Inlet and outlet runs

No special precautions need to be taken for fittings that create turbulence, such as valves, elbows or T-pieces, as long as no cavitation occurs → 🗐 15.
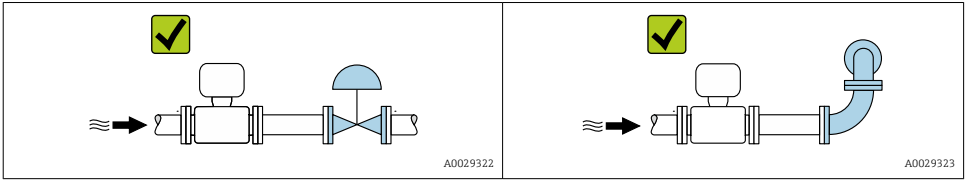
📖 For the dimensions and installation lengths of the device, see the "Technical Information" document, "Mechanical construction" section

5.1.2 Environmental and process requirements

Ambient temperature range

📖 For detailed information on the ambient temperature range, see the Operating Instructions for the device.

Static pressure

It is important that cavitation does not occur, or that gases entrained in the liquids do not outgas. This is prevented by means of a sufficiently high static pressure.

For this reason, the following mounting locations are recommended:
• At the lowest point in a vertical pipe
• Downstream from pumps (no danger of vacuum)

Thermal insulation

In the case of some fluids, it is important to keep the heat radiated from the sensor to the transmitter to a low level. A wide range of materials can be used for the required insulation.

| NOTICE |

Electronics overheating on account of thermal insulation!
▶ Recommended orientation: horizontal orientation, transmitter housing pointing downwards.
▶ Do not insulate the transmitter housing .
▶ Maximum permissible temperature at the lower end of the transmitter housing: 80 ℃ (176 ℉)
▶ Regarding thermal insulation with an exposed extended neck: We advise against insulating the extended neck to ensure optimal heat dissipation.
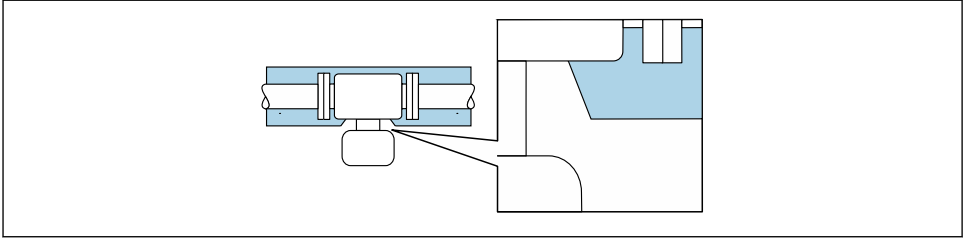
5   Thermal insulation with exposed extended neck

Heating

NOTICE

Electronics can overheat due to elevated ambient temperature!
▶ Observe maximum permitted ambient temperature for the transmitter.
▶ Depending on the medium temperature, take the device orientation requirements into account.

NOTICE

Danger of overheating when heating
▶ Ensure that the temperature at the lower end of the transmitter housing does not exceed 80 ℃ (176 ℉).
▶ Ensure that sufficient convection takes place at the transmitter neck.
▶ Ensure that a sufficiently large area of the transmitter neck remains exposed. The uncovered part serves as a radiator and protects the electronics from overheating and excessive cooling.

Heating options

If a fluid requires that no heat loss should occur at the sensor, users can avail of the following heating options:
• Electrical heating, e.g. with electric band heaters [2]
• Via pipes carrying hot water or steam
• Via heating jackets

For detailed information on heating with electric band heaters, see the Operating Instructions for the device.

Vibrations

The high oscillation frequency of the measuring tubes ensures that the correct operation of the measuring system is not influenced by plant vibrations.

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[2]   The use of parallel electric band heaters is generally recommended (bidirectional electricity flow). Particular considerations must be made if a single-wire heating cable is to be used. For additional information, refer to EA01339D "Installation Instructions for Electrical Trace Heating Systems ".

5.1.3   Special mounting instructions

Information for filling systems

Correct measurement is only possible if the pipe is completely full. We therefore recommend that some test batches be carried out prior to production batching.

Circular filling system
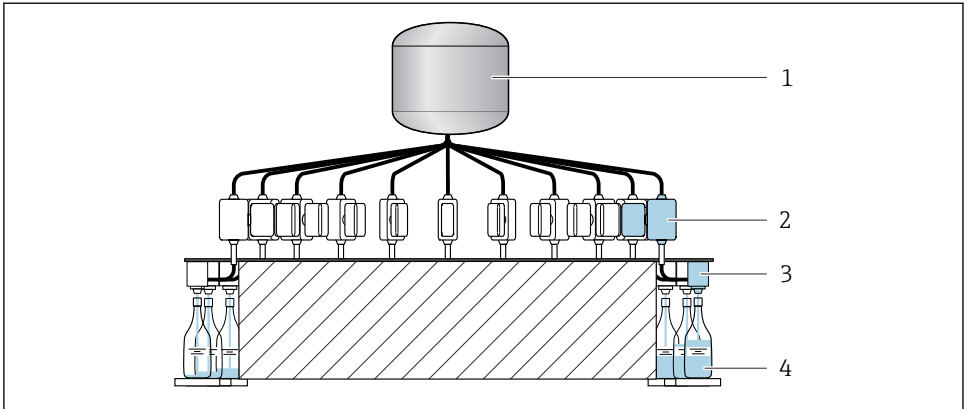
A0003761

1   Tank
2   Measuring instrument
3   Filling valve
4   Vessel

Linear filling system
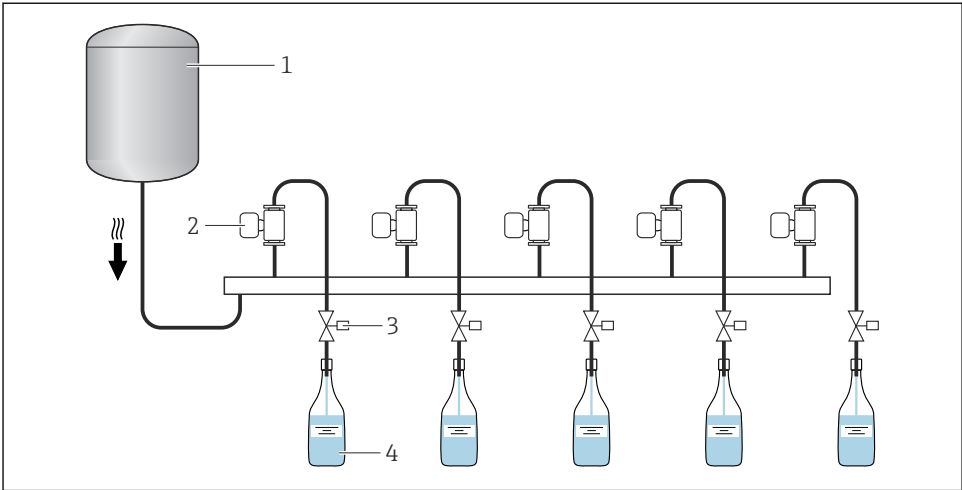
A0003762

1   Tank
2   Measuring instrument
3   Filling valve
4   Vessel

Sensor holder DN 1 to 4 (¹⁄₂₄ to ⅛")

- The appropriate sensor holder must be used for all applications with increased safety or load requirements and for sensors with clamp process connections.
- The Endress+Hauser sensor holder is generally recommended for mounting for all applications .
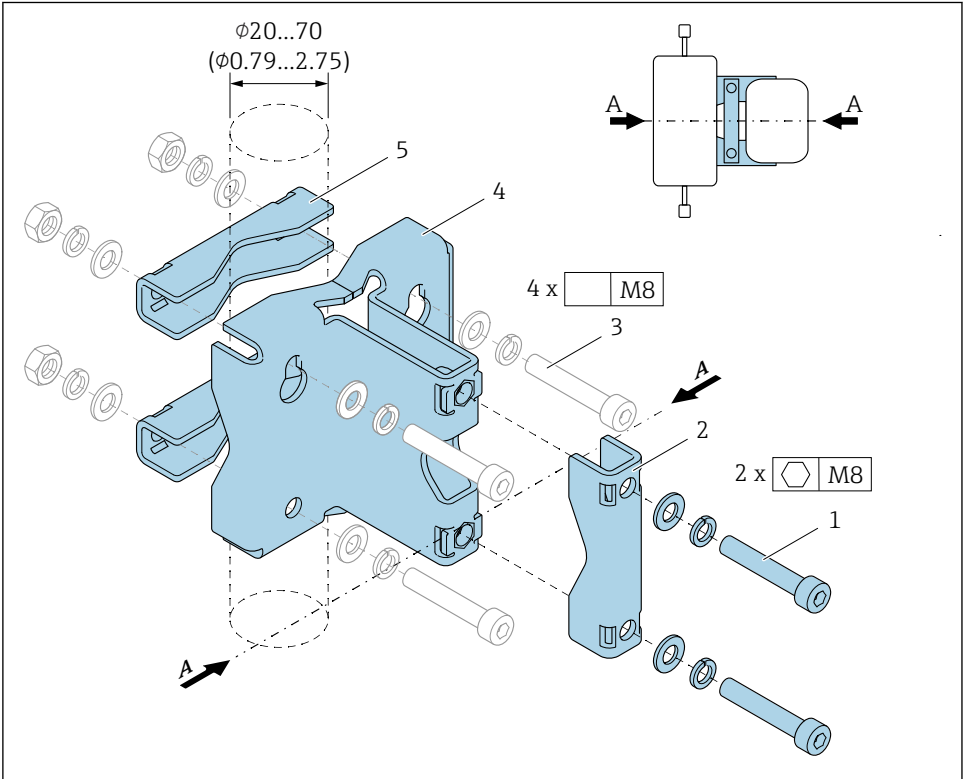
A0036471

1   *2 x Allen screw M8 x 50, washer and spring washer A4*
2   *1 x clamp (measuring instrument neck)*
3   *4 x securing screw for wall, tabletop or pipe mounting (not supplied)*
4   *1 x base profile*
5   *2 x clamp (pipe mounting)*
A   *Measuring instrument central line*

⚠ WARNING

Strain on pipes!

Excessive strain on an unsupported pipe can cause the pipe to break.

▸ Install the sensor in a sufficiently supported pipe. In addition to the use of the sensor holder, for maximum mechanical stability the sensor can also be supported on the inlet and outlet sides onsite at the installation location with the use of pipe clamps, for example.
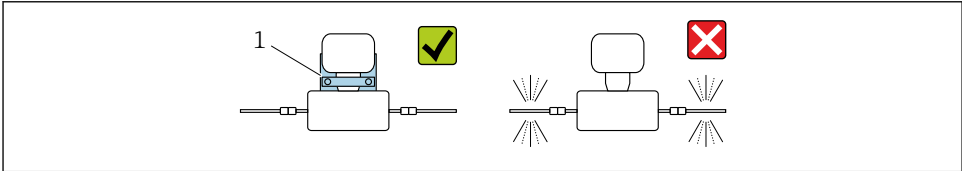
A0036492

1   Sensor holder Order number: 71392563

The following mounting versions are recommended for the installation:

ℹ Lubricate all threaded joints prior to mounting. The screws for wall, tabletop or pipe mounting are not supplied with the device and must be chosen to suit the individual installation position.

Wall mounting

Screw the sensor holder to the wall with four screws. Two of the four holes to secure the holder are designed to hook into the screws.

Mounting on a table

Screw the sensor holder onto the tabletop with four screws.

Pipe mounting

Secure the sensor holder to the pipe with two clamps.

⚠ WARNING

Failure to comply with the specifications for vibration and shock resistance can damage the measuring instrument!

▸ During operation, transportation and storage, ensure compliance with the specifications for maximum vibration and shock resistance .

Zero adjustment

The **Sensor adjustment** submenu contains parameters required for zero adjustment.

📖 Detailed information on the "**Sensor adjustment** submenu": Device parameters

> **NOTICE**
>
> **All Dosimass measuring instruments are calibrated in accordance with state-of-the-art technology. Calibration takes place under reference conditions .**
> Zero adjustment is therefore not required for the Dosimass as a general rule.
> ▸ Experience shows that a zero adjustment is advisable only in special cases.
> ▸ When maximum measurement accuracy is required and flow rates are very low.
> ▸ Under extreme process or operating conditions (e.g. very high process temperatures or very high-viscosity fluids).

📖 For detailed information on the reference operating conditions: see the Operating Instructions for the device

5.2   Mounting the measuring instrument

5.2.1   Required tools

For process connections, use the appropriate installation tool

5.2.2   Preparing the measuring instrument

1. Remove all remaining transport packaging.
2. Remove any protective covers or protective caps present from the sensor.
3. Remove the transport label on the transmitter housing.

5.2.3   Mounting the measuring device

> **⚠ WARNING**
>
> **Danger due to improper process sealing!**
> ▸ Ensure that the inside diameters of the gaskets are greater than or equal to that of the process connections and piping.
> ▸ Ensure that the seals are clean and undamaged.
> ▸ Secure the seals correctly.
>
> ▸ Ensure that the direction of the arrow on the nameplate of the sensor matches the flow direction of the medium.

5.3   Post-mounting check

Is the measuring instrument undamaged (visual inspection)?	☐
Does the measuring instrument conform to the measuring point specifications? For example: • Process temperature • Pressure (see the "Pressure-temperature ratings" section of the "Technical Information" document.) • Ambient temperature • Measuring range	☐

Has the correct orientation for the sensor been selected → 🖹 11? • According to sensor type • According to medium temperature • According to medium properties (outgassing, with entrained solids)	❑
Does the arrow on the sensor nameplate match the direction of medium flow through the piping ??	❑
Are the measuring point identification and labeling correct (visual inspection)?	❑
Is the device adequately protected against precipitation and direct sunlight?	❑

6   Electrical connection

⚠ WARNING

Live parts! Incorrect work performed on the electrical connections can result in an electric shock.

▶ Set up a disconnecting device (switch or power-circuit breaker) to easily disconnect the device from the supply voltage.

▶ In addition to the device fuse, include an overcurrent protection unit with max. 16 A in the plant installation.

6.1   Electrical safety

In accordance with applicable national regulations.

6.2   Connecting requirements

6.2.1   Requirements for connecting cable

The connecting cables provided by the customer must fulfill the following requirements.

Permitted temperature range

• The installation guidelines that apply in the country of installation must be observed.
• The cables must be suitable for the minimum and maximum temperatures to be expected.

Signal cable

ℹ Cables are not included in the scope of delivery.

ℹ Please note the following with regard to cable loading:
  • Voltage drop due to the cable length and cable type.
  • Valve performance.

Pulse/frequency/switch output

Standard installation cable is sufficient.

IO-Link

Standard installation cable is sufficient.

Cable length ≤ 20 m.

Switch output (batch), status output and status input

Standard installation cable is sufficient.

Modbus RS485

ℹ The electrical connection of the shield to the device housing must be properly implemented (e.g. using a knurled nut).

Total length of cable in the Modbus network ≤ 50 m

Use a shielded cable.

Example:
Terminated device plug with cable: Lumberg RKWTH 8-299/10

Total length of cable in the Modbus network > 50 m

Use shielded twisted pair cable for RS485 applications.

Example:
- Cable: Belden item no. 9842 (for 4-wire version, the same cable can be used for the power supply)
- Terminated device plug: Lumberg RKCS 8/9 (shieldable version)

6.2.2   Terminal assignment

Connection is solely by means of device plug.

There are different device versions available:

Order code for "Output, input"	Device plug
Option AA: 2 pulse/frequency/switch outputs	→ 🖹 24
Option FA: IO-Link, 1 pulse/frequency/switch output	→ 🖹 26
Option MD: Modbus RS485, 2 switch outputs (batch), 1 status output, 1 status input	→ 🖹 27

6.2.3   Available device plugs

Device version: 2 pulse/frequency/switch outputs

Order code for "Output, input": option AA:
2 pulse/frequency/switch outputs
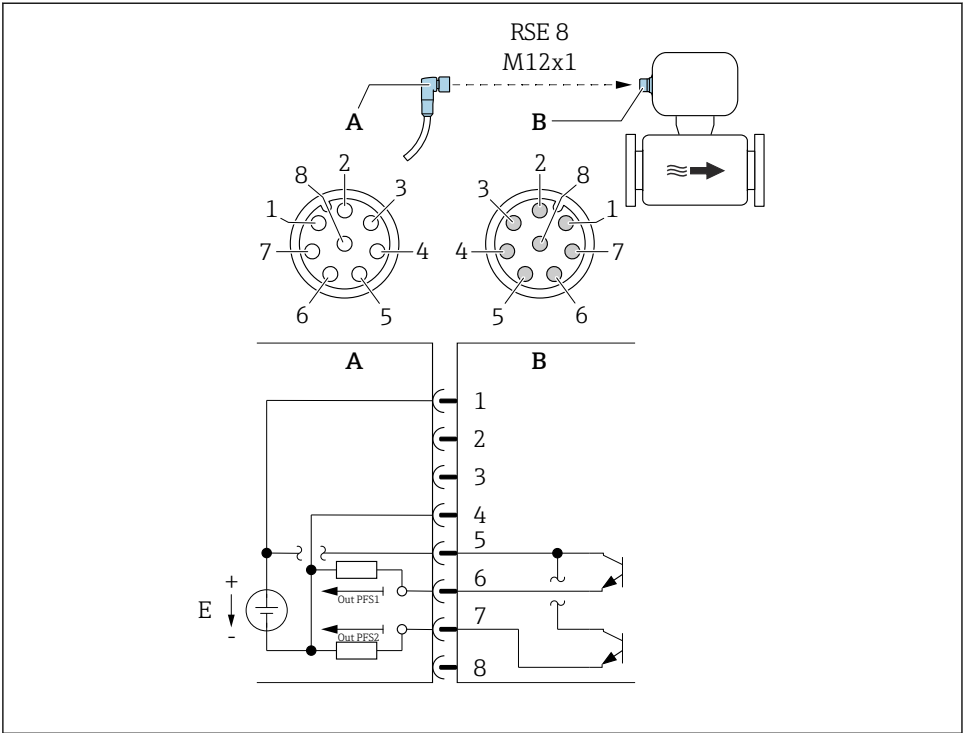
A0054873

⊠ *6   Connection to device*

A   Coupling: Supply voltage, pulse/freq./switch output
B   Connector: Supply voltage, pulse/freq./switch output
E   PELV or SELV power supply
1 to Pin assignment
8

Pin assignment

Connection: Coupling (A) – Connector (B)		
Pin	**Assignment**	
1	L+	Supply voltage
2	+	Service interface RX
3	+	Service interface TX
4	L-	Supply voltage
5	+	Pulse/frequency/switch output 1 and 2
6	–	Pulse/frequency/switch output 1

Connection: Coupling (A) – Connector (B)		
Pin	Assignment	
7	–	Pulse/frequency/switch output 2
8	–	Service interface GND

Device version: IO-Link, 1 pulse/frequency/switch output

Order code for "Output, input", option FA:
IO-Link, 1 pulse/frequency/switch output
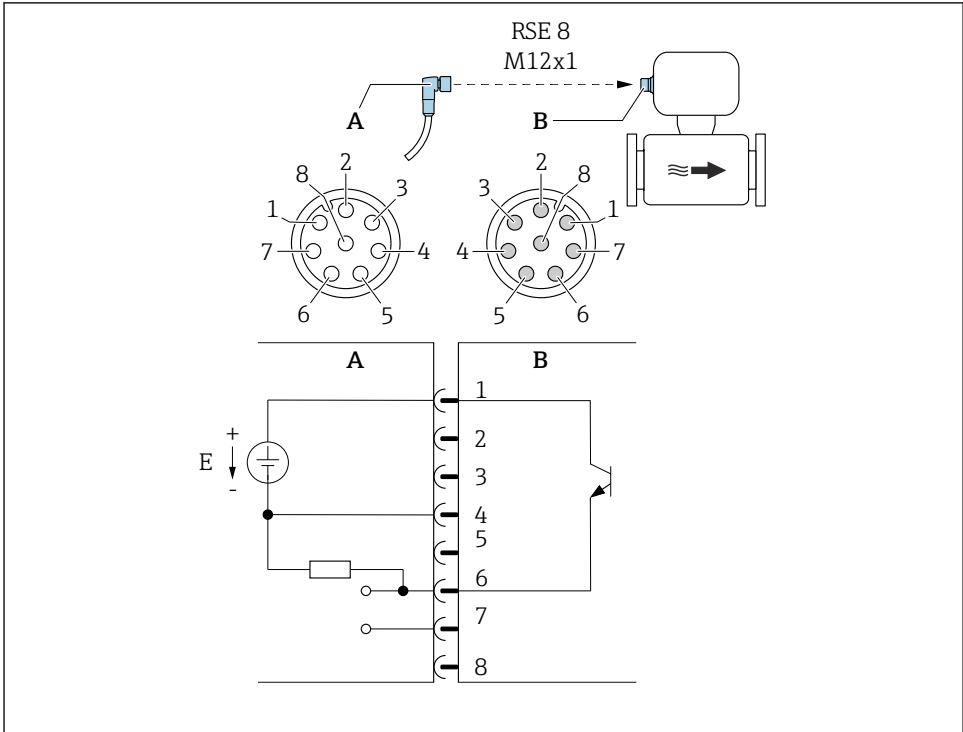
A0053318

🖻 7   *Connection to device*

A   Coupling: Supply voltage, pulse/freq./switch output
B   Connector: Supply voltage, pulse/freq./switch output
E   PELV or SELV power supply
1 to   Pin assignment
8

Pin assignment

Connection: Coupling (A) – Connector (B)		
Pin	Assignment	
1	L+	Supply voltage
2	+	Service interface RX
3	+	Service interface TX
4	L-	Supply voltage
5		Not used
6	–	Pulse/frequency/switch output DQ
7	–	IO-Link communication signal C/Q
8	–	Service interface GND

The pin assignment deviates from the IO-Link standard to enable compatibility with previous device versions and installations.

Device version: Modbus RS485, 2 switch outputs (batch), 1 status output, 1 status input

Order code for "Output, input", option MD:
Modbus RS485, 2 switch outputs (batch), 1 status output, 1 status input

Version 1: Status input via connection A/B
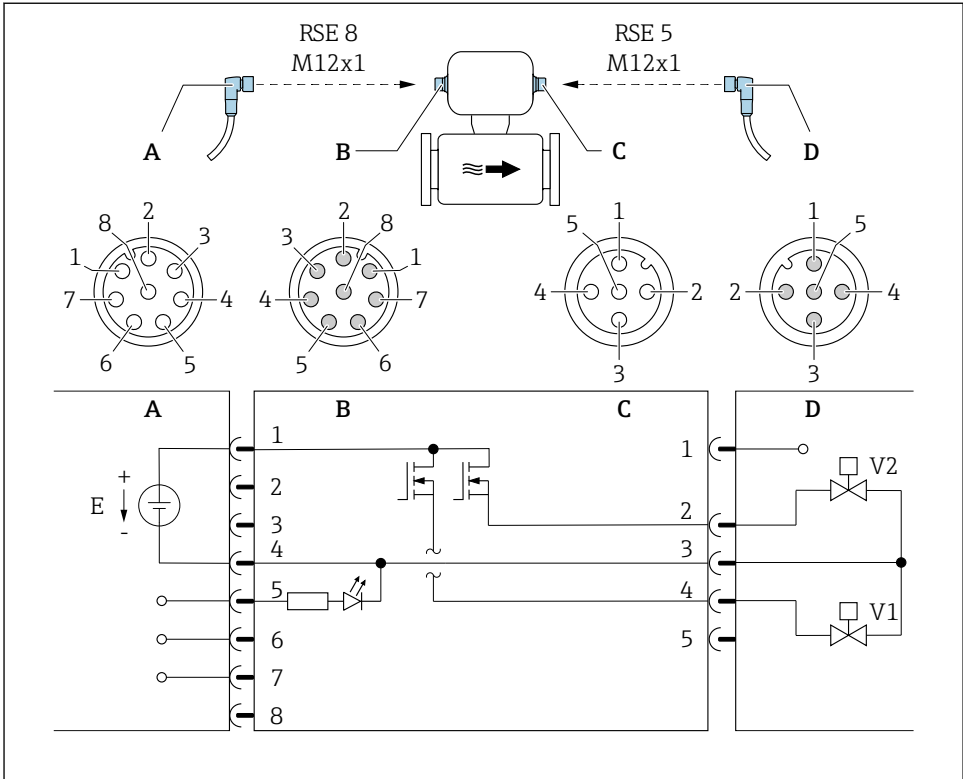
A0053319

⊞ *8   Connection to device*

A   Coupling: Supply voltage, Modbus RS485, status input
B   Connector: Supply voltage, Modbus RS485, status input
C   Coupling: Switch output (batch)
D   Connector: Switch output (batch)
E   PELV or SELV power supply
V1   Valve (batch), level 1
V2   Valve (batch), level 2
1 to   Pin assignment
8

Version 2: Status output via connection A/B

A0053323

⊠ *9   Connection to device*

A   Coupling: Supply voltage, Modbus RS485, status output
B   Connector: Supply voltage, Modbus RS485, status output
C   Coupling: Switch output (batch), status input
D   Connector: Switch output (batch), status input
E   PELV or SELV power supply
V1   Valve (batch), level 1
V2   Valve (batch), level 2
1 to Pin assignment
8

Pin assignment

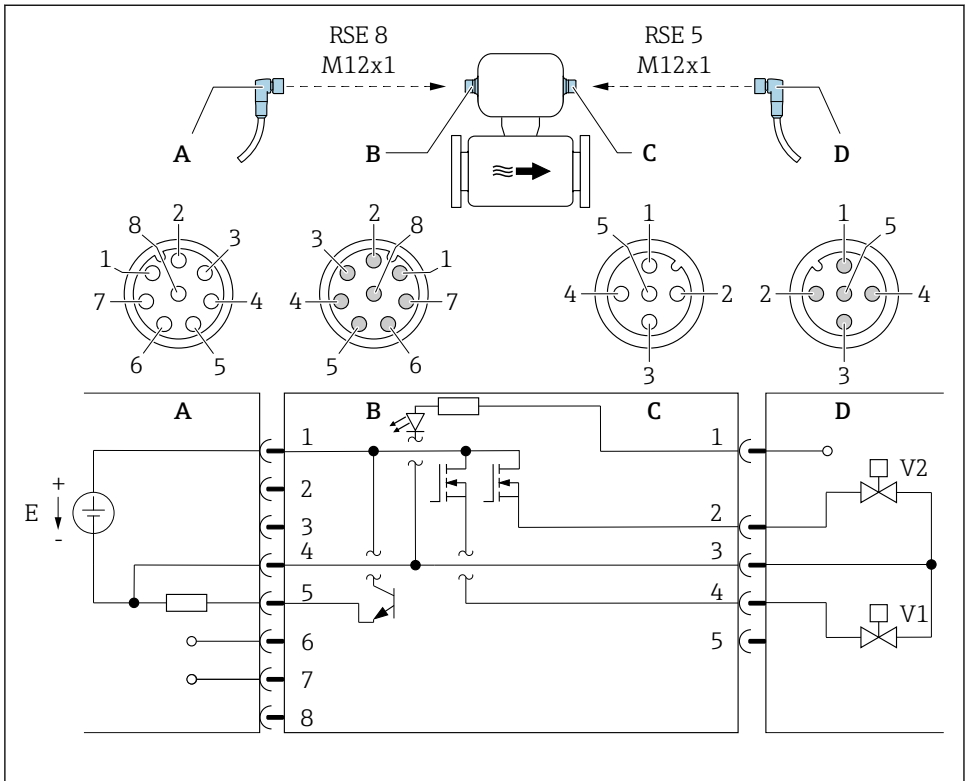| Connection: Coupling (A) – Connector (B)			Connection: Coupling (C) – Connector (D)		
Pin	Assignment		Pin	Assignment	
1	L+	Supply voltage	1	+	Status input
2	+	Service interface RX	2	+	Switch output (batch) 2
3	+	Service interface TX	3	–	Switch output (batch) 1 and 2, status input
4	L-	Supply voltage	4	+	Switch output (batch) 1
5	+	Status output/Status input [1]	5		Not used
6	+	Modbus RS485			
7	–	Modbus RS485			
8	–	Service interface GND			

1)   The functionality of status input and status output is not possible at the same time.

6.2.4   Requirements for the supply unit

Supply voltage

DC 24 V (nominal voltage: DC 18 to 30 V)

- The power unit must be safety-approved (e.g. PELV, SELV).
- The maximum short-circuit current must not exceed 50 A.

6.3   Connecting the measuring instrument

 NOTICE

An incorrect connection compromises electrical safety!
▶ Only properly trained specialist staff may perform electrical connection work.
▶ Observe applicable federal/national installation codes and regulations.
▶ Comply with local workplace safety regulations.
▶ When using in potentially explosive atmospheres, observe the information in the device-specific Ex documentation.

6.3.1   Connection via device plug

Connection is solely by means of device plug.

Device version: 2 pulse/frequency/status outputs and IO-Link, 1 pulse/frequency/status output
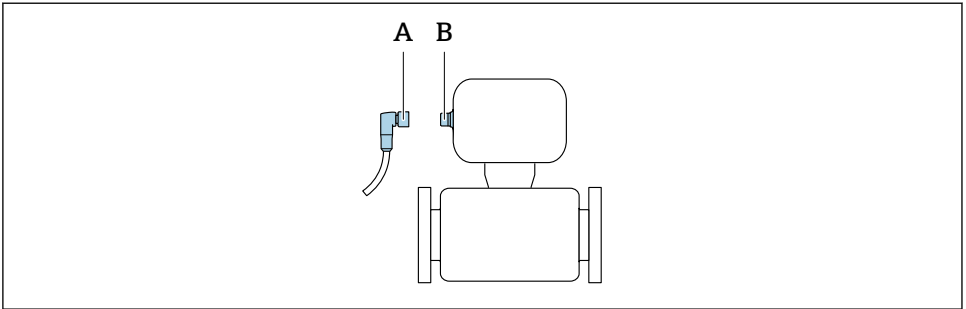
A0032652

A   Coupling
B   Plug

Device version: Modbus RS485, 2 batching outputs, 1 status output, 1 status input

A0032534

A, C Coupling
B, D Plug

6.3.2   Grounding

Grounding is by means of a cable socket.

A0053306

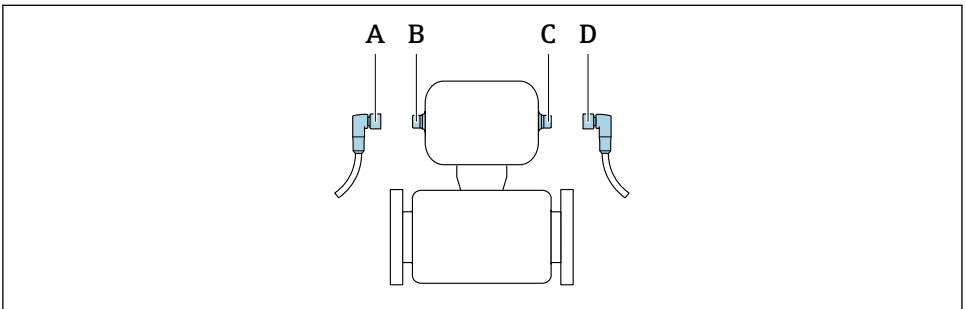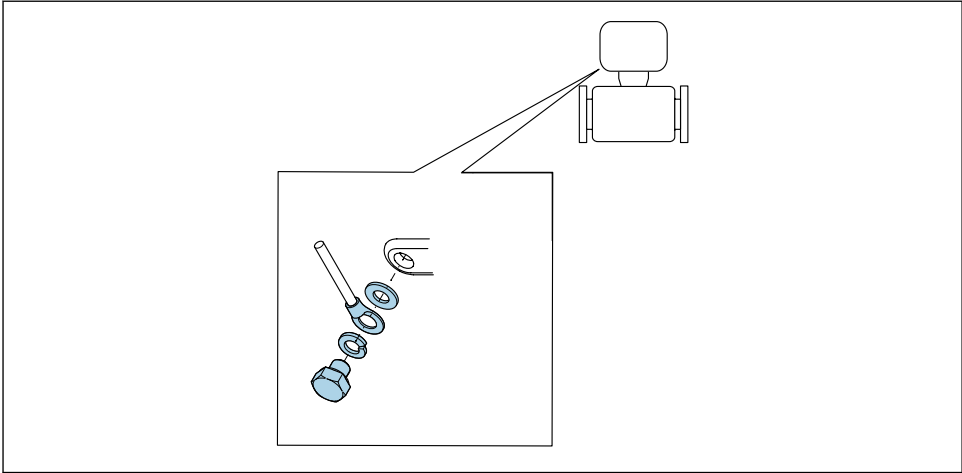## 6.4   Ensuring potential equalization

No special measures for potential equalization are required.

6.5   Ensuring the degree of protection

The measuring device fulfills all the requirements for IP67 degree of protection, Type 4X enclosure.

To guarantee IP67 degree of protection, Type 4X enclosure, carry out the following steps after the electrical connection:

▶ Tighten all device plugs.

6.6   Post-connection check

Is the measuring instrument undamaged (visual inspection)?	❑
Does the supply voltage in the system match the data on the nameplate of the measuring instrument ?	❑
Do the cables used meet the necessary specifications → 📖 23?	❑
Are the mounted cables relieved of tension?	❑
Is the terminal assignment correct → 📖 24?	❑
Is the protective earthing established correctly → 📖 31?	❑
Are the maximum values for voltage and current observed at the pulse/frequency/switch outputs ?	❑
Are the maximum values for voltage and current observed at the IO-Link interface and pulse/frequency/ switch outputs ?	❑
Are the maximum values for voltage and current observed at the Modbus interface, switch outputs, status output and status input ?	❑

7 Operation options

7.1 Overview of operation options
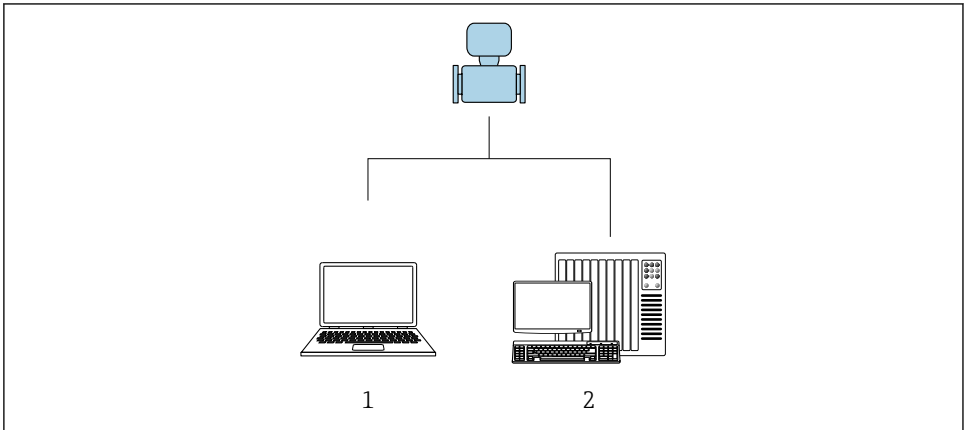
A0017760

1 *Computer with "FieldCare" or "DeviceCare" operating tool*
*2* *Control system (e.g. PLC)*

7.2 Access to the operating menu via the operating tool

7.2.1 Connecting the operating tool

Using service adapter and Commubox FXA291

Operation and configuration can be performed using the Endress+Hauser FieldCare or DeviceCare service and configuration software.

The device is connected to the USB port of the computer via the service adapter and Commubox FXA291.
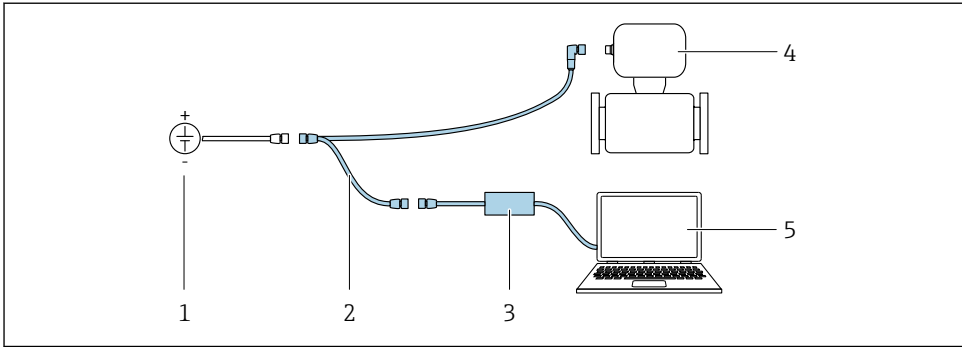
A0032567

1   Supply voltage 24 V DC
2   Service adapter
3   Commubox FXA291
4   Dosimass
5   Computer with "FieldCare" or "DeviceCare" operating tool

7.2.2   FieldCare

Function range

FDT-based (Field Device Technology) plant asset management tool from Endress+Hauser. It can configure all smart field units in a system and helps you manage them. By using the status information, it is also a simple but effective way of checking their status and condition.

Typical functions:
• Transmitter parameter configuration
• Loading and saving of device data (upload/download)
• Documentation of the measuring point
• Visualization of the measured value memory (line recorder) and event logbook

• Operating Instructions BA00027S
• Operating Instructions BA00059S

• www.endress.com → Downloads
• CD–ROM (contact Endress+Hauser)
• DVD (contact Endress+Hauser)

Establishing a connection

Service adapter, Commubox FXA291 and "FieldCare" operating tool

1. Start FieldCare and launch the project.

2. In the network: Add a device.
   ↳ The **Add device** window opens.

3. Select the **CDI Communication FXA291** option from the list and press **OK** to confirm.

4. Right-click **CDI Communication FXA291** and select the **Add device** option in the context menu that opens.

5. Select the desired device from the list and press **OK** to confirm.

6. Establish the online connection to the device.

📖 ▪ Operating Instructions BA00027S
▪ Operating Instructions BA00059S

User interface
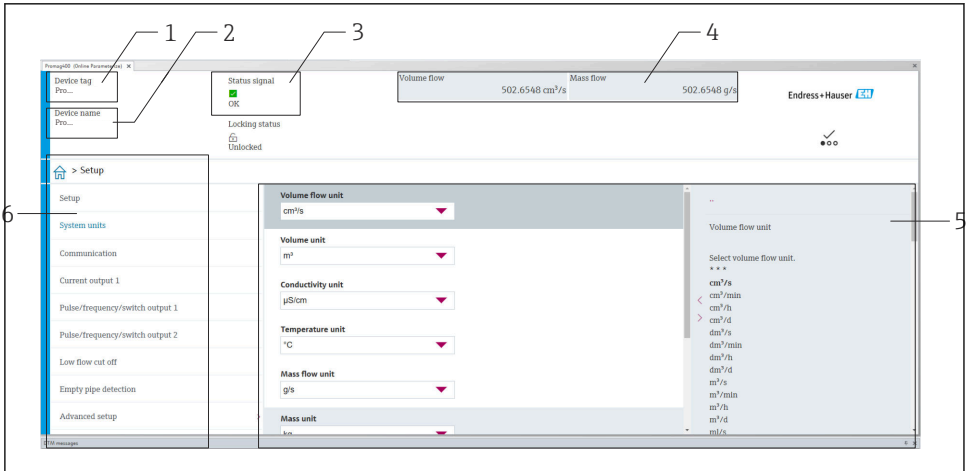
1 *Device name*
2 *Device tag*
3 *Status area with status signal*
4 *Display area for current measured values*
5 *Editing toolbar with other functions*
6 *Navigation area with operating menu structure*

7.2.3 DeviceCare

Function range

Tool for connecting and configuring Endress+Hauser field devices.

The fastest way to configure Endress+Hauser field devices is with the dedicated "DeviceCare" tool. Together with the device type managers (DTMs) it presents a convenient, comprehensive solution.

📖 Innovation brochure IN01047S

▪ www.endress.com → Downloads
▪ CD–ROM (contact Endress+Hauser)
▪ DVD (contact Endress+Hauser)

8 System integration

For detailed information on system integration, see the Operating Instructions for the device

- Overview of device description files:
  - Current version data for the device
  - Operating tools
- Compatibility with earlier model
- Modbus RS485 information
  - Function codes
  - Response time
  - Modbus data map

9 Commissioning

9.1 Post-mounting and post-connection check

Before commissioning the device:

▶ Make sure that the post-installation and post-connection checks have been performed successfully.

- Checklist for "Post-mounting" check→ 🖺 21
- Checklist for "Post-connection check" → 🖺 32

9.2 Switching on the measuring device

▶ The function check has been completed successfully.

Switch on the supply voltage.

↳ The measuring device runs through internal test functions.

The device is operational and operation commences.

If the device does not start up successfully, depending on the cause, a diagnostic message is displayed in the system asset management tool "FieldCare" .

9.3 Connecting via FieldCare

For detailed information on establishing a connection via FieldCare, see the Operating Instructions for the device.

9.4 Configuring the measuring instrument

The device-specific parameters are configured via the "**Commissioning** wizard".

For detailed information on the "**Commissioning** wizard": Separate "Description of Device Parameters "(GP) document

10   Diagnostic information

Faults are displayed on the home page of the DeviceCare and FieldCare operating tools once the connection to the measuring instrument has been established.

Remedial measures are provided for each diagnostic event to ensure that problems can be rectified quickly.

DeviceCare and FieldCare: Remedial measures are displayed on the home page in a separate field below the diagnostic event.

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Endress+Hauser [EH]

People for Process Automation