Operating Instructions
Profile Vision Compact SPV350

Interface and density profile measurement in separation vessels

Endress+Hauser

People for Process Automation

Revision history

Product version	Operating Instructions	Changes	Comments
1.00.XX	BA01903S/04/EN/01.18	Initial version	–

Table of contents

1 About this document

1.1 Document function

These Operating Instructions contain all the information that is required in various phases of the life cycle of the device: from product identification, incoming acceptance and storage, to mounting, connection, operation and commissioning through to troubleshooting, maintenance and disposal.

1.2 Symbols used

1.2.1 Safety symbols

Symbol	Meaning
⚠ DANGER	**DANGER!** This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
⚠ WARNING	**WARNING!** This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
⚠ CAUTION	**CAUTION!** This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
NOTICE	**NOTE!** 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.
🛈	**Tip** Indicates additional information.
📖	Reference to documentation
🗎	Reference to page
🖻	Reference to graphic
▶	Notice or individual step to be observed
1. , 2. , 3. ...	Series of steps
↳	Result of a step
?	Help in the event of a problem
👁	Visual inspection

1.2.3   Electrical symbols

Symbol	Meaning	Symbol	Meaning
---	Direct current	∿	Alternating current
⎓	Direct current and alternating current	⏚	**Ground connection** A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
⏛	**Protective ground connection** A terminal which must be connected to ground prior to establishing any other connections.	▽	**Equipotential connection** A connection that has to be connected to the plant grounding system: This may be a potential equalization line or a star grounding system depending on national or company codes of practice.

1.3   Text emphasis

Emphasis	Meaning	Example
Bold	Keys, buttons, program icons, tabs, menus, commands	**Start** → **Programs** → **Endress+Hauser** In the **File** menu, select the **Print** option.
Angle brackets	Variables	<DVD drive>

1.4   Acronyms used

Acronyms	Meaning
AC	Alternating Current
CPU	Central Processing Unit
DC	Direct Current
DCS	Distributed Control System
DHCP	Dynamic Host Configuration Protocol
DP	Decentralized Peripherals (PROFIBUS DP)
FMG	Radiometric Compact Transmitter (Gammapilot) from Endress+Hauser
FQG	Source Container from Endress+Hauser
FSG	Gamma Radiation Source from Endress+Hauser
HMI	Human Machine Interface (e.g. operating panel)
I/O	Inputs/Outputs
NC	Normally Closed
NO	Normally Open
PA	Process Automation (PROFIBUS PA)
PLC	Programmable Logic Controller (PLC)
SPV	System Profile Vision
UPS	Uninterruptible Power Supply
WAN	Wide Area Network (possible communication channel for remote maintenance modem)
3G	Wireless data transmission standard (possible communication channel for remote maintenance modem)

1.5   Valid versions

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

1.6   Documentation

Profile Vision Compact SPV350
- Brief Operating Instructions KA01403S/00/EN
- Technical Information TI01410S/00/EN

Gammapilot M FMG60
- Technical Information TI00363F/00/EN
- Operating Instructions BA0236F/00/EN (HART)
- Operating Instructions BA0329F/00/EN (PROFIBUS PA)

🛈   Additional documentation is provided on the CD supplied.

1.7   Registered trademarks

All brand and product names are trademarks or registered trademarks of the respective companies and organizations.

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 Profile Vision Compact SPV350 has been developed for the calculation of interface and density profiles in separation vessels. The Profile Vision Compact SPV350 is designed to measure and process the measured density values of the FMG60 compact transmitters. The radiometric measuring technology, consisting of the FMG60 compact transmitter, the FQG source container and the FSG radiation generator, does not form part of the Profile Vision Compact SPV350. Please see the documentation of these components for the designated use of these components

📖 Detailed information on the FMG60 compact transmitters:

Detailed information on the FQG source container and the FSG radiation generator: https://www.endress.com

Any other use is considered to be non-designated use. Designated use entails compliance with the operating and maintenance requirements specified by the manufacturer. The Profile Vision Compact must be mounted in an environment provided for this purpose. We recommend that you mount the Profile Vision Compact in a suitable control cabinet in a dry, air-conditioned room.

📖 For information on the ambient conditions, see the Technical Information for the Profile Vision Compact SPV350

ℹ **Dangers**

It is the responsibility of the owner/operator to assess any dangers for systems. These dangers must be assessed by the owner/operator and the measures resulting from the assessment must be implemented. While the Profile Vision Compact can be part of such a measure, responsibility for the separation process always rests with the owner/operator, particularly the taking of suitable measures if the Profile Vision Compact signals an alarm.

ℹ **Incorrect use**

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

2.3   Occupational safety

Personnel must meet the following conditions when working on and with the system:
▶ Wear the required personal protective equipment according to regional/national regulations.
▶ When welding, do not ground the welding unit via the system.
▶ If hands are wet, wear gloves on account of the higher risk of electric shock.

2.4   Operational safety

Operate the system only if it is in proper technical condition, free from errors and faults.

The operator is responsible for the interference-free operation of the system.

2.4.1   Modifications to the system

Unauthorized modifications to the system are not permitted and can lead to unforeseeable dangers:
▶ If, despite this, modifications are required, consult with Endress+Hauser.

2.4.2   Repair

To ensure continued operational safety and reliability:
▶ Only carry out repairs that are specifically approved by the manufacturer.
▶ Repairs must be performed only by certified Endress+Hauser specialists.
▶ Observe federal/national regulations pertaining to the repair of an electrical device.
▶ Use original spare parts and accessories from Endress+Hauser only.

2.5   Product safety

The components used for the Profile Vision Compact meet the general safety standards and legal requirements. Furthermore, the components comply with the EC/EU Directives that are listed in the EU Declarations of Conformity for the components.

2.6   IT security

We only provide a warranty if the system is installed and used as described in the Operating Instructions. The system 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 system and system data transfer must be implemented by the operators themselves.

🛈 The operator is responsible for data backup.

3 Product description

3.1 Function

Using radiometric measuring technology, the measured density values in the separation vessel are transmitted to the Profile Vision Compact SPV350 where they are converted to a density profile and visualized. In the system, you define the density threshold values of the media to be separated to be able to identify and visualize the interfaces/emulsion layers on the basis of these values. The threshold values can be adjusted at any time if conditions change, e.g. change in pressure or temperature. This enables the user to respond flexibly to changing environmental influences without having to recalibrate the system. The FMG60 radiometric compact transmitter communicates with the Profile Vision Compact SPV350 via PROFIBUS or 4 to 20 mA (HART). Status messages from the compact transmitter are also received by the Profile Vision Compact SPV350, visualized and forwarded to the customer control system. Data such as density values, interface levels in the separation vessel, the status of the compact transmitters, system and density threshold values can be communicated to the customer control system (PLC, DCS)via the optional Modbus TCP or OPC UA interface.
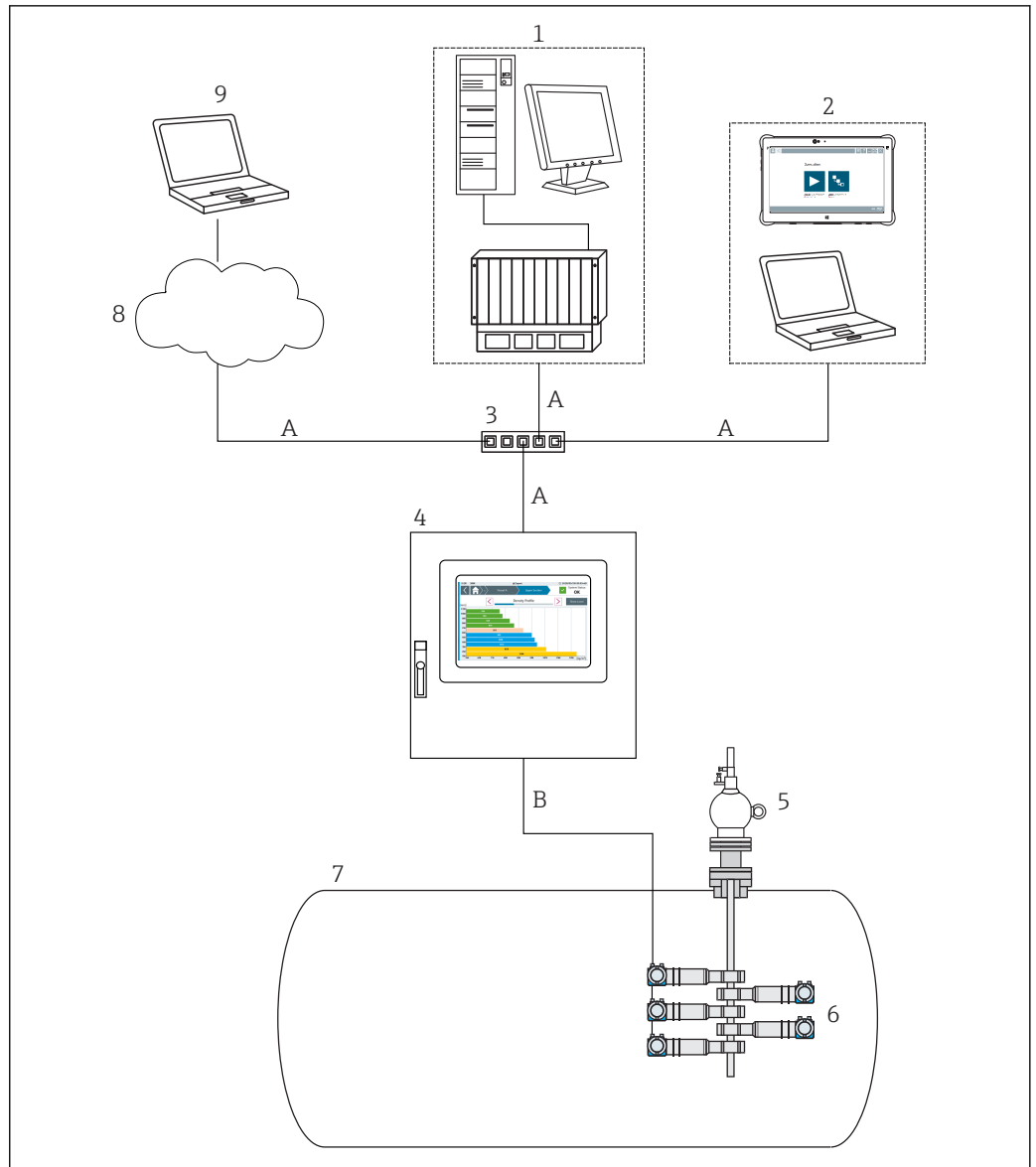
⊞ 1   Overview

A   Ethernet
B   PROFIBUS network or 4 to 20 mA (HART)
1   Operator control system with visualization
2   Engineering computer such as SMT70 with FieldCare for device configuration and VNC client for SPV350
*   visualization (www.endress.com/smt70)*
3   Switch
4   Profile Vision Compact System SPV350
5   Source container FQG with radioactive radiation generator FSG
6   FMG60 compact transmitter
7   Separation vessel
8   Internet access
9   Remote maintenance capability

3.2   System design

The Profile Vision Compact SPV350 comprises:
- Controller assembly with 15 digital inputs and 8 digital outputs
- Application software
- USB license dongle
- SiteManager for data transmission via Modbus TCP or OPC UA to a customer control system or for remote maintenance via WAN or 3G

- Up to 5 optional remote IO assemblies for 4 to 20 mA devices (12 x 4 to 20 mA HART-transparent inputs per assembly)
- Optional PROFIBUS DP master module for PROFIBUS devices, integrated in the controller assembly
- Optional 7" touch display

The following components are not included in the delivery:
- SIM card for remote maintenance
- PROFIBUS DP/PA coupler for connecting PROFIBUS PA devices

3.2.1 Scaling

Feature	Definition	Comment
Number of separation vessels per system	1 to 5	–
Number of sections per separation vessel	1 to 5	–
Number of devices per section	1 to 15	Maximum 60 devices per system, such as • 1 separation vessel divided into 5 sections with 12 devices per section • 5 separation vessels divided into 2 sections per vessel with 6 devices per section
SiteManager per system	1	Can be used as a gateway, firewall and remote maintenance modem
7" touch display per system	1	Optional At a maximum distance of 100 m from the controller assembly

3.2.2 Structure of Profile Vision Compact SPV350 for 4 to 20 mA devices
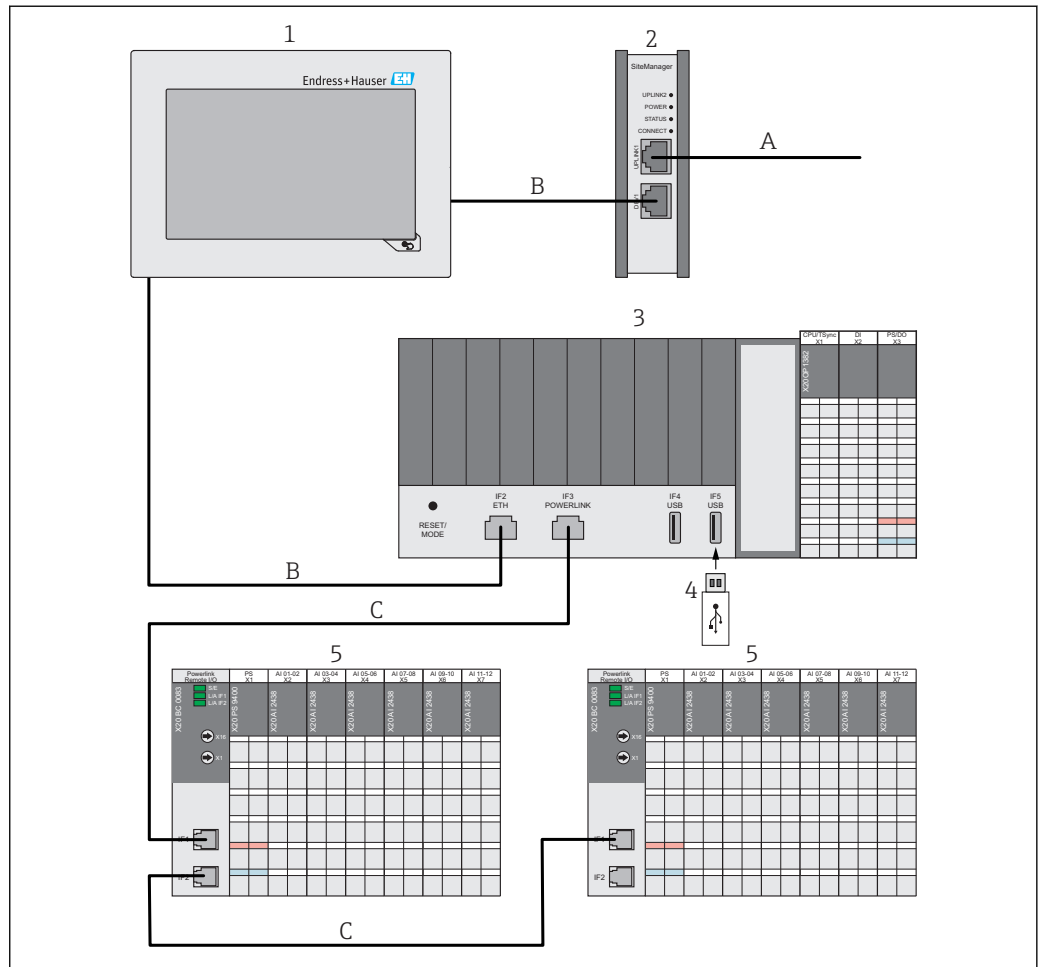
⊡ 2   Structure of Profile Vision Compact SPV350 for 4 to 20 mA devices

A   Ethernet (customer network)
B   Ethernet (private SPV350 network)
C   Ethernet (Powerlink)
1   Optional 7" touch display
2   SiteManager can be used as a gateway, firewall and remote maintenance modem
3   Controller assembly with 15 digital inputs and 8 digital outputs
4   USB license dongle
5   Remote IO assembly for 4 to 20 mA devices (maximum 5 remote IO assemblies)

3.2.3 Structure of Profile Vision Compact SPV350 for PROFIBUS devices
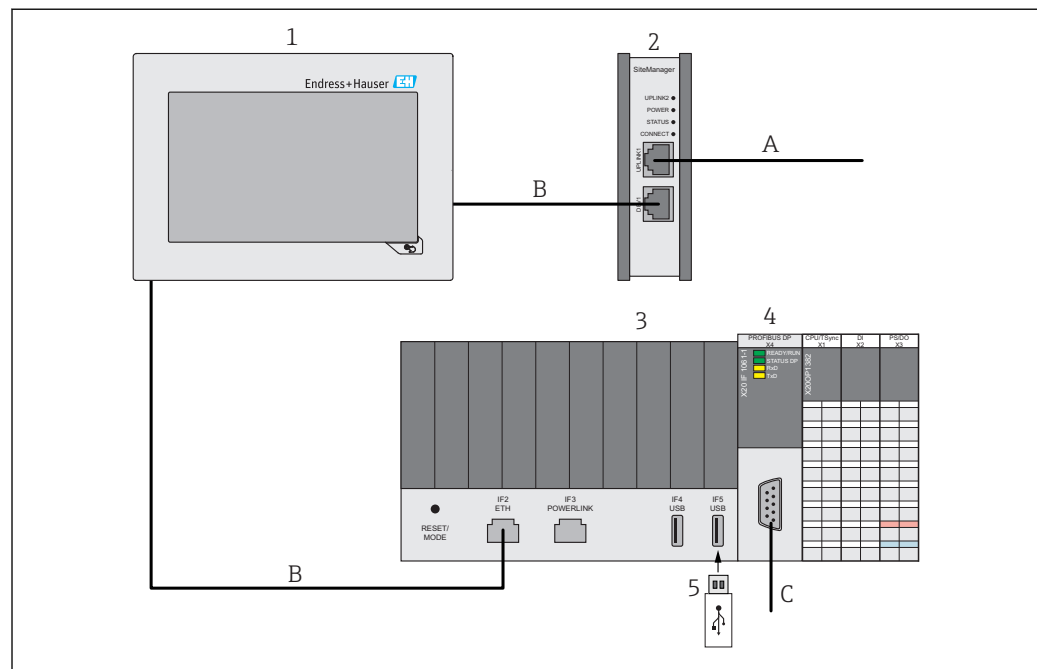
⊠ 3   *Structure of Profile Vision Compact SPV350 for PROFIBUS devices*

A   *Ethernet (customer network)*
B   *Ethernet (private SPV350 network)*
C   *PROFIBUS DP network (at customer's site)*
1   *Optional 7" touch display*
2   *SiteManager can be used as a gateway, firewall and remote maintenance modem*
3   *Controller assembly with 15 digital inputs and 8 digital outputs*
4   *PROFIBUS DP master module for PROFIBUS devices, integrated in the controller assembly*
5   *USB license dongle*

3.3 Interfaces (optional)

A Modbus TCP interface or an OPC UA interface is optionally available in the system.

The following data can be transmitted from all the separation vessels via these interfaces:
• Level of all media in all sections
• Density values of the measurement layers in all sections
• Density values of the compact transmitters (raw values)
• Density threshold values of the media to be separated
• Error and warning messages
• Status messages

ℹ️   A description of the Modbus TCP interface and the OPC UA interface is provided on the CD supplied.

3.4 SiteManager as a gateway, firewall and remote maintenance modem

The SiteManager can be used as a gateway, firewall and remote maintenance modem.

As a gateway, the SiteManager enables access from the customer's network to the Profile Vision Compact via VNC or enables data transfer from the Profile Vision Compact to the customer's control system via Modbus TCP or OPC UA.

For remote maintenance, the Profile Vision Compact can be accessed via WAN or 3G by Endress+Hauser staff using a secure VPN connection. The SIM card is not included in the delivery.

SiteManager login details on delivery:
- User name: admin
- Password: customer1135

The SiteManager is configured as a DHCP client by default.

Please refer to the SiteManager documentation (Secure Remote Maintenance) on the CD for information on changing the IP configuration.

4 Incoming acceptance and product identification

4.1 Incoming acceptance

- Check the packaging for visible damage arising from transportation.
- To avoid damage, remove the packaging with care.
- Keep all the accompanying documents.

The system may not be put into operation if the contents are found to be damaged beforehand. Contact your Endress+Hauser Sales Center if this happens. Return the system to Endress+Hauser in the original packaging where possible.

4.2 Product identification

The system nameplate is lasered onto the controller assembly.

You can identify the system in the following ways:
- Enter the serial number indicated on the nameplate in W@M Device Viewer (www.endress.com → About us → W@M Life Cycle Management → Operations → The right device information always at hand (find spare part) → Access device-specific information → Enter serial number): all the information relating to the system/device is then displayed.
- Enter the serial number indicated on the nameplate in the Endress+Hauser Operations App: all the information relating to the system is then displayed.

Made in Austria
Manufactured by B&R for **Endress+Hauser** [EH]

ProfileVision SPV350   S/N: N6001B24470
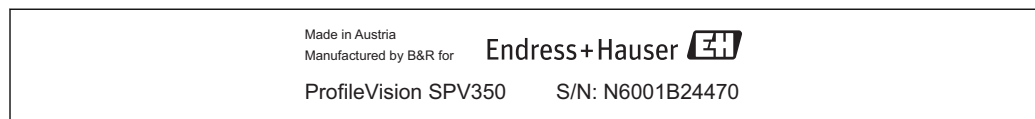
4.3 Storage and transport

- 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 0 to 40 ℃ (32 to 104 ℉).
- Store the components in the original packaging in a dry place.
- Where possible, only transport the components in the original packaging.

5 Installation

5.1 Installation conditions

5.1.1 Profile Vision Compact SPV350

The Profile Vision Compact must be mounted in an environment provided for this purpose.

The system components such as the controller assembly, remote IO assemblies and gateway/firewall/remote maintenance modem are designed for DIN rail mounting in a control cabinet.

The 7" touch display is designed for installation in a panel.

We recommend that you mount the components in a dry, air-conditioned room.

📖 For information on the ambient conditions and on the mounting procedure, see the Technical Information for the Profile Vision Compact SPV350

5.1.2 Compact transmitter

Please see the documentation of the compact transmitters for the compact transmitter installation conditions.

📖 For detailed information on the FMG60 compact transmitters, see the Technical Information for Gammapilot M FMG60

5.2 Post-installation check

Are the mounted components undamaged (visual inspection)?	❑
Do all the components meet the required specifications? For example: • Ambient temperature range • Humidity • Explosion protection	❑
Are the measuring point identification and labeling correct (visual inspection)?	❑

6 Electrical connection

6.1 Connection conditions

⚠ DANGER

Electrical voltage!
Severe or life-threatening injuries!
▶ Electrical work may only be performed by electrical technicians.
▶ The electrical connection must be performed when the device is de-energized. Make sure the device is de-energized.
▶ Connect the protective ground.

⚠ DANGER

Risk of electric shock from faulty cables and components!
Faulty cables and components can cause an electric shock and life-threatening injuries.
▶ Check cables and components regularly.
▶ Avoid moisture on the cabinet interior.

NOTICE

Unsuitable cable types!
High temperatures can put a strain on cables.
▶ Use cables that suit the temperature range. The cables must be suitable for temperatures of 5 ℃ (9 ℉) above the ambient temperature.

NOTICE

Electrical overloading, incorrect supply voltage and incorrect wiring!
Possible malfunction or destruction of the system.
▶ Before commissioning the device, check that the supply voltage matches the information on the nameplate.
▶ Install overcurrent protection for the power cable. Observe the nominal current in accordance with the wiring diagram.
▶ Establish the connection as per the wiring diagram.

6.2 Connecting the system

6.2.1 Supply voltages

Component	Nominal voltage	Supply voltage range
Controller assembly	24 V DC	−15 % / +20 %
Remote IO assembly	24 V DC	−15 % / +20 %
Gateway/firewall/remote maintenance modem	24 V DC	12 to 24 V DC
7" touch display	24 V DC	8 to 32 V DC

6.2.2 Power consumption

Component	Power consumption
Controller assembly with PROFIBUS DP master module	Approx. 7.8 W
Controller assembly without PROFIBUS DP master module	Approx. 6 W
Remote IO assembly [1]	Approx. 11.2 W

Component	Power consumption
Gateway/firewall/remote maintenance modem	Max. 5 W
7" touch display	Max. 9.34 W

1) Power consumption without power supply for connected devices. The power consumption depends on the connected devices.

6.2.3 Electrical connection: supply voltages

You must install a line fuse with max. 10 A slow blow for the supply voltages.

Supply voltage for controller assembly

4   Connection of the controller assembly supply voltage

24 V DC power supply for CPU and backplane bus
- Terminal X3/17: +24 V (+)
- Terminal X3/18: GND (−)

24 V DC power supply for IOs
- Terminal X3/27: +24 V (+)
- Terminal X3/28: GND (−)

NOTICE

Power regeneration!
Damage to component parts
▸ If the supply voltage for the IOs is switched off at terminals X3/27 and X3/28, make sure there is no external voltage at terminals X3/13, X3/14, X3/23 and X3/24 (DO 05 to DO 08).

Supply voltage for remote IO assembly for 4 to 20 mA devices

5   Connection of supply voltage for remote IO assembly

24 V DC power supply for bus node and backplane bus
- Terminal X1/15: +24 V (+)
- Terminal X1/16: GND (−)
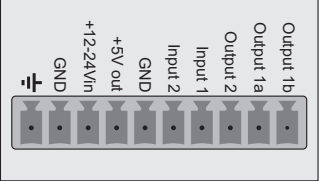
24 V DC power supply for IOs
- Terminal X1/25: +24 V (+)
- Terminal X1/26: GND (−)

If you would like to supply the supply voltages for the bus nodes and the IOs with the same potential, you can supply power to the IOs via a jumper between terminals X1/14 and X1/24. In this case, you may not connect terminals X1/25 and X1/26.

Supply voltage for gateway/firewall/remote maintenance modem
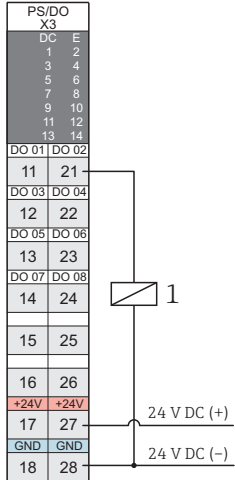
⊡ 6   *Connection of gateway supply voltage*

24 V DC power supply
- Terminal +12-24Vin: +
- Terminal GND: –

Supply voltage for 7" touch display

⊡ 7   *Connection of supply voltage for 7" touch display*

24 V DC power supply
- Terminal 1: +
- Terminal 2: –

6.2.4   Connection of digital outputs

Connection of digital outputs DO 01 to DO 08 to the controller assembly

⊡ 8   *Connection example for DO 02*

1   *Actuator, relay, signal lamp etc.*

Connect the digital outputs in the same way as shown in the connection example.
If signals from external systems are used, you must connect the signals via relays with a floating contact.

Output nominal current: 0.5 A

6.2.5   Connection of digital inputs

Connection of digital inputs TSync and DI 01 to DI 14 to the controller assembly

Connect the digital inputs in the same way as shown in the connection example.

If signals from external systems are used, you must connect the signals via relays with a floating contact.

- Low switching threshold: < 5 V DC
- High switching threshold: > 15 V DC

 9   Connection example for DI 02
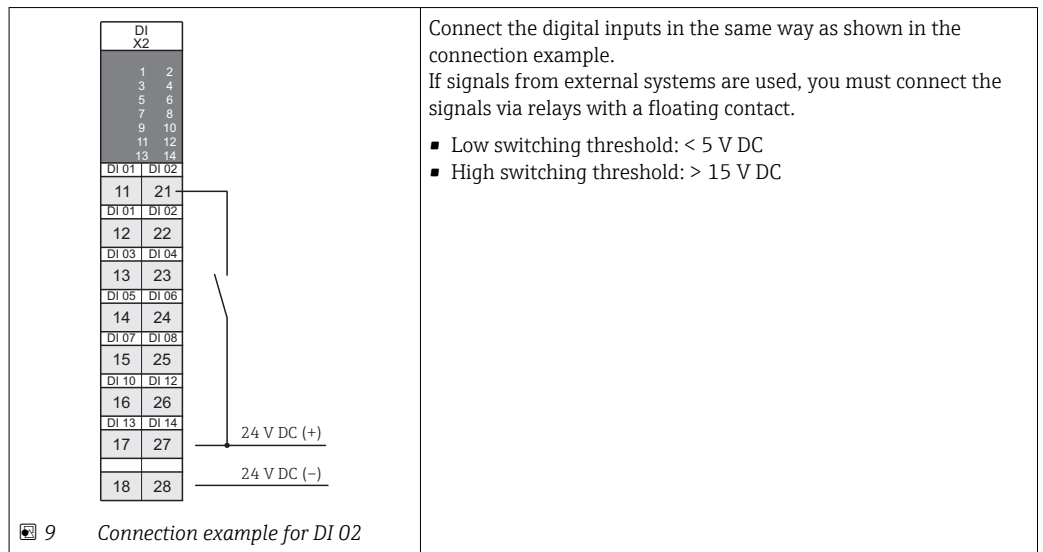
6.2.6   Connection of 4 to 20 mA inputs

Connection of 4 to 20 mA inputs to the remote IO assembly

 10   Connection of 4 to 20 mA inputs to remote IO assembly

1   2-wire device (passive)
2   4-wire device with power supply from remote IO assembly (active), power supply of remote IO assembly:
     25 V DC ± 2 %, max. 30 mA
3   4-wire device with external power supply (active)
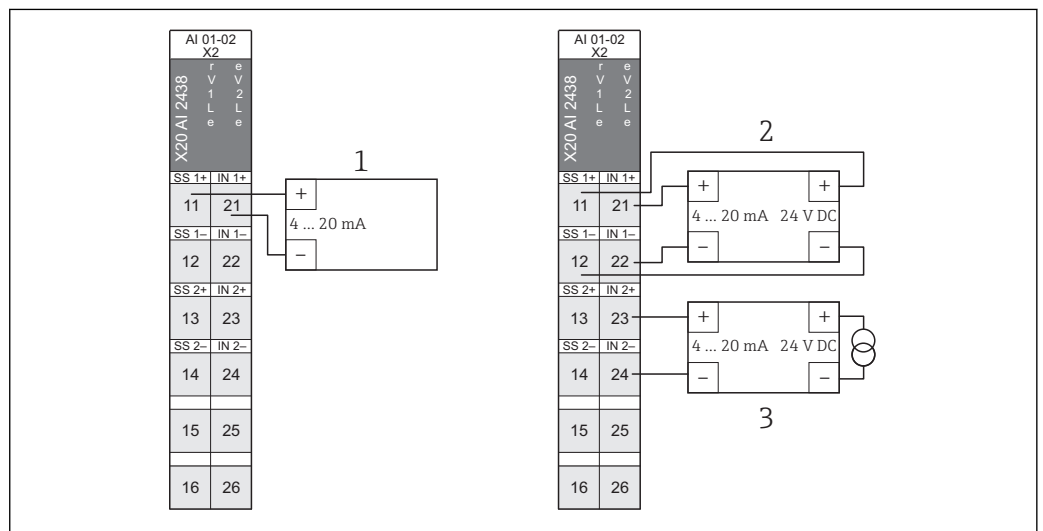
You must connect the FMG60 compact transmitters with a 4 to 20 mA output signal as indicated in version 3*.

In the case of the FMG60 compact transmitter with an analog Ex(i)-signal, you must use corresponding Ex(i) barriers.
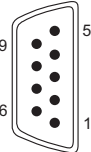
6.2.7 PROFIBUS DP connection

	The PROFIBUS DP master module for the connection of PROFIBUS devices is integrated in the controller assembly. You must use a DP/PA coupler to connect PROFIBUS PA devices. The DP/PA coupler is not included in the delivery (→ 🖻 11).

- Fieldbus: PROFIBUS DP V0/V1 master
- Socket: 9-pin DSUB socket
- Max. line length: 1000 m
- PROFIBUS address of the master: 1
- Reserved PROFIBUS addresses for compact transmitters: 5 to 124

🖻 11 *PROFIBUS DP connection*

Interface	Terminal assignment for DSUB socket		
	Pin	RS-485	Description
🖻 12 *DSUB socket*	1	Reserved	–
	2	Reserved	–
	3	RxD/TxD-P	Data, red cable
	4	CNTR-P [1]	Transmit enable
	5	DGND	Potentially isolated power supply
	6	VP	Potentially isolated power supply
	7	Reserved	–
	8	RxD/TxD-N	Data, green cable
	9	CNTR-N	Transmit enable

1) CNTR: direction switching for external repeaters

6.2.8 Ethernet connection – private SPV350 network

You can incorporate the controller assembly, the gateway/remote maintenance modem and the optional 7" touch display into an individual machine network via the Ethernet interface (→ 🖻 10).

- Cable: min. category 5 Ethernet cable
- Sockets: RJ-45
- Max. line length: 100 m

ℹ️ If a free Ethernet connection should be available in the private network for maintenance purposes, you can also interconnect the components via a switch. You need a switch with at least 4 ports.

6.2.9 Ethernet connection – customer network

You can incorporate the system into your network via the UPLINK Ethernet interface of the gateway/remote maintenance modem. Data can be transmitted from the system to the customer control system via the optional Modbus TCP or UPC UA interface. If your network has an internet connection, the system can be accessed for remote maintenance via a VPN connection. The SiteManager can be used as a gateway and remote maintenance modem (→ 🖻 10).

- Cable: min. category 5 Ethernet cable
- Sockets: RJ-45
- Max. line length: 100 m

ℹ The SiteManager is configured as a DHCP client by default.

📖 Please refer to the SiteManager documentation (Secure Remote Maintenance) on the CD for information on changing the IP configuration.

6.2.10 Powerlink connection

Powerlink connection (only for version with remote IO assembly)

The remote IO assemblies can be connected via the Powerlink interfaces (daisy chain) (→ 🖺 10).

- Cable: min. category 5 Ethernet cable
- Sockets: RJ-45
- Max. line length: 100 m

ℹ If you want to interconnect the remote IO assemblies using a star topology, you must use a hub.

NOTICE

Unsuitable network components!
Malfunction
▸ Only integrate remote IO assemblies into the Powerlink network. Do not incorporate any other Ethernet devices into the Powerlink network
▸ A switch may not be used for star topologies.

6.3 Ensuring the degree of protection

- The system components such as the controller assembly, remote IO assemblies and gateway/firewall/remote maintenance modem are designed for DIN rail mounting in a control cabinet. These system components have IP20 protection.
- The 7" touch display is designed for installation in a panel. The touch display has the following degree of protection: IP65 protection at front, IP20 at rear.
- For the degree of protection of the FMG60 compact transmitters, see the Technical Information .

6.4 Post-connection check

Are the system, devices and cables undamaged (visual check)?	❑
Do the cables comply with the requirements?	❑
Do the installed cables have adequate strain relief?	❑
Does the supply voltage match the specifications on the nameplate?	❑
Is the terminal assignment correct?	❑

7   Operating options

The Profile Vision Compact can be operated in the following ways:
- Directly via the optional touch display
- Via a VNC client in the customer's network; in this case the SiteManager is used as a gateway

You can transmit data from the system to the customer's control system via the optional Modbus TCP or UPC UA interface.

8   Commissioning

8.1   Post-installation check

Perform the post-installation check and the post-connection check prior to commissioning:
- Checklist for post-installation check: → 🖹 17
- Checklist for post-connection check: → 🖹 23

8.2   Configuring the Profile Vision Compact

Prerequisites:
- The system has been installed correctly.
- The electrical connection has been established correctly.
- Optional 7" touch display is available. Alternatively, you can also establish a connection from a VNC client in the customer's network to the SiteManager → 🖹 14.

1. Log an operator onto the system. This requires the "maintenance" user level, at the very minimum.

2. Assign a password for the users "Operator" and "Maintenance".

3. Check the configured date and time. Configure the date and time if necessary.

4. Check the set time zone. Select the current time zone if necessary.

5. If the message "900 system not configured" is active, perform an "Easy Setup". This requires the "expert" user level, at the very minimum. Alternatively, you can also import the configuration if a suitable configuration file exists.

6. If necessary, adapt the application settings to the infrastructure present.

8.3   Configuring the compact transmitters

▸ Configure the compact transmitters as described in the relevant transmitter documentation.

ℹ️ The compact transmitters transmit the density values to the Profile Vision Compact. These density values must be transmitted in the kg/m^3 or g/l unit.

📖 For detailed information on the FMG60 compact transmitters, see the Technical Information for Gammapilot M FMG60

8.4   Performing the functional test

▸ Perform suitable tests to guarantee the functions. In particular, ensure that the Profile Vision System correctly receives the density values transmitted by the compact transmitters. Make sure the compact transmitters are arranged correctly on the separation vessel.

📖 For information on the arrangement of the compact transmitters, see the Technical Information for the Profile Vision Compact SPV350

9 Operation – visualization (HMI)

9.1 Explanation of terms
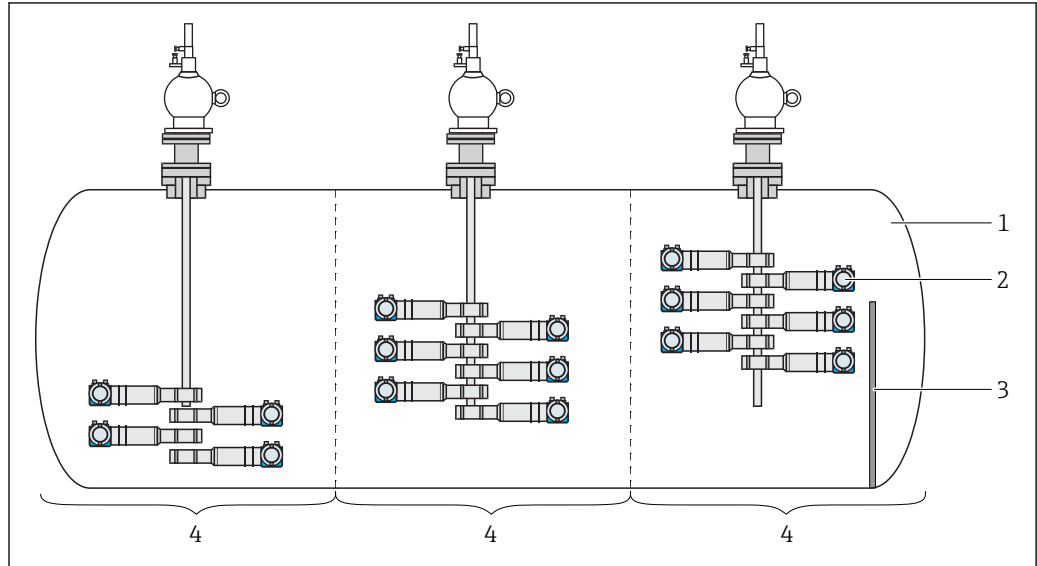
🔲 *13   Explanation of terms*

1   Separation Vessel
2   Device
3   Weir
4   Section, here x 3
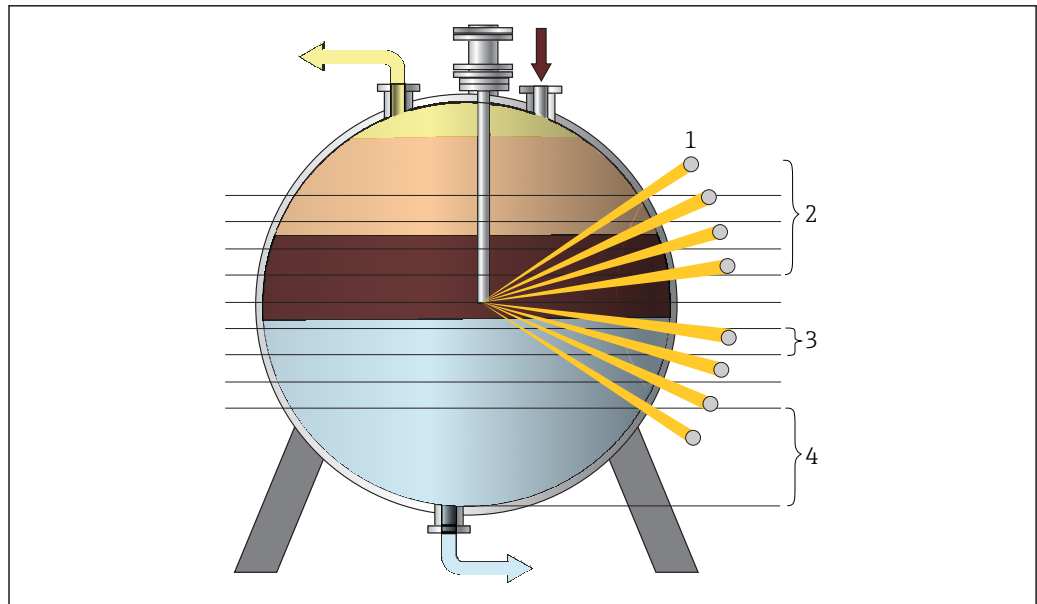
A0037323

🔲 *14   Explanation of terms*

1   Device
2   Upper Layers: layers above the radioactive source, here x 4
3   Layer Height: height of the individual measured layers
4   Elevation: distance between the vessel floor and the base of the lowest measured layer
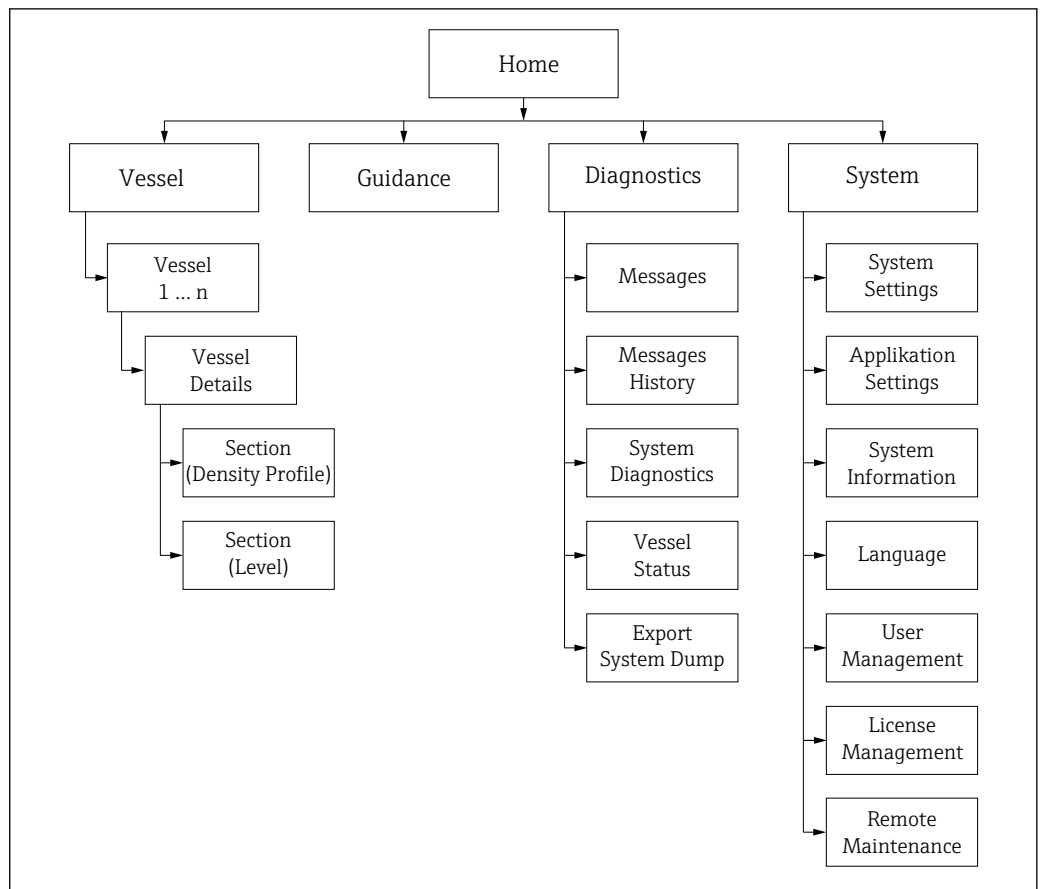
9.2 HMI navigation

🖼 *15   HMI home screen, first and second level*

The graphic illustrates how the user navigates between the individual screens. Depending on the user group, certain screens are not available and are therefore grayed out.

Additional functions are available as a shortcut on the "Home" screen:

Messages	Home → Diagnostics → Messages
Login / Logout	Home → System → User Management → Login / Logout

9.3 User Management

Access authorization for operation can be organized in the user management system. Certain functions are only available to users with a higher user access level. Passwords do not expire.

9.3.1 User access levels and default users

User level	User name	Password
anonymous	Anonymous	–
operator	Operator	operator [1]

User level	User name	Password
maintenance	Maintenance	maintenance [1]
expert	Expert	++++++++++

[1] password on delivery

ℹ️ The "Expert" user level is only available to Endress+Hauser staff.

ℹ️ The "Anonymous" user is logged in automatically when the system starts up.

If one of the other users logs out, the "Home" screen is displayed and the "Anonymous" user is automatically logged on again.

9.3.2   Login / Logout

Users log in or out via the "Login / Logout" dialog box.

▶ Select **Login / Logout**. Home → System → User Management → Login / Logout
  ↳ The "Login / Logout" dialog box opens.

9.3.3   Access authorization

The following table lists the specific access authorization for each user level.

Screens (main pages)	anonymous	operator	maintenance	expert
All screens	☑	☑	☑	☑
Operation				
Login / Logout → 🕮 70	☑ [1]	☑	☑	☑
Acknowledge Messages → 🕮 36	☒	☑	☑	☑
Export System Dump → 🕮 40	☑	☑	☑	☑
Import Configuration → 🕮 57	☒	☒	☑	☑
Export Configuration → 🕮 61	☒	☒	☑	☑
Remote Maintenance→ 🕮 74	☒	☑	☑	☑
Administration				
Change Date and Time → 🕮 43	☒	☒	☑	☑
Reboot System→ 🕮 46	☒	☑	☑	☑
Change Language → 🕮 69	☒	☒	☑	☑
Change Password [2] → 🕮 71	☒	☒	☑	☑
Settings				
Configure IP Settings→ 🕮 44	☒	☒	☒	☑
Configure Display→ 🕮 45	☒	☒	☑	☑
Make General Settings → 🕮 46	☒	☒	☒	☑
Configure Modbus TCP Settings→ 🕮 46	☒	☒	☑	☑
Edit Electronic Nameplate→ 🕮 47	☒	☒	☒	☑
Configure Media→ 🕮 49	☒	☒	☑	☑
Change Designations → 🕮 51	☒	☒	☑	☑
Map Input Channels → 🕮 51	☒	☒	☑	☑
Edit Color Palette and Colors→ 🕮 51	☒	☒	☑	☑
Configure Digital Input Messages → 🕮 53	☒	☒	☑	☑

Screens (main pages)	anonymous	operator	maintenance	expert
Enable and Set Time Synchronization → 🖹 54	☒	☒	☑	☑
Configure Measuring Ranges for 4-20 mA Devices→ 🖹 54	☒	☒	☑	☑
Configure Digital Outputs → 🖹 55	☒	☒	☑	☑
Select System Units→ 🖹 56	☒	☒	☑	☑
Edit Designation of Separation Vessels→ 🖹 51	☒	☒	☑	☑
Perform Easy Setup→ 🖹 62	☒	☒	☒	☑
Set Time for Auto Logout→ 🖹 71	☒	☒	☑	☑

1)　　The "Anonymous" user is logged in automatically once a user logs out.
2)　　Only up to own user level.

9.4　General information

9.4.1　Status bar

The status bar is displayed at the top of the screen.

🖻 16　Status bar

1　Language
2　Status of Remote Maintenance Modem
3　Current User
4　Date and Time

Language	Displays the language currently selected.
Status of Remote Maintenance Modem	Displays the current status of the remote maintenance modem. The following statuses are possible: ■ **SRM** : Modem not available, as the modem is not connected, not switched on, not correctly configured or is disabled via a switch in the control cabinet, for example ■ **SRM** : Modem is available ■ **SRM** : Modem is available and VPN connection is active
Current User	Displays the current user.
Date and Time	Displays the current time and date.

9.4.2　Navigation bar

The navigation bar is displayed at the top of the screen, directly beneath the status bar.
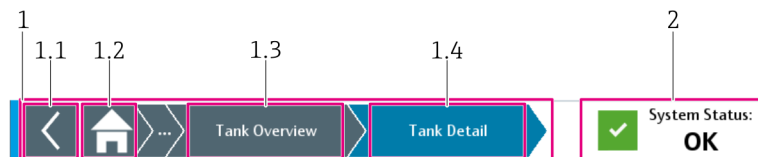
🖻 17　Navigation bar

1　Navigation (Breadcrumb)
1.1　Back to Last Screen
1.2　Home Screen
1.3　Previous Screen
1.4　Current Screen
2　Status of the Overall System

Navigation (Breadcrumb)	Navigation between screens. Displays the current screen with a blue background.
Status of the Overall System	Displays the current status of the overall system: OK, WARNING and error.

9.4.3 Header in wizards

In the wizards, the header is displayed instead of the navigation bar at the top of the screen.
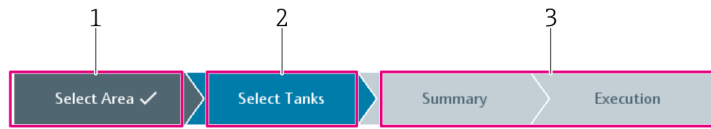
🖼 18   Header in wizards

1   Step Already Performed
2   Current Step
3   Remaining Steps

Step Already Performed	Dark-gray background and a tick beside the text: indicates the steps that have already been performed.
Current Step	Blue background: indicates the step that the wizard is currently performing.
Remaining Steps	Light-gray background: indicates the steps that are still to be performed.

9.4.4 Integrated navigation bar

Users navigate within a screen using the integrated navigation bar.
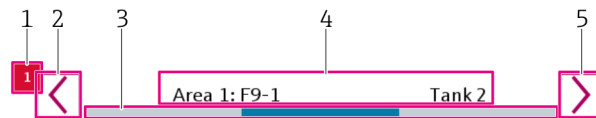
🖼 19   Integrated navigation bar

1   Message Symbol
2   Left
3   Position
4   Description
5   Right

Message Symbol	Indicates that there are elements with an active message. In the graphic, the element with the active message is accessed by navigating to the left.
Left	• Tap the button: navigate to the left between the elements • Tap the button for longer: quick navigation
Position	The blue part of the line indicates the current position within the entire navigation area.
Description	Brief description of the current elements.
Right	• Tap the button: navigation to the right between the elements • Tap the button for longer: quick navigation

9.4.5 Scroll bar

The scroll bar allows you to navigate through the lists and tables. Press and hold the button to scroll quickly.

9.4.6 Numeric keypad

Enter numeric values via the touch display. The limit values (min. and max.) for the value to be entered appear at the top of the keypad.
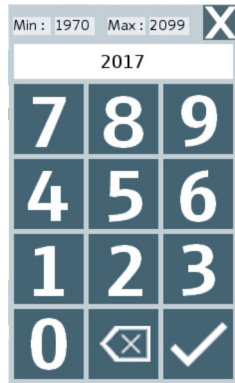
🖼 20 Numeric keypad

9.4.7 Alphanumeric keypad

Enter a character string via the touch display.
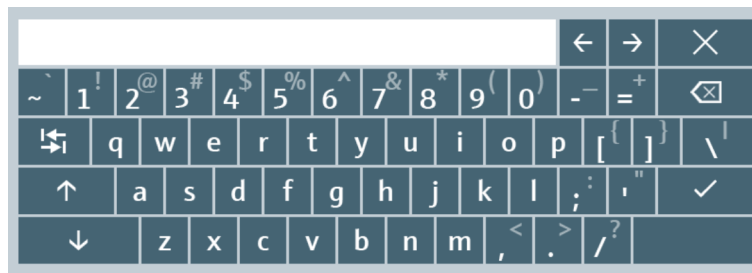
🖼 21 Alphanumeric keypad with lower case letters
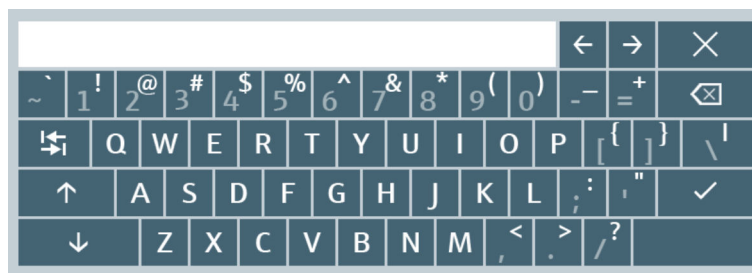
🖼 22 Alphanumeric keypad with upper case letters

Switching the keypad	Action
Permanently switch keypad from lower case to upper case	Tap caps lock key (↑).
Reset keypad to lower case letters	Tap caps lock key (↑) or shift key (↓).
Temporarily switch keypad from lower case to upper case	Tap shift key (↓).

9.5 "Home" screen

The "Home" screen is the default screen that appears after booting the device.
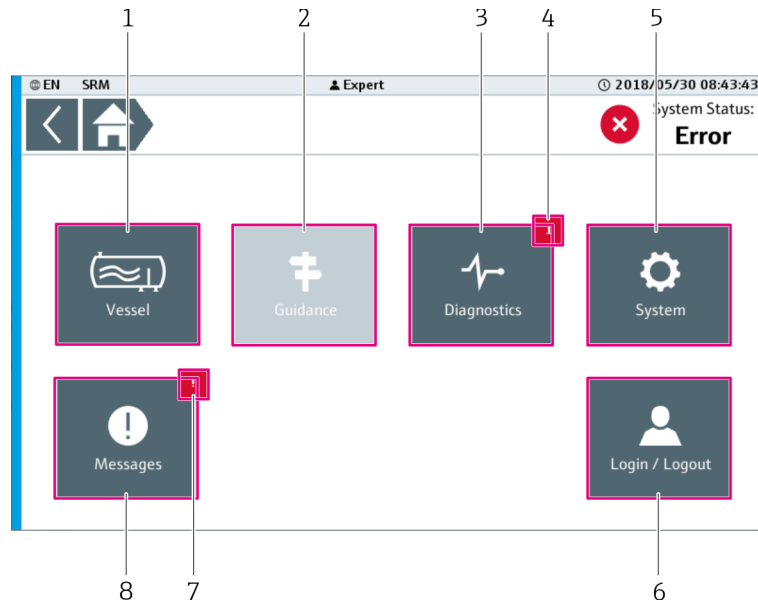
🖾 *23   "Home" screen*

1   Vessel → 🗎 32
2   Guidance (currently not used)
3   Diagnostics → 🗎 35
4   Notification (vessel). Displays the number of active messages for the separation vessels. The symbol does not appear if there are no active messages.
5   System → 🗎 41
6   Login / Logout → 🗎 70
7   Notifications (messages)
8   Messages→ 🗎 36

Notifications (messages) → 🗎 36
• Flashing: there are changes in the "Messages" screen that require input from the user, e.g. acknowledgment of a message.
• Continuous: there is at least one active message in the "Messages" screen. The message has already been acknowledged by the user but the issue causing the message has not yet been resolved.
• Nothing displayed: no messages are pending.

9.6 "Vessel" screen

The "Vessel" screen provides an overview of all the separation vessels that are available. A maximum of five separation vessels are possible per system.

ℹ️ You can edit certain designations in the visualization. The "Vessel" designation in the navigation bar and on the "Home" screen can be edited via the "Vessel Designation" dialog box . The designation for the separation vessels, such as "Vessel A", for instance, is edited via the "Designations / Device Channels" dialog box.

▸ On the "Home" screen, tap **Vessel**.
↳ The "Vessel" screen opens.
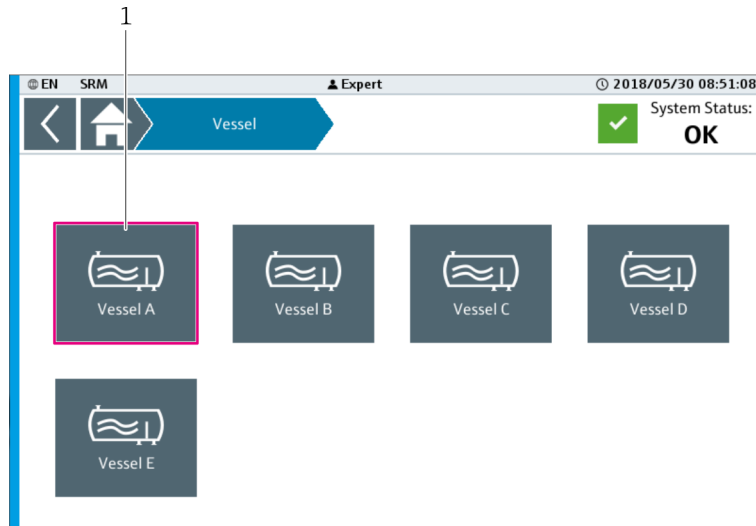
24   "Vessel" screen

1   Vessel A. Opens the "Vessel Details" detailed view for the selected separation vessel. → 🖹 33

9.6.1   Vessel Details

For the selected separation vessel, the "Vessel Details" view displays the level profile of the media in the sections available.

ℹ️ You can edit the designations for the separation vessels, sections and media via the "Application Settings" view. → 🖹 48

▶ On the "Vessel" screen, tap the desired separation vessel. (Navigation: Home → Vessel → Desired Separation Vessel)
   ↳ The screen for the desired separation vessel opens.
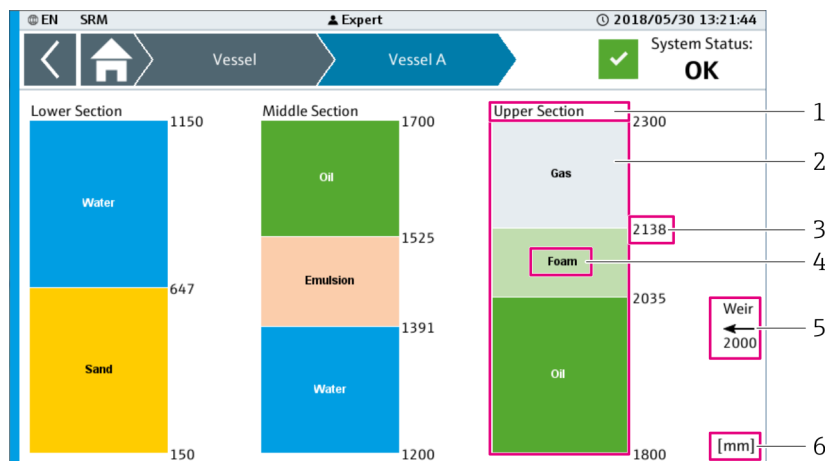
25   "Vessel Details" detailed view, here "Vessel A" for example

1   Section designation
2   Bar graph: level profile of the media in the section. Tapping a level profile opens the "Section (Density Profile)" detailed view. → 🖹 34
3   Absolute level of the specific medium in the corresponding section
4   Name of the medium
5   Weir: height of the weir in the vessel
6   Unit of the level indicated

ℹ️ If the height of medium is too low to display a measured value, this medium height is not displayed. The measured value is displayed in the "Section (Level)" detailed view.

9.6.2 Section (Density Profile)

The "Section (Density Profile)" detailed view displays the density profile for the selected section. The density profile displays the calculated density values for the individual layers.

ℹ️ You can edit the designations for the separation vessels, the sections, the media and the units for the density and level via the "Application Settings" screen. → 🖹 48

▸ In the "Vessel" detailed view, tap the level profile of the desired section. (Navigation: Home → Vessel → Desired Separation Vessel → Level Profile of Section)
  ↳ The detailed view for the selected section opens.
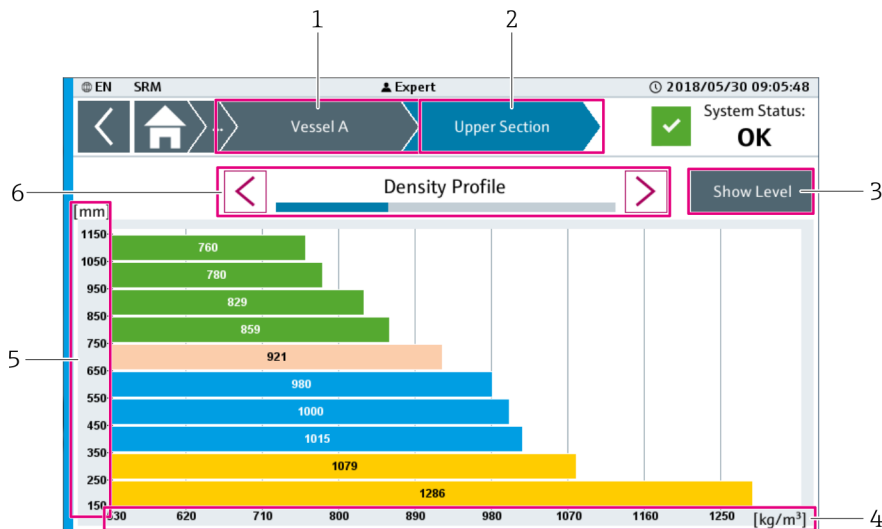
🖼 26 "Section (Density Profile)" detailed view

1 Designation of the Selected Separation Vessel
2 Designation of the Selected Section
3 Show Level
4 "Density" Axis
5 "Level" Axis
6 "Density Profile" Navigation Bar

Show Level	Opens the "Section (Level)" detailed view → 🖹 34
Density Axis	Axis with the density values in the unit shown
Level Axis	Axis with the level of the individual measured layers in the unit shown
Navigation Bar	Navigate between all the available sections in the selected separation vessel.

9.6.3 Section (Level)

The "Section (Level)" detailed view displays the calculated levels of the various media for the selected section.

ℹ️ You can edit the designations for the separation vessels, the sections, the media and the units for the density and level via the "Application Settings" screen. → 🖹 48

▸ In the "Section (Density Profile)" detailed view, tap **Show Level**. (Navigation: Home → Vessel → Desired Separation Vessel → Section (Density Profile) → Show Level)
  ↳ The "Section (Level)" detailed view opens for the selected section.
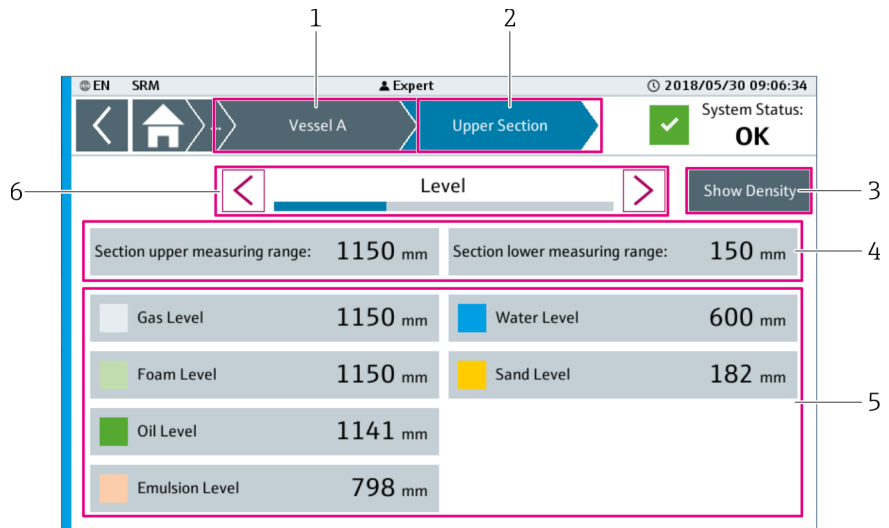
⊠ 27   "Section (Level)" detailed view

1   Designation of the Selected Vessel
2   Designation of the Selected Section
3   Show Density
4   Measuring Range
5   Media Overview
6   "Level" Navigation Bar

Show Density	Opens the "Section (Density Profile)" screen → 📄 34
Measuring Range	Displays the measuring range for the selected section in the selected level unit
Media Overview	Displays the levels of the various media in the selected section
Navigation Bar	Navigate between all the available sections in the selected separation vessel.

9.7   "Diagnostics" screen

The "Diagnostics" screen contains functions for detailed system diagnostics.

▸ Select **Diagnostics**. (Navigation: Home → Diagnostics)
  ↳ The "Diagnostics" screen opens.
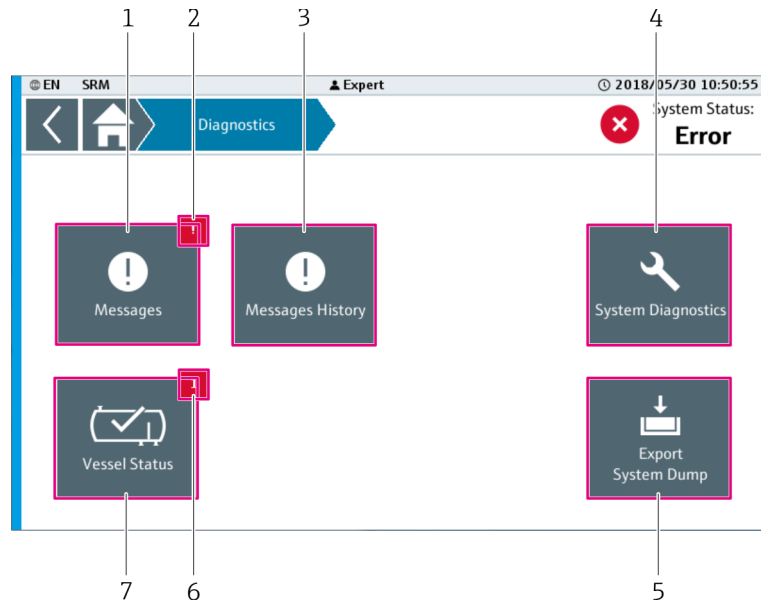
28   "Diagnostics" screen

1   *Messages → 🖹 36*
2   *Notifications (messages)*
3   *Messages History → 🖹 37*
4   *System Diagnostics → 🖹 38*
5   *Export System Dump → 🖹 40*
6   *Notification (vessel). Displays the number of active messages for the separation vessels. The symbol does not appear if there are no active messages.*
7   *Vessel Status → 🖹 38*

Notifications (messages) → 🖹 36

- Flashing: there are changes in the "Messages" screen that require input from the user, e.g. acknowledgment of a message.
- Continuous: there is at least one active message in the "Messages" screen. The message has already been acknowledged by the user but the issue causing the message has not yet been resolved.
- Nothing displayed: no messages are pending.

9.7.1   Messages

The current system messages are listed on the "Messages" screen.

▸ Select **Messages**. (Navigation: Home → Diagnostics → Messages)
  ↳ The "Messages" screen opens.

ℹ️ You can also open the "Messages" screen by tapping the "System Status" field. The "System Status" field is located on the top right of the navigation bar. → 🖹 29
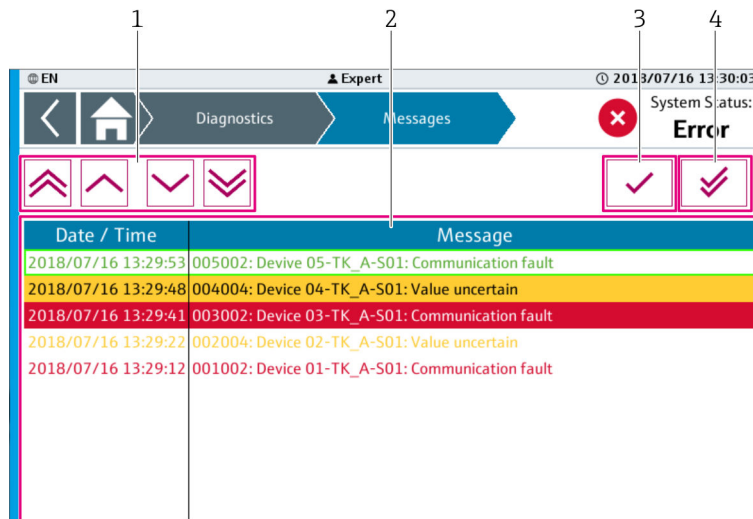
⊠ 29   "Messages" screen

1   Scroll bar
2   Current Active Messages
3   Acknowledge A Message
4   Acknowledge All Messages

Scroll Bar	Use these buttons to scroll through the messages.
Current Active Messages	Displays the messages that are currently active. The selected line is displayed with a green frame.
	The messages are displayed as follows: • White text on a red background: active error message, not yet acknowledged • Red text on a white background: active error message, has been acknowledged • Black text on a yellow background: active warning, not yet acknowledged • Yellow text on a white background: active warning, has been acknowledged • Green text on a white background: error message or warning not active, has been acknowledged
Acknowledge A Message	Acknowledges the selected message.
Acknowledge All Messages	Acknowledges all the messages.

9.7.2   Messages History

A history of the messages that are saved in the system is provided on the "Messages History" screen.

▶   Select **Messages History**. (Navigation: Home → Diagnostics → Messages History)
    ↳   The "Messages History" screen opens.
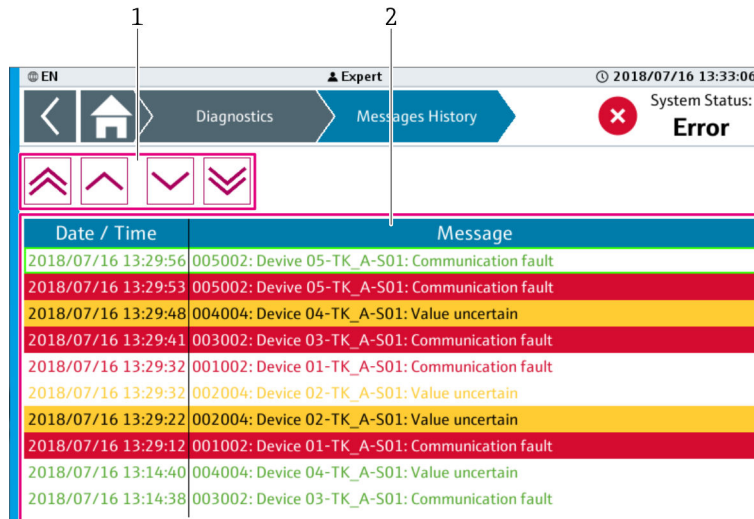
30   "Messages History" screen

1   *Scroll bar*
2   *Messages History*

Scroll Bar	Use these buttons to scroll through the message history.
Messages History	Displays the message history. The selected line is displayed with a green frame.
	The previous messages are displayed as follows: • White text on a red background: error message has occurred • Red text on a white background: error message is acknowledged • Black text on a yellow background: warning has occurred • Yellow text on a white background: warning is acknowledged • Green text on a white background: error message or warning is gone, i.e. no longer pending

9.7.3   System Diagnostics

The "System Diagnostics" screen contains the controller's system diagnostics manager and displays detailed diagnostic information from the controller.

▶ Select **System Diagnostics**. (Navigation: Home → Diagnostics → System Diagnostics)
    ↳ The "System Diagnostics" screen opens.
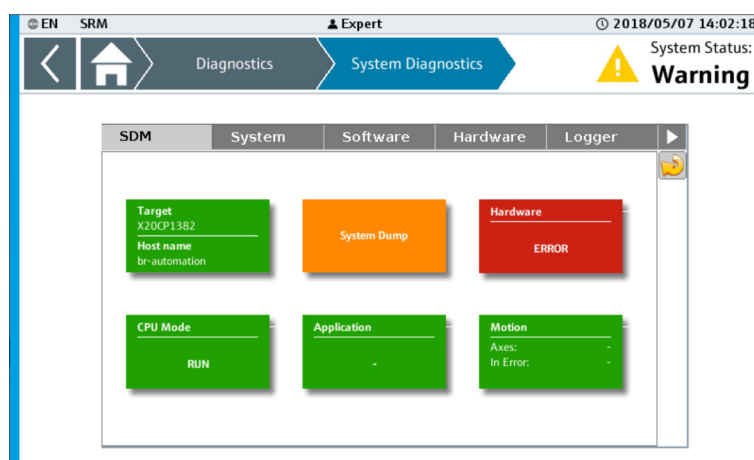
31   "System Diagnostics" screen

9.7.4   Vessel Status

The "Vessel Status" screen shows the status of the separation vessels.

▸ Select **Vessel Status**. (Navigation: Home → Diagnostics → Vessel Status)
  ↳ The "Vessel Status" screen opens.
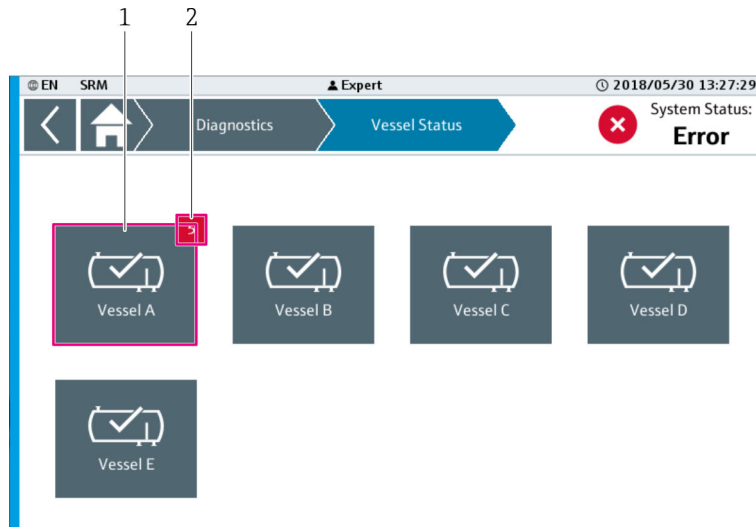
 🖻 *32   "Vessel Status" screen*

1   Vessel A. Opens the "Device Status" → 🖺 39 screen
2   Notification (vessel). Displays the number of active messages for this separation vessel. The symbol does not appear if there are no active messages.

9.7.5   Device Status

The device status information for the selected separation vessel is listed on the "Device Status" screen.

▸ On the "Vessel Status" screen, tap the desired separation vessel. (Navigation: Home → Diagnostics → Vessel Status → Desired Separation Vessel)
  ↳ The "Device Status" screen for the first section of the selected separation vessel opens.
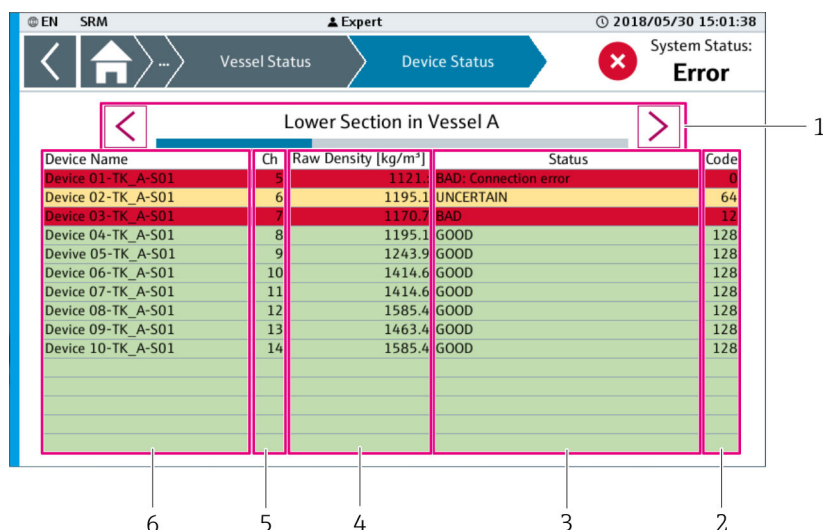
 🖻 *33   "Device Status" screen for PROFIBUS devices*

1   Navigation bar
2   Code
3   Status
4   Raw Density
5   Channel
6   Device Name
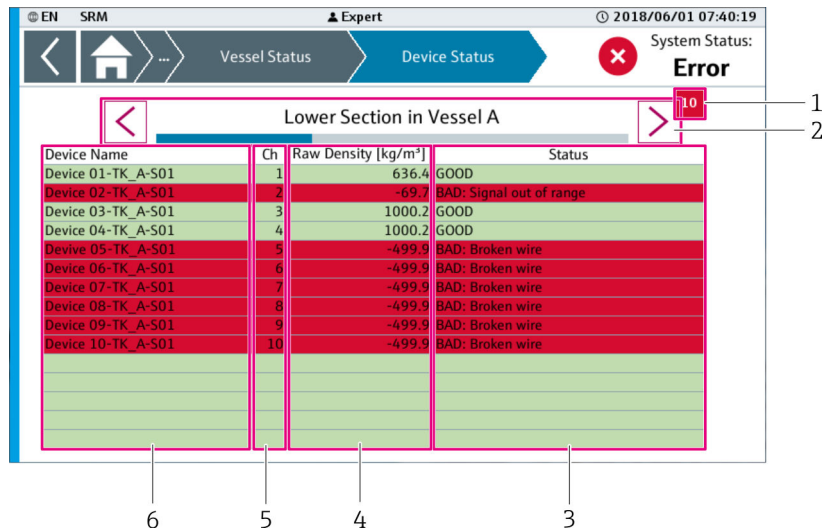
34   "Device Status" screen for 4 to 20 mA devices

1   Notification (Devices)
2   Navigation bar
3   Status
4   Raw Density
5   Channel
6   Device Name

Navigation Bar	Navigate between all the available sections of the selected separation vessel.
Code	Only displayed for PROFIBUS devices PROFIBUS status (decimal)
Notification (Devices)	Displays the number of devices with the status UNCERTAIN or BAD. If the notification is on the right-hand side, you need to navigate to the right to view these devices. If the notification is on the left-hand side, you need to navigate to the left to view these devices.
Status	PROFIBUS devices: • GOOD (green background): PROFIBUS status ≥ 128 (decimal) • UNCERTAIN (yellow background): PROFIBUS status > 63 and < 128 (decimal) • BAD (red background): PROFIBUS status < 64 (decimal) 4 to 20 mA devices • GOOD (green background): current value between 3.6 and 21 mA. • BAD (red background): signal outside the measuring range. Current value > 21 mA or between 2 mA and 3.6 mA • BAD (red background): broken wire. Current value < 2 mA • BAD (red background): RIO error. Unable to communicate with remote IO assembly. • BAD (red background): AI module error. Unable to communicate with input module.
Raw Density	Density value measured by the device in kg/m^3
Channel	PROFIBUS devices: PROFIBUS address of the device 4 to 20 mA devices: device analog channel ⯑ For more information on the addressing or assignment process, see the Technical Information for SPV350 → 🖹 7
Device Name	Designation of the devices present in the selected section ℹ You can edit the designation for the devices via the "Designations / Device Channels" dialog box. → 🖹 51

9.7.6   Export System Dump

Use the "Export System Dump" dialog box to save the system information to the internal memory or to a data storage medium. In this way, you have access to system information for later analysis, for example.

1. If necessary, insert the USB storage device into the USB port of the controller assembly (X4).

2. Select **Export System Dump**. (Navigation: Home → Diagnostics → Export System Dump)
   ↳ The "Export System Dump" dialog box opens.
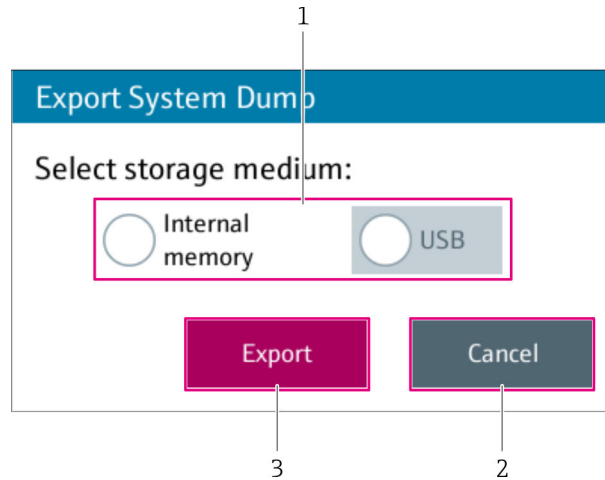
■ 35   *"Export System Dump" dialog box*

1   *Storage Medium*
2   *Cancel*
3   *Export*

3. Select the storage medium in the **Select Storage Medium** field.

ℹ️ If the "USB" radio button is grayed out, either no USB storage device is plugged into the USB port or the USB storage device is not recognized.

4. Tap **Export**.
   ↳ The system dump file is saved to the selected storage medium. The "Exporting" dialog box appears while the file is being saved.
   File name: YYYY_MM_DD_hh_mm_ss_SysDump.tar.gz
   Path for "Internal Memory" option: "F:\customer\SystemDump\
   Path for "USB" option: root directory of the attached USB storage device

ℹ️ If you want to cancel the save operation, tap **Cancel**.

5. Wait until the message "Export successful" or "Export fail" is displayed.

6. Tap **OK**.
   ↳ The dialog box closes.

9.8   "System" screen (overview)

The "System" screen contains general functions for the system.

▶ Select **System**. (Navigation: Home → System)
   ↳ The "System" screen opens.
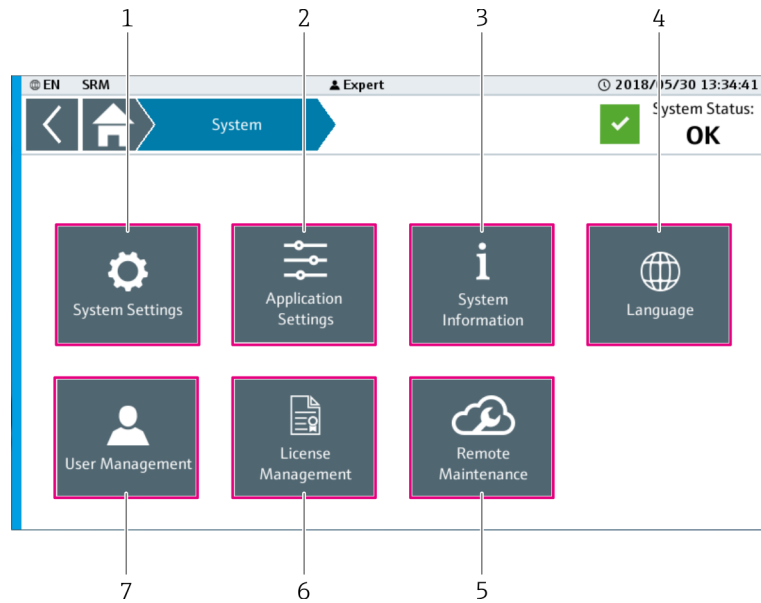
36 "System" screen

1   System Settings → 🖺 42
2   Application Settings → 🖺 48
3   System Information → 🖺 68
4   Language → 🖺 69
5   Remote Maintenance → 🖺 74
6   License Management → 🖺 72
7   User Management → 🖺 69

9.9   System Settings

The "System Settings" screen contains general system functions for the current system.

▶ Select **System Settings**. (Navigation: Home → System → System Settings)
   ↳ The "System Settings" screen opens.
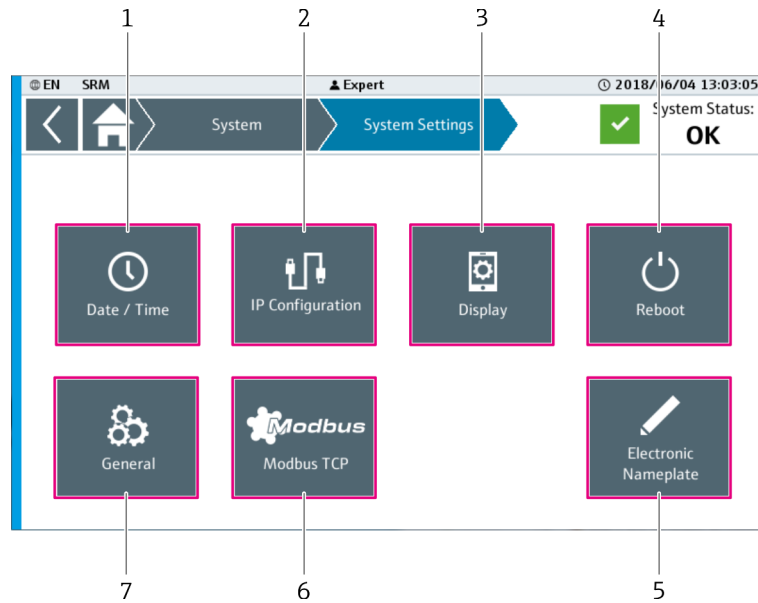
37   "System Settings" screen

1   Date / Time → 🖹 43
2   IP Configuration → 🖹 44
3   Display → 🖹 45
4   Reboot → 🖹 46
5   Electronic Nameplate → 🖹 47
6   Modbus TCP → 🖹 46
7   General → 🖹 46

> The "IP Configuration", "Electronic Nameplate" and "General" dialog boxes can only be accessed by Endress+Hauser staff.

9.9.1   Date / Time and Selecting Time Zone

You can change the date and time of the system via the "Date / Time" dialog box. You can change the time zone of the system via the "Select Time Zone" dialog box.

> The "Save" button is only enabled if you have made a change.

1. Select **Date / Time**. (Navigation: Home → System → System Settings → Date / Time)
   ↳ The "Date / Time" dialog box opens.
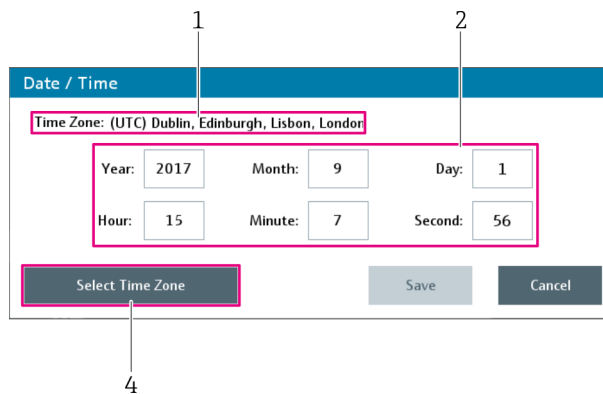
38   "Date / Time" dialog box

1   Current Time Zone
2   Current Date and Current Time
3   Select Time Zone

2. If you want to change the time zone, tap **Change Time Zone**. If you do not need to change the time zone, set the current date and time. → 🕮 44.
   ↳ The "Select Time Zone" dialog box opens.

1
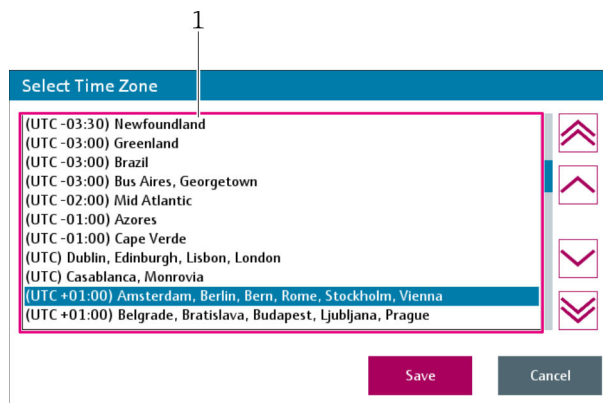
🖎 *39*   *"Select Time Zone" dialog box*

1   Time Zone List

3. In the time zone list, use the scroll bar to select the desired time zone. The time zone currently selected is highlighted in blue.

4. Tap **Save**.
   ↳ The "Select Time Zone" dialog box closes. The change for the time zone is saved. The system time is adjusted to the time zone.

5. Set the current date and current time. Tapping one of these buttons calls up the numeric keypad. Use the keypad to change the value of the field (date and/or time).

6. Tap **Save**.
   ↳ The system time is adjusted and saved. The "Date / Time" dialog box closes.

9.9.2   IP Configuration

ℹ️ The "IP Configuration" dialog box can only be accessed by Endress+Hauser staff.

ℹ️ Changes to the IP configuration may cause the system to no longer work correctly.

Change the IP address via the "IP Configuration" dialog box.

1. Select **IP Configuration**. (Navigation: Home → System → System Settings → IP Configuration)
   ↳ The "IP Configuration" dialog box opens.
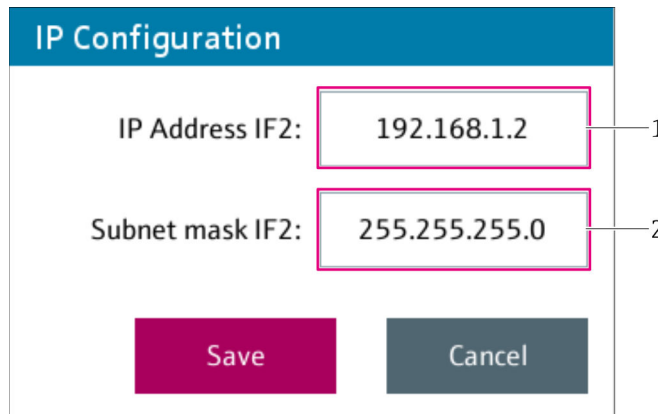
⊠ 40   "IP Configuration" dialog box

1   IP Address IF2
2   Subnet Mask IF2

2. Edit the IP configuration for the Ethernet interface IF2 (controller assembly). Tapping one of these buttons calls up the specific keypad. Use the keypad to change the value of the field.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
    ↳ The dialog box closes.

9.9.3   Display

You can change the settings of the touch display via the "Display" dialog box.

1. Select **Display**. (Navigation: Home → System → System Settings → Display)
    ↳ The "Display" dialog box opens.
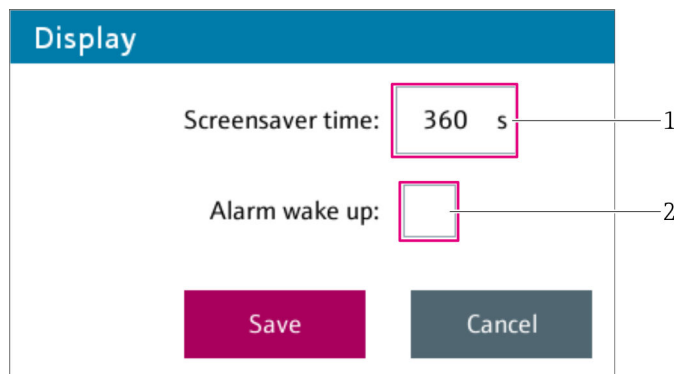
⊠ 41   "Display" dialog box

1   Screensaver
2   Alarm Wake Up (Fault)

Screensaver	Displays the numeric keypad. Use the keypad to set the time for the screensaver. Input range: 0 to 65 535 s; 0 = screensaver deactivated The screensaver switches on if the set time has elapsed without an action being performed on the touch display.
Alarm Wake Up	Enable or disable the "Alarm Icon" function. If the function is enabled, the screensaver is active and an error or warning occurs, an alarm icon flashes on the entire touch display.

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.9.4 Reboot

You can reboot the system via the dialog box.

1. Select **Reboot**. (Navigation: Home → System → System Settings → Reboot)
   ↳ The "Reboot" dialog box opens. The message "Warning: Rebooting will make your system and communication inaccessible for a few minutes." is displayed.

2. Tap **Reboot** to perform a system reboot. Tap **Cancel** to cancel the process and close the dialog box.

9.9.5 Modbus TCP

You can change the settings for Modbus TCP communication via the "Modbus TCP" dialog box.

1. Select **Modbus TCP**. (Navigation: Home → System → System Settings → Modbus TCP)
   ↳ The "Modbus TCP" dialog box opens.

🖼 *42   "Modbus TCP" screen*

2. Select the byte order for Modbus TCP communication. The "Big Endian" option is the factory default setting.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

📖 A description of the Modbus TCP interface (Interface Manual-Profile Vision Compact) is provided on the CD supplied.

9.9.6 General

ℹ The "General" dialog box can only be accessed by Endress+Hauser staff.

1. Select **General**. (Navigation: Home → System → System Settings → General)
   ↳ The "General" dialog box opens.
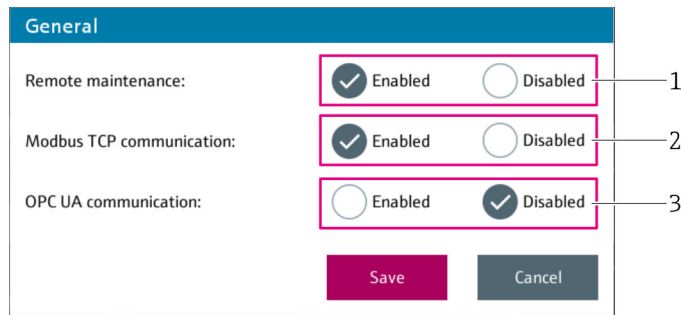
🖻 43   *"General" dialog box*

1   Remote Maintenance
2   Modbus TCP Communication
3   OPC UA Communication

Remote Maintenance	Enable or disable remote maintenance.
	ⓘ If the "Remote Maintenance" option is disabled, the "Remote Maintenance" button is not displayed on the "System" screen.
Modbus TCP Communication	Enable or disable Modbus TCP communication.
	ⓘ A license is required for this option.
	ⓘ If the "Modbus TCP Communication" option is disabled, the "Modbus TCP" button is not displayed on the "System" screen.
OPC UA Communication	Enable or disable Modbus OPC UA communication.
	ⓘ A license is required for this option.

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.9.7   Electronic Nameplate

ⓘ The "Electronic Nameplate" dialog box can only be accessed by Endress+Hauser staff.

1. Select **Electronic Nameplate**. (Navigation: Home → System → System Settings → Electronic Nameplate)
   ↳ The "Electronic Nameplate" dialog box opens.
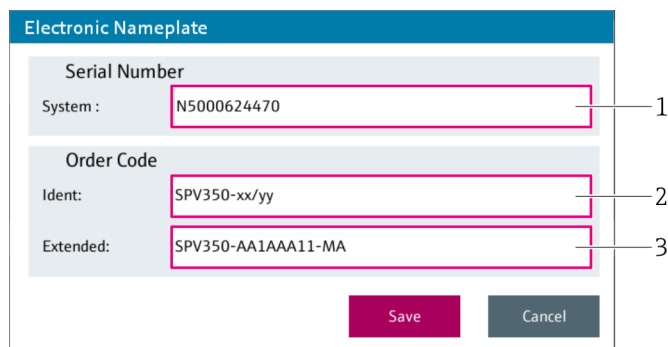
🖻 44   *"Electronic Nameplate" dialog box*

1   Serial Number – System
2   Order Code – Ident
3   Order Code – Extended

Serial Number – System	Displays the alphanumeric keypad. Use the keypad to edit the serial number of the system (max. 20 characters).
Order Code – Ident	Displays the alphanumeric keypad. Use the keypad to edit the order code of the system (max. 20 characters).
Order Code – Extended	Displays the alphanumeric keypad. Use the keypad to edit the extended order code of the system (max. 40 characters).

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
    ↳ The dialog box closes.

9.10　Application Settings

The "Application Settings" screen contains functions to customize the application. The screen consists of two pages.

▸ Select **Application Settings**. (Navigation: Home → System → Application Settings)
    ↳ The "Application Settings (1/2)" screen opens.
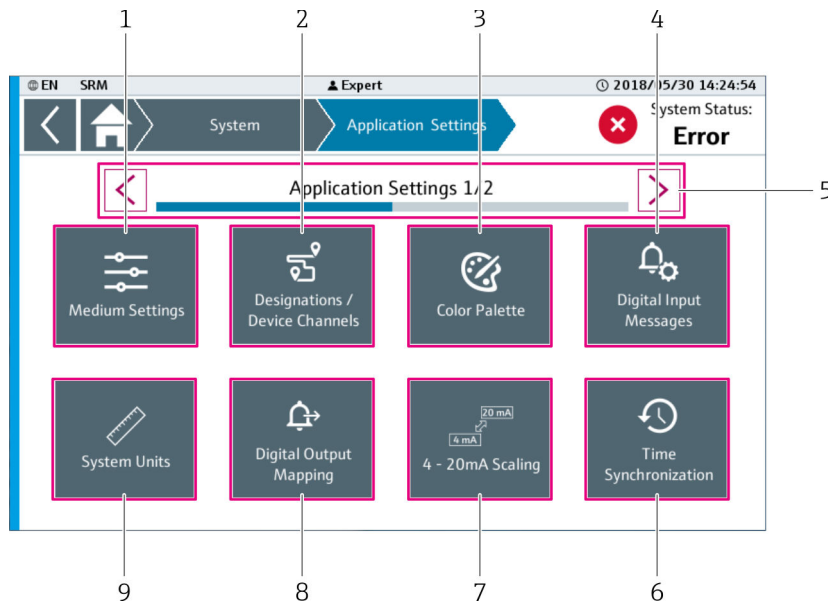
⊞ 45　*"Application Settings (1/2)" screen*

1　Medium Settings →　🕮 49
2　Designations / Device Channels →　🕮 51
3　Color Palette →　🕮 51
4　Digital Input Messages →　🕮 53
5　Navigation Bar (to switch between the pages)
6　Time Synchronization →　🕮 54
7　4 – 20 mA Scaling →　🕮 54
8　Digital Output Mapping →　🕮 55
9　System Units→　🕮 56
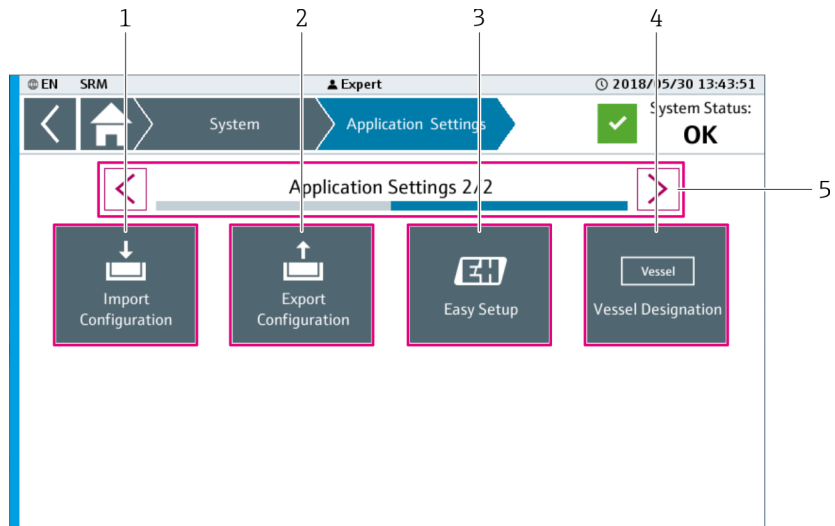
🖼 46   *"Application Settings (2/2)" screen*

1   *Import Configuration → 🔖 57*
2   *Export Configuration → 🔖 61*
3   *Easy Setup → 🔖 62*
4   *Vessel Designation → 🔖 61*
5   *Navigation Bar (to switch between the pages)*

ℹ️   The "Easy Setup" dialog box can only be accessed by Endress+Hauser staff.

9.10.1   Medium Settings

The "Medium Settings" dialog box is used to change the general settings of the media used in the application and their properties (density), name and color. You must define this information for each separation vessel.

1. Select **Medium Settings**. (Navigation: Home → System → Application Settings (Page 1) → Medium Settings)
   ↳ The "Medium Settings" dialog box opens.
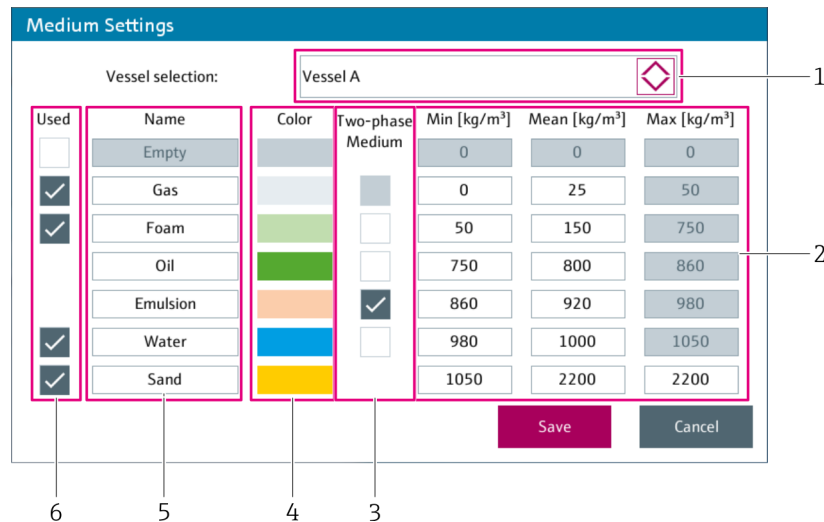
47 "Medium Settings" dialog box

1 Vessel Selection
2 Density (Min, Mean, Max)
3 2-phase Medium
4 Color
5 Name
6 Used

Vessel Selection	Select the separation vessel.
Density (Min, Mean, Max)	Displays the numeric keypad. Use the keypad to change the minimum, mean and maximum medium densities of the defined media. The input range is based on the densities of the adjacent media. Example as illustrated in the graphic: You can change the minimum density for the medium "Water" in the range between the mean density of the medium "Water" and the mean density of the medium "Emulsion". ⓘ You can only change the maximum density for the bottom-most medium. For all other media, the maximum density is automatically taken from the minimum density of the medium below it.
2-phase Medium	Specify the medium as a 2-phase medium so that the optimized calculation algorithm for 2-phase media is used for this medium. The 2-phase medium consists of the media located directly above and below the medium in the list. Example: The medium "Emulsion" is a mixture of water and oil. ⓘ This option is not available for the upper-most and bottom-most medium.
Color	Opens the "Color Palette" dialog box. You can select one of the 20 pre-defined system colors for the corresponding medium via the Color Palette. ⓘ You can define the system colors via the "Color Palette" view.→ 🖹 51
Name	Displays the alphanumeric keypad. Use the keypad to change the designations of the media. Input range: 1 to 12 characters.
Used	Select or deselect the media contained in the selected separation vessel. You must select at least 2 media per separation vessel. A maximum of 7 media can be selected.

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.2 Designations / Device Channels

You can edit the designations for the defined separation vessels, their sections and devices via the "Designations / Device Channels" dialog box. You can also edit the device channels of the devices used.

1. Select **Designations / Device Channels**. (Navigation: Home → System → Application Settings (Page 1) → Designations / Device Channels)
   ↳ The "Designations / Device Channels" dialog box opens.
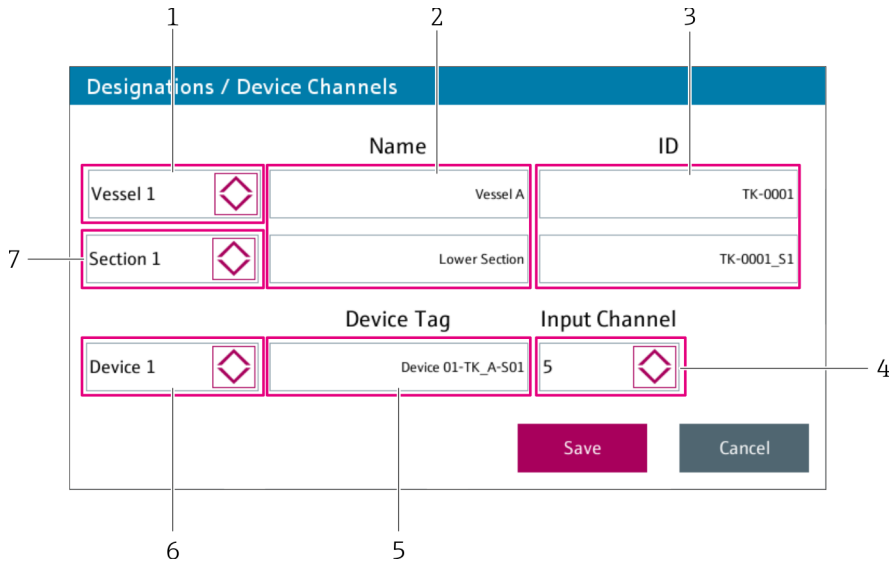
⊠ *48*   *"Designations / Device Channels" dialog box*

1   *Vessel Selection*
2   *Name*
3   *ID*
4   *Input Channel*
5   *Device Tag*
6   *Device Selection*
7   *Section Selection*

Vessel Selection	Select the separation vessel.
Name	Displays the alphanumeric keypad. Use the keypad to change the designation of the separation vessels and the sections. Input range: 1 to 30 characters
ID	Displays the alphanumeric keypad. Use the keypad to change the ID of the separation vessels and the sections. Input range: 1 to 30 characters
Input Channel	Select the desired input channel for the selected device. You can choose from the free input channels.
Device Tag	Displays the alphanumeric keypad. Use the keypad to change the device designation. Input range: 1 to 30 characters
Device Selection	Select the device within the selected section.
Section Selection	Select the section within the selected separation vessel.

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.3 Changing the color palette and color

You can change the colors for the visualization of the various media via the "Color Palette" dialog box. You can define up to 20 system colors.

1. Select **Color Palette**. (Navigation: Home → System → Application Settings (Page 1) → Color Palette)
   ↳ The "Color Palette" dialog box opens.
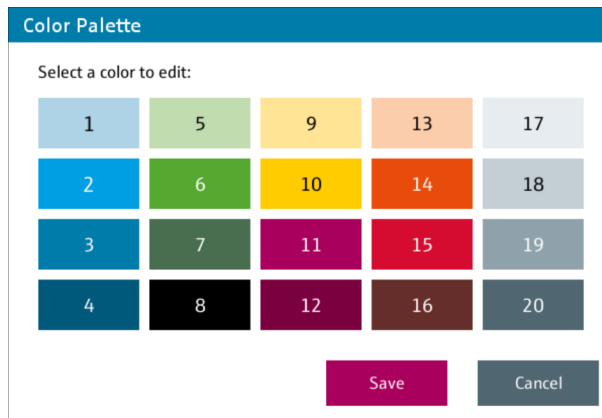
🖼 *49   "Color Palette" dialog box*

2. Tap the **color** that you would like to change.
   ↳ The "Edit Color" dialog box opens.
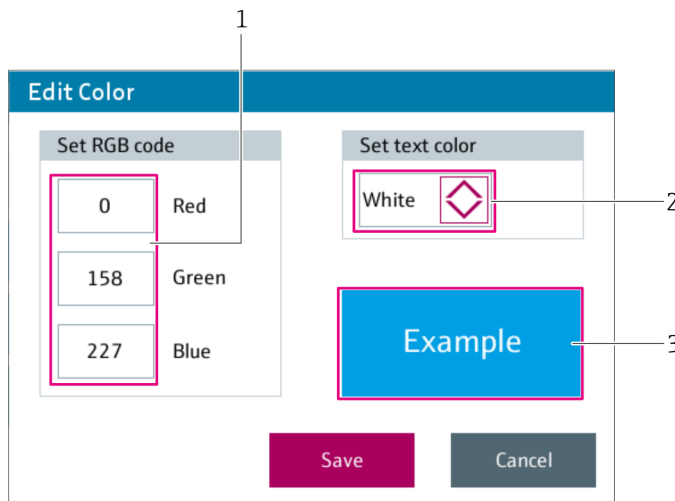
🖼 *50   "Edit Color" dialog box*

1   Set RGB Code
2   Set Text Color
3   Example

Set RGB Code	Displays the alphanumeric keypad. Use the keypad to edit the value for red, green or blue. Input range: 1 to 255
Set Text Color	Select the text color for the selected or newly defined system color. You can choose between "White" or "Black".
Example	Displays an example of the defined color in the field.

3. Change the RGB code for the system color and/or text color for this system color.

4. Tap **Save** to adopt the changes. Tap **Cancel** to cancel the process.
   ↳ The "Edit Color" dialog box closes.

5. Edit additional colors if necessary.

6. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.

The changes are only saved if you selected **Save** in both the "Edit Color" and the "Color Palette" dialog box. If you tap the **Cancel** button in the "Color Palette" dialog box, the changes implemented in the "Edit Color" dialog box are not saved.

9.10.4 Digital Input Messages

The function and the message text of the 14 possible digital inputs can be changed via the "Digital Input Messages" dialog box.

1. Select **Digital Input Messages**. (Navigation: Home → System → Application Settings (Page 1) → Digital Input Messages)
   ↳ The "Digital Input Messages" dialog box opens.
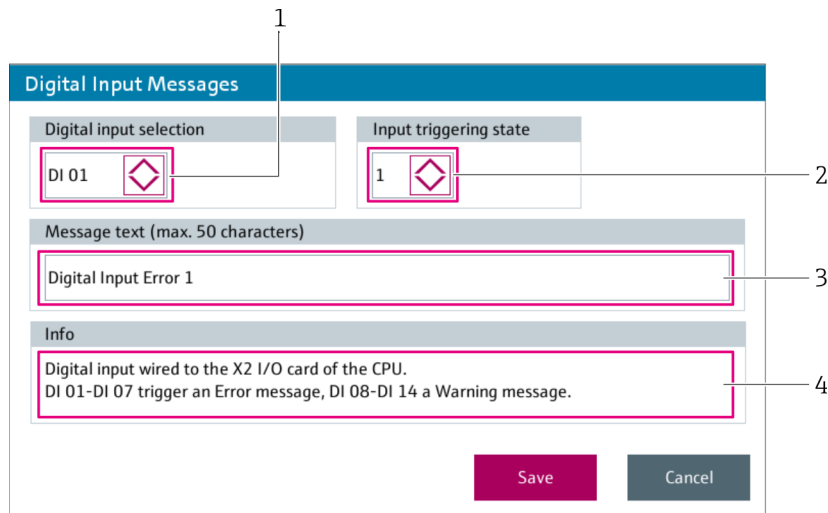
🖾 51   "Digital Input Messages" dialog box

1   Digital Input Selection
2   Input Triggering State
3   Message Text
4   Info

Digital Input Selection	Select the digital input. • Digital inputs 1 to 7: these inputs generate an error message. • Digital inputs 8 to 14: these inputs generate a warning.
Input Triggering State	Define the logic for the selected digital input. • Input triggering state = 1: message appears if the status of the corresponding digital input changes from "0" to "1". • Input triggering state = 0: message appears if the status of the corresponding digital input changes from "1" to "0".
Message Text	Displays the alphanumeric keypad. Use the keypad to change the warning or the error message for the selected digital input (max. 50 characters).
Info	Field containing general information on the digital input messages. For the connection of digital inputs, see → 🖺 21

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.5 Time Synchronization

You can change the time synchronization settings of the controller via the "Time Synchronization" dialog box.

1. Select **Time Synchronization**. (Navigation: Home → System → Application Settings (Page 1) → Time Synchronization)
   ↳ The "Time Synchronization" dialog box opens.
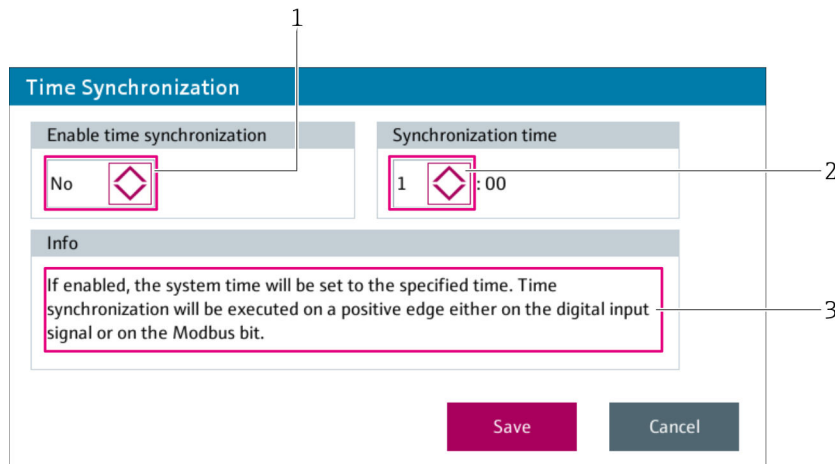
☒ *52 "Time Synchronization" dialog box*

1 Enable Time Synchronization
2 Synchronization Time
3 Info

Enable Time Synchronization	Enable or disable the "Time Synchronization" function.
	If the "Time Synchronization" function is enabled, the system time is set to the configured synchronization time if the following events occur: • A positive edge on the "TSync" digital input • A value change from 0 to 1 is detected in register 40001 via Modbus TCP communication.
Synchronization Time	Select the desired time for time synchronization (full hour). Input range: 1 to 23
Info	Field displaying general information on time synchronization.

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.6 4 – 20 mA Scaling

You can change the measuring range for 4 – 20 mA devices via the "4 – 20 mA Scaling" dialog box.

The settings in the "4 – 20 mA Scaling" dialog box and in the FMG compact transmitters of the selected section must be identical to ensure the correct operation of the system.

Example: The selected section contains five compact transmitters. You set "0.0 to 2000.0 kg/m³" as the measuring range for the selected section in the "4 – 20 mA Scaling" dialog box. You then have to set the same measuring range ("0.0 to 2000.0 kg/m³") on each of these five compact transmitters.

1. Select **4 – 20 mA Scaling**. (Navigation: Home → System → Application Settings (Page 1) → 4 – 20 mA Scaling)
   ↳ The "4 – 20 mA Scaling" dialog box opens.
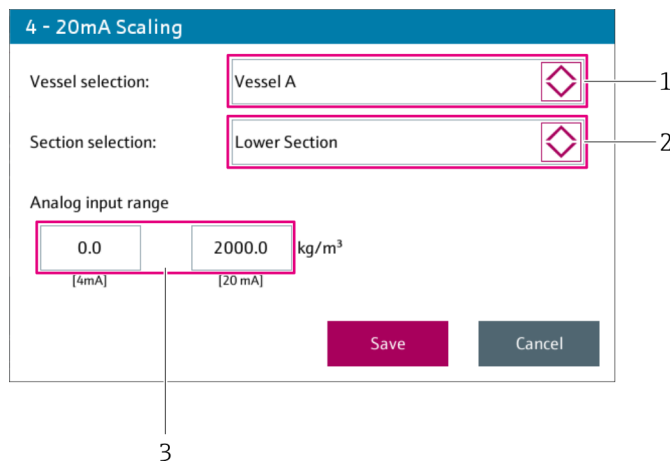
 🖻 *53*   *"4 – 20 mA Scaling" dialog box*

1   *Vessel Selection*
2   *Section Selection*
3   *Analog Input Range*

Vessel Selection	Select the separation vessel.
Section Selection	Select the section within the selected separation vessel.
Analog Input Range	Displays the numeric keypad. Use the keypad to assign a density value to the 4 mA value and the 20 mA value.
	Enter as floating point numbers. Input range, depends on the selected unit: • 0.0 to 9999.0 [kg/m^3] • 0.000 to 83.446 [lb/gal US] • 0.000 to 624.217 [lb/ft^3] • 0.0000 to 9.9990 [kg/l]

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.7 Digital Output Mapping

You can change the function of the available digital outputs via the "Digital Output Mapping" dialog box.

1. Select **Digital Output Mapping**. (Navigation: Home → System → Application Settings (Page 1) → Digital Output Mapping)
   ↳ The "Digital Output Mapping" dialog box opens.
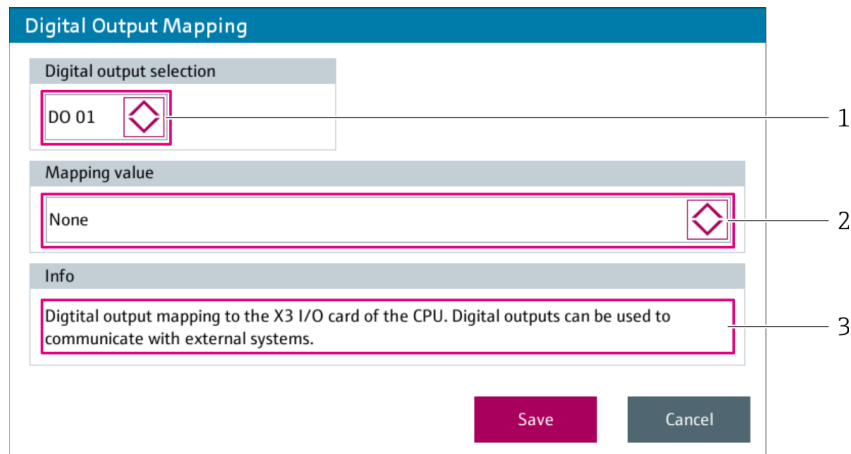
☒ 54   *"Digital Output Mapping" dialog box*

1   Digital Output Selection
2   Mapping Value
3   Info

| Digital Output Selection	Select the digital output. You can choose between the 8 digital outputs DO01 to DO08.

Mapping Value	Assign a function to the selected digital output.
	
	The following functions are available:
	• None
	• System OK (positive logic):
	  – 0: Not OK
	  – 1: OK
	• System Warning (negative logic)
	  – 0: Warning
	  – 1: No warnings
	• System Error (negative logic)
	  – 0: Error
	  – 1: No errors
	• Vessel x OK (positive logic) (x: vessels 1 to 5)
	  – 0: Not OK, at least one message is active for vessel x
	  – 1: OK, no messages are active for vessel x

Info	Field displaying general information on digital output mapping. For information on the connection of digital outputs, see → 🖹 20

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.10.8   System Units

Select the units for the density and level via the "System Units" dialog box.

🛈 The set units only apply for the information displayed on-screen (HMI). The density values are always transmitted in kg/m^3 and the level values in mm via the OPC UA and Modbus TCP interfaces.

1. Select **System Units**. (Navigation: Home → System → Application Settings (Page 1) → System Units)
   ↳ The "System Units" dialog box opens.
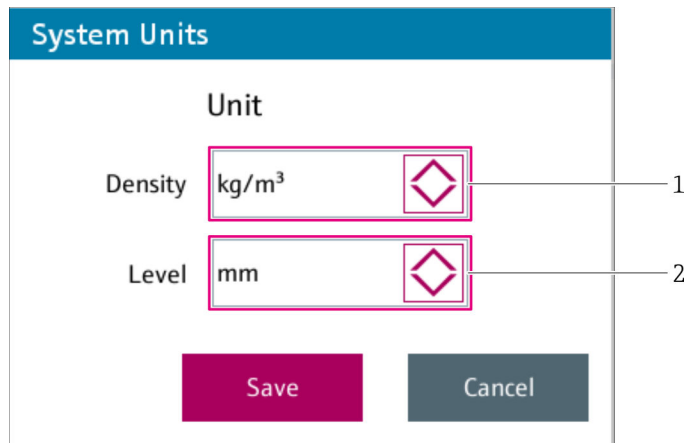
🖾 55   *"System Units" dialog box*

1   Density
2   Level

Density	Select the unit for the density. The selected unit is displayed on the screens.
	Select possible units: • kg/m^3 • kg/L • lb/gal US • lb/ft^3 ℹ The raw data, which the system reads in from the devices, are always read in and displayed in kg/m^3.
Level	Select the unit for the level. The selected unit is displayed on the screens.
	Select possible units: • mm • cm • m • in • ft

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

### 9.10.9   Import Configuration

Use the "Import Configuration" dialog box to import a configuration file either from a USB storage device or from the internal memory.

NOTICE

Unsuitable configuration file may cause application malfunction!
A configuration file must match the installed hardware. If an unsuitable configuration file is used this can cause an application malfunction.
▸ Always consult with Endress+Hauser before you load a new configuration file.
▸ A new configuration file should only be loaded by experienced users.

1. If necessary, insert the USB storage device, containing the configuration file to be imported, into the USB port of the controller assembly (X4).

2. Select **Import Configuration**. (Navigation: Home → System → Application Settings (Page 2) → Import Configuration)
   ↳ The "Import / Export Configuration" dialog box opens.
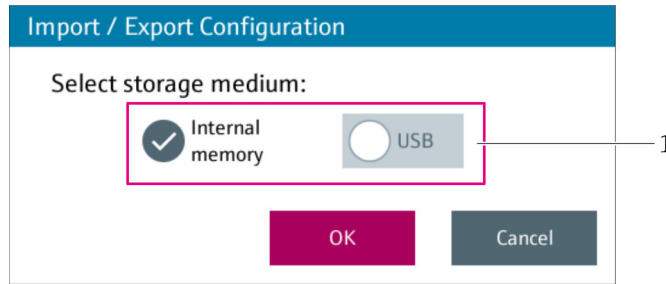
⊠ 56   "Import / Export Configuration" dialog box

1   Select Storage Medium

3. In the **Select Storage Medium** field, select the storage medium of the configuration file to be imported.

🛈 If the "USB" radio button is grayed out, either no USB storage device is plugged into the USB port or the USB storage device is not recognized.

4. Tap **OK**.
    ↳ The "Import Configuration" dialog box opens.
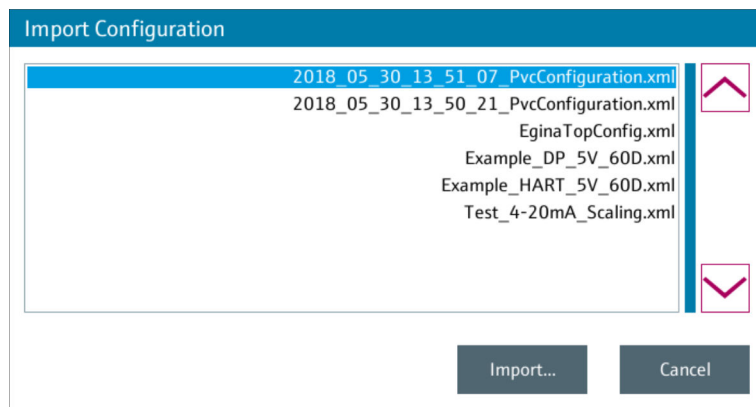
⊠ 57   "Import Configuration" dialog box

5. Select the desired configuration file.

6. Tap **Import**.
    ↳ The "Import" dialog box opens with the message "Configuration is being imported".

7. Wait until the "Review & Save" dialog box opens.
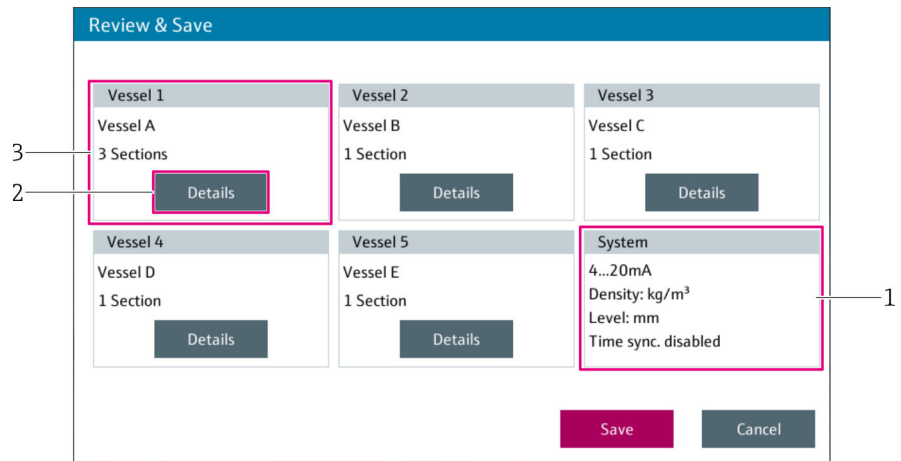
🖻 58   "Review & Save" dialog box

1   Review System
2   Details
3   Review Vessel

Review System	Displays the settings selected for the system, such as the device interface (PROFIBUS DP or 4 to 20 mA), units for the density and level and information regarding time synchronization.
Details	Opens the "Review Vessel – Details" dialog box. → 🖺 60
Review Vessel	Displays the designation and number of sections of the separation vessel

8. Check the data in the "Review & Save" dialog box.

9. If necessary, tap **Details** to display additional information. → 🖺 60

10. Tap **Save** to continue importing.
   ↳ The "Save New Configuration" dialog box opens with the confirmation prompt "Save new configuration?".

11. Tap **Save** to save the imported configuration file. The new configuration file applies for the system.

The "Save new configuration" confirmation prompt must be confirmed (by selecting "Save") before the imported configuration file takes effect for the system. If you select "Cancel" when the confirmation prompt is displayed, the imported configuration file is discarded and the previous configuration continues to apply.

Review Vessel – Details
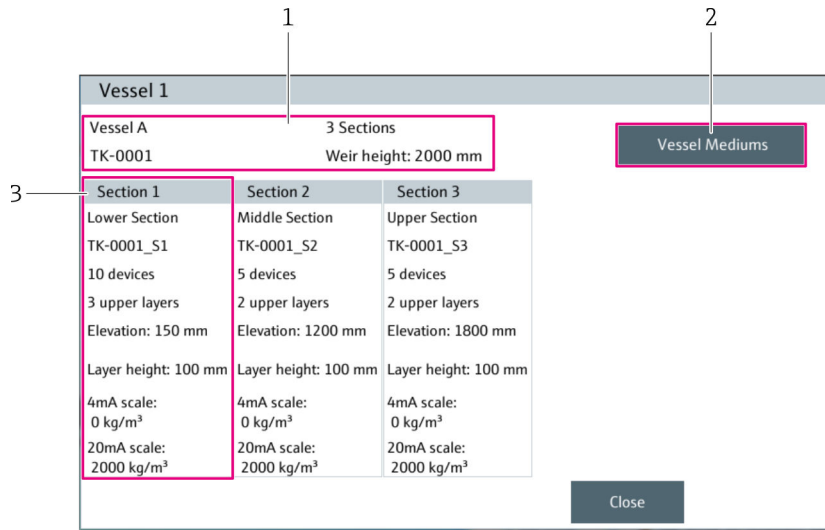
※ 59 "Review Vessel – Details" dialog box

1   Vessel
2   Vessel Media
3   Section

| Vessel	Displays the following information: designation and ID of the selected separation vessel, number of sections and height of the weir
Vessel Media	Opens the "Media Settings" dialog box in write-protect mode
Section	The screen displays the following information for each section: • Section designation • Section ID • Number of devices in the section • Number of upper layers (layers above the radioactive source) • Elevation (distance between the vessel floor and the base of the lowest measured layer) • Layer height (height of the individual measured layers per section) • 4 – 20 mA scaling ※ 60 Visualization of terms

9.10.10 Export Configuration

Use the "Export Configuration" dialog box to export a configuration file either to a USB storage device or to the internal memory.

1. If necessary, insert the USB storage device into the USB port of the controller assembly (X4).

2. Select **Export Configuration**. (Navigation: Home → System → Application Settings (Page 2) → Export Configuration)
   ↳ The "Import / Export Configuration" dialog box opens.
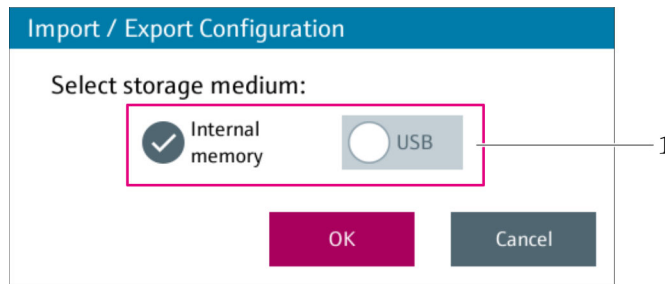

🖻 *61   "Import / Export Configuration" dialog box*

1   Select Storage Medium

3. In the **Select Storage Medium** field, select the storage medium for the configuration file to be exported.

ℹ️ If the "USB" radio button is grayed out, either no USB storage device is plugged into the USB port or the USB storage device is not recognized.

4. Tap **OK**.
   ↳ The configuration file is saved to the selected storage medium.
     File name: "YYYY_MM_DD_hh_mm_ss_PvcConfiguration.xm"
     Path for "Internal Memory" option": "F:\customer\PvcConfiguration\"
     Path for "USB" option: root directory of the attached USB storage device

9.10.11 Vessel Designation

Use the "Vessel Designation" dialog box to change the designation, e.g. "Vessel", in the navigation bar (breadcrumb).

ℹ️ You can edit the designation of individual separation vessels in the "Designations / Device Channels" view.

1. Select **Vessel Designation**. (Navigation: Home → System → Application Settings (Page 2) → Vessel Designation)
   ↳ The "Vessel Designation" dialog box opens.

🖻 *62   "Vessel Designation" dialog box*

1   Designation in the navigation bar and the "Home" screen

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

9.11 Easy Setup

ℹ️ "Easy Setup" can only be accessed by Endress+Hauser staff.

"Easy Setup" guides you step-by-step through the configuration of the application. You save the application at the end.

The buttons "Back", "Cancel" and "Next" are available in each step. "Back" takes you back to the previous step. "Next" takes you to the next step. "Cancel" closes the "Easy Setup" and the configuration process is canceled.

1. Select **Easy Setup**. (Navigation: Home → System → Application Settings (Page 2) → Easy Setup)
   ↳ The "Basic Settings" dialog box opens.
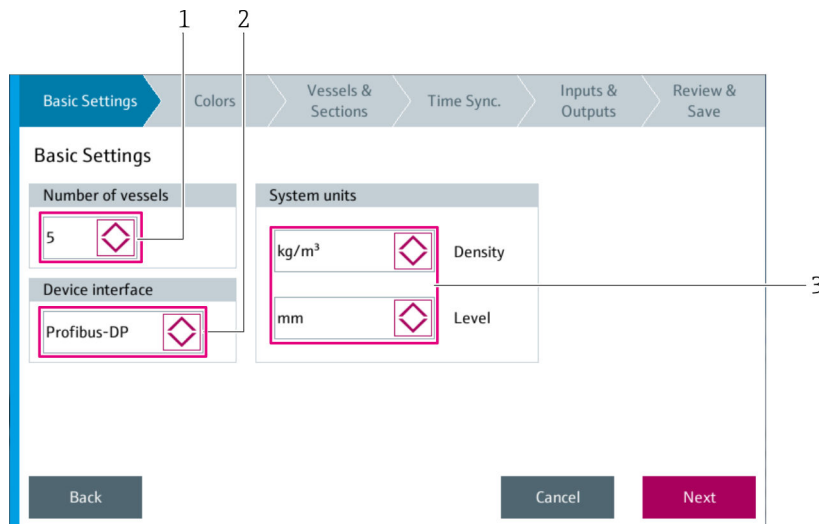
🖼 63   *"Basic Settings" dialog box (Step 1 of the Easy Setup)*

1   Number of Vessels
2   Device Interface
3   System Units

Number of Vessels	Select the number of connected separation vessels. Possible selection: 1 to 5
Device Interface	Select the interface of the FMG compact transmitters. Options: PROFIBUS DP or 4 to 20 mA
System Units	Define the system units.

2. Make the settings in the "Basic Settings" dialog box.

3. Tap **Next**.
   ↳ The "Colors" dialog box opens.
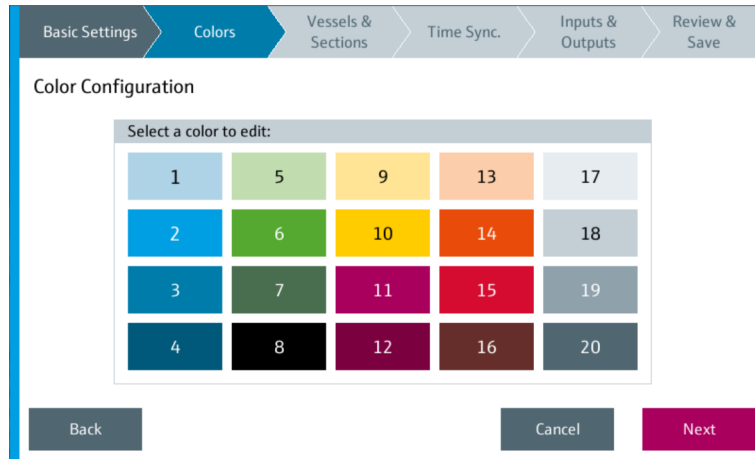
🖼 64   *"Color" dialog box (Step 2 of the Easy Setup)*

4. Edit the colors if necessary.

5. Tap **Next**.
   ↳ The "Vessels & Sections" dialog box opens.
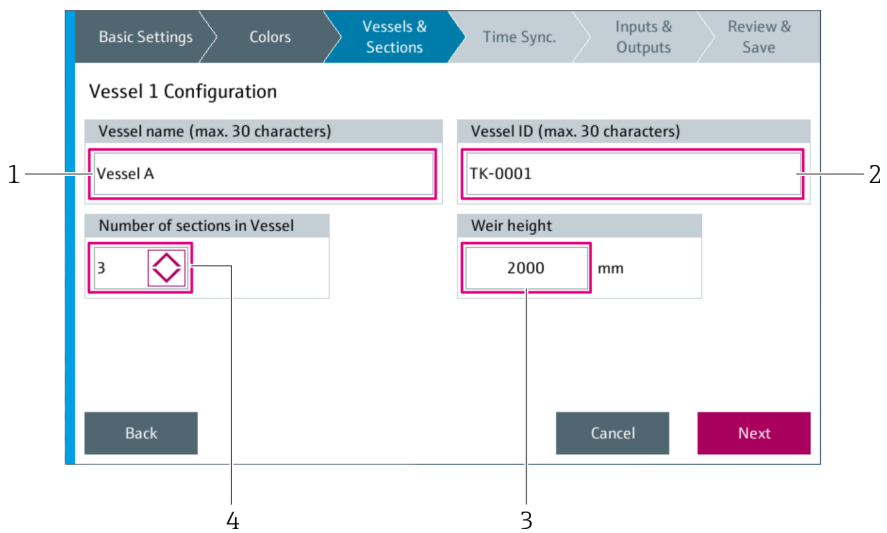
🖼 65   *"Vessels & Sections" dialog box (Step 3 of the Easy Setup)*

1   Vessel Name
2   Vessel ID
3   Weir Height
4   Number of Sections in the Vessel

Vessel Name	Displays the alphanumeric keypad. Use the keypad to change the name of the separation vessel. Input range: 1 to 30
Vessel ID	Displays the alphanumeric keypad. Use the keypad to change the ID of the separation vessel. Input range: 1 to 30

Weir Height	Displays the numeric keypad. Use the keypad to change the height of the weir in the separation vessel. The weir is shown schematically on the "Vessel Details" screen. The weir is not displayed if you enter the value "0".
	Input value as floating point value. The number of decimal places depends on the unit. • [mm]: no decimal places • [cm] and [in]: 1 decimal place • [ft]: 2 decimal places • [m]: 3 decimal places
Number of Sections in the Vessel	Select the number of sections for the selected separation vessel. Options: 1 to 5

6. Make the settings in the "Vessels & Sections" dialog box.

7. Tap **Next**.
   ↳ The "Vessel Medium & Density Range Settings" dialog box opens.
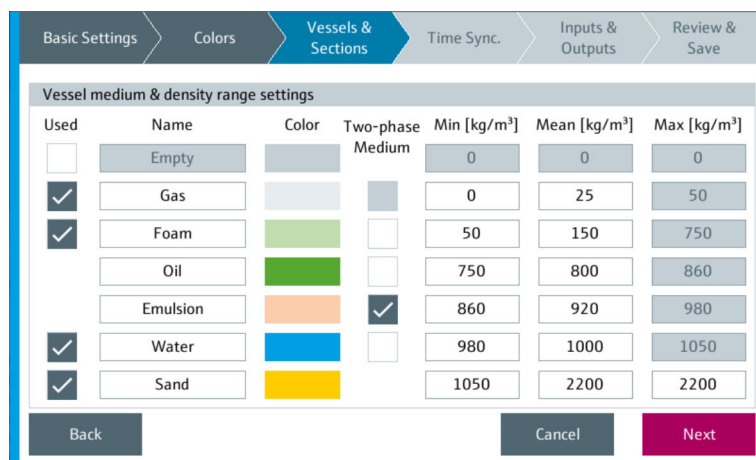
⌧ *66   "Vessel Medium & Density Range Settings" dialog box (Step 3 of the Easy Setup)*

8. Make the settings in the "Vessel Medium & Density Range Settings" dialog box.

9. Tap **Next**.
   ↳ The "Vessel 1 – Section 1 Settings" dialog box opens.

67   *"Vessel 1 – Section 1 Settings" dialog box (Step 3 of the Easy Setup)*

1   Section Name
2   Section ID
3   Layer Height
4   Analog Input Range
5   Elevation
6   Number of Upper Layers
7   Number of Devices in the Section

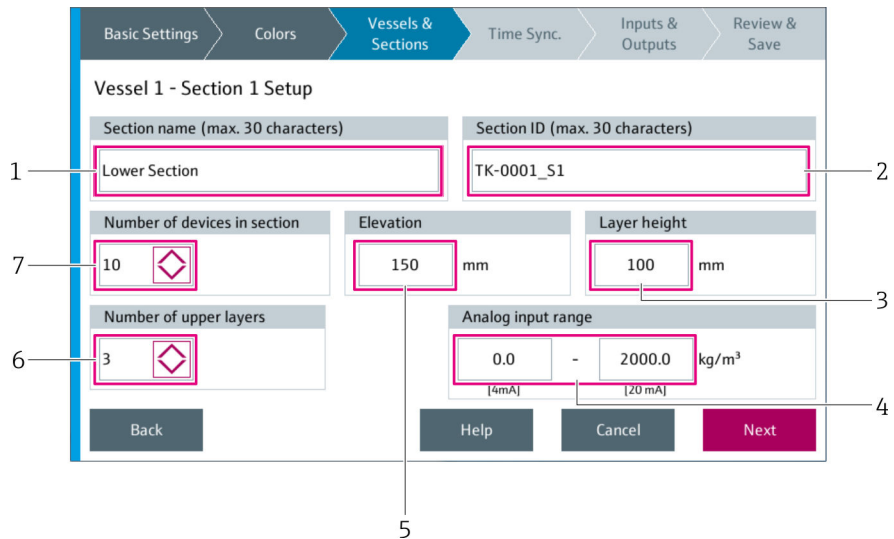|	
Section Name	Displays the alphanumeric keypad. Use the keypad to change the section of the separation vessel. Input range: 1 to 30
Section ID	Displays the alphanumeric keypad. Use the keypad to change the ID of the section. Input range: 1 to 30
Layer Height	Displays the numeric keypad. Use the keypad to change the height of the measured layers.
	Input value as floating point value. The number of decimal places depends on the unit. • [mm]: no decimal places • [cm] and [in]: 1 decimal place • [ft]: 2 decimal places • [m]: 3 decimal places Tap "Help" for more information.
Analog Input Range	Scale analog inputs (4 to 20 mA signal). This field only appears if you selected "4-20 mA" as the device interface in the Basic Settings.
Elevation	Displays the numeric keypad. Use the keypad to change the height of the lowest layer.
	Input value as floating point value. The number of decimal places depends on the unit. • [mm]: no decimal places • [cm] and [in]: 1 decimal place • [ft]: 2 decimal places • [m]: 3 decimal places Tap "Help" for more information.
Number of Upper Layers	Select the number of devices that are located above the radioactive source. Selection. 0 to "number of devices in the section" Tap "Help" for more information.
Number of Devices in the Section	Select the number of devices in the corresponding section. Possible selection: 1 to 15 You can configure a maximum of 60 devices in a system. → 🖺 12
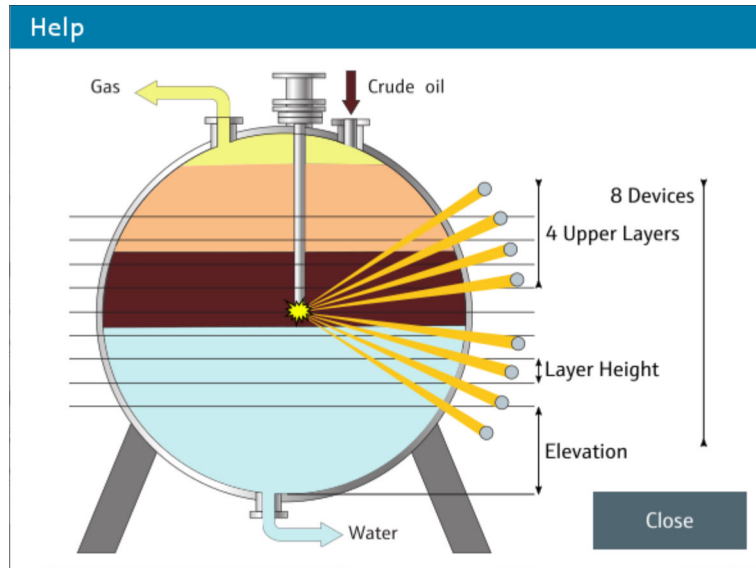
▣ 68   "Help" dialog box

10. Make settings in the "Vessel 1 – Section 1 Settings" dialog box.

11. Tap **Next**.
    ↳ If the separation vessel contains additional sections, the dialog box for the next section setting is displayed, such as "Vessel 1 – Section 2 Settings" for instance. If the application contains additional separation vessels, the dialog box for the next vessel is displayed, such as "Vessel 2 Settings" for instance.

12. Make all the settings for all the vessels and sections.

13. Tap **Next**.
    ↳ The "Time Synchronization" dialog box is displayed.
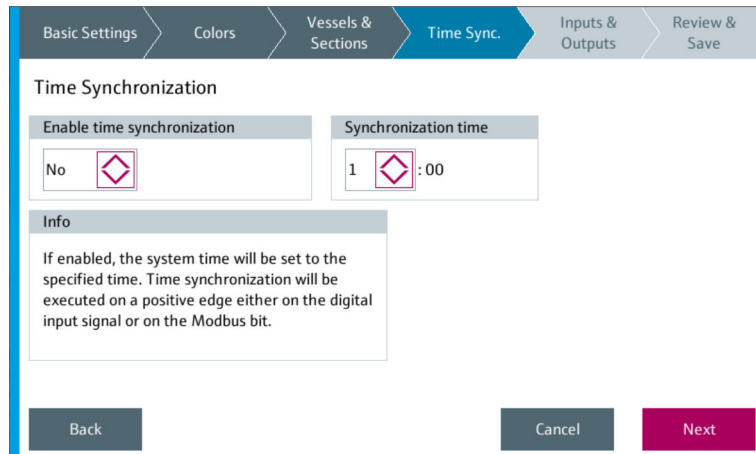
▣ 69   "Time Synchronization" dialog box (Step 4 of the Easy Setup)

14. Make the settings in the "Time Synchronization" dialog box.

15. Tap **Next**.
    ↳ The "Message Input Configuration" dialog box opens.
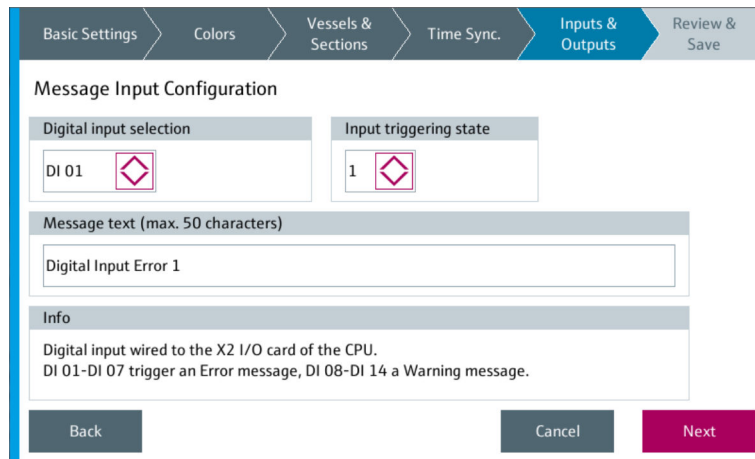
70   "Inputs & Outputs" dialog box (Step 5 of the Easy Setup)

16. Make the settings in the "Message Input Configuration" dialog box.

17. Tap **Next**.
    ↳ The "Digital Output Mapping" dialog box opens.
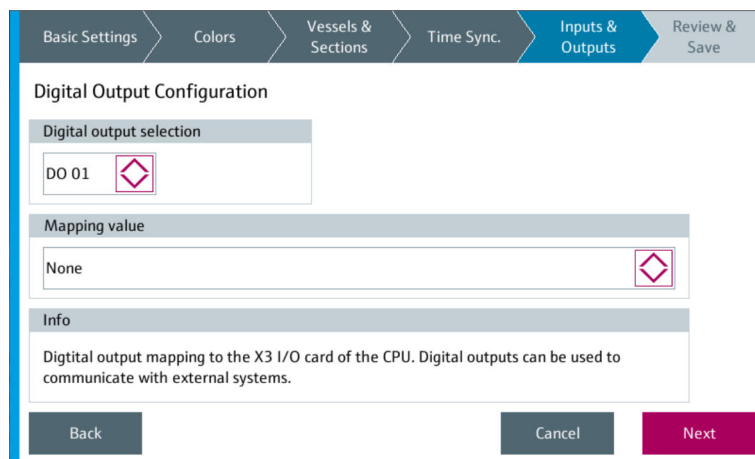
71   "Digital Output Mapping" dialog box (Step 5 of the Easy Setup)

18. Make the settings in the "Digital Output Mapping" dialog box.

19. Tap **Next**.
    ↳ The "Review & Save" dialog box opens.
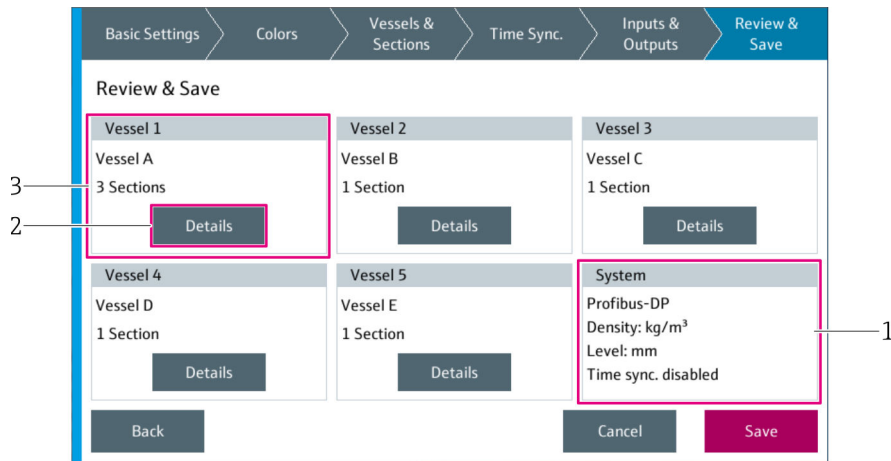
⊠ 72   "Review & Save" dialog box (Step 6 of the Easy Setup)

1   Review System
2   Details
3   Review Vessel

Review System	Displays the settings selected for the system, such as the device interface (PROFIBUS DP or 4 to 20 mA), units for the density and level and information regarding time synchronization.
Details	Opens the "Review Vessel – Details" dialog box.
Review Vessel	Displays the designation and number of sections of the separation vessel

20. Check the data in the "Review & Save" dialog box.

21. If necessary, tap **Details** to display additional information.

22. Tap **Save** to continue the Easy Setup.
    ↳ The "Save New Configuration" dialog box opens with the confirmation prompt "Save new configuration?".

23. Tap **Save** to save the settings for the Easy Setup. The new settings apply for the system.
    ↳ The "Export New Configuration" dialog box is displayed.

24. Tap **Yes** if you want to export the configuration. Export configuration. Tap **No** if you do not want to export the configuration.

The "Save new configuration" confirmation prompt must be confirmed (by selecting "Save") for the Easy Setup settings to apply. If you select "Cancel" when the confirmation prompt is displayed, the new settings are discarded and the previous configuration remains in effect.

9.12   System Information

The "System Information" pop-up window displays the relevant system information.

▸ Select **System Information**. (Navigation: Home → System → System Information)
    ↳ The "System Information" pop-up window opens.

🖻 73   *"System Information" pop-up window*

ℹ️ Tap the touch display to close the "System Information" pop-up window.

9.13   Language

You can change the language setting for visualization via the "Language" dialog box.

1. Select **Language**. (Navigation: Home → System → Language)
   ↳ The "Language" dialog box opens.

🖻 74   *"Language" dialog box*

1   *Language Selection*

2. Select the desired language.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
   ↳ The dialog box closes.

ℹ️ The language selected for visualization does not affect the language setting for data that have already been saved, such as the message history.

9.14   User Management

The "User Management" screen contains functions that concern user administration.

▶ Select **User Management**. (Navigation: Home → System → User Management)
   ↳ The "User Management" screen opens.
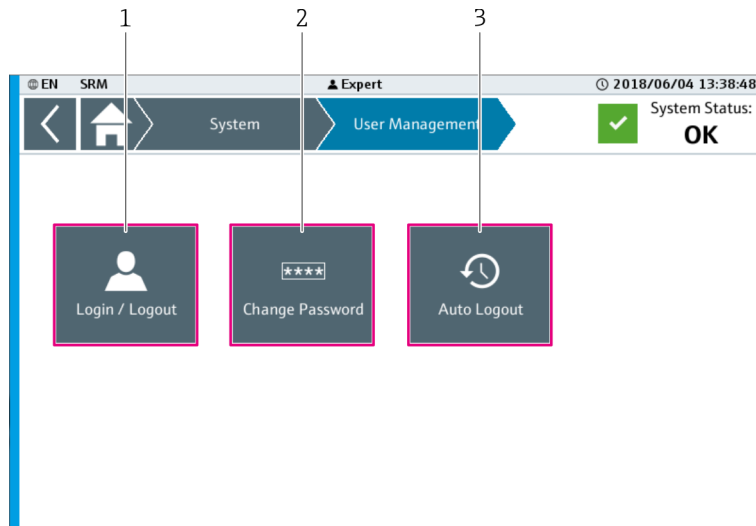
76 75   *"User Management" screen*

1   *Login / Logout*
2   *Change Password*
3   *Auto Logout*

9.14.1 Login / Logout

Users log in or out of the system via the "Login / Logout" dialog box.

▸ Select **Login / Logout**. (Navigation: Home → System → User Management → Login / Logout or Home → Login / Logout)

    ↳ The "Login / Logout" dialog box opens.
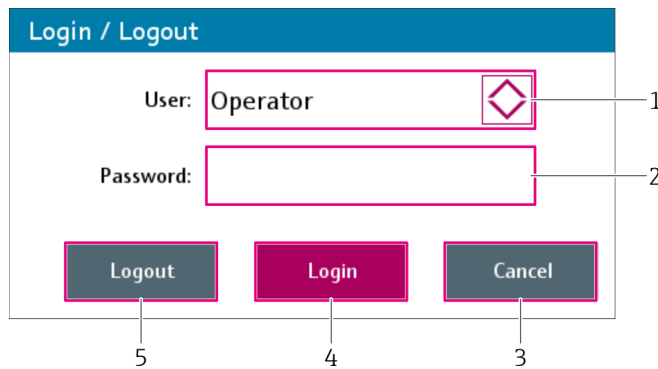
76 76   *"Login / Logout" dialog box*

1   *User*
2   *Password*
3   *Cancel*
4   *Login*
5   *Logout*

User	Opens the list of users. Select the user.
Password	Displays the alphanumeric keypad. Use the keypad to enter the password for the selected user.
Cancel	Closes the dialog box. The user currently logged in remains logged into the system.
Login	The selected user is logged in and the "Login / Logout" dialog box is closed. ℹ️ If you enter an incorrect password for the selected user, the user is not logged in and the message "Password incorrect" is displayed.
Logout	The user currently logged in is logged out. The user "Anonymous" is logged in and the "Login / Logout" dialog box closes.

9.14.2   Change Password

You can change the password for a user in the "Change Password" dialog box.

1. Select **Change Password**. (Navigation: Home → System → User Management → Change Password)
   ↳ The "Change Password" dialog box opens.

▣ 77   "Change Password" dialog box

1   User
2   New Password
3   Confirm Password

2. Select the user whose password you wish to change. Tap the **User** field for this purpose.
   ↳ The "Change Password" dialog box opens.

ℹ️ You can only change the password up to your own user access level. You cannot change the password for the users "Anonymous" and "Expert".

3. Enter the new password for the selected user in the **New Password** field. The password can contain between 2 and 20 characters.

4. Enter the new password a second time in the **Confirm Password** field.

5. Tap **Save**.
   ↳ The new password is saved and the dialog box closes.

ℹ️ A message appears if the entries in the "Confirm Password" and "New Password" fields do not match or if the password is too short. You must enter the passwords again.

9.14.3   Auto Logout

You can change the time for automatic logout via the "Auto Logout" dialog box.

1. Select **Auto Logout**. (Navigation: Home → System → User Management → Auto Logout)
   ↳ The "Auto Logout" dialog box opens.
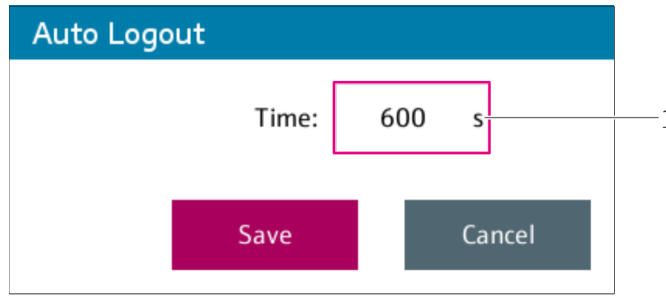
▣ 78   "Auto Logout" dialog box

1   Time

Time	Displays the numeric keypad. Use the keypad to change the time for automatic logout. Input range: 0 to 65 535 s; 0 = automatic logout is disabled

2. Make the settings.

3. Tap **Save** to save the changes. Tap **Cancel** to cancel the process.
    ↳ The dialog box closes.

9.15   License Management

The "License Management" screen contains functions and information regarding the licensing of the system.

▶ Select **License Management**. (Navigation: Home → System → License Management)
   ↳ The "License Management" screen opens.
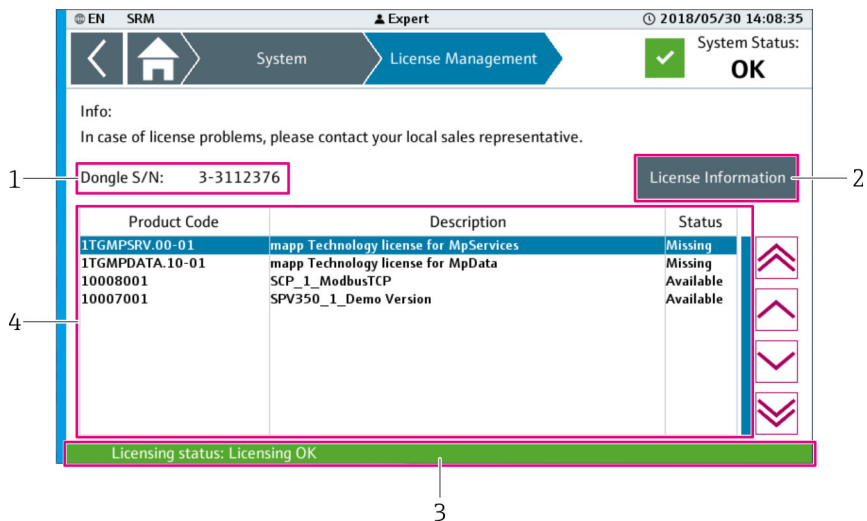
▣ 79   "License Management" screen

1   License Dongle Serial Number
2   License Information
3   Licensing Status
4   List of Licenses

License Dongle Serial Number	If a license dongle is plugged into the USB port of the controller assembly, the serial number of the dongle is displayed. If a license dongle is not plugged into the USB port, "NA" appears on the screen.
License Information	→ 🖺 73

Licensing Status	The licensing status is indicated on this line.
	The following statuses are possible: • "Licensing OK" (green background): the necessary Endress+Hauser licenses are available and OK. • "Demo license active xx days remaining" (orange background): at least one necessary Endress+Hauser license has not been found. The demo time has not yet expired, xx days remain. The warning "License: Demo time running" is active. You can only use the demo time once. If all the demo license time has been used, no demo time will be available in the future. • "Demo License Expired" (red background): not all the necessary Endress+Hauser licenses were found. The demo time has expired. The "Demo License Expired" pop-up window appears periodically on the screen. The error "License: Demo time expired" is active.
List of Licenses	Lists all the necessary licenses along with the product code, description and status. If a valid license is not found, no license description appears.
	The following statuses are possible: • Missing: the necessary license is not on the dongle. • Available: the necessary license is on the dongle.
	The following licenses are required for the SPV350 system: • 1TGMPSRV.00.01 • 1TGMPDATA.10-01 • 10007001 (Endress+Hauser SPV350 license)
	In addition, the following optional licenses may also be necessary: • 10008001 (Endress+Hauser Modbus TCP license) • 10008002 (Endress+Hauser OPC UA license)

9.15.1　License Information

The "License Information" screen contains information regarding the license currently selected.

▶ Select **License Information**. (Navigation: Home → System → License Management → License Information)

   ↳ The "License Information" screen for the selected license opens.
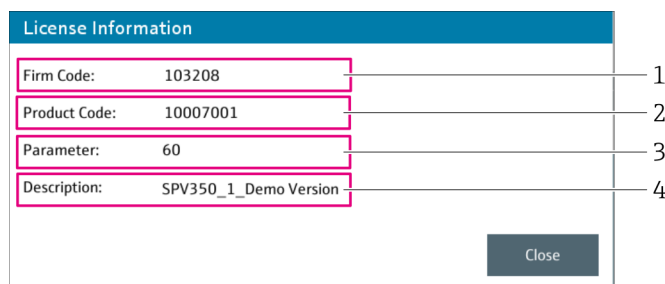
▣ 80　"License Information" screen

1　Firm Code
2　Product Code
3　Parameter
4　Description

Firm Code	Number of the firm that issued the license
Product Code	The product code corresponds to the license number.
Parameter	The parameter is only relevant for the product code "10007001". The maximum possible number of devices is displayed. Example: If "60" is displayed for the parameter, the system can comprise 60 devices.
Description	Description of the license

9.16   Remote Maintenance

The "Remote Maintenance" screen contains functions and information on the use of the remote maintenance connection (VPN connection).

▸ Select **Remote Maintenance**. (Navigation: Home → System → Remote Maintenance)
  ↳ The "Remote Maintenance" screen opens.
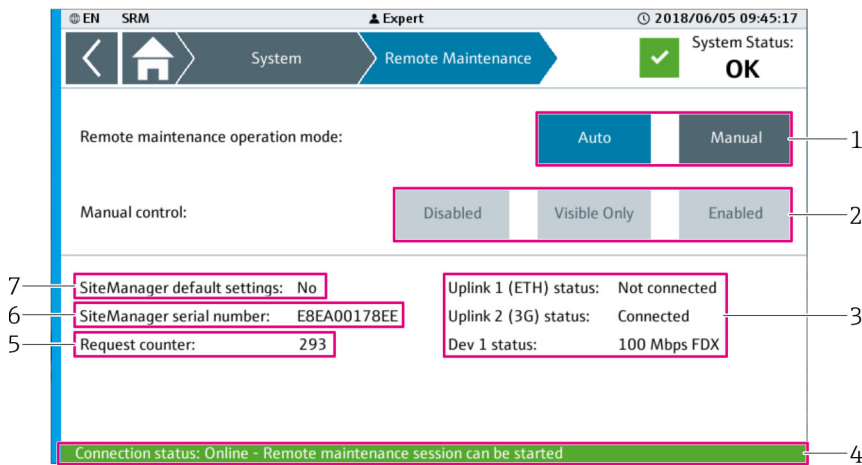
🖼 *81   "Remote Maintenance" screen*

1   Remote Maintenance Operation Mode
2   Man. Control
3   SiteManager Status
4   Connection Status
5   Request Counter
6   SiteManager Serial Number
7   SiteManager Default Settings

Remote Maintenance Operation Mode	Tap the "Auto" or "Manual" button to switch the SiteManager to the corresponding mode.
	• Auto (blue background): the automatic mode is active. A VPN connection to the SiteManager can be established with a LinkManager. The "Man. Control" functions are not available. • Manual (blue background): the manual mode is active. The "Man. Control" functions are available.
Man. Control	If the SiteManager is in manual mode and connected, the SiteManager is controlled manually.
	The following options are possible. The selected option is highlighted in blue. • Disabled: the SiteManager is disabled for all connections. In this mode, it is not possible to establish a connection to the SiteManager from outside. • Visible only: the SiteManager is displayed on the GateManager, but a connection to the SiteManager is not established. In this mode, it is not possible to establish a connection to the SiteManager from outside. • Enabled: it is possible to access the SiteManager from outside via a LinkManager.
	🛈 Manual control and connection setup via a LinkManager is only possible if the following conditions are met: • The SiteManager is connected to the controller assembly • The SiteManager is switched on • The SiteManager is configured correctly • If present, the switch in the control cabinet is set to the "Remote Maintenance on" position

SiteManager Status	Displays the status of the various ports.
	The following statuses are possible for the UPLINK port (Ethernet (1) and 3 G (2)): • Not connected • Connected (not active) • Connected
	The following statuses are possible for the DEV 1-port: • Not connected • 10 Mbps HDX • 10 Mbps FDX • 100 Mbps HDX • 100 Mbps FDX • 1 000 Mbps FDX

Connection Status	Displays the current status of the SiteManager from outside (LinkManager).
	
	The following statuses are possible:
	• Offline – disabled / no connection to the modem (red background):
	  It not possible to connect to the system from outside.
	• Offline – check Internet connection (red background):
	  The SiteManager is connected to the controller but is not connected to the Internet. It is not possible to connect to the system from outside.
	• Online – connected - visible only (no data transmission possible) (green background):
	  The SiteManager is visible from outside but it is not possible to connect to the system.
	• Online – remote maintenance connection can be activated (green background):
	  It is possible to connect to the system from outside.
	• Online – remote maintenance connection active (yellow background): an outside connection to the system is active.

Request Counter	This value increases when the SiteManager is connected with the controller assembly and booted. "0" is displayed if no connection is established to the SiteManager.
SiteManager Serial Number	The serial number is displayed here if the SiteManager is connected to the controller assembly and booted. "00000000000" is displayed if no connection is established to the SiteManager.
SiteManager Default Settings	If the SiteManager is connected to the controller assembly and booted, this field displays the configuration of the SiteManager. • Yes: the configuration of the SiteManager matches the configuration of the SiteManager in the controller assembly (default setting). • No: the configuration of the SiteManager does **not** match the configuration of the SiteManager in the controller assembly. The configuration was modified manually at the SiteManager after it was transmitted by the controller assembly.

10 Diagnostics and troubleshooting

10.1 General troubleshooting

10.1.1 Displaying warnings and errors

The current status of the overall system is displayed in the navigation bar in the top right. → 🖺 29

- The following statuses are possible
- Error
- Warning
- OK

If the "Alarm Icon" function is enabled, the screensaver is active and an error and/or a warning occurs, an alarm icon flashes on the entire touch display. → 🖺 45

10.1.2 Action in the event of warnings and errors

Proceed as follows if a warning or error is signaled on the touch display:

1. Open the "Messages" view to view the message regarding the warning or error. (Navigation: Home → Diagnostics → Messages)→ 🖺 36

2. Eliminate the cause of the warning or error.

3. Acknowledge the warning or error message in the "Messages" view. → 🖺 36

10.2 Overview of diagnostic information

Message number	Message	Error type	Diagnostics	Cause	Action
010	License: Demo time running	Warning	System is running in the demo mode	No USB license dongle plugged into the controller assembly	Plug a valid USB license dongle into the USB port of the controller assembly.
				USB license dongle plugged into the controller assembly but the license is not valid	Contact Endress+Hauser for a replacement license.
011	License: Demo time expired	Error	System demo time has expired	No USB license dongle plugged into the controller assembly	Plug a valid USB license dongle into the USB port of the controller assembly.
				USB license dongle plugged into the controller assembly but the license is not valid	Contact Endress+Hauser for a replacement license.
015	Remote maintenance: VPN connection active	Warning	–	A VPN connection to the SiteManager is active	End VPN connection or disable "Remote maintenance" if remote maintenance is not required.
020	Internal data memory: Free space low	Warning	–	Free space available on controller assembly < 20 %	Download data via FTP and delete data from controller assembly.

Message number	Message	Error type	Diagnostics	Cause	Action
800 [1]	PROFIBUS interface: Fault	Error	–	PROFIBUS DP module not installed correctly	Check the installation of the PROFIBUS-DP module and install correctly if necessary.
				No PROFIBUS-DP module present	Install PROFIBUS-DP module.
				PROFIBUS-DP module defective	Replace PROFIBUS-DP module.
80*v* [2] [3]	Remote I/O bus *v*: Fault	Error	–	No power supply to bus node *v*	Check voltage applied at remote IO assembly *v*.
				No communication with the bus node *v*	Check Powerlink cable connection between the controller assembly and the remote IO assembly *v*.
				Bus module is defective	Replace the bus module of the remote IO assembly *v*.
				Bus module incorrectly addressed	Correctly address the bus module of the remote IO assembly *v*.
80*vw* [2] [4]	Remote I/O module *v.w.*: Fault	Error	–	IO module not installed correctly.	Check the installation of the IO module *v.w.* and install correctly if necessary.
				No IO module present	Install IO module *v.w.*.
				IO module is defective	Replace IO module *v.w.*.
900	System not configured	Warning	–	Application not yet configured or cold start performed via the RESET button on the controller assembly	Configure the application using "Easy Setup" → 🖹 62 or import configuration
9*yy* [5]	Digital input error *yy* (customized text)	Error	–	Input message configured incorrectly	Change the configuration of the digital input DI*yy*.
				Input message corresponds to fault condition	Check component connected to digital input DI*yy*.
9*zz* [6]	Digital input warning *zz* (customized text)	Warning	–	Input message configured incorrectly	Change the configuration of the digital input DI*zz*.
				Input message corresponds to warning condition	Check component connected to digital input DI*zz*.
xxx 002 [1] [7]	*Device xxx:* Communication fault	Error	–	No communication with the device	Check PROFIBUS wiring to relevant device.
				No power supply to device	Check correct supply voltage at relevant device.
xxx 002 [2]	*Device xxx:* Communication fault	Error	–	No analog signal from device (broken wire)	Check 4 to 20 mA signal wiring
				No power supply to device	Check correct supply voltage at relevant device.

Message number	Message	Error type	Diagnostics	Cause	Action
xxx 003 1)	*Device xxx:* Fault	Error	–	Device fault. PROFIBUS status < 64 (decimal)	Check condition of corresponding device. PROFIBUS status currently present at device: → 🖹 39
xxx 003 2)	*Device xxx:* Fault	Error	–	Analog signal outside specified range (> 21 mA or between 2 mA and 3.6 mA)	Check condition of corresponding device.
xxx 004 1)	*Device xxx:* Value uncertain	Warning	–	Device fault. PROFIBUS status > 63 and < 128 (decimal)	Check condition of corresponding device. PROFIBUS status currently present at device: → 🖹 39

1) PROFIBUS devices
2) 4 to 20 mA devices
3) v: Corresponding remote IO assembly (1 to 5)
4) vw: Corresponding remote IO assembly. v: corresponding IO module. Example: 1.3. corresponds to the IO module "3" of the remote IO assembly "1"
5) yy: Corresponding digital input 01 to 07 on module X2 of the controller assembly
6) zz: Corresponding digital input 08 to 14 on module X2 of the controller assembly
7) xxx: As per the device number

10.3   Firmware

Version	Description	Comments
1.00.xx	First version	–

11   Maintenance

We recommend you perform regular visual inspections of the components. Endress
+Hauser also offers its customers Maintenance Agreements or Service Level Agreements
for this. For more information, see the next section.

11.1   Endress+Hauser services

Endress+Hauser offers a wide variety of services for maintenance such as recalibration,
maintenance service, system tests or device tests. Your Endress+Hauser Sales Center can
provide detailed information on the services.

12   Repair

12.1   General information

Please note the following:
- Repairs may only be performed by Endress+Hauser staff or by individuals authorized and trained by Endress+Hauser.
- Observe local and national laws and regulations.
- Standard components can be replaced with identical components.
- Document all repairs and enter them in the W@M Lifecycle Management database.
- Check the function after repair.

> We recommend you conclude a Service Level Agreement. For more information, please contact your Endress+Hauser Sales Center.

12.2   Spare parts

Please contact your Endress+Hauser Sales Center at: www.addresses.endress.com

12.3   Endress+Hauser services

Endress+Hauser offers a wide variety of services for maintenance such as recalibration, maintenance service, system tests or device tests. Your Endress+Hauser Sales Center can provide detailed information on the services.

12.4   Disposal

Components of the Profile Vision System SPV350

NOTICE

Risk of environmental damage from improper disposal
The improper disposal of the system components may damage the environment.
▶ Do not dispose of system components as domestic waste.
▶ Dispose of system components in accordance with applicable national regulations.
▶ Ensure proper separation and reuse of the system components.

Radiometric measurement

For radiometric measurement, please read and observe the associated documentation.

> Detailed information on the FMG60 compact transmitters:
>
> Detailed information on the FQG source container and the FSG radiation generator: https://www.endress.com

13   Accessories

Various accessories are available for the system, and can be ordered with the system or at a later stage from Endress+Hauser. Detailed information on the order code in question is available from your local Endress+Hauser Sales Center or on the product page of the Endress+Hauser website: www.endress.com.

13.1   Other accessories

Field Xpert SMT70
- For easy device configuration
- For the visualization (VNC client) of the Profile Vision Compact application
- Product Configurator on the product page: www.endress.com/smt70

14 Technical data

14.1 Technical data

For detailed information on the "technical data": see the Technical Information for Profile Vision System SPV350 → 🕮 7

www.addresses.endress.com

Endress+Hauser

People for Process Automation