

Rosemount™ 848T FOUNDATION™ Fieldbus High Density Temperature Transmitter

Device Revision 8 - Requires New DD/CFF Revision



NOTICE

This guide provides basic guidelines for the Rosemount 848T. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting. Refer to the Rosemount 848T Reference Manual (document number 00809-0100-4697) for more instruction. The manual and this guide are also available electronically on www.rosemount.com.

⚠ 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 this manual for any restrictions associated with a safe installation.

Process leaks may cause harm or result in death.

- Install and tighten thermowells or sensors before applying pressure.
- Do not remove the thermowell while in operation.

Electrical shock can result in death or serious injury.

Avoid contact with the leads and terminals. High voltage that may be present on leads can cause electrical shock.

⚠ CAUTION

Shipping considerations for wireless products:

The unit was shipped to you without the power module installed. Remove the power module prior to shipping the unit.

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 IATA (International Air Transport Association), ICAO (International Civil Aviation Organization), and ARD (European Ground Transportation of Dangerous Goods). It is the responsibility of the shipper to ensure compliance with these or any other local requirements. Consult current regulations and requirements before shipping.

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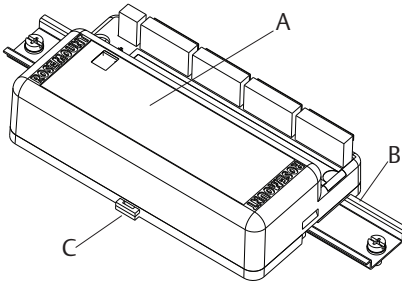
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Step 1: Mount the transmitter

Mount to a DIN rail without a junction box

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 Rosemount 848T and place onto the DIN rail.
4. Release the mounting clip.

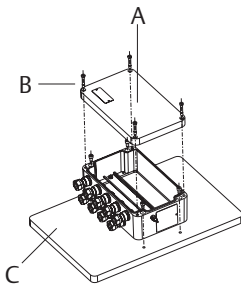
Figure 1. Mounting the Rosemount 848T to a DIN Rail



- A. Rosemount 848T without installed enclosure
- B. DIN Rail
- C. DIN Rail mounting clip

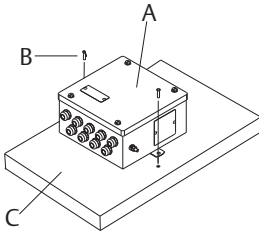
Mounting to a panel with a junction box

Figure 2. Aluminum/Plastic Junction Box



- A. Aluminum or plastic junction box
- B. Mounting screws (4)⁽¹⁾
- C. Panel

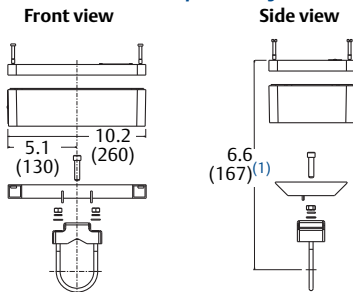
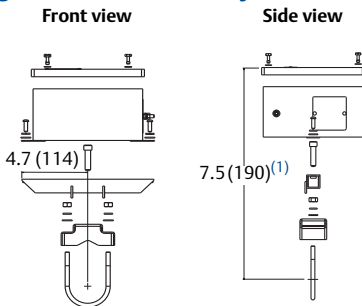
1. Mount using four $\frac{1}{4} \times 1.25$ -in. screws.

Figure 3. Stainless Steel Junction Box

- A. Stainless steel junction box
 B. Mounting screws (2)⁽¹⁾
 C. Panel

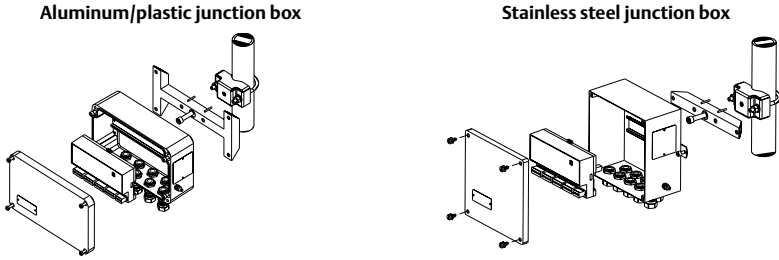
Mounting to a 2-in. pipe stand

Use the optional mounting bracket (option code B6) to attach the 848T to a 2-in. pipe stand when using a junction box.

Figure 4. Aluminum/Plastic Junction Box⁽²⁾**Figure 5. Stainless Steel Junction Box⁽²⁾**

1. Mount using two $\frac{1}{4}$ -20 $\frac{1}{2}$ -in. screws.

2. Fully assembled.

Figure 6. Mounted on a Vertical Pipe

Step 2: Wire and apply power

Power is polarity insensitive, allowing the user to connect positive (+) or negative (-) FOUNDATION Fieldbus wires to either FOUNDATION Fieldbus wiring terminal on the terminal block.

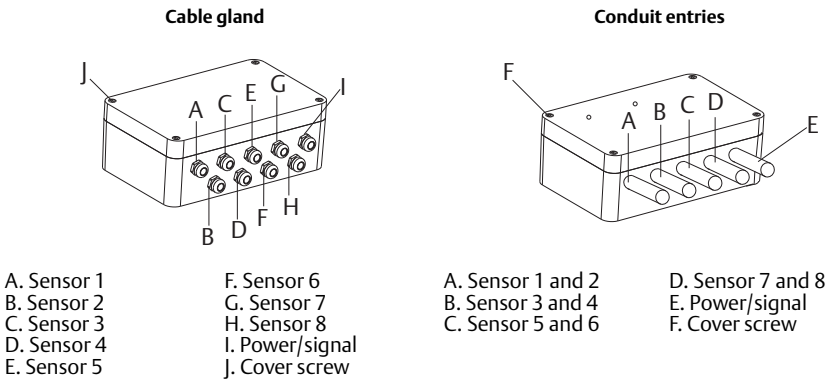
Using cable glands

1. Remove the four cover screws to remove the junction box cover.
2. Run the sensor and power/signal wires through the appropriate pre-installed cable glands.
3. Install the sensor wires into the correct screw terminals.
4. Attach the FOUNDATION Fieldbus wires to the screw terminals.
5. Replace the FOUNDATION Fieldbus cover and tighten all cover screws.

Using conduit entries

1. Unscrew the four cover screws to remove the junction box cover.
2. Remove the five conduit plugs and install the user-supplied conduit fittings.
3. Run pairs of sensor wires through each conduit fitting.
4. Install the sensor wires into the correct screw terminals.
5. Attach the FOUNDATION Fieldbus wires to the screw terminals.
6. Replace the enclosure cover and tighten all cover screws.

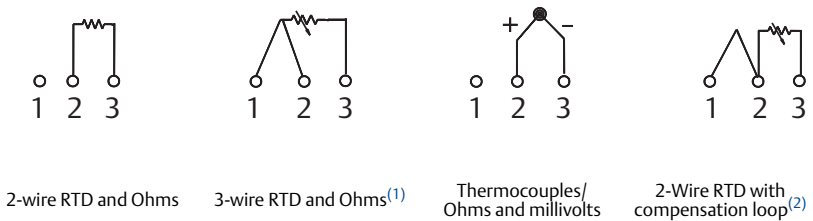
Figure 7. Wiring Connections



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 to 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 8. Sensor Wiring Diagrams



1. Emerson™ Process Management 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.
 2. 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.

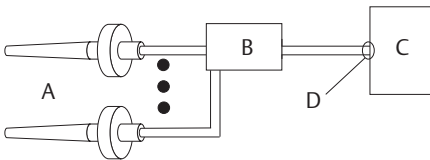
Ground the transmitter

Proper ground is crucial to reliable temperature readings.

Ungrounded thermocouple, mV, and RTD/Ohm inputs

Option 1

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.

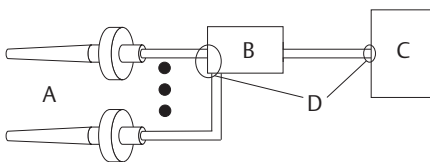


A. Sensor wires
B. Rosemount 848T

C. Power supply
D. Shield ground point

Option 2

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.



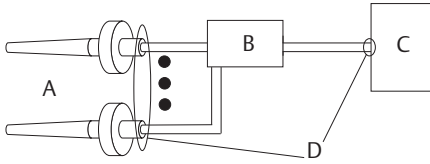
A. Sensor wires
B. Rosemount 848T

C. Power supply
D. Shield ground point

Grounded thermocouple inputs

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).

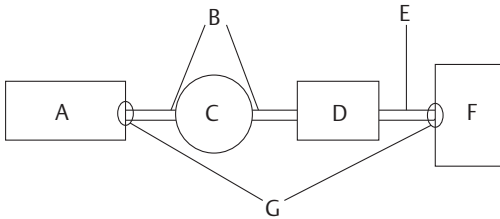
4. Ground FOUNDATION Fieldbus signal wiring shield at the power supply end.



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

Analog device inputs

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



- 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

Transmitter enclosure (optional)

Ground in accordance with local electrical requirements.

Step 3: Verify the tag

The 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.



Step 4: 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 (document number 00809-0100-4697).

Sensor transducer block

This block contains temperature measurement data for all eight sensor inputs. It also includes information about sensor type, engineering units, damping, and diagnostics. At a minimum, verify the parameters in [Table 1](#) for each sensor in the transducer block.

Table 1. Sensor Transducer Block Parameters

Parameter	Comments
Typical Configuration	N/A
Configure Input	N/A
SENSOR_1_CONFIG.SENSOR	example: "PT100_A_385: 3-wire"

Analog input (AI) function blocks

The AI block processes field device measurements and makes the outputs available to other function blocks. The output value of the AI block is in engineering units and contains a status indicating the quality of the measurements. Use the channel number to define the variable that the AI block processes. At a minimum, verify the parameters of the AI blocks in [Table 2](#).

Table 2. AI Block Parameters⁽¹⁾

Parameter	Comments
CHANNEL	Choices: Sensor 1 – 8 Differential Sensors 1 – 4 Body Temperature
L_TYPE	For most measurements, set to "DIRECT"
XD_SCALE	Set the desired measurement range and units. Units must be one of the following: <ul style="list-style-type: none"> ■ mV ■ °F ■ mA ■ Ohms ■ °R ■ °C ■ K
OUT_SCALE	For "DIRECT" L_TYPE, set OUT_SCALE to match XD_SCALE
HI_HI_LIM HI_LIM	Process alarms. Must be within the range defined by "OUT_SCALE"
LO_LO_LIM LO_LIM	

1. Configure one AI Block for each desired measurement.

Note

To make changes to the AI block, the BLOCK_MODE (TARGET) must be set to OOS (out of service). Once the changes are made, return the BLOCK_MODE TARGET to AUTO.

Multiple analog input (MAI) function block

The MAI block processes up to eight field device measurements and makes the output available to other function blocks. The output value of the MAI block is in engineering units and contains a status indicating the quality of the measurements. Use the channel number to define the variables that the MAI block processes. At a minimum, verify the parameters of the MAI block in [Table 3](#).

Table 3. MAI Block Parameters

Parameter	Comments
CHANNEL	Choices: Channels 1 – 8 Custom Settings (see Rosemount 848T Reference Manual for more information).
L_TYPE	For most measurements, set to "DIRECT"
XD_SCALE	Set desired measurement range and units. Units must be one of the following: <ul style="list-style-type: none"> ■ mV ■ °F ■ mA ■ Ohms ■ °R ■ °C ■ K
OUT_SCALE	For "DIRECT" L_TYPE, set OUT_SCALE to match XD_SCALE

Note

To make changes to the MAI block, the BLOCK_MODE (TARGET) must be set to OOS (out of service). Once the changes are made, return the BLOCK_MODE TARGET to AUTO.

Input Selector (ISEL) function block

The ISEL block processes up to eight field device measurements and makes the output available to other function blocks. The output value of the ISEL block is in engineering units and contains a status indicating the quality of the measurements. Use the select type to define the selection method the ISEL block processes. At a minimum, verify the parameters of the ISEL block in [Table 4](#).

Table 4. ISEL Block Parameters

Parameter	Comments
IN_(1, 2, 3, 4, 5, 6, 7, 8)	A connection input from another block
SELECT_TYPE	Specifies input selection method. Methods available include: First Good, Minimum, Maximum, Middle, Average, or Hot Backup™.

Note

To make changes to the MAI block, the BLOCK_MODE (TARGET) must be set to OOS (out of service). Once the changes are made, return the BLOCK_MODE TARGET to AUTO.

Product Certifications

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 www.EmersonProcess.com.

Ordinary Location Certification from FM Approvals

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).

Installing Equipment in North America

The US National Electrical Code® (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

USA

IS FM 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.

IE FM 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 °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.

- N5** 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 °C ≤ T_a ≤ +85 °C); T5(-50 °C ≤ T_a ≤ +70 °C) when installed per Rosemount drawing 00848-4404; Type 4X
- NK** 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 °C ≤ T_a ≤ +85 °C); T5(-50 °C ≤ T_a ≤ +70 °C) when installed per Rosemount drawing 00848-4404

Note

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

Table 5. Entity Parameters


Fieldbus (input)	FISCO (input)	Nonincendive (input)	Sensor field terminal (output)
V _{MAX} = 30 V	V _{MAX} = 17.5	V _{MAX} = 42.4	V _{OC} = 12.5 V
I _{MAX} = 300 mA	I _{MAX} = 380 mA	C _i = 2.1 nF	I _{SC} = 4.8 mA
P _i = 1.3 W	P _i = 5.32 W	L _i = 0	P _O = 15 mW
C _i = 2.1 nF	C _i = 2.1 nF	N/A	C _A = 1.2 μF
L _i = 0	L _i = 0	N/A	L _A = 1 H

Canada

- E6** CSA 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 °C ≤ T_a ≤ +40 °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 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405; Conduit Seal Required

- I6** CSA 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 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405; Class I, Division 2, Groups A, B, C, D; T3C(-50 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405
- IF** CSA 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 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405; Class I, Division 2, Groups A, B, C, D; T3C(-50 °C ≤ T_a ≤ +60 °C) when installed per Rosemount drawing 00848-4405
- N6** CSA 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

Europe

- I1** ATEX Intrinsic Safety
 Certificate: Baseefa09ATEX0093X
 Standards: EN 60079-0:2012, EN60079-11:2012
 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 60079-11:2012, clause 6.3.13. This must be taken into account when installing the equipment.

Table 6. Entity Parameters

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

IA ATEX FISCO Intrinsic Safety

Certificate: Baseefa09ATEX0093X

Standards: EN 60079-0:2012, EN60079-11:2012

Markings: Ex 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 note 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.

Table 7. Entity Parameters

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

N1 ATEX Type n (with enclosure)

Certificate: Baseefa09ATEX0095X

Standards: EN 60079-0:2006, EN60079-15:2005

Markings: Ex II 3 G Ex nA nL IIC T5 (-40 °C ≤ T_a ≤ +65 °C)**Special Conditions for Safe Use (X):**

1. 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%.
2. The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

NC ATEX Type n (without enclosure)

Certificate: Baseefa09ATEX0094U

Standards: EN 60079-0:2006, EN60079-15:2005

Markings: Ex II 3 G Ex nA nL IIC T4(-50 °C ≤ T_a ≤ +85 °C), T5(-50 °C ≤ T_a ≤ +70 °C)**Special Conditions for Safe Use (X):**

1. The component must be installed in a suitable component certified enclosure that provides a degree of protection of at least IP54 and meets the relevant material and environmental requirements of EN 60079-0:2006 and EN 60079-15:2005.
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%.
3. The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

Note

The Rosemount 848T may also be installed in an external energy limited circuit as Ex nL IIC. In this case the following parameters apply:

Table 8. Entity Parameters

Power/bus (input)	Sensor field terminal (output)
U _i = 42.4 V	U _o = 12.5 V
C _i = 2.1 nF	I _o = 2.5 mA
L _i = 0	C _o = 1000 μF
	L _o = 1 H

ND ATEX Dust

Certificate: BAS01ATEX1315X

Standards: EN 50281-1-1:1998

Markings: Ex II 1 D T90 (-40 °C ≤ T_a ≤ +65 °C); IP66**Special Conditions for Safe Use (X):**

1. The user must ensure that the maximum rated voltage and current (42.4 volts, 22 milliamps DC) are not exceeded. All connections to other apparatus or associated apparatus shall have control over this voltage and current equivalent to a category “ib” circuit according to EN 50020.
2. Component approved EEx e cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
3. Any unused cable entry holes must be filled with component approved EEx e blanking plugs.
4. The ambient temperature range of use shall be the most restrictive of the apparatus, cable gland or blanking plug.

International

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 09.0030X

Standards: IEC 60079-0:2011, IEC60079-11:2011

Markings: II 1 G Ex ia IIC T4 Ga (-50 °C ≤ T_a ≤ +60 °C)

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 note 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.

IG IECEx FISCO Intrinsic Safety

Certificate: IECEx BAS 09.0030X

Standards: IEC 60079-0:2011, IEC60079-11:2011

Markings: II 1 G Ex ia IIC T4 Ga (-50 °C ≤ T_a ≤ +60 °C)

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 note 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.

Table 9. Entity Parameters

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

N7 ATEX Type n (with enclosure)

Certificate: IECEx BAS 09.0032X

Standards: IEC 60079-0:2004, IEC 60079-15:2005

Markings: Ex nA nL IIC T5(-40 °C ≤ T_a ≤ +65 °C)

Special Conditions for Safe Use (X):

1. 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%.

- The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

NC ATEX Type n (without enclosure)

Certificate: IECEx BAS 09.0031U

Standards: IEC 60079-0:2004, IEC 60079-15:2005

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

Special Conditions for Safe Use (X):

- The component must be installed in a suitable component certified enclosure that provides a degree of protection of at least IP54 and meets the relevant material and environmental requirements of EN 60079-0:2006 and EN 60079-15:2005.
- 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%.
- The electrical circuit is connected directly to earth; this must be taken into account when installing the apparatus.

Brazil

I2 INMETRO Intrinsic Safety

Certificate: NCC 12.1156X

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):

- The equipment must be installed in an enclosure that provides a degree of protection of at least IP20 and which is appropriate to the application specified in ABNT NBR IEC60079-0.
- The equipment is not capable of withstanding the dielectric strength test of 500 V according to item 6.3.12 of ABNT NBR IEC60079-1, this should be considered in the installation, see installation manual.

Table 10. Entity Parameters

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

IB INMETRO Intrinsic Safety

Certificate: NCC 12.1156X

Standards: ABNT NBR IEC 60079-0:2008 Versão corrigida 2011, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008 Versão corrigida 2009, ABNT NBR IEC 60079-27:2010

Markings: Ex ia IIC T4(-50 °C ≤ T_a ≤ +60 °C)**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 and which is appropriate to the application specified in ABNT NBR IEC60079-0.
2. The equipment is not capable of withstanding the dielectric strength test of 500 V according to item 6.3.12 of ABNT NBR IEC60079-1, this should be considered in the installation, see installation manual.

Table 11. Entity Parameters

Fieldbus (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

China**I3** NEPSI Intrinsic Safety

Certificate: GYJ16.1205X

Standards: GB3836.1-2010, GB3836.4-2010, GB3836.20-2010

Markings: Ex ia IIC T4 Ga

Special Conditions for Safe Use (X):

1. Only when temperature transmitter is installed in IP20(GB4208-2008) housing, can it be used in a hazardous location. Metallic housing should observe the requirements of GB3836.1-2010 Clause 8. Non-metallic housing should observe the requirements of GB3836.1-2010 Clause 7.3.
2. This apparatus is not capable of withstanding the 500 V rms insulation test required by Clause 6.4.12 of GB3836.4-2010.
3. The ambient temperature range of the equipment is T4(-50 °C ≤ T_a ≤ +60 °C).
4. Parameters:

Terminals of power/loop (1-2)					
Output	Maximum output voltage:	Maximum output current:	Maximum output power:	Maximum external parameters:	
	U _o (V)	I _o (mA)	P _o (mW)	C _o (μF)	L _o (H)
F	30	300	1.3	2.1	0
F (FISCO)	17.5	380	5.32	2.1	0

Note

Non-FISCO parameters listed above must be derived from a linear supply with a resistance limited output.

Terminals of sensor						
Output	Terminals	Maximum Output Voltage:	Maximum Output Current:	Maximum Output Power:	Maximum External Parameters:	
		$U_o(V)$	$I_o(mA)$	$P_o(mW)$	$C_o(\mu F)$	$L_o(H)$
F	1-8	30	300	1.3	2.1	0

5. The product complies to the requirements for FISCO field devices specified in IEC60079-27: 2008. For the connection of an intrinsically safe circuit in accordance FISCO model, FISCO parameters of this product are as above.
6. 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.
7. The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shielded cable has to be grounded reliably in non-hazardous area.
8. End users are not permitted to change any component's insides, but to settle the problem, in conjunction with manufacturer to avoid damage to the product.
9. During 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"

N3 NEPSI Type n

Certificate: GYJ12.1035U

Standards: GB3836.1-2010, GB3836.8-2003

Markings: Ex nA nL IIC T4/T5 Gc

Special Conditions for Safe Use (X):

1. This component is not capable of withstanding the 500 V electrical strength test defined in Clause 8.1 of GB3836.8-2003. The must be taken into account during installation.

2. This component must be housed in a suitable component certified enclosure that provides a degree of protection of at least IP54 and meets the relevant material and environmental requirements of GB3836.1-2010 and GB3836.8-2003.
3. 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%.
4. The ambient temperature range is:

T Code	Ambient temperature
T4	$-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$
T5	$-50\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$

5. Maximum input voltage: 42.4 V.
6. End users are not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. During installation, use and maintenance of this product, observe the following standards:
 GB3836.13-1997 “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)”
 GB50257-1996 “Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering”

Japan

I4 TIIS FISCO Intrinsic Safety (ia)
 Certificate: TC19713
 Markings: IIC T4

TIIS Wi-HART Intrinsic Safety (ia)
 Certificate: TC19154
 Markings: IIC T4

H4 TIIS FISCO Intrinsic Safety (ib)
 Certificate: TC20737
 Markings: IIC T4

Combinations


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

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. G^{1/2} 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. G^{1/2} and PG 13.5 thread forms are only acceptable for existing (legacy) equipment installations.

Table 12. Conduit Plug Thread Sizes

Thread	Identification mark
M20 × 1.5	M20
¹ / ₂ - 14 NPT	¹ / ₂ NPT
G ¹ / ₂	G ¹ / ₂

Table 13. Thread Adapter Thread Sizes

Male thread	Identification mark
M20 × 1.5 – 6H	M20
1/2 - 14 NPT	1/2 - 14 NPT
3/4 - 14 NPT	3/4 - 14 NPT
Female thread	Identification mark
M20 × 1.5 – 6H	M20
1/2 - 14 NPT	1/2 - 14 NPT
PG 13.5	PG 13.5

Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval

Certificate: 011-HS771994C-1-PDA

ABS Rules: 2013 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3, 4-8-3/1.7, 4-8-3/13.1

SBV Bureau Veritas (BV) Type Approval

Certificate: 26325/A1 BV

Requirements: Bureau Veritas Rules for the Classification of Steel Ships

Application: Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS

SDN Det Norske Veritas (DNV) Type Approval

Certificate: A-13246

Intended Use: Det Norske Veritas' Rules for Classification of Ships, High Speed & Light

Craft and Det Norske Veritas' Offshore Standards

Application:



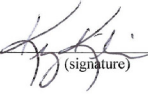
Location classes	
Temperature	D
Humidity	B
Vibration	A
EMC	A
Enclosure	B/IP66: AI C/IP66: SST

SLL Lloyds Register (LR) Type Approval

Certificate: 11/60002 (E2)

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

Figure 10. Rosemount 848T Declaration of Conformity

	<h1>EU Declaration of Conformity</h1> <p>No: RMD 1047 Rev. J</p>	
<p>We,</p> <p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p> <p>declare under our sole responsibility that the product,</p> <p>Rosemount 848T Temperature Transmitter</p> <p>manufactured by,</p> <p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 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)
Kelly Klein (name)		19 Apr 2016 (date of issue)
Page 1 of 3		



EU Declaration of Conformity



No: RMD 1047 Rev. J

EMC Directive (2004/108/EC) This directive is valid until 19 April 2016

EMC Directive (2014/30/EU) This directive is valid from 20 April 2016

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

ATEX Directive (94/9/EC) This directive is valid until 19 April 2016

ATEX Directive (2014/34/EU) This directive is valid from 20 April 2016

Baseefa 09ATEX0093X – Intrinsically Safe Certificate

Equipment Group II, Category 1 G (Ex ia IIC T4 Ga)

Harmonized Standards:

EN 60079-0: 2012; EN 60079-11: 2012

Baseefa09ATEX0095X – Type n Certificate

Equipment Group II, Category 3 G (Ex nA nL IIC T5)

Other Standards:

EN60079-0:2006 (A review against EN60079-0:2012, which is harmonized, shows no significant changes relevant to this equipment so EN60079-0:2006 continues to represent “State of the Art”.)

EN60079-15: 2005 (A review against EN60079-15:2010, which is harmonized, shows no significant changes relevant to this equipment so EN60079-15:2005 continues to represent “State of the Art”.)

Baseefa 09ATEX0094U – Type n Component Certificate

Equipment Group II, Category 3 G (Ex nA nL IIC T5...T4)

Other Standards:

EN60079-0:2006 (A review against EN60079-0:2012, which is harmonized, shows no significant changes relevant to this equipment so EN60079-0:2006 continues to represent “State of the Art”.)

EN60079-15: 2005 (A review against EN60079-15:2010, which is harmonized, shows no significant changes relevant to this equipment so EN60079-15:2005 continues to represent “State of the Art”.)



EU Declaration of Conformity



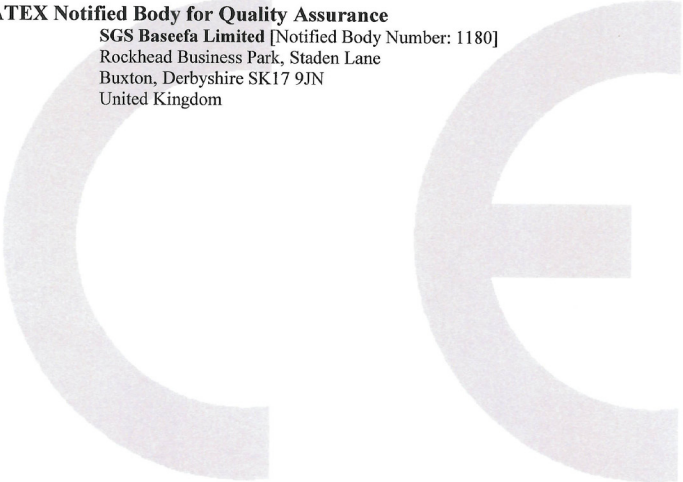
No: RMD 1047 Rev. J

ATEX Notified Bodies for EC Type Examination Certificate

SGS Baseefa Limited [Notified Body Number: 1180]
Rockhead Business Park, Staden Lane
Buxton, Derbyshire SK17 9JN
United Kingdom

ATEX Notified Body for Quality Assurance

SGS Baseefa Limited [Notified Body Number: 1180]
Rockhead Business Park, Staden Lane
Buxton, Derbyshire SK17 9JN
United Kingdom



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
List of Rosemount 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.



Global Headquarters

Emerson Process Management

6021 Innovation Blvd
Shakopee, MN 55379, USA

+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RFQ.RMD-RCC@EmersonProcess.com

North America Regional Office

Emerson Process Management

8200 Market Blvd.
Chanhassen, MN 55317, USA

+1 800 999 9307 or +1 952 906 8888
+1 952 949 7001
RMT-NA.RCCRFQ@Emerson.com

Latin America Regional Office

Emerson Process Management

1300 Concord Terrace, Suite 400
Sunrise, Florida, 33323, USA

+1 954 846 5030
+1 954 846 5121
RFQ.RMD-RCC@EmersonProcess.com

Europe Regional Office

Emerson Process Management Europe GmbH

Neuhofstrasse 19a P.O. Box 1046
CH 6340 Baar
Switzerland

+41 (0) 41 768 6111
+41 (0) 41 768 6300
RFQ.RMD-RCC@EmersonProcess.com

Asia Pacific Regional Office

Emerson Process Management Asia Pacific Pte Ltd

1 Pandan Crescent
Singapore 128461

+65 6777 8211
+65 6777 0947
Enquiries@AP.EmersonProcess.com

Middle East and Africa Regional Office

Emerson Process Management

Emerson FZE P.O. Box 17033,
Jebel Ali Free Zone - South 2
Dubai, United Arab Emirates

+971 4 8118100
+971 4 8865465
RFQ.RMTMEA@Emerson.com

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