

Rosemount™ 408 Wireless Level Sensor

Wireless Cellular Non-Contacting Radar



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1 About this guide

This Quick Start Guide provides basic guidelines for the Rosemount 408 Wireless Level Sensor. Refer to the 408 [Reference Manual](#) for more instructions. The manual and this guide are also available electronically on Emerson.com/Rosemount.

1.1 Models covered

408CC

1.2 Intended use

The Rosemount 408 Wireless Level Sensor is a cellular non-contacting radar for measurement of level, temperature, and location in mobile and remote assets. The Rosemount 408 is not intended for safety critical measurements.

1.3 Symbols on the product

When this symbol () is marked on the product, be sure to consult the product documentation to find out the nature of the potential hazards and any actions which have to be taken to avoid them.

1.4 Safety messages

⚠ WARNING

Failure to follow safe installation and servicing guidelines could result in death or serious injury.

Ensure the device is installed by qualified personnel and in accordance with applicable code of practice.

Use the equipment only as specified in this Quick Start Guide and the Reference Manual. Failure to do so may impair the protection provided by the equipment.

Do not use damaged equipment.

Do not open the device. There are no serviceable parts inside.

Repair, e.g. substitution of components, etc. may jeopardize safety and is under no circumstances allowed.

⚠ WARNING

Explosions could result in death or serious injury.

The device must only be installed and operated in non-hazardous locations.

The device shall not come into contact with flammable liquids.

⚠ WARNING

Battery safety

This device contains built-in rechargeable lithium-ion batteries which should not be replaced by the customer.

Batteries may explode or cause burns if disassembled, crushed, or exposed to fire or high temperatures.

If the batteries are damaged, avoid contact with eyes, skin, and clothing. Ensure adequate ventilation. Prevent material from contaminating soil and from entering sewers or waterways.

⚠ WARNING

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

Physical security is an important part of any security program and fundamental in protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

1.5 Product recycling/disposal

EU member states

Products with the label as shown in [Figure 1-1](#) comply with the Waste Electrical and Electronic Equipment (WEEE) directive, 2012/19/EU, which applies to the European Union (EU) member states. The label indicates that this product should be recycled and not treated as household waste. Follow local disposal regulations for proper disposal.

Figure 1-1: WEEE Label



All other world areas

At disposal the waste-disposal regulations applicable in your location shall be followed.

1.6 Manufacturer

Rosemount Tank Radar AB

Layoutvägen 1

S-435 33 Mölnlycke

Sweden

2 Charging

The device comes pre-charged, but to ensure a fully charged device an initial charge is recommended.

2.1 Wireless charger

The Rosemount 408 is compatible with Qi-certified wireless chargers that provide a minimum of 5 W. The charger must be approved for the country of use.

2.2 Charge the device

Prerequisites

⚠ WARNING

Charging safety

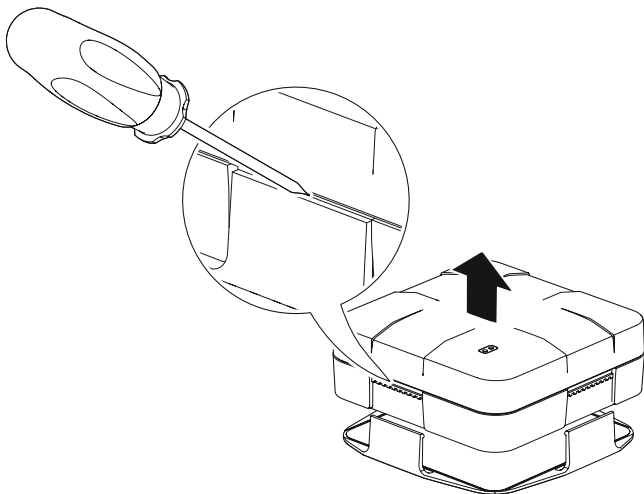
Use a Qi-certified wireless charger.

Charge your device in a dry area indoor and at the rated charging temperature. See the Rosemount 408 [Product Certifications](#) for environmental conditions.

Do not charge for more than 24 hours.

Procedure

1. Unclip the device from the mounting adapter using your hands or a flathead screwdriver.



2. Connect the charger to power.

3. Place the bottom side of the device on the charging surface.

Note

Do not place anything between the device and the charging surface. The device must be in direct contact with the charging surface.

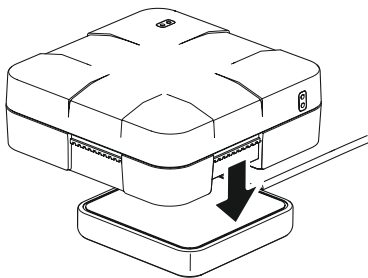
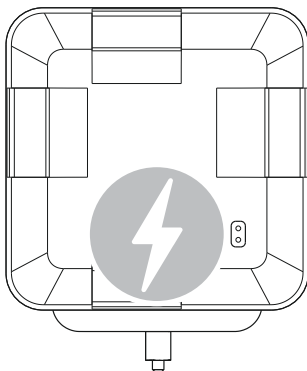
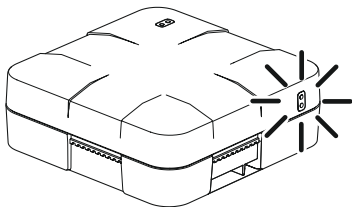


Figure 2-1: Rosemount 408 Charging Coil's Location



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4. Adjust the position of the device until the LED turns solid red.



When charging is complete, the red LED turns off.

Need help?

If the LED is flashing or turns on and off repeatedly, try to adjust the position of your device. Solid red LED indicates charging.

3 Turn on the device

Prerequisites

⚠ WARNING

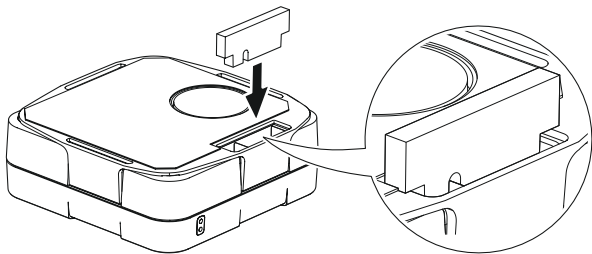
Magnetic field

The magnet key can be harmful to pacemaker wearers.

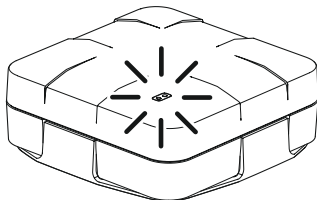
Keep a distance of at least 6 in. (15 cm) between your pacemaker and the magnet key.

Procedure

Insert the magnet key in the slot for about two seconds and then remove it.



After five seconds, the status LED flashes blue.



3.1 Start-up mode

During start-up, the device performs a new measurement roughly every five minutes for 90 minutes (regardless of the configured measurement frequency).

4 Installing on a tank

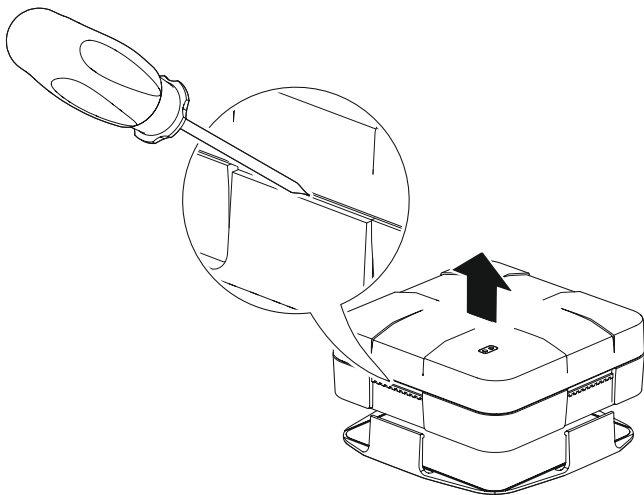
4.1 Mount directly on a plastic tank

Prerequisites

The minimum application temperature for the adhesive tape is 32 °F (0 °C).

Procedure

1. If applicable, unclip the device from the self-adhesive mounting adapter using your hands or a flathead screwdriver.

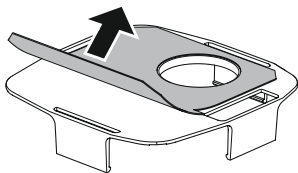


2. Clean the mounting surface with the supplied Isopropyl Alcohol (IPA) cleaning wipe or an appropriate cleaning solution of your choice. Allow to dry completely.

3. Peel off the protective film from the adhesive tape.

Note

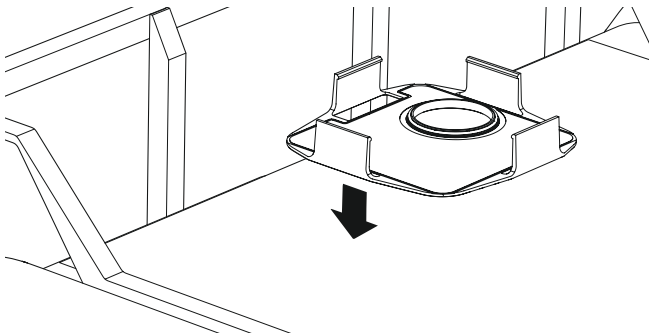
Do not touch the adhesive surface.



4. Place the mounting adapter onto the plastic tank.

Note

Ensure the mounting surface is clean, dry, and frost-free.

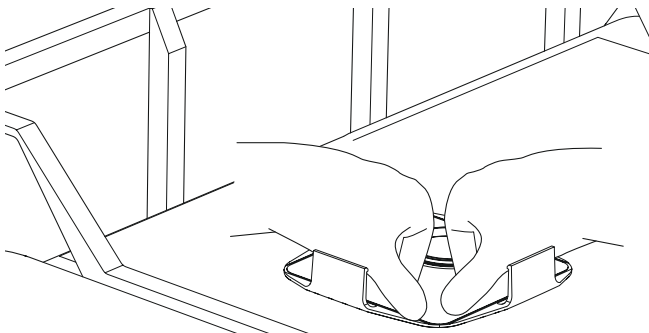


PRELIMINARY

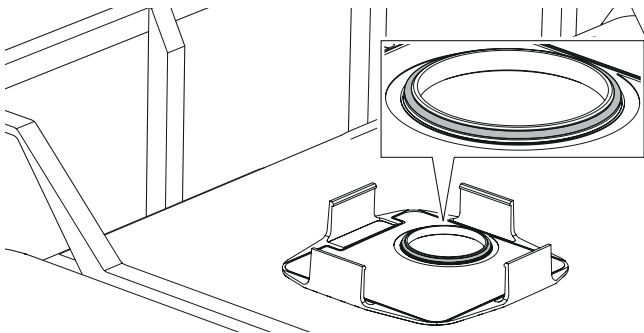
5. Press firmly around the edges of the mounting adapter until it is fully adhered.

Note

Full tape strength is achieved after 72 hours at 68 °F (20 °C).

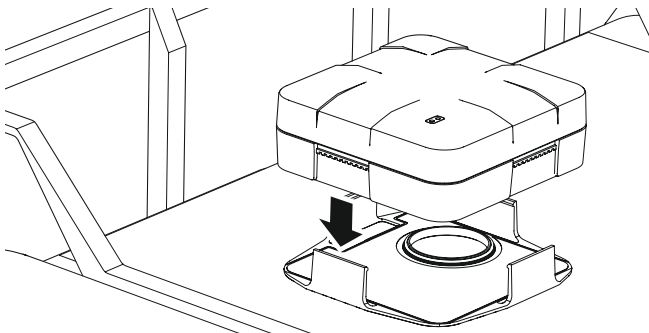


6. Verify the O-ring on the mounting adapter is in place.

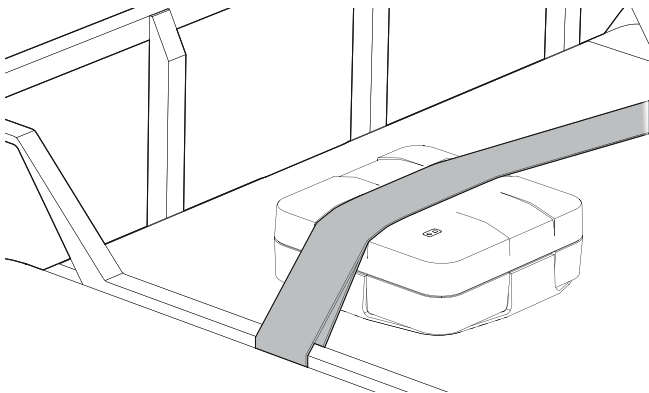


PRELIMINARY

7. Snap the device into the mounting adapter.



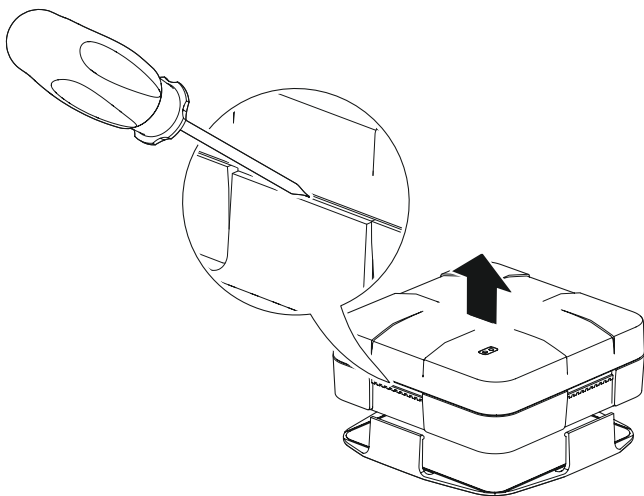
8. Optional: If needed, secure the device to the plastic tank with a ratchet strap or similar.



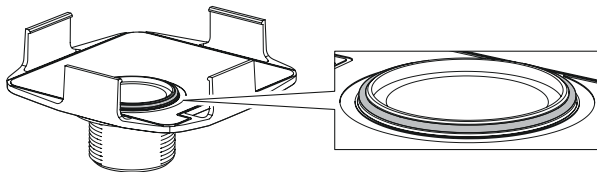
4.2 Mount on a threaded connection

Procedure

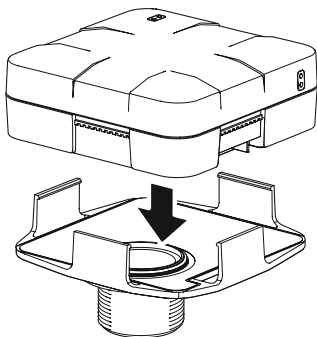
1. If applicable, unclip the device from the self-adhesive mounting adapter using your hands or a flathead screwdriver.



2. Verify the O-ring on the threaded adapter is in place.



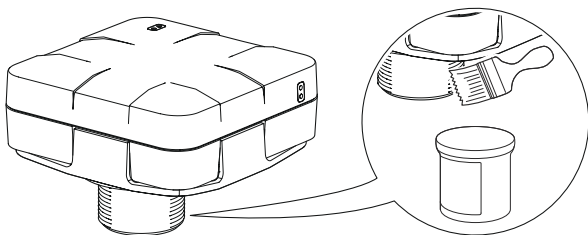
3. Snap the device into the threaded mounting adapter.



4. Apply appropriate thread sealant to the threads.

Note

Only for NPT threaded tank connection.

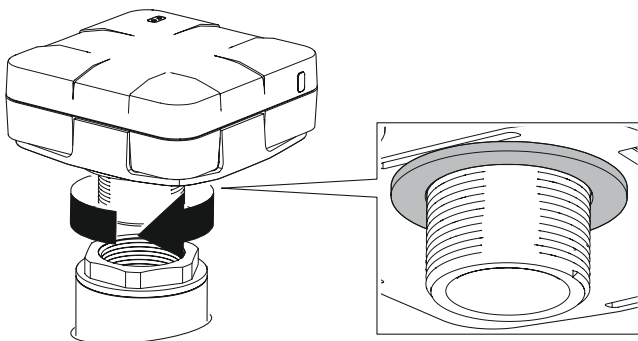


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5. Install and hand tighten the threaded mounting adapter.

Note

The gasket is necessary for the G threaded version only.

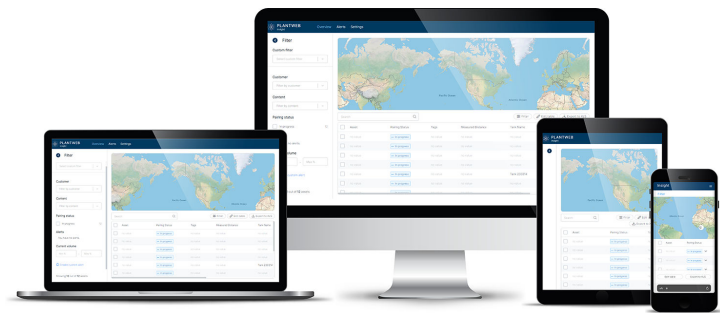


5 Configuration

5.1 Remote Tank Monitoring application

The Rosemount 408 is configured and operated via the Remote Tank Monitoring application on Plantweb Cloud. The application gives you instant access to tank data regardless of location, and it features alerts, filtering, graphical map, and more. It works seamlessly on mobiles, tablets and computers.

Figure 5-1: Remote Tank Monitoring Application



5.2 First time login

Procedure

1. Activate your account by using the link in the Plantweb Cloud activation email.

Need help?

Contact your account administrator if you have not received your activation email.

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2. Follow the on-screen instructions to set your password and another authentication method.
If your login is successful, the Plantweb Cloud platform opens.

5.3 Open the application

Procedure

1. Sign in to the Plantweb Cloud at Cloud.Emerson.com.
2. Open the Remote Tank Monitoring application.



5.4 Create a new asset

Pair your sensor with a tank to create an asset.

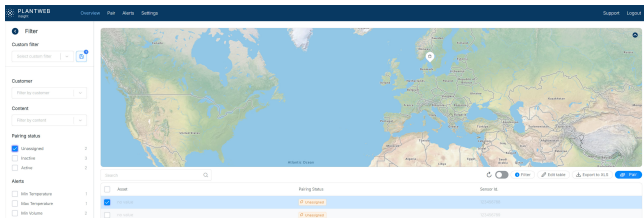
Procedure

1. If using the mobile version, select the ☰ menu icon at the top right.

2. Select **Pair** and follow the on-screen instructions.
You can also select the unassigned sensor from the **Overview** screen, and then select **Pair**.

Tip

Use the search box or filter by unassigned to find your sensor quickly.



6 Operation and maintenance

6.1 LED indicators

6.1.1 Status LED indicator

The status LED flashes blue during the measurement and data transfer cycle. The status LED will be off between each cycle.

Figure 6-1: Blue Status LED

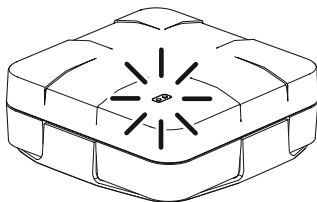
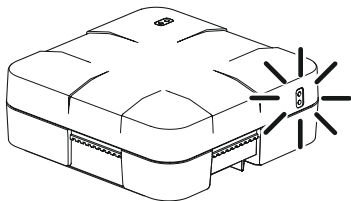


Table 6-1: Light Status (While in Use)

LED state		Indicates
	Flashes (once per second)	New measurement/data transfer cycle
	Off	Sleep mode

6.1.2 Charging LED indicator

The LED on the Rosemount 408 lights up solid red during charging. When charging is complete, the red light turns off.

Figure 6-2: Red Charging LED**Table 6-2: Light Status (While Charging)**

LED state		Indicates
	Solid red	Charging
	Off	Charging complete

6.2 Storage

For longer storage, it is recommended to:

- Store the device at room temperature.
- Store the device at a charge status of 30-50%.
- Periodically recharge the device a few hours every three to six months.

6.3 Cleaning the device

Procedure

Use a damp cloth and a mild cleaning agent.

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00825-0100-0408, Rev. AA
November 2024

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

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ROSEMOUNT™



Rosemount™ 408 Wireless Level Sensor

Wireless Cellular Non-Contacting Radar



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1 Product certifications

Rev 0.19

1.1 European directive information

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

1.2 Ordinary location certification

As standard, the device 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).

Certificate

Standards UL Std. No. 61010-1

Specific conditions of use:

1. The device may only be charged in accordance with the instructions in the manual.

1.3 Environmental conditions

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

Type	Description
Location level measurement	Indoor or outdoor use ⁽¹⁾
Location charging	Indoor use ⁽²⁾
Maximum altitude level measurement	16405 ft. (5000 m)
Maximum altitude charging	6562 ft. (2000 m)
Operating pressure	±7.2 psi (±0.5 Bar)
Usage temperature (including batteries and SIM card)	-4 to +140°F (-20 to +60°C)
Charging temperature	+32 to +95°F (0 to +35°C)
Maximum relative humidity level measurement	100% (non-condensing)
Maximum relative humidity charging	See manual of used charger
Supply	Built-in batteries
Pollution degree	PD3 for level measurements PD2 for charging
Ingress protection	IP 65/IP 67, 4X/6P

(1) Suitable for use in wet location when used for level measurements.

(2) Not suitable for use in wet location during charging.

1.4 Telecommunication compliance

Hardware Version Identification Number (HVIN) is 408CC.

Tank radar

The Rosemount 408 Wireless Level Sensor is both an LPR and a TLPR.

LPR (Level Probing Radar) equipment are devices for measurement of level in the open air or in a closed space.

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).

According to RSS-211: TLPR devices shall be installed and operated in a completely enclosed container to prevent RF emissions, which can otherwise interfere with aeronautical navigation.

Measurement principle

Frequency Modulated Continuous Wave (FMCW), 80 GHz

Peak power

2 dBm (1.6 mW)

Frequency range

77 to 81 GHz

Cellular

- Cellular (GSM):
 - GSM900: 880-915 MHz
 - GSM1800: 1710-1785 MHz
- GSM850 (GPRS): 824.2-848.8 MHz
- GSM850 (EDGE): 824.2-848.8 MHz
- GSM1900 (GPRS): 1850.2-1909.8 MHz
- GSM1900 (EDGE): 1850.2-1909.8 MHz
- LTE Category M1: 703-1980 MHz
B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/
B28/B66/B85
- NB-IOT Category NB2: 703-1980 MHz
B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B28/B66/
B71/B85
- Integrated GNSS

Peak power

- EGSM: 33 dBm
- LTE: 23 dBm

Wireless charging

See documentation from the used charger.

1.5 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

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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 K8C408CC (for LPR/TLPR)

The product contains Quectel BG95-M5 with FCC ID XMR20200BG95M5

[Any] changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The device is compliant with the FCC Code of Federal Regulations, CFR 47, Part 15, Sections 15.209.

For these LPR (Level Probe Radar) applications the devices must be professionally installed in a downward operating position. LPR devices operating under the provisions of this section shall be installed only at fixed locations. The LPR device shall not operate while being moved, or while inside a moving container.

In addition, the devices must not be mounted in a zone of 4 km around RAS stations and within a radius of 40 km around RAS stations. The maximum operating height of devices is 49 ft. (15 m) above ground.

The GNSS receiver is compliant with the FCC Code of Federal Regulations, CFR 47, Part 15.

1.6 IC

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

1. This device may not cause harmful 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. The equipment shall be professionally installed and maintained to ensure a vertically downward orientation of the transmit antenna and the installation shall be only at fixed locations; installation is not required at the time of certification. Hand-held and residential consumer applications are not permitted.

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6. The installer/user of this device shall ensure that it is at least 10 km from the Dominion Astrophysical Radio Observatory (DRAO) near Penticton, British Columbia. The coordinates of the DRAO are latitude 49°19'15"N and longitude 119°37'12" W. For devices not meeting this 10 km separation (e.g., those in the Okanagan Valley, British Columbia,) the installer/user must coordinate with, and obtain the written concurrence of, the Director of the DRAO before the equipment can be installed or operated. The Director of the DRAO may be contacted at 250-497-2300 (tel.) or 250-497-2355 (fax). (Alternatively, the Manager, Regulatory Standards, Industry Canada, may be contacted.)

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'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/TLPR doit être effectuée par des installateurs qualifiés, en pleine conformité avec les instructions du fabricant.
4. l'appareil doit être installé de manière professionnelle et entretenu pour assurer une orientation verticale vers le bas de l'antenne d'émission et l'installation doit se faire seulement à des emplacements fixes; l'installation n'est pas requise au moment de la certification. Il est à noter que les applications portatives et résidentielles ne sont pas permises.
5. Ce dispositif ne peut être exploité qu'en régime de non-brouillage et de non-protection, c'est-à-dire que

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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.

6. La personne qui installe/utilise ce capteur de niveau doit s'assurer qu'il se trouve à au moins 10 km de l'Observatoire fédéral de radioastrophysique (OFR) de Penticton en Colombie-Britannique. Les coordonnées de l'OFR sont: latitude N 49° 19' 15", longitude O 119° 37' 12". La personne qui installe/utilise un dispositif ne pouvant respecter cette distance de 10 km (p. ex. dans la vallée de l'Okanagan [Colombie-Britannique]) doit se concerter avec le directeur de l'OFR afin d'obtenir de sa part une autorisation écrite avant que l'équipement ne puisse être installé ou mis en marche. Le directeur de l'OFR peut être contacté au 250-497-2300 (tél.) ou au 250-497-2355 (fax). (Le Directeur des Normes réglementaires d'Industrie Canada peut également être contacté).

Certificate

2827A-408CC (for LPR/TLPR)

The product contains Quectel BG95-M5 with IC id 10224A-2020BG95M5

Le produit contient Quectel BG95-M5 avec IC id 10224A-2020BG95M5

1.7 FCC and IC

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body

(SAR). This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps. Ce transmetteur ne doit pas être placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

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

Open air installations

Rosemount 408 complies with ETSI EN 302729 and EN 62479.

The LPR antenna shall be installed at a permanent fixed position pointing in downward direction. In addition the antenna positioning, or height from the ground, shall observe two restrictions as follows:

- A separation distance of 4 km from Radio Astronomy sites in 6 GHz to 8.5 GHz (A), 24.05 GHz to 26.5 GHz (B) and 75 GHz to 85 GHz (C) frequency bands, unless a special authorization has been provided by the responsible National regulatory authority (a list of Radio Astronomy sites is evident from 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.

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 [6].

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- Performance criterion: measurement value variation Δd over time during a distance measurement
- Level of performance: $\Delta d \leq \pm 10 \text{ mm}$

1.9 EU Declaration of Conformity

Figure 1-1: EU Declaration of Conformity

Rev. DRAFT	
	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™ 408CC Wireless Level Sensor 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)	6-Mar-24; Mölnlycke (date of issue & place)
Page 1 of 2	



Declaration of Conformity



EMC Directive (2014/30/EU)

Harmonized Standards:

EN 61326-1:2013, ETSI EN 301 489-1 V 1.9.2

Other Standards Used:

EN IEC 61326-1:2021, ETSI EN 301 489-1 V2.2.3, ETSI EN 301 489-3 V2.3.2, ETSI EN 301 489-19 V2.2.1, 301 489-52 V1.2.1

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

Harmonized Standards:

ETSI EN 302 372 V1.2.1, ETSI EN 302 729 V2.1.1, ETSI EN 301 511 V 12.5.2, ETSI EN 301 908-1 V 13.1.1, ETSI EN 301 908-13 V13.2.1, ETSI EN 303 413 V1.1.1,

Other Standards Used:

ETSI EN 303 417

Low Voltage Directive (2014/35/EU)

Harmonized Standards:

EN 61010-1:2010/A1:2019/AC:2019-04, EN 62311:2008

RoHS Directive (2011/65/EU) Amended 2015/863

Harmonized standards:

EN IEC 63000:2018

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Product Certifications
00880-0100-0408, Rev. AA
May 2025

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