BA02046S/00/EN/03.21-00
71558883
2021-12-01

Products

Solutions

Services

Operating Instructions
FieldPort SWA50

Intelligent WirelessHART adapter for HART measuring devices

Endress+Hauser **EH**

People for Process Automation

Revision history

Product version	Operating Instructions	Changes	Comments
1.00.XX	BA02046S/04/EN/01.20	–	Initial version
1.00.XX	BA02046S/04/EN/02.21	Supply voltage Burst	Corrections
1.00.XX	BA02046S/04/EN/03.21	Alignment Range Note on status signal Notes and references "Diagnostics" section	Amendments and changes

Table of contents

1   About this document

1.1   Document function

These Operating Instructions provide all of the information that is required in various phases of the life cycle of the device including:
• Product identification
• Incoming acceptance
• Storage
• Installation
• Connection
• Operation
• Commissioning
• Troubleshooting
• Maintenance
• Disposal

1.2   Symbols

1.2.1   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.

1.2.2   Symbols for certain types of information

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.
ℹ	**Tip** Indicates additional information.
📖	Reference to documentation
📄	Reference to page
🖼	Reference to graphic
▶	Notice or individual step to be observed

Symbol	Meaning
1. , **2.** , **3.**...	Series of steps
↳	Result of a step
?	Help in the event of a problem
👁	Visual inspection

1.2.3 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)

1.2.4 Electrical symbols

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.
⏛	**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.

1.2.5 SmartBlue app icons

Icon	Meaning
📱	SmartBlue
⊚	Accessible field devices
⌂	Home
≡	Menu
⚙	Settings

1.3   Terms and abbreviations

Term	Description
DeviceCare	Universal configuration software for Endress+Hauser HART, PROFIBUS, FOUNDATION Fieldbus and Ethernet field devices
DTM	Device Type Manager
FieldCare	Scalable software tool for device configuration and integrated plant asset management solutions
Loop-powered adapter	Loop-powered adapter

1.4   Valid versions

Component	Version
Software	V1.00.xx
Hardware	V1.00.xx

1.5   Documentation

FieldPort SWA50
Technical Information TI01468S

1.5.1   Safety Instructions (XA)

Depending on the approval, the following Safety Instructions (XA) are supplied with the device. They are an integral part of the Operating Instructions.

The nameplate indicates the Safety Instructions (XA) that are relevant to the device.

1.6   Registered trademarks

HART®
Registered trademark of the FieldComm Group, Austin, Texas, USA

Bluetooth®
The *Bluetooth®* word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Endress+Hauser is under license. Other trademarks and trade names are those of their respective owners.

Apple®
Apple, the Apple logo, iPhone, and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries. App Store is a service mark of Apple Inc.

Android®
Android, Google Play and the Google Play logo are trademarks of Google Inc.

2   Basic safety instructions

2.1   Requirements for personnel

The personnel for installation, commissioning, diagnostics and maintenance must meet the following requirements:
▸ Trained, qualified specialists: must have a relevant qualification for this specific role and task and have been trained by Endress+Hauser. Experts at the Endress+Hauser service organization.
▸ Personnel must be authorized by the plant owner/operator.
▸ Personnel must be familiar with regional and national regulations.
▸ Before starting work: personnel must read and understand the instructions in the manual and supplementary documentation as well as the certificates (depending on the application).
▸ Personnel must follow instructions and comply with general policies.

Operating personnel must meet the following requirements:
▸ Personnel are instructed and authorized according to the requirements of the task by the facility's owner-operator.
▸ Personnel follow the instructions in this manual.

2.2   Designated use

The FieldPort SWA50 is a loop-powered adapter that converts the HART signal of the connected HART field device into a reliable and encrypted WirelessHART signal. The FieldPort SWA50 can be retrofitted to all 2-wire or 4-wire HART field devices.

The Bluetooth signal may not be used to replace the wiring in the case of safety applications with a control function.

Incorrect use

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

2.3   Workplace safety

For work on and with the device:
▸ Wear the required personal protective equipment according to federal/national regulations.

2.4   Operational safety

Risk of injury!
▸ Operate the device only if it is in proper technical condition, free from errors and faults.
▸ The operator is responsible for interference-free operation of the device.

Modifications to the device

Unauthorized modifications to the device are not permitted and can lead to unforeseeable dangers:
▸ If modifications are nevertheless required, consult with Endress+Hauser.

2.5   Product safety

This 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.

The device fulfills general safety requirements and legal requirements. It also complies with the EU/EC directives listed in the device-specific EU Declaration of Conformity. Endress+Hauser confirms this by affixing the CE mark to the device.

2.6   IT security

We only provide a warranty if the device is installed and used as described in the Operating Instructions. The device is equipped with security mechanisms to protect it against any inadvertent changes to the device settings.

IT security measures in line with operators' security standards and designed to provide additional protection for the device and device data transfer must be implemented by the operators themselves.

2.7   Device-specific IT security

2.7.1   Access via Bluetooth® wireless technology

Signal transmission via Bluetooth® wireless technology uses a cryptographic technique tested by Fraunhofer AISEC.
- Connection via Bluetooth® is not possible without specific Endress+Hauser devices or the *SmartBlue app*.
- Only one point-to-point connection between **one** FieldPort SWA50 device and **one** smartphone or tablet is established.
- The *Bluetooth*® wireless technology interface can be protected incrementally by means of hardware locking. → 🖹 44
- The hardware locking cannot be disabled or bypassed using operating tools.

3 Product description

3.1 Function

The FieldPort SWA50 converts the HART signal of the connected HART field device to a reliable and encrypted Bluetooth® or WirelessHART signal. The FieldPort SWA50 can be retrofitted to all 2-wire or 4-wire HART field devices.

With the Endress+Hauser SmartBlue app and the Endress+Hauser Field Xpert, you have the following capabilities:
- Configuration of the FieldPort SWA50
- Visualization of the measured values of the connected HART field device
- Visualization of the current combined status, consisting of the status for the FieldPort SWA50 and the status of the connected HART field device

HART field devices can be connected to the Netilion Cloud via the FieldPort SWA50 and a FieldEdge device.

Detailed information on Netilion Cloud: https://netilion.endress.com

The WirelessHART version of the FieldPort SWA50 can be integrated into a WirelessHART network via the Endress+Hauser WirelessHART Fieldgate SWG70 or via any compatible WirelessHART gateway. More information is available from your Endress+Hauser sales organization: www.addresses.endress.com.

In addition, the WirelessHART version can be operated as follows:
- Local configuration with FieldCare SFE500 or DeviceCare via DTM for FieldPort SWA50
- Remote configuration with FieldCare SFE500 via WirelessHART Fieldgate SWG70 and DTM for FieldPort SWA50 and Fieldgate SWG70

NOTICE

Safety applications with control functions via WirelessHART signal
Undesirable behavior of safety application
▶ Do not use a wireless signal such as WirelessHART in a safety application with a control function.

3.2   System architecture of the FieldPort SWA50 WirelessHART version
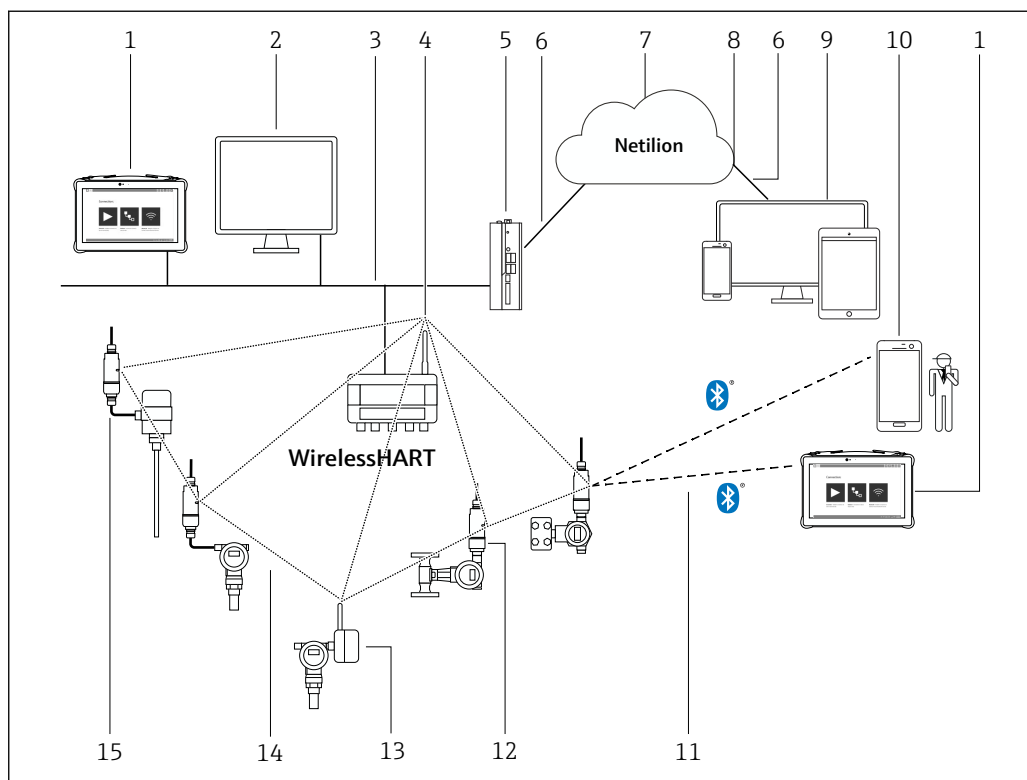
⊡ 1   System architecture of SWA50 WirelessHART version

1   Endress+Hauser Field Xpert, e.g. SMTxx
2   Host application / FieldCare SFE500
3   Ethernet communication
4   WirelessHART-Fieldgate, e.g. SWG70
5   FieldEdge SGC500
6   https Internet connection
7   Netilion Cloud
8   Application Programming Interface (API)
9   Internet browser-based Netilion Service app or user application
10   Endress+Hauser SmartBlue app
11   Encrypted wireless connection via Bluetooth®
12   HART field device with FieldPort SWA50, direct mounting
13   HART field device with WirelessHART adapter, e.g. SWA70
14   Encrypted wireless connection via WirelessHART
15   HART field device with FieldPort SWA50, remote mounting

4   Incoming acceptance and product identification

4.1   Incoming acceptance

- Check the packaging for visible damage arising from transportation
- Open the packaging carefully
- Check the contents for visible damage
- Check that the delivery is complete and nothing is missing
- Retain all the accompanying documents

The device may not be put into operation if the contents are found to be damaged beforehand. In this case, please contact your Endress+Hauser Sales Center: www.addresses.endress.com

Return the device to Endress+Hauser in the original packaging where possible.

Scope of delivery
- FieldPort SWA50
- Cable glands as per ordered version
- Optional: mounting bracket

Documentation included in delivery
- Brief Operating Instructions
- Depends on the version ordered: Safety Instructions

4.2   Product identification

4.2.1   Nameplate

The nameplate of the device is lasered onto the housing.

Additional information about the device is available as follows:
- Enter the serial number specified on the nameplate into the Device Viewer (www.endress.com → Product tools → Access device specific information → Device Viewer (from the serial number to device information and documentation) → Select option → Enter serial number): All information relating to the device is then displayed.
- Enter the serial number specified on the nameplate into the Endress+Hauser Operations App: All information relating to the device is then displayed.

4.2.2   Manufacturer's address

Endress+Hauser SE+Co. KG

Hauptstraße 1

79689 Maulburg

Germany

www.endress.com

4.3   Storage and transport

- The components are packed in such a way that they are fully protected against shock when in storage and during transportation.
- The permitted storage temperature is −40 to +85 ℃ (−40 to 185 ℉).
- Store the components in the original packaging in a dry place.
- Where possible, only transport the components in the original packaging.

5   Mounting

5.1   Mounting instructions

- Pay attention to the alignment and range. → 🖺 13
- Observe a distance of at least 6 cm from walls and pipes. Pay attention to the expansion of the Fresnel zone.
- Avoid mounting in close proximity to high-voltage devices.
- For a better connection, mount the FieldPort SWA50 in sight of a WirelessHART FieldPort, such as the SWA50, SWA70, or a WirelessHART gateway, such as the Fieldgate SWG70.
- Pay attention to the effect of vibrations at the mounting location.

📖 For detailed information on the range and vibration resistance, see the Technical Information for FieldPort SWA50 → 🖺 7

🛈 We recommend that you protect the FieldPort SWA50 against precipitation and direct sunlight. In order not to reduce signal quality, do not use a metal cover.

5.2   Range

🛈 The range depends on the alignment of the FieldPort SWA50, the mounting location and the environmental conditions.

As the antenna of the WirelessHART gateway or FieldEdge is normally aligned vertically, we also recommend mounting the FieldPort SWA50 vertically. If the antennas are aligned differently, this can greatly reduce the antenna range.
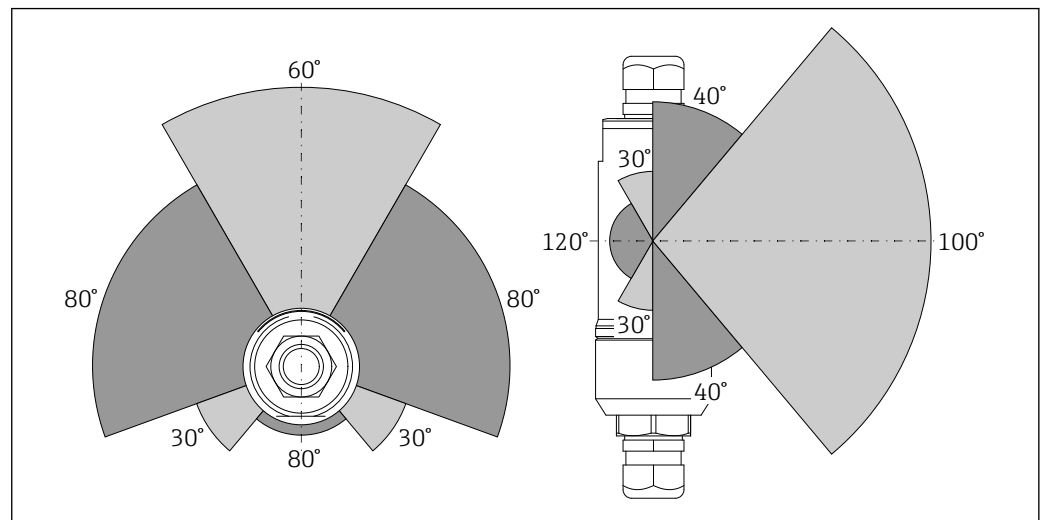
🖾 2   *Different ranges depending on the position of the transmission window*

Bluetooth
Up to 40 m without obstacles when FieldPort SWA50 is optimally aligned

WirelessHART
Up to 200 m without obstacles when FieldPort SWA50 is optimally aligned

5.3 Mounting methods

5.3.1 "Direct mounting" version
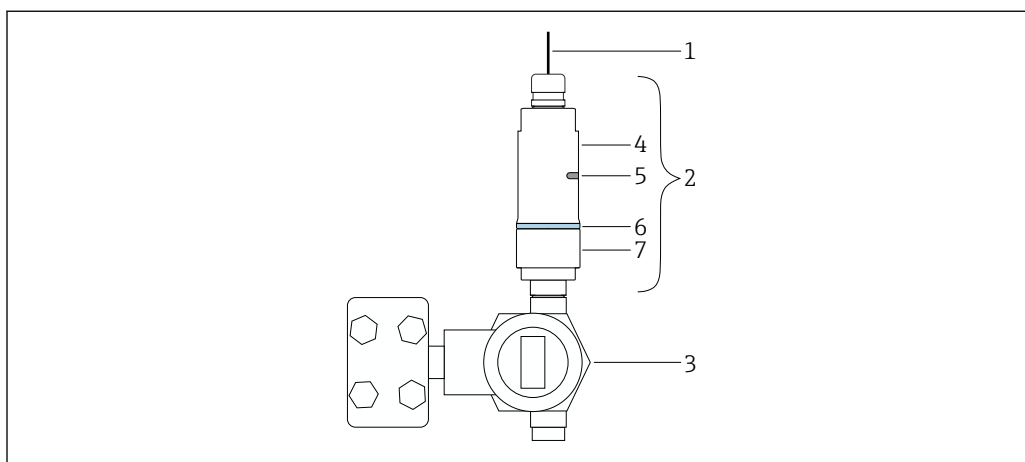
🖾 3   Example of direct mounting

1   Cable
2   FieldPort SWA50 "direct mounting" version
3   HART field device
4   Bottom housing section
5   Transmission window
6   Design ring
7   Top housing section

Montage sequence for the "direct mounting" version: → 🖹 15

5.3.2 "Remote mounting" version
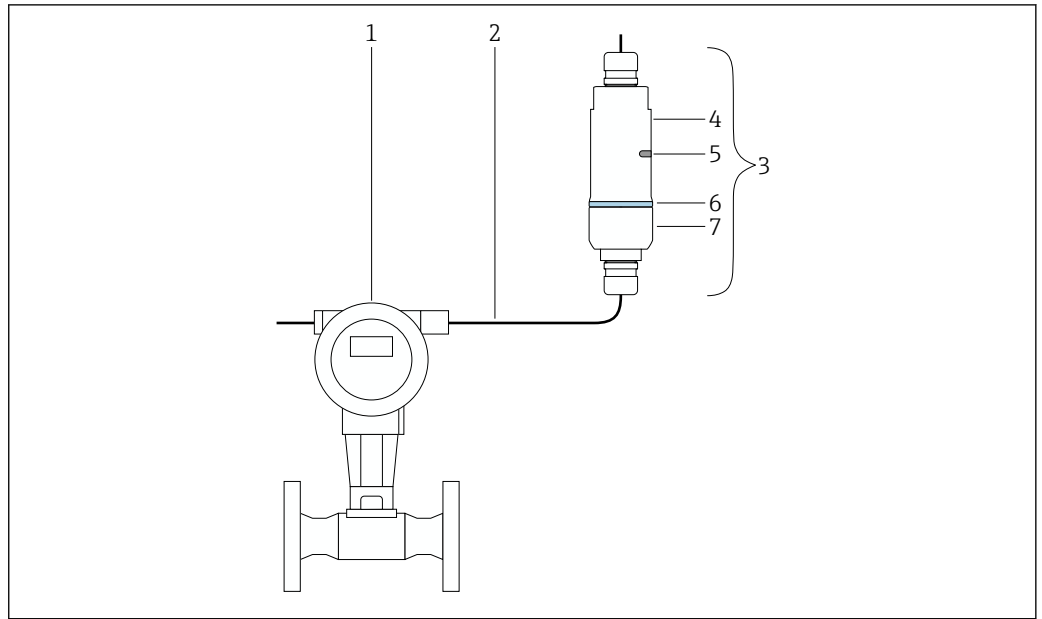
🖾 4   *Example of remote mounting*

1   HART field device
2   Cable
3   FieldPort SWA50 "remote mounting" version
4   Bottom housing section
5   Transmission window
6   Design ring
7   Top housing section

For remote mounting, we recommend the optional mounting bracket. Alternatively, you can secure the remote version using pipe clips.

Mounting sequence for the "remote mounting" version: → 🖺 22

5.4   Mounting the "direct mounting" version

NOTICE

Damaged seals.
IP degree of protection is no longer guaranteed.
▶ Do not damage seals.

NOTICE

Supply voltage is present during installation.
Possible damage to the device.
▶ Switch off supply voltage prior to installation.
▶ Make sure the device is de-energized.
▶ Secure it against being switched back on.

"Direct mounting" overview: → 🖺 14

Electrical connection: → 🖺 30

Tools required
- Wrench AF24
- Wrench AF36

Mounting the FieldPort SWA50

1.

A0040564

2.

A0040565

3.

A0041512

4.

A0040500

5.

A0040502

6.

A0040501

7.

A0041551
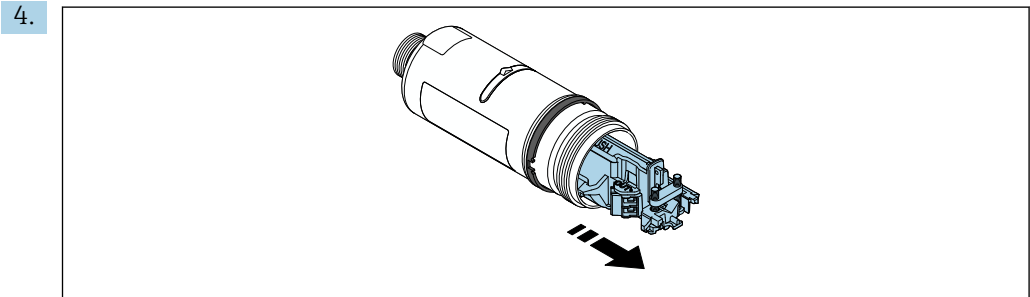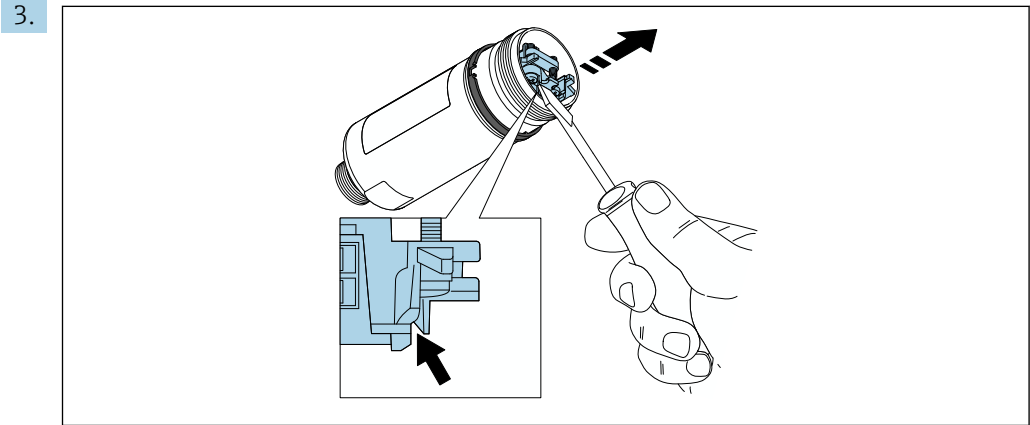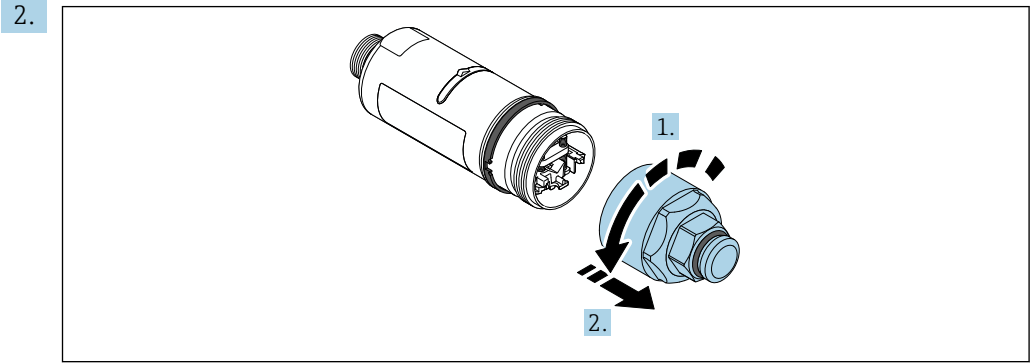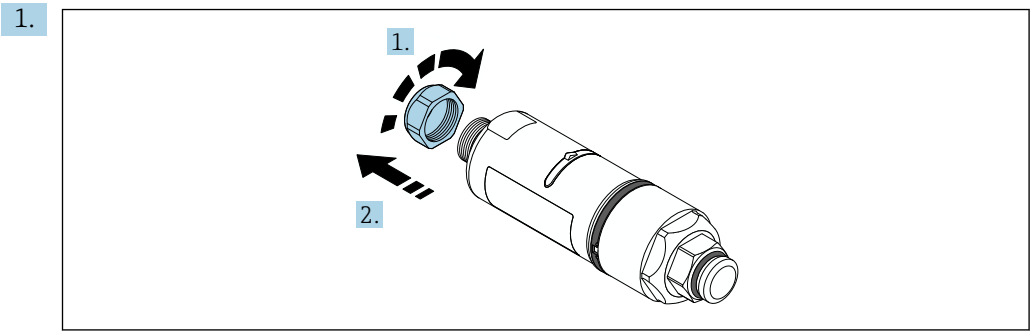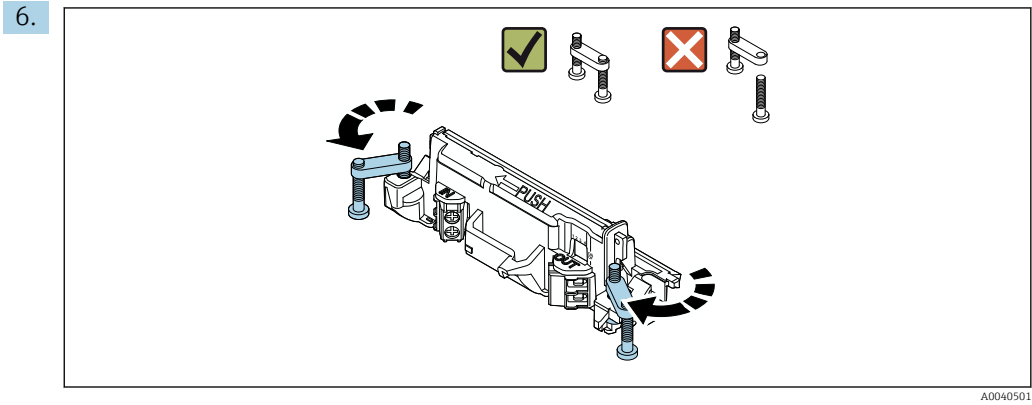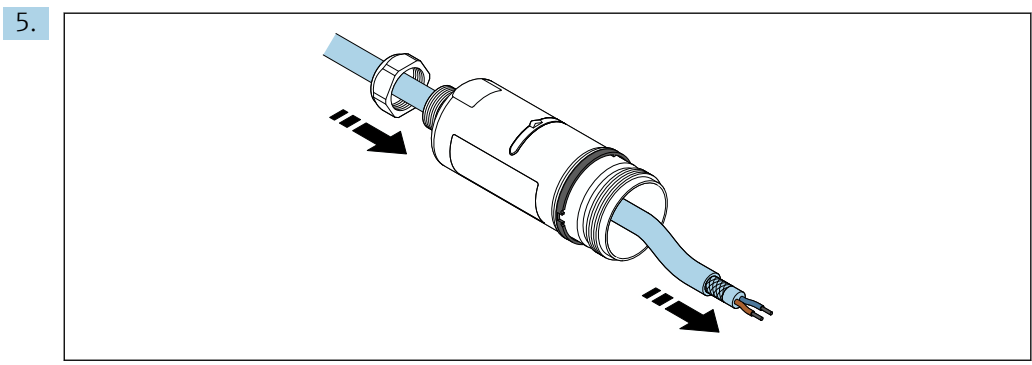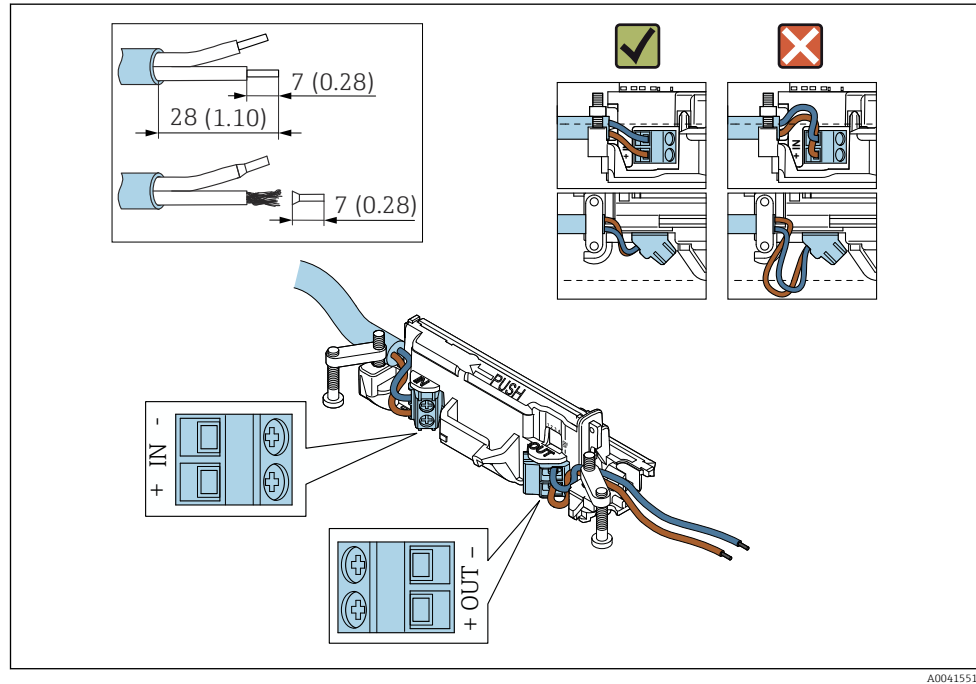
Ensure that the cores are of sufficient length to be connected in the field device. Do not shorten the cores to the required length until you are connecting them in the field device.

If you use a cable gland for a shielded cable, pay attention to the information on stripping the wire → 🖻 31.

- Electrical connection for 2-wire HART field devices with passive current output: → 🖻 32
- Electrical connection for 4-wire HART field devices with passive current output: → 🖻 32
- Electrical connection for 4-wire HART field devices with active current output: → 🖻 32
- Electrical connection for FieldPort SWA50 without HART field device: → 🖻 33

8.
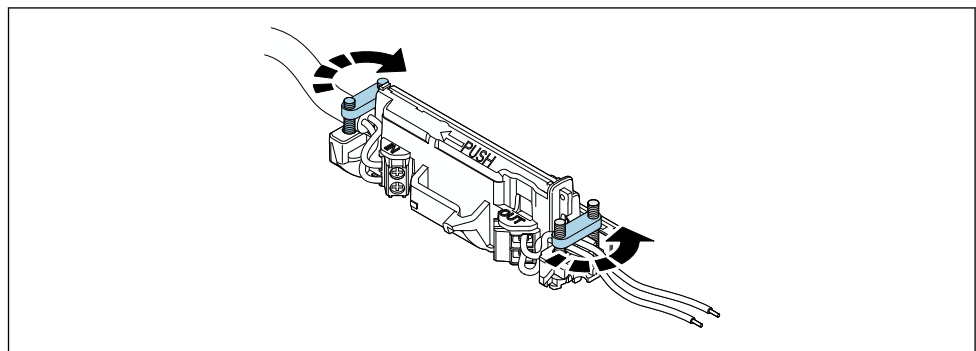
A0041552

Tighten screws for strain relief. Torque: 0.4 Nm ± 0.04 Nm

9.
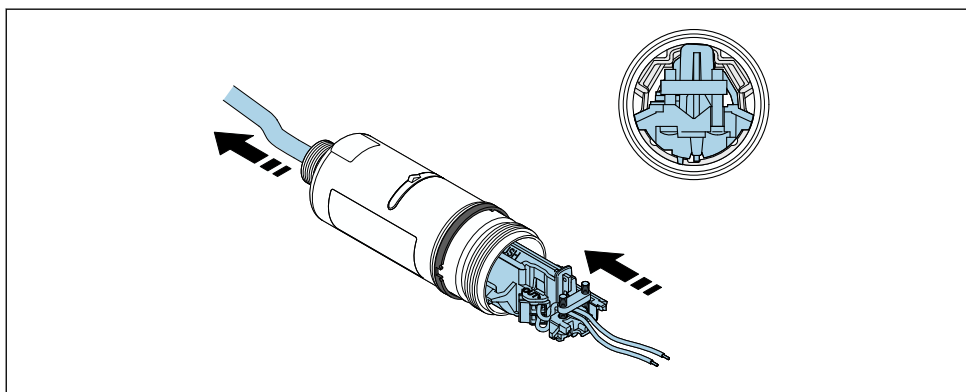
A0041553

Slide the electronic insert into the guide inside the housing.

10.
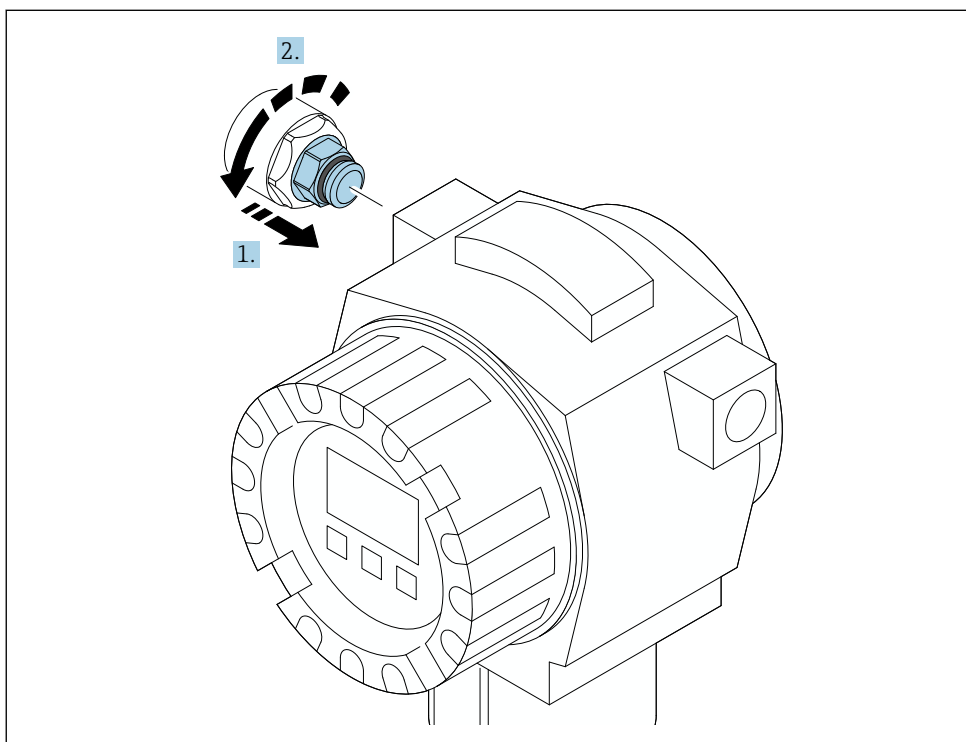
A0040506

For information regarding torque, see the field device documentation.

11.
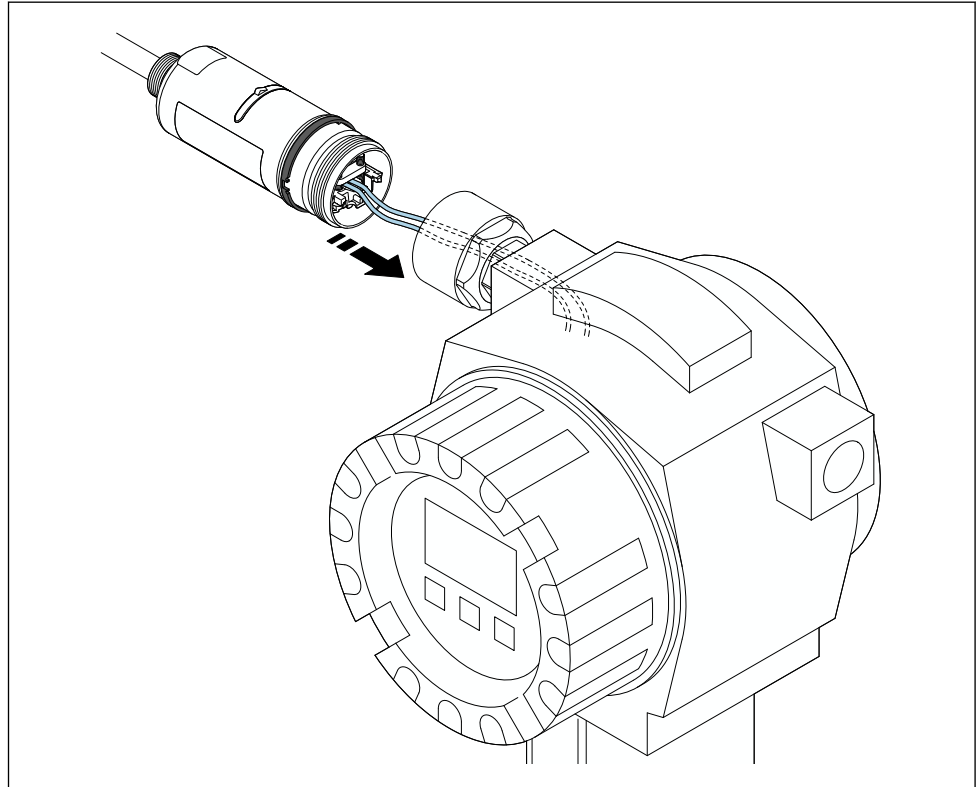
Ensure that the cores are of sufficient length to be connected in the field device. Shorten the cores in the field device to the required length.

12.
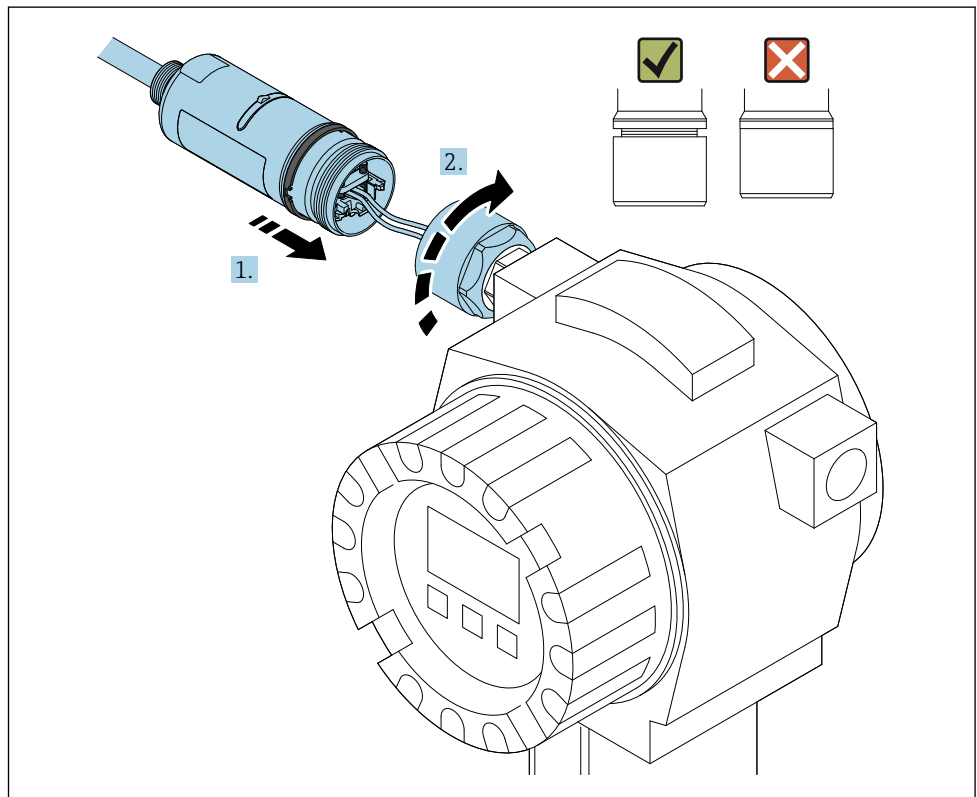
Do not tighten the top housing section yet, so that you are still able to rotate the bottom housing section.

13.
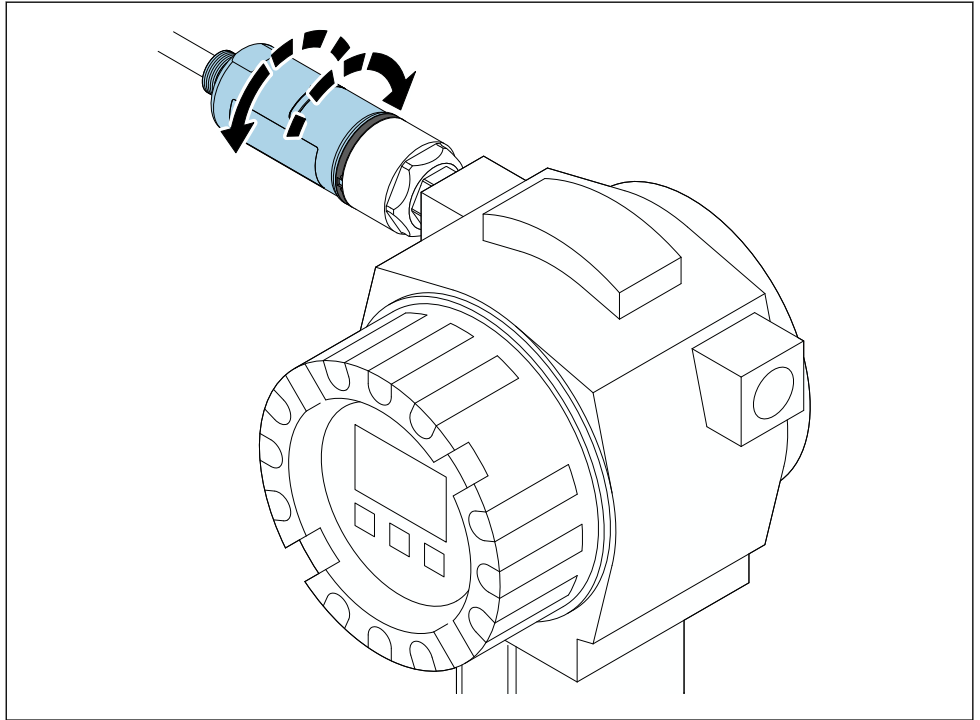
A0040568

Align the bottom housing section with the transmission window according to the network architecture → 🖹 13.

ℹ️ To avoid wire breaks, rotate the bottom housing section by a maximum of ± 180°.

14.
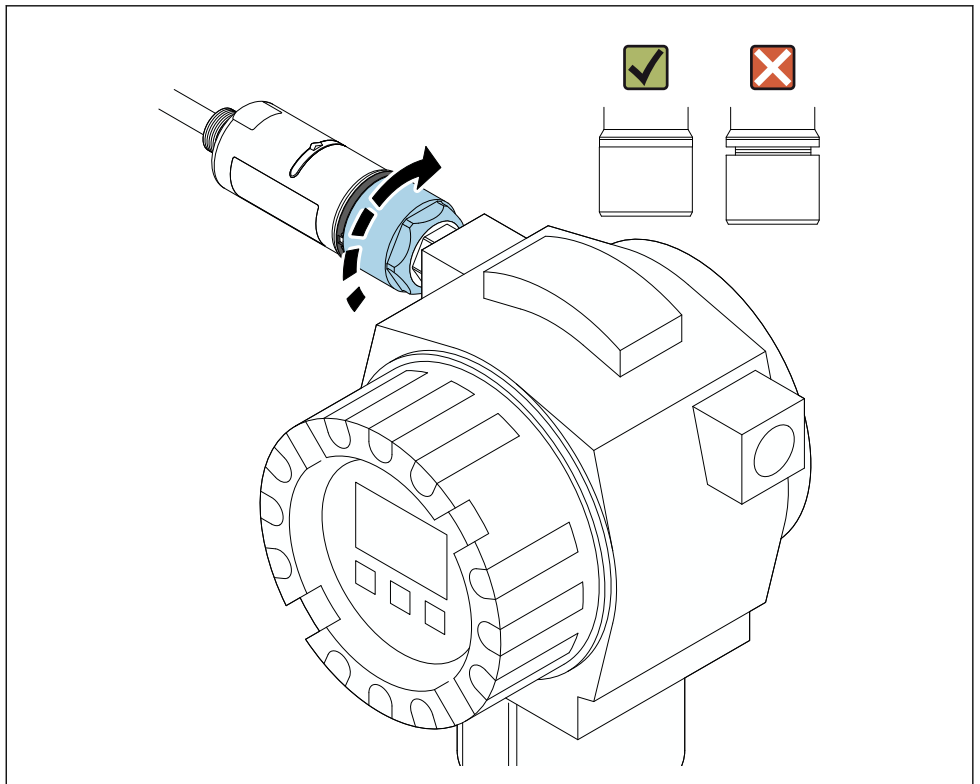
A0040569

Tighten the top housing section so that the blue design ring can still be rotated afterwards. Torque: 5 Nm ± 0.05 Nm

15.
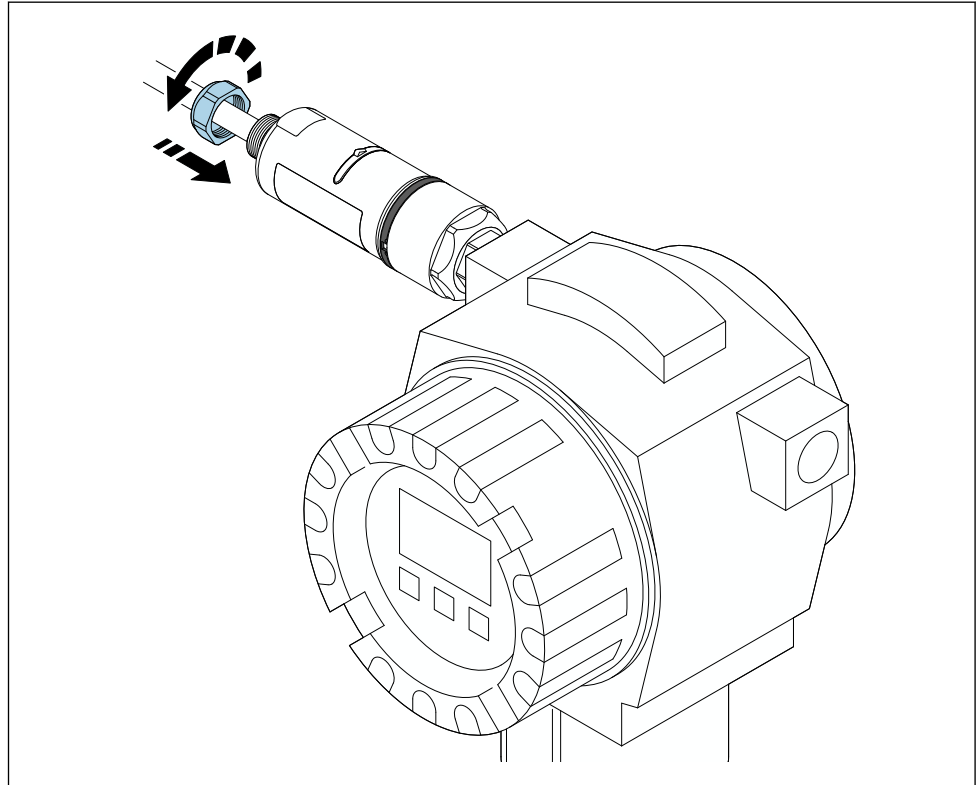
A0040567

16. Perform commissioning → 🖹 37.

5.5 Mounting the "remote mounting" version

NOTICE

Damaged seal.

IP degree of protection is no longer guaranteed.

▶ Do not damage seal.

NOTICE

Supply voltage is present during installation.

Possible damage to the device.

▶ Switch off supply voltage prior to installation.
▶ Make sure the device is de-energized.
▶ Secure it against being switched back on.

Overview of "remote mounting": → 🖹 14

Electrical connection: → 🖹 30

Tools required
• Wrench AF27
• Wrench AF36

Mounting the FieldPort SWA50

1.

A0040498

2.

A0040499

3.

A0041512

4.
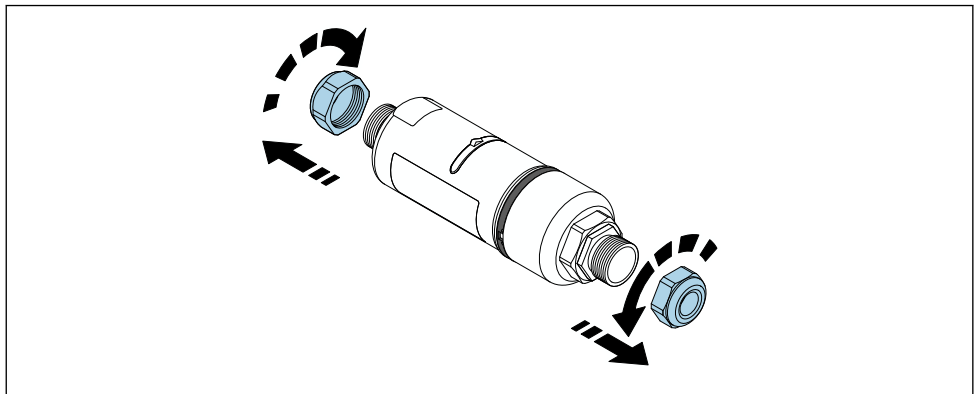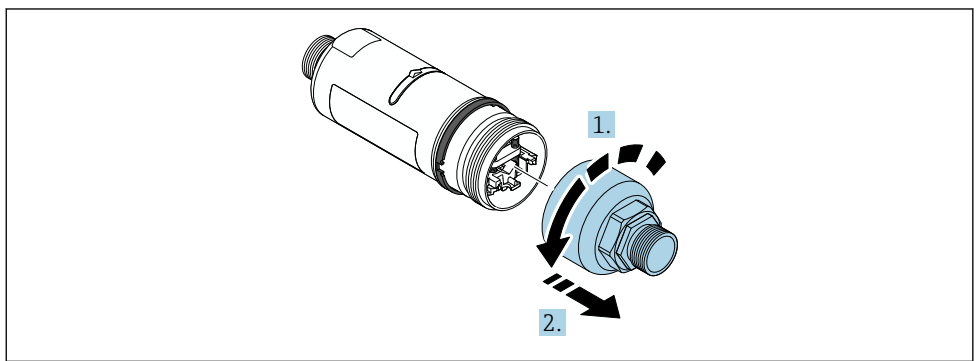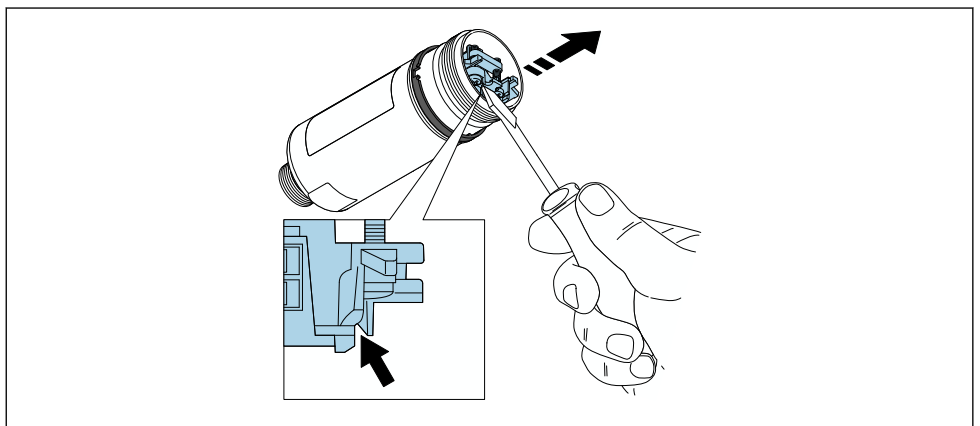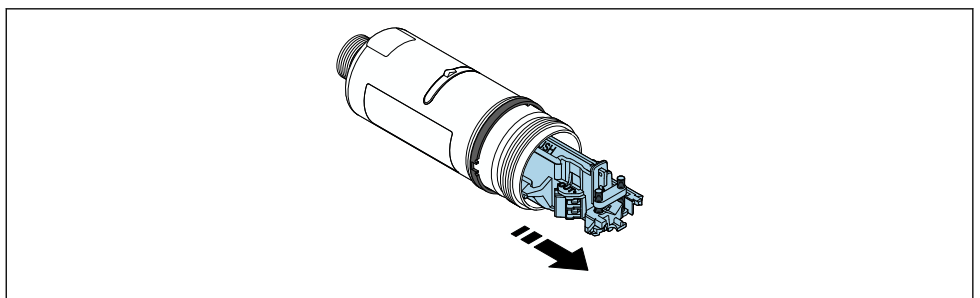
A0040500

5. If you are mounting the FieldPort SWA50 using the optional mounting bracket, follow the instructions in the "Mounting the mounting bracket and FieldPort SWA50" section→ 🖺 28.

6.

A0041513

7.

A0040503

8.
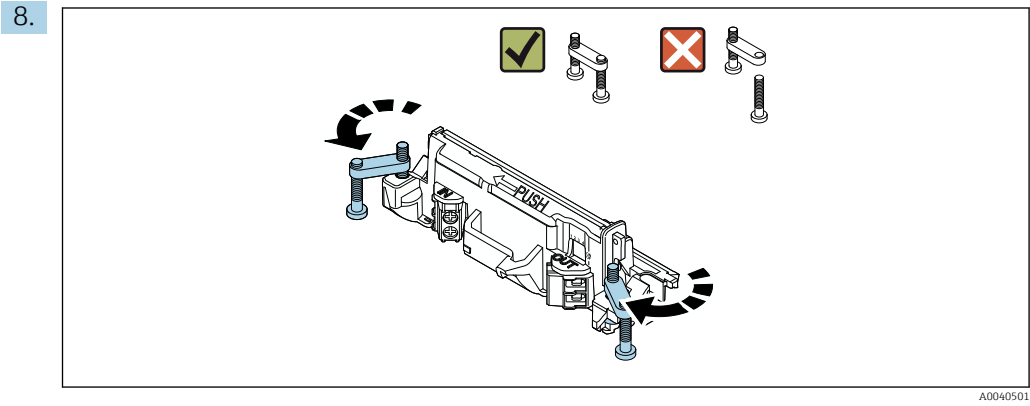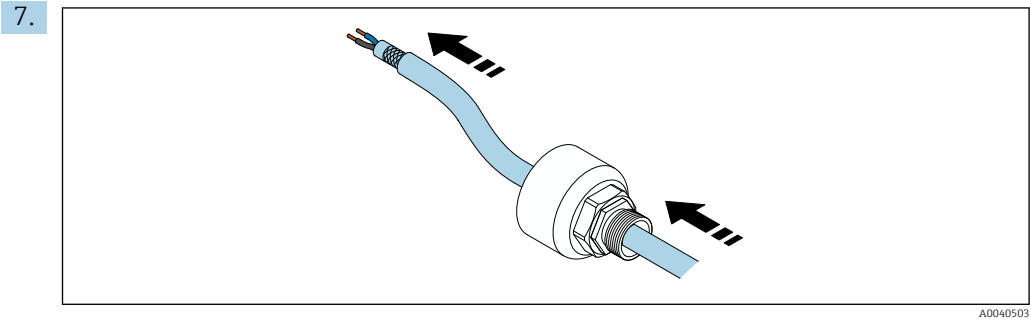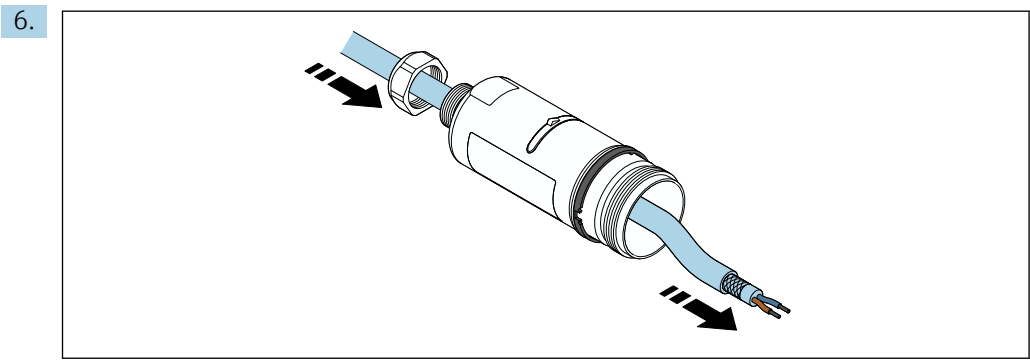
A0040501

9.
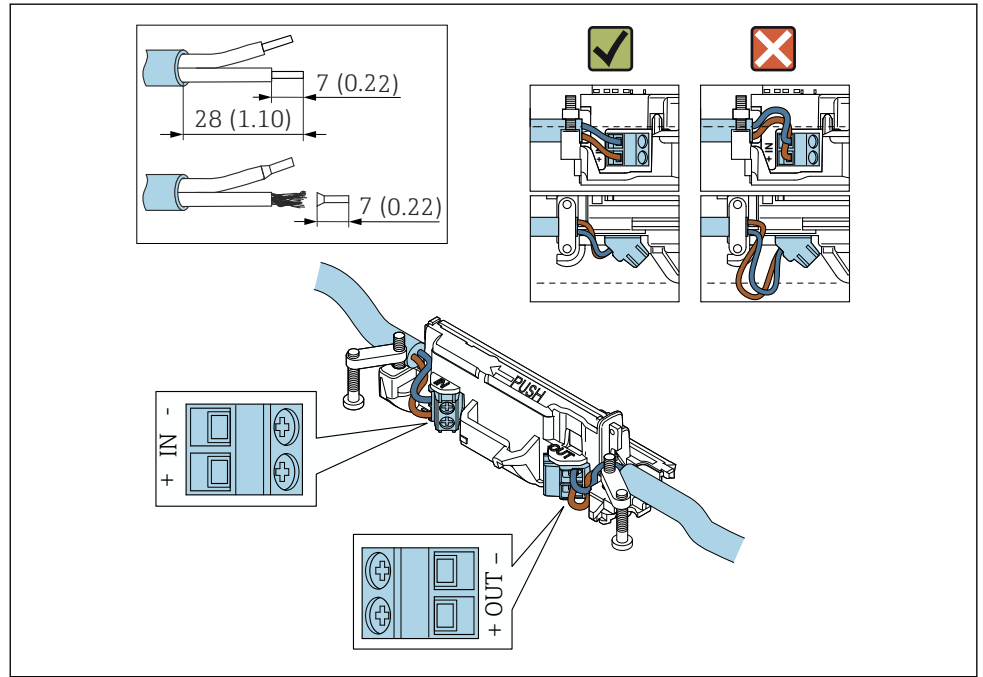
A0040504

If you use a cable gland for a shielded cable, pay attention to the information on stripping the wire → 🖹 31.

- Electrical connection for 2-wire HART field devices with passive current output: → 🖹 32
- Electrical connection for 4-wire HART field devices with passive current output: → 🖹 32
- Electrical connection for 4-wire HART field devices with active current output: → 🖹 32
- Electrical connection for FieldPort SWA50 without HART field device: → 🖹 33

10.
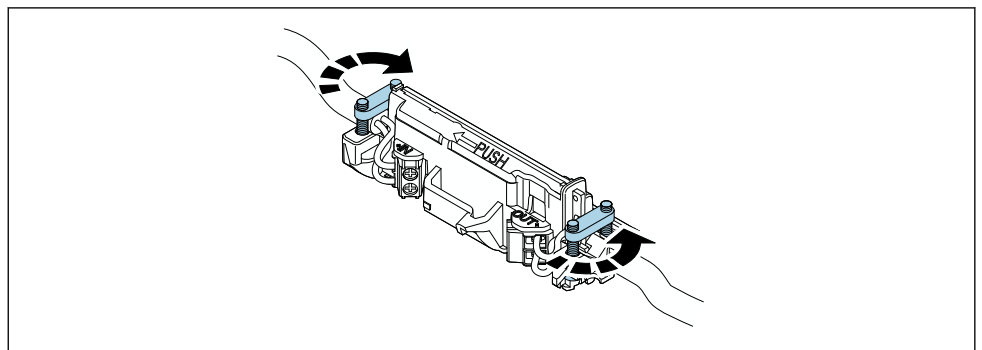
A0040507

Tighten screws for strain relief. Torque: 0.4 Nm ± 0.04 Nm

11.
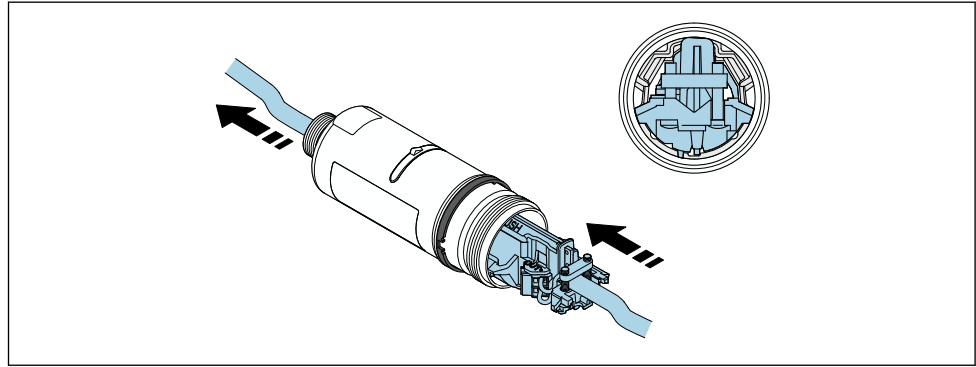
A0040508

Slide the electronic insert into the guide inside the housing.

12.
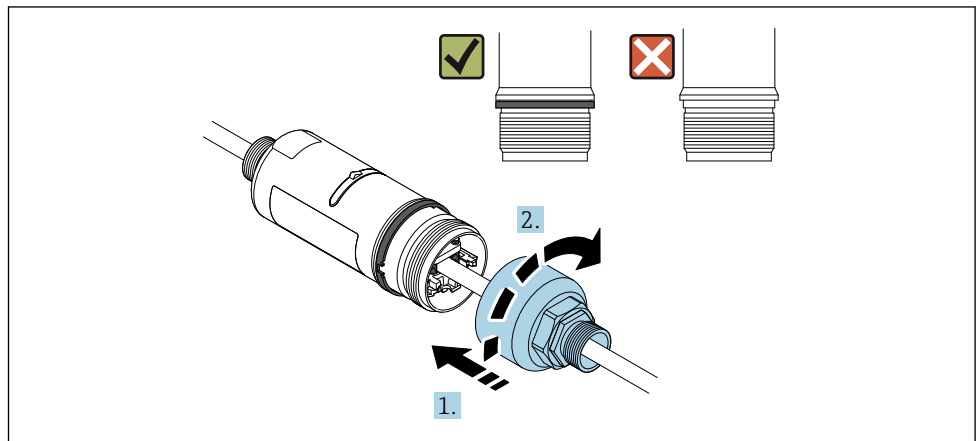
A0040509

Tighten the top housing section so that the blue design ring can still be rotated afterwards. Torque: 5 Nm ± 0.05 Nm

13.
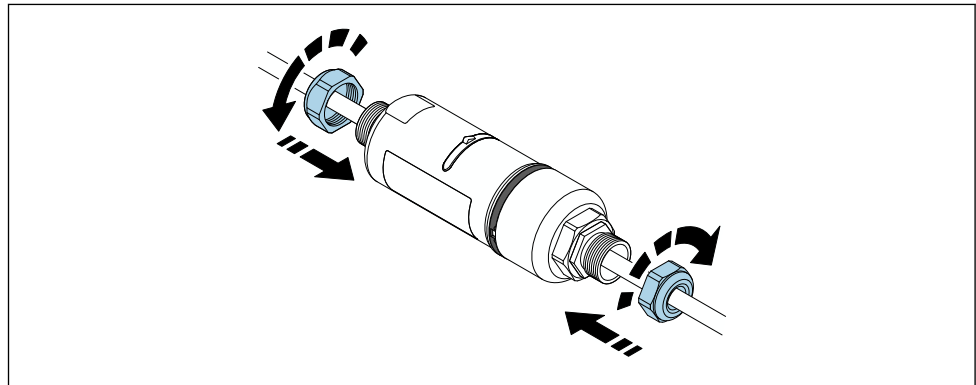
A0040510

14. Perform commissioning → 🖺 37.

5.6 Installing the FieldPort SWA50 with mounting bracket

5.6.1 Mounting and alignment options

The mounting bracket can be mounted as follows:
- On pipes with a maximum diameter of 65 mm
- On walls

The FieldPort can be aligned as follows using the support bracket:
• Via the various mounting positions on the mounting bracket
• By rotating the support bracket

ℹ Pay attention to the alignment and range → 🖹 13.
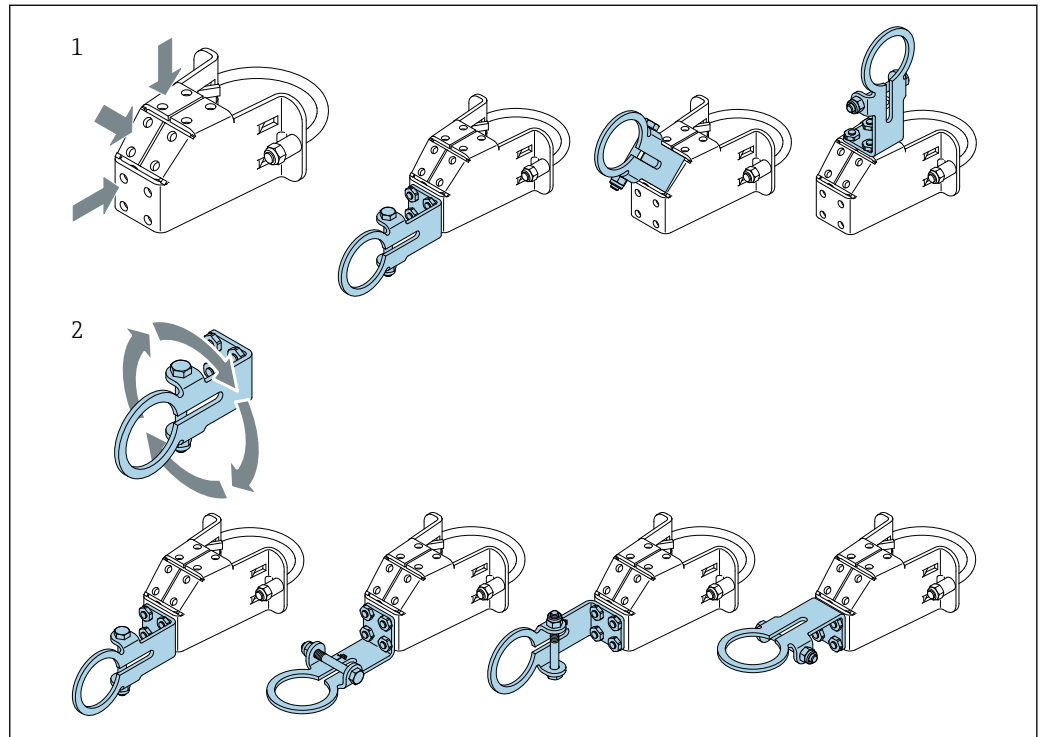
A0043411

🖼 5   *Alignment options via support bracket*

1   Various mounting positions on support bracket
2   By rotating the support bracket

5.6.2   Dimensions
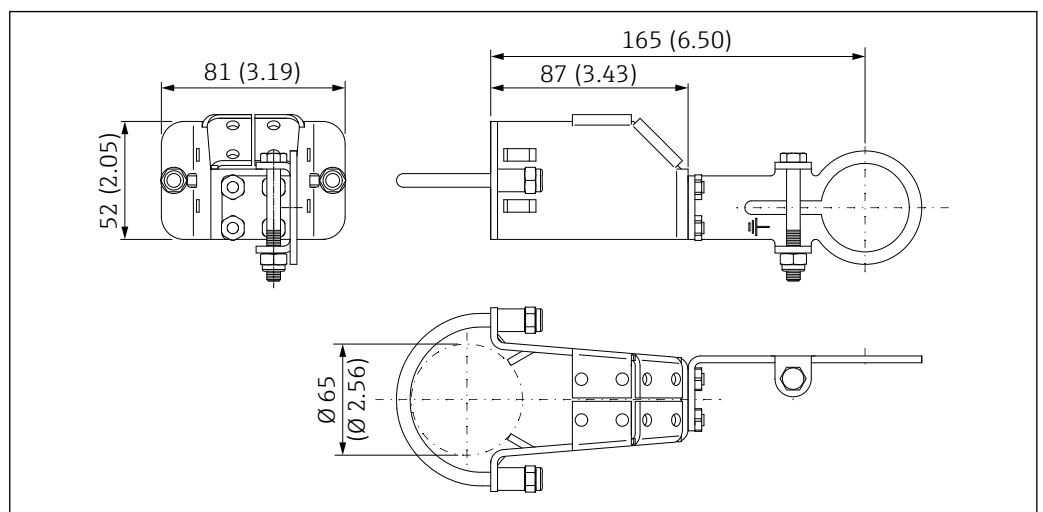
A0043313

🖼 6   *Dimensions of mounting bracket – pipe mounting*
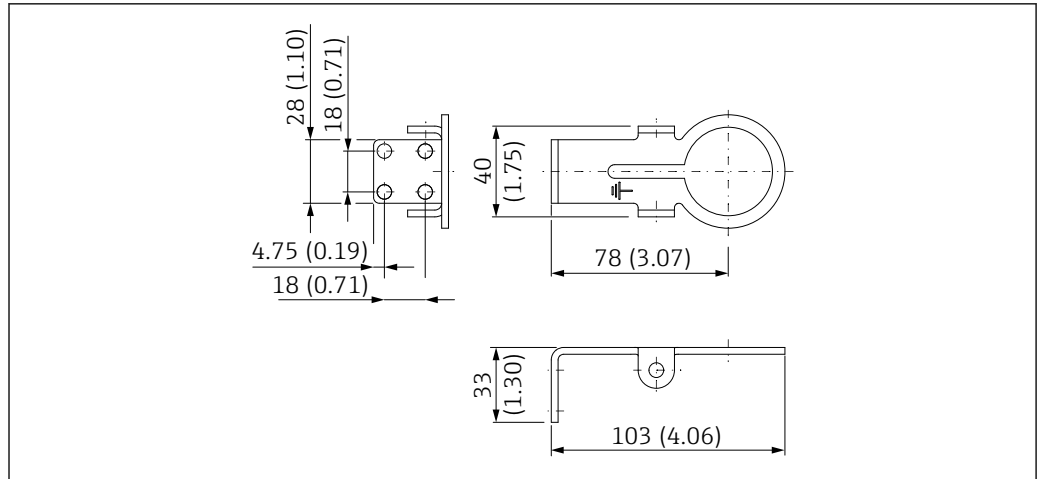
图 7   Dimensions of retaining bracket – wall mounting

5.6.3   Installing the mounting bracket and FieldPort SWA50
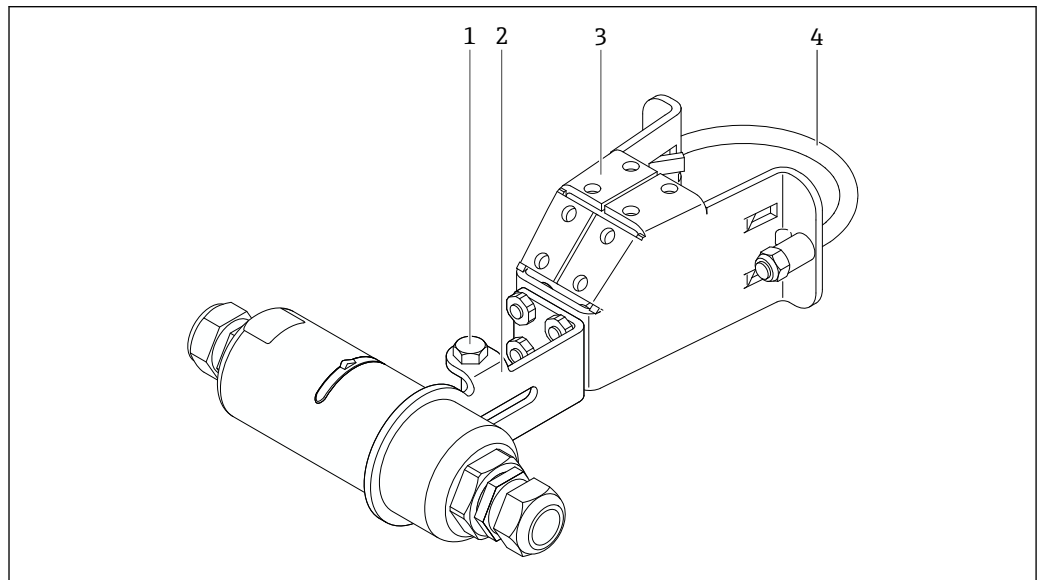
图 8   FieldPort SWA50 mounted via optional mounting bracket

1   Hexagonal-headed bolt for securing and grounding
2   Support bracket
3   Mounting bracket
4   Round bracket

ℹ️ If you are mounting the FieldPort SWA50 using the mounting bracket, you must remove the design ring between the top housing section and the bottom housing section.

Tools required
- Wrench AF10
- Allen key size 4

Installing the mounting bracket on a pipe

▸ Secure the mounting bracket to the pipe at the desired location. Torque: minimum 5 Nm

ℹ️ If you change the position of the support bracket on the mounting bracket, tighten the four hexagonal-headed bolts with a torque of 4 Nm to 5 Nm.

Installing the mounting bracket on a wall

▸ Secure the support bracket to the wall at the desired location. The screws must be suitable for the wall.

Mounting the FieldPort SWA50

ℹ️ Pay attention to the "Mounting the "remote mounting" version" section → 🖺 22.

1. Unscrew the cable glands of the FieldPort SWA50.

2. Unscrew the top housing section.

3. Remove the electronic insert from the housing.

4. Remove the design ring from the bottom housing section.

5. Slide the bottom housing section into the eyelet of the support bracket.

6. Carry out electrical connection for the FieldPort SWA50.

7. Slide the electronic insert into the bottom housing section.

8. Loosely screw on the top housing section.

9. Align the bottom housing section with the transmission window of the FieldPort SWA50 according to the network architecture. The transmission window is located under the black plastic seal.

10. Tighten the top housing section. Torque: 5 Nm ± 0.05 Nm

11. Connect the protective ground to the hexagonal-headed bolt.

12. Tighten the hexagonal-headed bolt so that the FieldPort SWA50 is secured in the mounting bracket.

5.7 Post-mounting check

Is the device undamaged (visual inspection)?	❑
Does the device comply with the required specifications? For example: • Ambient temperature • Humidity • Explosion protection	❑
Are the screws that provide strain relief for the electronic insert tightened with the correct torque?	❑
Is the top housing section tightened with the correct torque?	❑
Are all securing screws, such as those for the optional mounting bracket, firmly tightened?	❑
Are the measuring point identification and labeling correct (visual inspection)?	❑
Is the device aligned correctly with regard to the antenna range? → 🖺 13	❑

6 Electrical connection

NOTICE

Short-circuit at OUT+ and OUT− terminals

Damage to device

▶ Depending on the application, connect either the field device, PLC, transmitter or resistor to the OUT+ and OUT− terminals.

▶ Never short-circuit the OUT+ and OUT− terminals.

6.1 Supply voltage

- Loop-powered 4 to 20 mA
- 24 V DC (min. 4 V DC, max. 30 V DC): min. 3.6 mA loop current required for start-up
- The supply voltage or the power unit must be tested to ensure it meets safety requirements and the requirements for SELV, PELV or Class 2

Voltage drop
- If internal HART communication resistor is deactivated
  - 3.2 V in operation
  - < 3.8 V at start-up
- If internal HART communication resistor is activated (270 Ohm)
  - < 4.2 V at 3.6 mA loop current
  - < 9.3 V at 22.5 mA loop current

To select the supply voltage, pay attention to the voltage drop via the FieldPort SWA50. The remaining voltage must be high enough to enable the start-up and operation of the HART field device.

6.2 Cable specification

Use cables that are suitable for the anticipated minimum and maximum temperatures.

Observe grounding concept of the plant.

2 x 0.25 mm² to 2 x 1.5 mm²

You can use unshielded cable with or without ferrules and shielded cable with or without ferrules.

If you select the "direct mounting" version and the "4-wire HART field device with active current output and PLC or transmitter" electrical connection version, you can use core cross-sections of 0.75 mm² at maximum. If larger core cross-sections are required, we recommend remote mounting.

6.3 Terminal assignment
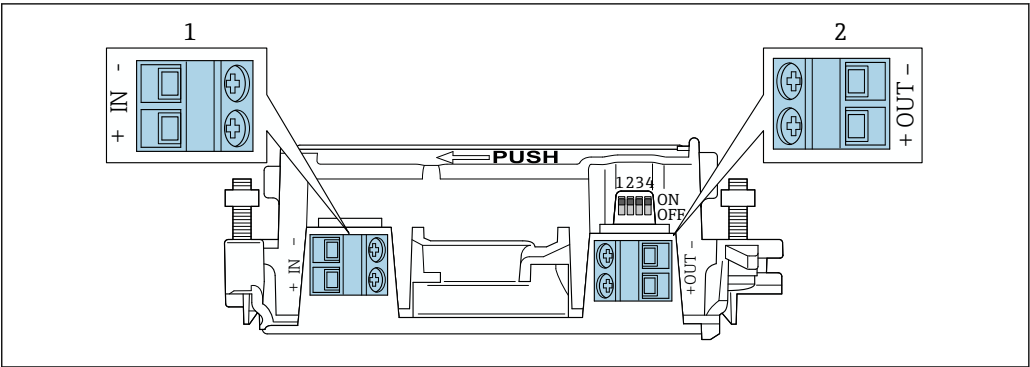
 9   FieldPort SWA50 terminal assignment

1   Input terminal IN
2   Output terminal OUT

Application	Input terminal IN	Output terminal OUT
2-wire HART field device → 🖻 11, 🗎 32	Cable from supply voltage, PLC with active current output or transmitter with active current output	Cable to 2-wire HART field device
4-wire HART field device with passive current output → 🖻 12, 🗎 32	Cable from supply voltage, PLC with active current output or transmitter with active current output	Cable to 4-wire HART field device
4-wire HART field device with active current output → 🗎 32	Cable from 4-wire field device with active 4 to 20 mA HART output	PLC or transmitter with passive current output (optional), alternatively wire bridge between terminals OUT+ and OUT−
FieldPort SWA50 without field device → 🖻 15, 🗎 33	Cable from supply voltage for FieldPort SWA50	Resistor between terminals OUT+ and OUT−

6.4 Stripping in the case of a cable gland for shielded cable

If you are using shielded cables and wish to connect the cable shield to the FieldPort SWA50, you must use cable glands for shielded cable.

If you have ordered the "Brass M20 for shielded cable" option for the cable glands, you will receive the following cable glands:
• "Direct mounting" version: 1 cable gland for shielded cable
• "Remote mounting" version: 2 cable glands for shielded cable

When mounting a cable gland for shielded cable, we recommend the following dimensions for stripping. The dimensions for input terminal IN and output terminal OUT are different.
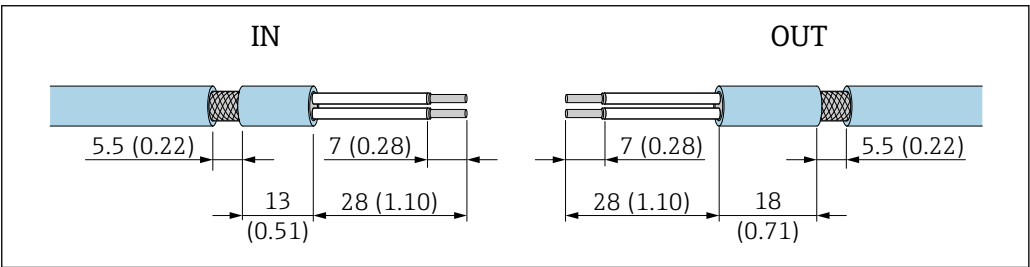
 10   Recommended dimensions for stripping in the case of cable glands for shielded cable for input terminal IN and output terminal OUT

- Sealing area (jacket): Φ 4 to 6.5 mm (0.16 to 0.25 in)
- Shielding: Φ2.5 to 6 mm (0.1 to 0.23 in)

6.5   2-wire HART field device with passive current output

ℹ️ Some grounding concepts require shielded cables. If connecting the cable shield to the FieldPort SWA50, you must use a cable gland for shielded cable. See ordering information.

A0040494
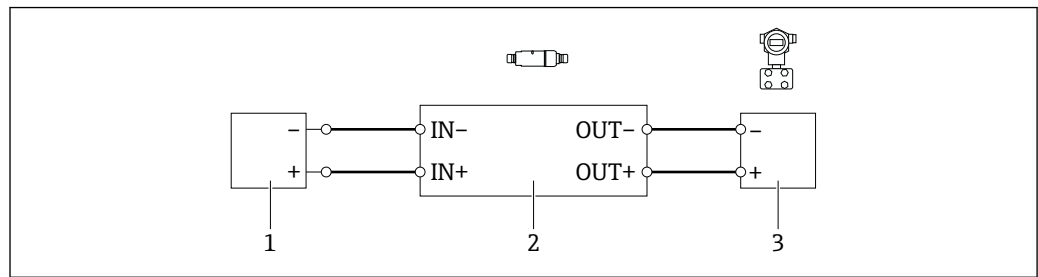
🔲 *11   Electrical connection for 2-wire HART field devices with passive current output (optional grounding not shown)*

1   Supply voltage (SELV, PELV or Class 2) or PLC with active current input or transmitter with active current input
2   Electronic insert SWA50
3   2-wire field device 4 to 20 mA-HART

6.6   4-wire HART field device with passive current output

ℹ️ Some grounding concepts require shielded cables. If connecting the cable shield to the FieldPort SWA50, you must use a cable gland for shielded cable. See ordering information.

A0040491
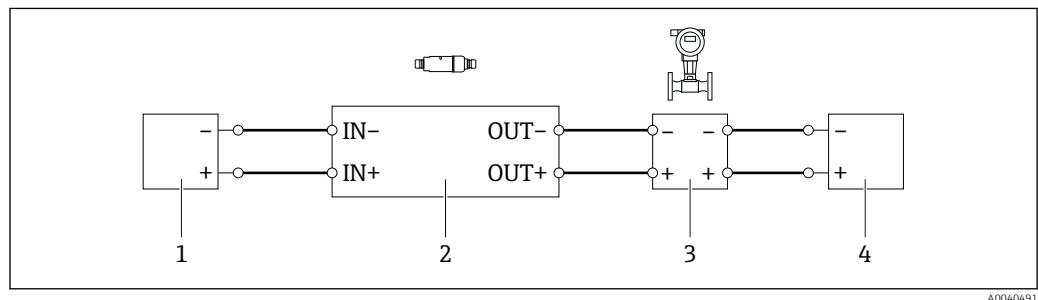
🔲 *12   Electrical connection for 4-wire HART field devices with passive current output (optional grounding not shown)*

1   Supply voltage (SELV, PELV or Class 2) or PLC with active current input or transmitter with active current input
2   Electronic insert SWA50
3   4-wire field device with passive 4 to 20 mA-HART output
4   Supply voltage for 4-wire field device

6.7   4-wire HART field device with active current output

ℹ️ Some grounding concepts require shielded cables. If connecting the cable shield to the FieldPort SWA50, you must use a cable gland for shielded cable. See ordering information.
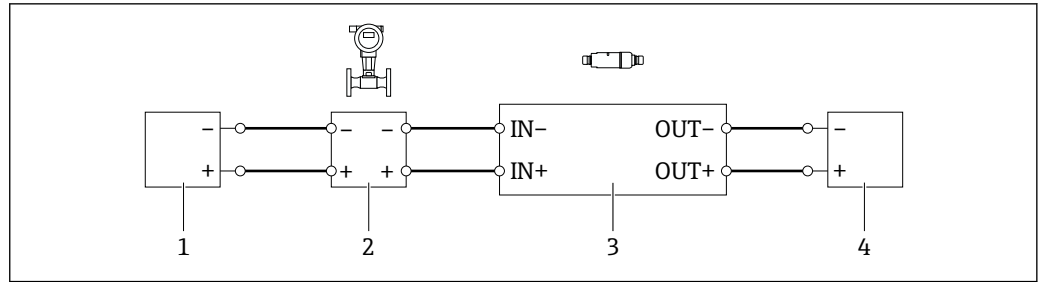
13 *Electrical connection for 4-wire HART field devices with active current output (optional grounding not shown) – PLC or transmitter at OUT terminals*

1 *Supply voltage (SELV, PELV or Class 2) for 4-wire HART field device*
2 *4-wire field device with active 4 to 20 mA-HART output*
3 *Electronic insert SWA50*
4 *PLC or transmitter with passive current input*
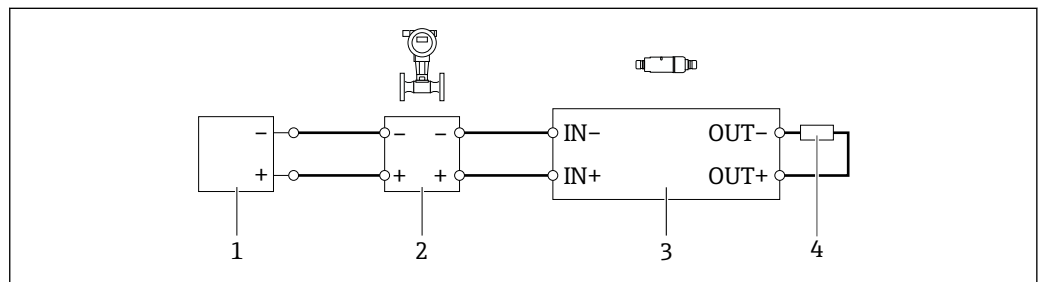
14 *Electrical connection for 4-wire HART field devices with active current output (optional grounding not shown) – resistor at OUT terminals*

1 *Supply voltage (SELV, PELV or Class 2) for 4-wire HART field device*
2 *4-wire field device with active 4 to 20 mA-HART output*
3 *Electronic insert SWA50*
4 *Resistor 250 to 500 Ohm min. 250 mW between OUT+ and OUT− terminals*

ℹ️ If you select the "direct mounting" version and the "4-wire HART field device with active current output and PLC or transmitter" electrical connection version, you can use core cross-sections of 0.75 mm² at maximum. The wires that you insert into the shorter top housing section must be connected to the IN terminals opposite, and the wires that you insert into the longer bottom housing section must be connected to the OUT terminals opposite. If larger core cross-sections are required, we recommend remote mounting.

6.8 FieldPort SWA50 without HART field device

ℹ️ With this connection version, you can preconfigure the FieldPort SWA50.
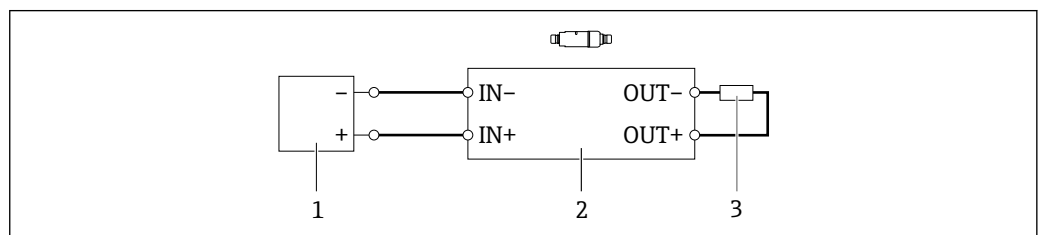
15 *FieldPort SWA50 without HART field device (optional grounding not showing)*

1 *Supply voltage of FieldPort SWA50, 20 to 30 VDC (SELV, PELV or Class 2)*
2 *Electronic insert SWA50*
3 *Resistor 1.5 kOhm and min. 0.5 W between terminals OUT+ and OUT−*

6.9   FieldPort SWA50 grounding

6.9.1   "Direct mounting" version

With the "direct mounting" version, the FieldPort SWA50 is grounded via the field device or the metal conduit.

6.9.2   "Remote mounting" version

With the "remote mounting" version, ground the FieldPort SWA50 via the optional mounting bracket or a grounding clamp provided by the customer.

Optional mounting bracket

If using the mounting bracket, ground the FieldPort SWA50 via the grounding screw.

A0043311
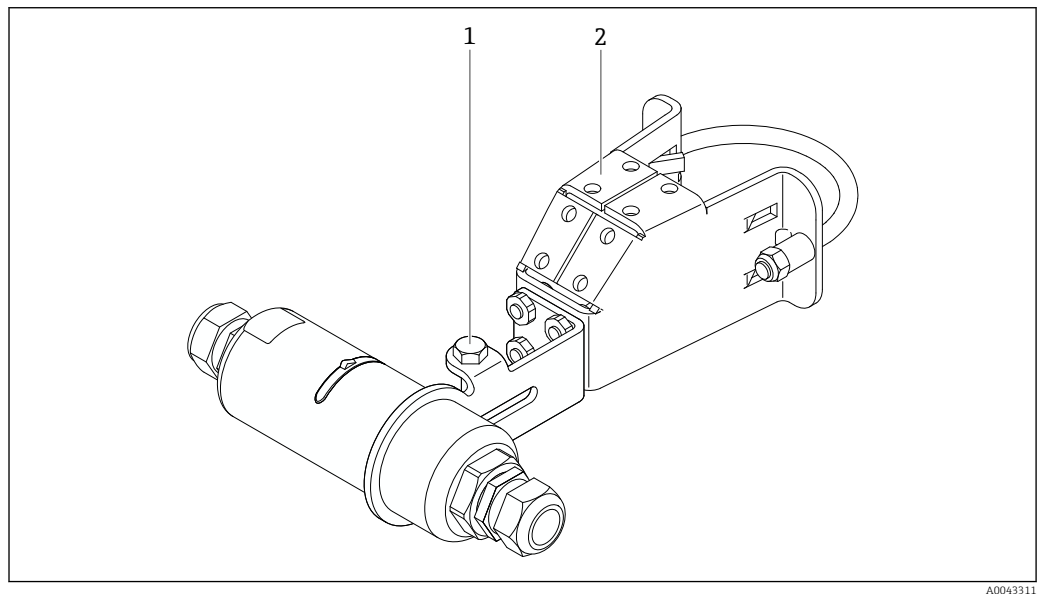
🖾 *16   Optional mounting bracket*

1   Hexagonal-headed bolt for securing and grounding
2   Optional mounting bracket

Grounding clamp provided by customer

The grounding clamp provided by the customer must meet the following requirements:
- Diameter: approx. 40 mm
- Stainless steel
- If the FieldPort SWA50 is used in a hazardous area: suitable for hazardous areas as per DIN EN 62305, Sheet 3 and DIN EN 62561-1
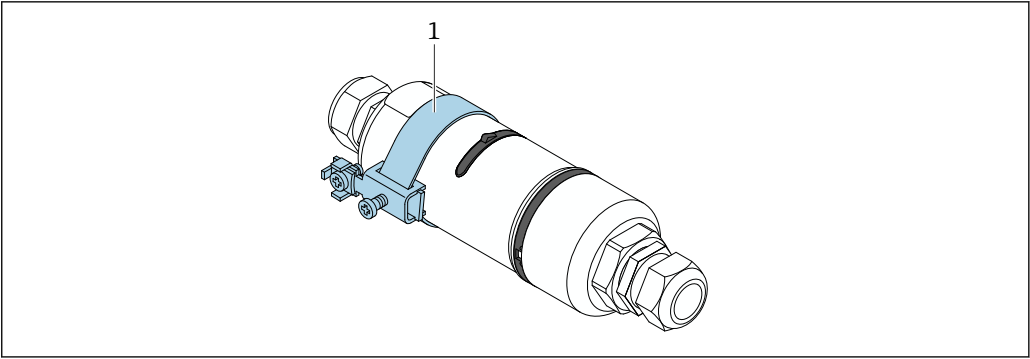
🖼 17   Grounding via grounding clamp

1   Example of grounding clamp provided by customer

6.10   Post-connection check

Are the device and cable undamaged (visual check)?	❑
Do the cables comply with the requirements?	❑
Is the terminal assignment correct?	❑
Have the cables been connected in such a way that no wires, insulation and / or cable shields are jammed?	❑
Is the supply voltage correct?	❑
Is the FieldPort SWA50 grounded, if necessary?	❑

7 Operating options

7.1 Overview of operating options

The FieldPort SWA50 can be operated as follows via Bluetooth:
• Via a smartphone or tablet with the Endress+Hauser SmartBlue app
• Via Endress+Hauser Field Xpert SMTxx tablet PC

The WirelessHART version of the FieldPort SWA50 can be integrated into a WirelessHART network via the Endress+Hauser WirelessHART-Fieldgate SWG70 or via any compatible WirelessHART Fieldgate. More information is available from your Endress+Hauser sales organization: www.addresses.endress.com.

In addition, the WirelessHART version can be operated as follows:
• Local configuration with FieldCare SFE500 or DeviceCare via DTM for FieldPort SWA50
• Remote configuration with FieldCare SFE500 via WirelessHART Fieldgate SWG70 and DTM for FieldPort SWA50 and Fieldgate SWG70

In addition, you can connect the FieldPort SWA50 with the connected HART field device to the Netilion Cloud via the FieldEdge SGC500.

> • Detailed information on Netilion Cloud: https://netilion.endress.com
> • For detailed information on the FieldEdge SGC500, see TI01525S.

7.2 SmartBlue app

The FieldPort SWA50 and the connected HART field device are not visible via Bluetooth without the SmartBlue app. One point-to-point connection is established between the FieldPort SWA50 and one smartphone or tablet.

The SmartBlue app is available for download from the Google Play Store for mobile devices with Android and from the Apple App Store for devices with iOS.

▶

Scan the QR code.
↳ The Google Play or App Store site opens where you can download the SmartBlue app.

System requirements

> Please see either the Google Play or App Store site for the system requirements of the SmartBlue app.

7.3 Field Xpert SMTxx

> • For detailed information on operating with the Field Xpert SMT70, see BA01709S.
> • For detailed information on operating with the Field Xpert SMT77, see BA01923S.

8 Commissioning

8.1 Prerequisites

8.1.1 Requirements of the FieldPort SWA50

- The FieldPort SWA50 is electrically connected.
- Post-mounting check has been carried out → 🗎 29.
- Post-connection check has been carried out → 🗎 35.
- DIP switch 1 for Bluetooth communication must be set to ON → 🗎 44. (Factory setting for DIP switch 1: ON)

8.1.2 Information required for commissioning

You will need the following information for commissioning:
- HART device address of HART field device
- Device tag of HART field device in WirelessHART network
  - Long tag for HART-6 and HART-7 field devices
  - HART message for HART-5 field devices

> ℹ️ Each device tag in the WirelessHART network must be unique.

8.1.3 Points to check before commissioning

HART master

In addition to the FieldPort SWA50, only one other HART master is permitted in the HART loop. The master type of this additional HART master and the FieldPort SWA50 may not be identical. Configure the master type via the "HART master type" parameter → 🗎 48.

HART communication resistor

For HART communication, you require either the internal HART communication resistor of the FieldPort SWA50 or a HART communication resistor outside the FieldPort SWA50 in the 4 to 20 mA loop.

Requirements for the "Internal HART communication resistor" version:
The "Internal" option is configured for the "Communication risistor" parameter → 🗎 48.

Requirements for the "HART communication resistor outside the FieldPort SWA50" version:
- The HART communication resistor of ≥ 250 Ohm is located outside the FieldPort SWA50 in the 4 to 20 mA loop
- The HART communication resistor must be wired in series between the "IN+" terminal of the FieldPort SWA50 and the supply voltage, such as the PLC or active barrier
- The "External" option is configured for the "Communication risistor" parameter → 🗎 48

8.1.4 Initial password

The initial password can be found on the nameplate.

8.2 Putting the FieldPort SWA50 into operation

The FieldPort SWA50 can be operated as follows via Bluetooth:
- Via a smartphone or tablet with the Endress+Hauser SmartBlue app
- Via the Endress+Hauser tablet PC Field Xpert SMTxx

In addition, the WirelessHART version of the FieldPort SWA50 can be operated via FieldCare SFE500.

📖 Operating Instructions for FieldPort SWA50 WirelessHART: BA02046S

8.2.1 Commissioning via SmartBlue app

Burst messages

You can change the burst messages via WirelessHART, locally via a Commubox FXA195 using FieldCare SFE500 or via Field Xpert. You cannot change burst messages via the SmartBlue app.

Burst message	Factory configuration
1	Every 5 minutes, the FieldPort SWA50 transmits the process values of the field device in accordance with HART command 3.
2	Every 5 minutes, the FieldPort SWA50 transmits the diagnostic data of the field device in accordance with HART command 48.
3	Not configured
4	Every 5 minutes, the FieldPort SWA50 transmits its own process values in accordance with HART command 3.
5	Every 5 minutes, the FieldPort SWA50 transmits its own diagnostic data in accordance with HART command 48.

Starting the SmartBlue app and logging in

1. Switch on the supply voltage for the FieldPort SWA50.

2. Start the SmartBlue app on the smartphone or tablet.
   ↳ An overview of accessible devices is displayed.
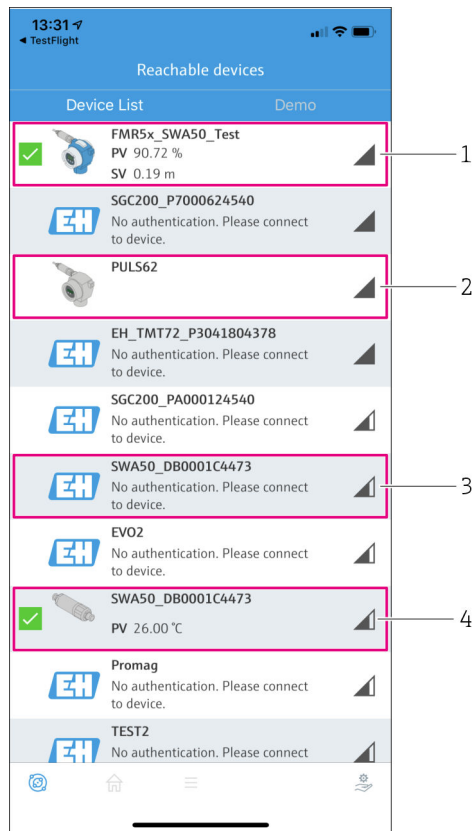
⊠ *18   Reachable devices (live list)*

1   Example of FieldPort SWA50 with Endress+Hauser HART field device, already connected to
      SmartBlue app
2   Example of FieldPort SWA50 with HART field device of another manufacturer, already connected
      to SmartBlue app
3   Example of FieldPort SWA50, not yet connected to SmartBlue app
4   Example of FieldPort SWA50 without HART field device, already connected to SmartBlue app

3. Select device from list.
   ↳ The "Login to device" page is displayed.
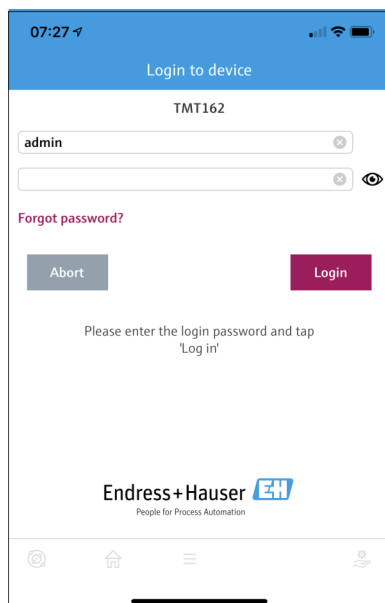
🖼 *19   Login*

ℹ You can establish only **one** point-to-point connection between **one** FieldPort SWA50 and **one** smartphone or tablet.

▸ Log in. Enter **admin** as the user name and enter the initial password. The password can be found on the nameplate.
   ↳ Once the connection has been established successfully, the "Device information" page is displayed for the selected device. → 🖺 45

ℹ Change the password after logging in for the first time. → 🖺 48

Checking and adjusting the HART configuration

Perform the following steps to ensure good communication between the FieldPort SWA50 and the connected HART field device.

ℹ • The parameters listed in this section can be found in the "HART Configuration" menu.
   • Navigation: Root menu > System > FieldPort SWA50 > Connectivity > HART configuration
   • Menu overview: → 🖺 83

1. Use the "HART address field device" parameter to check the HART address of the HART field device and set the address if necessary. In the HART field device and in the FieldPort SWA50, the same HART address must be used for the HART field device. → 🖺 48

2. Via the "Communication resistor" parameter, check the setting for the HART communication resistor. If there is no HART communication resistor outside of the FieldPort SWA50 in the 4 to 20 mA loop, you must activate the internal HART communication resistor. → 🖺 48

3. Via the "HART master type" parameter, check the setting for an additional HART master in the HART loop. In addition to the FieldPort SWA50, only one other HART master is permitted in the HART loop. The master type of this additional HART master and the FieldPort SWA50 may not be identical. → 🖺 48

WirelessHART configuration

Perform the following steps to ensure good communication between the FieldPort SWA50 and the WirelessHART network.

- The parameters listed in this section can be found in the "WirelessHART Configuration" menu → 🖺 49.
- Navigation: Root menu > System > FieldPort SWA50 > Connectivity > WirelessHART configuration
- You can only edit the parameters if the "Do not attempt to join" option has been selected for the "Join mode" parameter.

1. Enter the ID number for the network via the "Network ID" parameter.

2. Enter the network password via the "Join Key" parameter.

3. Connect to the network via the "Join mode" parameter. It can take up to 30 minutes to connect to the WirelessHART network.

8.2.2   Commissioning via Field Xpert

Burst messages

Burst messages for the FieldPort SWA50 are configured in the factory. You can change the burst messages via WirelessHART, locally via a Commubox FXA195 using FieldCare SFE500 or via Field Xpert.

Burst message	Factory configuration
1	Every 5 minutes, the FieldPort SWA50 transmits the process values of the field device in accordance with HART command 3.
2	Every 5 minutes, the FieldPort SWA50 transmits the diagnostic data of the field device in accordance with HART command 48.
3	Not configured
4	Every 5 minutes, the FieldPort SWA50 transmits its own process values in accordance with HART command 3.
5	Every 5 minutes, the FieldPort SWA50 transmits its own diagnostic data in accordance with HART command 48.

Starting the Field Xpert and logging in

1. Switch on the supply voltage for the FieldPort SWA50.

2. Start the Field Xpert tablet PC. To do so, double-click Field Xpert on the start screen.
   ↳ The following view is displayed:
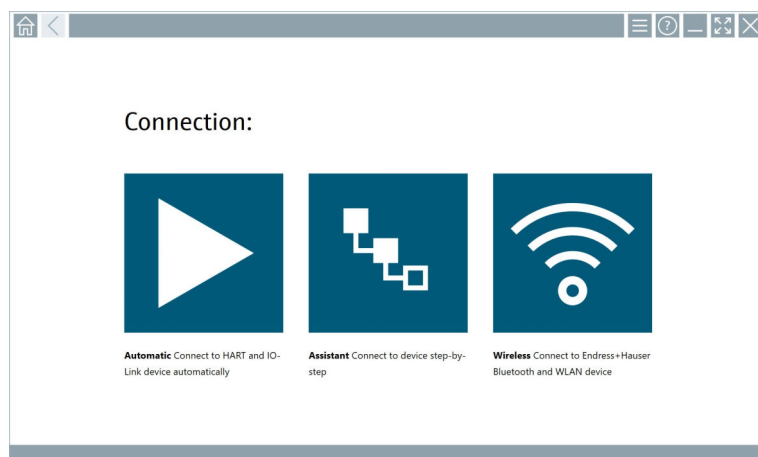
3. Tap the 📶 icon.
   ↳ A list of all available WIFI and Bluetooth devices appears.
4. Click the ⧉ symbol to filter for Bluetooth devices.
   ↳ A list of all available Bluetooth devices appears.
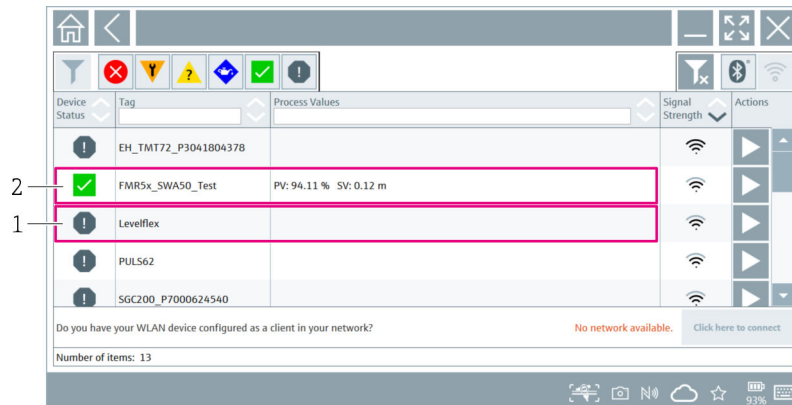
 20   Reachable devices (live list)

1   Example of FieldPort SWA50 with HART field device, never connected to Field Xpert before
2   Example of FieldPort SWA50 with or without HART field device, already connected to Field Xpert

5. Tap the ▶ symbol next to the device that should be configured.
   ↳ The Login dialog box appears.
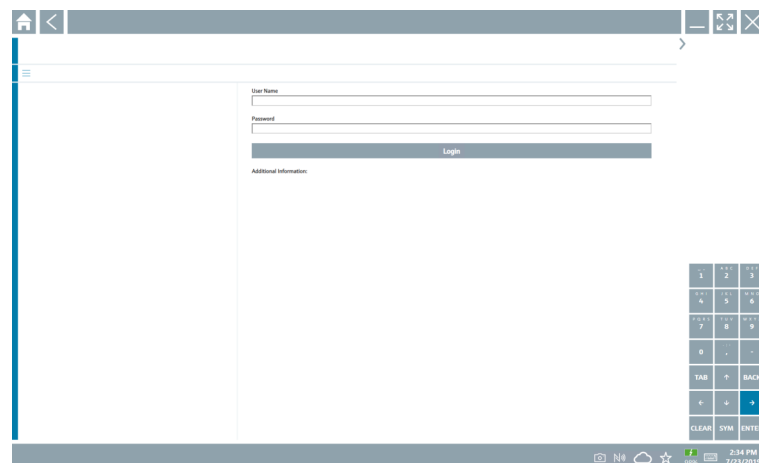
6. Log in. Enter **admin** as the user name and enter the initial password. The initial password can be found on the nameplate.
   ↳ The dialog box for initial commissioning opens.

ℹ️   Change the password after logging in for the first time. → 📄 48

Checking and adjusting the HART configuration

Perform the following steps to ensure good communication between the FieldPort SWA50 and the connected HART field device.

ℹ️ • The parameters listed in this section can be found in the "HART Configuration" menu.
    • Navigation: Root menu > System > FieldPort SWA50 > Connectivity > HART configuration
    • Menu overview: → 📄 83

1. Use the "HART address field device" parameter to check the HART address of the HART field device and set the address if necessary. In the HART field device and in the FieldPort SWA50, the same HART address must be used for the HART field device. → 🖺 48

2. Via the "Communication resistor" parameter, check the setting for the HART communication resistor. If there is no HART communication resistor outside of the FieldPort SWA50 in the 4 to 20 mA loop, you must activate the internal HART communication resistor. → 🖺 48

3. Via the "HART master type" parameter, check the setting for an additional HART master in the HART loop. In addition to the FieldPort SWA50, only one other HART master is permitted in the HART loop. The master type of this additional HART master and the FieldPort SWA50 may not be identical. → 🖺 48

WirelessHART configuration

Perform the following steps to ensure good communication between the FieldPort SWA50 and the WirelessHART network.

- The parameters listed in this section can be found in the "WirelessHART Configuration" menu → 🖺 49.
- Navigation: Root menu > System > FieldPort SWA50 > Connectivity > WirelessHART configuration
- You can only edit the parameters if the "Do not attempt to join" option has been selected for the "Join mode" parameter.

1. Enter the ID number for the network via the "Network ID" parameter.

2. Enter the network password via the "Join Key" parameter.

3. Connect to the network via the "Join mode" parameter. It can take up to 30 minutes to connect to the WirelessHART network.

9   Operation

9.1   Hardware locking

The DIP switches for hardware-locking are located on the electronic insert.
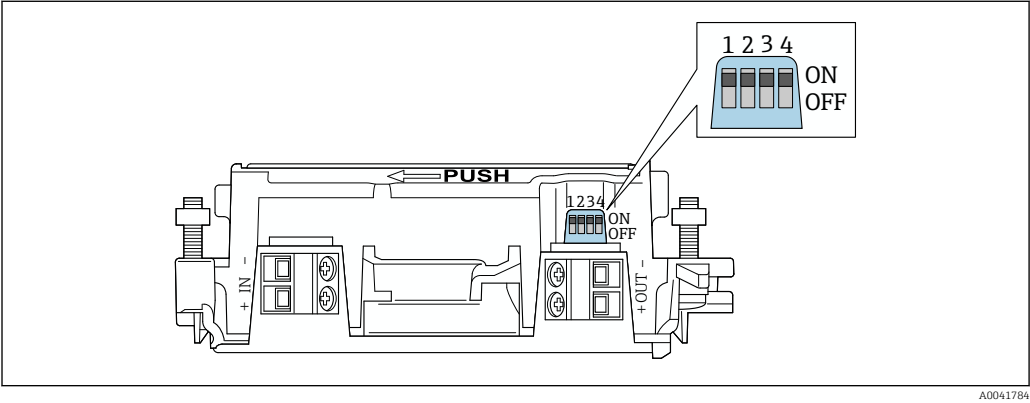
⊠ 21   DIP switches for hardware-locking of functions

DIP switch	Function	Description	Factory setting
1	Bluetooth communication	• ON: Communication via Bluetooth is possible, e.g. via SmartBlue App and Field Xpert. • OFF: Communication via Bluetooth is not possible.	ON
2	Firmware update	• ON: You can carry out firmware updates. • OFF: You cannot carry out firmware updates.	ON
3	Configuration via Bluetooth	• ON: Configuration via Bluetooth is possible, e.g. via SmartBlue App and Field Xpert. • OFF: Configuration via Bluetooth is not possible.	ON
4	Reserve	–	–

9.2   LED

1 LED

Green: Flashes four times at start-up to indicate that the device is operational

The LED is located on the electronic insert and is not visible from the outside.

10 Description of SmartBlue app for SWA50

10.1 Menu overview (Navigation)

10.2 "Device information" page

The following display options are possible for the "Device information" page:
- FieldPort SWA50 with HART field device from Endress+Hauser
- FieldPort SWA50 with HART field device from another manufacturer
- FieldPort SWA50 without connected or accessible HART field device

ℹ️ **Information about the serial number shown**

For Endress+Hauser field devices with HART 6 and HART 7, the actual serial number is displayed. For field devices from other manufacturers and for Endress+Hauser field devices with HART 5, a unique serial number is calculated. The calculated serial number does not correspond to the actual serial number of the field device.

ℹ️ **Information about the status signal shown**

When the Endress+Hauser field device is connected, the status signal displayed is a combination of the status signal of the connected HART field device and the status signal of the FieldPort SWA50.

If the HART field device does not support the extended device status according to NAMUR NE 107, limitations may apply to the display of status information.
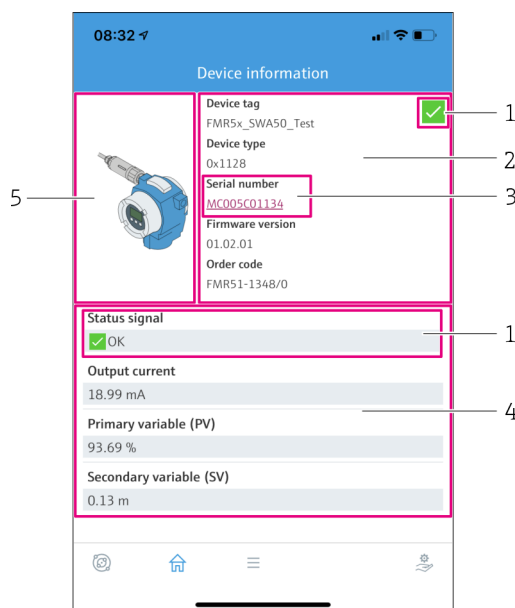
🖻 *22   "Device information" view – example for SWA50 with Endress+Hauser HART field device*

1   Combined status signal, consisting of the status for the SWA50 and the status of the connected HART field device
2   Information about the HART field device connected to the SWA50. Firmware version, order code and device type are only displayed for Endress+Hauser field devices with HART 6 and HART 7.
3   Serial number
4   Process values of HART field device
5   Product image of Endress+Hauser HART field device with SWA50
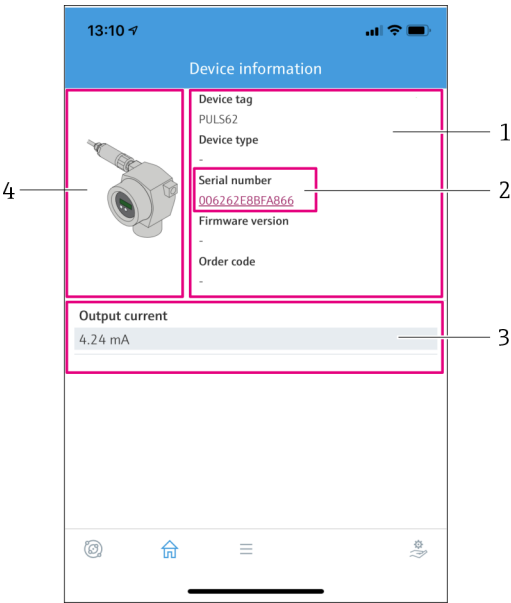
🖾 23   "Device information" view – example for SWA50 with HART field device from another manufacturer

1   Information about the HART field device connected to the SWA50. Firmware version, order code, device type and status are displayed only for Endress+Hauser field devices with HART 6 and HART 7.
2   Serial number
3   Output current of HART field device
4   Product image of HART field device from another manufacturer with SWA50
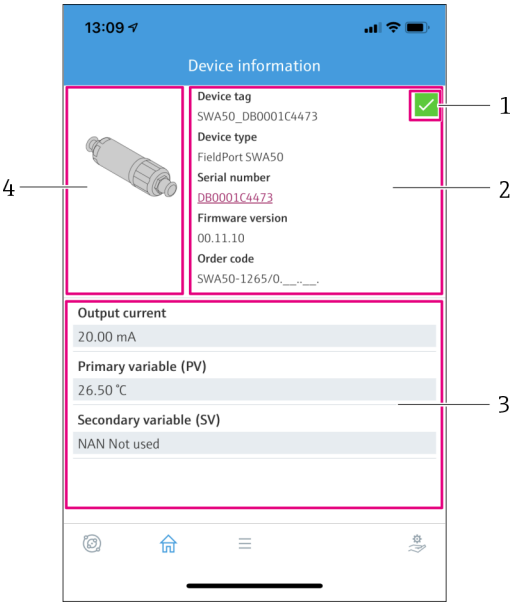
🖾 24   "Device information" view – example for SWA50 without connected or accessible HART field device

1   Status signal for SWA50
2   Information about the SWA50
3   Measured values of the SWA50, 20 mA is always displayed as the output current in this case
4   Product image of SWA50, since HART field device is either not connected or not accessible

10.3   "Application" menu

10.3.1   "Measured values" page

Navigation: Root menu > Application > Measured values

The "Measured values" page shows the measured values of the HART field device that is connected to the FieldPort SWA50. If a HART field device is not connected or the HART field device cannot be reached, this page shows the measured values of the FieldPort SWA50.

The measured values PV, SV, TV and QV are displayed only for Endress+Hauser devices.

Parameter	Description
Output current	Shows the output current of the HART field device
Primary variable (PV)	Shows the primary variable of the Endress+Hauser HART field device
Secondary variable (SV)	Shows the secondary variable of the Endress+Hauser HART field device
Tertiary variable (TV)	Shows the tertiary variable of the Endress+Hauser HART field device
Quanternary variable (QV)	Shows the quaternary variable of the Endress+Hauser HART field device

10.3.2 "HART info" page for HART field device

Navigation: Root menu > Application > HART info

This page shows the HART information of the HART field device that is connected to the FieldPort SWA50. The HART information is displayed only for Endress+Hauser devices.

Parameter	Description
Device type	Shows the device type of the HART field device in HEX format, e.g. 0x1128
Manufacturer ID	Shows the manufacturer ID of the HART field device in HEX format, e.g. 0x11 for Endress+Hauser
HART revision	Shows the HART version of the HART field device, e.g. 7
HART descriptor	Shows the description that was entered for the HART field device.
HART message	Shows the message that was entered for the HART field device. The message is transmitted via the HART protocol at the request of the master.
Device ID	Shows the device ID of the HART field device, e.g. 0x7A2F51
No. of preambles	Shows the number of preambles entered.
HART data code	Shows the date that was entered for the HART field devices, e.g. 2020-03-31. The date provides information about a specific event, for example, such as the last configuration change.
Device revision	Shows the hardware revision of the HART field device

10.4 "FieldPort SWA50" menu ("System" menu)

10.4.1 "Device management" page ("FieldPort SWA50" menu)

Navigation: Root menu > System > FieldPort SWA50 > Device management

Parameter	Description
Device tag	Enter device tag for SWA50.

10.4.2 "Connectivity" page ("FieldPort SWA50" menu)

Navigation: Root menu > System > FieldPort SWA50 > Connectivity

"Bluetooth configuration" page

Navigation: Root menu > System > FieldPort SWA50 > Connectivity > Bluetooth configuration

You can configure the Bluetooth connection and perform firmware updates for the FieldPort SWA50 via this page.

Page	Description
Reduce radio transmit power	Enable and disable a reduction in the transmission power of the SWA50. **Options** • Yes: The transmission power of the SWA50 is reduced. • No: The transmission power of the SWA50 is not reduced. **Factory setting** No
Change Bluetooth password	Change password. To change it, you must enter the user name, the current password and the new password. **Factory setting** • User name: admin • The password can be found on the nameplate.
Firmware update	→ 🖹 77

"HART configuration" page

Navigation: Root menu > System > FieldPort SWA50 > Connectivity > HART configuration

You configure the HART parameters for the FieldPort SWA50 via this page. In addition, you can configure the HART address of the connected HART field device.

Parameter	Description
HART address field device	Configure the HART address of the HART field device. **User entry** 0 to 63 **Factory setting** 0
HART master type	Select HART master type. **Options** • Primary master • Secondary master **Factory setting** Secondary master
Communication resistor	Select installation site of HART communication resistor. **Options** • External: Use an external communication resistor provided by the customer onsite between the IN+ terminal and the supply voltage. • Internal: Use an internal communication resistor of the SWA50. **Factory setting** External
HART address SWA50	Configure the HART address of the SWA50 for slave access to SWA50. **User entry** 0 to 63 **Factory setting** 15

"HART Info" page

Navigation: Root menu > System > FieldPort SWA50 > Connectivity > HART info

This page shows the HART information of the FieldPort SWA50.

Parameter	Description
Device type	Shows the device type of the SWA50 in HEX format (0x11F3)
Manufacturer ID	Shows the manufacturer ID of the SWA50, 0x11 for Endress+Hauser
HART revision	Shows the HART version of the SWA50, e.g. 7
HART descriptor	Shows the description that was entered for the SWA50.
HART message	Shows the message that was entered for the SWA50. The message is transmitted via the HART protocol at the request of the master.
Device ID	Shows the device ID of the SWA50, e.g. 0x7A2F51
No. of preambles	Shows the number of preambles entered.
HART data code	Shows the date that was entered for the SWA50, e.g. 2020-03-31. The date provides information about a specific event, for example, such as the last configuration change.
Device revision	Shows the hardware revision of the SWA50

"WirelessHART configuration" page

Navigation: Root menu > System > FieldPort SWA50 > Connectivity > WirelessHART configuration

This page is used to configure the WirelessHART connection.

Parameter	Description
Network ID	**Prerequisite** Join mode: Do not attempt to join **Description** Enter the identification number of the network that the FieldPort connects to. **User entry** 0 to 65535 **Factory setting** 1447
Join Key	**Prerequisite** Join mode: Do not attempt to join **Description** Enter the network password. **User entry** 32 hexadecimal numbers **Factory setting** 456E6472657373202B20486175736572
Radio transmit power	**Prerequisite** Join mode: Do not attempt to join **Description** Enter strength of radio signal. **User entry** 0 or 10 dBm **Factory setting** 10 dBm **Additional information** National restriction to 0 dBm is possible, as in Japan for example

Parameter	Description
Join mode	Select the mode the FieldPort uses to connect to the network. **Options** • Do not attempt to join: Do not attempt to join • Join now: Join now • Attempt to join on powerup or restart: Join on powerup or restart
Join status	Displays the current status while attempting to join. **Possible notifications** • Network packets heard: Network packets received • ASN Acquired: ASN acquired • Synchronized to slot time: Time-synchronized with the network. • Advertisement heard: Request package received for transmission. • Join requested: Join requested • Retrying join: Repeating attempt to join • Join failed: Join failed • Authenticated: Authenticated • Network joined: Network connection established • Negotiating network properties: Negotiating network parameters • Normal operation commencing: Normal operation starts. Fully connected.

10.4.3 "Information" page ("FieldPort SWA50" menu)

Navigation: Root menu > System > FieldPort SWA50 > Information

This page shows information about the FieldPort SWA50.

Parameter	Description
Wireless communication	Shows the connection type, such as "Bluetooth" or "WirelessHART
Device name	Shows the device name for the SWA50
Manufacturer	Shows the manufacturer, "Endress+Hauser" in this case
Serial number	Shows the serial number of the SWA50
Order code	Shows the order code
Extended order code 1	Shows the extended order code 1
Extended order code 2	Shows the extended order code 2
Extended order code 3	Shows the extended order code 3
Firmware version	Shows the active firmware version
Hardware version	Shows the active hardware version

10.5 "Field device" menu ("System" menu)

Navigation: Root menu > System > Field device

ℹ️ The "Field device" menu is only available for Endress+Hauser devices.

10.5.1 "Device management" page ("Field device" menu)

Navigation: Root menu > System > Field device > Device management

Parameter	Description
Device tag	Shows the device tag of the HART field device

10.5.2 "Information" page ("Field device" menu)

Navigation: Root menu > System > Field device > Information

This page shows information about the HART field device connected to the FieldPort SWA50. This information is displayed for Endress+Hauser field devices with HART 6 and higher.

Parameter	Description
Device name	Shows the device name of the HART field device
Manufacturer	Shows the manufacturer of the HART field device
Serial number	Shows the serial number of the HART field device
Order code	Shows the order code of the HART field device
Extended order code 1	Shows the first part of the extended order code of the HART field device
Extended order code 2	Shows the second part of the extended order code of the HART field device
Extended order code 3	Shows the third part of the extended order code of the HART field device
Firmware version	Shows the active firmware revision of the HART field device

11 Configuration and online parameterization

11.1 Access options and prerequisites

11.1.1 Access options

The configuration and parameterization procedures are described based on the example of the Endress+Hauser Asset Management Tool FieldCare SFE500.

You can access the FieldPort using FieldCare SFE500 as follows:
- Local configuration using the PC and the Endress+Hauser Commubox FXA195 USB/HART modem
- Remote configuration using the PC and the Endress+Hauser WirelessHART Fieldgate SWG70
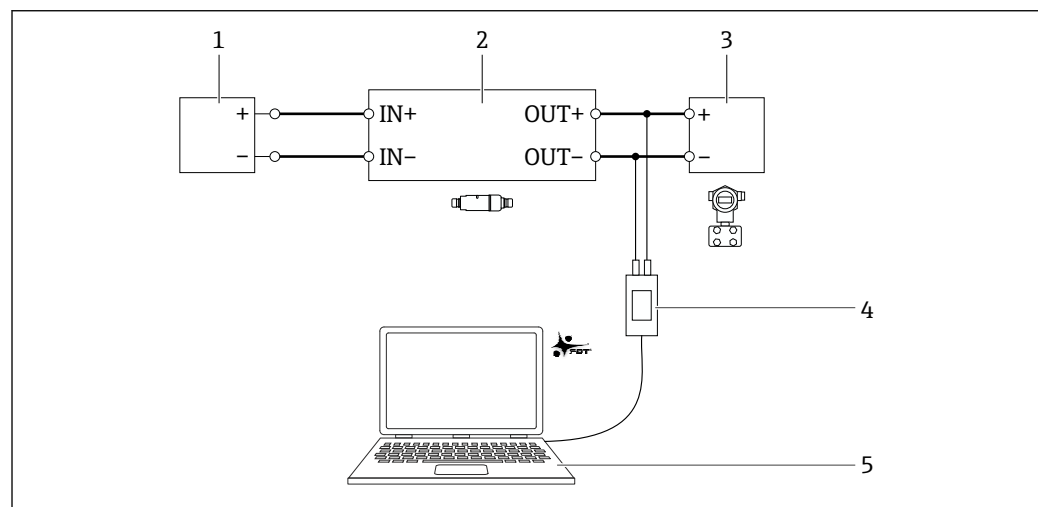
⊠ 25   Example: connection of the PC with FieldCare SFE500 via the Endress+Hauser Commubox FXA195 USB/HART modem for the electrical connection version "Electrical connection for 2-wire HART field devices with passive current output"

1   Supply voltage or PLC with active current input or transmitter with active current input
2   Electronic insert SWA50 (internal communication resistor enabled)
3   2-wire field device 4 to 20 mA-HART
4   Endress+Hauser Commubox FXA195 USB/HART modem
5   PC with FieldCare SFE500

11.1.2 Required settings in FieldCare

In FieldCare, activate the "Prefer FDT 1.2.1 scanning" option.
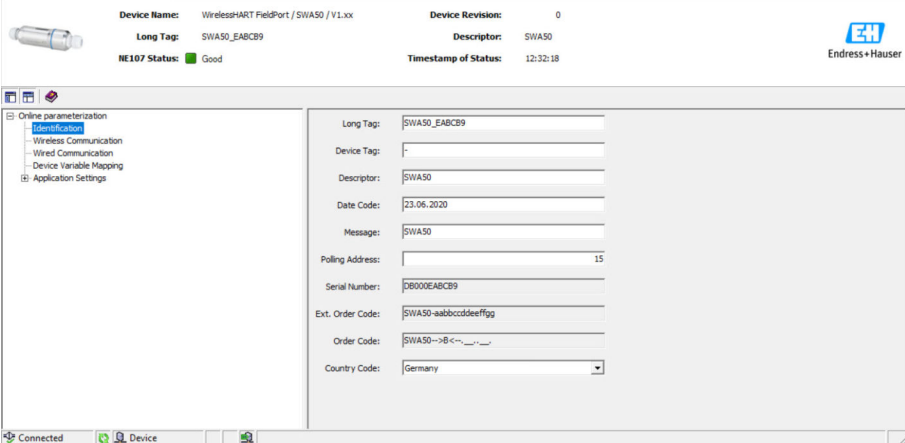
Path: FieldCare > Extras > Options > "Scanning" tab > "Scan Result" section

11.2 Identification

This page allows you to configure the parameters that are required to identify the FieldPort. The factory settings are displayed in the individual fields.

Navigation
Online parameterization > Identification

Description of parameters on "Identification" page

Parameter	Description
Long Tag	**Prerequisite** Devices from HART version 6.0 **Description** Enter the name for the FieldPort. This parameter is used for the unique identification of the FieldPort in the network and in the plant. The parameter is used to set the burst mode and for event notification. **User entry** Max. 32 characters from the ISO-Latin-1 character set **Factory setting** SWA50_"Serial Number" ℹ️ The name must be unique in the WirelessHART network.
Device Tag	**Description** Enter the name for the FieldPort. **User entry** Max. 8 characters from the Packed-ASCII character set **Factory setting** –
Descriptor	**Description** Enter a description of the FieldPort such as the function or location, for example. **User entry** Max. 16 characters from the Packed-ASCII character set **Factory setting** SWA50
Date Code	**Description** Enter the date of a specific event, such as the date of the last change. **User entry** dd.mm.yyyy
Message	**Description** Enter a message that can be used as required. **User entry** Max. 32 characters from the Packed-ASCII character set **Factory setting** SWA50

Parameter	Description
Polling Address	**Description** Enter the HART address of the FieldPort on the wired interface. **User entry** 0 to 63 **Factory setting** 15 **Additional information** As the "Long Tag" and the "MAC Address" are used to identify the FieldPort in the wireless network, you can assign the same device address to different FieldPorts.
Serial Number	**Description** Displays the serial number of the FieldPort.
Extended Order Code	**Description** Displays the extended order code of the FieldPort.
Order Code	**Description** Displays the order code of the FieldPort.
Country Code	**Description** Select the country in which the FieldPort is operated. **Factory setting** Germany **Additional information** The selected country controls the signal strength according to national restrictions and therefore the possible settings for the "Radio Power" parameter.
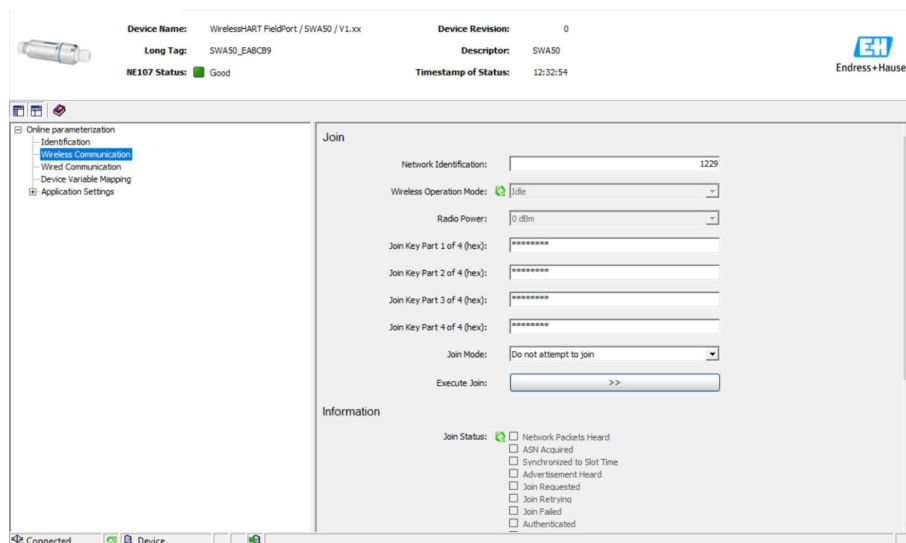
You can use the following characters for parameters for which you should enter characters from the Packed-ASCII character set: @ A B C D E F G H I J K L M N O P Q R S T U V W X Y Z [\ ] ^ _ SP ! " # $ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ?

11.3 Wireless Communication

This page is used to configure the parameters that are required to integrate the FieldPort into a wireless network.

Navigation
Online parameterization > Wireless communication

Configuring wireless communication and joining the network

1. Configure the parameters in the **Join** section.

2. Click the >> button (Execute Join).
   ↳ The settings are downloaded to the FieldPort and saved.

ℹ You can track the joining status in the "Join Status" parameter.

Description of parameters on the "Wireless Communication" page

Parameter	Description
Network Identification	**Description** Enter the identification number of the network to which the FieldPort should connect. **User entry** 0 to 65535 **Factory setting** 1447
Wireless Operation Mode	**Description** Displays the status of the joining process, or of an existing FieldPort connection to the network. **Possible display** • Idle: waiting • Active search: actively searching for neighbors • Negotiation: negotiating connection parameters with the network manager • Quarantined: connection denied by the network manager; temporarily excluded from the network • Operational: connected • Suspended: permanently excluded • Deep Sleep/Ultra-Low Power/Passive Search: inactive
Radio Power	**Description** Select the strength of the radio signal. **Selection** • 0 dBm • 10 dBm **Factory setting** 10 dBm
Join Key Part 1 of 4	**Description** Enter the join key, part 1 of 4. **User entry** 8 hexadecimal numbers **Factory setting** 456E6472
Join Key Part 2 of 4	**Description** Enter the join key, part 2 of 4. **User entry** 8 hexadecimal numbers **Factory setting** 65737320
Join Key Part 3 of 4	**Description** Enter the join key, part 3 of 4. **User entry** 8 hexadecimal numbers **Factory setting** 2B204861
Join Key Part 4 of 4	**Description** Enter the join key, part 4 of 4. **User entry** 8 hexadecimal numbers **Factory setting** 75736572

Parameter	Description
Join Mode	**Description** Select the event with which the FieldPort joins the network. **Selection** • Do not attempt to join: do not try to join the network. • Join now: the device joins the network once you click the ">> (Execute Join)" button. • Attempt to join immediately on power-up or reset: join as soon as the device is restarted. **Factory setting** Do not attempt to join
Execute Join	**Description** Click this button to write the configured parameters to the FieldPort and use them. **Additional information** If the "Join Mode" parameter is set to "Join now", the FieldPort attempts to join the network.
Join Status	**Description** Displays the current status when the device is attempting to join the network. **Possible display** • Network Packets Heard • ASN Acquired: "Absolute Slot Number (ASN)" has been received • Synchronized to Slot Time: synchronized with the network • Advertisement Heard: received advertising packet to send data • Join Requested • Join Retrying • Join Failed • Authenticated • Network Joined • Negotiating Network Properties • Normal Operation Commencing: the FieldPort is fully connected
Total Number of Neighbors	**Description** Displays the number of neighboring WirelessHART devices to which a connection has been made.
Number of Advertising Packets Received	**Description** When the device joins the network, indicates the number of advertising packets which were sent by the neighboring devices or WirelessHART gateways and received by the FieldPort.
Number of Join Attempts	**Description** Displays the number of join attempts the FieldPort made before it joined the network.
Active Advertising Shed Time [hh:mm:ss]	**Description** Enter the time for active advertising to join the network. During this time, the FieldPort attempts to allow other FieldPorts to join the network more quickly. The "Request Active Advertising" button must be pressed. **User entry** hh:mm:ss **Factory setting** 00:40:00
Request Active Advertising	**Description** Click the button to activate the "Active Advertising Shed Time" parameter in the FieldPort.
Number of Neighbors Advertising	**Description** Displays the number of neighbors that transmit advertising packets to send data.

11.4 Wired Communication

This page is used to configure the parameters that are required for HART communication between the FieldPort and the connected HART field device.

Navigation

Online parameterization > Wired communication

Description of parameters on the "Wired Communication" page

Parameter	Description
Polling Address	**Description** Displays the HART address of the FieldPort. **Factory setting** 15
Master Type	**Description** Select the HART master type for the FieldPort. **Selection** • Primary Master • Secondary Master **Factory setting** Secondary Master **Additional information** ℹ️ In addition to the FieldPort, only one other HART master is permitted in the HART loop. This other HART master and the FieldPort must not be of the same master type.
Preambles	**Description** Enter the number of preambles. **User entry** 5 to 50 **Factory setting** 5
Retries	**Description** Enter the number of times an attempt is made to establish communication between the FieldPort and the HART field device. **User entry** 2 to 5 **Factory setting** 3
Communication resistor	**Description** Select the installation site of the HART communication resistor. **Selection** • External: use external communication resistor at customer's site. The communication resistor must be ≥ 250 Ohm and be located in series between the IN+ terminal of the FieldPort and the supply voltage, such as the PLC or active barrier. • Internal: use the FieldPort's internal communication resistor. **Factory setting** External

Parameter	Description
HART Address Field Device	**Description** Enter the HART address of the HART field device. **User entry** 0 to 63 **Factory setting** 0
Field Device Database	**Description** Displays the HART information of the HART field device connected to the FieldPort.

11.5 Device Variable Mapping

The FieldPort can output the value and the status of different variables. On this page, you can configure up to four variables that are displayed in the network.

You can choose the following variables:
- Temperature: current temperature
- RSL of Best Neighbor
- RSL of Second Best Neighbor
- Field Device Loop Current

Navigation
Online parameterization > Device Variable Mapping
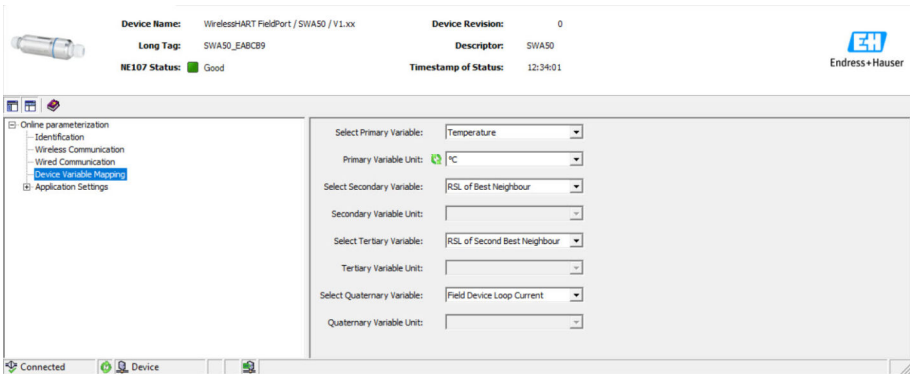
Description of parameters on the "Device Variable Mapping" page

Parameter	Description
Select Primary Variable	**Description** Select the primary variable. **Selection** See list. **Factory setting** Temperature
Primary Variable Unit	**Description** Select the unit for the primary variable. **Selection** The options depend on the variable chosen. **Factory setting** ℃

Parameter	Description
Select Secondary Variable	**Description** Select the secondary variable. **Selection** See list. **Factory setting** RSL of Best Neighbor
Secondary Variable Unit	**Description** Select the unit for the secondary variable. **Selection** The options depend on the variable chosen. **Factory setting** dBm
Select Tertiary Variable	**Description** Select the tertiary variable. **Selection** See list. **Factory setting** RSL of Second Best Neighbor
Tertiary Variable Unit	**Description** Select the unit for the tertiary variable. **Selection** The options depend on the variable chosen. **Factory setting** dBm
Select Quaternary Variable	**Description** Select the fourth (quaternary) variable. **Selection** See list. **Factory setting** Field Device Loop Current
Quaternary Variable Unit	**Description** Select the unit for the quaternary (fourth) variable. **Selection** The options depend on the variable chosen. **Factory setting** mA

11.6   Burst Mode

General information

In the burst mode, slave devices can periodically send information, such as process values, without a request from the master.

The FieldPort is responsible for requesting this information from the HART field device connected to the FieldPort and for forwarding this information to the WirelessHART gateway. In addition, the FieldPort can also send its own process values, i.e. the device variables, to the WirelessHART gateway.

In a typical configuration, the four device variables are sent at regular periods from the connected HART field device to the WirelessHART gateway. You can use burst command number 3 and 48 for this purpose. We recommend setting the same period for both commands. The FieldPort wakes the HART field device, accepts the device variables and sends them with the configured period.

We recommend configuring a second burst message for the FieldPort so that the FieldPort information is also available for host applications in the WirelessHART gateway.

Configure the device variables on the "Device Variable Mapping" page → 🖹 58.

📋 • If FieldCare or another configuration tool communicates with the FieldPort via a modem, such as FXA 195 for example, the transmission of burst information is interrupted.
• Some HART field devices are also able to send burst information. In this case, we recommend activating the burst mode in the FieldPort only. The burst settings of the FieldPort are not synchronized with the burst settings of the HART field device.

"Burst Mode" page and "Burst Mode 1" to "Burst Mode 5" pages

The "Burst Mode" page provides an overview of which burst modes are configured. You can define up to 5 different burst mode messages in the "Burst Mode 1" to "Burst Mode 5" pages.

You can also configure the burst mode in the offline mode. The burst mode takes effect as soon as the FieldPort joins the network.

Navigation
• Online parameterization > Application Settings > Burst Mode > Burst Mode 1
• Online parameterization > Application Settings > Burst Mode > Burst Mode 2
• Online parameterization > Application Settings > Burst Mode > Burst Mode 3
• Online parameterization > Application Settings > Burst Mode > Burst Mode 4
• Online parameterization > Application Settings > Burst Mode > Burst Mode 5

Burst messages for the FieldPort SWA50 – factory configuration

Burst message	Factory configuration
1	Every 5 minutes, the FieldPort SWA50 transmits the process values of the field device in accordance with HART command 3.
2	Every 5 minutes, the FieldPort SWA50 transmits the diagnostic data of the field device in accordance with HART command 48.
3	Not configured
4	Every 5 minutes, the FieldPort SWA50 transmits its own process values in accordance with HART command 3.
5	Every 5 minutes, the FieldPort SWA50 transmits its own diagnostic data in accordance with HART command 48.

Configuring the burst mode

1. Open the page for the parameterization of a burst message, e.g. **Burst Mode 1** page.

2. For the **Burst Mode Control Code** parameter, select the **On** option.
   ↳ The gray input boxes turn white. Entries are possible.

3. For the **Device Index** parameter, select either the FieldPort SWA50 or the connected HART field device.

4. For the **Period** parameter, enter the period after which the FieldPort should send the device variables.

5. For the **Burst Command Number** parameter, select the number for the burst command.

6. Click the **Apply** button.
   ↳ The settings are downloaded to the FieldPort and saved.

7. Select **OK** to confirm.
   ↳ The burst mode takes effect immediately when the FieldPort is connected to the network.
   A message is displayed if the FieldPort is not connected to the network. Press **OK** to confirm the message. The burst mode takes effect as soon as the FieldPort joins the network.

Parameter description for the "Burst Mode 1" to "Burst Mode 5" pages

Parameter	Description
Burst Mode Control Code	**Description** Enable and disable the burst mode. **Selection** • Off: Burst mode is disabled. The input boxes are grayed out and write-protected. • On: Burst mode is enabled. The input boxes are white. Entries are possible. **Factory setting** • Burst mode 1, 2, 4 and 5: On → 🖺 60 • Burst mode 3: Off
Device Index	**Prerequisite** Burst mode: On **Description** Select the device for which the burst mode is effective. **Selection** • SWA50 • Connected field device **Factory setting** SWA50
Period [hh:mm:ss]	**Prerequisite** Burst mode: On **Description** Enter the period after which the FieldPort sends the device variables to the WirelessHART gateway. **User entry** • 00:00:08 • 00:00:16 • 00:00:32 • Any time entry is possible after 00:01:00 **Factory setting** 05:00:00

Parameter	Description
Burst Command Number	**Prerequisite** Burst mode: On **Description** Select the burst command number. Description of burst command: → 🖹 62. For additional information, see the HART Specification. **Selection/user entry** • Device Index "SWA50": Select 3, 9 or 48 from a dropdown list • Device Index "Connected field device": Enter 1, 2, 3, 9, 33 or 48 **Factory setting** 1 **Additional information** • You can configure any commands you wish for connected field devices. Refer to the appropriate Operating Instructions for further details. • Use command 3 and 48 if in doubt.
Device Variable Code 0 to Device Variable Code 7	**Prerequisite** • Burst mode: On • Burst command number: 9 or 33 **Description** Select the device variables that are transmitted with the burst message. **Selection/user entry** • Device Index "SWA50": Device variable code from dropdown list • Device Index "Connected field device": Enter device variable code **Factory setting** 250 **Additional information** Refer to the documentation of the field device for the device variables of the connected field device.

Description of the burst command for the FieldPort SWA50

Burst command	Description
3	Transmits the value of the 4 to 20 mA signal and up to 4 pre-defined device variables and the associated unit. Device variables: First variable, second variable, third variable and fourth variable.
9	The **Device Variable Code 0** to **Device Variable Code 7** fields are enabled. Transmits the value, the unit and the status of up to 8 device variables.
48	Transmits the additional device status.

Description of the burst command for the field device connected to the FieldPort

Burst command	Description
1	Transmits the value and the unit of the "First Variable".
2	Transmits the value of the 4 to 20 mA signal and the corresponding value as a percentage, e.g. 4 mA and 0 % or 12 mA and 50 %.
3	Transmits the value of the 4 to 20 mA signal and up to 4 pre-defined device variables and the associated unit. Device variables: First variable, second variable, third variable and fourth variable.
9	The **Device Variable Code 0** to **Device Variable Code 7** fields are enabled. Transmits the value, the unit and the status of up to 8 device variables.
33	The **Device Variable Code 0** to **Device Variable Code 3** fields are enabled. Transmits the value and the unit of up to 4 device variables.
48	Transmits the additional device status.

11.7 Event notification

General information

The event notification is a special application similar to the burst mode. An event notification is sent as soon as there are changes in the device configuration or device status, irrespective of whether data are already being sent by burst mode commands. You can use the status in the device status byte, the extended device status byte and in command 48 for the event notification. You can define a certain number of bits that trigger an event notification.

Event notifications have a lower priority than burst modes. The event notifications are given a time stamp when a notification is triggered for the first time. You can define up to 2 different event notifications.

"Event Notification Control Code" page and "Event Notification Control Code 1" and "Event Notification Control Code 2" pages

The "Event Notification Control Code" page provides an overview of the event notifications that are configured. You can define 2 different event notifications via the "Event Notification Control Code 1" and "Event Notification Control Code 2" pages.

You can also configure event notifications in the offline mode. The event notifications take effect as soon as the FieldPort connects to the network.

Navigation
- Online parameterization > Application Settings > Event Notification > Event Notification 1
- Online parameterization > Application Settings > Event Notification > Event Notification 2
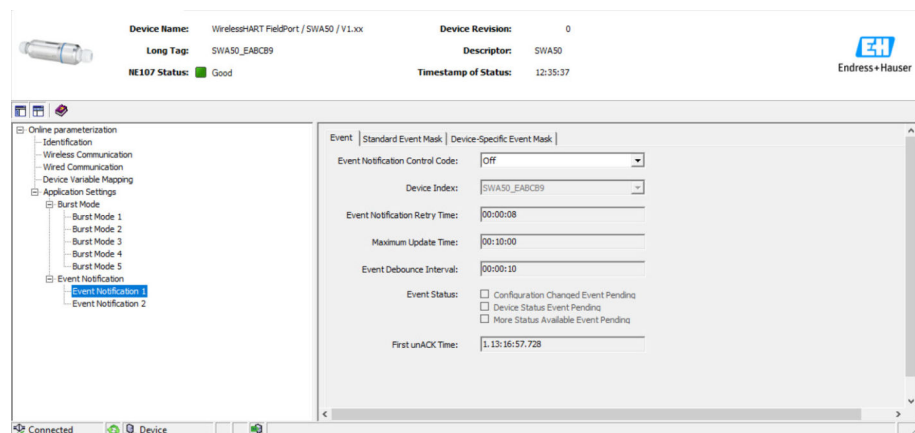
Configuring the event notification

1. Open the page for the parameterization of an event notification, e.g. **Event Notification Control Code 1**.

2. On the "Event" tab, select the **On** option for the **"Event Notification Control Code"** parameter.
   ↳ The gray input fields become white. Entries can be made.

3. For the **Device Index** parameter, select either the FieldPort SWA50 or the connected HART field device.

4. Configure other parameters on the "Event" tab.

5. Enable the desired event notifications on the "Standard Event Mask" tab. To do so, check the check box in front of the particular event. Multiple notifications can be selected.
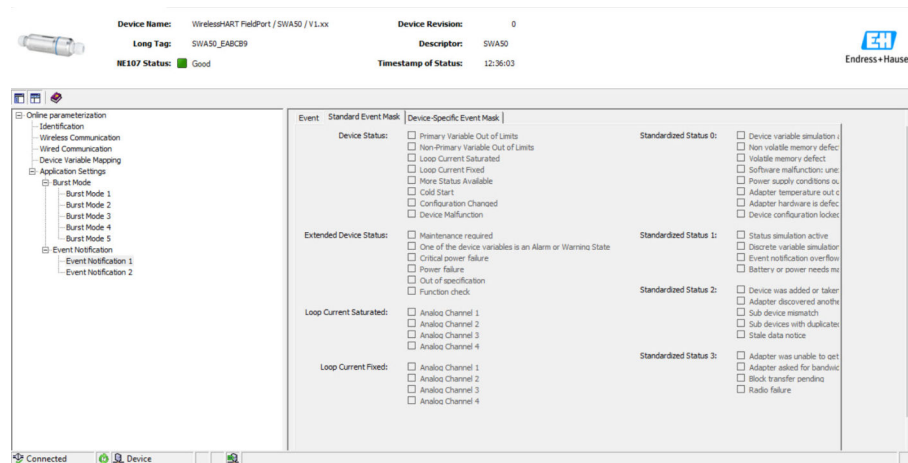
6. Enable the desired event notifications on the "Device-Specific Event Mask" tab. To do so, check the check box in front of the particular event. Multiple notifications can be selected. Pay attention to the Operating Instructions for the selected device ("Device index" parameter).
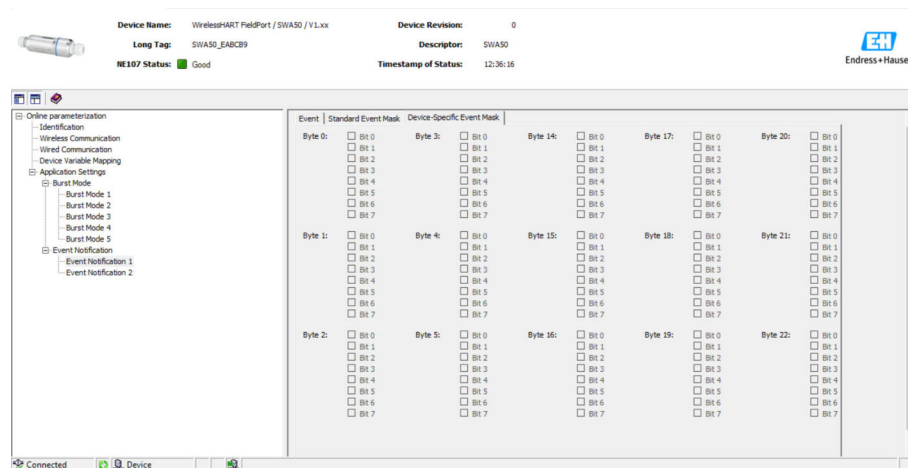
7. Click the **Apply** button.
   ↳ The settings are downloaded to the FieldPort and saved.

8. Click the **OK** button.
   ↳ If the FieldPort is connected to the network, the event is monitored immediately. If the FieldPort is not connected to the network, a message is displayed. Select **OK** to confirm the message. The event takes effect as soon as the FieldPort connects to the network.

Parameter description for "Event Notification", "Event" tab

Parameter	Description
Event Notification Control Code	**Description** Enable and disable the event monitoring mode. **Options** • Off: Event monitoring mode is disabled. The input fields are grayed out and write-protected. • On: Event monitoring mode is enabled. Entries can be made. **Factory setting** Off **Additional information** The event monitoring parameters are written to the FieldPort once you click the "Apply" button.
Device Index	**Prerequisite** Event monitoring: On **Description** Select the device for which the event monitoring parameters are active. **Options** • SWA50 • Connected field device **Factory setting** SWA50
Event Notification Retry Time	**Prerequisite** Event monitoring: On **Description** Enter the time between two attempts to transmit the event notification. Transmission is repeated until the FieldPort gets confirmation of receipt. **User entry** • 00:00:01 • 00:00:02 • 00:00:04 • 00:00:08 • 00:00:16 • 00:00:32 • Any time possible from 00:01:00 **Factory setting** 00:30:00
Maximum Update Time	**Prerequisite** Event monitoring: On **Description** Enter the maximum time that is used if no event change occurs. If an event has not occurred, the FieldPort sends an event notification after this time. If an event notification occurs during this time, the timer is restarted. **User entry** • 00:00:01 • 00:00:02 • 00:00:04 • 00:00:08 • 00:00:16 • 00:00:32 • Any time possible from 00:01:00 **Factory setting** 00:30:00
Event Debounce Interval	**Prerequisite** Event monitoring: On **Description** Enter the time specifying how long an event must last before the event notification is sent.

Parameter	Description
Event Status	**Prerequisite** Event monitoring: On **Description** Indicates whether and which event notifications have been sent and are not yet confirmed. If the check box is ticked, the event notification has been sent but not yet confirmed. **Possible display** • "Configuration changed" event is active • "Device status" event is active • "Additional status information" event is active **Factory setting** All check boxes disabled
First unACK Time	**Prerequisite** Event monitoring: On **Description** Indicates how long the event notification listed under the "Event status" parameter is active. **Factory setting** 00:00:00

Parameter description for "Event Notification", "Standard Event Mask" tab

Parameter	Description
Device Status	**Options** • Primary variable outside the limit values • Variable other than primary variable outside the limit values • Loop current saturated • Loop current fixed • Additional status information available • Cold start • Configuration changed • Device malfunction
Extended Device Status	**Options** • Maintenance required • One of the device variables is in the alarm or warning state • Critical state of the power supply • Error • Out of specification • Function check
Loop Current Saturated	**Options** • Analog channel 1 • Analog channel 2 • Analog channel 3 • Analog channel 4
Loop Current Fixed	**Options** • Analog channel 1 • Analog channel 2 • Analog channel 3 • Analog channel 4
Standardized Status 0	**Options** • The device is in the simulation mode • Error in non-volatile memory • Error in volatile memory • Software malfunction: Unexpected condition. • Power supply is operating outside the defined range • The adapter temperature is outside the permitted range. • The adapter hardware is faulty. • The device is write-protected

Parameter	Description
Standardized Status 1	**Options** • Status simulation mode active • Device variable simulation mode active • Event notification overflow • Battery or power supply must be serviced
Standardized Status 2	**Options** • The device has been added or disconnected from the wired interface. • The adapter has detected another master of the same type. • Unconfigured subdevice detected • Subdevices with double ID found • Stale data notification
Standardized Status 3	**Options** • The adapter was unable to receive the necessary bandwidth. • The adapter has requested the bandwidth and is waiting for a response. • Block transfer waiting for execution • Radio module is defective

Parameter description for "Event-Notification", "Device-Specific Event Mask" tab

Monitoring of device-specific events
• HART field device: See the Operating Instructions of the connected HART field device
• FieldPort SWA50: See the following table

Monitoring of standard events for FieldPort SWA50

For the troubleshooting measures, see the corresponding diagnostics number in the "Diagnostics" section → 🖹 75.

Byte	Bit	Description	Diagnostic number
0	0	So far no attempt has been made to establish a connection.	901
	1	The adapter is not connected to any wireless network.	506
	2	No alternative path to a neighbor available.	507
	3	The adapter does not have a join key.	505
	4	The adapter was unable to establish a connection to the wireless network.	503
	5	WirelessHART started.	904
	6	Bluetooth connection active.	900
	7	–	–
1	0	The adapter cannot communicate with the field device.	504
	1	Error HART modem (loop current)	803
	2 to 4	–	–
	5	The adapter is in the configuration mode.	508
	6	The adapter is looking for connected device.	903
	7	–	–
2	0	The adapter hardware is faulty.	316
	1	The adapter is performing a self-test.	202
	2	The adapter temperature is outside the permitted range.	825
	3	–	–
	4	The number of write cycles to the flash memory has exceeded a critical threshold.	314

Byte	Bit	Description	Diagnostic number
	5	The number of write cycles to the flash memory has exceeded the maximum value.	315
	6 to 7	–	–
3	0 to 5	–	–
	6	Burst or event notification without field device	500
	7	–	–
4	0	Wired device has additional status information.	502
	1	Wired device not working correctly.	501
	2 to 7	–	–
5	0	Not used	–
	1	DIP switch 1: Bluetooth communication enabled	509
	2	DIP switch 2: Firmware update enabled	510
	3	DIP switch 3: Configuration via Bluetooth enabled	511
	4	DIP switch 4: Reserve enabled	512
	5	–	–
	6	Wireless module started.	905
	7	Energy saving mode (< 60° and < 4.0 mA)	906

12   Diagnosis

12.1   Invoking diagnosis

1. In the network view, click the **SWA50**.
2. Open the context menu.
3. Select the **Diagnosis** menu.
   ↳ The "Diagnosis" window opens.

12.2   Identification

This page shows information about the FieldPort .

Navigation
Diagnosis > Identification

Description of parameters on the "Identification" page

Parameter	Description
Long Tag	Displays the long tag entered for the FieldPort. The parameter is used to clearly identify the FieldPort in the network and plant. The parameter is used to set the burst mode and event notification.
Device Tag	Displays the device tag entered for the FieldPort.
Descriptor	Displays the description entered for the FieldPort. The parameter is used to describe the FieldPort, such as the FieldPort's function or location.
Date Code	Displays the date entered for the FieldPort. The date is used to identify a certain event, such as the last change, for example.
Message	Displays the message entered. The message can be used as required. The message is transmitted via the HART protocol at the request of the master.
Real Time Clock Time	Displays the network system time.
Real Time Clock Date	Displays the network system date.
Serial Number	Displays the serial number of the FieldPort.
Device Revision	Displays the device version of the FieldPort.

Parameter	Description
Software Revision	Displays the software version of the FieldPort.
Hardware Revision	Displays the hardware version of the FieldPort.
Universal Command Revision	Displays the HART protocol version that the FieldPort supports.
Ext. Order Code	Displays the extended (detailed) order code of the FieldPort.
Order Code	Displays the order code of the FieldPort.
ENP Version	Displays the version of the electronic nameplate of the FieldPort.

12.3 Wireless Communication

This page shows information about FieldPort operation. The information is updated every five minutes.

Navigation
Diagnosis > Wireless Communication

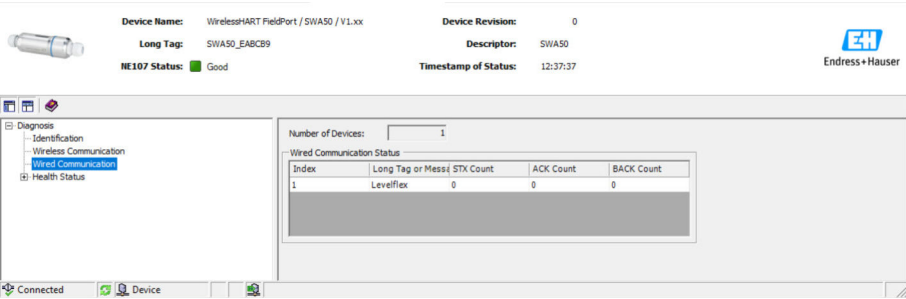*Description of parameters on the "Wireless Communication" page*

Parameter	Description
Network Identification	Displays the identification number of the network the FieldPort joins.
MAC	Displays the MAC address of the FieldPort.
Nickname	Displays the nickname of the FieldPort for internal use in the network.
Total Number of Neighbors	Displays the number of WirelessHART devices that were found in the vicinity of the FieldPort and to which a connection has been made.
Wireless Health Status	Displays important parameters for network communication • Index: ID of the neighboring device • Nickname: nickname of the neighboring device • Mean RSL dBm: average signal strength of the neighbor since the FieldPort joined the network • Packets transmitted: number of packets sent by the FieldPort since it joined the network • Failed transmits: number of packets that were sent by the FieldPort, and did not reach their intended destination after retries, since the FieldPort joined the network • Packets received: number of packets which the FieldPort has received since it joined the network These parameters show the values since the FieldPort last successfully joined the WirelessHART network. The values are reset if the connection is lost.

12.4   Wired Communication

This page shows information about the HART field device connected to the FieldPort.

Navigation
Diagnosis > Wired Communication

Description of parameters on the "Wired Communication" page

| Parameter	Description
Number of Devices	Displays the following: • 0: no HART field device is connected to the FieldPort. • 1: the HART field device is connected to the FieldPort.
Wired Communication Status	Displays important parameters for network communication • Index: ID of the connected HART field device • Long tag or message: long tag of the connected HART field device • STX Count: number of feedback messages that the FieldPort has received from the connected HART field device • ACK Count: number of feedback messages that the FieldPort has received from HART field devices • BACK Count

12.5   Health Status

This page shows the health status of the FieldPort according to the following guidelines and the following specification:
• NAMUR guideline NE 107
• ASM guidelines
• HART specification

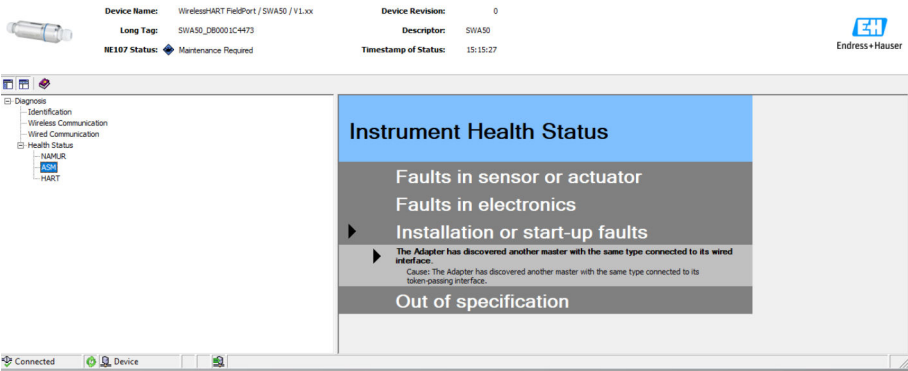### 12.5.1   NAMUR NE 107

Navigation
Diagnosis > Health Status > NAMUR
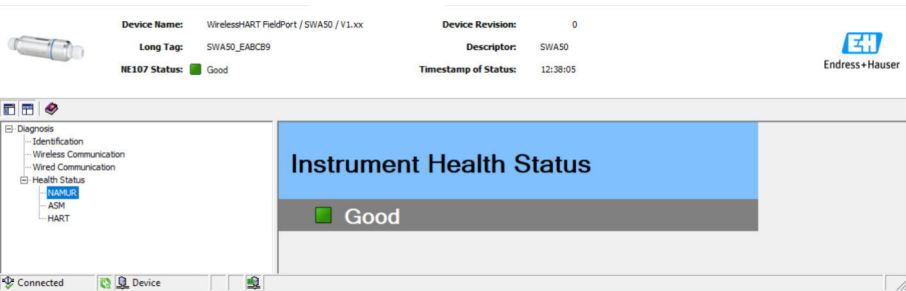
Possible instrument health status

Instrument health status	Translation
Good	Good
Failure (F)	Failure
Maintenance required (M)	Maintenance required
Out Of Specification (S)	Out of specification
Function check (C)	Function check

12.5.2   ASM

Navigation

Diagnosis > Health Status > ASM

Possible instrument health status

Instrument health status	Translation
Good	Good
Faults in the sensor or actuator element	Faults in the sensor or actuator element
Faults in the electronics	Faults in the electronics
Installation faults, fault during start-up	Installation faults, fault during start-up
Faults due to process influence, faults due to non-compliance with specified operating conditions	Faults due to process influence, faults due to non-compliance with specified operating conditions

12.5.3   HART

Navigation

Diagnosis > Health Status > HART
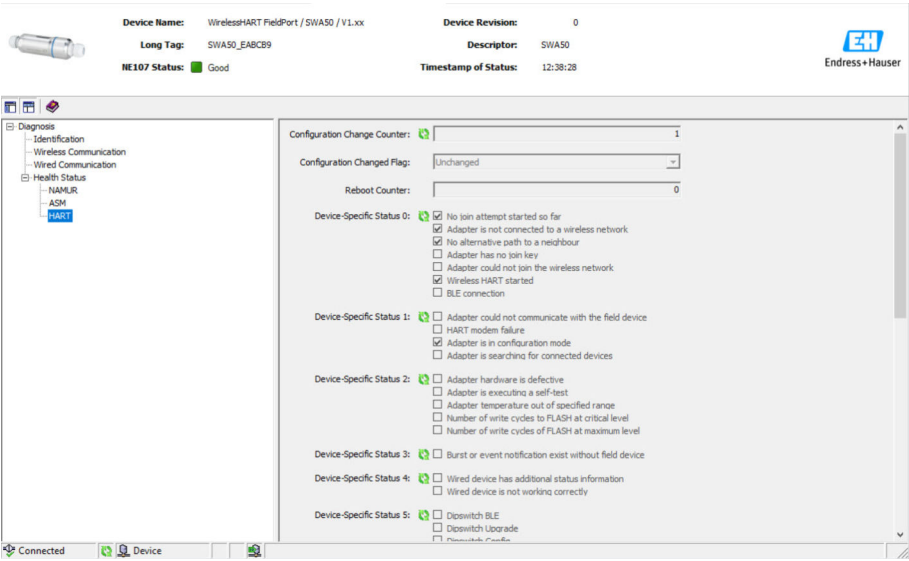
ℹ️ If a check box is ticked, the statement applies.

Possible instrument health status

Parameter	Description
Configuration Change Counter	Displays the number of configuration changes
Configuration Changed Flag	Displays a change in the configuration since the last communication
Reboot Counter	Displays the number of FieldPort reboots
Real Clock Time	Displays the system time

13 Additional DTM functions

13.1 Lock / Unlock

This page is used to protect the FieldPort from unauthorized access via the DTM. If the lock is activated and DIP switch 3 is set to "On", parameterization via Bluetooth is still possible.

If the "Device configuration locked" option is activated in the "Standardized Status 0" section, DIP switch 3 is set to "Off" and parameterization via Bluetooth is not possible.
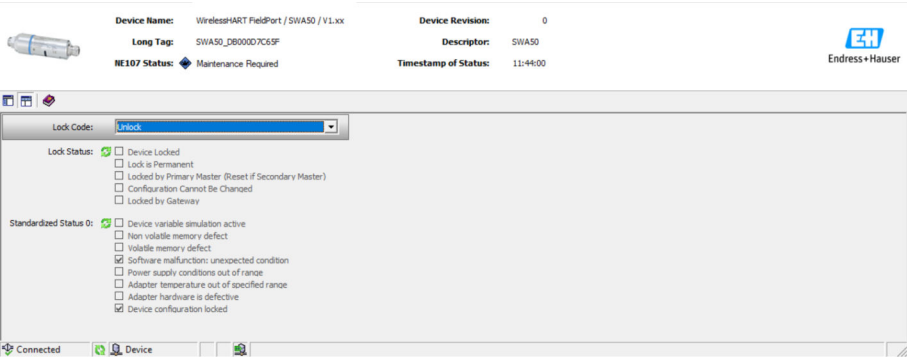
Description of parameters on the "Lock / Unlock" page

Parameter	Description
Lock Code	Select the type of lock for the DTM to the FieldPort. **Selection** • Unlocked: the FieldPort is not protected. All parameters can be modified. • Lock Temporary: the FieldPort is locked. A FieldPort reboot or power failure will unlock the FieldPort. • Lock Permanent: the FieldPort is permanently locked. A FieldPort reboot or power failure will not unlock the FieldPort. • Lock All: the FieldPort is locked permanently for all masters. If you select another option for the "Lock Code" parameter, the new option is active immediately.
Lock Status	Displays the current access status of the DTM to the FieldPort. If a check box is ticked, the statement applies. **Possible display** • Device Locked • Lock is Permanent • Locked by Primary Master (Reset if Secondary Master): the FieldPort has been locked by the primary master. • Configuration Cannot Be Changed • Locked by Gateway

14   Diagnostics and troubleshooting

14.1   Diagnostics

If a diagnostic event has occurred, the status signal appears in Netilion together with the corresponding symbol for the event level according to NAMUR NE 107.

- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)

Diagnostic number	Short text	Remedial measure	Status signal
Electronics			
202	Self-test active.	Wait until self-test is completed.	F
314	Critical number of write cycles to memory reached.	• Make sure that no cyclic configuration change is automatically sent to the FieldPort. • Change the FieldPort.	M
315	The hardware of the FieldPort is defective.	Change the FieldPort.	F
316	The hardware of the FieldPort is defective.	Change the FieldPort.	F
Configuration			
500	Incorrect entry in the burst/event table	–	M
501	HART field device not working correctly.	Check the HART field device.	F
502	Additional status information for HART field device	–	F
503	WirelessHART connection failed	• Ensure that a wireless device is within reach. • Enter the correct join key. • Enter the correct network ID. • Ensure that the network is WirelessHART-compatible.	F
504	FieldPort cannot communicate with the HART field device	• Connect the HART field device. • Check the HART field device and wiring. • Check the HART address of the HART field device. • Increase the start-up time.	F
505	FieldPort does not have a join key.	Enter the join key.	C
506	FieldPort not connected to the WirelessHART network.	• Check the join key and network ID and connect the FieldPort to the network. • If FieldPort was already connected, check the signal path.	C
507	No alternative WirelessHART signal path available.	• Mount a repeater in a suitable location. • Check whether all neighbors are operational.	M
508	FieldPort is in the configuration mode	–	–
509	DIP switch 1: Bluetooth communication enabled	–	–
510	DIP switch 2: Firmware update enabled	–	–

Diagnostic number	Short text	Remedial measure	Status signal
511	DIP switch 3: Configuration via Bluetooth enabled	–	–
512	DIP switch 4: Reserve	–	–
Process			
803	Current loop	• Check wiring. The current loop must be between 3.6 mA and 22.5 mA. • Change HART field device.	F
825	Operating temperature	• Check ambient temperature. • Check process temperature.	S
900	Bluetooth connected to config. device	–	–
901	No connection attempt started yet via WirelessHART	Enter the join key and network ID and start the join attempt.	–
903	FieldPort is looking for connected device.	–	–
904	WirelessHART stack started	–	–
905	Wireless module started	–	–
906	Power save mode	–	–

14.2   Troubleshooting

Fault	Corrective action

No communication between HART field device and FieldPort.	Check settings of HART parameters in the FieldPort.
	• SmartBlue app and FieldXpert:
	  Root menu > System > FieldPort SWA50 > Connectivity > HART Configuration → 🖹 48
	• FieldCare:
	  Wired communication→ 🖹 71

No Bluetooth communication between FieldPort and the SmartBlue app.	Check whether Bluetooth communication is enabled → 🖹 44.
No Bluetooth communication between the FieldPort and the Field Xpert.	Check whether Bluetooth communication is enabled → 🖹 44.
No process values of HART field devices of other manufacturers in the SmartBlue app.	For third-party HART field devices, use the Field Xpert . 📖 For device variables, see Technical Information TI01468S.
The FieldPort does not connect to the WirelessHART network.	• It can take several minutes to establish a connection. • Check network identification and network access key of the FieldPort and the WirelessHART gateway. The FieldPort and WirelessHART gateway must use the same network identification and network access key. • Check if the FieldPort is correctly installed.

15   Maintenance

15.1   General maintenance

We recommend periodic visual inspections of the device.

15.2   Updating the firmware

You can perform firmware updates for the FieldPort SWA50 via the SmartBlue app.

Prerequisites
- The smartphone battery is charged or the smartphone is connected to a power supply.
- The Bluetooth signal quality of the smartphone is sufficient.
- In the case of the FieldPort SWA50, DIP switch 2 must be set to ON → 🖺 44.
  (Factory setting of DIP switch 2: ON)

NOTICE

Error during firmware update

Incorrect firmware installation

▶ The supply voltage must be applied during the entire firmware update process.
▶ The loop current must be at least 10 mA during the entire firmware update process.
▶ Wait until the firmware update has finished. The firmware update takes approx. 5 to 20 minutes. If the FieldPort SWA50 is actively connected to a WirelessHART network, the firmware download process takes longer.

During the firmware update, at least 10 mA must be transmitted from the connected HART field device. This can be achieved by simulating the current output at the HART field device, for example. You can check the current value in the SmartBlue app on the "Device information" page. → 🖺 45

If a HART field device is not connected to the FieldPort SWA50 or if the HART field device cannot be reached, it is presumed that the loop current is large enough. → 🖺 33

1. Copy update packages to the SmartBlue app.

2. Open the **Firmware update** page. Navigation: Root menu > System > FieldPort SWA50 > Connectivity > Bluetooth configuration

3. Select update package from the list of available packages.
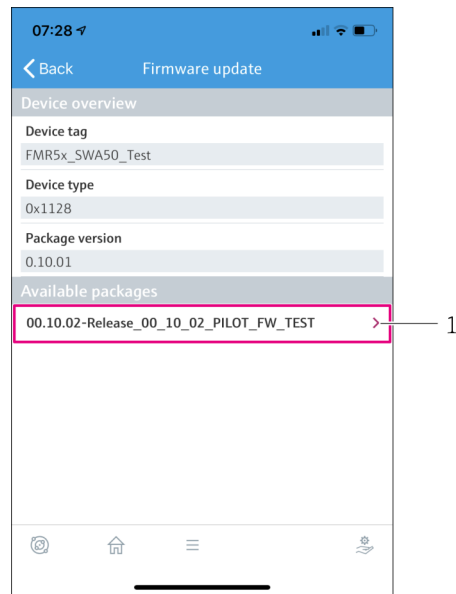
▣ 26   "Firmware update" page

1   Example of a package

4. Tap the **Start update** button to download the firmware update to the FieldPort SWA50. If the update cannot be downloaded, the error message "Internal firmware update error" is displayed.

5. Wait until the firmware update has been downloaded. The remaining time is displayed.
   - ↳ The following view is displayed:
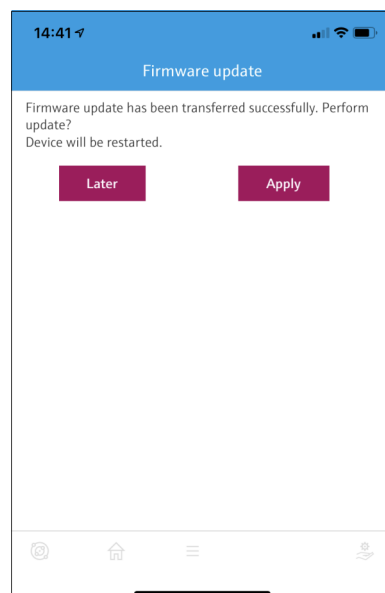
6. Ensure that a loop current of at least 10 mA is also transmitted during the restart and the installation of the firmware update.

7. Tap either the **Apply** button or **Later** button.
   - ↳ **Apply** button: The FieldPort SWA50 is restarted and the firmware update is installed on the FieldPort SWA50.
     Later button: The firmware update is only installed the next time the FieldPort SWA50 is restarted.

8. Wait until the device restarts and the firmware update is installed.

9. Connect the FieldPort SWA50 to the SmartBlue app again.

10. Via the "Firmware version" parameter, check whether the new firmware is installed.
    → 🖺 50

If the firmware update is not fully downloaded or is not correctly installed, the FieldPort SWA50 works with the old firmware.

16   Repair

16.1   General notes

Repairs may only be performed by Endress+Hauser staff or by individuals authorized and trained by Endress+Hauser.

16.2   Disposal

If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to Endress+Hauser for disposal under the applicable conditions.

17   Accessories

Optional accessories:
Mounting bracket (order number: 71520242)

Detailed information about the accessories is available from your Endress+Hauser sales organization: www.addresses.endress.com or on the product page
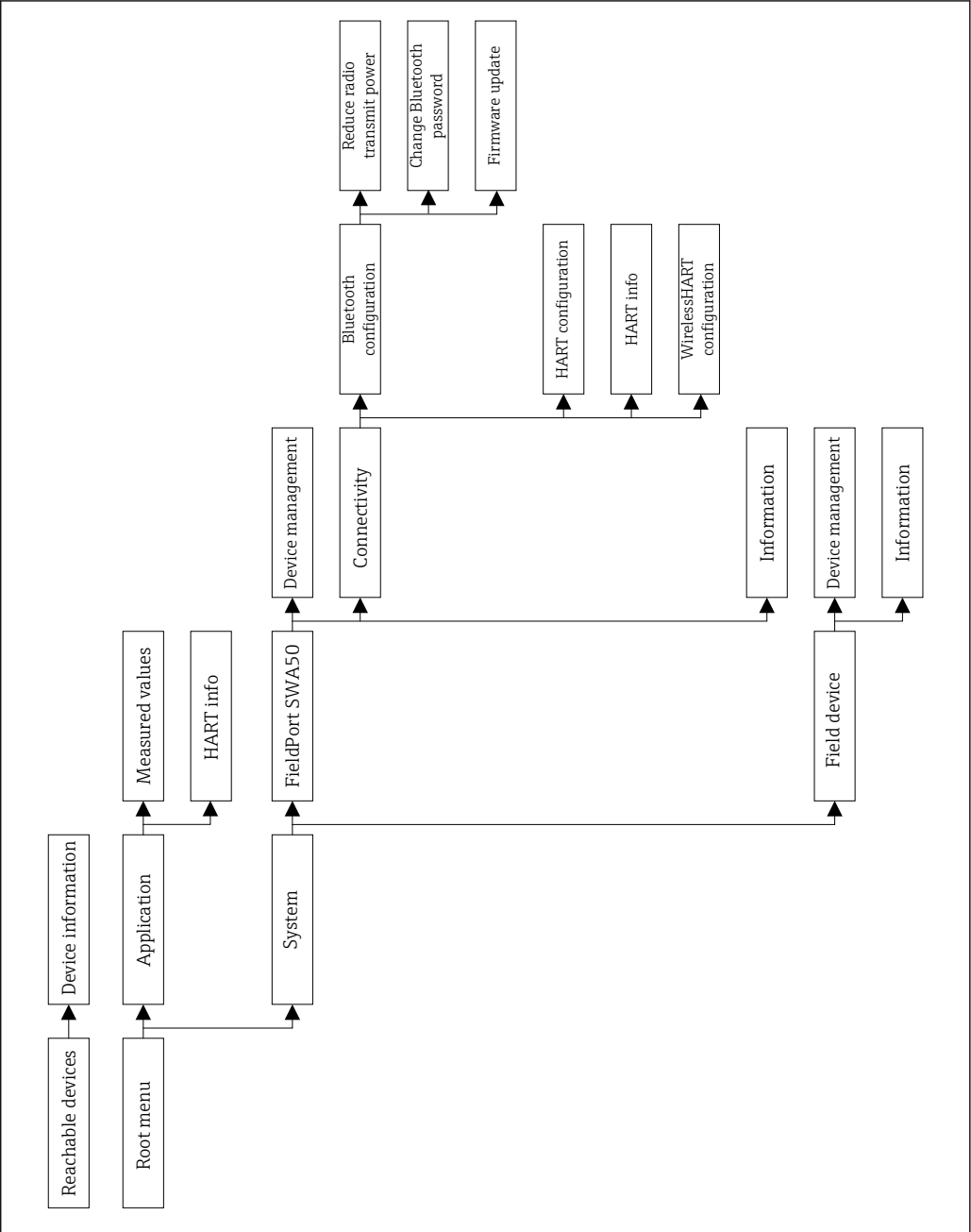
18   Technical data

📖 For detailed information on "technical data": see Technical Information TI01468S

19 Appendix

19.1 Menu overview (Navigation)

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