Product Certifications
00880-0100-4418, Rev AD
December 2023

Rosemount™ 3408 Level Transmitter

Non-Contacting Radar

ROSEMOUNT™

EMERSON.

1 Product certifications

Rev 0.39

1.1 European directive information

A copy of the EU Declaration of Conformity can be found in the end of the document. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com/Rosemount.

1.2 Safety Instrumented Systems (SIS)

SIL 3 Capable: IEC 61508 certified for use in safety instrumented systems up to SIL 3 (Minimum requirement of single use (1oo1) for SIL 2 and redundant use (1oo2) for SIL 3).

1.3 Ordinary location certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

1.4 Environmental conditions

Table 1-1: Environmental Conditions (Ordinary Location and Low Voltage Directive (LVD))

Type	Description
Location	Indoor or outdoor use
Maximum altitude	6562 ft. (2000 m)
Ambient temperature	-67 to +185 °F (-55 to +85 °C)
Installation category	DC supplied
Electrical supply	12-35 Vdc, 1 W
Mains supply voltage fluctuations	Safe at 12-35 Vdc ±10%
Pollution degree	2

1.5 Telecommunication compliance

Measurement principle

Frequency Modulated Continuous Wave (FMCW), 80 GHz

Maximum output power

+5 dBm (3.2 mW)

Frequency range

77.25 to 80.96 GHz

(76-77 GHz in applicable countries, contact Emerson for details.)

LPR (Level Probing Radar) equipment are devices for measurement of level in the open air or in a closed space. Valid for ATAP lens antenna (code SCA). Hardware Version Identification Number (HVIN) is 3408L1 or 3408LB1 (without or with Bluetooth®).

TLPR (Tank Level Probing Radar) equipment are devices for measurement of level in a closed space only (i.e metallic, concrete or reinforced fiberglass tanks, or similar enclosure structures made of comparable attenuating material). Hardware Version Identification Number (HVIN) is 3408T1 or 3408TB1 (without or with Bluetooth).

1.6 FCC

Note: This equipment has been tested and found to comply with the limits for a Class B digital 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 equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC ID K8C3408L or K8C3408LB (LPR, without or with Bluetooth®)
K8C3408T or K8C3408TB (TLPR, without or with Bluetooth)

1.7 IC

This device complies with Industry Canada's license-exempt RSS standard. Operation is subject to the following conditions:

1. This device may not cause interference.
2. This device must accept any interference received, including interference that may cause undesired operation.
3. The installation of the LPR/TLPR device shall be done by trained installers in strict compliance with the manufacturer's instructions.
4. The use of this device is on a "no-interference, no-protection" basis. That is, the user shall accept operations of high-powered radar in the same frequency band which may interfere with or damage this device. However, devices found to interfere with primary licensing operations will be required to be removed at the user's expense.
5. Devices operating under TLPR conditions (i.e. not operating in "Open Air" Mode) shall be installed and operated in a completely enclosed container to prevent RF emissions, which can otherwise interfere with aeronautical navigation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage.
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.
3. L'installation d'un dispositif LPR ou TLPR doit être effectuée par des installateurs qualifiés, en pleine conformité avec les instructions du fabricant.
4. Ce dispositif ne peut être exploité qu'en régime de non-brouillage et de non-protection, c'est-à-dire que l'utilisateur doit accepter que des radars de haute puissance de la même bande de fréquences puissent brouiller ce dispositif ou même l'endommager. D'autre part, les capteurs de niveau qui perturbent une exploitation autorisée par licence de fonctionnement principal doivent être enlevés aux frais de leur utilisateur.
5. Un dispositif visé comme TLPR doit être installé et exploité dans un réservoir entièrement fermé afin de prévenir les rayonnements RF qui pourraient autrement perturber la navigation aéronautique.

Certificate 2827A-3408L, 2827A-3408LB (LPR, without or with Bluetooth®)

2827A-3408T, 2827A-3408TB (TLPR, without or with Bluetooth)

1.8 Radio Equipment Directive (RED) 2014/53/EU

This device complies with ETSI EN 302 372 (TLPR), ETSI EN 302 729 (LPR), EN 301 489-17 and EN 300 328 (Bluetooth®), and EN 62479.

LPR (Level Probing Radar)

For a device with ATAP lens antenna (code SCA):

- Install at a separation distance of >4 km from Radio Astronomy sites, unless a special authorization has been provided by the responsible National regulatory authority (a list of Radio Astronomy sites may be found at www.craf.eu).
- Between 4 km to 40 km around any Radio Astronomy site the LPR antenna height shall not exceed 15 m height above ground.

TLPR (Tank Level Probing Radar)

The device must be installed in closed tanks. Install according to requirements in ETSI EN 302 372 (Annex E).

Performance under the influence of an interferer signal

For the receiver test that covers the influence of an interferer signal to the device, the performance criterion has at least the following level of performance according to ETSI TS 103 361.

- Performance criterion: measurement value variation Δd over time during a distance measurement
- Level of performance: $\Delta d \leq \pm 1$ mm

1.9 Radio/EMC Australia and New Zealand

Rosemount 3408 complies with the requirements of the relevant ACMA Standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997 and the relevant Standards made under The New Zealand Radio Communication Act 1989.

In New Zealand, Rosemount 3408 must be installed in closed tanks (metal, reinforced concrete tanks or similar enclosure structures made of comparable attenuating material).

1.10 Other radio approvals

1.10.1 Argentina

H-30315 (TLPR with Bluetooth®)
H-30316 (TLPR without Bluetooth)
H-30317 (LPR with Bluetooth)
H-30318 (LPR without Bluetooth)

1.10.2 Republic of Korea (Radio and EMC)

상호 또는 성명	Rosemount Tank Radar AB(RTR)
기자재 명칭	Rosemount 3408 Level Transmitter
모델명	3408TB1
인증번호	R-R-Rtr-3408
제조년월	2023. .
제조자/제조국가	Rosemount Tank Radar AB(RTR)/스웨덴, 싱가포르, 미국

1.10.3 Singapore

Complies with
IMDA standards
DA100927

1.10.4 Thailand

This telecommunication equipment conforms to NTC technical requirements.

1.11 Installing equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

1.12 USA

1.12.1 E5 Explosion-proof, Dust Ignition-proof

Certificate	FM21US0116X
Standards	FM Class 3600 – 2022, FM Class 3615 – 2022, FM Class 3616 – 2022, FM Class 3810 – 2021, ANSI/ISA 60079-0 – 2020, ANSI/UL 60079-1 – 2015, ANSI/UL

60079-26 – 2017, ANSI/ISA 60079-31 – 2015, ANSI/UL 121201:2019, ANSI/UL 61010-1:2018, UL50E:2015, ANSI/IEC 60529:2018, UL122701 Ed 3

Markings

CL I, DIV 1, GRPS A, B, C, D T6...T2

CL II/III, DIV 1, GRPS E, F, G; T6...T2

CL I Zone 0/1 AEx db IIC T6...T2 Ga/Gb

Zone 20/21 AEx tb IIIC T_{200}85°C...T_{200}250°C Da/Db

(-50°C ≤ Ta ≤ +70°C)(1), IP6X

SINGLE SEAL

Specific Conditions of Use (X):

1. Flamepath joints are not for repair. Contact the manufacturer.
2. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
3. Appropriate cable, glands, and plugs need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
4. The Transmitter can be installed in the boundary wall between a Zone 0 and Zone 1 area. Refer to Control Drawing D7000006-887.
5. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP6X rating. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
6. Install per Control drawing D7000006-887.
7. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
8. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
9. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

(1) Other temperature ranges may apply, see Specific Conditions of Use (X).

Table 1-2: For Divisions:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Division Gas groups:		
T2	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +200 °C
T3	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +195 °C
T4	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +130 °C
T5	-50 °C ≤ Ta ≤ +70 °C	-50°C to +95°C
T6	-50 °C ≤ Ta ≤ +70 °C	-50°C to +80°C
Division Dust groups:		
T2	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +200 °C
T3	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +160 °C
T4	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +130 °C
T5	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +95 °C
T6	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +80 °C

Table 1-3: For Zones:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Zone Gas groups:		
T2	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +200 °C
T3	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +195 °C
T4	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +130 °C
T5	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +95 °C
T6	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +80 °C
Zone Dust groups:		
T250°C	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +200 °C
T200°C	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +195 °C
T135°C	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +130 °C
T100°C	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +95 °C
T85°C	-50 °C ≤ Ta ≤ +70 °C	-50 °C to +80 °C

1.12.2 I5 Intrinsic Safety, Non-Incendive

Certificate FM21US0116X

Standards FM Class 3600:2022, FM Class 3610:2021, FM Class 3611:2021, FM Class 3810:2021, ANSI/ISA 60079-0:2020, ANSI/UL 60079-7:2021, ANSI/UL 60079-11:2018, ANSI/UL 60079-26:2017, ANSI/UL 121201:2019, ANSI/UL 61010-1:2018, UL50E:2015, ANSI/IEC 60529:2014, UL122701 Ed 3.

Markings IS CL I DIV 1, GRPS A, B, C, D T4...T2
IS CL II, III DIV 1, GRPS E, F, G T6...T2
NI CL I, II, III DIV 2, GRPS A, B, C, D, F, G T4...T2
CL I Zone 0 AEx ia IIC T4...T2 Ga
CL I Zone 0/1 AEx ib IIC T4...T2 Ga/Gb
Zone 20 AEx ia IIIC T_{200}85°C...T_{200}250°C Da
Zone 20/21 AEx ib IIIC T_{200}85°C...T_{200}250°C Da/Db
-55 °C ≤ Ta ≤ +70°C, IP6X
When installed per Control Drawing D7000006-887
SINGLE SEAL

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. The Transmitter can be installed in the boundary wall between a Zone 0 and Zone 1 area. In this configuration, the process connection is installed in Zone 0, while the transmitter housing is installed in Zone 1. Refer to Control Drawing D7000006-887.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the

specific installation. Once the type of protection has been marked it shall not be changed.

4. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
5. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Table 1-4: For Divisions:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Division Gas groups:		
T2	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Division Dust groups:		
T2	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +160 °C
T4	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +130 °C
T5 (for Div 1 only)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T6 (for Div 1 only)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

Table 1-5: For Zones:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Zone Gas groups:		
T2	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Zone Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.12.3 N5 Type Ex ec: Increased Safety

Certificate FM21US0116X

Standards ANSI/UL 60079-0:2020, ANSI/UL 60079-7:2021, ANSI/IEC 60529:2014, UL 122701 Ed. 3, ANSI/UL 121201:2019

Markings CL I Zone 2 AEx ec IIC T4...T2 Gc
(-55°C ≤ Ta ≤ +70°C) IP65
V≤35V, I≤22.5 mA
SINGLE SEAL

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.

3. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
4. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class	Ambient temperature range	Process temperature range
T2	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C

1.13 Canada

1.13.1 E6 Explosion-proof, Dust Ignition-proof

Certificate FM21CA0083X

Standards C22.2 No. 0.4-17, C22.2 No. 25-17, C22.2 No.30-2020, CSA C22.2 No. 61010.1:2017+A2018, CAN/CSA C22.2 No. 60079-0:2019, C22.2 No. 60079-1:2016 Ed. 3, CSA C22.2 No. 60079-26:2016, CSA C22.2 No. 60079-21:2015, CSA C22.2 No. 60529:2016, CSA C22.2 No. 60079-40:2020

Markings CL I, DIV 1, GRPS A-D T6...T2
CL II/III, DIV 1, GRPS E-G; T6...T2
Ex db IIC T6...T2 Ga/Gb
Ex tb IIIC T_{200}85 °C...T_{200}250°C Da/Db
(-55°C ≤ Ta ≤ +70°C)(2), IP6X
SINGLE SEAL

Specific Conditions of Use (X):

1. Flamepath joints are not for repair. Contact the manufacturer.
2. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
3. Appropriate cable, glands, and plugs need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.

(2) *Other temperature ranges may apply, see Specific Conditions of Use (X).*

4. Metric Field Wiring Entries are not allowed for Divisions.
5. The Transmitter can be installed in the boundary wall between a Zone 0 and Zone 1 area. Refer to Control Drawing D7000006-887.
6. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP6X rating. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
7. Install per Control Drawing D7000006-887.
8. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
9. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
10. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Table 1-6: For Divisions:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Division Gas groups:		
T2	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T5	-55 °C ≤ Ta ≤ +70 °C	-55°C to +95°C
T6	-55 °C ≤ Ta ≤ +70 °C	-55°C to +80°C
Division Dust groups:		
T2	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +160 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T5	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T6	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

Table 1-7: For Zones:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Zone Gas groups:		
T2	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T5	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T6	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C
Zone Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.13.2 I6 Intrinsically Safe and Non-Incendive Systems

Certificate FM21CA0083X

Standards CSA C22.2 No. 0.4-17, C22.2 No. 25-17, CSA C22.2 No 213:2019, CSA C22.2 No. 61010.1:2017+A2018, CSA C22.2 No. 60079-0:2019, CSA C22.2 No. 60079-11:2014, CSA C22.2 No. 60079-26:2016, CSA C22.2 No. 60529:2016, CSA C22.2 No. 60079-40:2020, ANSI/UL 121201:2019

Markings IS CL I DIV 1, GRPS A, B, C, D T4...T2

IS CL II, III DIV 1, GRPS E, F, G T6...T2

NI CL I, II, III DIV 2, GRPS A, B, C, D, F, G T4...T2

Ex ia IIC T4...T2 Ga

Ex ib IIC T4...T2 Ga/Gb

Ex ia IIIC T_{200}85°C...T_{200}250°C Da

Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db

-55 °C ≤ Ta ≤ +70°C, IP6X

When installed per Control Drawing D7000006-887

SINGLE SEAL

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. The Transmitter can be installed in the boundary wall between a Zone 0 and Zone 1 area. In this configuration, the process connection is installed in Zone 0, while the transmitter housing is installed in Zone 1. Refer to Control Drawing D7000006-887.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
5. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Table 1-8: For Divisions:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Division Gas groups:		
T2	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Division Dust groups:		
T2	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +160 °C
T4	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +130 °C
T5 (for Div 1 only)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T6 (for Div 1 only)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

Table 1-9: For Zones:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Zone Gas groups:		
T2	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Zone Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.13.3 N6 Type Ex ec: Increased Safety

Certificate FM21CA0083X

Standards CSA C22.2 No. 60079-0:2019, CSA C22.2 No. 60079-7:2019, CSA C22.2 No. 60529:2016, CSA C22.2 No. 60079-40:2020

Markings CL I Zone 2 Ex ec IIC T4...T2 Gc
(-55°C ≤ Ta ≤ +70°C) IP65
V≤35V, I≤22.5 mA
SINGLE SEAL

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
3. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
4. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class	Ambient temperature range	Process temperature range
T2	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C

1.14 Europe

1.14.1 E1 ATEX Flameproof

Certificate FM23ATEX0001X

Standards EN IEC 60079-0:2018, EN 60079-1:2014, EN 60079-26:2015, EN 60079-31:2014

Markings ⟨Ex⟩ II 1/2G Ex db IIC T6...T2 Ga/Gb
II 2G Ex db IIC T6...T2 Gb
II 1/2D Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db, IP6X

II 2D Ex tb IIIC T_{200}85°C...T_{200}250°C Db, IP6X
-55 °C ≤ Ta ≤ +70°C

Specific Conditions of Use (X):

1. Flamepath joints are not for repair. Contact the manufacturer.
2. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
3. Appropriate cable, glands, and plugs need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
4. The Transmitter can be installed in the boundary wall between EPL Ga and EPL Gb location. Refer to Control Drawing D7000006-887.
5. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP6X. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
6. Install per Control Drawing D7000006-887.
7. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
8. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
9. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Gas groups:		
T2 (300°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T5 (100°C)	-55 °C ≤ Ta ≤ +70 °C	-40 °C to +95 °C
T6 (85°C)	-55 °C ≤ Ta ≤ +70 °C	-40 °C to +80 °C
Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.14.2 I1 ATEX Intrinsic Safety

Certificate FM23ATEX0001X

Standards EN IEC 60079-0:2018, EN 60079-11:2012

Markings Ⓔx II 1G Ex ia IIC T4...T2 Ga
II 1/2G Ex ib IIC T4...T2 Ga/Gb
II 1D Ex ia IIIC T_{200}85°C...T_{200}250°C Da
II 1/2D Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db, IP6X
-55 °C ≤ Ta ≤ +70°C

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA (Resistively limited)
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. The Transmitter can be installed in the boundary wall between EPL Ga and EPL Gb location. Refer to Control Drawing D7000006-887.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
5. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Gas groups:		
T2 (300°C)	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.14.3 N1 ATEX Type e: Increased Safety

Certificate FM23ATEX0002X

Standards EN IEC 60079-0:2018, EN 60079-7:2015+A1:2018

Markings Ⓔx II 3G Ex ec IIC T4...T2 Gc
-55°C ≤ Ta ≤ +70°C

V≤35V, I≤22.5 mA

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
3. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
4. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
T2 (300°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C

1.15 International

1.15.1 E7 IECEx Flameproof

Certificate IECEx FMG23.0001X

Standards IEC 60079-0:2018, IEC 60079-1:2014, IEC 60079-26:2021, IEC 60079-31:2022

Markings
Ex db IIC T6...T2 Ga/Gb
Ex db IIC T6...T2 Gb
Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db, IP6X
Ex tb IIIC T_{200}85°C...T_{200}250°C Db, IP6X
-55 °C ≤ Ta ≤ +70°C

Specific Conditions of Use (X):

1. Flamepath joints are not for repair. Contact the manufacturer.

2. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
3. Appropriate cable, glands, and plugs need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
4. The Transmitter can be installed in the boundary wall between EPL Ga and EPL Gb location. Refer to Control Drawing D7000006-887.
5. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP6X. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
6. Install per Control Drawing D7000006-887.
7. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
8. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
9. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Gas groups:		
T2 (300°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T5 (100°C)	-55 °C ≤ Ta ≤ +70 °C	-40 °C to +95 °C
T6 (85°C)	-55 °C ≤ Ta ≤ +70 °C	-40 °C to +80 °C
Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.15.2 I7 IECEx Intrinsic Safety

Certificate IECEx FMG23.0001X

Standards IEC 60079-0:2017, IEC 60079-11:2011, IEC 60529:2013

Markings Ex ia IIC T4...T2 Ga
Ex ib IIC T4...T2 Ga/Gb
Ex ia IIIC T_{200}85°C...T_{200}250°C Db
Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db
-55°C ≤ Ta ≤ +70°C, IP6X

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA (Resistively limited)
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. The Transmitter can be installed in the boundary wall between EPL Ga and EPL Gb location. Refer to Control Drawing D7000006-887.
3. Using the box provided on the nameplate, the User shall permanently mark the type of protection chosen for the specific installation. Once the type of protection has been marked it shall not be changed.
4. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
5. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
Gas groups:		
T2 (300°C)	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +63 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
Dust groups:		
T250°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +200 °C
T200°C	-55 °C ≤ Ta ≤ +60 °C	-55 °C to +195 °C
T135°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C
T100°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +95 °C
T85°C	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +80 °C

1.15.3 N7 IECEx Type e: Increased Safety

Certificate IECEx FMG23.0001X

Standards IEC 60079-0:2011, IEC 60079-7:2015+A1:2017

Markings Ex ec IIC T4...T2 Gc
(-55°C ≤ Ta ≤ +70°C) IP65

V≤35V, I≤22.5 mA

Specific Conditions of Use (X):

1. Plastic part of Process Seal Antenna and Non-standard paint options (paint options other than Rosemount Blue) may cause risk from Electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
2. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, the Cover shall be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
3. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
4. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

Temperature class / Maximum surface temperature	Ambient temperature range	Process temperature range
T2 (300°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +200 °C
T3 (200°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +195 °C
T4 (135°C)	-55 °C ≤ Ta ≤ +70 °C	-55 °C to +130 °C

1.16 Brazil

1.16.1 E2 Flameproof

Certificate UL-BR 23.1533X, UL-BR 23.1529X

Markings
Ex db IIC T6...T2 Ga/Gb
Ex db IIC T6...T2 Gb
Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db
Ex tb IIIC T_{200}85°C...T_{200}250°C Db
(-55 °C ≤ Ta ≤ +70°C), IP6X

Specific Conditions of Use (X):

See certificate.

1.16.2 I2 Intrinsic Safety

Certificate UL-BR 23.1533X, UL-BR 23.1529X

Markings
Ex ia IIC T4...T2 Ga
Ex ib IIC T4...T2 Ga/Gb
Ex ib IIC T4...T2 Gb
Ex ia IIIC T_{200}85°C...T_{200}250°C Db
Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db
Ex ib IIIC T_{200}85°C...T_{200}250°C Db
Ta: See Specific conditions of use (same as I7)

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

See certificate.

1.16.3 N2 Type e: Increased safety

Certificate UL-BR 23.1533X, UL-BR 23.1529X

Markings
Ex ec IIC T4...T2 Gc
(-55°C < Ta < +70°C), IP65

Specific Conditions of Use (X):

See certificate.

1.17 China

1.17.1 E3 Flameproof

Certificate NEPSI GYJ23.1070X

Standards GB/T3836.1,2,20,31-2021

Markings
Ex db IIC T6...T2 Ga/Gb
Ex db IIC T6...T2 Gb
Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db

Ex tb IIIC T_{200}85°C...T_{200}250°C Db

Specific Conditions of Use (X):

See certificate.

1.17.2 I3 Intrinsic Safety

Certificate	NEPSI GYJ23.1070X
Standards	GB/T3836.1,4,20-2021
Markings	Ex ia IIC T4...T2 Ga Ex ib IIC T4...T2 Ga/Gb Ex ib IIC T4...T2 Gb Ex ia IIIC T_{200}85°C...T_{200}250°C Da Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db Ex ib IIIC T_{200}85°C...T_{200}250°C Db

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA (Resistively limited)
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

See certificate.

1.17.3 N3 Type e: Increased safety

Certificate	NEPSI GYJ23.1070X
Standards	GB/T3836.1,3-2021
Markings	Ex ec IIC T4...T2 Gc (-55°C ≤ Ta ≤ +70°C) IP65 V≤35V, I≤22.5 mA

Specific Conditions of Use (X):

See certificate.

1.18 India

1.18.1 EW Flameproof

Certificate PESO P567643

Markings Ex db IIC T6...T2 Ga/Gb
-55 °C ≤ Ta ≤ +70°C

Specific Conditions of Use (X):

See certificate.

1.18.2 IW Intrinsic Safety

Certificate PESO P567643

Markings Ex ia IIC T4...T2 Ga
-55 °C ≤ Ta ≤ +70°C

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA (Resistively limited)
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

See certificate.

1.19 Japan

1.19.1 E4 Flameproof

Certificate CML 23JPN2487X

Markings Ex db IIC T6...T2 Ga/Gb
Ex db IIC T6...T2 Gb
Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db
Ex tb IIIC T_{200}85°C...T_{200}250°C Db
(-55 °C ≤ Ta ≤ +70°C), IP6X

Specific Conditions of Use (X):

See certificate.

1.19.2 I4 Intrinsic Safety

Certificate CML 23JPN1364X

Markings Ex ia IIC T4...T2 Ga
Ex ib IIC T4...T2 Ga/Gb
Ex ia IIIC T_{200}85°C...T_{200}250°C Db
Ex ib IIIC T_{200}85°C...T_{200}250°C Da/Db
Ta: See Specific conditions of use (same as I7)

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

See certificate.

1.19.3 N4 Type e: Increased safety

Certificate CML 23JPN2487X

Markings Ex ec IIC T4...T2 Gc
(-55°C < Ta < +70°C), IP65

Specific Conditions of Use (X):

See certificate.

1.20 Republic of Korea

1.20.1 EP Flameproof

Certificate 23-KA4BO-0474X, 23-KA4BO-0539X

Markings Ex db IIC T6...T2 Ga/Gb
Ex tb IIIC T_{200}85°C...T_{200}250°C Da/Db
Tamb = -55° to +70°C, IP6X

Specific Conditions of Use (X):

See certificate.

1.20.2 IP Intrinsic Safety

Certificate 23-KA4BO-0472X, 23-KA4BO-0473X, 23-KA4BO-0580X

Markings Ex ia IIC T4...T2 Ga
Ex ib IIC T4...T2 Ga/Gb
Ta: See Specific conditions of use (same as I7)

Safety parameter	HART®
Voltage U_i	30 V
Current I_i	133 mA
Power P_i	1.0 W
Capacitance C_i	4.9 nF
Inductance L_i	0

Specific Conditions of Use (X):

See certificate.

1.20.3 NP Type e: Increased safety

Certificate 23-KA4BO-0540X

Markings Ex ec IIC T4...T2 Gc
(-55°C < Ta < +70°C), IP65

Specific Conditions of Use (X):

See certificate.

1.21 United Arab Emirates

1.21.1 Flameproof

Certificate Q23-11-048838, Q23-11-048839, Q23-11-048840

Markings Same as IECEx (E7)

1.21.2 Intrinsic Safety

Certificate Q23-11-048838, Q23-11-048839, Q23-11-048840

Markings Same as IECEx (I7)

1.21.3 Type e: Non Sparking

Certificate Q23-11-048838, Q23-11-048839, Q23-11-048840

Markings Same as IECEx (N7)

1.22 Marine Type Approvals

1.22.1 SBS American Bureau of Shipping (ABS) Type Approval

Certificate 23-2467784-PDA

Intended Use For use on ABS Classed Vessels, Offshore Installations, High Speed Crafts and Steel Barges in accordance with the listed ABS rules and International Standards.

Note
Not to be used on open decks

1.22.2 SBV Bureau Veritas (BV) Type Approval

Certificate 74635/A0 BV

Requirements Bureau Veritas Rules for the Classification of Steel Ships/Offshore Units

EC Code 31

Application Class Notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS

1.22.3 SDN Det Norske Veritas (DNV) Type Approval

Certificate TAA00003BT

Intended Use DNV rules for classification – Ships, offshore units, and high speed and light craft

Table 1-10: Application

Location Classes	
Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	B

1.22.4 SLL Lloyd's Register (LR) Type Approval

Certificate	LR23379703TA
Application	Marine, Offshore and Industrial applications for use in environmental categories ENV1, ENV 2 and ENV 3 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1, December 2021

1.23 Functional safety

1.23.1 QT Safety-certified to IEC 61508:2010 with certificate of FMEDA data

Certificate	RTR 2106064 C001

1.24 NAMUR compliance

1.24.1 Suitable for intended use

Type tested according to NAMUR NE 95:2013, "Basic Principles of Homologation".

1.25 Overfill prevention

1.25.1 U1 Germany – WHG

Certificate	Z -65.16-626
Application	TÜV tested and approved by DIBt for overfill prevention according to the German WHG regulations.

1.25.2 Belgium – Vlarem

Certificate	AUD/35/61191725/00/NL/003
Standards	Vlarem II Chapter 5.6 Vlarem II Chapter 5.17 Vlarem II Annex 5.17.7

Figure 1-1: D7000006-887 - System Control Drawing

ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123

SYSTEM CONTROL DRAWING – ROSEMOUNT 3408 SERIES

(Table of Contents)

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON. LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (Table of Contents)
APPROVED BY	WEEK	DOC. TYPE	
EAp	2342	6	

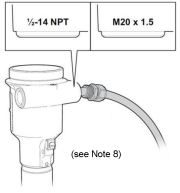
SIZE	DRAWING NO.	ISSUE
A3	D7000006-887	3

SHEET 1 OF 6

ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123

SYSTEM CONTROL DRAWING – ROSEMOUNT 3408 SERIES
GENERAL INFORMATION

1. No revision to drawing without prior FM Approval.
2. Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
3. Installations in the U.S. should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the latest edition of the National Electrical Code (ANSI/NFPA 70).
4. Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.
5. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
6. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
7. The EPL Ga (Da) partition wall is made of stainless steel and a welded fused glass/ stainless steel lens, min thickness 3 mm (not applicable for SCA antenna).
8. Thread size either ½-14 NPT or M20x1.5. Identification of thread and size on housing.



9. Additional installation requirements are found in the Quick Start Guide (doc no 00825-0100-4418) and the Product Certification Document (doc no 00880-0100-4418).
10. See table below for applicable P/T rating for different antenna types. For ambient temperature derating refer to 00880-0100-4418.

Antenna Type	Operating Temperature and Process Pressure
Process Seal Antenna (SAA)	-15 … 362 psig (-1 … 25 bar) -76… 392 °F (-60 … 200 °C)
Standard Lens Antenna (PTFE seal, SBA)	-15 … 362 psig (-1 … 25 bar) -76… 392 °F (-60 … 200 °C)
ATAP Lens Antenna (SCA)	-15 … 7 psig (-1 … 0.5 bar) -40… 176 °F (-40 … 80 °C)

11. The top of the process connection of the transmitter is approved as a SINGLE SEAL device according to UL 122701 (SCA antenna excluded) up to a maximum process pressure of 52 bar and a process temperature range of -76 … 392 °F (-60 … 200 °C). Actual process limits depends on antenna type and seal, see table above. Materials of the sealing wall are according to Note 7.

WARNING – Substitution of components may impair Intrinsic Safety.
WARNING – Potential electrostatic charging hazard, wipe with a damp cloth.
WARNING – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
AVERTISSEMENT – La substitution de composants peut compromettre la sécurité intrinsèque.
AVERTISSEMENT – Risque potentiel de charge électrostatique, essuyer avec un chiffon humide.
AVERTISSEMENT – Ne pas ouvrir en cas de presence d'atmosphere explosive.

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON
LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

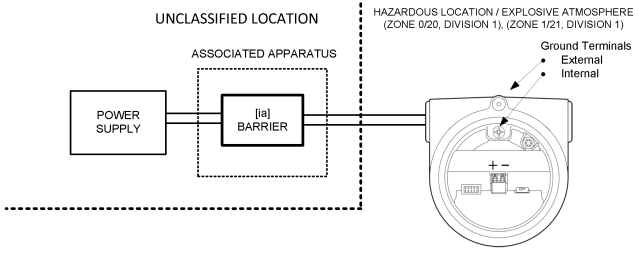
ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (General Information)
APPROVED BY	WEEK	DOC. TYPE	SIZE / DRAWING NO. / ISSUE
EAp	2342	6	A3 / D7000006-887 / 3

SHEET 2 OF 6

ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123

ENTITY CONCEPT APPROVALS

The Entity concept allows interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in combination as a system. The approved values of max. open circuit voltage (Uo, Voc or Vt) and max. short circuit current (Io, Isc or It) and max. power (Po or Voc x Isc / 4 or Vt x It / 4), for the associated apparatus must be less than or equal to the maximum safe input voltage (Ui), maximum safe input current (Ii), and maximum safe input power (Pi) of the intrinsically safe apparatus. In addition, the approved max. allowable connected capacitance (Ca or Co) of the associated apparatus must be greater than the sum of the interconnecting cable capacitance and the unprotected internal capacitance (Ci) of the intrinsically safe apparatus, and the approved max. Allowable connected inductance (La or Lo) of the associated apparatus must be greater than the sum of the interconnecting cable inductance and the unprotected internal inductance (Li) of the intrinsically safe apparatus.



Notes

1. No revision to drawing without prior FM Approval.
2. The Associated Apparatus must be FM Approved for installations in the U.S.
3. The Associated Apparatus must be Canadian Approved for Installations in Canada.
4. The Associated Apparatus must be ATEX Certified for Installations in Europe.
5. The Associated Apparatus must be IECEx Certified for IECEx installations.
6. Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. Installations in the U.S. should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the latest edition of the National Electrical Code (ANSI/NFPA 70).
8. Resistance between Intrinsically Safe Ground and earth ground must be less than 1.0 Ohm.
9. Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.
10. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
11. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
12. The Entity Concept allows interconnection of associated apparatus and intrinsically safe apparatus with when the following is true: $U_o \leq U_i$ (Vmax), $I_o \leq I_i$ (Imax), $P_o \leq P_i$ (Pmax), $C_o \leq C_i + C_{cable}$; $L_o \leq L_i + L_{cable}$.
13. For ambient temperature derating see 00880-0100-4418.

Intrinsically safe, EPL Ga Installation

	Safe Apparatus for use in:	Ambient Temperature Limits[13]
FM_{US}	IS Class I DIV 1 GP A, B, C, D T4…T2 IS Class II, III DIV 1 GP E, F, G T6…T2 CL I, Zone 0 AEx ia IIC T4…T2 Ga Zone 20 AEx ia IIIC T_{200}85°C…T_{200}250°C Da	-55°C≤Ta≤+70°C (4-20mA/HART)
FMc	IS Class I DIV 1 GP A, B, C, D T4…T2 IS Class II, III DIV 1 GP E, F, G T6…T2 Ex ia IIC T4…T2 Ga Ex ia IIIC T_{200}85°C…T_{200}250°C Da	-55°C≤Ta≤+70°C (4-20mA/HART)
ATEX	II 1G Ex ia IIC T4..T2 Ga II 1D Ex ia IIIC T_{200}85°C…T_{200}250°C Da	-55°C≤Ta≤+70°C (4-20mA/HART)
IECEx	Ex ia IIC T4..T2 Ga Ex ia IIIC T_{200}85°C…T_{200}250°C Da	-55°C≤Ta≤+70°C (4-20mA/HART)

Model	Intrinsic Entity Parameters	Note
4-20mA / HART IS	Ui (Vmax) ≤ 30V, Ii (Imax) ≤ 133 mA Pi (Pmax) ≤ 1W, Ci = 4.9 nF, Li = 0 uH	

WARNING – Substitution of components may impair Intrinsic Safety.
WARNING – Potential electrostatic charging hazard, wipe with a damp cloth.
WARNING – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
AVERTISSEMENT – La substitution de composants peut compromettre la sécurité intrinsèque.
AVERTISSEMENT – Risque potentiel de charge électrostatique, essuyer avec un chiffon humide.
AVERTISSEMENT – Ne pas ouvrir en cas de presence d'atmosphere explosive.

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON. LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (Intrinsically safe, EPL Ga installation)
APPROVED BY	WEEK	DOC. TYPE	SIZE / DRAWING NO. / ISSUE
EAp	2342	6	A3 / D7000006-887 / 3

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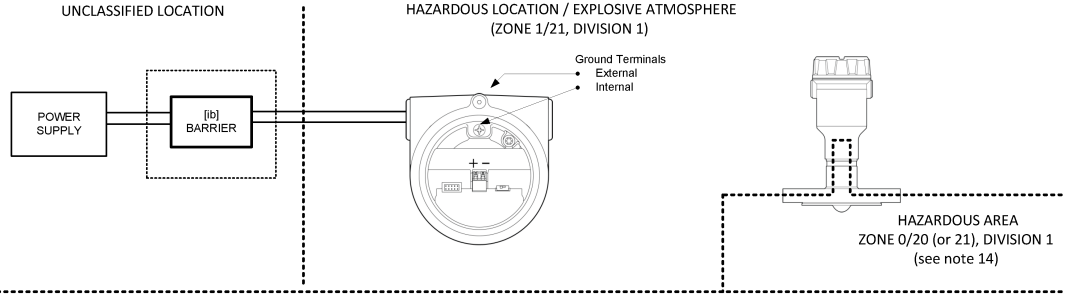
Product Certifications

ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123



Notes

1. No revision to drawing without prior FM Approval.
2. The Associated Apparatus must be FM Approved for installations in the U.S.
3. The Associated Apparatus must be Canadian Approved for Installations in Canada.
4. The Associated Apparatus must be ATEX Certified for Installations in Europe.
5. The Associated Apparatus must be IECEx Certified for IECEx installations.
6. Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. Installations in the U.S. should be in accordance with ANSI/ISA RP12.06.01 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the latest edition of the National Electrical Code (ANSI/NFPA 70).
8. Resistance between Intrinsically Safe Ground and earth ground must be less than 1.0 Ohm.
9. Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.
10. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
11. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
12. The Entity Concept allows interconnection of associated apparatus and intrinsically safe apparatus with when the following is true:
    $U_o \leq U_i$ (Vmax), $I_o \leq I_i$ (Imax), $P_o \leq P_i$ (Pmax), $C_o \leq C_i + C_{cable}$; $L_o \leq L_i + L_{cable}$.
13. Listed intrinsic safety parameters apply only to associated apparatus with linear output.
14. Applicable to SAA or SBA antennas only (not SCA)
15. For ambient temperature derating see 00880-0100-4418.

Intrinsically safe, EPL Gb or EPL Ga/Gb installations

	Safe Apparatus for use in:	Ambient Temperature Limits[15]
FM_{US}	CLASS I, Zone 0/1 AEx ib IIC T4…T2 Ga/Gb Zone 20/21 AEx ib IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)
FMc	CLASS I, Zone 0/1 Ex ib IIC T4…T2 Ga/Gb Zone 20/21 Ex ib IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)
ATEX	II 1/2G Ex ib IIC T4…T2 Ga/Gb II 1/2D Ex ib IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db II 1/2D Ex ia IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)
IECEx	Ex ib IIC T4…T2 Ga/Gb Ex ib IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db Ex ia IIIC $T_{200}85° \ldots T_{200}250°$ Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)

Model	Intrinsic Entity Parameters	Note
4-20mA / HART IS	Ui (Vmax) ≤ 30V, Ii (Imax)≤ 133 mA Pi (Pmax) ≤ 1W, Ci = 4.9 nF, Li = 0 uH	

WARNING – Substitution of components may impair Intrinsic Safety.
WARNING – Potential electrostatic charging hazard, wipe with a damp cloth.
WARNING – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
AVERTISSEMENT – La substitution de composants peut compromettre la sécurité intrinsèque.
AVERTISSEMENT – Risque potentiel de charge électrostatique, essuyer avec un chiffon humide.
AVERTISSEMENT – Ne pas ouvrir en cas de presence d'atmosphere explosive.

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON
LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (Intrinsically safe, EPL Gb installation)
APPROVED BY	WEEK	DOC. TYPE	
EAp	2342	6	

SIZE	DRAWING NO.	ISSUE
A3	D7000006-887	3

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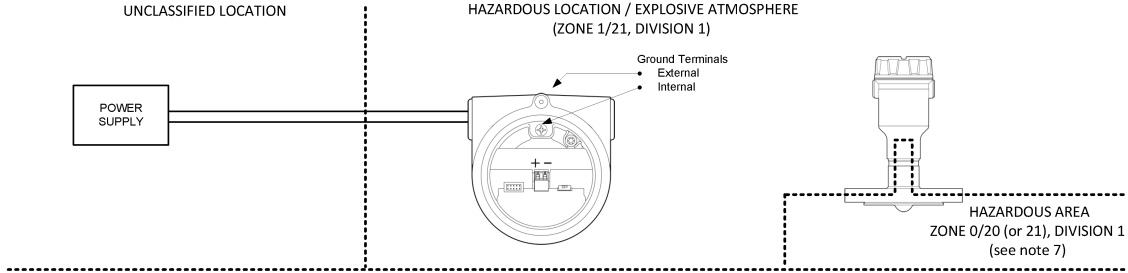
ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123



Flameproof/XP, EPL Gb installations

	Safe Apparatus for use in:	Ambient Temperature Limits[8]
FM_{US}	XP CL I, DIV 1, GRPS A, B, C, D T6…T2 DIP CLII/III, DIV 1, GRPS E, F, G; T6...T2 CL I Zone 0/1 AEx db IIC T6…T2 Ga/Gb Zone 20/21 AEx tb IIIC T_{200}85°C…T_{200}250°C Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)
FMc	XP CL I, DIV 1, GRPS A-D T6…T2 DIP CLII/III, DIV 1, GRPS E-G; T6...T2 Ex db IIC T6…T2 Ga/Gb Ex tb IIIC T_{200}85 °C…T_{200}250°C Da/Db	-55°C≤Ta≤+70°C (4-20mA/HART)
ATEX	II 1/2G Ex db IIC T6…T2 Ga/Gb II 1/2D Ex tb IIIC T_{200}85°C…T_{200}250°C Da/Db II 2G Ex db IIC T6…T2 Gb [9] II 2D Ex tb IIIC T_{200}85°C…T_{200}250°C Db [9]	-55°C≤Ta≤+70°C (4-20mA/HART)
IECEx	Ex db IIC T6…T2 Ga/Gb Ex tb IIIC T_{200}85°C…T_{200}250°C Da/Db Ex db IIC T6…T2 Gb [9] Ex tb IIIC T_{200}85°C…T_{200}250°C Db [9]	-55°C≤Ta≤+70°C (4-20mA/HART)

Model	Normal operating parameters
4-20mA / HART	U ≤ 35V, I ≤ 22.5 mA

Notes

1. No revision to drawing without prior FM Approval.
2. The control room equipment connected to associated apparatus must not generate more than 250 Vrms or Vdc.
3. Installations in the U.S. should be in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70).
4. Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.
5. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
6. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
7. Applicable to SAA or SBA antennas only (not SCA)
8. Other temperature ratings apply for Divisions and Dust, see 00880-0100-4418.
9. Not applicable for Zone 0/20.

WARNING – Potential electrostatic charging hazard, wipe with a damp cloth.
WARNING – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.
AVERTISSEMENT – Risque potentiel de charge électrostatique, essuyer avec un chiffon humide.
AVERTISSEMENT – Ne pas ouvrir en cas de presence d'atmosphere explosive.

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON. LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (Flameproof/XP, EPL Gb installation)
APPROVED BY	WEEK	DOC. TYPE	SIZE / DRAWING NO. / ISSUE
EAp	2342	6	A3 / D7000006-887 / 3

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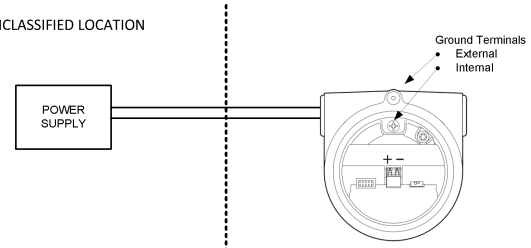
Product Certifications

ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK	ISSUE	CHANGE ORDER NO.	WEEK
3	SME-11626	2342	2	SME-11307	2244	1	SME-10618	2123



Notes

1. No revision to drawing without prior FM Approval.
2. Installations in the U.S. should be in accordance with the latest edition of the National Electrical Code (ANSI/NFPA 70).
3. Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code, Part I.
4. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
5. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
6. For ambient temperature derating see 00880-0100-4418.

Increased Safety / Non-incendive installation

	Safe Apparatus for use in:	Ambient Temperature Limits[6]
FM_{US}	NI CL I, II, III DIV 2, GP A, B, C, D, F, G T4…T2 AEx ec IIC T4…T2 Gc	-55°C ≤ Ta ≤ +70°C
FMc	NI CL I, II, III DIV 2, GP A, B, C, D, F, G T4…T2 Ex ec IIC T4…T2 Gc	-55°C ≤ Ta ≤ +70°C
ATEX	II 3G Ex ec IIC T4…T2 Gc	-55°C ≤ Ta ≤ +70°C
IECEx	Ex ec IIC T4…T2 Gc	-55°C ≤ Ta ≤ +70°C

Model	Maximum operating parameters
4-20mA / HART	U ≤ 35V, I ≤ 22.5 mA

WARNING – Do not separate when energized.
WARNING – Substitution of components may impair Intrinsic Safety.
WARNING – Potential electrostatic charging hazard, wipe with a damp cloth.
WARNING – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

AVERTISSEMENT – Ne pas séparer lorsqu'il est activé.
AVERTISSEMENT – La substitution de composants peut compromettre la sécurité intrinsèque.
AVERTISSEMENT – Risque potentiel de charge électrostatique, essuyer avec un chiffon humide.

EX APPROVED PRODUCT
No revisions to this drawing without prior Factory Mutual Approval.

D7000006-887

EMERSON
LAYOUTVÄGEN 1, S-435 33 MÖLNLYCKE, SWEDEN

ISSUED BY	WEEK	PRODUCT CODE	TITLE
EEM-LN	2342	3408	System Control Drawing Rosemount 3408 Series (Increased Safety / Non-incendive installation)
APPROVED BY	WEEK	DOC. TYPE	SIZE / DRAWING NO. / ISSUE
EAp	2342	6	A3 D7000006-887 3

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1.27 EU Declaration of Conformity

Figure 1-2: EU Declaration of Conformity

Rev. #5

EMERSON

Declaration of Conformity CE

We,

Rosemount Tank Radar AB
Layoutvägen 1
S-435 33 MÖLNLYCKE
Sweden

declare under our sole responsibility that the product,

Rosemount™ 3408 Level Transmitter

manufactured by,

Rosemount Tank Radar AB
Layoutvägen 1
S-435 33 MÖLNLYCKE
Sweden

to which this declaration relates, is in conformity with the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.

(signature)	Sr. Manager Product Approvals (function)
Dajana Prastalo (name)	28-Nov-23; Mölnlycke (date of issue & place)

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Declaration of Conformity CE

EMC Directive (2014/30/EU)

Harmonized Standards: EN 61326-1:2013
Other Standards Used: IEC 61326-1:2020

ATEX Directive (2014/34/EU)

FM23ATEX0001X - Intrinsic Safety (HART@4-20mA)

Equipment Group II, Category 1G, Ex ia IIC T4…T2 Ga
Equipment Group II, Category 1/2G, Ex ib IIC T4…T2 Ga/Gb
Equipment Group II, Category 2D, Ex ia IIIC T20085°C...T200250°C Db
Equipment Group II, Category 1/2D, Ex ib IIIC T20085°C...T200250°C Da/Db
Equipment Group II, Category 1/2G, Ex db IIC T6…T2 Ga/Gb
Equipment Group II, Category 2G, Ex db IIC T6…T2 Gb
Equipment Group II, Category 1/2D, Ex tb IIIC T20085°C...T200250°C Da/Db
Equipment Group II, Category 2D, Ex tb IIIC T20085°C...T200250°C Db

Harmonized Standards:
EN IEC 60079-0:2018
EN 60079-1:2014
EN 60079-11:2012
EN 60079-26:2015
EN 60079-31:2014

FM23ATEX0002X - Increased Safety (Hart@4-20mA)

Equipment Group II, Category 3G, Ex ec IIC T4..T2 Gc

Harmonized Standards:
EN IEC 60079-0:2018
EN 60079-7:2015 +A1:2018

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Declaration of Conformity CE

Radio Equipment Directive (RED) (2014/35/EU)

Harmonized Standards:
ETSI EN 302 372 V2.1.1
ETSI EN 302 729 V2.1.1
ETSI EN 300 328 V2.2.2
ETSI EN 301 489-1 V.2.2.0
ETSI EN 301 489-17 V3.2.0
EN 62479: 2010

Low Voltage Directive (2014/35/EU)

Harmonized Standards:
EN 61010-1:2010/A1:2019/AC:2019-04

RoHS Directive (2011/65/EU)

Harmonized Standards: IEC 63000:2018

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Declaration of Conformity CE

ATEX Directive Notified Body

FM Approvals Europe Ltd. [Notified Body Number: 2809]
One Georges Quay Plaza
Dublin. D02 E440
Ireland

ATEX Notified body for Quality Assurance

DNV Product Assurance AS [Notified Body Number: 2460]
Veritasveien 3
1363 Høvik
Norway

1.28 China RoHS

List of Model Parts with China RoHS Concentration above MCVs
含有China RoHS管控物质超过最大浓度限值的部件型号列表

Part Name 部件名称	Hazardous Substances / 有害物质					
	Lead 铅 (Pb)	Mercury 汞 (Hg)	Cadmium 镉 (Cd)	Hexavalent Chromium 六价铬 (Cr +6)	Polybrominated biphenyls 多溴联苯 (PBB)	Polybrominated diphenyl ethers 多溴联苯醚(PBDE)
Electronics Assembly 电子组件	X	O	O	O	O	O
Housing Assembly 壳体组件	O	O	O	O	O	O

This table is proposed in accordance with the provision of SJ/T11364
本表格系依据SJ/T11364的规定而制作.
O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.
O: 意为该部件的所有均质材料中该有害物质的含量均低于GB/T 26572所规定的限量要求.
X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.
X: 意为在该部件所使用的所有均质材料里，至少有一类均质材料中该有害物质的含量高于GB/T 26572所规定的限量要求.

Product Certifications
00880-0100-4418, Rev. AD
December 2023

For more information: **Emerson.com/global**

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