

# Rosemount™ 3408 Level Transmitter

Non-Contacting Radar



# 1 Product certifications

Rev 0.20

## 1.1 European directive and UKCA regulations information

A copy of the EU/UKCA Declaration of Conformity can be found at the end of this document. The most recent revision of the EU/UKCA Declaration of Conformity can be found at [Emerson.com/Rosemount](https://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

**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.

|                   |                                                             |
|-------------------|-------------------------------------------------------------|
| <b>Certificat</b> | 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 and Radio Equipment Regulations S.I. 2017/1206

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](http://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  $\Delta d$  over time during a distance measurement
- Level of performance:  $\Delta d \leq \pm 1 \text{ mm}$

## 1.9 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.

### 1.10 USA

#### 1.10.1 I5 Intrinsic Safety (IS), Non-Incendive (NI)

|                    |                                                                                                                                                                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Certificate</b> | FM21US0116X                                                                                                                                                                                                                                                                             |
| <b>Standards</b>   | Class 3810:2021, 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 60079-11:2014, ANSI/UL 60079-26:2017, ANSI/UL 121201:2019, ANSI/ISA 61010-1:2012, UL50E:2015, ANSI/IEC 60529:2014, UL122701 Ed 3. |
| <b>Markings</b>    | IS CL I, II, III DIV 1, GRPS A-G T4...T2<br>NI CL I, DIV 2, GRPS A-D T4...T2<br>S CL II, III DIV 2, GRPS E-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<sub>200</sub>85°C...T<sub>200</sub>250°C Da  
Zone 20/21 AEx ib IIIC T<sub>200</sub>85°C...T<sub>200</sub>250°C Da/Db  
-55 °C ≤ Ta ≤ +70°C  
When installed per Control Drawing D7000006-887  
SINGLE SEAL

| Safety parameter           | HART®  |
|----------------------------|--------|
| Voltage U <sub>i</sub>     | 30 V   |
| Current I <sub>i</sub>     | 133 mA |
| Power P <sub>i</sub>       | 1.0 W  |
| Capacitance C <sub>i</sub> | 4.9 nF |
| Inductance L <sub>i</sub>  | 0      |

**Specific Conditions of Use (X):**

1. The Model 3408 Level Transmitter will not pass the 500Vrms dielectric strength test between the circuits and the earth ground. This must be taken into account during installation.
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. 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.
4. 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.
5. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
6. The applicable temperature class, ambient temperature range and process temperature range of the equipment is as follows:

**Table 1-2: For Divisions:**

| Temperature class / Maximum surface temperature | Ambient temperature range                               | Process temperature range                       |
|-------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| Division Gas groups:                            |                                                         |                                                 |
| T2                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Division Dust groups:                           |                                                         |                                                 |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+160^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T5                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T6                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

**Table 1-3: For Zones:**

| Temperature class / Maximum surface temperature | Ambient temperature range                               | Process temperature range                       |
|-------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| Zone Gas groups:                                |                                                         |                                                 |
| T2                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Zone Dust groups:                               |                                                         |                                                 |
| T250°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T200°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T135°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T100°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T85°C                                           | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

### 1.10.2 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. The Model 3408 Level Transmitter will not pass the 500Vrms dielectric strength test between the circuits and the earth ground. This must be taken into account during installation.
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. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
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 | Ambient temperature range | Process temperature range |
|-------------------|---------------------------|---------------------------|
| 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         |

# 1.11 Canada

## 1.11.1 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, UL 122701 Ed 3, ANSI/UL 121201:2019

**Markings**

IS CL I, II, III DIV 1, GRPS A-G T4...T2  
 NI CL I, DIV 2, GRPS A-D T4...T2  
 S CL II, III DIV 2, GRPS E-G T4...T2  
 Ex ia IIC T4...T2 Ga  
 Ex ib IIC T4...T2 Ga/Gb  
 Ex ia IIIC T<sub>200</sub>85°C...T<sub>200</sub>250°C Da  
 Ex ib IIIC T<sub>200</sub>85°C...T<sub>200</sub>250°C Da/Db  
 -55 °C ≤ Ta ≤ +70°C  
 When installed per Control Drawing D7000006-887  
 SINGLE SEAL

| Safety parameter           | HART®  |
|----------------------------|--------|
| Voltage U <sub>i</sub>     | 30 V   |
| Current I <sub>i</sub>     | 133 mA |
| Power P <sub>i</sub>       | 1.0 W  |
| Capacitance C <sub>i</sub> | 4.9 nF |
| Inductance L <sub>i</sub>  | 0      |

**Specific Conditions of Use (X):**

1. The Model 3408 Level Transmitter will not pass the 500Vrms dielectric strength test between the circuits and the earth ground. This must be taken into account during installation.
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. 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.
4. 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.
5. Display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
6. 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                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Division Dust groups:                           |                                                         |                                                 |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+160^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T5                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T6                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

**Table 1-5: For Zones:**

| Temperature class / Maximum surface temperature | Ambient temperature range                               | Process temperature range                       |
|-------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| Zone Gas groups:                                |                                                         |                                                 |
| T2                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                              | $-55^{\circ}\text{C} \leq T_a \leq +63^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                              | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Zone Dust groups:                               |                                                         |                                                 |
| T250°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T200°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T135°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T100°C                                          | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T85°C                                           | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

### 1.11.2 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, UL 122701 Ed. 3, ANSI/UL 121201:2019

**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. The Model 3408 Level Transmitter will not pass the 500Vrms dielectric strength test between the circuits and the earth ground. This must be taken into account during installation.
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. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
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 | Ambient temperature range | Process temperature range |
|-------------------|---------------------------|---------------------------|
| 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         |

## 1.12 Europe

### 1.12.1 I1 ATEX/UKEX Intrinsic Safety

**Certificate** DEKRA 21ATEX0087X, 21UKEX0221X  
**Standards** EN IEC 60079-0:2018, EN 60079-11:2012  
**Markings**  II 1G Ex ia IIC T4...T2 Ga  
 II 2G Ex ib IIC T4...T2 Gb  
 II 2D Ex ia IIIC T85°C...T250°C Db  
 II 2D Ex ib IIIC T85°C...T250°C Db

$-55\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$

| Safety parameter           | HART®                        |
|----------------------------|------------------------------|
| Voltage U <sub>i</sub>     | 30 V                         |
| Current I <sub>i</sub>     | 133 mA (Resistively limited) |
| Power P <sub>i</sub>       | 1.0 W                        |
| Capacitance C <sub>i</sub> | 4.9 nF                       |
| Inductance L <sub>i</sub>  | 0                            |

**Specific Conditions of Use (X):**

1. Precautions shall be taken to minimize the risk from electrostatic discharges and propagating brush discharges. Only clean with a damp cloth.
2. The display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
3. When used in locations where the use of category 1 equipment is required and the selected enclosure material is aluminium it shall be installed in such a way that sparking as a result of impact or friction is excluded.
4. The transmitter head shall only be rotated on top of the antenna in the absence of an explosive atmosphere.
5. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
6. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
7. The applicable temperature class versus the ambient temperature range and process temperature range of the equipment is as follows:

| Temperature class /<br>Maximum surface<br>temperature | Ambient temperature<br>range                            | Process temperature<br>range                    |
|-------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| Gas groups:                                           |                                                         |                                                 |
| T2                                                    | $-55^{\circ}\text{C} \leq T_a \leq +43^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                                    | $-55^{\circ}\text{C} \leq T_a \leq +45^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                                    | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Dust groups:                                          |                                                         |                                                 |
| T250°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +43^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T200°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +45^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T135°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T100°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T85°C                                                 | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

### 1.12.2 N1 ATEX/UKEX Type e: Increased Safety

|                    |                                                                                                                                                                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Certificate</b> | DEKRA 21ATEX0088X, 21UKEX0242X                                                                                                                                                                                        |
| <b>Standards</b>   | EN IEC 60079-0:2018, EN 60079-7:2015+A1:2018                                                                                                                                                                          |
| <b>Markings</b>    |  II 3G Ex ec IIC T4...T2 Gc<br>$-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$<br>$V \leq 35\text{V}, I \leq 22.5\text{ mA}$ |

#### Specific Conditions of Use (X):

1. Precautions shall be taken to minimize the risk from electrostatic discharges and propagating brush discharges. Only clean with a damp cloth.
2. The display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
3. The transmitter head shall only be rotated on top of the antenna in the absence of an explosive atmosphere.
4. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
5. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.

6. The applicable temperature class versus the ambient temperature range and process temperature range of the equipment is as follows:

| Temperature class | Ambient temperature range                               | Process temperature range                       |
|-------------------|---------------------------------------------------------|-------------------------------------------------|
| T2                | $-55^{\circ}\text{C} \leq T_a \leq +43^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                | $-55^{\circ}\text{C} \leq T_a \leq +53^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |

## 1.13 International

### 1.13.1 I7 IECEx Intrinsic Safety

|                    |                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Certificate</b> | IECEx DEK 21.0056X                                                                                                                                                      |
| <b>Standards</b>   | IEC 60079-0:2017, IEC 60079-11:2011, IEC 60529:2013                                                                                                                     |
| <b>Markings</b>    | Ex ia IIC T4...T2 Ga<br>Ex ib IIC T4...T2 Gb<br>Ex ia IIIC T85°C...T250°C Db<br>Ex ib IIIC T85°C...T250°C Db<br>$-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ |

| 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. Precautions shall be taken to minimize the risk from electrostatic discharges and propagating brush discharges. Only clean with a damp cloth.
2. The display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
3. When used in locations where the use of EPL Ga equipment is required and the selected enclosure material is aluminium it shall be installed in such a way that sparking as a result of impact or friction is excluded.

4. The transmitter head shall only be rotated on top of the antenna in the absence of an explosive atmosphere.
5. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
6. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
7. The applicable temperature class versus the ambient temperature range and process temperature range of the equipment is as follows:

| Temperature class /<br>Maximum surface<br>temperature | Ambient temperature<br>range                            | Process temperature<br>range                    |
|-------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| Gas groups:                                           |                                                         |                                                 |
| T2                                                    | $-55^{\circ}\text{C} \leq T_a \leq +43^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T3                                                    | $-55^{\circ}\text{C} \leq T_a \leq +53^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T4                                                    | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| Dust groups:                                          |                                                         |                                                 |
| T250°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +43^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+200^{\circ}\text{C}$ |
| T200°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +53^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+195^{\circ}\text{C}$ |
| T135°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+130^{\circ}\text{C}$ |
| T100°C                                                | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+95^{\circ}\text{C}$  |
| T85°C                                                 | $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ | $-55^{\circ}\text{C}$ to $+80^{\circ}\text{C}$  |

### 1.13.2 N7 IECEx Type E: Increased Safety

|                    |                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Certificate</b> | IECEx DEK 21.0056X                                                                                                                       |
| <b>Standards</b>   | IEC 60079-0:2011, IEC 60079-7:2015+A1:2017, IEC 60529:2013                                                                               |
| <b>Markings</b>    | Ex ec IIC T4...T2 Gc<br>( $-55^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ ) IP65<br>$V \leq 35\text{V}$ , $I \leq 22.5\text{mA}$ |

Specific Conditions of Use (X):

- 1. Precautions shall be taken to minimize the risk from electrostatic discharges and propagating brush discharges. Only clean with a damp cloth.
- 2. The display glass shall be positioned in such a way as to minimize the risk of mechanical impact.
- 3. The transmitter head shall only be rotated on top of the antenna in the absence of an explosive atmosphere.
- 4. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1.
- 5. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP65. To maintain the ingress protection ratings, Covers and Sensor Module to be fully tightened and PTFE tape or pipe dope is required for cable entries and blanking plugs. See Instruction Manual on application requirements.
- 6. The applicable temperature class versus the 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 ≤ +43 °C      | -55 °C to +200 °C         |
| T3                | -55 °C ≤ Ta ≤ +53 °C      | -55 °C to +195 °C         |
| T4                | -55 °C ≤ Ta ≤ +70 °C      | -55 °C to +130 °C         |

1.14 Additional certifications

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

**Certificate** Pending

1.14.2 Suitable for intended use

Compliant with NAMUR NE 95:2013, “Basic Principles of Homologation” (Pending)

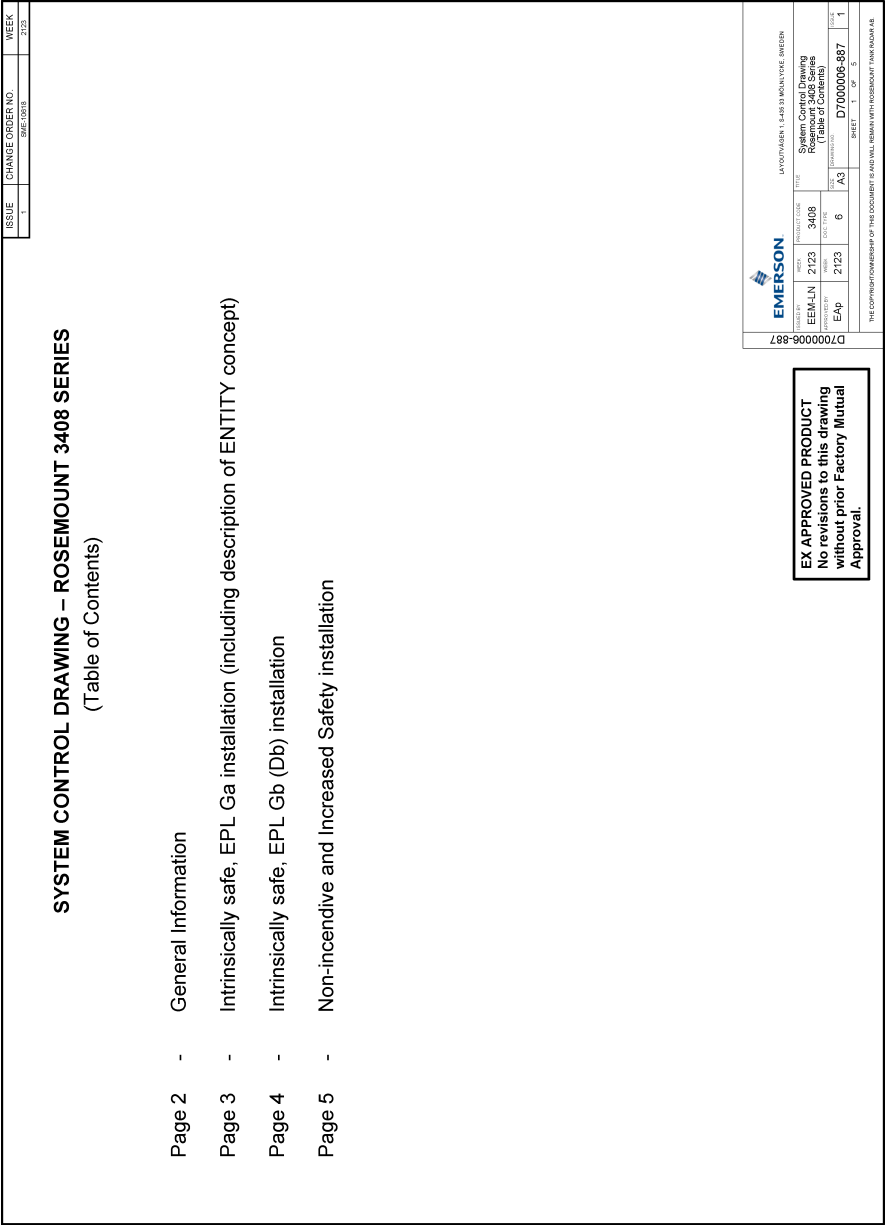
1.14.3 U1 Overfill prevention

**Certificate** Pending

**Application** TÜV tested and approved by DIBt for overfill prevention according to the German WHG regulations.

1.15 Installation drawings

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



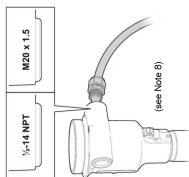
## SYSTEM CONTROL DRAWING – ROSEMOUNT 3408 SERIES

| ISSUE | CHANGE ORDER NO. | WEEK |
|-------|------------------|------|
| 1     | SME-10818        | 2123 |

1. No revision to drawing without prior FIM 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 60078-14 and applicable National regulations.
  6. Installations for IECEx certification shall be in accordance with latest editions of the IECEx standards for the relevant equipment category.
  7. The EPL Gb (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 1/4-14 NPT or M20x1.5. Identification of thread and size on housing.
  9. Additional installation requirements are found in the Quick Start Guide (doc no 00825-1100-4419) and the Product Certification Document (doc no 00890-1100-4448).
  10. See table below for applicable P/T rating for different antenna types. For ambient temperature derating refer to 00890-1100-4418.

| Antenna Type                         | Operating Temperature and Process Pressure                         |
|--------------------------------------|--------------------------------------------------------------------|
| Process Seal Antenna (SA)            | -15 ... 302 psig (-1 ... 25 bar)<br>-76 ... 392 F (-60 ... 200 °C) |
| Standard Lens Antenna (PFE seal, SA) | -15 ... 302 psig (-1 ... 25 bar)<br>-76 ... 392 F (-60 ... 200 °C) |
| ATAP Lens Antenna (SCA)              | -15 ... 7 psig (-1 ... 0.5 bar)<br>-40 ... 176 F (-40 ... 80 °C)   |

  11. The top of the process connection of the transmitter is approved as a SINGLE SEA device according to UL 122701 (SCA antenna excluded) up to a maximum process pressure of 52 bar and a process temperature range of -76 ... 482 F (-60 ... 250 °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 servir en cas de présence d'atmosphère explosive

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

|                                                                                                  |  |                                                                                       |  |
|--------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
|  <b>EMERSON</b> |  | UNIVERSITY, 1.430 31 MONROVE, WISCONSIN                                               |  |
| ISSUED BY: EEM-LN<br>PART #: 2123<br>PART BY: WASH                                               |  | TITLE: System Control Drawing<br>ROUSSEAU 3408 Series<br>(General Information)        |  |
| REVISED BY: EAP<br>DATE: 2/23/06                                                                 |  | DATE: 2/23/06<br>DRAWN BY: A3                                                         |  |
| D7000006-887                                                                                     |  | D7000006-887 1                                                                        |  |
| SHEET 2 OF 6                                                                                     |  | THE COPYRIGHT/OWNERSHIP OF THIS DOCUMENT IS AND WILL REMAIN WITH EMERSON ELECTRIC CO. |  |

## 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 ( $V_{oc}$  or  $V_o$ ) and max. short circuit current ( $I_{sc}$  or  $I_t$ ) and max. power ( $P_{oc}$  or  $P_{sc}$  or  $V_{oc} \times I_{sc}$  or  $V_o \times I_t$  or  $V_o \times I_t \times 1.4$ ) for the associated apparatus must be not less than or equal to the maximum safe input voltage ( $V_{in}$ ), maximum safe input current ( $I_{in}$ ) and maximum safe input power ( $P_{in}$ ) of the intrinsically safe apparatus. In addition, the approved max. allowable connected capacitance ( $C_a$  or  $C_o$ ) of the associated apparatus must be greater than the sum of the interconnecting cable capacitance ( $C_c$ ) and the unprotected internal capacitance ( $C_{in}$ ) of the associated apparatus. Also, the approved max. allowable inductance ( $L_a$  or  $L_o$ ) of the associated apparatus must be greater than the sum of the interconnecting cable inductance ( $L_c$ ) and the unprotected internal inductance ( $L_{in}$ ) of the intrinsically safe apparatus.

## Notes

- No revision to drawing without prior FM Approval.
  - The Associated Apparatus must be FM Approved.
  - The Associated Apparatus must be FM Approved for installations in the U.S.
  - The Associated Apparatus must be FM Approved for installations in Canada.
  - The Associated Apparatus must be Canadian Approved must be followed when installing the equipment.
  - Installation in the U.S. should be in accordance with ANSI/ISA-81.06.01 and NFPA 70, National Electrical Code, National Fire Protection Association (NFPA) locations and the latest edition of the National Electrical Code (ANSI/NFPA 70).
  - Resistance between Intrinsically Safe Ground and earth ground must be less than 1.0 Ohm.
  - Installation in Canada should be in accordance with the latest edition of the C22.1 Canadian Electrical Code Part I.
  - The Entry Concept allows interconnection of associated apparatus and intrinsically safe equipment.
- For ambient temperature derating see 03899-0100-0418.  
 For ambient temperature derating see 03899-0100-0418.

**WARNING –** Substitution of components may impair Intrinsic Safety.

**WARNING** – Substitution of components may impair intrinsic safety.

**WARNING** – Potential electrostatic charging hazard, wipe with a damp cloth.

**WARNING –** To prevent ignition

**WARNING** – To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

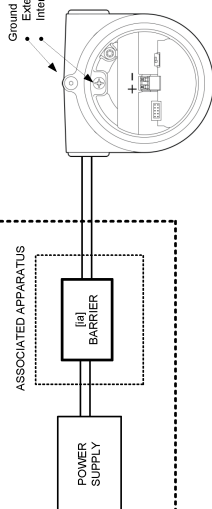
**AVERTISSEMENT** – La substitution de composants peut compromettre la sécurité intrinsèque.

**AVERTISSEMENT** – La substitution de composants peut compromettre la sécurité intrinsèque.

**AVERTISSEMENT** – Risque potentiel de charge électrostatique, essayer avec un chiffon humide.

**AVERTISSEMENT** – Ne pas ouvrir en cas de présence d'atmosphère explosive.

## UNCLASSIFIED LOCATION



## Intrinsically safe, EPL Ga Installation

|                        | Safe Apparatus for use in:                                                                                             | Ambient Temperature Limits                                 |
|------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| <b>FM<sub>DS</sub></b> | IS Class I, II, III, DIV 1, GP A-G T4, T2<br>Zone 0 AEX Ia IIC T85°C, T200°C Da<br>Zone 20 AEX Ia IIC T85°C, T200°C Da | -55°C to +70°C (420mA/HART)<br>-55°C to +70°C (420mA/HART) |
| <b>FMC</b>             | IS Class I, II, III, DIV 1, GP A-G T4, T2<br>Ex II IIC T85°C, T250°C Da                                                | -55°C to +70°C (420mA/HART)<br>-55°C to +70°C (420mA/HART) |

| Model            | Intrinsic Entity Parameters                                                                                                                     | Note |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 4-20mA / HART IS | $U_I (V_{max}) \leq 30V$ , $I_I (I_{max}) \leq 133\text{ mA}$<br>$P_I (P_{max}) \leq 1W$ , $C_I \approx 4.9\text{ nF}$ , $L_I = 0\text{ }\mu H$ |      |

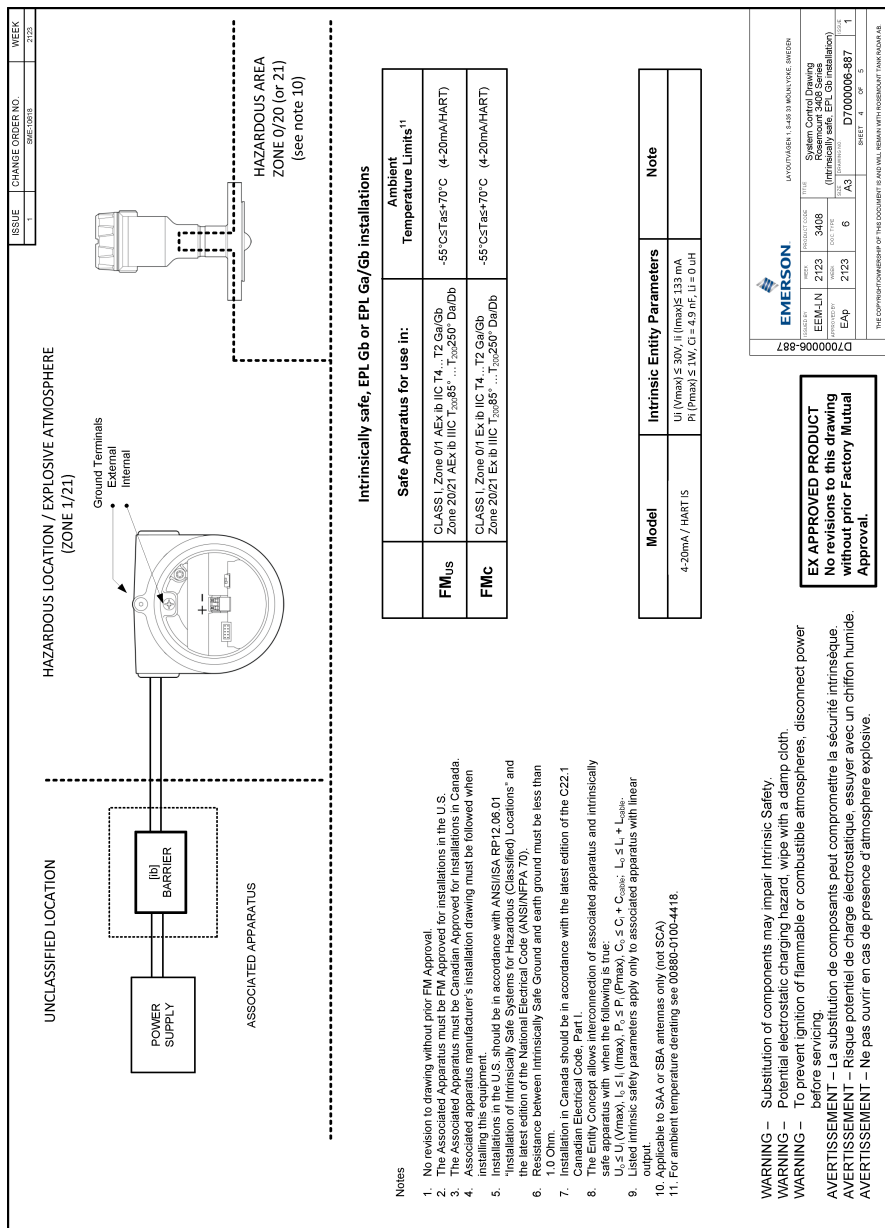
|                                                                                          |                                                                                               |                  |                                                                                       |
|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------|
| D7000068-06887                                                                           | EMERSON®<br> |                  | LAYDOWNER 1, 6.45 IN MONO CYCLE INTERIOR                                              |
| TABLE 6A<br>EEM-N                                                                        | MESH                                                                                          | PERFORATION CODE | TITLE                                                                                 |
| EAP                                                                                      | 2123                                                                                          | 3408             | System Control Drawing<br>Rosemount 300 Series<br>(Interlock Valve, ETC Installation) |
| DATE REVISED BY                                                                          | DATE                                                                                          | SHEET NO.        | COUNT                                                                                 |
| EAP                                                                                      | 2123                                                                                          | 6                | A3                                                                                    |
|                                                                                          |                                                                                               |                  | D7000068-0687                                                                         |
|                                                                                          |                                                                                               |                  | 1                                                                                     |
|                                                                                          |                                                                                               |                  | 5                                                                                     |
|                                                                                          |                                                                                               |                  | 3                                                                                     |
|                                                                                          |                                                                                               |                  | SHEET                                                                                 |
| THE COPYRIGHT OWNERSHIP OF THIS DOCUMENT IS AND WILL REMAIN WITH KROSBLOCK TANK RACKS AS |                                                                                               |                  |                                                                                       |

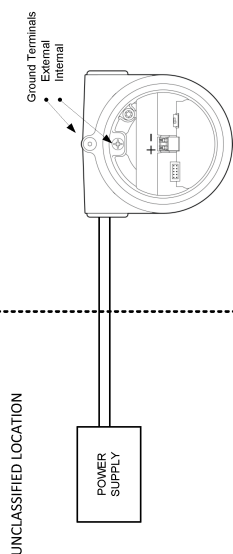
**EX APPROVED PRODUCT**

**No revisions to this drawing**

without prior Factory Mutual

**Approval.**





## Increased Safety / Non-incendive installation

|                        | Safe Apparatus for use in:                                                                                                                                                                         | Ambient Temperature Limits <sup>a</sup> |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <b>FM<sub>DS</sub></b> | NiCl <sub>2</sub> DIV.2, GP AD T <sub>4</sub> .. T <sub>2</sub><br>S Cl <sub>2</sub> II DIV.2, GP EG T <sub>4</sub> .. T <sub>2</sub><br>AEx Ec IC T <sub>4</sub> .. T <sub>1</sub> G <sub>5</sub> | -55°C ≤ T <sub>amb</sub> ≤ +70°C        |
| <b>FMC</b>             | NiCl <sub>2</sub> DIV.2, GP AD T <sub>4</sub> .. T <sub>2</sub><br>S Cl <sub>2</sub> II DIV.2, GP EG T <sub>4</sub> .. T <sub>2</sub><br>Ex Ec IC T <sub>4</sub> .. T <sub>1</sub> G <sub>5</sub>  | -55°C ≤ T <sub>amb</sub> ≤ +70°C        |

| Model         | Maximum operating parameters        |
|---------------|-------------------------------------|
| 4-20mA / HART | $U \leq 35V, I \leq 22.5\text{ mA}$ |

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

|                                                                                                  |               |                                                                                                 |                  |                            |           |
|--------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------|------------------|----------------------------|-----------|
|  <b>EMERSON</b> |               | SYSTEM CONTROL DRAWING<br>ROCKETMOUNT 3402 SERIES<br>(See Drawing for Recommended Installation) |                  | SHEET <u>1</u> OF <u>1</u> |           |
| 100000000-887                                                                                    | 100000000-887 | MODEL CODE<br>EEM-N                                                                             | PART NO.<br>2123 | DATE<br>6/21/00            | REV.<br>1 |
| 100000000-887                                                                                    | 100000000-887 | MODEL CODE<br>EAP                                                                               | PART NO.<br>2123 | DATE<br>6/21/00            | REV.<br>1 |

## 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. For ambient temperature derating see 00890-0100-4418.

**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.

**Figure 1-2: D7000007-647 - System Control Drawing (DEKRA)**

| SYSTEM CONTROL DRAWING – ROSEMOUNT 3408 SERIES (DEKRA) |   |                                                                                   |  |
|--------------------------------------------------------|---|-----------------------------------------------------------------------------------|--|
| (Table of Contents)                                    |   |                                                                                   |  |
| Page 2                                                 | - | General Information                                                               |  |
| Page 3                                                 | - | Intrinsically safe, EPL Ga installation (including description of ENTITY concept) |  |
| Page 4                                                 | - | Intrinsically safe, EPL Gb (Db) installation                                      |  |
| Page 5                                                 | - | Increased Safety installation                                                     |  |

# SYSTEM CONTROL DRAWING – ROSEMOUNT 3408 SERIES

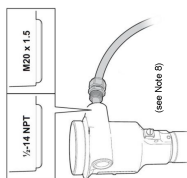
## GENERAL INFORMATION

| ISSUE | CHANGE ORDER NO. | WEEK |
|-------|------------------|------|
| 1     | SWE-10818        | 2123 |

7. Additional installation requirements are found in the Quick Start Guide (doc no 00825-0100-4418) and the Product Certification Document (doc no 00880-0100-4448).
8. See table below for applicable P/T rating for different antenna types. For ambient temperature derating refer to 00890-0100-4418.

| Antenna Type                           | Operating Temperature and Process Pressure                          |
|----------------------------------------|---------------------------------------------------------------------|
| Process Seal Antenna (SAA)             | -15 ... 362 psig (-1 ... 25 bar)<br>-67 ... 392 °F (-45 ... 200 °C) |
| Standard Lens Antenna (PTFE seal, SBA) | -15 ... 362 psig (-1 ... 25 bar)<br>-67 ... 392 °F (-45 ... 200 °C) |
| Closed tank applications:              |                                                                     |
| -15 ... 7 psig (-1 ... 0.5 bar)        |                                                                     |
| -4 ... 176 °F (-20 ... 80 °C)          |                                                                     |
| With bracket mounting:                 |                                                                     |
| -15 ... 7 psig (-1 ... 0.5 bar)        |                                                                     |
| -40 ... 176 °F (-40 ... 80 °C)         |                                                                     |
| ATAP Lens Antenna (SCA)                |                                                                     |

1. No revision to drawing without prior DEKRA approval.
2. Assisted apparatus manufacturer's installation drawing must be followed when installing this equipment.
3. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
4. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
5. Thread size either  $\frac{1}{2}$ -14 NPT or M20x1.5. Identification of thread and size on housing.



6. Cables and Cable Glands must be rated for a temperature of at least +90 °C

- 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, essayer avec un chiffon humide.  
**AVERTISSEMENT** – Ne pas ouvrir en cas de présence d'atmosphère explosive.

|                                                                                                  |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |
|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
|  <b>EMERSON</b> |                                                                                 | LAYOUTSAGEN 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 |                    |
| D7000007-647                                                                                     | SYSTEM CONTROL DRAWING<br>ROSEMOOR 3408 SERIES (DEGRA)<br>(General Information) | TITLE                                                                                                                                                                                                                                                                                                                                                                                                              | FILE               |
| DESIGNED BY<br>EEM-LIN 2123                                                                      | PRODUCT CODE<br>3408                                                            | REVISION<br>1                                                                                                                                                                                                                                                                                                                                                                                                      | DATE<br>10/10/2007 |
| DRAWN BY<br>EAP 2123                                                                             | DOWNSHEET NO.<br>6                                                              | CHECKED BY<br>A3                                                                                                                                                                                                                                                                                                                                                                                                   | SHEET<br>2 OF 5    |

**EX APPROVED PRODUCT**  
No revisions to this drawing  
without prior DEKRA  
approval

WEEK  
2725

CHANGE ORDER NO.  
382-10018

ISSUE  
1

HAZARDOUS LOCATION / EXPLOSIVE ATMOSPHERE  
(ZONE 0, ZONE 1/21)

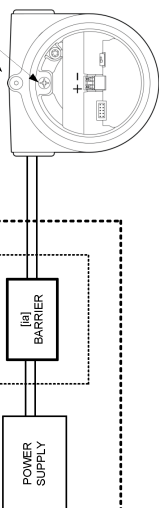
Ground Terminals  
External  
Internal

UNCLASSIFIED LOCATION

ASSOCIATED APPARATUS

POWER SUPPLY

ISOL BARRIER



ATEX  
/UKEX

Safe Apparatus for use in:

II 1G Ex ia IIC T4, T2 Ga  
II 2D Ex ia IIIC T85°C, T250°C Db

IECEx

Ambient Temperature Limits<sup>a</sup>

-55°C ≤ T<sub>amb</sub> ≤ +70°C (4-20mA-HART)  
-55°C ≤ T<sub>amb</sub> ≤ +70°C (4-20mA-HART)

Intrinsically safe, EPL Ga Installation

Notes

1. No revision to drawing without prior DEKRA Approval

2. The Associated Apparatus must be ATEX/UKEX Certified for Installations in Europe

3. The Associated Apparatus must be IECEx Certified for IECEx installations.

4. Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.

5. Resistance between Intrinsically Safe Ground and earth ground must be less than 1.0 Ohm.

6. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.

7. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.

8. The Entity Concept allows interconnection of associated apparatus and intrinsically safe apparatus as follows:  
 $U_i \leq U_{i(Max)}$ ,  $I_i \leq I_i(Max)$ ,  $P_i \leq P_i(P)$ ,  $C_i \leq C_i + C_{cable}$ ;  $L_i \leq L_i + L_{cable}$

9. For ambient temperature derating see 00880-0100-4418.

Model

Intrinsic Entity Parameters

Note

4-20mA / HART IS

$U_i (V_{max}) \leq 30V$ ,  $I_i (I_{max}) \leq 133\text{ mA}$   
 $P_i (P_{max}) \leq 1W$ ,  $C_i = 4.9\text{ nF}$ ,  $L_i = 0\text{ uH}$

None

EMERSON

System Control Drawing  
Rosemount 3408 Series (DE-RA)  
(intrinsically safe EPL Ga installation)

DATE: 21/23  
REV: 3408  
DRAWN BY: 2123  
CHECKED BY: 2123  
DATE: 21/23  
REV: 6  
A3  
D7000007-647  
SHEET 3 OF 5

EX APPROVED PRODUCT  
No revisions to this drawing  
without prior DEKRA  
approval.

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ENTITY CONCEPT APPROVALS

The Entity concept allows interconnection of intrinsically safe apparatus to associated open circuit voltage ( $U_o$ ,  $V_o$  or  $V_i$ ) and max. short circuit current ( $I_o$ ,  $I_{sc}$  or  $I_i$ ) and max. power ( $P_o$  or  $V_o \times I_{sc}$  /  $4$  or  $V_i \times I_i$  /  $4$ ), for the associated apparatus must be less than or equal to the maximum safe input voltage ( $U_i$ ), maximum safe input current ( $I_i$ ), and maximum safe input power ( $P_i$ ). The sum of the interconnecting cable capacitance and the unprotected internal capacitance ( $C_i$ ) of the intrinsically safe apparatus, and the approved max. Allowable connected inductance ( $L_i$  or  $L_o$ ) of the associated apparatus must be greater than the sum of the interconnecting cable inductance and the unprotected internal inductance ( $L_i$ ) of the intrinsically safe apparatus.

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, essuyez avec un chiffon humide.

AVERTISSEMENT – Ne pas ouvrir en cas de présence d'atmosphère explosive.

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Rosemount 3408 Level Transmitter

## ENTITY CONCEPT APPROVALS

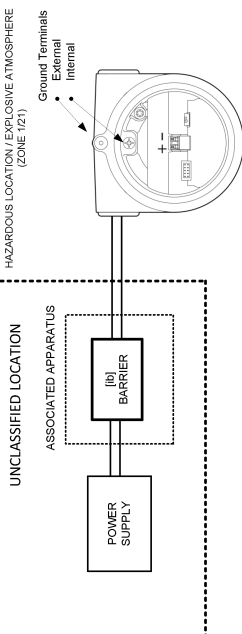
[illegible]

## Notes

1. No revision to drawing without prior DEKRA Approval.
2. The Associated Apparatus must be ATEXUKEX Certified for installations in Europe.
3. The Associated Apparatus must be IECEx Certified for IECEx installations.
4. Associated apparatus manufacturer's installation drawing must be followed when installing this equipment.
5. Resistance between Intrinsic Safety Ground and earth ground must be less than 1.0 Ohm.
6. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable national regulations.
7. All IECEx and ATEXUKEX installations shall be in accordance with latest editions of the wiring practices for the country of origin.
8. The Entity Concept allows interconnection of associated apparatus and intrinsically safe apparatus with when the following is true:  

$$U_i \leq U_{(Vmax)_i}, I_i \leq I_{(Imax)_i}, P_i \leq P_{(Pmax)_i}, C_i \leq C_{(Cmax)_i}, L_i \leq L_{(Lmax)_i}$$
 For ambient temperature derating see 00380-0100-4418.

## Intrinsically safe, EPL Ga Installation



|                       | Safety Apparatus for use in:                                   | Ambient Temperature Limits <sup>a</sup> |
|-----------------------|----------------------------------------------------------------|-----------------------------------------|
| <b>ATEX<br/>/UKEX</b> | II 2G Ex IIC T4, T2 Db<br>II 2D Ex IIc IIIc T85 °C, T250 °C Db | -55 °CStas+70 °C (4-20mA/HART)          |
| <b>IECEX</b>          | Ex IIC T4, T2 Db<br>Ex IIC T85 °C, T250 °C Db                  | -55 °CStas+70 °C (4-20mA/HART)          |

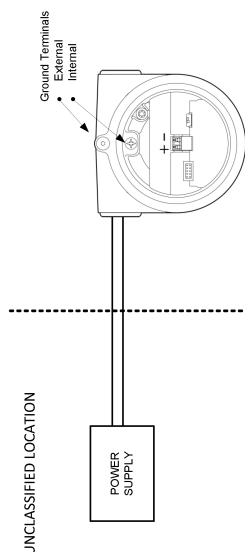
| Model            | Intrinsic Entity Parameters                                                                                                                  | Note |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------|
| 4-20mA / HART IS | $U_i (V_{max}) \leq 30V$ , $I_i (I_{max}) \leq 133\text{ mA}$<br>$P_i (P_{max}) \leq 1W$ , $C_i \approx 4.9\text{ nF}$ , $L_i = 0\text{ uH}$ |      |

**EX APPROVED PRODUCT**  
No revisions to this drawing  
without prior DEKRA  
approval.

**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 présence d'atmosphère explosive.

|                                                                                                  |  |                                                                                                         |  |
|--------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------|--|
|  <b>EMERSON</b> |  | LUDWIGSHAGEN 1-4245 13 MINUTE SWISS                                                                     |  |
| 7000000-67<br>TO ORDER BY                                                                        |  | 1<br>OF 5<br>SHEET                                                                                      |  |
| EEM-LN<br>HEDZ<br>PRECISION CODE                                                                 |  | System Control Drawing<br>Rosemount 3408 Series (DE-RA)<br>1000000-67 (revision 0)<br>3408 (revision 0) |  |
| EAP<br>400-60-27<br>DOC. TITLE                                                                   |  | A3<br>6<br>2123                                                                                         |  |
| D7000000-647                                                                                     |  | D7000000-647<br>1                                                                                       |  |
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## Increased Safety

|                   | Safety Apparatus for use in: | Ambient Temperature Limits <sup>4</sup> |
|-------------------|------------------------------|-----------------------------------------|
| <b>ATEX /UKEX</b> | II 3G Ex ec IIC T4... T2 Gc  | -55°C ≤ T <sub>is</sub> ≤ +70°C         |
| <b>IECEX</b>      | Ex ec IIC T4... T2 Gc        | -55°C ≤ T <sub>is</sub> ≤ +70°C         |

## Notes

1. No revision to drawing without prior DEKRA Approval.
2. Installations in Europe shall comply with the relevant requirements of EN 60079-14 and applicable National regulations.
3. Installations for IECEx certification shall be in accordance with latest editions of the wiring practices for the country of origin.
4. For ambient temperature derating see 00880-0100-4418.

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

**WARNING – Do not open when energized.**

**WARNING –** Substitution of components may impair Intrinsic Safety.

**WARNING –** Potential electrostatic charging hazard, wipe with a damp cloth. Concentration of components may impair flame retardancy.

**WARNING –** To prevent ignition of flammable or combustible atmospheres, disconnect power

before servicing.

**AVERTISSEMENT** – Ne pas séparer lorsqu'il est activé.

**AVERTISSEMENT** – Ne pas séparer, lorsqu'il est activé.

**AVERTISSEMENT** – La substitution de composants peut compromettre la sécurité intrinsèque.

**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 DEKRA  
approval.

|                                                                                                             |                             |                                                                                                                                                                                                                                                                                                                                                                                                 |                               |
|-------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|  <b>EMERSON</b>            |                             | LAYOUT PAGE 1, 5, 6, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 |                               |
| TITLE<br><b>System Control Drawing</b><br><b>Roamcraft 3408 Series (DEKRA)</b><br><b>(Increased Safety)</b> | PROJECT CODE<br><b>3408</b> | DATE<br><b>2013-01-01</b>                                                                                                                                                                                                                                                                                                                                                                       | SHEET<br><b>5</b> OF <b>5</b> |
| REVISION<br><b>EEM-1N 2123</b><br>REVISION<br><b>2123</b>                                                   | REVISION<br><b>EAP 2123</b> | REVISION<br><b>2123</b>                                                                                                                                                                                                                                                                                                                                                                         | SHEET<br><b>5</b> OF <b>5</b> |

### 1.16 EU and UK Declaration of Conformity

Figure 1-3: EU and UK Declaration of Conformity





Declaration of Conformity

CE/UK

CA

CE/UK

CA

[PLACEHOLDER]

  
**EMERSON**

**Declaration of Conformity**

**CE / UK  
CA**

[PLACEHOLDER]

# 1.17 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<br>部件名称               | Hazardous Substances / 有害物质 |                      |                      |                                          |                                              |                                                  |
|---------------------------------|-----------------------------|----------------------|----------------------|------------------------------------------|----------------------------------------------|--------------------------------------------------|
|                                 | Lead<br>铅<br>(Pb)           | Mercury<br>汞<br>(Hg) | Cadmium<br>镉<br>(Cd) | Hexavalent<br>Chromium<br>六价铬<br>(Cr +6) | Polybrominated<br>biphenyls<br>多溴联苯<br>(PBB) | Polybrominated<br>diphenyl ethers<br>多溴联苯醚(PBDE) |
| Electronics<br>Assembly<br>电子组件 | X                           | O                    | O                    | O                                        | O                                            | O                                                |
| Housing<br>Assembly<br>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. AA**  
**September 2022**

For more information: [Emerson.com](https://www.emerson.com)

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