

Rosemount™ 848T Wireless Temperature Transmitter



Wireless**HART**

Safety Messages

NOTICE

This guide provides basic guidelines for the Rosemount 848T Temperature Transmitter. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting. Refer to the Rosemount 848T [Reference Manual](#) for more instruction. The manual and this guide are also available electronically on [Emerson.com/Rosemount](https://www.emerson.com/Rosemount)

⚠ WARNING

Explosions could result in death or serious injury.

Installation of this transmitter in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Review the approvals section of the *Quick Start Guide* for any restrictions associated with a safe installation.

- Before connecting a handheld communicator in an explosive atmosphere, ensure the instruments in the segment are installed in accordance with intrinsically safe or non-incendive field wiring practices.

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.

⚠ 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.

⚠ CAUTION

This device complies with Part 15 of the Federal Communication Commission (FCC) Rules. Operation is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- This device must be installed to ensure a minimum antenna separation distance of 8 in. (20 cm) from all persons.

NOTICE

Battery hazards remain when cells are discharged.

- Power modules must be stored in a clean and dry area. For maximum battery life, storage temperature must not exceed 86 °F (30 °C).
- The power module may be replaced in a hazardous area. The power module has surface resistivity greater than one gigaohm and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.

Shipping considerations for wireless products.

The unit was shipped without the power module installed. Prior to re-shipment, ensure that the power module has been removed.

Each power module contains two “C” size primary lithium batteries. Primary lithium batteries are regulated in transportation by the U.S. Department of Transportation, and are also covered by International Air Transport Association (IATA), International Civil Aviation Organization (ICAO), and European Ground Transportation of Dangerous Goods (ARD). It is the responsibility of the shipper to ensure compliance with these or any other local requirements. Consult current regulations and requirements before shipping.

⚠ WARNING

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

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1 Wireless considerations

1.1 Power up sequence

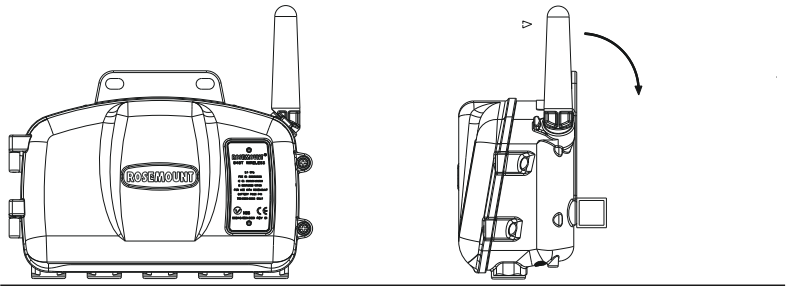
Power up wireless devices in order of proximity from the Gateway, beginning with the closest.

This will result in a simpler and faster network installation. Enable Active Advertising on the Gateway to ensure that new devices join the network faster. For more information, see the [Wireless Gateway Reference Manual](#).

1.2 Antenna position

The antenna should be positioned vertically and it should be approximately 3 ft. (1 m) from any large structure, building, or conductive surface to allow for clear communication to other devices.

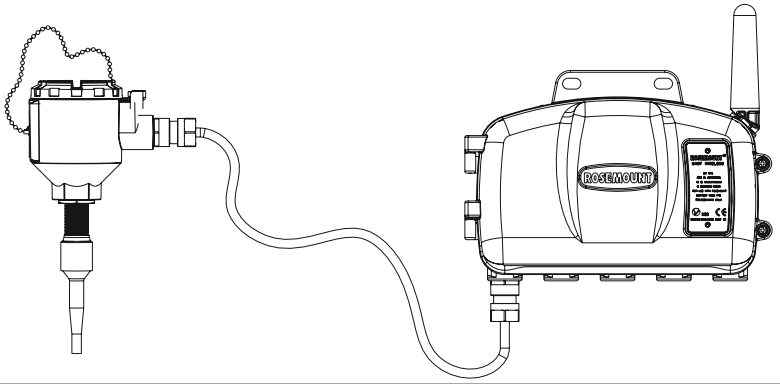
Figure 1-1: Antenna Position



1.3 Conduit plug

The temporary orange plugs should be replaced with the included conduit plugs using approved thread sealant.

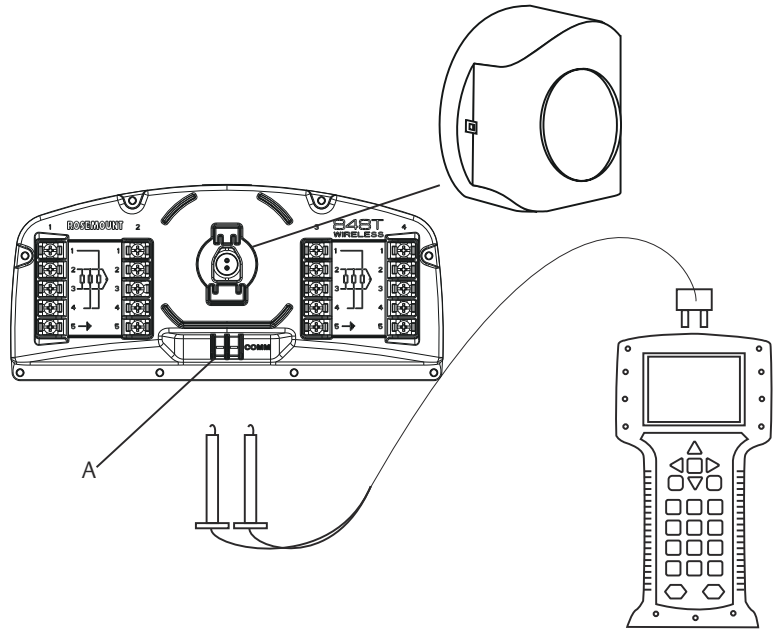
Figure 1-2: Conduit Plug



1.4 Field Communicator connections

The power module needs to be connected for the Field Communicator to interface with the Rosemount 848T Wireless.

Figure 1-3: Connection Diagram

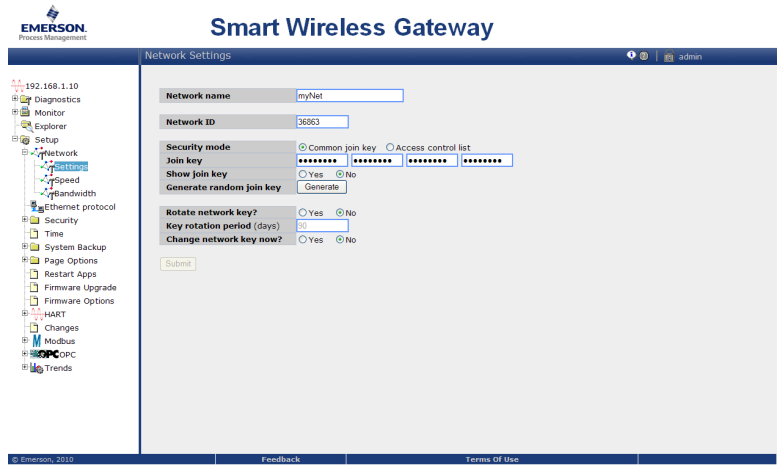


2 Physical installation

2.1 Initial configuration

If the device was ordered with a factory configured Network ID and Join Key, it should join the network with no user input. If unsure, the Network ID and the Join Key may be manually entered to match the Gateway's.

The Network ID and Join Key may be obtained from the Gateway on the *Setup > Network > Settings* page on the web server.



The Network ID and Join Key may be changed in the wireless device by using the following Fast Key sequence.

Function	Fast Key sequence	Menu items
Wireless	2,1,1	Join Device to Network

2.2 Sensor configuration

Sensor inputs can be configured for different sensor types. To verify or change the sensor configuration with a Field Communicator, use the following Fast Key sequence.

Table 2-1:

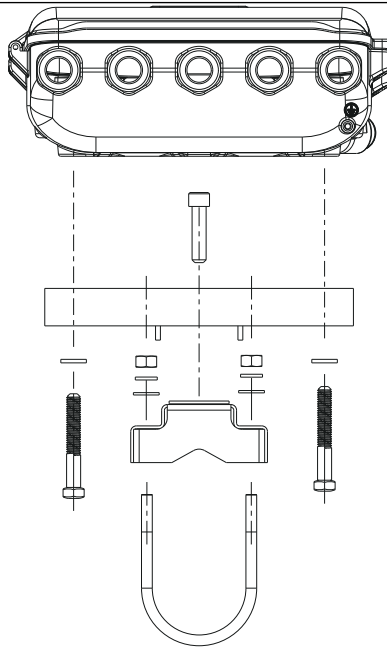
Function	Fast Key sequence	Menu items
Sensor configuration	2,1,3	Configure Sensors

2.3 Remote mount

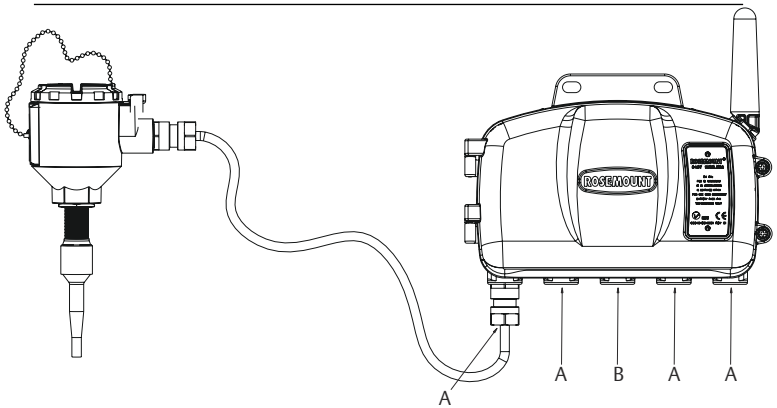
The Rosemount 848T Wireless is designed to be installed only in the Remote Mount configuration where the sensor is mounted separate from the Rosemount 848T housing, then connected to the Rosemount 848T via conduit.

Procedure

1. Install the sensor according to standard installation practices. Be sure to use thread sealant on all connections.
2. To reduce sensor wiring length, mount the Rosemount 848T Wireless Transmitter central to all of the measurements. When installing the Rosemount 848T Wireless, the conduit entries need to be facing downward. If using the mounting bracket (Option Code B6), mount to a 2-in. pipe.

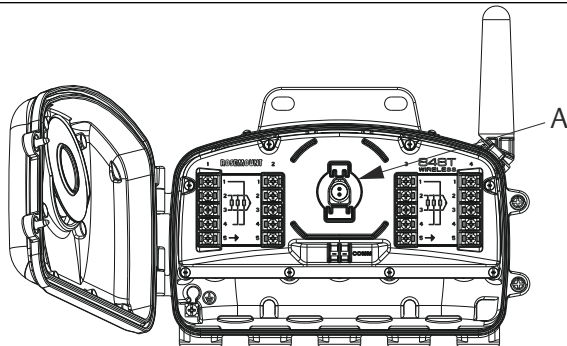


3. Run wiring (and conduit, if necessary) from the sensor to the Rosemount 848T. For an easier installation, use the outside conduit entries as shown below. Any unused conduit entries should be sealed with approved sealant using the included threaded conduit plugs.



- A. Conduit entry
B. Conduit plug

4. Pull the wiring through the threaded conduit entry of the Rosemount 848T.
5. Attach the sensor wiring to the terminals as indicated on the wiring diagram. Note that terminal screw 5 is for attaching the shield wire of the sensor to the device. See Rosemount 848T Wireless [Reference Manual](#) for more information.
6. To connect the power module, remove the plastic plug from the receptacle.



- A. Plastic plug

7. After initial installation, close the housing cover securely. Always ensure a proper seal by installing the electronics housing cover so that metal touches metal, but do not overtighten.

8. Position the antenna vertically. The antenna should be approximately 3 ft. (1 m) from any large structures or buildings to allow clear communication to other devices.

3 Verify operation

Operation can be verified using one of three methods:

- Field Communicator
- Wireless Gateway's integrated web interface
- AMS Device Manager

3.1 Field Communicator

For HART® Communication, an Rosemount 848T Wireless Device Dashboard (DD) is required. For connecting with a Field Communicator, refer to [Figure 1-3](#).

Function	Fast Key sequence	Menu items
Communication s	3, 3	Join Status, Communications Status, JoinMode, Number of Advertisements Heard, Number of Available Neighbors, Number of Join Attempts

3.2 Wireless Gateway

In the Gateway's integrated web interface, navigate to the *Explorer* page. This page shows whether the device has joined the network and if it is communicating properly.

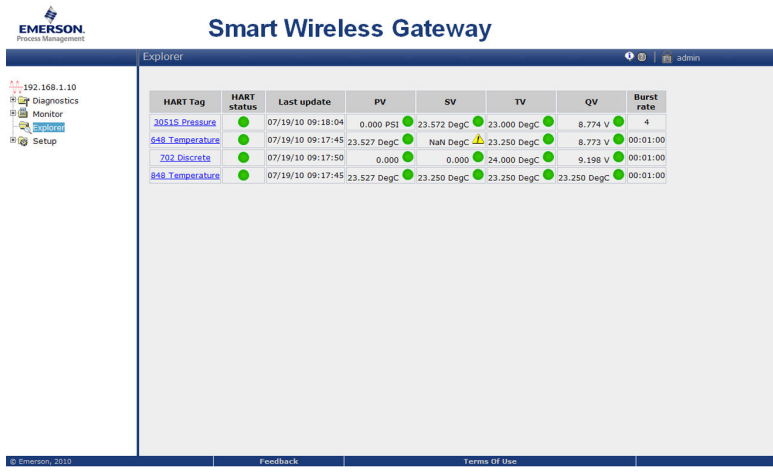
Note

It may take several minutes for the device to join the network.

Note

If the device joins the network and immediately has an alarm present, it is likely due to sensor configuration. Check the sensor wiring (see [Figure 4-1](#)) and the sensor configuration (see [Table 4-1](#)).

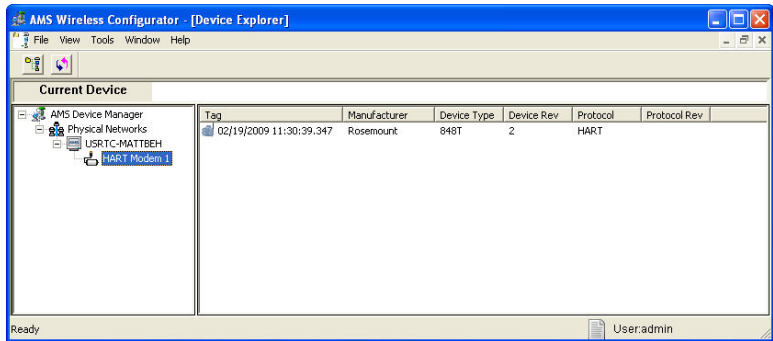
Figure 3-1: Wireless Gateway Explorer Page



3.3 AMS Wireless Configurator

When the device has joined the network, it will appear in the AMS Device Manager as illustrated [Figure 3-2](#):

Figure 3-2: AMS Wireless Configurator Explorer Page



4 Reference information

Figure 4-1: Rosemount 848T Terminal Diagram

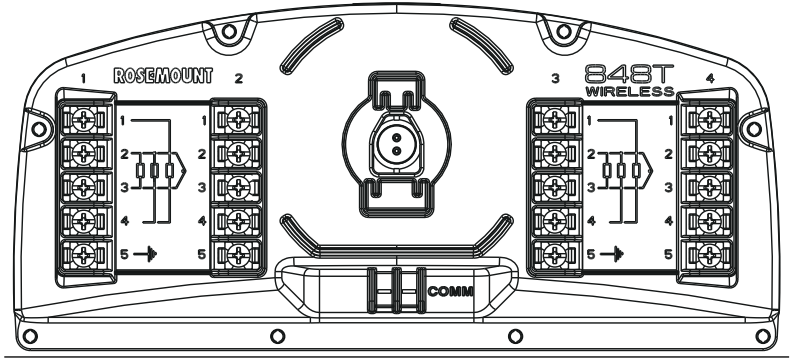
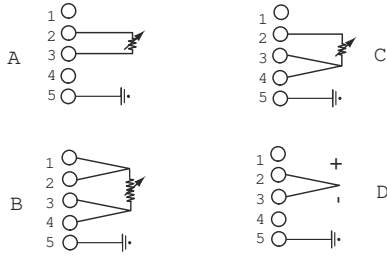


Table 4-1: Rosemount 848T Fast Key Sequence for Field Communicator

Function	Fast Key sequence	Menu items
Device Information	1, 1, 13	Manufacturer, Model, Final Assembly Number, Universal, Field Device, Software, Hardware, Descriptor, Message, Date, Model Number, SIUnit Control, Country, Device ID
Guided Setup	2, 1	Join Device to Network, Configure Update Rate, Configure Sensor, Calibrate Sensors, Configure Alerts
Manual Setup	2, 2	Wireless, Sensor 1, Sensor 2, Sensor 3, Sensor 4, Device Temperature, Device Information, Other
Wireless	2, 2, 1	Network ID, Join Device to Network, Configure Update Rate, Configure Broadcast Power Level, Power Mode, Power Source
Sensor Calibration	3, 4, 1-4	Sensor 1-4, Current Upper Trim, Current Lower Trim, Lower Sensor Trim, Upper Sensor Trim, Recall Factory Trim, RTD 2 Wire Offset

Figure 4-2: Sensor Wiring Diagrams



- A. 2-wire RTD, Ohm
- B. 4-wire RTD, Ohm
- C. 3-wire RTD, Ohm
- D. Thermocouple, millivolt

5 Product certifications

5.1 Telecommunication compliance

All wireless devices require certification to ensure that they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires 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 wireless device usage.

5.2 FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

5.3 European Directive Information

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

5.4 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 FM Approvals, a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

5.5 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.

5.6 USA

5.6.1 I5 USA Intrinsically Safe and Nonincendive

Certificate 3034378

Standards FM Class 3600:1998, FM Class 3610:2010, FM Class 3611:2004, FM Class 3810:2005, ANSI/ISA 60079-0:2009, ANSI/ISA 60079-11:2009, NEMA 250:1991, IEC 60529:2011

Markings IS CL I, DIV 1, GP A, B, C, D; T4 (-50°C ≤ Ta ≤ +60°C); NI CL I, DIV 2, GP A, B, C, D; T4A (-50°C ≤ Ta ≤ +85°C); T5 (-50°C ≤ Ta ≤ +70°C) when installed per Rosemount drawing 00848-4404

Note

Transmitters marked with Nonincendive CL I, DV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 00848-4404.

5.6.2 N5 USA Class 1, Division 2, and Dust Ignition-proof

Certificate 3034378

Standards FM Class 3600:1998, FM Class 3610:2010, FM Class 3810:2005, NEMA-250:1997, IEC 60529:2004

Markings NI CL I, DIV 2, GP A, B, C, D; T4(-50 °C ≤ Ta ≤ +70 °C); DIP CL II/III DIV 1, GP E, F, G; T5 (-50 °C ≤ Ta ≤ +85 °C); when installed per Rosemount drawing 00849-1000; Type 4X; IP66

5.7 Canada

5.7.1 I6 Canada Intinsic Safety

Certificate 1261865

Standards CSA Std. C22.2 No. 25-1966, CSA Std. C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA C22.2 No. 142-M1987, CAN/CSA C22.2 No. 157-92, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No 60529:05

Markings Intrinsically Safe for CL I, DIV 1 GP A, B, C, D; Suitable for CL I DIV 2 GP A, B, C, D; when installed per Rosemount drawing 00849-1016; T3C; Type 4X, IP66

See [Table](#) at the end of the Product Certifications section for entity parameters.

5.7.2 N6 Canada Class I, Division 2

Certificate 1261865

Standards CSA Std. C22.2 No. 25-1966, CSA Std. C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA C22.2 No. 142-

M1987, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No 60529:05


Markings Suitable for CL I DIV 2 GP A, B, C, D; T3C; when installed per Rosemount drawing 00849-1016; Type 4X, IP66

5.8 Europe

5.8.1 I1 ATEX Intrinsic Safety

Certificate Baseefa09ATEX0022X

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

Markings  II 1 G Ex ia IIC T4/T5 Ga T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)

See [Table](#) at the end of the Product Certifications section for entity parameters.

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 701PBKFF Power Module or Intelligent Power Module 71008 may be replaced in a hazardous area. The Power Modules have surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
3. The enclosure may be made from aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in a zone 0 area.

5.9 International

5.9.1 I7 IECEx Intrinsic Safety

Certificate IECEx BAS 09.0004X

Standards IEC 60079-0:2011, IEC 60079-11:2011

Markings Ex ia IIC T5/T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)

See [Table](#) at the end of the Product Certifications section for entity parameters.

Special Conditions for Safe Use (X):

1. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 701PBKKF Power Module or Intelligent Power Module 71008 may be replaced in a hazardous area. The Power Modules have surface resistivity greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
3. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0.

5.10 Brazil

5.10.1 I2 Brazil Intrinsic Safety

Certificate UL-BR 15.0034X

Standards ABNT NBR IEC 60079-0:2013, ABNT NBR IEC 60079-11:2013

Markings Ex ia IIC T4/T5, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)

See [Table](#) at the end of the Product Certifications section for entity parameters.

Special Condition for Safe Use (X):

1. The surface resistance of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The Model 701PBKKF Power Module, MHM-89004 Blue Power Module or Intelligent Power Module 71008 may be replaced in a hazardous area. The power module has surface resistance greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
3. The 848T enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in areas that requires EPL Ga (Zone 0).

5.11 China

5.11.1 I3 China Intrinsic Safety

Certificate GYJ21.1125X

Markings Ex ia IIC T4/T5 Ga, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C)

See [Table](#) at the end of the Product Certifications section for entity parameters.

Special Condition for Safe Use (X):

1. The surface resistance of the antenna is greater than 1 GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.
2. The power module may be replaced in a hazardous area. The power module has surface resistance greater than 1 GΩ and must be properly installed in the wireless device enclosure. Care must be taken during transportation to and from the point of installation to prevent electrostatic charge build-up.
3. Manufacture-provided battery pack made up of two Tadiran TL-5920 Lithium Thionyl-Chloride primary cells should be used.
4. The product should be used with Ex-certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
5. The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shield has to be grounded reliably in non-hazardous area.
6. End user is not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. When installation, use and maintenance of this product, observe following standards: GB3836.13-2013 "Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres" GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)" GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)" GB3836.18-2010 "Explosive Atmospheres Part 18: Intrinsically

Safe System GB50257-2014 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”

5.12 EAC - Belarus, Kazakhstan, Russia

5.12.1 IM Technical Regulations Customs Union (EAC) Intrinsic Safety

Markings 0Ex ia IIC T4, T5 Ga X, T4(-60 °C ≤ T_a ≤ +70 °C), T5(-60 °C ≤ T_a ≤ +40 °C); IP66/IP67

See [Table](#) at the end of the Product Certifications section for entity parameters.

5.13 Japan

5.13.1 I4 Japan Intrinsic Safety

Certificate CML 19JPN2037X

Markings Ex ia IIC T4/T5 Ga (-60/40°C ≤ T_a ≤ +40/70°C)

See [Table](#) at the end of the Product Certifications section for entity parameters.

5.14 Korea

5.14.1 IP Korea Intrinsic Safety

Certificate 10-KB4BO-0087X

Markings Ex ia IIC T5/T4, -60 °C ≤ T_a ≤ +40 °C(T5)/+70 °C(T4)

5.14.2 Y3 ATEX/IECEx RFID tag approvals

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

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

Conditions of certification

Maximum operating temperature: -58 °F (-50 °C) to +158 °F (+70 °C)

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.



⚠ WARNING**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 & 21) as compared to the gauge.

6 Declaration of Conformity

	
EU Declaration of Conformity No: RMD 1073 Rev. K	
<p>We,</p> <p>Rosemount, Inc. 6021 Innovation Boulevard Shakopee, MN 55379-4676 USA</p> <p>declare under our sole responsibility that the product,</p> <p>Rosemount™ 848T Wireless Temperature Transmitter</p> <p>manufactured by,</p> <p>Rosemount, Inc. 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)	5-Aug-21; Boulder, CO USA _____ (date of issue & place)
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EU Declaration of Conformity No: RMD 1073 Rev. K	
EMC Directive (2014/30/EU) Harmonized Standards: EN 61326-1: 2013 EN 61326-2-3: 2013	
Radio Equipment Directive (RED) (2014/53/EU) Harmonized Standards: EN 300 328 V2.2.2: 2019 EN 301 489-1 V2.2.0 EN 301 489-17 V3.2.0 EN 61010-1: 2010 EN 62311: 2008	
ATEX Directive (2014/34/EU) Baseefa09ATEX0022X – Intrinsic Safety Certificate Equipment Group II, Category 1 G: Ex ia IIC T4/T5 Ga Harmonized Standards: EN IEC 60079-0: 2018 EN 60079-11: 2012	
ATEX Notified Body & ATEX Notified Body for Quality Assurance SGS FIMKO OY [Notified Body Number: 0598] Takomotie 8 00380 HELSINKI Finland	
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7 China RoHS

Table 1B: List of Rosemount 848T Wireless Parts with China RoHS Concentration above MCVs
表格 1B: 含有China RoHS管控物质超过最大浓度限值的部件型号列表 Rosemount 848T Wireless

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	X	O	O
Sensor Assembly 传感器组件	X	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。



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

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