

Rosemount™ 848T FOUNDATION™ Fieldbus High Density Temperature Transmitter



Contents

Introduction..... 3

Mount the transmitter.....7

Wire and apply power..... 15

Verify the tag..... 23

Verify the transmitter configuration..... 24

Product certifications..... 25

Declaration of conformity.....38

China RoHS..... 40

1 Introduction

The Rosemount 848T is optimized for process temperature measurement by simultaneously measuring eight independent temperature points with a single transmitter, supporting multiple sensor types and 4-20 mA inputs, and communicating with any FOUNDATION™ Fieldbus host or configuration tool.

You can connect multiple temperature sensor types to each transmitter. In addition, the transmitter can accept 4-20 mA inputs. The enhanced measurement capability of the transmitter allows it to communicate these variables to any FOUNDATION Fieldbus host or configuration tool.

1.1 About this guide

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).

1.2 Hazard messages

This document uses the following criteria for hazard messages based on ANSI standards Z535.6-2011 (R2017).

⚠ DANGER

Serious injury or death will occur if a hazardous situation is not avoided.

⚠ WARNING

Serious injury or death could occur if a hazardous situation is not avoided.

⚠ CAUTION

Minor or moderate injury will or could occur if a hazardous situation is not avoided.

NOTICE

Data loss, property damage, hardware damage, or software damage can occur if a situation is not avoided. There is no credible risk of physical injury.

Physical access

⚠ WARNING

Unauthorized personnel can potentially cause significant damage and/or misconfiguration of end users' equipment. Protect against all intentional or unintentional unauthorized use.

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

1.3 Safety messages

Read this manual before working with the product. For personal and system safety and for optimum product performance, ensure that you thoroughly understand the contents before installing, using, or maintaining this product.

⚠ 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 Field Communicator in an explosive atmosphere, make sure the instruments in the loop are installed in accordance with intrinsically safe or non-incendive field wiring practices.

⚠ WARNING

Failure to follow these installation guidelines could result in death or serious injury.

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

⚠ WARNING

Process leaks could result in death or serious injury.

Do not remove the thermowell while in operation.

Before applying pressure, install and tighten thermowells and sensors.

⚠ WARNING

Electrical shock could cause death or serious injury.

If the sensor is installed in a high-voltage environment and a fault or installation error occurs, high voltage may be present on transmitter leads and terminals.

Use extreme caution when making contact with the leads and terminals.

⚠ 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.

NOTICE

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 7.9 in. (20 cm) from all persons.

NOTICE

Battery hazards remain when cells are discharged.

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.

1.4 Product recycling/disposal

Recycling of equipment and packaging should be taken into consideration and disposed of in accordance with local and national legislation/regulations.

2 Mount the transmitter

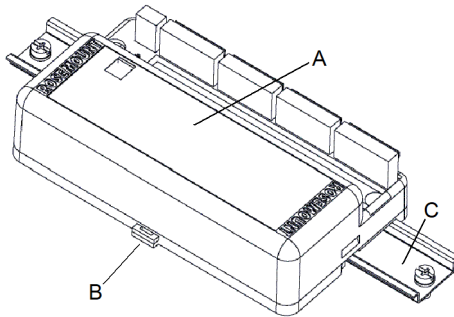
2.1 Mount to a DIN rail without an enclosure

To mount the transmitter on a DIN rail:

Procedure

1. Pull up the DIN rail mounting clip located on the top back side of the transmitter.
2. Hinge the DIN rail into the slots on the bottom of the transmitter.
3. Tilt the transmitter and place onto the DIN rail. Release the mounting clip. Make sure the transmitter is securely fastened to the DIN rail.

Figure 2-1: Mount the transmitter to a DIN rail



- A. Transmitter without installed enclosure
- B. DIN rail mounting clip
- C. DIN rail

2.2 Mount to a panel from an aluminum junction box

Mount the transmitter inside the junction box onto a panel using the dimension drawings and secure it using four $\frac{1}{4}$ -20 x 1.25-inch screws.

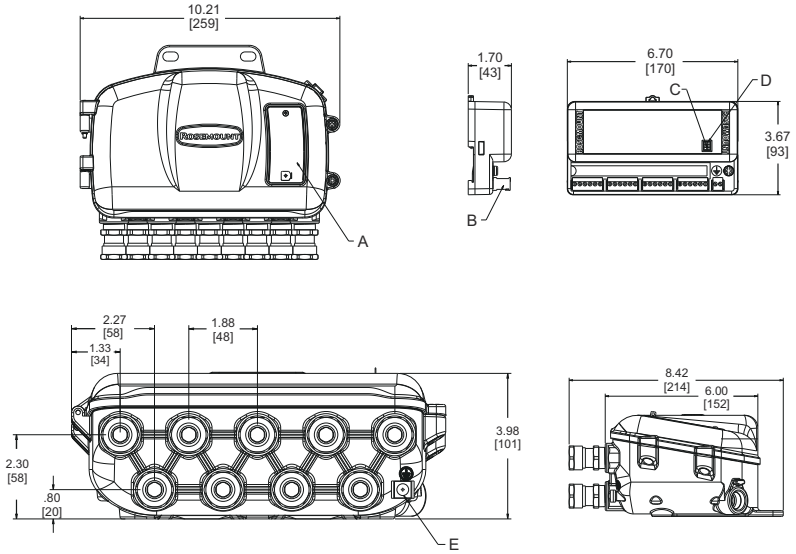
Prerequisites

Use four $\frac{1}{4}$ -20 x 1.25-inch screws.

Procedure

Mount the transmitter to a panel from inside the junction box using one of the following dimension drawings:

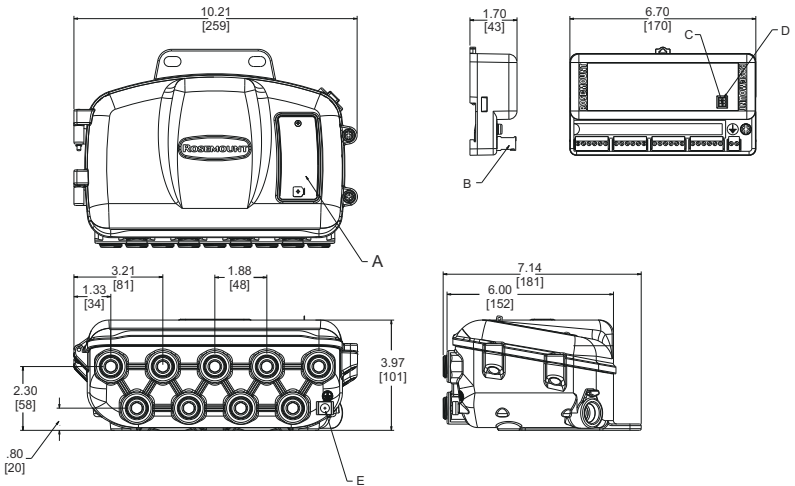
Figure 2-2: Aluminum junction box with cable glands (option code JA4)



- A. Nameplate
- B. Removable wiring connector
- C. **Security** switch
- D. **Simulation** switch
- E. External ground screw (optional)

Dimensions are in inches (millimeters).

Figure 2-3: Aluminum junction box with plugged holes (option code JA5)



- A. Nameplate
- B. Removable wiring connection
- C. **Security** switch
- D. **Simulation** switch
- E. External ground screw (optional)

Dimensions are in inches (millimeters).

2.3 Mount to a panel from a stainless steel junction box

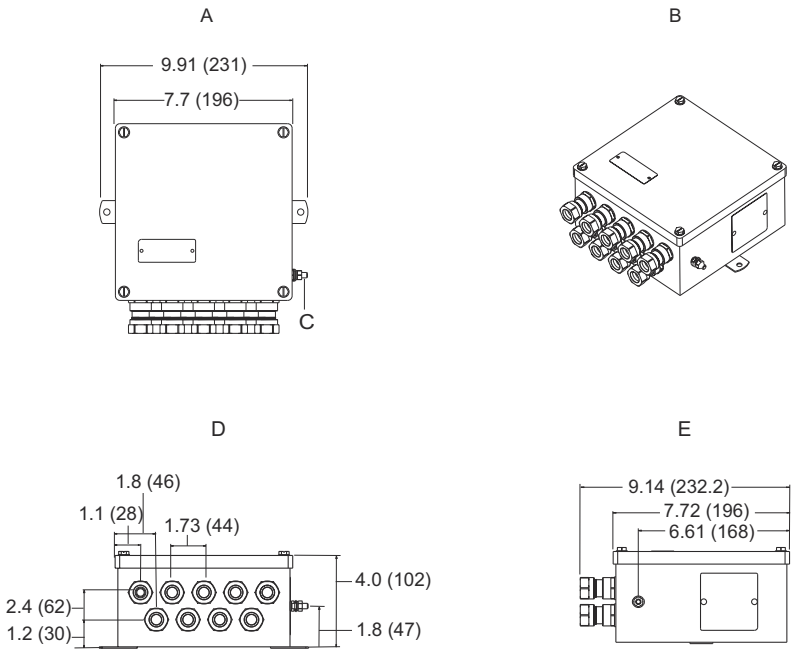
Prerequisites

Use two ¼-20 x ½-inch screws.

Procedure

Mount the transmitter to a panel from inside the junction box using one of the following dimension drawings.

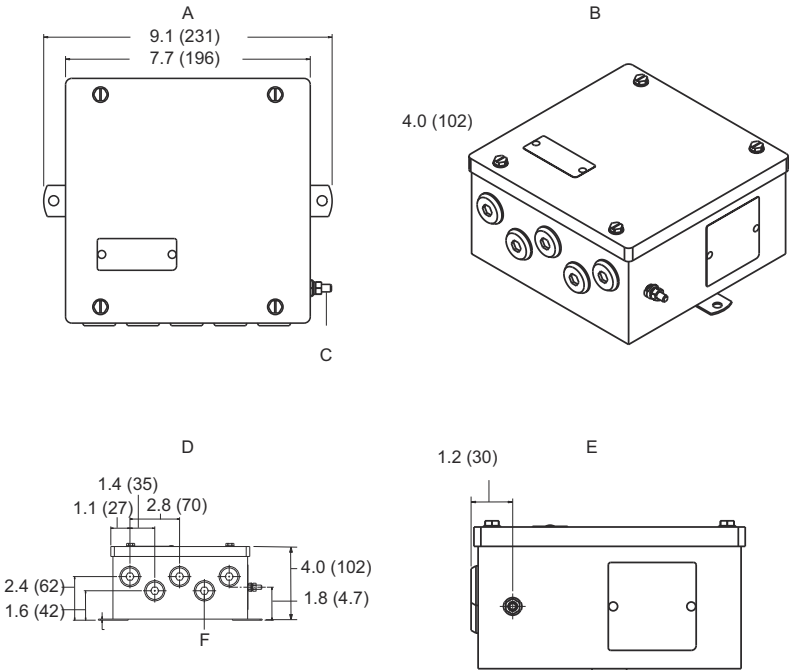
Figure 2-4: Stainless steel junction box with cable glands (option code JS2)



- A. Top view
- B. 3-D view
- C. Ground screw
- D. Front view
- E. Side view

Dimensions are in inches (millimeters).

Figure 2-5: Stainless steel junction box with a conduit entry (option code JS3)



- A. Top view
- B. 3-D view
- C. Ground screw
- D. Front view
- E. Side view
- F. Five plugged 0.86-inch (22 mm) diameter holes suitable for installing ½-inch NPT fittings

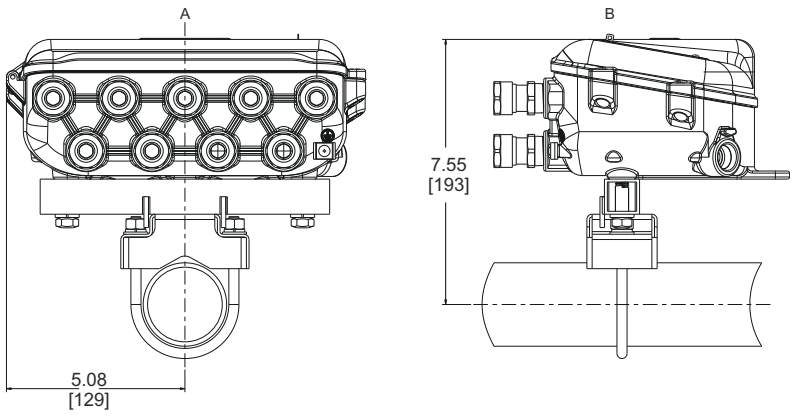
Dimensions are in inches (millimeters).

2.4 Mount to a 2 in (51 mm) pipe stand

Procedure

Use the optional mounting bracket (option code B6) to mount the transmitter to a 2 in (51 mm) pipe stand when using a junction box.

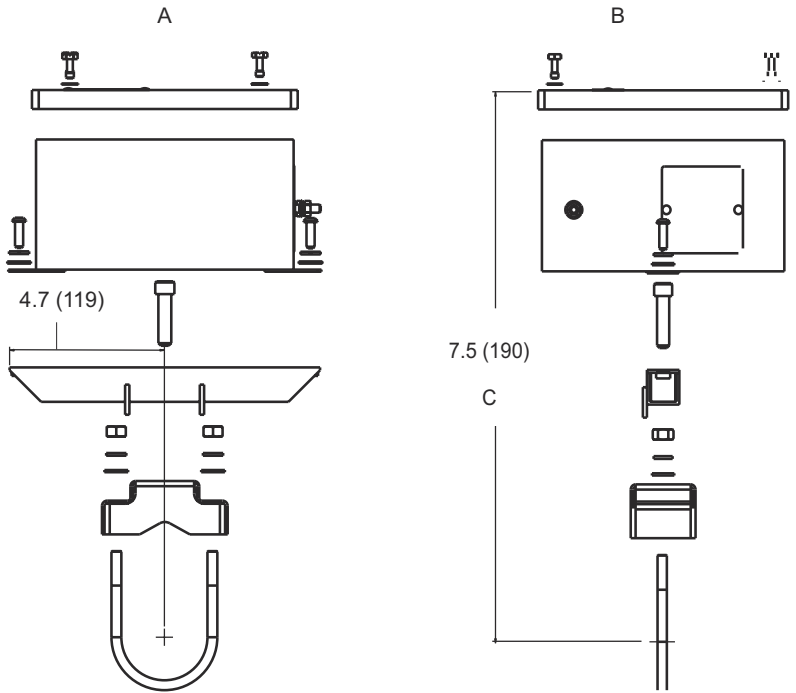
Figure 2-6: Mount an aluminum junction box



- A. *Front view*
- B. *Side view*

Dimensions are in inches (millimeters)

Figure 2-7: Mount a stainless steel junction box



- A. Front view
- B. Side view
- C. Fully assembled

Dimensions are in inches (millimeters)

Figure 2-8: Mount aluminum on a vertical pipe

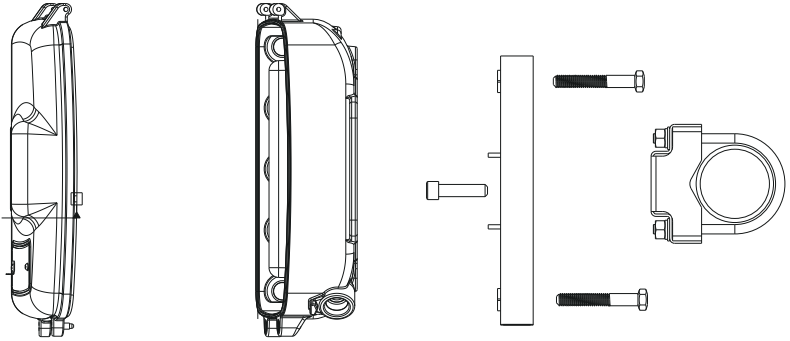
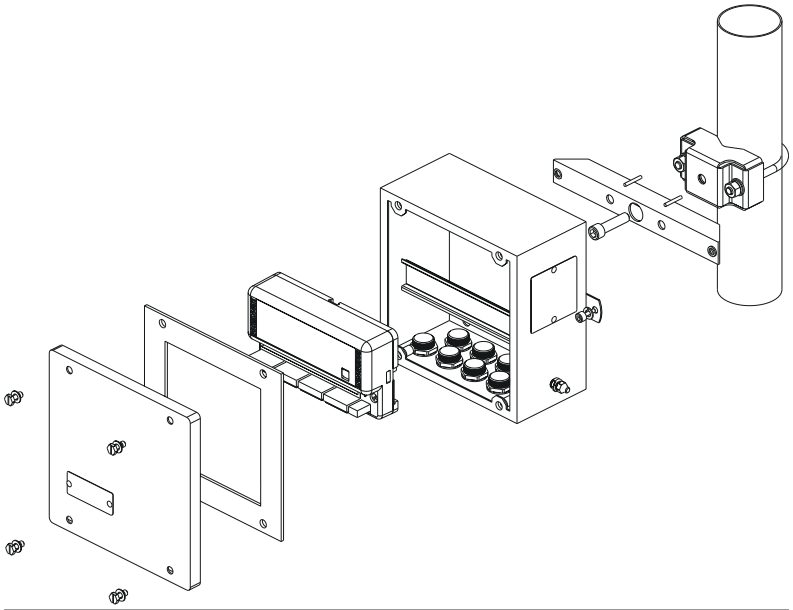


Figure 2-9: Mount stainless steel on vertical pipe

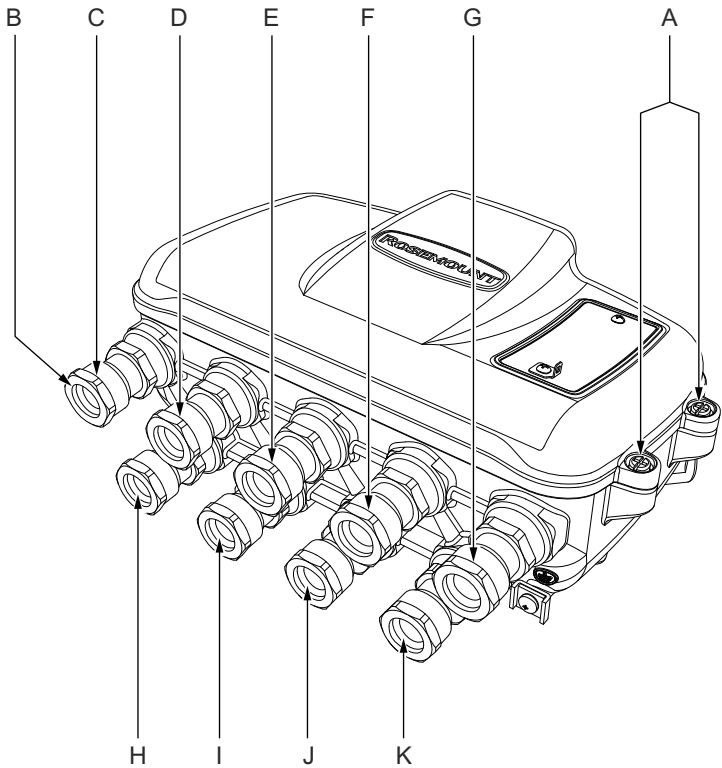


3 Wire and apply power

3.1 Use cable glands

Procedure

1. Remove the junction box cover by unscrewing the cover screws.
2. Run the sensor and power/signal wires through the appropriate cable glands (see [Figure 3-1](#)).

Figure 3-1: Installing the transmitter with cable glands


- A. Enclosure cover screws (2)
 - B. Cable glands (9)
 - C. Sensor 1
 - D. Sensor 3
 - E. Sensor 5
 - F. Sensor 7
 - G. Power/signal
 - H. Sensor 2
 - I. Sensor 4
 - J. Sensor 6
 - K. Sensor 8
-

3. Install the sensor wires into the correct screw terminals (follow the label on the electronics module).
4. Install the power/signal wires onto the correct screw terminals.

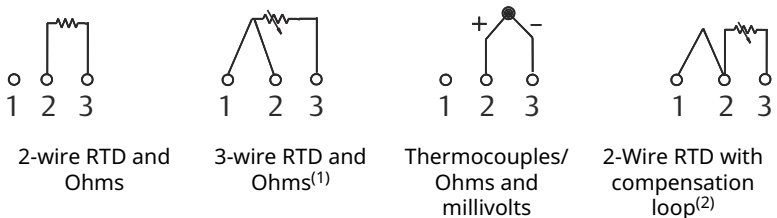
Power is polarity insensitive, allowing you to connect positive (+) or negative (-) to either Fieldbus wiring terminal labeled Bus.

- Replace the enclosure cover and securely tighten all cover screws.

3.2 Sensor wiring and power supply

- Compatible with eight independently configurable channels including combinations of 2- and 3-wire RTDs, thermocouples, mV, ohm, and mA sensors.
- All sensor and power terminals are rated to 42.4 Vdc.
- FOUNDATION Fieldbus network powered with a terminal voltage of 9.0–32.0 Vdc and 22 mA maximum current draw.
- For best network performance twisted, shielded pair cabling should be used. Proper gage wire should be selected to maintain the 9.0 Vdc minimum.

Figure 3-2: Sensor Wiring Diagrams

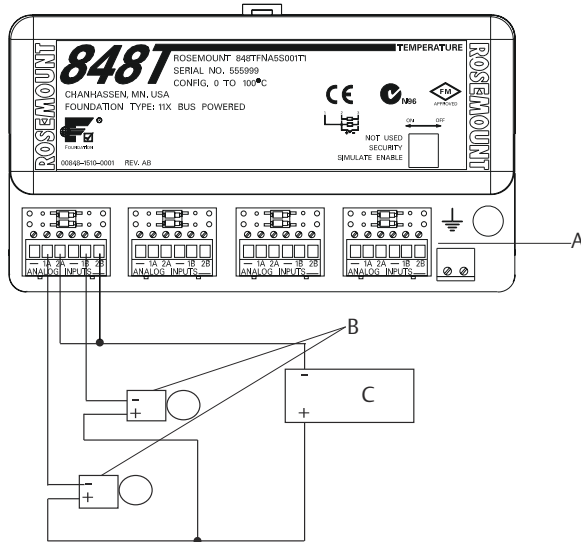


- Emerson provides 4-wire sensors for all single-element RTDs. Use these RTDs in 3-wire configurations by clipping the fourth lead or leaving it disconnected and insulated with electrical tape.*
- The transmitter must be configured for a 3-wire RTD in order to recognize an RTD with a compensation loop.*

The wiring of 3-wire RTDs for this unit is different than some earlier Rosemount 848T models. Pay careful attention to the wiring diagram on the label, especially if this unit is replacing an older unit.

3.3 Wiring analog inputs

Figure 3-3: Rosemount 848T Analog Input Wiring Diagram

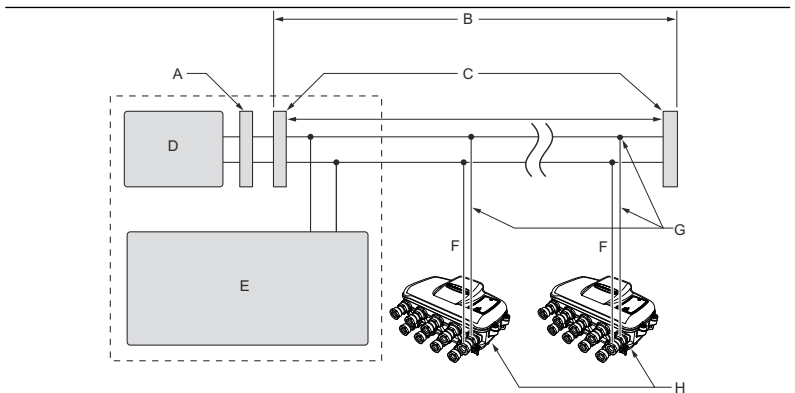


- A. Analog input connectors
- B. Analog transmitters
- C. Power supply

3.4 Typical configuration for FOUNDATION Fieldbus networking

Note

Each segment in a FOUNDATION Fieldbus trunk must be terminated at both ends.



- A. Integrated power conditioner and filter
- B. 6234 ft. (1900 m) max (depending upon cable characteristics)
- C. Terminators (trunk)
- D. Power supply
- E. FOUNDATION Fieldbus host or configuration tool
- F. Spurs
- G. Signal wiring
- H. Devices 1-16 (intrinsic safe installations may allow fewer devices per I.S. barrier)

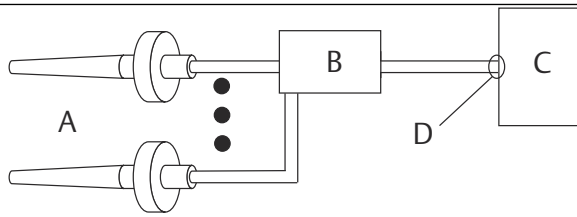
3.4.1 Ground the transmitter

Proper ground is crucial to reliable temperature readings.

3.4.2 Ungrounded thermocouple, mV, and RTD/Ohm inputs Option 1

Procedure

1. Connect FOUNDATION Fieldbus signal wiring shield to the sensor wiring shield(s).
2. Ensure the shields are tied together and electrically isolated from the transmitter enclosure.
3. Only ground the shield at the power supply end.
4. Ensure that the sensor shield(s) is electrically isolated from the surrounding grounded fixtures.

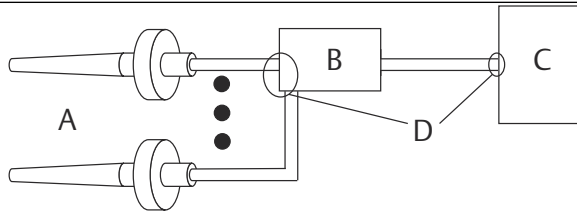


- A. Sensor wires
- B. Rosemount 848T
- C. Power supply
- D. Shield ground point

Option 2

Procedure

1. Connect sensor wiring shield(s) to the transmitter enclosure (only if the enclosure is grounded).
2. Ensure the sensor shield(s) is electrically isolated from surrounding fixtures that may be grounded.
3. Ground FOUNDATION Fieldbus signal wiring shield at the power supply end.



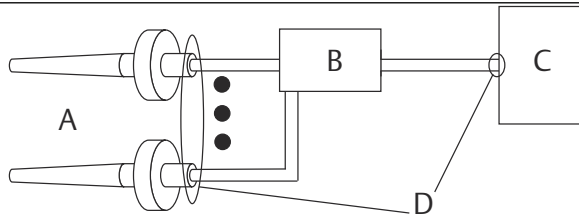
- A. Sensor wires
- B. Rosemount™ 848T
- C. Power supply
- D. Shield ground point

3.4.3 Grounded thermocouple inputs

Procedure

1. Ground sensor wiring shield(s) at the sensor.
2. Ensure the sensor wiring and FOUNDATION Fieldbus signal wiring shields are electrically isolated from the transmitter enclosure.
3. Do not connect the FOUNDATION Fieldbus signal wiring shield to the sensor wiring shield(s).

4. Ground FOUNDATION Fieldbus signal wiring shield at the power supply end.

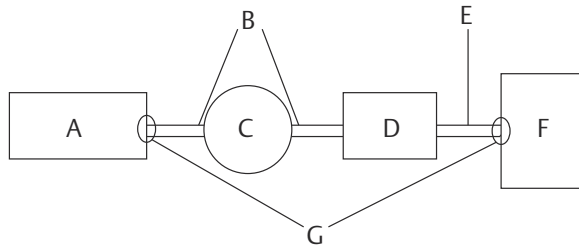


- A. Sensor wires
- B. Rosemount 848T
- C. Power supply
- D. Shield ground point

3.5 Analog device inputs

Procedure

1. Ground analog signal wire at the power supply of the analog devices.
2. Ensure the analog signal wire and the FOUNDATION Fieldbus signal wire shields are electrically isolated from the transmitter enclosure.
3. Do not connect the analog signal wire shield to the FOUNDATION Fieldbus signal wire shield.



- A. Analog device power supply
- B. 4–20 mA loop
- C. Analog device
- D. Rosemount 848T
- E. FOUNDATION Fieldbus
- F. Power supply
- G. Shield ground points

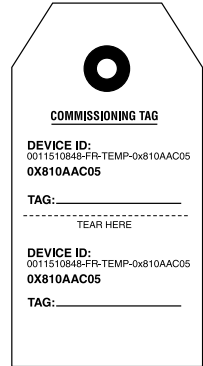
3.5.1 Transmitter enclosure (optional)

Ground in accordance with local electrical requirements.

4 Verify the tag

The Rosemount 848T has a removable commissioning tag that contains both the Device ID (the unique code that identifies a particular device in the absence of a device tag) and a space to record the device tag (the operational identification for the device as defined by the Piping and Instrumentation Diagram [P&ID]).

When commissioning more than one device on a FOUNDATION Fieldbus segment, it can be difficult to identify which device is at a particular location. The removable tag aids in this process by linking the Device ID to physical location. The installer should note the physical location of the transmitter on both the upper and lower location of the commissioning tag. The bottom portion should be torn off for each device on the segment and used for commissioning the segment in the control system.



5 Verify the transmitter configuration

Each FOUNDATION Fieldbus host or configuration tool has a different way of displaying and performing configurations. Some use Device Descriptions (DD) or DD wizards for configuration and to display data consistently across platforms. There is no requirement that a host or configuration tool support these features.

The following is the minimum configuration requirement for a temperature measurement. This guide is designed for systems not using DD wizards. For a complete list of parameters and configuration information refer to the Rosemount 848T [Reference Manual](#).

6 Product certifications

6.1 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).

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

6.3 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.

6.4 USA

6.4.1 IS USA Intrinsically Safe and Nonincendive

Certificate 3011568

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 ≤ T_a ≤ +60 °C); NI CL I, DIV 2, GP A, B, C, D; T4A(-50 °C ≤ T_a ≤ +85 °C); T5(-50 °C ≤ T_a ≤ +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.

6.4.2 IE USA FISCO

Certificate 3011568

- 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($-50\text{ °C} \leq T_a \leq +60\text{ °C}$); NI CL I, DIV 2, GP A, B, C, D; T4A($-50\text{ °C} \leq T_a \leq +85\text{ °C}$); T5($-50\text{ °C} \leq T_a \leq +70\text{ °C}$) when installed per Rosemount drawing 00848-4404.

6.4.3 N5 USA Nonincendive and Dust-Ignitionproof

- Certificate** 3011568
- Standards** FM Class 3600:1998, FM Class 3611:2004, FM Class 3810:2005, ANSI/ISA 60079-0:2009, NEMA 250:1991, IEC 60529:2011
- Markings** NI CL I, DIV 2, GP A, B, C, D; DIP CL II/III, DIV 1, GP E, F, G; T4A($-50\text{ °C} \leq T_a \leq +85\text{ °C}$); T5($-50\text{ °C} \leq T_a \leq +70\text{ °C}$) when installed per Rosemount drawing 00848-4404; Type 4X

6.4.4 NK USA Nonincendive

- Certificate** 3011568
- Standards** FM Class 3600:1998, FM Class 3611:2004, FM Class 3810:2005, ANSI/ISA 60079-0:2009, NEMA 250:1991, IEC 60529:2001
- Markings** NI CL I, DIV 2, GP A, B, C, D; T4A($-50\text{ °C} \leq T_a \leq +85\text{ °C}$); T5($-50\text{ °C} \leq T_a \leq +70\text{ °C}$) when installed per Rosemount drawing 00848-4404

Note

Only the N5 and NK are valid with the S002 option.

Table 6-1: Entity parameters

Fieldbus (input)	FISCO (input)	Nonincendive (input)	Sensor field terminal (output)
$V_{MAX} = 30\text{ V}$	$V_{MAX} = 17.5$	$V_{MAX} = 42.4$	$V_{OC} = 12.5\text{ V}$
$I_{MAX} = 300\text{ mA}$	$I_{MAX} = 380\text{ mA}$	$C_i = 2.1\text{ nF}$	$I_{SC} = 4.8\text{ mA}$
$P_i = 1.3\text{ W}$	$P_i = 5.32\text{ W}$	$L_i = 0$	$P_O = 15\text{ mW}$
$C_i = 2.1\text{ nF}$	$C_i = 2.1\text{ nF}$	-	$C_A = 1.2\text{ }\mu\text{F}$
$L_i = 0$	$L_i = 0$	-	$L_A = 1\text{ H}$

6.5 Canada

6.5.1 E6 Canada Explosionproof, Dust-Ignitionproof, Division 2 (JX3 Enclosure Required)

Certificate 1261865

Standards CAN/CSA C22.2 No. 0-M91 (R2001), CSA Std. C22.2 No. 25.1966, CSA Std. C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std. C22.2 No. 142-M1987, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No. 60529:05

Markings Explosionproof for Class I, Division 1, Groups B, C, and D; T4($-40\text{ °C} \leq T_a \leq +40\text{ °C}$) when installed per Rosemount drawing 00848-1041; Dust-Ignitionproof for Class II, Division 1, Groups E, F, and G; Class III; Class I, Division 2, Groups A, B, C, and D; T3C($-50\text{ °C} \leq T_a \leq +60\text{ °C}$) when installed per Rosemount drawing 00848-4405; Conduit Seal Required

6.5.2 I6 Canada Intrinsically Safe and Division 2

Certificate 1261865

Standards CAN/CSA C22.2 No. 0-M91 (R2001), CAN/CSA C22.2 No. 94-M91, CSA Std. C22.2 No. 142-M1987, CSA Std. C22.2 No. 157-92, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No. 60529:05

Markings Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D; T3C($-50\text{ °C} \leq T_a \leq +60\text{ °C}$) when installed per Rosemount drawing 00848-4405; Class I, Division 2, Groups A, B, C, D; T3C($-50\text{ °C} \leq T_a \leq +60\text{ °C}$) when installed per Rosemount drawing 00848-4405

6.5.3 IF Canada FISCO

Certificate 1261865

Standards CAN/CSA C22.2 No. 0-M91 (R2001), CAN/CSA C22.2 No. 94-M91, CSA Std. C22.2 No. 142-M1987, CSA Std. C22.2 No. 157-92, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No. 60529:05

Markings Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D; T3C($-50\text{ °C} \leq T_a \leq +60\text{ °C}$) when installed per Rosemount drawing 00848-4405; Class I, Division 2, Groups A, B, C, D; T3C($-50\text{ °C} \leq T_a \leq +60\text{ °C}$) when installed per Rosemount drawing 00848-4405

6.5.4 N6 Canada Division 2 and Dust-Ignitionproof (enclosure required)

Certificate 1261865

Standards CAN/CSA C22.2 No. 0-M91 (R2001), CSA Std. C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std. C22.2 No. 142-M1987, CSA Std. C22.2 No. 213-M1987, CSA Std. C22.2 No. 60529:05


Markings Class I, Division 2, Groups A, B, C, and D; T3C(-50 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405; Dust-Ignitionproof for Class II, Division 1, Groups E, F, and G; Class III; Conduit Seal Required

6.6 Europe

6.6.1 I1 ATEX Intrinsic Safety

Certificate Baseefa09ATEX0093X

Standards EN IEC 60079-0:2018, EN 60079-11:2012

Markings  II 1 G Ex ia IIC T4 Ga (-50 °C ≤ T_a ≤ +60 °C) when installed per drawing 00848-4406

Special Conditions for Safe Use (X):


1. The equipment must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards and light alloy or zirconium enclosures must be protected from impact and friction when installed.
2. The equipment is not capable of withstanding the 500 V insulation test required by EN 60079-11:2011, clause 6.3.13. This must be taken into account when installing the equipment.

Fieldbus (input)	Sensor field terminal (output)
U _i = 30 V	U _O = 12.5 V
I _i = 300 mA	I _O = 4.8 mA
P _i = 1.3 W	P _O = 15 mW
C _i = 2.1 nF	C _O = 1.2 μF
L _i = 0	L _O = 1 H

6.6.2 IA ATEX FISCO Intrinsic Safety

Certificate Baseefa09ATEX0093X

Standards EN IEC 60079-0:2018, EN 60079-11:2012

Markings  II 1 G Ex ia IIC T4 Ga (-50 °C ≤ T_a ≤ +60 °C) when installed per drawing 00848-4406

Special Conditions for Safe Use (X):


1. The equipment must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards and light alloy or zirconium enclosures must be protected from impact and friction when installed.
2. The equipment is not capable of withstanding the 500 V insulation test required by EN 60079-11:2011, clause 6.3.13. This must be taken into account when installing the equipment.

FISCO (input)	Sensor field terminal (output)
$U_i = 17.5 \text{ V}$	$U_o = 12.5 \text{ V}$
$I_i = 380 \text{ mA}$	$I_o = 4.8 \text{ mA}$
$P_i = 5.32 \text{ W}$	$P_o = 15 \text{ mW}$
$C_i = 2.1 \text{ nF}$	$C_o = 1.2 \text{ } \mu\text{F}$
$L_i = 0$	$L_o = 1 \text{ H}$

6.6.3 N1 ATEX Zone 2 (with enclosure)

Certificate Baseefa09ATEX0095X

Standards EN IEC 60079-0:2018, EN 60079-7:2015 + A1:2018, EN 60079-15:2010

Markings  II 3G Ex nA IIC T5 Gc (-40 °C ≤ T_a ≤ +65 °C), Ex ec IIC T5 Gc (-40 °C ≤ T_a ≤ +65 °C)

Special Conditions for Safe Use (X):


1. The equipment must only be installed in an area of pollution degree 2 or better, as defined in IEC 60664-1.

2. Provision must be made, external to the equipment, to ensure the rated voltage of the equipment supply is not exceeded by transient disturbances of more than 40 percent.
3. The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

6.6.4 NC ATEX Zone 2 Component (without enclosure)

Certificate Baseefa09ATEX0094U

Standards EN IEC 60079-0:2018, EN 60079-7:2015 + A1:2018, EN 60079-15:2010

Markings  II 3G Ex nA IIC T4 Gc (-50 °C ≤ T_a ≤ +85 °C) or Ex nA IIC T5 Gc (-50 °C ≤ T_a ≤ +70 °C), Ex ec IIC T4 Gc (-50 °C ≤ T_a ≤ +85 °C) or Ex ec IIC T5 Gc (-50 °C ≤ T_a ≤ +70 °C)

Schedule of Limitations (U):

1. The equipment must only be installed in an area of pollution degree 2 or better, as defined in IEC 60664-1, and in an enclosure that provides a degree of protection of at least IP54 in accordance with EN 60079-0.
2. Provision must be made, external to the component, to ensure the rated voltage of the component supply is not exceeded by transient disturbances of more than 40 percent.
3. The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

6.7 International

6.7.1 I7 IECEx Intrinsic Safety

Certificate IECEx BAS 09.0030X

Standards IEC 60079-0:2017, IEC 60079-11:2011

Markings Ex ia IIC T4 Ga (-50 °C ≤ T_a ≤ +60 °C)

Special Conditions for Safe Use (X):

1. The apparatus must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards and light alloy or zirconium enclosures must be protected from impact and friction when installed.

- The apparatus is not capable of withstanding the 500 V insulation test required by IEC 60079-11:2011, clause 6.3.13. This must be taken into account when installing the apparatus.

6.7.2 IG IECEX FISCO Intrinsic Safety

Certificate	IECEX BAS 09.0030X
Standards	IEC 60079-0:2017, IEC 60079-11:2011
Markings	Ex ia IIC T4 Ga (-50 °C ≤ T _a ≤ +60 °C)

Special Conditions for Safe Use (X):

- The equipment must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards and light alloy or zirconium enclosures must be protected from impact and friction when installed.
- The equipment is not capable of withstanding the 500 V insulation test required by EN 60079-11:2012, clause 6.3.13. This must be taken into account when installing the equipment.

FISCO (input)	Sensor field terminal (output)
U _i = 17.5 V	U _O = 12.5 V
I _i = 380 mA	I _O = 4.8 mA
P _i = 5.32 W	P _O = 15 mW
C _i = 2.1 nF	C _O = 1.2 μF
L _i = 0	L _O = 1 H

6.7.3 N7 IECEX Type n (with enclosure)

Certificate:	IECEX BAS 09.0032X
Standards:	IEC 60079-0:2017, IEC 60079-7:2017, IEC 60079-15:2010
Markings:	Ex nA IIC T5 Gc (-40 °C ≤ T _a ≤ +65 °C), Ex ec IIC T5 Gc (-40 °C ≤ T _a ≤ +65 °C)

Special Conditions for Safe Use (X):

- The equipment must only be installed and used in an area of pollution degree 2 or better, as defined in IEC 60664-1.

2. Provision must be made, external to the apparatus, to ensure the rated voltage of the apparatus supply is not exceeded by transient disturbances of more than 40 percent.
3. The electrical circuit is connected directly to earth. This must be taken into account when installing the apparatus.

6.7.4 NJ IECEx Type n (without enclosure)

Certificate: IECEx BAS 09.0031U

Standards: IEC 60079-0:2017, IEC 60079-7:2017, IEC 60079-15:2010

Markings: Ex nA IIC T4 Gc(-50 °C ≤ T_a ≤ +85 °C), Ex nA IIC T5 Gc (-50 °C ≤ T_a ≤ +70 °C), Ex ec IIC T4 Gc(-50 °C ≤ T_a ≤ +85 °C), Ex ec IIC T5 Gc (-50 °C ≤ T_a ≤ +70 °C)

Schedule of Limitations (U):

1. The component must be only installed and used in an area of pollution degree 2 or better, as defined in IEC 60664-1, and in an enclosure that provides a degree of protection of at least IP54 in accordance with IEC 60079-0
2. Provision must be made, external to the component, to ensure the rated voltage of the component supply is not exceeded by transient disturbances of more than 40 percent.
3. The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

6.8 Brazil

6.8.1 I2 Brazil Intrinsic Safety

Certificate UL-BR 16.0086X

Standards ABNT NBR IEC 60079-0:2008 + Errata 1:2011 ABNT NBR IEC 60079-11:2009

Markings Ex ia IIC T4(-50 °C ≤ T_a ≤ +60 °C)

Special Conditions for Safe Use (X):

1. The apparatus must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards (see manufacturer's instructions manual) and light alloy or zirconium enclosures must be protected from impact and friction when installed.
2. The apparatus is not capable of withstanding the 500 V isolation test required by ABNT NBR IEC 60079-11. This must

be taken into account when installing the apparatus --- see manufacturer's instructions manual.

Fieldbus (input)	Sensor field terminal (output)
$U_i = 30 \text{ V}$	$U_o = 12.5 \text{ V}$
$I_i = 300 \text{ mA}$	$I_o = 4.8 \text{ mA}$
$P_i = 1.3 \text{ W}$	$P_o = 15 \text{ mW}$
$C_i = 2.1 \text{ nF}$	$C_o = 1.2 \text{ }\mu\text{F}$
$L_i = 0$	$L_o = 1 \text{ H}$

6.8.2 IB Brazil Intrinsic Safety

Certificate UL-BR 16.0086X

Standards ABNT NBR IEC 60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-11:2009

Markings Ex ia IIC T4(-50 °C ≤ T_a ≤ +60 °C)

Special Conditions for Safe Use (X):

1. The apparatus must be installed in an enclosure that provides a degree of protection of at least IP20. Non-metallic enclosures must be suitable to prevent electrostatic hazards (see manufacturer's instructions manual) and light alloy or zirconium enclosures must be protected from impact and friction when installed.
2. The apparatus is not capable of withstanding the 500 V isolation test required by ABNT NBR IEC 60079-11. This must be taken into account when installing the apparatus --- see manufacturer's instruction manual.

FISCO (input)	Sensor field terminal (output)
$U_i = 17.5 \text{ V}$	$U_o = 12.5 \text{ V}$
$I_i = 380 \text{ mA}$	$I_o = 4.8 \text{ mA}$
$P_i = 5.32 \text{ W}$	$P_o = 15 \text{ mW}$
$C_i = 2.1 \text{ nF}$	$C_o = 1.2 \text{ }\mu\text{F}$
$L_i = 0$	$L_o = 1 \text{ H}$

6.9 China

6.9.1 I3 China Intrinsic Safety

Certificate	GYJ21.1125X
Standards	GB3836.1-2010, GB3836.4-2010, GB3836.20-2010
Markings	Ex ia IIC T4/T5 Ga

6.9.2 N3 China Type n

Certificate	GYJ21.3428U
Standards	GB3836.1-2010, GB3836.8-2014
Markings	Ex nA IIC T4/T5 Gc

6.10 Japan

6.10.1 I4 Japan FISCO Intrinsic Safety (ia)

Certificate	TC19713
Markings	ia IIC T4

6.10.2 Japan Wi-HART Intrinsic Safety (ia)

Certificate	TC19154
Markings	ia IIC T4

6.10.3 H4 Japan FISCO Intrinsic Safety (ib)

Certificate	TC20737
Markings	ia IIC T4

6.11 Korea

6.11.1 IP Korea Intrinsic Safety

Certificate	20-KA4BO-0921X
Markings	Ex ia IIC T4 (-50 °C ≤ T _a ≤ +60 °C)

6.12 EAC - Belarus, Kazakhstan, Russia

6.12.1 IM Technical Regulation Customs Union (EAC) Intrinsic Safety

Markings	[FOUNDATION Fieldbus]: 0Ex ia IIC T4 Ga X, T4(-50 °C ≤ T _a ≤ +60 °C)
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See certificate for entity parameters.

Special Condition for Safe Use (X):

See certificate for special conditions.

6.12.2 IN Technical Regulation Customs Union (EAC) FISCO

Markings: [FISCO]: 0Ex ia IIC T4 Ga X, T4(-50 °≤ T_a ≤ +60 °C)
See certificate for entity parameters.

Special Condition for Safe Use (X):

See certificate for special conditions.

6.13 Combinations


KG Combination of I1/IA, I5/IE, I6/IF, and I7/IG

6.14 Conduit Plugs and Adapters

ATEX Flameproof and Increased Safety

Certificate FM13ATEX0076X

Standards EN 60079-0:2012, EN 60079-1:2007, IEC 60079-7:2007

Markings:  2 G Ex de IIC Gb

Special Conditions for Safe Use (X):

1. When the thread adapter or blanking plug is used with an enclosure in type of protection increased safety “e” the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G½ and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

IECEx Flameproof and Increased Safety

Certificate IECEx FMG 13.0032X

Standards IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-7:2006-2007

Markings Ex de IIC Gb

Special Conditions for Safe Use (X):

1. When the thread adapter or blanking plug is used with an enclosure in type of protection increased safety “e” the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G½ and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

Table 6-2: Conduit Plug Thread Sizes

Thread	Identification mark
M20 x 1.5	M20
½-14 NPT	½ NPT
G½	G½

Table 6-3: Thread Adapter Thread Sizes

Male thread	Identification mark
M20 x 1.5-6H	M20
½-14 NPT	½-14 NPT
¾-14 NPT	¾-14 NPT
Female thread	Identification mark
M20 x 1.5-6H	M20
½-14 NPT	½-14 NPT
PG 13.5	PG 13.5

6.15 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.

7 Declaration of conformity




EU Declaration of Conformity

No: RMD 1047 Rev. M

We,

Rosemount, Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

declare under our sole responsibility that the product,

Rosemount™ Model 848T Temperature Transmitter

manufactured by,

Rosemount, Inc.
8200 Market Boulevard
Chanhassen, MN 55317-9685
USA

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)

Chris LaPoint
(name)

Vice President of Global Quality

(function)

1-Feb-19; Shakopee, MN USA
(date of issue & place)

Page 1 of 2



EU Declaration of Conformity

No: RMD 1047 Rev. M

EMC Directive (2014/30/EU)

Harmonized Standards: EN 61326-1:2013, EN 61326-2-3: 2013

ATEX Directive (2014/34/EU)

Baseefa 09ATEX0093X – Intrinsically Safe Certificate
Equipment Group II, Category 1 G (Ex ia IIC T4 Ga)
Harmonized Standards:
EN IEC 60079-0: 2018, EN 60079-11: 2012

ATEX Notified Bodies for EC Type Examination Certificate

SGS FIMCO OY [Notified Body Number: 0598]
P.O. Box 30 (Särkiniementie 3)
00211 HELSINKI
Finland

ATEX Notified Body for Quality Assurance

SGS FIMCO OY [Notified Body Number: 0598]
P.O. Box 30 (Särkiniementie 3)
00211 HELSINKI
Finland

8 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 848T
List of 848T 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	O	O	O	O	O
壳体组件 Housing Assembly	O	O	O	X	O	O
传感器组件 Sensor Assembly	X	O	O	O	O	O

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.

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。

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	端子块组件 Terminal Block Assemblies
壳体组件 Housing Assembly	电子外壳 Electrical Housing



Quick Start Guide
00825-0100-4697, Rev. WC
November 2024

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

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