



Installation Guide SmartRadar FlexLine

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1 GENERAL

1.1 Using this Installation Guide

For use in measurement systems for inventory measurement and control. The SmartRadar Flexline can integrate data from other measurement devices, such as temperature RTD sensors.

Data from Radar and connected sensors can be communicated to host computer systems via a variety of industry standard protocols.

1.2 Related Documents

- SmartRadar FlexLine Safety instructions for installation, commissioning, operation, and maintenance; shipped with the device
- Installation Guide SmartRadar Antennas
- CE Declaration of Conformity
- EC-Type Examination Certificate
- IEC-Ex Certificate of Conformity
- FCC Authorization
- Control drawings for FM and CSA

1.3 Trademarks

HART[®] is a registered trademark of the HART Communication Foundation.

1.4 Contact

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2 SAFETY

2.1 General


The SmartRadar FlexLine is a radar-based level gauge to be used in inventory measurement systems. It can also be used to interface with other systems and sensors such as temperature gauges.

For the correct and safe installing of this product, it is essential that all personnel follow generally accepted safety procedures in addition to the safety precautions specified in this document.

2.2 Safety Conventions


2.2.1 Warnings

Following warning mark is used within this document to urge attention in order **to prevent personal injuries** or dangerous situations, further described within this document.

Symbol	Description	Remark
	General warning	Will always be explained by text.

2.2.2 Cautions

Following caution mark is used within this document to urge attention in order **to prevent damages to the equipment** further described within this document.

Symbol	Description	Remark
	General caution sign	Will always be explained by text.

2.3 Safety Instructions

2.3.1 Safety Instructions

See the safety instructions shipped with the device for installation, commissioning, operation, and maintenance.

2.3.2 EC Declaration of Conformity (for EU)

See the EC declaration of conformity shipped with the device.

2.3.3 Control Drawings for FM & CSA

See the control drawings shipped with the device.

2.3.4 Users

The mechanical and electrical installation must be carried out only by trained personnel with knowledge of the requirements for installation of explosion-proof equipment in hazardous areas.

The entire installation procedure must be carried out in accordance with national, local, and company regulations.

The entire electrical installation shall be carried out in accordance with the national requirements for electrical equipment to be installed in hazardous areas.



NOTE:

See EN IEC 60079-14 or NEC (NFPA70).

2.3.5 Additional Information

If you require additional information, contact Honeywell Enraf or its representative.

2.3.6 Environmental Conditions

Observe the environmental conditions for the temperature and the pressure. See *Chapter 5 - Technical Data*.

2.4 Liability

The information in this installation guide is the copyright property of Honeywell Enraf, The Netherlands.

Honeywell Enraf disclaims any responsibility for personal injury or damage to equipment caused by:

- Deviation from any of the prescribed procedures.
- Execution of activities that are not prescribed.
- Neglect of the safety regulations for handling tools and use of electricity.

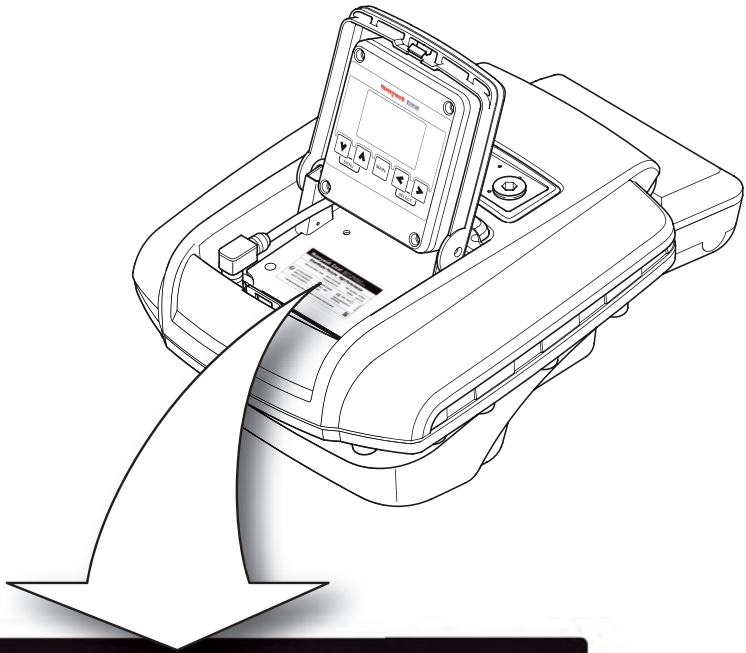
The contents, descriptions and specifications in this Service Manual are subject to change without notice. Honeywell Enraf accepts no responsibility for any errors that may appear in this Installation Guide.



WARNING!

Only certified technicians are authorized to make changes on the SmartRadar configuration. All modifications must be in accordance to the guidelines as set forth by Honeywell Enraf. Modifications not authorized by Honeywell Enraf will invalidate the approval certificates.

2.5 Labels







Honeywell Enraf		Enraf B.V. Delftechpark 39 2628 XJ Delft The Netherlands	
SmartRadar FlexLine High Performance			
Sales code: RXIVB---F0830	Serial nr.: 990-99-999	Input: 65-240Vac	24-65Vdc
	Test date: 2008-10-10	50/60Hz	max. 23 VA
 II 1/2 G Ex d [Ia] IIB T6	IECEX KEM 07 0003X	 0344 / 1656 	20774181-03
KEMA 07 ATEX 0010 X	Ta : - 40°C to + 65°C	Refer to certificate for i.s. terminations	
Zone 0/1 Ex d [Ia] IIB T6	IP66 / IP67		
warning do not open when an explosive atmosphere may be present			

FIG. 2-1 Identification label (example)

2.6 Personal Safety



WARNING!

In hazardous areas it is compulsory to use personal protection and safety gear. This can be:

- safety helmet
- fire-resistive overall
- safety shoes
- safety glasses
- working gloves
- LEL-meter

Pay attention to the kind of product in the tank. If there is any danger for your health, wear a gas mask and take all necessary precautions.



WARNING!

Take appropriate precautions when chemical or toxic product vapours are present (compressed air, chemical protection suit, detection equipment).



NOTE:

The emitted microwave energy is far below the accepted limits for exposure to the human body. The antenna generates a maximum radiation of 0.1 mW/cm².

2.7 Warnings and Cautions

2.7.1 General



WARNING!

Make sure all power to the device is switched OFF before you open the covers of the device. Failure to do so may cause danger to persons or damage the equipment. All covers of the device must be closed before switching the power on again.

**WARNING!**

Treat the flange surface of the cover and the housing with care. Keep the flange surface free of dirt. The O-ring must be present and undamaged.

2.7.2 Tools**WARNING!**

Use non-sparking tools and explosion-proof testers. Use suitable explosion-proof tools (e.g. testing devices)!

2.7.3 Working Environment**WARNING!**

Avoid generation of static electricity. Make sure that no explosive gas mixtures build up in the working area.

2.7.4 Required Skills**WARNING!**

The technician must have technical skills to be able to safely install the equipment. The technician also must be trained to work in accordance with the national requirements for electrical equipment in hazardous areas.

2.8 Electrical**2.8.1 IEC Safety Standards**

- The entire electrical installation must be in accordance with the international standard EN IEC 60079-14 for electrical equipment in hazardous areas or the NEC (NFPA70) requirements.

- The stopping plugs, cable glands, and reducers must be installed in accordance with appropriate IP requirements.
- Use explosion proof (Ex-d) compound barrier glands (due >2 litres IIB) in case of use without SmartConn (Ex-e junction box).
- Use increased safe (Ex-e) cable glands in case a SmartConn box is used.
- Improper installation of cable glands, conduits or stopping plugs will invalidate the Ex approval of this device.

2.8.2 Grounding



WARNING!

Make sure the housing of the device is properly connected to the ground reference! Make sure the electrical resistance of the ground connection is below the maximum prescribed by local requirements!

2.9 Accordance to Regulations

2.9.1 Device without SmartConn

Protection type	Certificate numbers
ATEX / IEC Ex / CSA	<ul style="list-style-type: none"> • SmartRadar FlexLine: KEMA 07ATEX0010X and IECEX KEM 07.0003 X • SmartView: KEMA 07ATEX0011X and IECEX KEM 07.0004 X • SmartConn: KEMA 07ATEX0093 and IECEX KEM 07.0031 • Without SmartView: Ex d [ia] T6 Ta: -40 °C - +65 °C • With SmartView: Ex d [ia] ia T4 Ta: -25 °C - +65 °C
FM	<ul style="list-style-type: none"> • Without SmartView: Class I DIV I group C,D T6 NEMA 4X Ta: -40 °C - +65 °C • With SmartView: Class I DIV I group C,D T4 NEMA 4X Ta: -25 °C - +65 °C
CSA	<ul style="list-style-type: none"> • Without SmartView: Class I DIV I group C,D T6 NEMA 4X Ta: -40 °C - +65 °C. • With SmartView: Class I DIV I group C,D T4 NEMA 4X Ta: -25 °C - +65 °C.

2.9.2 Device with SmartConn

Protection type	Certificate numbers
ATEX / IEC Ex / CSA	<ul style="list-style-type: none"> • Without SmartView: Ex de [ia] T6 Ta: -40 °C - +65 °C • With SmartView: Ex de [ia] ia T4 Ta: -25 °C - +65 °C

2.10 Compliance to FCC, R&TTE

This device complies with EN 302372 of the R&TTE Directive and Part 15 of the FCC Rules. The device does not cause harmful interference and accepts any interference received.



WARNING!

Changes or modifications made to this equipment not approved by Honeywell Enraf invalidate the R&TTE/FCC authorization to operate this equipment.



CAUTION!

This equipment has been tested. It complies with a Field disturbance sensor device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and radiates radio frequency energy. If this device is not installed and used in accordance with the instructions, it can cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.



NOTE:

This device is certified to measure liquid levels in metal, concrete or similar materials, enclosed tanks.

**NOTE:**

The radiated output power of the device is far below the exposure limits. Nevertheless, use the device in such a manner that the potential for human contact during normal operation is minimal.

2.10.1 EN 302372-1, ANNEX B

The following installation requirements shall be fulfilled:

- 1 SmartRadar FlexLine instruments are required to be installed at a permanent fixed position at a closed (not open) metallic tank or reinforced concrete tank, or similar enclosure structure made of comparable attenuating material.
- 2 Flanges and attachments of the radar equipment shall provide the necessary microwave sealing by design.
- 3 Sight glasses shall be coated with a microwave proof coating when necessary (i.e. electrically conductive coating).
- 4 Manholes or connection flanges at the tank shall be closed to ensure a low-level leakage of the signal into the air outside the tank.
- 5 Whenever possible, mounting of the radar equipment shall be on top of the tank structure with the orientation of the antenna to pointing in a downward direction.
- 6 Installation and maintenance of the radar equipment shall be performed by professionally trained individuals only.

3 PRODUCT DESCRIPTION

3.1 SmartRadar System Components

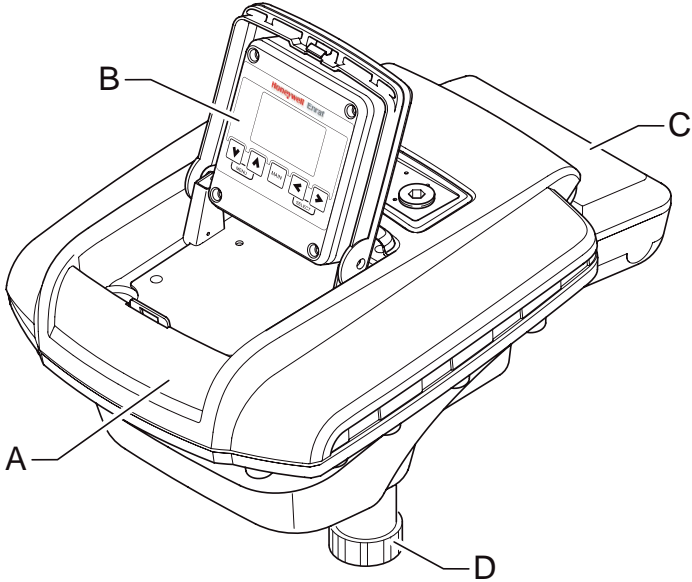


FIG. 3-1 System components

The device has following system components (see figure above):

	Description
A	SmartRadar FlexLine with separator coupling to radar antenna
B	SmartView (optional)
C	SmartConn (optional)
D	Antenna connection (see antenna installation guide)

3.2 SmartRadar FlexLine

3.2.1 Function

The SmartRadar Flexline is the core component. It provides the level measurement, integrates optional sensor data and communicates via the fieldbus to the host computer system.

3.2.2 Components

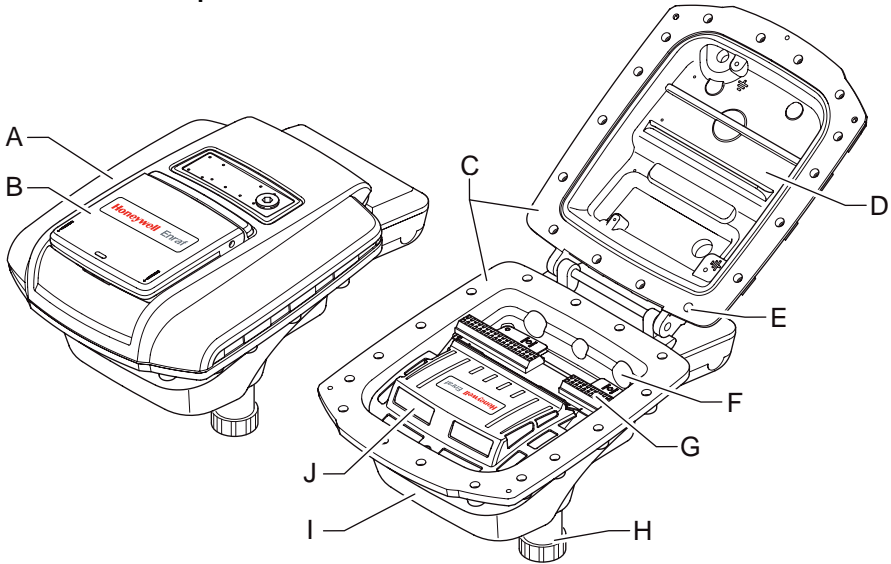


FIG. 3-2 General view and components of the FlexConn box (FCB)

Description (see FIG. 3-2)	
A	Top cover
B	Display cover
C	FlexConn box and FlexConn cover flange
D	FlexConn cover
E	Bolts with reduced shank (turn into thread when closing the cover)
F	Cable entry
G	Connection terminals with identification labels

	Description (see FIG. 3-2)
H	Separator coupling (connection between antenna and SmartRadar Flex-Line)
I	FlexConn box
J	Inner cover (do not open, do not touch), tampering label

3.3 SmartView

3.3.1 Function

The SmartView display can be part of the device. You can install it as stand alone version as well. In this case it is placed in a larger housing. Refer to the display installation guide.

3.4 SmartConn

3.4.1 Function

SmartConn is an optional Ex-e junction box and is only certified for ATEX, IEC Ex and CSA. It simplifies the external connection of the device and provides additional cable entries.

3.4.2 Components

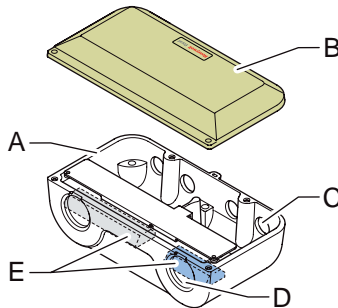


FIG. 3-3 Optional Ex-e junction box components

	Description
A	Enclosure
B	Cover
C	Cable entry M20 (4x)(optional = 6x)
D	Connection to FlexConn box
E	Terminals for intrinsic safe and non-intrinsic safe connections

3.5 Configurations

The device has several possible configurations. They can differ in:

- Measurement accuracy
- Allowed process temperature ranges
- Chemical compatibility
- Allowed tank pressure
- Weights and Measurements (W&M) approval
- Explosion safety approvals
- Optional features like SmartView (Display) and SmartConn (junction box)
- Allowed process temperature (Gas temperature)

4 INSTALLATION

4.1 Safety



WARNING!

Make sure the power to the device is switched OFF, before you open the cover of the device.



CAUTION!

Do not make any additional holes in the housing. Do not incorporate rotating machines or other devices, which create turbulence inside the FlexConn box.



WARNING!

Always clean the FlexConn box flange, when you open or before you close the housing.

4.2 Receipt

- Open the box
- Make sure the following items are in the box:
 - The device
 - Safety instruction
 - Declaration of conformity
 - Installation guide
- Inspect the package upon arrival. Make sure the items are not damaged. Contact your local representative or Honeywell Enraf in the event of damage.



NOTE:

Do not throw away the packaging. The packaging is necessary for further transport on site. The packaging is necessary if the device is returned for service or warranty.

4.3 Storage

4.3.1 Storage of Uninstalled Devices

Keep the device in its original packing during storage. Keep the device indoors during storage.

Ambient conditions	
Temperature	-50 to +85 °C (SmartView -30 to +85 °C)
Humidity	20 to 90%

4.3.2 Storage of Installed Devices

If you do not use an installed device for a longer period, we recommend not to disconnect the mains connection line. If this is not possible, put some moisture-absorbing material (e.g. silica gel) into the electronic compartment, and store the device in a closed plastic bag.

4.4 Before Installation

Make sure following conditions are met:

- The antenna- and tank separator are already installed on the tank (see SmartRadar Antennas installation guide).
- The top cover of the device can open without obstruction.
For required distances for installation, see FIG. 4-1.

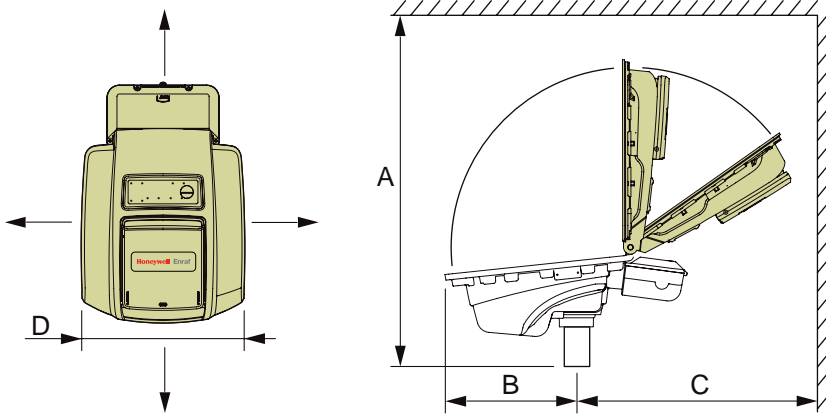


FIG. 4-1 Distances to installed device (see table below)

	mm	inches
A	550	21.7
B	260	10.2
C	430	16.9
D	300	11.8

Device weight = 16.3 kg (36 lbs)

4.5 Installation Overview

Installation of the SmartRadar requires the following steps:

- 1 Mechanical installation of the device on the tank separator.
- 2 Preparations for connection
- 3 Installing the compound glands and conduits
- 4 Electrical connection
- 5 Finishing installation

These steps are further explained in the following sections.

4.6 Mechanical Installation

4.6.1 Connect SmartRadar to Tank Separator

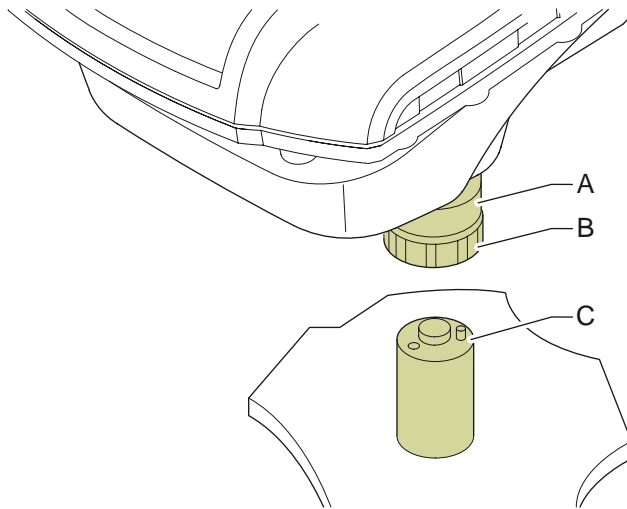


FIG. 4-2 Separator coupling (A) and tank separator (C)

- Place device separator coupling (A) on tank separator (C). Make sure the pin of the separator coupling fits into the corresponding opening of the tank separator.
- Turn ring (B) clockwise to fasten the device. Fasten ring hand tight.

4.7 Preparations for Installation with SmartConn

4.7.1 Open Cover of SmartConn

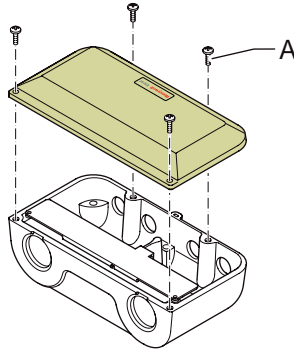


FIG. 4-3 SmartConn box

- Loosen the 4 bolts (A) of the cover. Use an Allen key (4 mm).
- Remove cover.

4.8 Preparations for Installation without SmartConn

4.8.1 Remove Top Cover

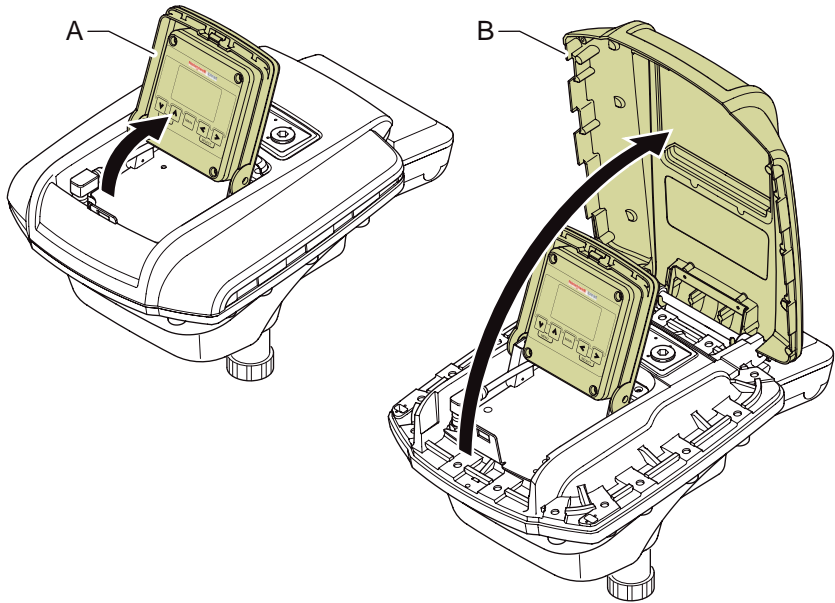


FIG. 4-4 Removing the top cover

- Open display cover (A)
- Move up top cover (B) at the front
- Remove top cover

4.8.2 Open the Cover

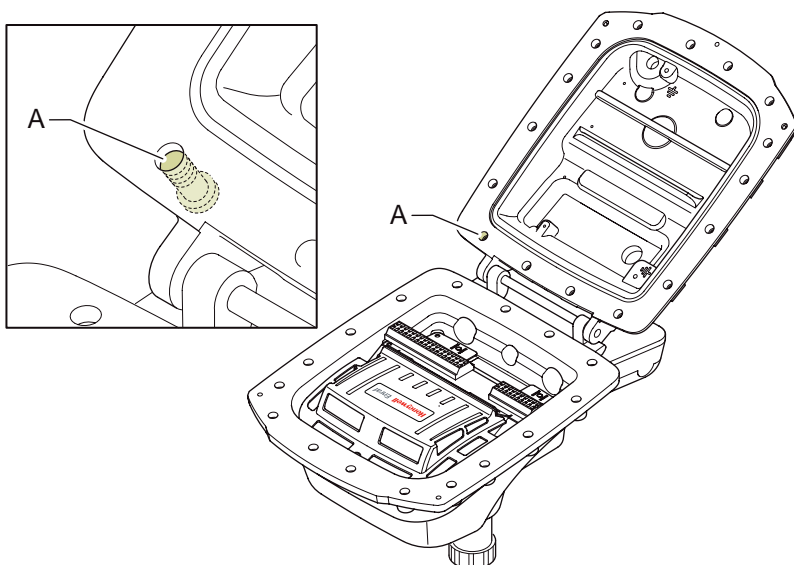


FIG. 4-5 Opening the cover of the device

- Loosen the 16 bolts of the cover. Use an Allen key (8 mm).



CAUTION!

Make sure the 4 bolts (A) at the side of the hinge are entirely screwed into the cover and do not protrude beyond the flange of the cover. Otherwise the flange of the housing can be damaged when closing the cover, and this will invalidate the Ex certificate!

- Open cover

4.9 Installing the Cable Glands and Stopping Plugs with SmartConn



CAUTION!

Only use Ex-e or flameproof certified materials of an appropriate IP value.



CAUTION!

Improper installation of cable glands or stopping plugs will invalidate the Ex approval of the SmartRadar.

4.9.1 Cable Glands

- Use increased safe (Ex-e) M20 cable glands with an appropriate IP value.

See the type plate on the device.



NOTE:

Install the cable glands according to the instructions provided by the manufacturer.

4.9.2 Unused Cable Inlets

- Seal unused cable inlets with approved threaded stopping plugs.

4.10 Installing the Compound Glands, Conduits, and Stopping Plugs without SmartConn

Depending on local regulations, this device can be cabled by using compound glands, direct entry, or conduits.



CAUTION!

Only use Ex-d certified materials of an appropriate IP value.

**CAUTION!**

Improper installation of cable glands, conduits, or stopping plugs will invalidate the Ex approval of the SmartRadar.

**NOTE:**

Only for use in ATEX and IEC Ex approved installations.

4.10.1 Compound Glands

- Use explosion proof (Ex-d) compound glands with an appropriate IP value.

**NOTE:**

Install the compound glands according to the instructions provided by the manufacturer.

4.10.2 Conduits

- Use explosion proof (Ex-d) conduits with an appropriate IP value. See the type plate on the device.

**WARNING!**

If the SmartRadar is installed in a hazardous area:

- *Metal conduits must be used, size 3/4".*
- *Stopper boxes must be installed within 45 cm (18") of the device to seal the cabling in the conduit.*

**NOTE:**

Install the conduits according to the instructions provided by the manufacturer.

4.10.3 Unused Cable Inlets

- Seal unused cable inlets with approved 3/4" threaded stopping plugs.

4.11 Electrical Connection



CAUTION!

Cables must always comply with the defined cable specifications.



CAUTION!

- *Minimum incoming wire cross section should be at least 0.2 mm² and may consist of a single-, fine- or multi-wire. With the use of wire with a cross section between ≥ 0.2 mm² and < 0.5 mm², the maximum current I [A] should be reduced to a maximum of I = 0.55 A.*
- *With a minimum wire cross section of ≥ 0.5 mm² the maximum current I should not be higher than 3 A and may consist of a single-, fine- or multi-wire.*



NOTE:

The field cabling entering the SmartConn box must be as short as possible.



NOTE:

Depending on the ambient temperature classification the cables must be suitable for $T_a > 70^\circ\text{C}$.

4.11.1 Grounding

The SmartRadar housing must be properly grounded to the ground reference (generally the tank), according to local regulations. This is a safety grounding requirement.



WARNING!

When measuring the ground resistance, use a suitable instrument that is approved for use in hazardous areas.



WARNING!

Safety depends on proper grounding. Check the resistance of the ground connection directly after installation. The measured ground resistance must be below the maximum prescribed by local and/or national grounding requirements.

4.11.2 Introduction



WARNING!

The intrinsically safe options have been certified for use in hazardous areas. Make sure that the certificate of approval is available on site and act in accordance with the instructions as given in the certificate.



WARNING!

Intrinsically safe wiring must be separated from all other wiring. The cable lay-out must be in accordance with local and/or national regulations.



NOTE:

Connect the armoring of the cable externally in the cable gland at both ends of the cable.

◆ Location

The terminal compartment is located at the rear, inside of the device (see FIG. 4-7). If there is a SmartConn present, you use the terminals of the SmartConn (see FIG. 4-6). These terminals are numbered identical to the terminal compartment in the device.

◆ Connections

The intrinsically safe cabling must enter at the gland (C) only. This entry is marked "Ex-i". See FIG. 4-6. Blue marked cables are recommended for the intrinsically safe options.

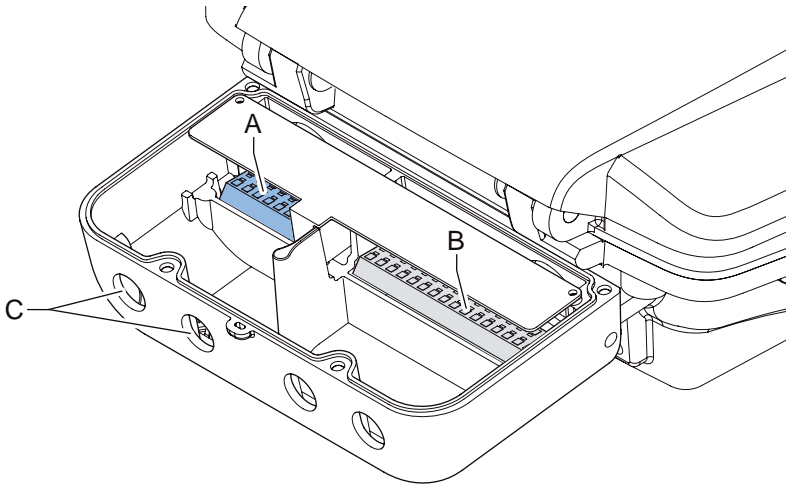


FIG. 4-6 Ex-i entry with SmartConn

	Description
A	Blue terminals, for intrinsically safe connections
B	Grey terminals, for non-intrinsically safe connections
C	Glands for intrinsically safe cabling only

**NOTE:**

The SmartConn box is also available with 6 cable entries.

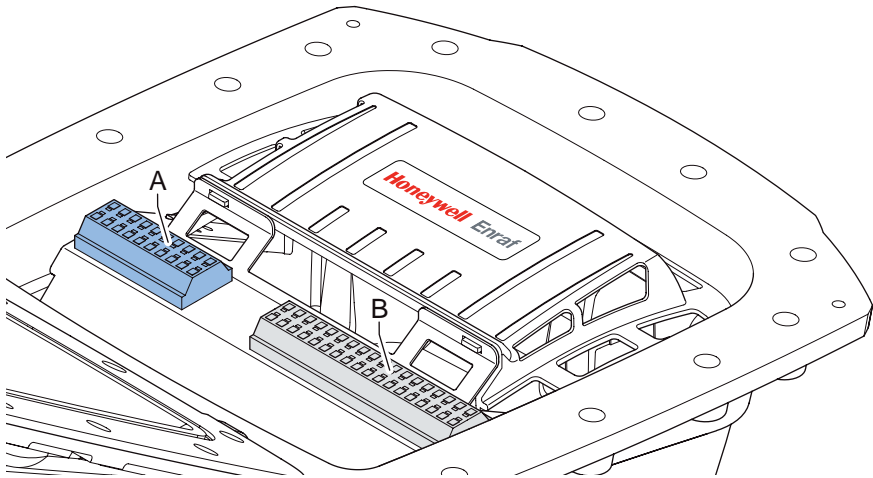
◆ Terminals

FIG. 4-7 Terminal layout without SmartConn

The terminal compartment is divided into two zones:

- Blue terminals (A), for intrinsically safe connections, such as HART, VITO and SmartView.
- Grey terminals (B), for non-intrinsically safe connections.

The indices of the terminals are variable. For each option there are indices on the terminal row. They are specified in a label attached in front of the terminal row, as is schematically indicated in figure 4.8.

The terminals for the power supply are standard.

Some terminal contacts can be double labelled. In this case the white text on black label is the first option for connection. The black text on white label is the second option for connection.

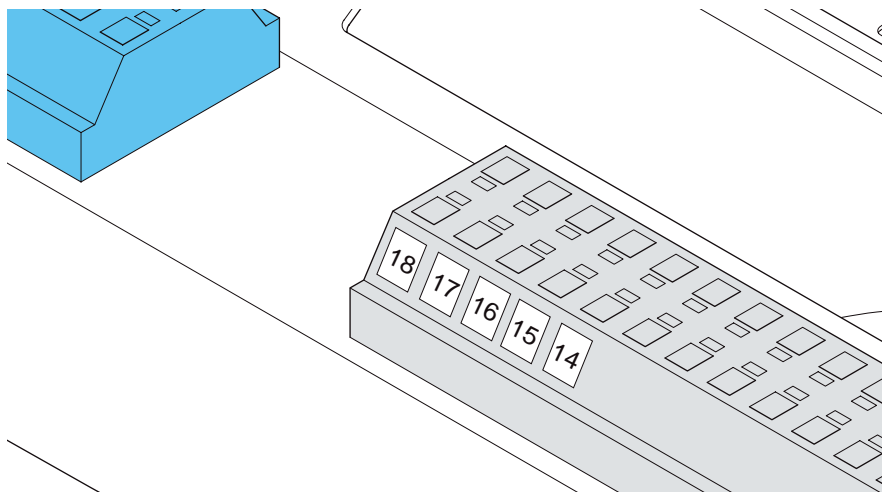


FIG. 4-8 Terminal labelling

◆ General Procedure

- Connect the wiring to the terminals with the numbers as shown in the tables in the following sections.

4.11.3 Non-intrinsically Safe Connections

The non-intrinsically safe connections are connected to the grey wiring terminal.

If local and or national regulations allow, the power supply, Enraf fieldbus, and hardware relay outputs may be combined into one, unshielded, cable.

A separate cable may also be used for each.

◆ Power Supply

- Connect the power supply to either:
 - DC: 24 - 65 Volt
 - AC: 65 - 240 Volt



NOTE:

The DC polarity is not critical.



NOTE:

Install an explosion proof mains switch in the mains cable to the SmartRadar.

Cable specifications

Type	Suitable for the SmartRadar power rating, and approved for use in hazardous areas
------	---

Label	Parameters
00. Vin-a/L	24-65 Vdc -15/+10% 65-240 Vac -15/+10%
01. Vin-b/N	50/60 Hz \pm 10% Automatic selection

◆ Enraf Fieldbus (BiPhase Mark)

Cable specifications

Type	Twisted pair; $R_{\max} = 200 \text{ Ohm /line}$, $C_{\max} = 1 \text{ }\mu\text{F}$.
Maximum length	10 km

Label	Parameters
06. TL1	1200/2400/4800 bps
07. TL2	Selection by software

Topology

A maximum of 10 devices can be connected to the Enraf field bus line.

For short distances up to 20 devices can be connected. This number will be specific to every situation.

◆ **Host Communication EIA 485**

Cable specifications	
Type	Twisted pair, shielded
Maximum length	1200 meter



NOTE:

If necessary the 'common' of the EIA 485 may be connected to the ground GND_ISO.

Label	Parameters
11. 485A	1k2/2k4/4k8/9k6/19k2/38k4 bps Selection by software
12. 485B	
13. GND_ISO	

Topology

Up to 31 gauges can be connected to one EIA 485 Host communication. The gauges are connected in parallel, as described in figure 4.9.

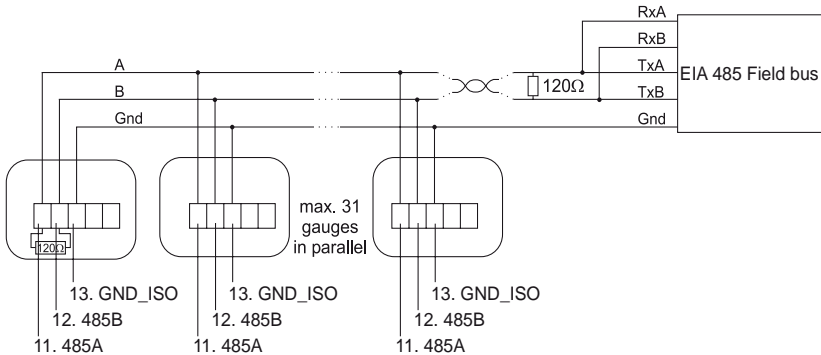


FIG. 4-9 EIA 485 topology

◆ **Host Communication EIA 232**

Cable specifications	
Type	Shielded
Maximum length	15 meter

Label	Parameters
08. 232RX	38k4/19k2/9k6/4k8/2k4/1k2 bps Selection by software
09. 232TX	
10. GND_ISO	

Topology

EIA 232 Host communication is for point-to-point communication. One gauge can be connected per host.

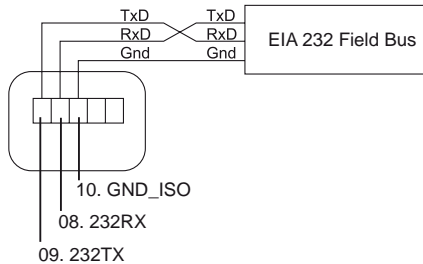


FIG. 4-10 EIA 232 topology

◆ **Hardware Relay Outputs**

The hardware relay outputs can be used as an alarm signal or to operate a remote device.

The signals corresponding with the terminal labels are programmed during commissioning.

Cable specifications	
Type	Approved for use in hazardous areas and suitable for the specified power rating.

Label	Parameters
14. Ry1_a	Vmax = 125 Vac, Imax = 0.5 A Vmax = 110 Vdc, Imax = 0.3 A Pmax = 30 W NO/NC by factory jumper
15. Ry1_b	
16. Ry2_a	Vmax = 125 Vac, Imax = 0.5 A Vmax = 110 Vdc, Imax = 0.3 A Pmax = 30 W NO/NC by factory jumper (default = NO)
17. Ry2_b	
18. Ry3_a	Vmax = 250 Vac, Imax = 3 A Vmax = 40 Vdc, Imax = 3 A Pmax = 750 W NO/NC by factory jumper
19. Ry3_b	
20. Ry4_a	Vmax = 250 Vac, Imax = 3 A Vmax = 40 Vdc, Imax = 3 A Pmax = 750 W NO/NC by factory jumper
21. Ry4_b	

4.11.4 Intrinsically Safe Connections

The intrinsically safe connections are connected to the blue wiring terminal.

◆ VITO

For temperature and water bottom measurement.

Cable specifications	
Type	Twisted pair, shielded. $R_{\max} = 25 \Omega / \text{line}$
Maximum length	1000 meter

Label	Parameters
22. V_Loop	[Ex ia] IIB $U_o = 23.1 \text{ V}$ $I_o = 124 \text{ mA}$ $P_o = 0.6 \text{ W}$ $C_o = 1.0 \mu\text{F}$ $L_o = 9 \text{ mH}$
23. GND_Loop	

Topology

Only one device can be connected to the VITO connection.

◆ **HART**

Cable specifications	
Type	Twisted pair, shielded. $R_{\max} = 25 \Omega / \text{line}$
Maximum length	1000 meter

Label	Parameters
24. V_Loop	[Ex ia] IIB
25. GND_Loop	$U_o = 23.1 \text{ V}$ $I_o = 124 \text{ mA}$ $P_o = 0.6 \text{ W}$ $C_o = 1.0 \mu\text{F}$ $L_o = 9 \text{ mH}$

Topology

A maximum of 5 devices can be connected to the HART connection.

**CAUTION!**

*Before connecting the HART devices:
Make sure the sum of the start-up currents fits the parameters.*

◆ **Stand-alone SmartView Display**

The labelling on the wiring terminal in the SmartView is identical to the labelling in the SmartRadar.

Cable specifications	
Type	4-wire, shielded
Maximum length	50 meter

Label	Parameters
26. SGND	[Ex ia] IIB
27. Vsafe_+	$U_o = 14.2 \text{ V}$
28. Safe_A	$I_o = 522 \text{ mA}$
29. Safe_B	$P_o = 1.7 \text{ W}$
	$C_o = 2.18 \text{ } \mu\text{F}$
	$L_o = 0.25 \text{ mH}$

4.12 Finishing Installation *with* SmartConn



CAUTION!

Make sure the separation between intrinsic and non intrinsic cabling is sufficient and complies with any local and/or national regulations.

- Replace the cover on the SmartConn.
- Tighten the 4 bolts of the cover. Use an Allen key (4 mm).

The installation is now completed.

4.13 Finishing Installation *without* SmartConn



WARNING!

Tighten all bolts with a torque of 30 Nm (711 ft-lbf) to prevent danger of explosion!



CAUTION!

Always clean the flange of the housing and the cover, before you close the cover.

4.13.1 Close the Cover of the Device



WARNING!

Make sure the flange of the housing is clean and the O-ring is not damaged before closing the cover.

- Close the cover. Make sure that the cover does not squeeze any cables inside the housing.
- Tighten the 16 bolts of the cover. Tighten the bolts crosswise. Use an Allen key (8mm).

4.13.2 Replace the Top Cover

- Open the display cover.
- Place the 2 hooks at the rear of the top cover behind the axis of the cover.
- Push down the top cover carefully.

The installation is now completed.

5 TECHNICAL DATA

5.1 Weight and Dimensions

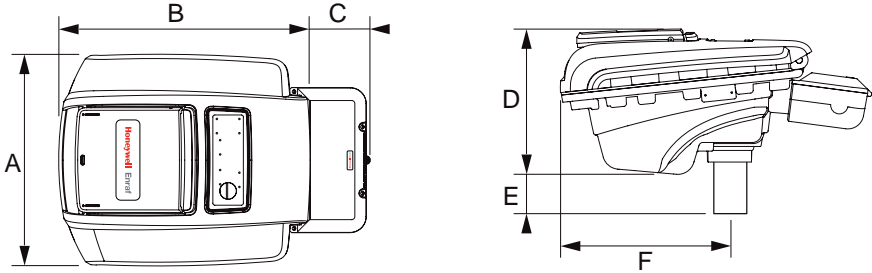


FIG. 5-1 SmartRadar and SmartConn dimensions

	mm	inches
A	300	11.82
B	330	12.99
C	90	3.54
D	220	8.66
E	70	2.76
F	260	10.24

Weight = 13.6 kg (36 lbs).

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