# Operating Instructions FieldPort SWA50

Intelligent Bluetooth<sup>®</sup> adapter for HART field devices





## **Revision history**

Product version	Operating Instructions	Changes	Comments
1.00.XX	BA01987S/04/EN/02.20	-	Initial version
1.00.XX	BA01987S/04/EN/03.21	Supply voltage	Corrections
1.00.XX	BA01987S/04/EN/04.21	Alignment Range Note on status signal Notes and references "Diagnostics" section	Amendments and changes

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## 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

### A 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.

### **A**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
	<b>Permitted</b> Procedures, processes or actions that are permitted.
	<b>Preferred</b> Procedures, processes or actions that are preferred.
×	Forbidden Procedures, processes or actions that are forbidden.
i	Tip Indicates additional information.

Symbol	Meaning
	Reference to documentation
	Reference to page
	Reference to graphic
►	Notice or individual step to be observed
1., 2., 3	Series of steps
L.	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	X	Safe area (non-hazardous area)

### 1.2.4 Electrical symbols

Symbol	Meaning
	Direct current
$\sim$	Alternating current
$\sim$	Direct current and alternating current
<u>+</u>	<b>Ground connection</b> A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
÷	<b>Potential equalization connection (PE: protective earth)</b> Ground terminals that must be connected to ground prior to establishing any other connections.
	<ul><li>The ground terminals are located on the interior and exterior of the device:</li><li>Interior ground terminal: potential equalization is connected to the supply network.</li><li>Exterior ground terminal: device is connected to the plant grounding system.</li></ul>

### 1.2.5 SmartBlue app icons

Icon	Meaning
	SmartBlue
Ø.	Accessible field devices
A	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*<sup>®</sup> 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 Bluetooth 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.

If working on and with the device with wet hands:

▶ Due to the increased risk of electric shock, gloves must be worn.

## 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<sup>®</sup> wireless technology uses a cryptographic technique tested by Fraunhofer AISEC.

- Connection via Bluetooth<sup>®</sup> 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 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<sup>®</sup> 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

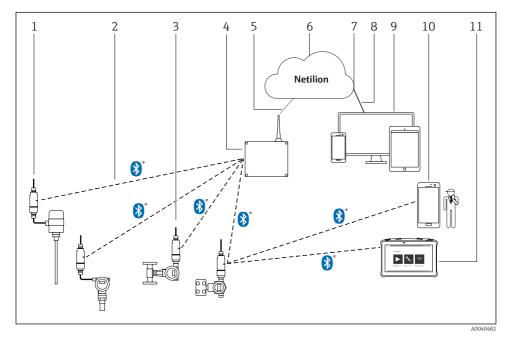
### NOTICE

### Safety applications with control functions via Bluetooth signal

Undesirable behavior of safety application

 Do not use a wireless signal such as Bluetooth in a safety application with a control function.

## 3.2 System architecture of the FieldPort SWA50 Bluetooth version



- I System architecture of SWA50 Bluetooth version
- 1 HART field device with FieldPort SWA50, remote mounting
- 2 Encrypted wireless connection via Bluetooth®
- 3 HART field device with FieldPort SWA50, direct mounting
- 4 FieldEdge SGC200
- 5 LTE connection
- 6 Netilion Cloud
- 7 Application Programming Interface (API)
- 8 https Internet connection
- 9 Internet browser-based Netilion Service app or user application
- 10 Endress+Hauser SmartBlue app
- 11 Endress+Hauser Field Xpert, e.g. SMTxx

## 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

- 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 °C (-40 to 185 °F).
- 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.  $\rightarrow$  🗎 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 FieldEdge SGC200.
- Pay attention to the effect of vibrations at the mounting location.



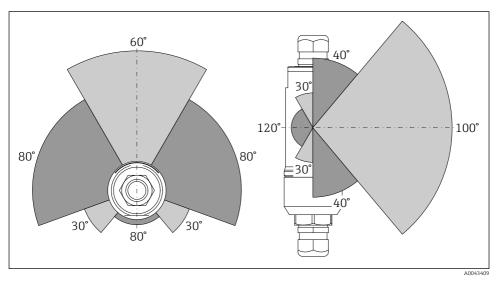
For detailed information on the range and vibration resistance, see the Technical Information for FieldPort SWA50  $\rightarrow \textcircled{B}$  7

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.



I Different ranges depending on the position of the transmission window

### Bluetooth

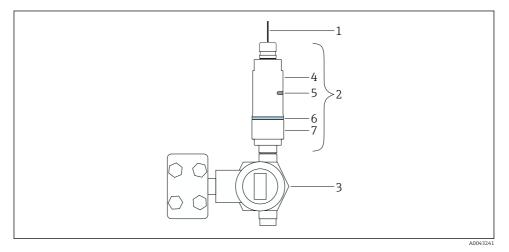
Up to 40 m without obstacles when FieldPort SWA50 is optimally aligned

### WirelessHART

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

## 5.3 Mounting methods

### 5.3.1 "Direct mounting" version



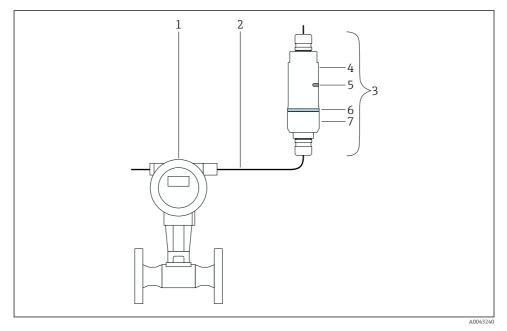
- ☑ 3 Example of direct mounting
- 1 Cable
- 2 FieldPort SWA50 "direct mounting" version
- 3 HART field device
- 4 Bottom housing section
- 5 Transmission window
- 6 Design ring

-

7 Top housing section

Montage sequence for the "direct mounting" version:  $\rightarrow \square 16$ 

### 5.3.2 "Remote mounting" version



- *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:  $\rightarrow \cong 27$ 

## 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:  $\rightarrow \square 15$ 

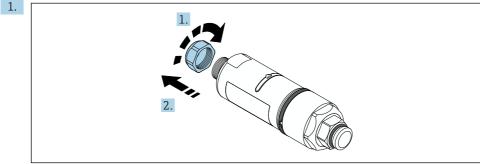


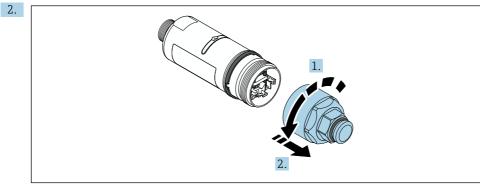
Electrical connection:  $\rightarrow$  🗎 38

### **Tools required**

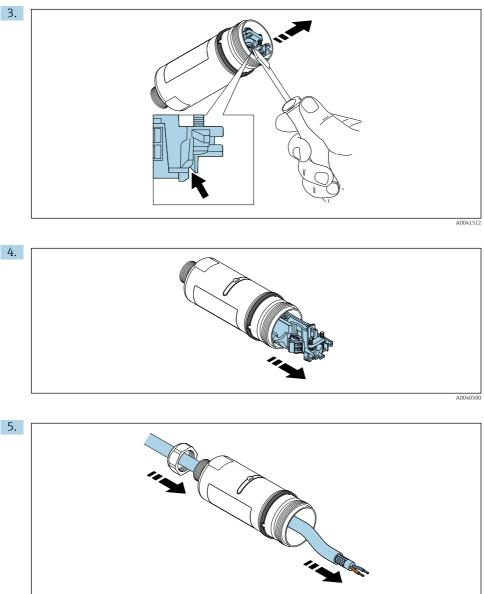
- Wrench AF24
- Wrench AF36

### Mounting the FieldPort SWA50

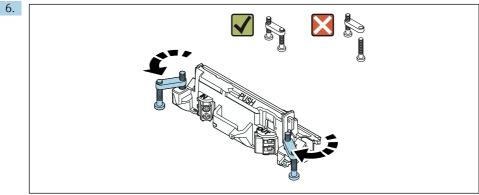


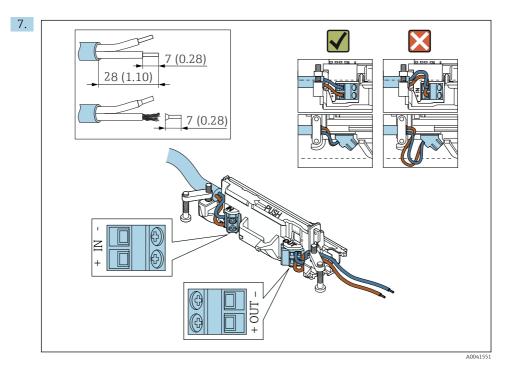


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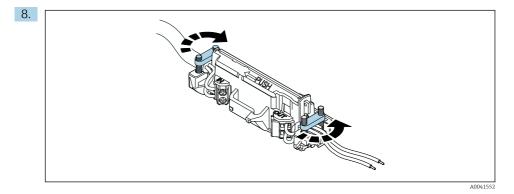
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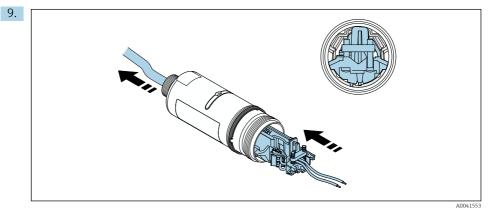


Ensure that the cores are of sufficient length to be connected in the field device. Do not shorten the cores to the required length until you are connecting them in the field device.

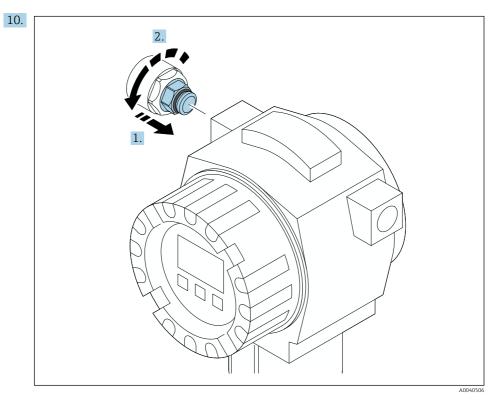
- If you use a cable gland for a shielded cable, pay attention to the information on stripping the wire  $\rightarrow \cong 39$ .
- Electrical connection for 2-wire HART field devices with passive current output:  $\rightarrow \cong 40$ 
  - Electrical connection for 4-wire HART field devices with passive current output:  $\rightarrow \ \textcircled{B} \ 40$
  - Electrical connection for 4-wire HART field devices with active current output:  $\rightarrow \ \ \textcircled{B} \ 41$



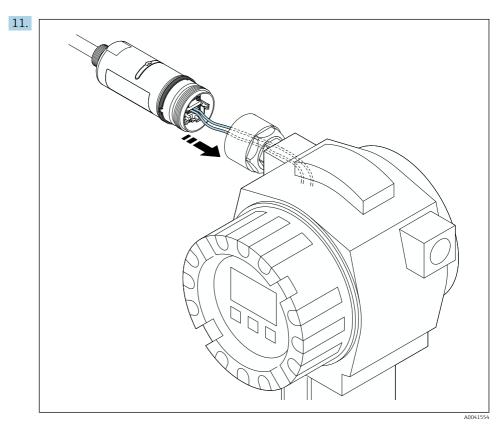
Tighten screws for strain relief. Torque: 0.4 Nm  $\pm$  0.04 Nm



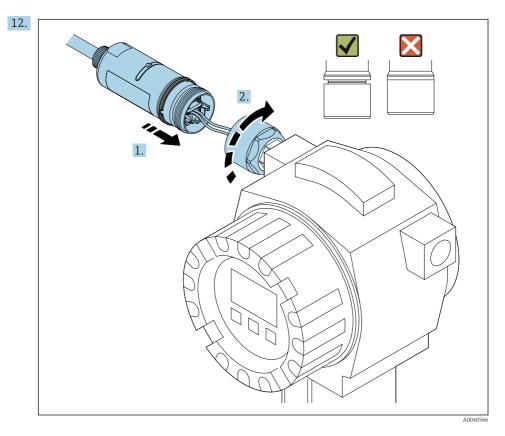
Slide the electronic insert into the guide inside the housing.



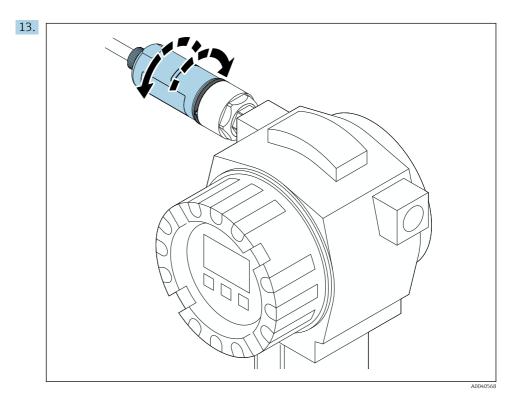
For information regarding torque, see the field device documentation.



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.



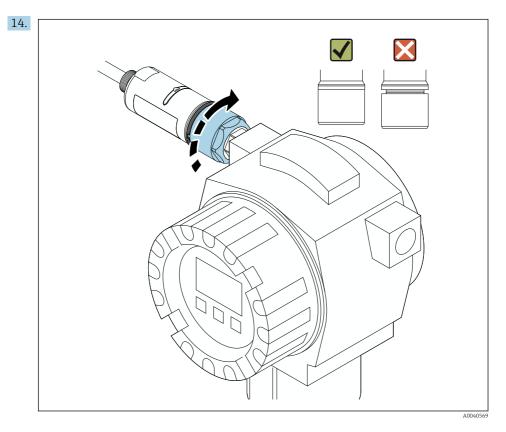
Do not tighten the top housing section yet, so that you are still able to rotate the bottom housing section.



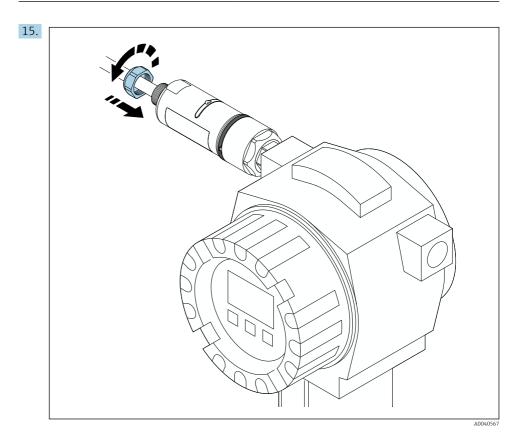
Align the bottom housing section with the transmission window according to the network architecture  $\rightarrow \implies 13$ .

To avoid wire breaks, rotate the bottom housing section by a maximum of  $\pm$  180°.

H



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



**16.** Perform commissioning  $\rightarrow \square$  45.

## 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":  $\rightarrow$  🖺 15

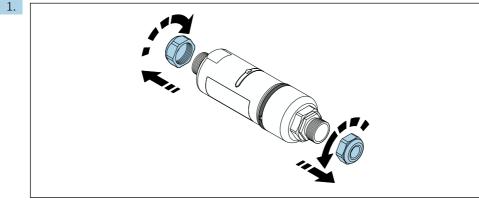


Electrical connection: → 🖺 38

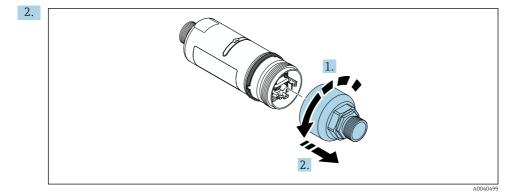
### **Tools required**

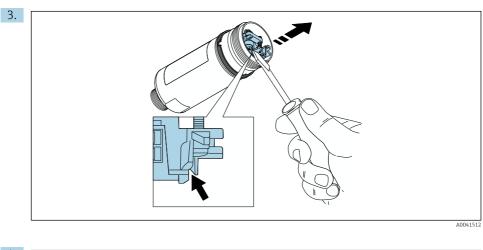
- Wrench AF27
- Wrench AF36

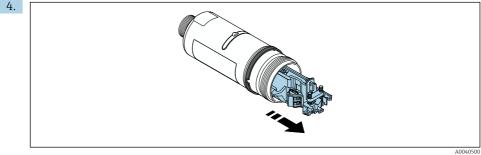
### Mounting the FieldPort SWA50



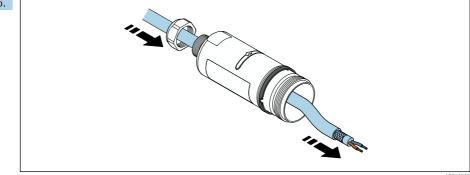




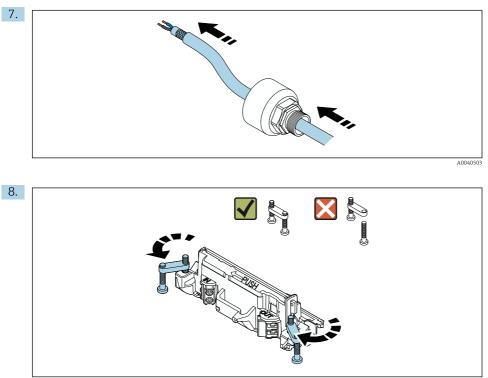




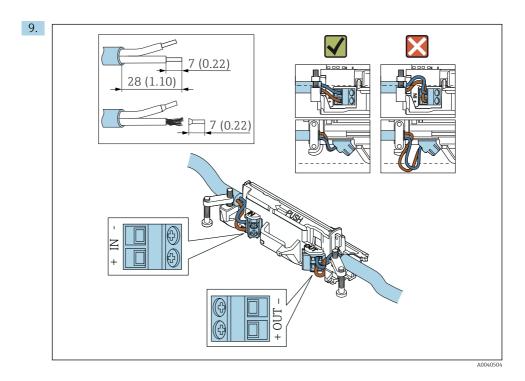
- 6.



A0041513



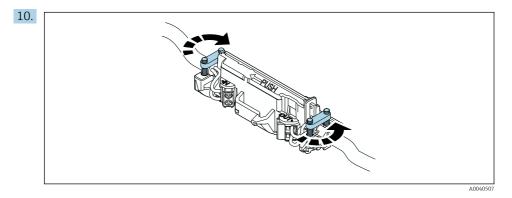
A0040501



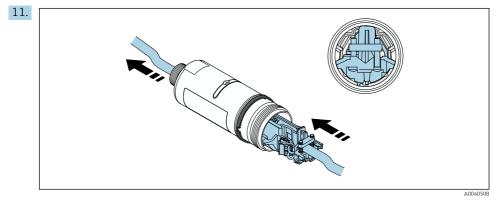
If you use a cable gland for a shielded cable, pay attention to the information on stripping the wire  $\rightarrow \cong 39$ .

- Electrical connection for 2-wire HART field devices with passive current output:  $\rightarrow \ \binomega$  40
- Electrical connection for 4-wire HART field devices with passive current output:  $\rightarrow \ \ \textcircled{} 40$
- Electrical connection for 4-wire HART field devices with active current output:  $\rightarrow \ \ \textcircled{B} \ 41$
- Electrical connection for FieldPort SWA50 without HART field device:  $\rightarrow$   $\cong$  42

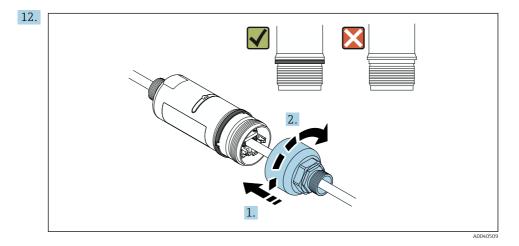
•



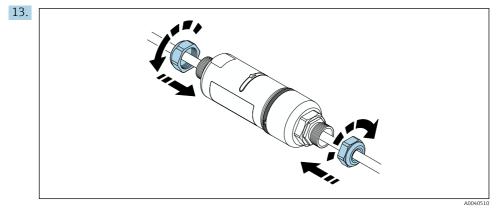
Tighten screws for strain relief. Torque: 0.4  $\text{Nm}\pm0.04$  Nm



Slide the electronic insert into the guide inside the housing.



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



**14.** Perform commissioning  $\rightarrow \square$  45.

### 5.6 Installing the FieldPort SWA50 with mounting bracket

### 5.6.1 Mounting and alignment options

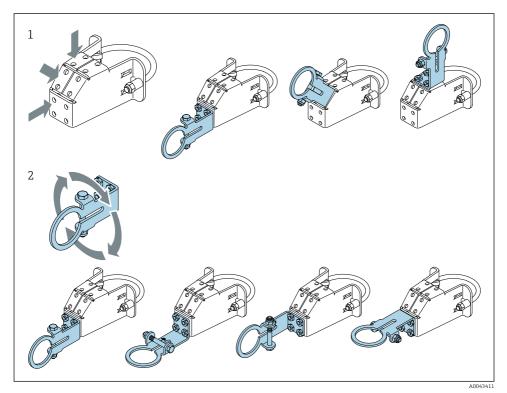
The mounting bracket can be mounted as follows:

- On pipes with a maximum diameter of 65 mm
- On walls

P

The FieldPort can be aligned as follows using the support bracket:

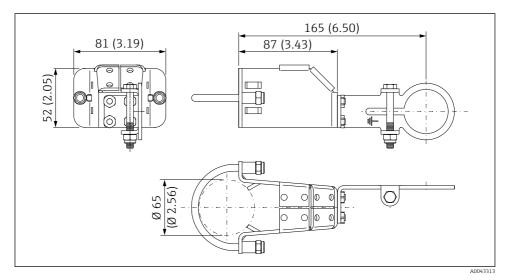
- Via the various mounting positions on the mounting bracket
- By rotating the support bracket
  - Pay attention to the alignment and range  $\rightarrow \cong 13$ .



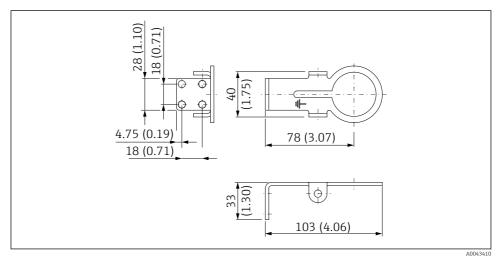
Alignment options via support bracket

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

### 5.6.2 Dimensions

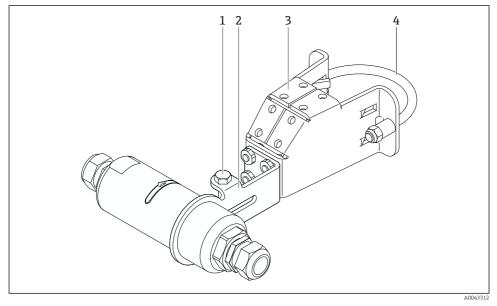


E 6 Dimensions of mounting bracket – pipe mounting



☑ 7 Dimensions of retaining bracket – wall mounting

### 5.6.3 Installing the mounting bracket and FieldPort SWA50



FieldPort SWA50 mounted via optional mounting bracket

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

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

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

i

Pay attention to the "Mounting the "remote mounting" version" section  $\rightarrow \cong 27$ .

- 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:  $5 \text{ Nm} \pm 0.05 \text{ Nm}$
- 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? $\rightarrow \square$ 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</p>
- 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</p>
- 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.

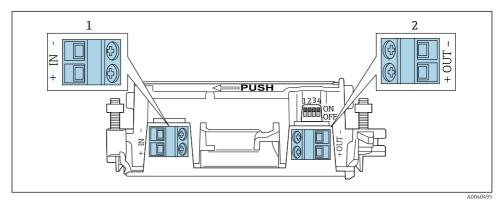
 $2 \ x \ 0.25 \ mm^2$  to  $2 \ x \ 1.5 \ mm^2$ 

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 mm<sup>2</sup> 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 →	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, ■ 41	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 → 🗎 41	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, ■ 42	Cable from supply voltage for FieldPort SWA50	Resistor between terminals OUT+ and OUT-

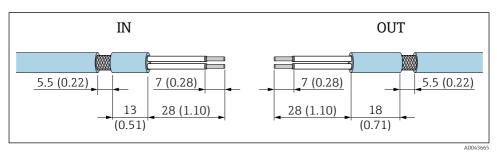
## 6.4 Stripping in the case of a cable gland for shielded cable

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.

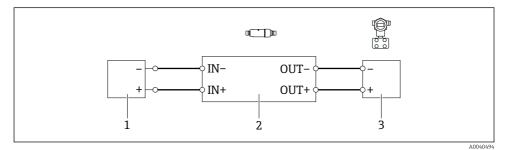


In Recommended dimensions for stripping in the case of cable glands for shielded cable for input terminal IN and output terminal OUT

- Sealing area (jacket): Ø 4 to 6.5 mm (0.16 to 0.25 in)
- Shielding: \$\varphi 2.5\$ to 6 mm (0.1 to 0.23 in)

## 6.5 2-wire HART field device with passive current output

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.

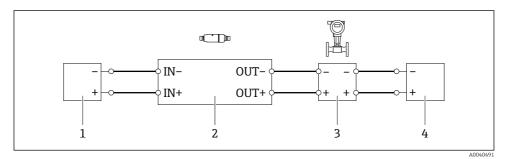


- Electrical connection for 2-wire HART field devices with passive current output (optional grounding not shown)
- 1 Supply voltage (SELV, PELV or Class 2) or PLC with active current input or transmitter with active current input
- 2 Electronic insert SWA50
- 3 2-wire field device 4 to 20 mA-HART

## 6.6 4-wire HART field device with passive current output



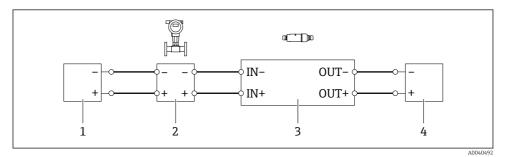
Some grounding concepts require shielded cables. If connecting the cable shield to the FieldPort SWA50, you must use a cable gland for shielded cable. See ordering information.



- 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

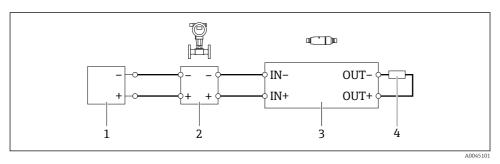
## 6.7 4-wire HART field device with active current output

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.



I3 Electrical connection for 4-wire HART field devices with active current output (optional grounding not shown) – PLC or transmitter at OUT terminals

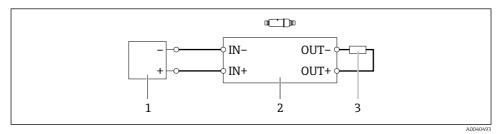
- 1 Supply voltage (SELV, PELV or Class 2) for 4-wire HART field device
- 2 4-wire field device with active 4 to 20 mA-HART output
- 3 Electronic insert SWA50
- 4 PLC or transmitter with passive current input



- 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
- 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 mm<sup>2</sup> 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

With this connection version, you can preconfigure the FieldPort SWA50.



In 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

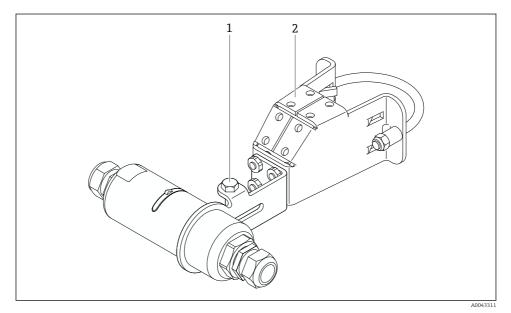
With the "direct mounting" version, the FieldPort SWA50 is grounded via the field device or the metal conduit.

### 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.



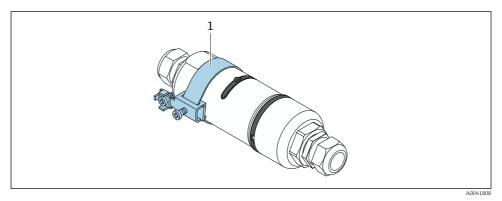
If Optional mounting bracket

- *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



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

In addition, you can connect the FieldPort SWA50 with the connected HART field device to the Netilion Cloud via the FieldEdge SGC200.

- Detailed information on Netilion Cloud: https://netilion.endress.com
  - For detailed information on the FieldEdge SGC200, see TI01468S.

## 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  $\rightarrow \square$  37.
- Post-connection check has been carried out  $\rightarrow \cong 44$ .
- DIP switch 1 for Bluetooth communication must be set to ON → 
   <sup>(1)</sup> 51. (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 Bluetooth network
  - Long tag for HART-6 and HART-7 field devices
  - (Short) tag for HART-5 field devices

### 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  $\rightarrow \implies 58$ .

### 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  $\rightarrow \square 58$ .

Requirements for the "HART communication resistor outside the FieldPort SWA50" version:

- The HART communication resistor of  $\geq$  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  $\rightarrow$  🗎 58

### 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

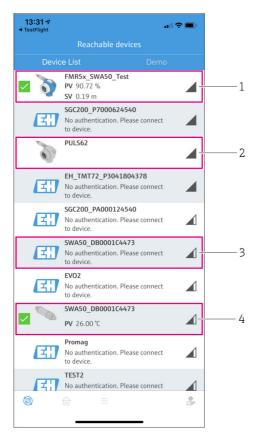
### 8.2.1 Commissioning via SmartBlue app

### 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.



I8 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.

07:27 1	.u 🗢 🗩
Login to device	
TMT162	
admin	8
	۵ 💿
Forgot password?	
Abort	Login
Please enter the login password and Log in'	l tap
Endress + Hauser	,
◎ ☆ =	¢)

🖻 19 Login



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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.

Change the password after logging in for the first time.  $\rightarrow$  🗎 57

### Checking and adjusting the HART configuration

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

- The parameters listed in this section can be found in the "HART Configuration" menu.
- Navigation: Root menu > System > FieldPort SWA50 > Connectivity > HART configuration

- 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. →
- 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. →

#### Connecting the FieldPort SWA50 to the Netilion Cloud

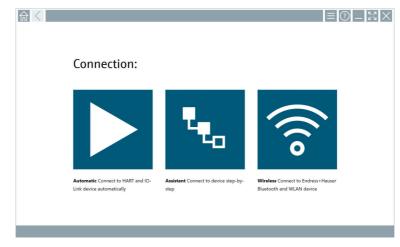
If you wish to connect the FieldPort SWA50 to the Netilion Cloud, you must configure the FieldEdge SGC200 accordingly.



#### 8.2.2 Commissioning via Field Xpert

#### 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.

T	🛛 🔻 🔬 💆			∑x ⑧
Device Status	Tag	Process Values		Signal Actio
0	EH_TMT72_P3041804378			(î)
	FMR5x_SWA50_Test	PV: 94.11 % SV: 0.12 m		<u></u>
0	Levelflex			<u></u>
0	PULS62			<u></u>
0	SGC200_P7000624540			<u> </u>
Do you have	your WLAN device configured as a	client in your network?	No network availab	ole. Click here to con
Number of it	tems: 13			

- 🖻 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.

		_	К Л И Ч	$\times$
		>		
=				
	User Name			
	Pessword			
	Login Additional Information:			
	Additional Information:			
		ĩ	**C 2	017 3
		4	- 1 K L 5	4 N O
		7	8	9 X Y Z
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		<del>«</del>	÷	•
		CLEA	R SYM	ENTER
	N 6	☆ 👯 E	2:	34 PM 3/2019

- 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.



Change the password after logging in for the first time.  $\rightarrow$  🗎 57

### Checking and adjusting the HART configuration

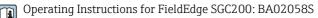
Perform the following steps to ensure good communication between the FieldPort SWA50 and the connected HART field device.

- 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:  $\rightarrow \square 66$
- 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.
   → 

   <sup>1</sup> 58
- 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. →
- 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. →

### Connecting the FieldPort SWA50 to the Netilion Cloud

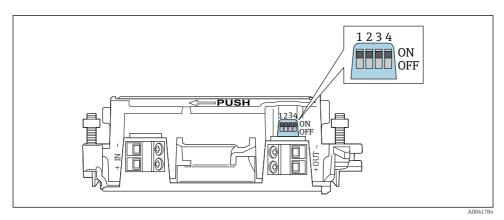
If you wish to connect the FieldPort SWA50 to the Netilion Cloud, you must configure the FieldEdge SGC200 accordingly.



# 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	<ul> <li>ON: Communication via Bluetooth is possible, e.g. via SmartBlue App, Field Xpert and FieldEdge SGC200.</li> <li>OFF: Communication via Bluetooth is not possible.</li> </ul>	ON
2	Firmware update	<ul> <li>ON: You can carry out firmware updates.</li> <li>OFF: You cannot carry out firmware updates.</li> </ul>	ON
3	Configuration via Bluetooth	<ul> <li>ON: Configuration via Bluetooth is possible, e.g. via SmartBlue App and Field Xpert.</li> <li>OFF: Configuration via Bluetooth is not possible. A connection set up via the FieldEdge SGC200 between the FieldPort SWA50 and the Netilion Cloud remains active.</li> </ul>	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)

Menu overview (Navigation):  $\rightarrow \square 66$ 

# 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

### 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.

# 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.

	08:32 ⋪		.II 🕈 💽	
		Device information		
5	- 6	Device tag FMR5x_SWA50_Test Device type 0x1128 Serial number <u>MC005C01134</u> Firmware version 01.02.01 Order code FMR51-1348/0		1 2 3
	Status signal			— 1
	Output current 18.99 mA	214		— 4
	Primary variable( 93.69 %	PV)		
	Secondary variable 0.13 m	e (SV)		
	<u>م</u>	=	ŝ,	

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

	13:10 🕫		al 🗢 🗩	
		Device information		
4	-	Device tag PULS62 Device type - Serial number <u>006262E8BFA866</u> Firmware version - Order code -		1 2
	Output current 4.24 mA			— 3
	© <b>∂</b>	=	\$ } \$	

- ☑ 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

13:09 🔊		.ul 🗢 🖿	
	Device information		
	Device tag SWA50_DB0001C4473 Device type FieldPort SWA50 Serial number		1
	DB0001C4473		2
	Firmware version		
	00.11.10 Order code		
	SWA50-1265/0		
Output current			
20.00 mA			
Primary variable	(PV)		
26.50 °C			2
Secondary variabl	e (SV)		3
NAN Not used			
 ②	=	¢	
©		Ì	

🗷 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.	
	<ul> <li>Options</li> <li>Yes: The transmission power of the SWA50 is reduced.</li> <li>No: The transmission power of the SWA50 is not reduced.</li> <li>Factory setting No</li> </ul>	
Change Bluetooth password	Change password. To change it, you must enter the user name, the current password and the new password.	
	<ul><li>Factory setting</li><li>User name: admin</li><li>The password can be found on the nameplate.</li></ul>	
Firmware update	→ 🗎 61	

### "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 <ul> <li>Primary master</li> <li>Secondary master</li> </ul>	
	Factory setting Secondary master	

Parameter	Description	
Communication resistor	Select installation site of HART communication resistor.	
	<ul> <li>Options</li> <li>External: Use an external communication resistor provided by the customer onsite between the IN+ terminal and the supply voltage.</li> <li>Internal: Use an internal communication resistor of the SWA50.</li> <li>Factory setting External</li> </ul>	
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	

## 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	

Parameter	Description	
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

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 Maintenance

## 11.1 General maintenance

We recommend periodic visual inspections of the device.

# 11.2 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 → 
   <sup>(1)</sup> 51. (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. → 🗎 53

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.  $\rightarrow \square 42$ 

- 1. Copy update packages to the SmartBlue app.
- Open the Firmware update page. Navigation: Root menu > System > FieldPort SWA50
   > Connectivity > Bluetooth configuration
- 3. Select update package from the list of available packages.

07:28 🕫		. II 후 💽
<b>&lt;</b> Back	Firmware update	
Device tag		
FMR5x_SWA50	_Test	
Device type		
0x1128		
Package versior	ı	
0.10.01		
00.10.02-Relea	se_00_10_02_PILOT_F	₩_TEST >-
@ G	} ≡	\$ }
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- 🖻 25 "Firmware update" page
- 1 Example of a package
- 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:

14:41 -	7			ul 🗢 🗩
Firmware update				
Firmware update has been transferred successfully. Perform update? Device will be restarted.				
	Later		Apply	
				15
C)	<u>ل</u>			÷.

- 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. →  $\cong$  59
- If the firmware update is not fully downloaded or is not correctly installed, the FieldPort SWA50 works with the old firmware.

# 12 Diagnostics and troubleshooting

## 12.1 Diagnostics

If a diagnostic event has occurred, the status signal appears in the SmartBlue app and in Field Xpert 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)



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.

If a symbol for an event level is displayed, make sure that this status is not caused by the connected HART field device.

Status signal	Possible cause	Remedial measure	
F	FieldPort cannot communicate with the HART field device.	<ul><li>Connect the HART field device.</li><li>Check the HART field device and wiring.</li><li>Check the HART address of the HART field device.</li></ul>	
	HART field device not working correctly.	Check the HART field device.	
	Loop current outside permitted range.	<ul> <li>Check wiring. The current loop must be between 3.6 mA and 22.5 mA.</li> <li>Change HART field device.</li> </ul>	
	Self-test active.	Wait until self-test is completed.	
	The hardware of the FieldPort is defective.	Change the FieldPort.	
S	Operating temperature outside permitted range.	<ul><li>Check ambient temperature.</li><li>Check process temperature.</li></ul>	
M	Critical number of write cycles to memory reached.	<ul> <li>Make sure that no cyclic configuration change is automatically sent to the FieldPort.</li> <li>Change the FieldPort.</li> </ul>	

# 12.2 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 → 🗎 58
No Bluetooth communication between the FieldPort and the SmartBlue app.	Check if Bluetooth communication is enabled $\rightarrow \square 51$ .

Fault	Corrective action
No Bluetooth communication between the FieldPort and the Field Xpert.	Check if Bluetooth communication is enabled $\rightarrow \square 51$ .
No process values from third-party HART field devices in the SmartBlue app.	For third-party HART field devices, use the Field Xpert . For device variables, see Technical Information TI01468S.

# 13 Repair

## 13.1 General notes

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

## 13.2 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.

# 14 Accessories

Optional accessories: Mounting bracket (order number: 71520242)

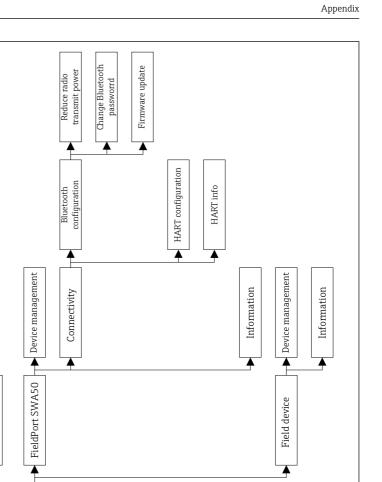
Detailed information about the accessories is available from your Endress+Hauser sales organization: www.addresses.endress.com or on the product page

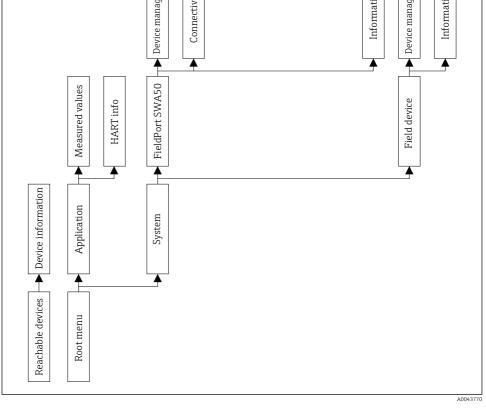
# 15 Technical data

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

# 16 Appendix

# 16.1 Menu overview (Navigation)







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# www.addresses.endress.com

