

Brief Operating Instructions

Profile Vision Compact SPV350

Interface and density profile measurement in separation vessels



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1 About this document











These Brief Operating Instructions describe how to commission the Profile Vision Compact SPV350 in conjunction with the documents listed.

1.1 Symbols used







1.1.1 Safety symbols

Symbol	Meaning
	DANGER! This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
	WARNING! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
	CAUTION! This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	NOTE! This symbol contains information on procedures and other facts which do not result in personal injury.

1.1.2 Symbols for certain types of information

Symbol	Meaning	Symbol	Meaning
	Permitted Procedures, processes or actions that are permitted.		Preferred Procedures, processes or actions that are preferred.
	Forbidden Procedures, processes or actions that are forbidden.		Tip Indicates additional information.
	Reference to documentation		Reference to page
	Reference to graphic		Series of steps
	Result of a step		Visual inspection

1.1.3 Electrical symbols

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

1.2 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>

1.3 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
PA	Process Automation (PROFIBUS PA)
PLC	Programmable Logic Controller (PLC)

Acronyms	Meaning
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)

1.4 Valid versions

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

1.5 Documentation

Profile Vision Compact SPV350

- Technical Information TI01410S/00/EN
- Operating Instructions BA01903S/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.

1.6 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

Personnel must meet the following requirements to perform its tasks:

- ▶ 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.

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: →  5

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 →  5



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.



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.

2.5 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.

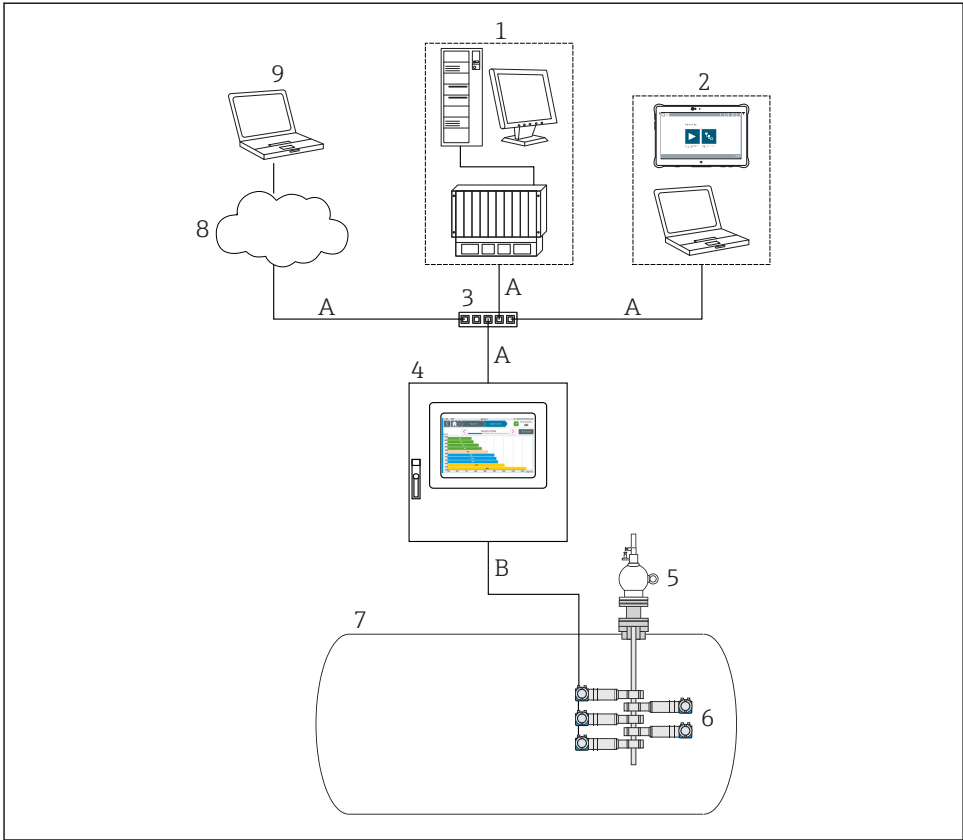


The operator is responsible for data backup.

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



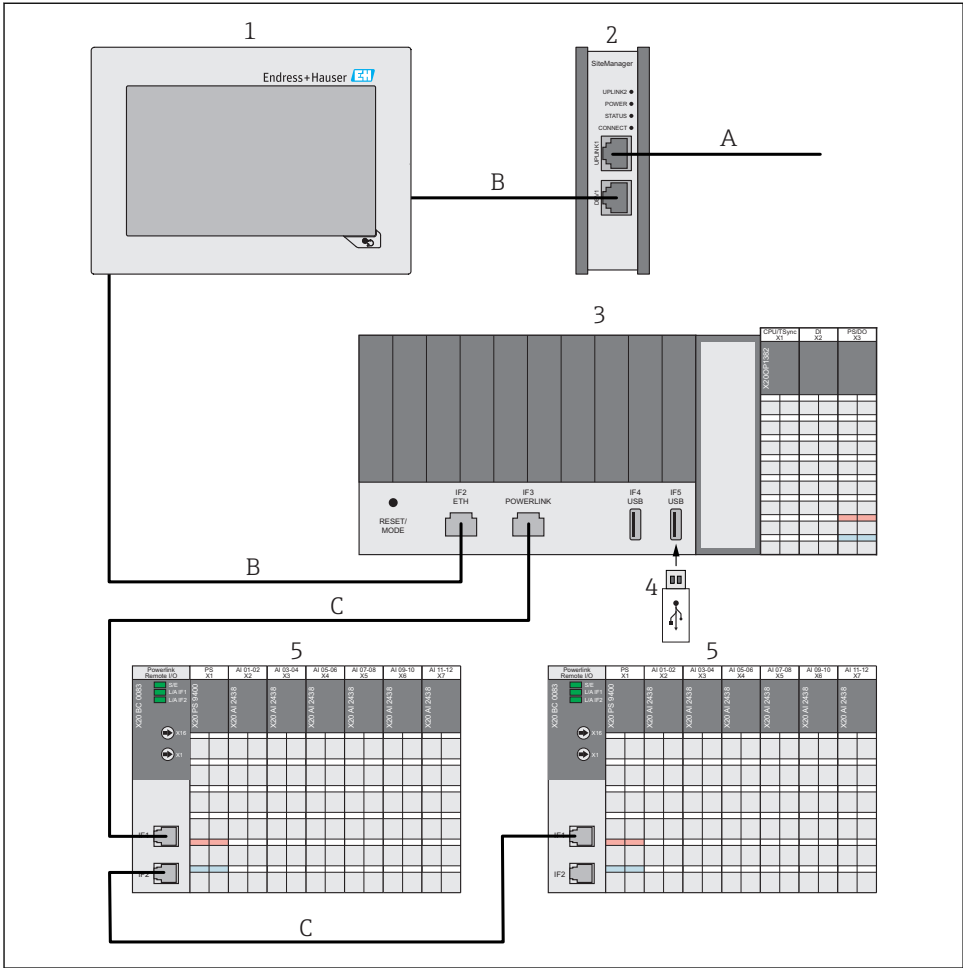
The following components are not included in the delivery:

- 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 <ul style="list-style-type: none"> ■ 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

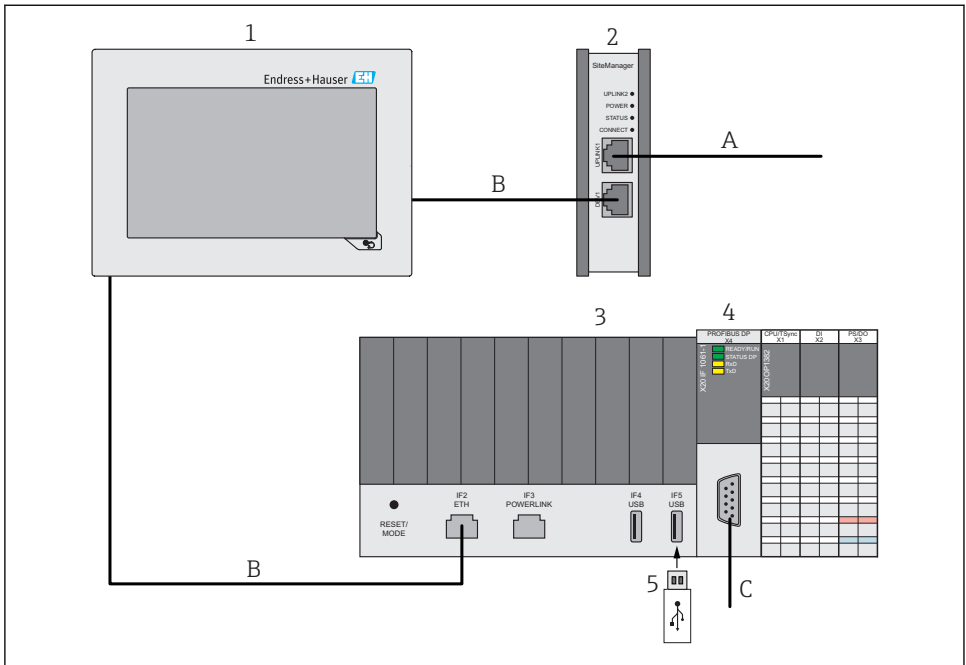
3.2.2 Structure of Profile Vision Compact SPV350 for 4 to 20 mA devices



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

 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.
- Retain all the accompanying documents.

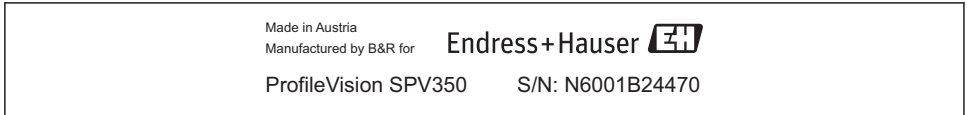
The system may not be put into operation if the contents are found to be damaged beforehand. Contact your Endress+Hauser Sales Center if this happens. Return the device to Endress+Hauser in the original packaging where possible.

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.



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 °C (32 to 104 °F).
- 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

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

5.2 Post-installation check

Are the mounted components undamaged (visual inspection)?	<input type="checkbox"/>
Do all the components meet the required specifications? For example: <ul style="list-style-type: none"> ▪ Ambient temperature range ▪ Humidity ▪ Explosion protection 	<input type="checkbox"/>
Are the measuring point identification and labeling correct (visual inspection)?	<input type="checkbox"/>

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 °C (9 °F) 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
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

PS/DO		X3	
DC	E		
1	2		
3	4		
5	6		
7	8		
9	10		
11	12		
13	14		
DO 01	DO 02		
11	21		
DO 03	DO 04		
12	22		
DO 05	DO 06		
13	23		
DO 07	DO 08		
14	24		
15	25		
16	26		
+24V	+24V		
17	27		
GND	GND		
18	28		

 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

PS		X1	
r	e		
X20 PS 9400			
11	21		
12	22		
13	23		
14	24		
+24V	+24V		
15	25		
GND	GND		
16	26		

 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 (-)

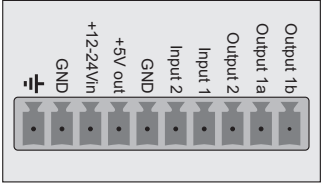

24 V DC power supply for IOs

- 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

 <p>A terminal block with eight terminals. From left to right, they are labeled: GND (with a ground symbol), +12-24Vin, +5V out, GND, Input 2, Input 1, Output 2, Output 1a, Output 1b.</p>	<p>24 V DC power supply</p> <ul style="list-style-type: none">Terminal +12-24Vin: +Terminal GND: -
<p> 6 <i>Connection of gateway supply voltage</i></p>	

Supply voltage for 7" touch display

 <p>A grey terminal block with two terminals labeled 1 and 2. Terminal 1 has an orange cover, and terminal 2 has a black cover.</p>	<p>24 V DC power supply</p> <ul style="list-style-type: none">Terminal 1: +Terminal 2: -
<p> 7 <i>Connection of supply voltage for 7" touch display</i></p>	

6.2.4 Connection of digital outputs

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

PS/DO	
X3	
DC	E
1	2
3	4
5	6
7	8
9	10
11	12
13	14
DO 01	DO 02
11	21
DO 03	DO 04
12	22
DO 05	DO 06
13	23
DO 07	DO 08
14	24
15	25
16	26
+24V	+24V
17	27
GND	GND
18	28

24 V DC (+)

24 V DC (-)

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

DI X2		
1	2	
3	4	
5	6	
7	8	
9	10	
11	12	
13	14	
DI 01	DI 02	
11	21	
DI 01	DI 02	
12	22	
DI 03	DI 04	
13	23	
DI 05	DI 06	
14	24	
DI 07	DI 08	
15	25	
DI 10	DI 12	
16	26	
DI 13	DI 14	
17	27	
18	28	

24 V DC (+)

24 V DC (-)

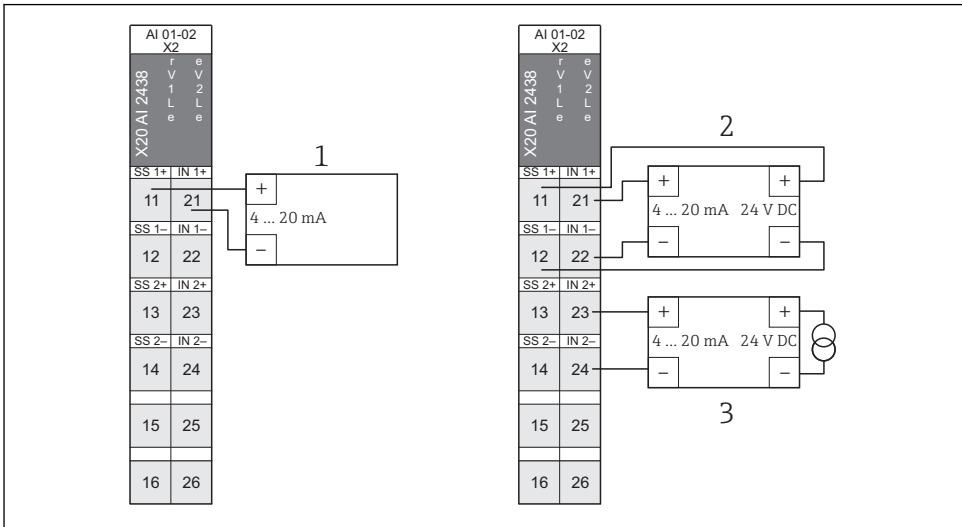
9 *Connection example for DI 02*

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

6.2.6 Connection of 4 to 20 mA inputs

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



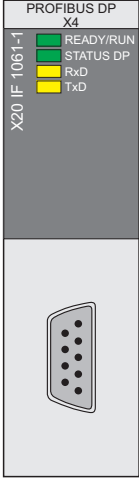
10 Connection of 4 to 20 mA inputs to remote IO assembly

- 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 \pm 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.

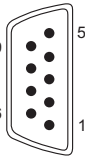
6.2.7 PROFIBUS DP connection



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 (→ 9).

- 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
	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


12 DSUB socket

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 (→ 7).

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


 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 (→  7).

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

 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) (→  7).

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

 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 →  5.

6.4 Post-connection check

Are the system, devices and cables undamaged (visual check)?	<input type="checkbox"/>
Do the cables comply with the requirements?	<input type="checkbox"/>
Do the installed cables have adequate strain relief?	<input type="checkbox"/>
Does the supply voltage match the specifications on the nameplate?	<input type="checkbox"/>
Is the terminal assignment correct?	<input type="checkbox"/>

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: →  14
- 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 →  12.



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.

 For detailed information on the individual steps, see Operating Instructions BA01903S

8.3 Configuring the compact transmitters



- ▶ Configure the compact transmitters as described in the relevant transmitter documentation.

 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 →  5

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 →  5

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