

RADAR LEVEL GAUGE SPECIAL SAFETY INSTRUCTION



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European Union Directive Information

TANKRADAR PRO EUROPEAN ATEX DIRECTIVE INFORMATION

This document lists specific requirements which have to be fulfilled to secure a safe installation and use of TankRadar Pro in a hazardous area. Omission may jeopardize safety, and Rosemount Tank Radar AB will not take any responsibility if requirements as listed below are not fulfilled.

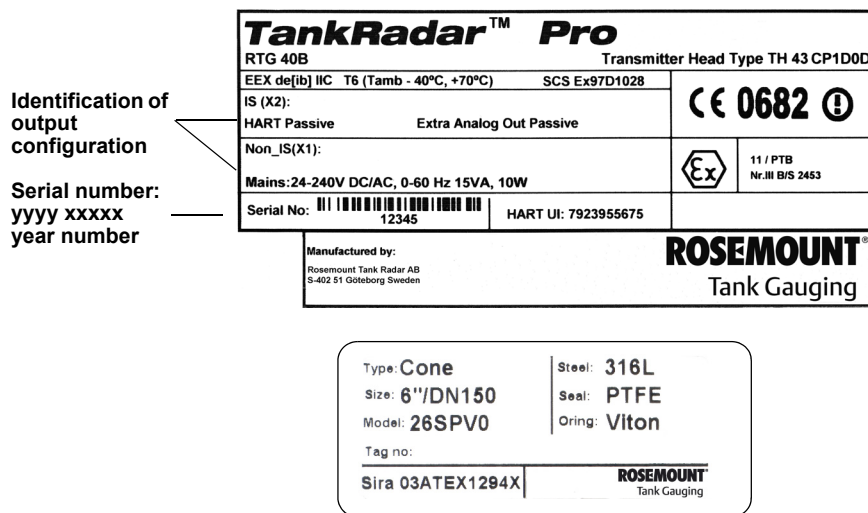


Figure 1-1. Approval labels for the TankRadar Pro Radar Unit and antenna.

ATEX marking and Ex Certification code

ATEX marking	Safety coding	Outputs
II 1/2 G	EEx de IIC T6 (-40° to +70°C)	Non-Intrinsically Safe (Non-IS) Primary and/or Secondary outputs
II (2) (1) 1/2 G	EEx de [ib] [ia] IIC T6 (-40° to +70°C)	IS Display output. IS Primary output, and/or IS Secondary output
II (1) 1/2 G	EEx de [ia] IIC T6 (-40° to +70°C)	IS Display output. Non-IS Primary output

Intrinsically safe (IS) entity parameters

The unit can be equipped with various types of outputs, each type of IS configuration has specific entity parameters. The output configuration is shown on the main label of each unit.

- Passive analog output 4-20 mA, Label identification = HART passive
Voltage compliance 7-30 V, $U_i < 30$ V, $I_i < 200$ mA, $P_i < 1.3$ W, $C_i = 0$ μ F, $L_i = 0$ mH
- Active analog output 4-20 mA, Label identification = HART active
Max load 300 Ω , $U_o = 23.1$ V, $I_o = 125.7$ mA, $P_o = 0.726$ W, $C_{ext} < 0.14$ μ F, $L_{ext} < 2.2$ mH
- FOUNDATION[™] fieldbus, Label identification = FOUNDATION[™] fieldbus
 $U_i < 30$ V, $I_i < 300$ mA, $P_i < 1.3$ W, $C_i = 0$ μ F, $L_i = 0$ mH

Special Safety Instruction

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TankRadar[®] PRO

Instructions specific to hazardous area installations

The TankRadar Pro has been certified to comply with Directive 94/9/EC of the European Parliament and the Council as published in the Official Journal of the European Communities No. L 100/1.

The following instructions apply to equipment covered by certificate numbers Sira03ATEX1294X:

1. The equipment may be used with flammable gases and vapours with apparatus Group IIC.
2. The Transmitter Head is certified for installation in a category 1 (cat 1) area and for use in ambient temperatures in the range of -40°C to +70°C and should not be used outside this temperature range.
3. The antenna including tank seal is designed to be mounted across the boundary between a cat 1 and cat 2 area. There are various cat 1 areas within the range from -40°C to +400°C, -1 to 55 bar that can be considered. It is the responsibility of the user to select the appropriate antenna including tank seal to match the tank process conditions, see table below. Antenna type, size and tank seal material can be found on the antenna label.

Antenna Type	Size	Tank Seal Material	Temperature range	Pressure range (linear interpolation between breakpoints)
Cone Pipe Pipe ITG	All	PTFE	-40 to +200°C	-1 to 10 bar @ -40°C -1 to 10 bar @ 100°C -1 to 5 bar @ 200°C
Cone Pipe Pipe ITG	All	Quartz	-40 to +400°C	-1 to 55 bar
Cone/purging	All	PTFE	-40 to +200°C	-1 to 10 bar
Cone/purging	All	Quartz	-40 to +400°C	-1 to 10 bar
Process seal	4" / DN100	PTFE	-40 to +150°C	-1 to 5 bar @ -40°C 0 bar @ +150°C
Process seal	6" / DN150	PTFE	-40 to +150°C	-1 to 2 bar @ -40°C 0 bar @ +150°C
Process seal	4" / DN100	Ceramic	-40 to +400°C	-1 to 16 bar
Process seal	6" / DN150	Ceramic	-40 to +400°C	-1 to 6 bar
Rod	All	PTFE	-40 to +200°C	-1 to 35 bar @ -40°C -1 to 35 bar @ 100°C -1 to 25 bar @ 101°C -1 to 25 bar @ 200°C
Rod100 Rod250	All	PTFE	-40 to +200°C	25 bar @ -40°C 25 bar @ 100°C 16 bar @ 200°C
Parabolic	18" / Welded	PTFE	-40 to +230°C	-1 to 10 bar
Parabolic	18" / Clamped	PTFE	-40 to +230°C	-0.5 to 0.5 bar

4. The product must be installed by suitably trained personnel and carried out in accordance with all appropriate international, national and local standard codes of practice and site regulations for intrinsically safe apparatus and in accordance with the instructions contained within this manual.
5. Repair of this equipment shall be carried out by the manufacturer or in

- accordance with the applicable code of practice.
6. All externally connected intrinsically safe apparatus must comply with the specified IS entity parameters.
 7. The Flameproof/Explosionproof enclosure may not be opened while energized.
 8. The certificate marking is detailed on drawing numbers 9150076-931 and 9150076-932.
 9. The certificate has special conditions for safe use associated with it, denoted by the X on the end of the certificate no., which must be observed when the equipment is installed.
 10. If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection is not compromised.

Aggressive substances - e.g. solvents that may affect polymeric materials

Suitable precautions - e.g. regular checks as part of routine inspections or establishing from the material's data sheet that it is resistant to specific chemicals

Special Conditions for Safe Use (X)

1. As alloys may be used as the enclosure (or other parts) material and be at the accessible surface of this equipment, in the event of rare incidents, ignition sources due to impact and friction sparks could occur. This shall be considered when the equipment is being installed in locations that specifically require group II, category 1G equipment.
2. Under certain extreme circumstances, the non-metallic parts of the equipment may be capable of generating an ignition-capable level of electrostatic charge. Therefore, when used for applications that specifically require group II, category 1 equipment, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. Additionally, the equipment non-metallic parts shall only be cleaned with a damp cloth.

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TankRadar® PRO

2210 DISPLAY UNIT EUROPEAN ATEX DIRECTIVE INFORMATION

The 2210 Display Unit can be installed as a remote mounted local readout unit for Rosemount TankRadar Pro or be factory mounted attached directly to the Radar Transmitter Head enclosure. The remote version has an optional I/O terminal card TP40 for temperature measurement.

The 2210 Display Unit is certified to comply with Directive 94/9/EC of the European Parliament and the Council as published in the Official Journal of the European Communities No. L 100/1.

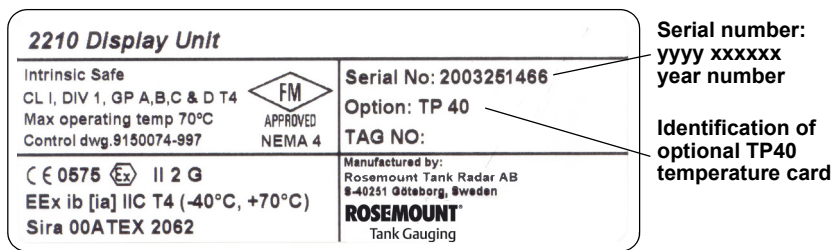


Figure 1-2. Approval label for the 2210 Display Unit.

ATEX marking and Ex Certification code

Intrinsically safe (IS) entity parameters

2210 DU without TP40: Ex II 2 G EEx ib IIC T4 (Ta = -40°C to +70°C)

2210 DU including TP40: Ex II 2 (1) G EEx ib ia IIC T4 (Ta = -40°C to +70°C)

- Connector X2: $U_i = 12\text{V}$, $I_i = 400\text{mA}$, $P_i = 0.7\text{W}$
- Optional TP40, connector X17 and X18: $U_o = 5.88\text{V}$, $I_o = 172.4\text{mA}$, $P_o = 0.253\text{W}$

The capacitance or either the inductance or the inductance to resistance (L/R) ratio of the cable connected to the connectors X17 and X18 must not exceed the following values:

Gas group	Capacitance μF	Inductance μH	or	L/R ratio $\mu\text{H}/\text{Ohm}$
IIC	43	0.7		140
IIB	1000	5.2		560
IIA	1000	10		1120

Instructions specific to hazardous area installations

The following instructions apply to equipment covered by certificate number Sira 00ATEX2062:

1. The equipment may be used with flammable gases and vapours with apparatus groups IIC, IIB and IIA and with temperature classes T1, T2, T3 and T4.
2. The equipment is only certified for use in ambient temperatures in the range -40°C to +70°C and should not be used outside this range.
3. Installation shall be carried out in accordance with the applicable code of practice.
4. Repair of this equipment shall be carried out in accordance with the applicable code of practice.
5. Certification marking as detailed in drawing numbers 9150 074-980 and 9150 074-981.

SYMBOLS

The following symbols can be found on the TankRadar Pro and 2210 Display Unit.



The CE marking symbolises the conformity of the product with the applicable Community requirements.



The device uses non-harmonized radio frequencies.



The Ex Certificate is a statement of an independent Certification Body declaring that this product meets the requirement of the applicable European Intrinsic Safety directives.



Protective Earth



Ground



Power Supply



The FM symbol indicates that the marked equipment is certified by FM - Factory Mutual Research Corporation according to FMRC standards and are applicable for installation in hazardous locations.



External cabling must be approved for use in min. 75°C.

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