

Rosemount™ 1208C Level and Flow Transmitter

Non-Contacting Radar with HART® Protocol



1 Product certifications

Rev 0.41

Note

The most recent revision can be found at [Emerson.com/Rosemount](https://www.emerson.com/Rosemount).

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](https://www.emerson.com/Rosemount).

1.2 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).

1.2.1 Power supply

The current to the device shall be limited to max 4.28 A, or have a current-breaking device installed breaking at max 5.71 A (within 120 seconds).

1.3 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)
Operating pressure	-14.5 to 43.5 psig (-1 to +3 Bar)
Ambient temperature	-40 to 176 °F (-40 to 80 °C)
Installation category	DC supplied
Electrical supply	14-35 Vdc, 0.8 W
Mains supply voltage fluctuations	Safe at 14-35 Vdc ±10%
Pollution degree	2

1.4 Telecommunication compliance

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).

Hardware Version Identification Number (HVIN) is 1208CL1 or 1208CLB1 (without or with Bluetooth®).

Measurement principle

Frequency Modulated Continuous Wave (FMCW), 80 GHz

Maximum output power

3 dBm (2 mW)

Frequency range

77 to 81 GHz

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

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 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 K8C1208CL (for LPR/TLPR without Bluetooth®)
K8C1208CLB (for LPR/TLPR with Bluetooth)

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 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. 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. 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-1208CL (for LPR/TLPR without Bluetooth®)
 2827A-1208CLB (for LPR/TLPR with Bluetooth)

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

This device complies with ETSI EN 302 372 (TLPR), ETSI EN 302 729 (LPR), EN 301 489-1, EN 301 489-17, EN 301 489-33, EN 300 328 (Bluetooth®), and EN 62479.

Open air installations

Install at a separation distance of >4 km from Radio Astronomy sites, unless a special authorization has been provided by the responsible National regulatory authority (a list of Radio Astronomy sites may be found at www.craf.eu).

Between 4 km to 40 km around any Radio Astronomy site the LPR antenna height shall not exceed 15 m height above ground.

Closed tanks

The device must be installed in closed tanks (metal, reinforced concrete tanks or similar enclosure structures made of comparable attenuating material). 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 [6].

- Performance criterion: measurement value variation Δd over time during a distance measurement
- Level of performance: $\Delta d \leq \pm 2 \text{ mm}$

1.8 Radio/EMC Australia and New Zealand

Rosemount 1208C complies with the requirements of the relevant ACMA Standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997 and the relevant Standards made under The New Zealand Radio Communication Act 1989.

In New Zealand, Rosemount 1208C must be installed in closed tanks (metal, reinforced concrete tanks or similar enclosure structures made of comparable attenuating material).

1.9 Other radio approvals

1.9.1 Argentina



H-30321 (with Bluetooth®)

H-30322 (without Bluetooth)

1.9.2 Brazil


This equipment is not entitled to protection against harmful interference and may not cause interference with properly authorized systems.

This product is not suitable for use in residential environments, as it may cause electromagnetic interference that requires the user to take necessary actions to minimize such interference.

The product installation must be located at least 4 km away from the radio astronomy stations.

The installation height of the product must be less than 15 meters, when installed at a distance of up to 40 km from the radio astronomy stations. This model can be used in outdoor and indoor environments.

1.9.3 Republic of Korea (Radio and EMC)

	상호 또는 성명	Rosemount Tank Radar AB(RTR)
	기자재 명칭	Rosemount 1208 Level Transmitter
	모델명	1208A
	인증번호	R-R-Rtr-1208
	제조년월	2023. .
	제조사/제조국가	Rosemount Tank Radar AB(RTR)/스웨덴, 싱가포르, 미국

1.9.4 Singapore

Complies with
IMDA standards
DA100927

1.9.5 South Africa



1.9.6 Taiwan

Without permission granted by the NCC, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to an approved low power radio-frequency device. The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications means radio communications is operated in compliance with the Telecommunications Management Act. The low power radio-frequency devices must accept any interference from legal communications or ISM radiowave radiated devices.

1.9.7 Thailand

This telecommunication equipment conforms to NTC technical requirements.

เครื่องโทรคมนาคมและอุปกรณ์นี้มีความสอดคล้องตามมาตรฐานหรือข้อกำหนดทางเทคนิค ของ กสทช

1.9.8 Other national spectrum approvals

Radio devices usually require certification to ensure they adhere to regulations regarding the use of radio frequency (RF) spectrum. Many countries require this type of product certification.

Emerson is working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing radio device usage.

1.10 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.

1.11 USA

1.11.1 Type Non-incendive, Ex ec: Increased Safety

Certificate	FM23US0017X
Standards	FM3600:2022, FM3611:2021, FM3810:2021, ANSI/UL 60079-0:2019, ANSI/UL 60079-7:2021, ANSI/IEC 60529:2020, ANSI/UL 61010-1:2018, ANSI/UL 121201:2021, ANSI/UL 50E.2020
Markings	NI, CI I, Div 2, Grps A, B, C, D; T4; CI I Zone 2, AEx ec IIC T4 Gc; Type 4X, Type 6P, IP54

Specific Conditions of Use (X):

1. The ambient temperature range of the Model 1208C Transmitter is -30°C to +60°C when the power connector is mated with the Turck Connector & Cable Part No. RK 4.4T-5.
2. The power connector, when mated with the Turck Connector & Cable Part No. RK 4.4T-5, shall be tool secured using the Turck Captive Safety clip P/N SC-M12/3GD.
3. The ambient temperature range of the Model 1208C Transmitter is -30°C to +80°C when the mating power connector and cable is chosen by the installer. The mating power connector and cable shall be rated for the ambient range as appropriate.
4. When the mating power connector and cable is chosen by the installer, the power connector and mate shall only be

removable with the use of a tool, and shall be connected and installed in accordance with the NEC® (NFPA 70) per Division 2 or Zone 2 installation, as applicable. The mated power connection shall provide and maintain a degree of protection at least IP54 after conditioning and impacts according to UL 60079-0 and UL 60079-7 requirements.

5. When the mating power connector and cable is chosen by the installer, the power connection shall provide and maintain Type 4X and Type 6P to the requirements of UL50E.
6. The surface of the Model 1208C Transmitter enclosure may cause risk from electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
7. The Model 1208C Transmitter shall only be installed into areas where there is low risk of mechanical danger.

1.12 Canada

1.12.1 Type Non-incendive, Ex ec: Increased Safety

Certificate	FM23CA0010X
Standards	CSA C22.2 No. 94.2:2020, CSA C22.2 No. 213:2017, CSA C22.2 No. 60079-0:2019, CSA C22.2 No. 60079-7:2018, CSA C22.2 No. 60529:2016, CSA C22.2 No. 61010-1:2019
Markings	NI, CI I, Div 2, Grps A, B, C, D; T4 Ex ec IIC T4 Gc Type 4X; Type 6P; IP54


Specific Conditions of Use (X):

1. The ambient temperature range of the Model 1208C Transmitter is -30°C to +60°C when the power connector is mated with the Turck Connector & Cable Part No. RK 4.4T-5.
2. The power connector, when mated with the Turck Connector & Cable Part No. RK 4.4T-5, shall be tool secured using the Turck Captive Safety Clip P/N SC-M12/3GD.
3. The ambient temperature range of the Model 1208C Transmitter is -30°C to +80°C when the mating power connector and cable is chosen by the installer. The mating power connector and cable shall be rated for the ambient range as appropriate.

4. When the mating power connector and cable is chosen by the installer, the power connector and mate shall only be removable with the use of a tool, and shall be connected and installed in accordance with the Canadian Electrical Code per Division 2 or Zone 2 installation, as applicable. The mated power connection shall provide and maintain a degree of protection at least IP54 after conditioning and impacts according to CSA C22.2 No 60079-0 and CSA C22.2 No 60079-7 requirements.
5. When the mating power connector and cable is chosen by the installer, the power connection shall provide and maintain Type 4X and Type 6P to the requirements of CSA C22.2 No. 94.2.
6. The surface of the Model 1208C Transmitter enclosure may cause risk from electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
7. The Model 1208C Transmitter shall only be installed into areas where there is low risk of mechanical danger.

1.13 Europe

1.13.1 ATEX Type e: Increased Safety

Certificate	FM23ATEX0012X
Standards	EN IEC 60079-0:2018, EN 60079-7:2015+A1:2018, EN 60529:1991+A1:2000+A2:2013
Markings	 II 3G Ex ec IIC T4 Gc IP54

Specific Conditions of Use (X):

1. The ambient temperature range of the Model 1208C Transmitter is -30°C to +60°C when the power connector is mated with the Turck Connector & Cable Part No. RK 4.4T-5.
2. The power connector, when mated with the Turck Connector & Cable Part No. RK 4.4T-5, shall be tool secured using the Turck Captive Safety Clip P/N SC-M12/3GD.
3. The ambient temperature range of the Model 1208C Transmitter is -30°C to +80°C when the mating power connector and cable is chosen by the installer. The mating power connector and cable shall be rated for the ambient range as appropriate.

4. When the mating power connector and cable is chosen by the installer, the power connector and mate shall only be removable with the use of a tool, and shall be connected and installed in accordance with EN 60079-14. The mated power connection shall provide and maintain a degree of protection at least IP54 after conditioning and impacts according to EN IEC 60079-0 and EN IEC 60079-7 requirements.
5. The surface of the Model 1208C Transmitter enclosure may cause risk from electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
6. The Model 1208C Transmitter shall only be installed into areas where there is low risk of mechanical danger.

1.14 International

1.14.1 IECEx Type e: Increased Safety

Certificate	IECEx FMG23.0007X
Standards	IEC 60079-0:2017, IEC 60079-7:2015+A1:2017, ANSI/IEC 60529:2020
Markings	Ex ec IIC T4 Gc IP54

Specific Conditions of Use (X):

1. The ambient temperature range of the Model 1208C Transmitter is -30°C to +60°C when the power connector is mated with the Turck Connector & Cable Part No. RK 4.4T-5.
2. The power connector, when mated with the Turck Connector & Cable Part No. RK 4.4T-5, shall be tool secured using the Turck Captive Safety Clip P/N SC-M12/3GD.
3. The ambient temperature range of the Model 1208C Transmitter is -30°C to +80°C when the mating power connector and cable is chosen by the installer. The mating power connector and cable shall be rated for the ambient range as appropriate.
4. When the mating power connector and cable is chosen by the installer, the power connector and mate shall only be removable with the use of a tool, and shall be connected and installed in accordance with IEC 60079-14. The mated power connection shall provide and maintain a degree of protection at least IP54 after conditioning and impacts according to IEC 60079-0 and IEC 60079-7 requirements.

5. The surface of the Model 1208C Transmitter enclosure may cause risk from electrostatic discharge. Avoid installation that could cause electrostatic build-up, and only clean with a damp cloth.
6. The Model 1208C Transmitter shall only be installed into areas where there is low risk of mechanical danger.

1.15 Brazil

1.15.1 Increased Safety

Certificate UL-BR 24.1068X

Markings Ex ec IIC T4 Gc

Specific Conditions of Use (X):

See certificate.

1.16 India

1.16.1 Increased Safety

Certificate PESO P582530/1

Markings Ex ec IIC T4 Gc

Specific Conditions of Use (X):

See certificate.

1.17 Republic of Korea

1.17.1 Increased Safety

Certificate 24-KA4BO-0159X

Markings Ex ec IIC T4 Gc

Specific Conditions of Use (X):

See certificate.

1.18 United Arab Emirates

1.18.1 Increased Safety

Certificate 24-08-23274/Q24-08-049503/NB0002

Markings Ex ec IIC T4 Gc IP54

Specific Conditions of Use (X):

See certificate.

1.19 Hygienic approvals

The process wetted components comply with:

- FDA 21 CFR 110, subpart C
- EC 1935/2004
- TSE/BSE Free

1.19.1 Instructions for hygienic installations

To conform with applicable hygienic standards and food and beverage legislation and regulations, the Rosemount 1208C must be:

- Installed in a closed tank.

It is the responsibility of the user to ensure that:

- The materials listed in [Table 1-2](#) are suitable for the media and cleaning/sanitizing processes.
- The installation of the transmitter is drainable and cleanable.
- The joint/clamping between the transmitter and the nozzle is compatible with the tank pressure and media.
- The product contact surfaces are not scratched.

1.19.2 Materials of construction

The hygienic approvals and certificates of the transmitter rely upon the following materials used in its construction:

Table 1-2: Product Contact Surfaces

Item	Material	Compliant with
PVDF	PVDF Kynar 720	FDA 21 CFR 177.2510 EG regulations 1935/2004 GMP 2023/2006 REACH 1907/2006 EC 10/2011 TSE/BSE Free USP<88> Class VI
Grey EMA MB	EMA 3C110	EG regulations 1935/2004 GMP 2023/2006 EU10/2011 EG Regulations 282/2008, 2015/863 RoHS 2011/65/EU RoHS 2015/863
EPDM	E70107PF	FDA 21 CFR 177.2600 EG regulations 1935/2004 GMP 2023/2006 REACH 1907/2006 RoHS 2011/65/EU RoHS 2015/863 TSE/BSE free

1.20 Water approvals

1.20.1 UK – WRAS

Certificate	2305912 and Letter-2305912
Standards	The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009, and all other applicable WRAS requirements
Installation requirement	IRN R001

1.20.2 USA – NSF61 & 372

Certificate	C0725667 and C0725668
Standards	Complying with NSF/ANSI/CAN61, 372 and all applicable requirements

1.20.3 Germany – KTW – BWGL

Certificate	P1-031-01
Standards	DIN EN 12873-1 and DIN EN 16421


1.21 Overfill prevention

1.21.1 Belgium - Vlarem


Certificate	AUD/35/61191725/00/NL/004
Standards	Vlarem II Chapter 5.6 Vlarem II Chapter 5.17 Vlarem II Annex 5.17.7

1.22 EU Declaration of Conformity

Figure 1-1: EU Declaration of Conformity



Declaration of Conformity



Rev. #3

We,

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

declare under our sole responsibility that the product,


Rosemount™ 1208 Level Transmitter

manufactured by,

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

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

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

 <hr style="border: 0; border-top: 1px solid black;"/> <p style="font-size: small;">(signature)</p>	<p>Sr. Manager Product Approvals</p> <hr style="border: 0; border-top: 1px solid black;"/> <p style="font-size: small;">(function)</p>
<p>Dajana Prastalo</p> <hr style="border: 0; border-top: 1px solid black;"/> <p style="font-size: small;">(name)</p>	<p>18-Oct-24; Mölnlycke</p> <hr style="border: 0; border-top: 1px solid black;"/> <p style="font-size: small;">(date of issue & place)</p>

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Declaration of Conformity



EMC Directive (2014/30/EU)

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

ATEX Directive (2014/34/EU)

FM23ATEX0012X
Equipment Group II Category 3 G
Ex ec IIC T4 Gc
Harmonized Standards
EN IEC 60079-0:2018
EN 60079-7:2015 +A1:2018

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

Harmonized Standards:
ETSI EN 302 372 V2.1.1
ETSI EN 302 729 V2.1.1
ETSI EN 300 328 V2.2.2
ETSI EN 301 489-1 V.2.2.3
ETSI EN 301 489-17 V3.2.4
ETSI EN 301 489-33 V.2.2.1
EN 62479: 2010

Low Voltage Directive (2014/35/EU)

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

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

Harmonized Standards:
EN IEC 63000:2018



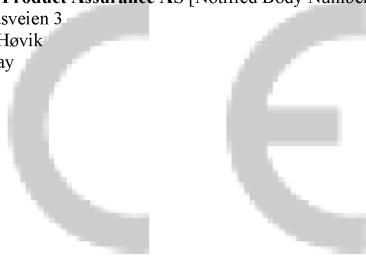
Declaration of Conformity

ATEX Directive Notified Body

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

ATEX Notified body for Quality Assurance

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



1.23 China RoHS

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

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

This table is proposed in accordance with the provision of SJ/T11364

本表格系依据SJ/T11364的规定而制作。

O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

O: 意为该部件的所有均质材料中该有害物质的含量均低于GB/T 26572所规定的限量要求。

X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

X: 意为在该部件所使用的的所有均质材料里，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
00880-0200-7062, Rev. AF
November 2024

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

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