

# Rosemount™ 248 Head Mount Temperature Transmitter



Safety Messages

**⚠ WARNING**

**Explosions could result in death or serious injury.**

Installation of device in an explosive environment must be in accordance with appropriate local, national, and international standards, codes, and practices. Review the Hazardous Locations Certifications for any restrictions associated with a safe installation.

**⚠ WARNING**

**Process leaks could result in death or serious injury.**

Before applying pressure, install and tighten thermowells and sensors. Do not remove the thermowell while in operation.

**⚠ WARNING**

**Electrical shock could cause death or serious injury.**

Avoid contact with the leads and terminals. High voltage that may be present on leads can cause electrical shock. Unless marked, the conduit/cable entries in the housing use a ½-14 NPT thread form. Entries marked M20 are M20 x 1.5 thread form. On devices with multiple conduit entries, all entries will have the same thread form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries. When installing in a hazardous location, use only appropriately listed or Ex certified plugs, glands, or adapters in cable/conduit entries.

**⚠ 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 to protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

**Note**

Refer to Product Certification section of this Quick Start Guide documentation when using the RFID tag (option code Y3) for required installation conditions.

**Contents**

About this guide.....	5
Configuration.....	6

Transmitter installation..... 9

Connect the wiring..... 14

Perform a loop test..... 19

Certified installations..... 20

Product certifications..... 21



# 1 About this guide

This guide provides basic guidelines to install the Rosemount 248 Head Mount Temperature Transmitter. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting, or installations. Refer to the [Rosemount 248 Temperature Transmitter Reference Manual](#) for more instruction. The manual and this guide are also available electronically at [Emerson.com/Global](https://www.emerson.com/global).

## 2 Configuration

### 2.1 Bench calibration

There are three ways to configure the transmitter:

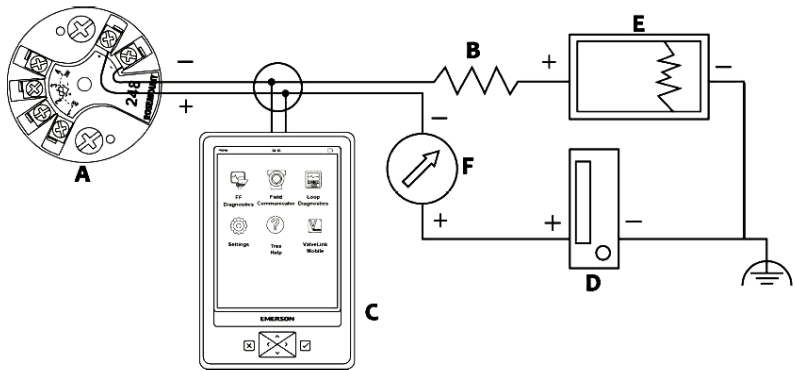
- Field Communicator
- Rosemount 248 PC Programming Kit
- Custom at the factory using the C1 option code

Refer to the Rosemount 248 [Reference Manual](#) and the Field Communicator [User Guide](#) for more information.

#### Connecting a field communicator

The Field Communicator Field Device Revision Dev v1, DD v1 or later is required for complete functionality.

**Figure 2-1: Connecting a Field Communicator to a Bench Loop**



- A. Rosemount 248 Transmitter
- B.  $250 \Omega \leq RL \leq \Omega 1100$
- C. Field Communicator
- D. Power supply
- E. Recorder (optional)
- F. Ampere meter (optional)

#### Note

Do not operate when power is below 12 Vdc at the transmitter terminal.

## 2.2 Verify transmitter configuration

To verify operation using a Field Communicator, refer to the Rosemount 248 [Reference Manual](#) for more detailed description.

## 2.3 Install PC programmer kit (HART® 5 only)

### Procedure

1. Install all necessary software for PC configuration:
  - a) Install the Rosemount 248C software
    1. Place the CD-Rom in the drive.
    2. Run **setup.exe** from Windows™ 7, 8, 10, or XP.
  - b) Install the MACTek® HART modem drivers completely before beginning bench configuration with the Rosemount 248 PC Programming system.

---

### Note

For USB modem: Upon first use, configure appropriate COM ports within the Rosemount 248 PC software by selecting **Port Settings** from the *Communicate* menu. The USB modem driver emulates a COM port and will add to available port selections in the software's drop-down box. Otherwise, the software will default to the first available COM port, which may not be correct.

---

2. Set up configuration system hardware:
  - a) Hook up the transmitter and load resistor (250-1100 ohms) wired in series with the power supply.

---

### Note

The device will need an external power supply of 12-42.4 Vdc for configuration.

---

- b) Attach the HART modem in parallel with the load resistor and connect it to the PC.

### 2.3.1 Spares kit and re-order numbers

**Table 2-1: Programming Kit Spare Part Numbers**

Product description	Part number
Programming software (CD)	00248-1603-0002
Rosemount 248 Programmer Kit - USB	00248-1603-0003

**Table 2-1: Programming Kit Spare Part Numbers *(continued)***

<b>Product description</b>	<b>Part number</b>
Rosemount 248 Programmer Kit - Serial	00248-1603-0004

**Related information**

[Rosemount 248 Reference Manual](#)



## 3 Transmitter installation

### 3.1 Mount the transmitter

Mount the transmitter at a high point in the conduit run. This will prevent moisture from draining into the transmitter housing.

### 3.2 Head mount transmitter with DIN plate style sensor installation

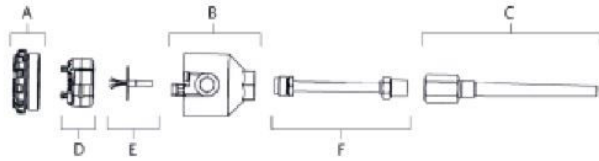
#### Procedure

1. Attach the thermowell to the pipe or process container wall. Install and tighten thermowells before applying process pressure.
2. Assemble the transmitter to the sensor.
  - a) Push the transmitter mounting screws through the sensor mounting plate.
3. Wire the sensor to the transmitter.
4. Insert the transmitter-sensor assembly into the connection head:
  - a) Thread the transmitter mounting screw into the connection head mounting holes.
  - b) Assemble the extension to the connection head.
  - c) Insert the assembly into the thermowell.
5. Slip the shielded cable through the cable gland.
6. Attach a cable gland into the shielded cable.
7. Insert the shielded cable leads into the connection head through the cable entry. Connect and tighten the cable gland.
8. Connect the shielded power cable leads to the transmitter power terminals. Avoid contact with sensor leads and sensor connections.
9. Install and tighten the connection head cover.

#### **⚠ CAUTION**

Enclosure covers must be fully engaged to meet explosion-proof requirements.

---

**Figure 3-1: Typical European and Asia Pacific Installation**

- A. Connection head cover
- B. Connection head
- C. Thermowell
- D. Rosemount 248 Transmitter
- E. Integral mount sensor with flying leads
- F. Extension

### 3.3 Head mount transmitter with threaded sensor installation (two or three entries)

#### Procedure

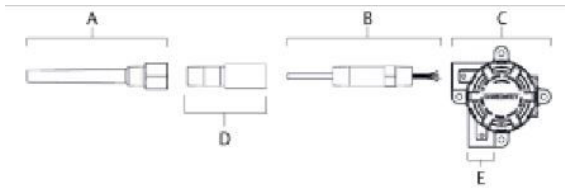
1. Attach the thermowell to the pipe or process container wall. Install and tighten the thermowell before applying the process pressure.
2. Attach necessary extension nipples and adapters to the thermowell.
3. Seal the nipple and adapter threads with silicone tape.
4. Screw the sensor into the thermowell. If required, install drain seals for severe environments or to satisfy code requirements.
5. Pull the sensor wiring leads through the universal head and transmitter.
6. Mount the transmitter in the universal head by threading the transmitter mounting screws into the universal head mounting holes.
7. Mount the transmitter-sensor assembly into the thermowell. Seal adapter threads with silicone tape.
8. Install conduit for field wiring to the conduit entry of the universal head. Seal conduit threads with silicone tape.
9. Pull the field wiring leads through the conduit into the universal head.
10. Attach the sensor and power leads to the transmitter. Avoid contact with other terminals.

11. Install and tighten the universal head cover.

### **⚠ CAUTION**

Enclosure covers must be fully engaged to meet explosion-proof requirements.

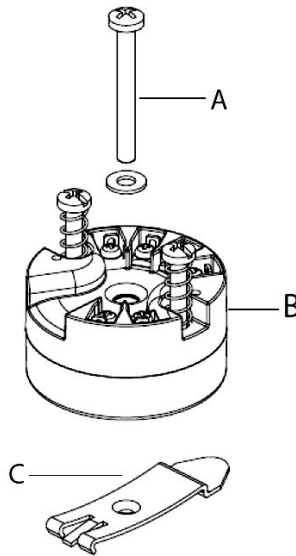
**Figure 3-2: Typical North and South American Installation**



- A. Threaded thermowell
- B. Threaded style sensor
- C. Universal head
- D. Standard extension
- E. Conduit entry

## 3.4 Mounting to a DIN rail

To attach a head mount transmitter to a DIN rail, assemble the appropriate rail mounting kit (Part number 00248-1601-0001).

**Figure 3-3: Assembling Rail Clip Hardware**

- A. Mounting hardware
- B. Transmitter
- C. Rail clip

### 3.4.1 Rail mount transmitter with remote mount sensor

The basic assembly configuration consists of a remote-mounted transmitter, an integral mount sensor with terminal block, an integral style connection head, a standard extension, and a threaded thermowell.

The most basic assembly uses:

- Remote mounted transmitter
- Integral mount sensor with terminal block
- Integral style connection head
- Standard extension
- Threaded thermowell

Refer to the [Rosemount DIN-Style Temperature Sensors and Thermowells \(Metric\) Product Data Sheet](#) for complete sensor and mounting accessory information.

### 3.4.2 Rail mount transmitter with threaded sensor

The most basic temperature sensor assembly consists of a threaded sensor with flying leads, a threaded connection head, a union and nipple extension, and a threaded thermowell.

The least complicated assembly uses:

- Threaded sensor with flying heads
- Threaded sensor connection head
- Union and nipple extension assembly
- Threaded thermowell

Refer to [Rosemount DIN-Style Temperature Sensors and Thermowells \(Metric\) Product Data Sheet](#) for complete sensor and mounting accessory information.

## 4 Connect the wiring

### 4.1 Diagrams and power

- Wiring diagrams are located on the top label of the transmitter.
- An external power supply is required to operate the transmitter.
- The power required across the transmitter power terminals is 12 to 42.4 Vdc (the power terminals are rated to 42.4 Vdc).

---

#### Note

To prevent damaging the transmitter, do not allow terminal voltage to drop below 12.0 Vdc when changing the configuration parameters.

---

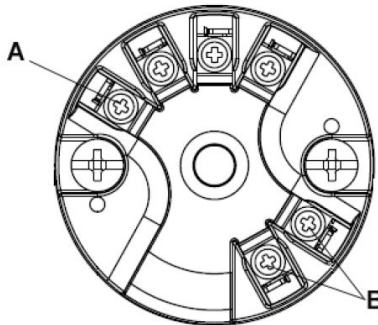
#### 4.1.1 Power the transmitter

##### Procedure

1. Connect the positive power lead to the "+" terminal.
2. Connect the negative power lead to the "-" terminal.
3. Tighten the terminal screws.
4. Apply power (12–42 Vdc).

---

**Figure 4-1: Power, Communication, and Sensor Terminals**



A. *Sensor terminals*

B. *Power/communication terminals*

---

### 4.1.2 Ground the transmitter

#### Ungrounded thermocouple, mV, and RTD/Ohm inputs

Each process installation has different requirements for grounding. Use the grounding options recommended by the facility for the specific sensor type, or begin with grounding Option 1, which is the most common option.

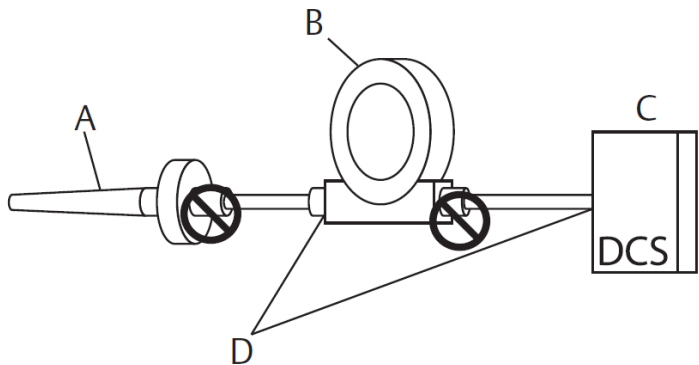
### 4.1.3 Ground the transmitter: Option 1

Use this method for grounded housing.

#### Procedure

1. Connect sensor wiring shield to the transmitter housing.
2. Ensure the sensor shield is electrically isolated from surrounding fixtures that may be grounded.
3. Ground signal wiring shield at the power supply end.

**Figure 4-2: Option 1: Grounded Housing**



- A. Sensor wires
- B. Transmitters
- C. DCS host system
- D. Shield ground point

### 4.1.4 Ground the transmitter: Option 2

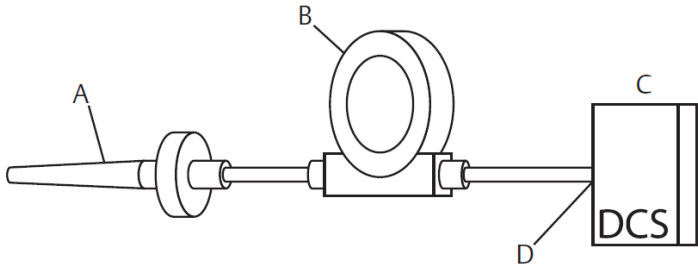
Use this method for grounded housing.

#### Procedure

1. Connect signal wiring shield to the sensor wiring shield.

2. Ensure the two shields are tied together and electrically isolated from the transmitter housing.
3. Ground shield at the power supply end only.
4. Ensure the sensor shield is electrically isolated from the surrounding grounded fixtures.

**Figure 4-3: Option 2: Grounded Housing**



- A. Sensor wires
- B. Transmitters
- C. DCS host system
- D. Shield ground point

#### 4.1.5 Ground the transmitter: Option 3

Use this method for either grounded or ungrounded housing.

##### Procedure

1. If possible, ground sensor wiring shield at the sensor.
2. Ensure that the sensor wiring and signal wiring shields are electrically isolated from the transmitter housing.

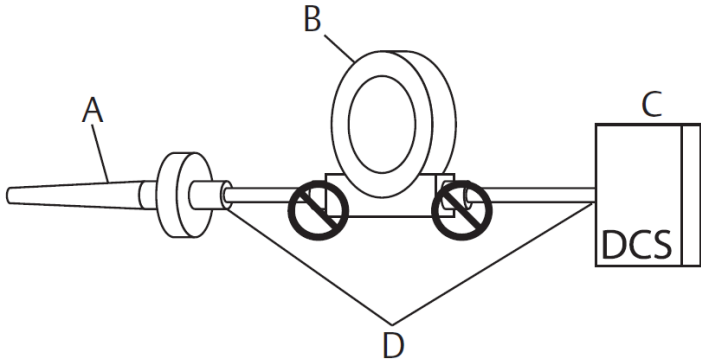
##### Note

Do not connect the signal wiring shield to the sensor wiring shield.

3. Ground the signal wiring shield at the power supply end.



---

**Figure 4-4: Option 3: Grounded or Ungrounded Housing**


- A. *Sensor wires*
  - B. *Transmitters*
  - C. *DCS host system*
  - D. *Shield ground point*
- 

#### 4.1.6 Ground the transmitter: Option 4

Use this method for grounded thermocouple inputs.

##### Procedure

1. Ground sensor wiring shield at the sensor.
2. Ensure that the sensor wiring and signal wiring shields are electrically isolated from the transmitter housing.

---

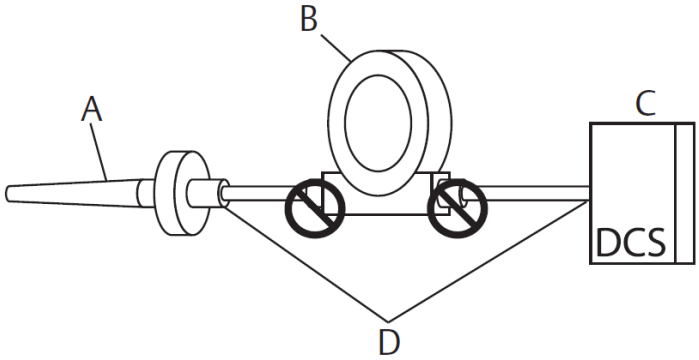
##### Note

Do not connect the signal wiring shield to the sensor wiring shield.

---

3. Ground the signal wiring shield at the power supply end.

**Figure 4-5: Option 4: Grounded Thermocouple Inputs**



- A. Sensor wires
- B. Transmitters
- C. DCS host system
- D. Shield ground point

## 5 Perform a loop test

### 5.1 Overview

The loop test command verifies transmitter output, loop integrity, and operation of any recorders or similar devices installed in the loop.

---

**Note**

The loop tests are not available with the Rosemount 248C Configuration Interface.

---

### 5.2 Initiate loop test

**Procedure**

1. Connect an external ampere meter in series with the transmitter loop. This is to enable the power to the transmitter to go through the meter at some point in the loop.
2. From the **Home** screen, select: **1. Device Setup** → **2. Diag/Serv** → **1. Test Device** → **1. Loop Test**
3. Select a discrete milliampere level for the transmitter to output. At **Choose Analog Output**, select **1. 4 mA**, **2. 20 mA**, or **3. Other** to manually input a value between 4 and 20 mA.
4. Select **Enter** to show the fixed output.
5. Select **OK**.
6. In the test loop, ensure that the fixed mA input and the transmitter's mA output are the same value.

---

**Note**

If the readings do not match, either the transmitter requires an output trim or the current meter is malfunctioning.

---

After completing the test, the display returns to the loop test screen and allows you to choose another output value.

### 5.3 End the loop test

**Procedure**

1. Select **5. End**.
2. Select **Enter**.

## 6 Certified installations

For Safety Certified installations, refer to the [Rosemount 248 Reference Manual](#). You can access this manual electronically at [Emerson.com/Global](https://www.emerson.com/global) or by contacting an Emerson representative.

## 7 Product certifications

### 7.1 European Directive information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at [Emerson.com/global](https://www.emerson.com/global).

### 7.2 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).

### 7.3 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.

### 7.4 USA

#### 7.4.1 E5 USA Explosion-proof and Dust-Ignitionproof

**Certificate** 1091070

**Markings** **XP** CL I, DIV 1, GP B, C, D, T5

**DIP** CL II, DIV 1, GP E, F, G; CL III

T5 (-50 °C ≤ Ta ≤ +85 °C); Seal not required; Type 4X and IP 66/68; When installed per Rosemount 00644-1059

#### 7.4.2 I5 USA Intrinsic Safety and Nonincendive

**Certificate** 1091070

**Markings** **IS** CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; CL III

**NI** CL I, DIV 2, GP A, B, C, D

T5 (-50 °C ≤ Ta ≤ +80 °C), T6 (-50 °C ≤ Ta ≤ +60 °C); Type 4X; When installed per Rosemount 00248-1056

### 7.5 Canada

#### 7.5.1 I6 Canada Intrinsically Safe

**Certificate** 1091070

**Markings** **IS** CL I, DIV 1, GP A, B, C, D  
**NI** CL I, DIV 2, GP A, B, C, D  
 T5 (-50 °C ≤ Ta ≤ +80 °C), T6 (-50 °C ≤ Ta ≤ +60 °C); Type 4X; When installed per Rosemount 00248-1056

## 7.5.2 K6 Canada Intrinsically Safe, Explosion-proof, and Division 2

**Certificate** 1091070

**Markings** **XP** CL I, DIV 1, GP B, C, D, T5  
**DIP** CL II, DIV 1, GP E, F, G; CL III  
 T5 (-50 °C ≤ Ta ≤ +85 °C); Seal not required; Type 4X and IP 66/68; When installed per Rosemount 00644-1059  
 See I6 for Intrinsically safe and Division 2 offerings.

## 7.6 Europe

### 7.6.1 E1 ATEX Flameproof

**ATEX Certificate** DEKRA 19ATEX0076X

**Markings**  II 2 G Ex db IIC T6...T1 Gb

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

1. Flameproof joints are not intended for repair.
2. Non-Standard Paint options may cause risk from electrostatic discharge. Avoid installations that cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

#### Additional Specific Condition of Use (X) when "XA" designation is ordered:


1. Guard DIN Style sensors against impacts greater than 4J.

Process temperature range at sensor connection <sup>(1)</sup> (°C)	Ambient temperature range (°C)	Temperature class
-60 °C to +70 °C	-60 °C to +70 °C	T6
-60 °C to +80 °C	-60 °C to +80 °C	T5...T1

(1) *Sensor Connection is where the sensor threads into the transmitter or junction box housing.*

## 7.6.2 I1 ATEX Intrinsic Safety

**ATEX Certificate** Baseefa18ATEX0090X


**Markings**  II 1 G Ex ia IIC T5/T6 Ga, T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C), T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C)  
See [Table 7-2](#) at the end of the Product Certifications section for Entity Parameters

### Specific Conditions of Use (X):

The equipment, if supplied without an enclosure, must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1GΩ; light alloy or zirconium enclosures must be protected from impact and friction if located in a Zone 0 environment.



## 7.6.3 N1 ATEX Zone 2 – with enclosure

**Certificate** Baseefa18ATEX0091X

**Markings**  II 3 G Ex nA IIC T5/T6 Gc; Ex ec IIT T5/T6 GcT5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C), T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C)

## 7.6.4 NC ATEX Zone 2 – without enclosure

**Certificate** Baseefa18ATEX0091X

**Markings**  II 3G Ex nA IIC T5/T6 Gc  
 II 3G Ex ec IIT T5/T6 Gc  
T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C), T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C)

### Special Condition for Safe Use (X):

The equipment, if supplied without an enclosure, must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with IEC 60529, EN 60079-7, and EN 60079-15.

## 7.6.5 ND ATEX Dust

**ATEX Certificate** DEKRA 19ATEX0076X

**Markings**  II 2 D Ex tb IIIC T130 °C Db, (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

**Specific Condition of Safe Use (X):**

1. Flameproof joints are not intended for repair
2. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that cause electro-static build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If the paint is ordered through a special option code, contact the manufacturer for more information.

**Additional Specific Condition of Use (X) when “XA” designation is ordered:**

The spring-loaded adapter style sensors and DIN style sensors must be installed in a thermowell to maintain Ex tb protection.

Process Temperature Range at Sensor Connection <sup>(1)</sup> (°C)	Ambient Temperature Range (°C)	Maximum surface temperature “T”
-60 °C to +80 °C	-60 °C to +80 °C	T130 °C

(1) *Sensor Connection is where the sensor threads into the transmitter or junction box housing.*

## 7.7 International

### 7.7.1 E7 IECEx Flameproof and Dust

**Certificate** IECEx DEK 19.0041X

**Markings** Ex db IIC T6...T1 Gb; T6 (-60 °C ≤ T<sub>a</sub> ≤ +70 °C), T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)  
Ex tb IIIC T130°C Db; T130 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

**Special Conditions for Safe Use (X):**

1. Flameproof joints are not intended for repair.
2. Non-Standard Paint options may cause risk from electrostatic discharge. Avoid installations that cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

**Additional Special Conditions for Safe Use (X) when “XA” designation is ordered:**

1. Guard DIN Style sensors against impacts greater than 4J.
2. The spring loaded adapter style sensors and DIN style sensors must be installed in a thermowell to maintain Ex tb protection.



Process Temperature Range at Sensor Connection <sup>(1)</sup> (°C)	Ambient Temperature Range (°C)	Temperature Class / Maximum Surface temperature "T"
-60 °C to +70 °C	-60 °C to +70 °C	T6
-60 °C to +80 °C	-60 °C to +80 °C	T5...T1
-60 °C to +80 °C	-60 °C to +80 °C	T130 °C

(1) Sensor Connection is where the sensor threads into the transmitter or junction box housing.

### 7.7.2 I7 IECEx Intrinsic Safety

**Certificate** IECEx BAS 18.0062X

**Markings** Ex ia IIC T5/T6 Ga, T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C), T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C);  
See [Table 7-2](#) at the end of the Product Certifications section for Entity Parameters.

#### Special Condition for Safe Use (X):

The equipment, if supplied without an enclosure, must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1 GΩ; light alloy or zirconium enclosures must be protected from impact and friction if located in a Zone 0 environment.

### 7.7.3 N7 IECEx Zone 2 – with enclosure

**Certificate** IECEx BAS 18.0063X

**Markings** Ex nA IIC T5/T6 Gc  
Ex ec IIC T5/T6 Gc  
T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C), T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

### 7.7.4 NG IECEx Zone 2 – without enclosure

**Certificate** IECEx BAS 18.0063X

**Markings** Ex nA IIC T5/T6 Gc  
Ex ec IIC T5/T6 Gc  
T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C), T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

**Special Condition for Safe Use (X):**

The equipment, if supplied without an enclosure, must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with IEC 60529, IEC 60079-15, or IEC 60079-7.

## 7.8 Brazil

### 7.8.1 E2 Flameproof and Dust-Ignitionproof

**Certificate** UL-BR 13.0535X

**Markings** Ex db IIC T6...T1 Gb; T6...T1 (-50 °C ≤ T<sub>a</sub> ≤ +40 °C), T5...T1 (-50 °C ≤ T<sub>a</sub> ≤ +60 °C)  
Ex tb IIIC T130 °C Db; IP66; (-40 °C ≤ T<sub>a</sub> ≤ +70 °C)

**Specific Conditions for Safe Use (X):**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than four joules.
4. Flameproof joints are not intended for repair.
5. A suitable certified Ex "d" or Ex "tb" enclosure is required to be connected to temperature probes with Enclosure option "N".
6. Care shall be taken by the end user to ensure that the external surface temperature on the equipment and the neck of DIN Style Sensor probe does not exceed 266 °F (130 °C).
7. Non-standard paint options may cause risk of electrostatic discharge. Avoid installations that cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

### 7.8.2 I2 Brazil Intrinsic Safety

**Certificate** UL-BR 19.0202X

**Markings** Ex ia IIC T5 Ga (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)  
Ex ia IIC T6 Ga (-60 °C ≤ T<sub>a</sub> ≤ +60 °C)

See [Table 7-2](#) at the end of the Product Certifications section for Entity Parameters.

### Special Conditions for Safe Use (X):

The equipment, if supplied without an enclosure, must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1 GΩ; light alloy or zirconium enclosures must be protected from impact and friction when installed if located in a Zone 0 environment (areas that required EPL Ga).

## 7.8.3 N2 Brazil Zone 2

**Certificate** UL-BR 19.0203X

**Markings** Ex nA IIC T5 Gc (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)  
Ex nA IIC T6 Gc (-60 °C ≤ T<sub>a</sub> ≤ +60 °C)

### Special Condition for Safe Use (X):

The equipment, if supplied without an enclosure, must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with ABNT NBR IEC 60529 and ABNT NBR IEC 60079-15 and be located in an area of pollution degree 2 or better as defined in IEC 60664-1.

## 7.9 China

### 7.9.1 E3 China Flameproof

**Certificate** GYJ21.1275X

**Markings** Ex d IIC T6~T1 Gb: T6 (-60 °C ≤ T<sub>a</sub> ≤ +70 °C) T5~T1 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

- 产品安全使用特殊条件  
证书编号后缀“X”表明产品具有安全使用特殊条件：涉及隔爆接合面的维修须联系产品制造商。
- 产品使用注意事项
  1. **Table 7-1:** 产品使用环境温度与温度组别的关系为

温度组别	环境温度
T6	-60 °C ≤ T <sub>a</sub> ≤ +70 °C
T5~T1	-60 °C ≤ T <sub>a</sub> ≤ +80 °C

2. 产品外壳设有接地端子，用户在使用时应可靠接地。
3. 安装现场应不存在对产品外壳有腐蚀作用的有害气体。

4. 现场安装时，电缆引入口须选用国家指定的防爆检验机构按检验认可、具有 Ex dIIC 防爆等级的电缆引入装置或堵封件，冗余电缆引入口须用堵封件有效密封。
5. 现场安装、使用和维护必须严格遵守“断电后开盖！”的警告语。用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。  
产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB3836.15-2000“爆炸性气体环境用电气设备 第 15 部分：危险场所电气安装（煤矿除外）”、GB3836.16-2006“爆炸性气体环境用电气设备 第 16 部分：电气装置的检查和维修（煤矿除外）”和 GB50257-2014“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”的有关规定。

## 7.9.2 I3 China Intrinsic Safety

**Certificate** GYJ24.1042X

**Markings** Ex ia IIC T5/T6 Ga; T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C) T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)  
See [Table 7-2](#) at the end of the Product Certifications section for Entity Parameters.

### Special Conditions for Safe Use (X):

See certificate for special conditions.

## 7.9.3 N3 China Zone 2

**Certificate** GYJ24.1043X

**Markings** Ex ec IIC T5/T6 Gc; T6 (-60 °C ≤ T<sub>a</sub> ≤ + 60 °C) T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C); V<sub>max</sub> = 42.4 Vdc

### Special Conditions for Safe Use (X):

See certificate for special conditions.

## 7.10 EAC

### 7.10.1 EM Technical Regulation Customs Union (EAC) Flameproof

**Markings** 1 Ex db IIC T6...T1 Gb X; T6 (-50 °C ≤ T<sub>a</sub> ≤ +40 °C), T5 (-50 °C ≤ T<sub>a</sub> ≤ +60 °C); IP 66/68

### Special Condition for Safe Use (X):

See certificate for special conditions.

### 7.10.2 IM Technical Regulation Customs Union (EAC) Intrinsic Safety

**Markings** 0Ex ia IIC T6...T5 Ga X, T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C), T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C); IP 66/68

**Special condition for safe use (X):**

See certificate for special conditions.

### 7.10.3 KM Technical Regulation Customs Union TR CU 012/2011 (EAC) Flameproof, Intrinsic Safety, and Dust-Ignitionproof

**Markings** 2Ex nA IIC T6...T5 Gc X; T6 (-60 °C ≤ T<sub>a</sub> ≤ +60 °C), T5 (-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

See [EM Technical Regulation Customs Union \(EAC\) Flameproof](#) for Flameproof Markings and see [IM Technical Regulation Customs Union \(EAC\) Intrinsic Safety](#) for Intrinsic Safety Markings.

**Special condition for safe use (X):**

See certificate for special conditions.

## 7.11 Japan

### 7.11.1 E4 Japan Flameproof

**Certificate:** CML 21JPN1842X

**Markings:** Ex db IIC T6...T1 Gb; T6(-60 °C ≤ T<sub>a</sub> ≤ +70 °C); T5...T1(-60 °C ≤ T<sub>a</sub> ≤ +80 °C)

**Special Conditions for Safe Use:**

1. Flameproof joints are not intended for repair.
2. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

**Additional Specific Conditions of Use (X) when “XA” designation is ordered:**

Guard DIN Style sensors against impacts greater than 4J.

Process temperature range at Sensor Connection <sup>(1)</sup> (°C)	Ambient temperature range (°C)	Temperature class
-60 °C to +70 °C	-60 °C to +70 °C	T6
-60 °C to +80 °C	-60 °C to +80 °C	T5...T1

(1) *Sensor Connection is where the sensor threads into the transmitter or junction box housing*

## 7.12 Korea

### 7.12.1 EP Korea Explosion-proof/Flameproof

**Certificate** 22-KB4BO-0078X

**Markings** Ex db IIC T6...T1 Gb; T6 (-60 °C ≤ T<sub>amb</sub> ≤ +70 °C); T5...T1 (-60 °C ≤ T<sub>amb</sub> ≤ +80 °C)

#### Special Condition for Safe Use (X):

See certificate for special conditions.

## 7.13 Combinations

- K1** Combination of E1, I1, N1, and ND
- K5** Combination of E5 and I5
- K6** Combination of I6 and Canada Explosion-proof
- K7** Combination of E7, I7, and N7
- KM** Combination of EM and IM with dust

## 7.14 Tables

**Table 7-2: Entity Parameters**

Parameters	Loop terminals + and -	Sensor terminals 1 to 4
Voltage $U_i$	30 V	45 V
Current $I_i$	130 mA	26 mA
Power $P_i$	1 W	290 mW
Capacitance $C_i$	3.6 nF	2.1 nF
Inductance $L_i$	0 mH	0 $\mu$ H

## 7.15 Additional certifications (Rosemount 248 Head Mount only)

### SBS

**American Bureau of Shipping (ABS) Type Approval** 21-2157987-PDA

**Certificate:**

**Intended Use:** Measurement of temperature for marine and offshore applications

### SBV

**Bureau Veritas (BV) Type Approval** 26325

**Certificate:**

**Requirements:** Bureau Veritas Rules for the Classification of Steel Ships

**Application:** Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Temperature transmitter cannot be installed on diesel engines

### SDN

**Det Norske Veritas (DNV) Type Approval** TAA00000K8

**Certificate:**

**Intended Use:** Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

**Application:**

**Table 7-3: Location Classes**

Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	B/IP66 AI C/IP66: SST

**SLL**

**Lloyds Register (LR) Type Approval** LR21173788TA

**Certificate:**

**Application:** Environmental categories ENV1, ENV2, ENV3, and ENV5

**Y3 ATEX/IECEX RFID Tag Approvals**

**Certificate** IECEx EPS 15.0042X, EPS 15 ATEX 1 1011 X

**Standards** IEC 60079-00, IEC 60079-11, IEC 60079-14

**Markings** II 2G Ex ia IIC T6/T4 Gb, II 2D Ex ia IIC T80/T130C Db



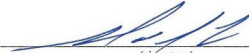
**Conditions of Certification** Maximum Operating Temp -50C to 70C The RFID tags shall never be exposed to high electromagnetic field strengths according to IEC 60079-14.



Electrostatic charges shall be avoided. The tags shall never be used next to strong charge generating processes.

**Additional warnings** The plastic enclosure may present a potential electrostatic ignition hazard. RFID tag has limitations in ambient temperature and zone installation areas (Zones 1 & 2) as compared to the transmitter.



## 7.16 Declaration of Conformity

	
<b>EU Declaration of Conformity</b> No: RMD 1134 Rev. D	
<p>We,</p> <p><b>Rosemount Inc.</b> 6021 Innovation Boulevard Shakopee, MN 55379-4676 USA</p> <p>declare under our sole responsibility that the product,</p> <p style="text-align: center;"><b>Rosemount™ 248H Temperature Transmitter</b></p> <p>manufactured by,</p> <p><b>Rosemount Inc.</b> 6021 Innovation Boulevard Shakopee, MN 55379-4676 USA</p> <p>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.</p> <p>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.</p>	
 _____ (signature)	Vice President of Global Quality _____ (function)
Mark Lee _____ (name)	October 22, 2021 _____ (date of issue)
Page 1 of 3	



## EU Declaration of Conformity

**No: RMD 1134 Rev. D**

---

**EMC Directive (2014/30/EU)**  
Rosemount [Model Number & Description]  
Harmonized Standards: EN61326-1:2013, EN61326-2-3:2013

---

**ATEX Directive (2014/34/EU)**  
Rosemount 248 Temperature Transmitter

**Baseefa18ATEX0090X – Intrinsic Safety Certificate**  
Equipment Group II, Category 1 G  
Ex ia IIC T5/T6 Ga  
Harmonized Standards:  
EN IEC 60079-0:2018, EN 60079-11:2012

**Baseefa18ATEX0091X – Zone 2 Certificate**  
Equipment Group II, Category 3 G  
Ex nA IIC T5/T6 Gc  
Harmonized Standards:  
EN IEC 60079-0:2018, EN 60079-15:2010



**DEKRA 19ATEX0076 X – Flameproof Certificate**  
Equipment Group II, Category 2 G  
Ex db IIC T6...T1 Gb  
Harmonized Standards:  
EN IEC 60079-0:2018, EN 60079-1:2014

**DEKRA 19ATEX0076 X – Dust Certificate**  
Equipment Group II, Category 2 D  
Ex tb IIIC T130°C Db  
Harmonized Standards:  
EN IEC 60079-0:2018, EN 60079-31:2014

---

**RoHS Directive (2011/65/EU)**  
Harmonized Standard:  
EN 50581:2012

Page 2 of 3

## EU Declaration of Conformity

**No: RMD 1134 Rev. D**

---

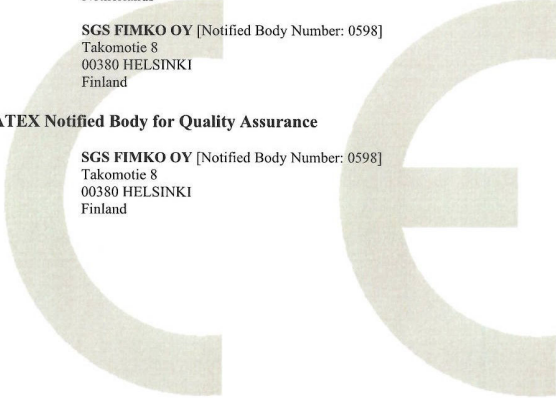
**ATEX Notified Bodies**

**Dekra Certification B.V.** [Notified Body Number: 0344]  
Utrechtseweg 310  
Postbus 5185  
6802 ED Arnhem  
Netherlands

**SGS FIMKO OY** [Notified Body Number: 0598]  
Takomotie 8  
00380 HELSINKI  
Finland

**ATEX Notified Body for Quality Assurance**

**SGS FIMKO OY** [Notified Body Number: 0598]  
Takomotie 8  
00380 HELSINKI  
Finland



Page 3 of 3

## 7.17 China RoHS

含有 China RoHS 管控物质超过最大浓度限值的部件型号列表 248  
List of 248 Parts with China RoHS Concentration above MCVs

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

本表格系依据 SJ/T11364 的规定而制作。

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

○: 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。

O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below 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。

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.

部件名称 Part Name	组装备件说明 Spare Parts Descriptions for Assemblies
电子组件 Electronics Assembly	电子线路板组件 Electronic Board Assemblies 端子块组件 Terminal Block Assemblies
壳体组件 Housing Assembly	电子外壳 Electrical Housing









**Quick Start Guide**  
**00825-0200-4825, Rev. ED**  
**June 2024**

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

©2024 Emerson. All rights reserved.

Emerson Terms and Conditions of Sale are available upon request. The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount is a mark of one of the Emerson family of companies. All other marks are the property of their respective owners.

**ROSEMOUNT™**

