Quick Start Guide
00825-0600-4728, Rev. AH
July 2026

Rosemount™ 644 Rail Mount Temperature Transmitter

with RK Option and HART® 7 Protocol



Product documents can be located by selecting the search tool magnifier icon at the top of **www.emerson.com** and then select the "Serial Number" lookup button in the pop-up menu.

For Additional Product Information:

Please scan the QR code on this document for your local language safety messages.
Escaneie o código QR acima para obter as mensagens de segurança no idioma local.
Bitte scannen Sie den QR-Code oben nach den Sicherheitshinweisen Ihrer Landessprache.
Veuillez scanner le code QR ci-dessus pour obtenir vos messages de sécurité en langue locale.
Lea el código QR anterior para ver sus mensajes de seguridad en el idioma local.
Eseguire la scansione del codice QR sopra indicato per i messaggi di sicurezza nella lingua locale.
Отсканируйте QR-код выше, чтобы получить сообщения о безопасности на местном языке.
请扫描上面的 QR 代码以了解您的本地语言安全消息。
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현지 언어 안전 메시지를 보려 면 위의 QR 코드를 스캔하세요

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About this guide

This guide provides basic guidelines for installing the Rosemount 644 Temperature Transmitter. It does not provide instructions for detailed configuration, diagnostics, maintenance, service, troubleshooting, or installation. Refer to the Rosemount 644 Temperature Transmitter Reference Manual for more instruction. The manual and this guide are also available electronically on Emerson.com/global.

⚠ WARNING

Follow instructions

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

Ensure only qualified personnel perform the installation.

⚠ WARNING

Explosions

Explosions could result in death or serious injury.

Installation of the transmitters in a hazardous environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Review the *Product certifications* section for any restrictions associated with a safe installation.
Do not remove the connection head cover in explosive atmospheres when the circuit is live.
Before connecting a field communicator in an explosive atmosphere, ensure that the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices. Verify the operating atmosphere of the gauge is consistent with the appropriate hazardous locations certifications.
All connection head covers must be fully engaged to meet explosion-proof requirements.

⚠ WARNING

Process leaks

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

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 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.

CAUTION

Conduit/cable entries

Unless otherwise marked, the conduit/cable entries in the housing enclosure use a ½–14 NPT form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries.
Entries marked **M20** are M20 x 1.5 thread form.
When installing in a hazardous location, use only appropriately listed or Ex-certified plugs, glands, or adapters in cable/conduit entries.

NOTICE

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

NOTICE

The products described in this document are NOT designed for nuclear-qualified applications.

Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings.

For information on Emerson nuclear-qualified products, contact your local Emerson Sales Representative.

1 General safety certificates and approvals

See *Product certifications* for approvals information.

Product certifications are also in the online version of this Quick Start Guide on Emerson.com.

2 System readiness

2.1 Confirm HART® revision capability

If using HART-based control or AMS, confirm the HART capability of those systems prior to transmitter installation.

Not all systems are capable of communicating with HART Revision 7 protocol. This transmitter can be configured for either HART Revision 5 or 7.

For instructions on how to change the HART revision of your transmitter, see Rosemount 644 Temperature Transmitter with HART® Protocol Manual .

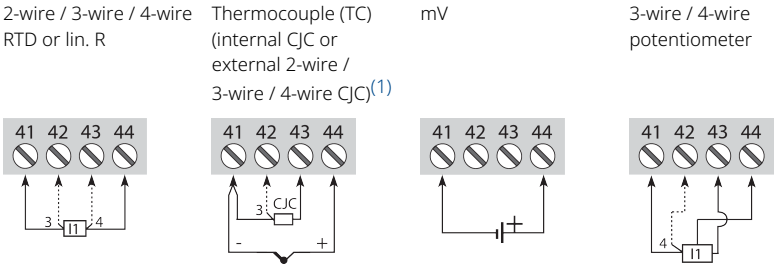
2.2 Confirm correct device driver

- Verify the latest Device Driver files are loaded on your systems to ensure proper communications.
- Download the latest Device Driver at Software and Drivers.

3 Installation

3.1 Connections

Figure 3-1: Single Input Connection



(1) When using thermocouple input, configure the transmitter for either constant, internal, or external CJC via a Pt100 or Ni100 sensor. The input must be selected during device configuration.

Figure 3-2: Loop Connections

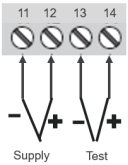
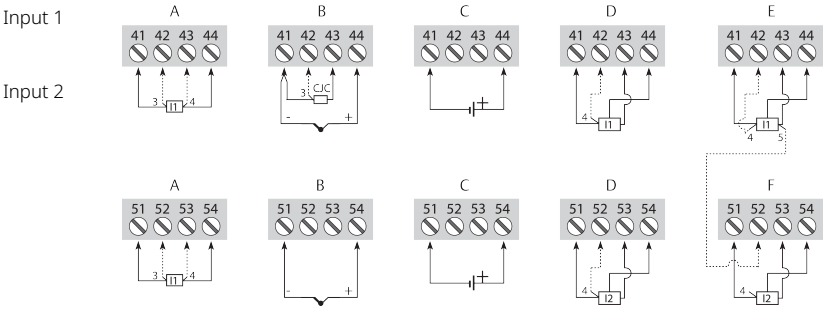


Figure 3-3: Dual Input Connection



A. 2 w / 3 w / 4 w RTD or lin. R
B. TC (internal CJC or external 2 w / 3 w / 4 w CJC)[1]
C. mV
D. 3 W/ 4 W potentiometer
E. 5 W potentiometer
F. 3 W potentiometer

1. *When using thermocouple input, configure the transmitter for either constant, internal, or external CJC via a Pt100 or Ni100 sensor. You must select the input during device configuration.*

3.2 Multidropmode

Communication with up to 63 uniquely numbered transmitters in parallel on a digital HART® 2-wire system can be facilitated using either a HART communicator or a HART modem connected across terminals BC or CD, requiring transmitters to be in multidrop mode with a 4 mA signal and a total loop current not exceeding 252 mA.

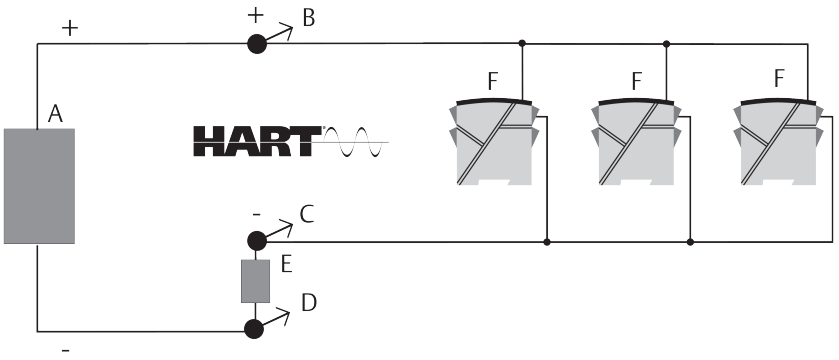
The communication is either by means of a HART communicator or a HART modem.

The HART communicator or a HART modem can be connected across BC or CD.

The outputs of a maximum of 63 transmitters can be connected in parallel for a digital HART 2-wire communication.

Before connecting each transmitter, configure it with a unique number from 1 to 63. If two transmitters are configured with the same number, both will be excluded. Program the transmitters forMultidropmode (with a fixed output signal of 4 mA). Maximum current in the loop is therefore 252 mA.

Figure 3-4: MultidropConnection



A. Power supply
B. Connection
C. Connection
D. Connection
E. 250 Ω < R_{load} < 1100 Ω
F. Transmitter

3.3 Reinstall terminal connectors

Remove the terminal connectors to install sensor and power wiring.

To reinstall terminal connectors:

Procedure

1. Align the terminal connectors with the internal pins.



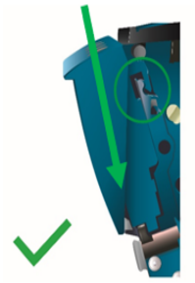
2. Rotate the plastic hooks so that they are properly engaged in the supporting plastic piece.

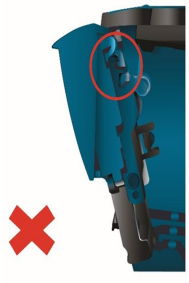


3. Push down the terminal connector to properly set it into place.

NOTICE

Improper seating can cause the hooks to wedge against the supporting plastic and cause the connector to unseat.





4 Configuration

4.1 Safety messages

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations. Information that potentially raises safety issues is indicated by a () warning symbol. Refer to the following safety messages before performing an operation preceded by this symbol.

WARNING

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

Ensure only qualified personnel perform the installation.

Explosion

Explosions could result in death or serious injury.

Do not remove the housing covers in explosive atmospheres when the circuit is live.

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

Verify the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

All connection head covers must be fully engaged to meet explosion-proof requirements.

Process leak

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.

Electrical shock

Electrical shock could cause death or serious injury.

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

4.2 Configuration methods

Configure the transmitter.

Configure the transmitter in the following ways:

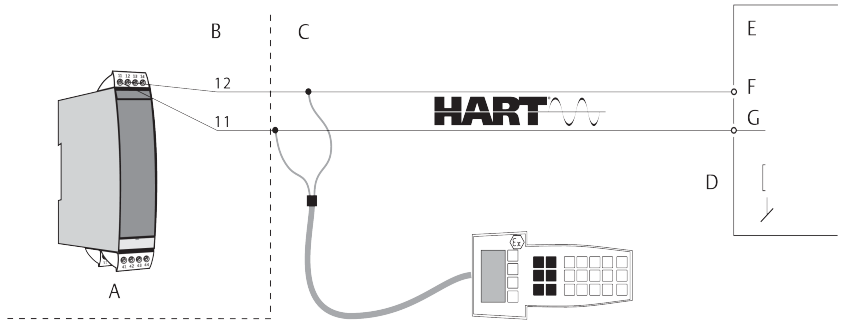
- Using a HART® communicator with Emerson's DDL driver
- Via programming framework (such as AMS Device Manager, distributed control system (DCS), PACTware™)

Both requiring product-specific software support from sources such as the FieldComm Group or Emerson.

4.2.1 HART communicator

To get access to product-specific commands, load the HART communicator with Emerson's DDL driver. Order this through either the FieldComm Group or Emerson.

Figure 4-1: HART Communicator

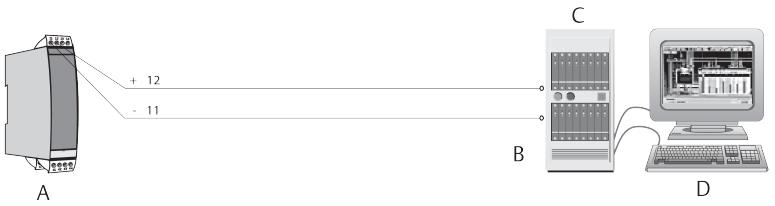


A. Transmitter
B. Ex area
C. Safe area
D. 250 Ω < R_{load} < 1100 Ω
E. Receiving equipment
F. +V supply
G. Input

4.2.2 Programming framework

There is support for both EDD and FDT®/DTM™ technology, offering configuration and monitoring via relevant DCS/AMS and supported management packages (such as PACTware).

Figure 4-2: Programming Framework



A. Transmitter
B. 250 Ω < R_{load} < 1100 Ω
C. Process computer
D. DCS, etc.

5 Transmitter installation

5.1 Rail mount transmitter with remote mount sensor

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

The most basic assembly uses:

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

Refer to Rosemount 248 Temperature Transmitter for complete sensor and mounting accessory information.

5.1.1 Assemble the device

The procedure involves mounting the transmitter, installing the thermowell, attaching the sensor to the connection head, connecting sensor lead wires, ensuring enclosure covers are fully engaged for safety, and running wires from the sensor assembly to the transmitter while avoiding contact with leads and terminals.

Procedure

1. Attach the transmitter to a suitable rail or panel.
2. Attach the thermowell to the pipe or process container wall. Install and tighten the thermowell before applying pressure.
3. Attach the sensor to the connection head and mount the entire assembly to the thermowell.
4. Attach sufficient lengths of sensor lead wire to the sensor terminal block.
5. Attach and tighten the connection head cover.

WARNING

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

6. Run sensor lead wires from the sensor assembly to the transmitter.
7. Attach the sensor and power leads to the transmitter.

NOTICE

Avoid contact with leads and terminals.

5.2 Rail mount transmitter with threaded sensor

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

The least complicated assembly uses:

- Threaded sensor with flying heads

- Threaded sensor connection head
- Union and nipple extension assembly
- Threaded thermowell

Refer to Rosemount 248 Temperature Transmitter for complete sensor and mounting accessory information.

5.2.1 Assemble the device

To install the temperature sensor assembly, mount the transmitter, secure the thermowell, connect the sensor to the thermowell and connection head, wire the sensor to the transmitter, and ensure all covers are properly engaged to meet safety standards.

Procedure

1. Attach the transmitter to a suitable rail or panel.
2. Before applying pressure, attach the thermowell to the pipe or process container wall.
3. Install and tighten the thermowell.
4. Attach necessary extension nipples and adapters.
5. Seal the nipple and adapter threads with silicone tape.
6. Twist the sensor into the thermowell.
7. If required, install drain seals for severe environments or to satisfy code requirements.
8. Screw the connection head to the sensor.
9. Attach the sensor lead wires to the connection head terminals.
10. Attach additional sensor lead wires from the connection head to the transmitter.
11. Attach and tighten the connection head cover.

WARNING

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

12. Attach the sensor and power leads to the transmitter.

NOTICE

Avoid contact with leads and terminals.

6 Safety instrumented systems

For safety-certified installations, refer to the Rosemount 644 Reference Manual.

The manual is available electronically at Emerson.com/global or by contacting an Emerson representative.

7 Product certifications

7.1 European Directive information

A copy of the EU Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EU Declaration of Conformity can be found at Emerson.com.

7.2 Ordinary location certification

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by a nationally recognized test laboratory (NRTL), as accredited by the Federal Occupational Safety and Health Administration (OSHA).

7.3 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.

7.4 USA

7.4.1 I5 USA Intrinsically Safe (IS) and Division 2/Zone 2

Certificate	80072530
Markings	Class I, Division 1, Groups A, B, C, D Class I, Zone 0: AEx ia IIC T6...T4 Ga Class I, Zone 1: AEx ib [ia Ga] IIC T6...T4 Gb Class I, Division 2, Groups A, B, C, D Class I, Zone 2: AEx ec IIC T6...T4 Gc Class I, Zone 2: AEx ec [ic] IIC T6...T4 Gc when installed per Control Drawing 00644-8000

Table 7-1: IS Input Parameters vs. Temperature Range

Input parameters (Terminals 11, 12)	Temperature range	Input parameters (Terminals 11, 12)	Temperature range
U_i: 30 Vdc	T4: –50 °C ≤ T_a ≤+85 °C	U_i: 30 Vdc	T4: –50 °C ≤ T_a ≤ +85 °C
I_i: 120 mA	T5: –50 °C ≤ T_a ≤ +70 °C	I_i: 100 mA	T5: –50 °C ≤ T_a ≤ +75 °C
P_i: 900 mW	T6: –50 °C ≤ T_a ≤ +55 °C	P_i: 750 mW	T6: –50 °C ≤ T_a ≤ +60 °C
L_i: 0 uH	N/A	L_i: 0 uH	N/A
C_i: 1.0 nF	N/A	C_i: 1.0 nF	N/A

Table 7-2: IS Output Parameters per Terminal Configuration

Parameters	One sensor using all output terminals (41-54)	Sensor using one set of output terminals (41-44 or 51-54)
U_o	7.2 Vdc	7.2 Vdc
I_o	12.9 mA	7.3 mA
P_o	23.3 mW	13.2 mW
L_o	200 mH	667 mH
C_o	13.5 uF	13.5 uF

Table 7-3: Division 2/Zone 2 Input Parameters vs. Temperature Range

Supply voltage	Temperature range
37 Vdc maximum	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +70 °C T6: –50 °C ≤ T_a ≤ +55 °C
30 Vdc maximum	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +75 °C T6: –50 °C ≤ T_a ≤ +60 °C
NIFW Vmax = 30 Vdc, C_i = 1 nF, L_i = 0	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +75 °C T6: –50 °C ≤ T_a ≤ +60 °C

Specific Conditions of Use (X):

1. Install per Installation Drawing 00644-8000 as appropriate.
2. Install in accordance with the US National Electrical Code (NEC®) for the US and in accordance with the Canadian Electrical Code (CEC) for Canada.
3. The transmitter must be installed in suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC) or for the US the National Electrical Code (NEC).
4. If the enclosure is made of non-metallic materials or of painted metal, electrostatic charging shall be avoided.
5. For Div 2/Zone 2 applications, the transmitter must be installed in an enclosure providing a degree of protection of at least IP54 according to IEC60529 that is suitable for the application and is correctly installed. Cable entry devices and blanking elements shall fulfill the same requirements.
6. Use supply wires with a rating of at least 5 K above the ambient temperature.
7. For Div 2/Zone 2 applications, the temperature transmitter requires connecting to Class 2 power supply with transient protection. See installation drawing as appropriate.

7.5 Canada

7.5.1 I6 Canada Intrinsically Safe (IS) and Division 2/Zone 2

Certificate: 80072530

Markings:
Class I, Division 1, Groups A, B, C, D
Ex ia IIC T6...T4 Ga
Ex ib [ia Ga] IIC T6...T4 Gb
Class I, Division 2, Groups A, B, C, D
Ex ec IIC T6...T4 Gc
Ex ec [ic] IIC T6...T4 Gc
when installed per Control Drawing 00644-8000

Table 7-4: IS Input Parameters vs. Temperature Range

Input parameters (Terminals 11, 12)	Temperature range	Input parameters (Terminals 11, 12)	Temperature range
U_i: 30 Vdc	T4: –50 °C ≤ T_a ≤+85 °C	U_i: 30 Vdc	T4: –50 °C ≤ T_a ≤ +85 °C
I_i: 120 mA	T5: –50 °C ≤ T_a ≤ +70 °C	I_i: 100 mA	T5: –50 °C ≤ T_a ≤ +75 °C
P_i: 900 mW	T6: –50 °C ≤ T_a ≤ +55 °C	P_i: 750 mW	T6: –50 °C ≤ T_a ≤ +60 °C
L_i: 0 uH	N/A	L_i: 0 uH	N/A
C_i: 1.0 nF	N/A	C_i: 1.0 nF	N/A

Table 7-5: IS Output Parameters per Terminal Configuration

Parameters	One sensor using all output terminals (41-54)	Sensor using one set of output terminals (41-44 or 51-54)
U_o	7.2 Vdc	7.2 Vdc
I_o	12.9 mA	7.3 mA
P_o	23.3 mW	13.2 mW
L_o	200 mH	667 mH
C_o	13.5 uF	13.5 uF

Table 7-6: Division 2/Zone 2 Input Parameters vs. Temperature Range

Supply voltage	Temperature range
37 Vdc maximum	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +70 °C T6: –50 °C ≤ T_a ≤ +55 °C
30 Vdc maximum	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +75 °C T6: –50 °C ≤ T_a ≤ +60 °C
NIFW Vmax = 30 Vdc, C_i = 1 nF, L_i = 0	T4: –50 °C ≤ T_a ≤ +85 °C T5: –50 °C ≤ T_a ≤ +75 °C T6: –50 °C ≤ T_a ≤ +60 °C

Specific Conditions of Use (X):

1. Install per Installation Drawing 00644-8000 as appropriate.
2. Install in accordance with the US National Electrical Code (NEC®) for the US and in accordance with the Canadian Electrical Code (CEC) for Canada.
3. The transmitter must be installed in suitable enclosure to meet installation codes stipulated in the Canadian Electrical Code (CEC) or for the US the National Electrical Code (NEC).
4. If the enclosure is made of non-metallic materials or of painted metal, electrostatic charging shall be avoided.
5. For Div 2/Zone 2 applications, the transmitter must be installed in an enclosure providing a degree of protection of at least IP54 according to IEC60529 that is suitable for the application and is correctly installed. Cable entry devices and blanking elements shall fulfill the same requirements.
6. Use supply wires with a rating of at least 5 K above the ambient temperature.
7. For Div 2/Zone 2 applications, the temperature transmitter requires connecting to Class 2 power supply with transient protection. See installation drawing as appropriate.

7.6 Europe

7.6.1 I1 ATEX Intrinsic Safety

Certificate DEKRA 21ATEX0003X

Markings Ⓔx II 1 G Ex ia IIC T6...T4 Ga
II 2(1) G Ex ib [ia Ga] IIC T6...T4 Gb
II 2 D Ex ia IIIC Db
I 1 M Ex ia I Ma
when installed per Control Drawing 00644-8001

Input parameters (power terminals)	One sensor using all output terminals (41-54)	Sensor using one set of output terminals (41-44 or 51-54)
U_i: 30 Vdc	7.2 Vdc	7.2 Vdc
I_i: 120 mA	12.9 mA	7.3 mA
P_i: (See table below)	23.3 mW	13.2 mW
L_i: 0 uH	200 mH	667 mH
C_i: 1.0 nF	13.5 uF	13.5 uF

Pi per Channel	Temperature class	Maximum ambient temperature
900 mW	T6	+50 °C
	T5	+65 °C
	T4	+85 °C
750 mW	T6	+55 °C
	T5	+70 °C
	T4	+85 °C
610 mW	T6	+60 °C
	T5	+75 °C
	T4	+85 °C

Specific Conditions of Use (X):

1. For all potentially explosive atmospheres, if the enclosure is made of non-metallic materials, or if it is made of metal having a paint layer thicker than 0.2 mm (group IIC), or 2 mm (group IIB, IIA, I), or any thickness (group III), electrostatic charges shall be avoided.
2. For EPL Ga, if the enclosure is made of aluminum, it must be installed such that ignition sources due to impact and friction sparks are excluded.
3. For EPL Db, the surface temperature "T" of the enclosure, for a dust layer with a maximum thickness of 5 mm, is the ambient temperature +20 K.

7.6.2 N1 ATEX Zone 2

Certificate DEKRA 21ATEX0004X

Markings Ⓔx II 3 G Ex nA IIC T6...T4 Gc
II 3 G Ex ec IIC T6...T4 Gc
II 3 G Ex ic IIC T6...T4 Gc
II 3 D Ex ic IIIC Dc

Note
When installed per Control Drawing 00644-8001.

Supply/input to transmitter			Temperature class	Maximum ambient temperature
Ex nA & Ex ec	Ex ic L_i = 0 µH C_i = 1.0 nF	Ex ic U_i = 48 Vdc L_i = 0 µH C_i = 1.0 nF		Single and dual input
V_{max} = 37 Vdc	U_i = 37 Vdc	P_i = 851 mW per channel	T4	185 °F (85 °C)
			T5	158 °F (70 °C)
			T6	131 °F (55 °C)
V_{max} = 30 Vdc	U_i = 30 Vdc	P_i = 700 mW per channel	T4	185 °F (85 °C)
			T5	167 °F (75 °C)
			T6	140 °F (60 °C)

Table 7-7: Maximum Output of Transmitter

Ex nA & Ex ec	One sensor using all output terminals (41-54)	Sensor using one set of output terminals (41-44 or 51-54)
Vmax = 7.2 Vdc	7.2 Vdc 12.9 mA 23.3 mW 200 mH 13.5 uF	7.2 Vdc 7.3 mA 13.2 mW 667 mH 13.5 uF

Specific Conditions of Use (X):

1. For all potentially explosive atmospheres, if the enclosure is made of non-metallic materials, or if it is made of metal having a paint layer thicker than 0.00787402 in. (0.2 mm) (Group IIC), or 0.07874016 in. (2 mm) (Group IIB, IIA, I), or any thickness (Group III), electrostatic charges shall be avoided.
2. The transmitter shall be installed in an enclosure providing a degree of protection of not less than IP54, in accordance with EN 60079-0, which is suitable for the application and correctly installed, e.g., in an enclosure that is in type of protection Ex n or Ex e.
3. Additionally, for Ex nA or Ex ec, the area inside the enclosure shall be pollution degree 2 or better, as defined in EN 60664-1.
4. For EPL Dc, the surface temperature "T" of the enclosure, for a dust layer with a maximum thickness of 0.19685039 in. (5 mm), is the ambient temperature +20K.

7.7 International

7.7.1 I7 IECEx Intrinsic Safety

Certificate IECEx DEK 21.0002X

Markings Ex ia IIC T6... T4 Ga
Ex ib [ia Ga] IIC T6...T4 Gb
Ex ia IIIC Db

Note
When installed per Control Drawing 00644-8002.

Input parameters (power terminals)	One sensor using all output terminals (41-54)	Sensor using one set of output terminals (41-44 or 51-54)
U_i: 30 Vdc	7.2 Vdc	7.2 Vdc
I_i: 120 mA	12.9 mA	7.3 mA
P_i: (See table below)	23.3 mW	13.2 mW
L_i: 0 uH	200 mH	667 mH
C_i: 1.0 nF	13.5 uF	13.5 uF

Pi per channel	Temperature class	Maximum ambient temperature
900 mW	T6	122 °F (50 °C)
	T5	149 °F (65 °C)
	T4	185 °F (85 °C)
750 mW	T6	131 °F (55 °C)
	T5	158 °F (70 °C)
	T4	185 °F (85 °C)
610 mW	T6	140 °F (60 °C)
	T5	167 °F (75 °C)
	T4	185 °F (85 °C)

Specific Conditions of Use (X):

1. For all potentially explosive atmospheres, if the enclosure is made of non-metallic materials, or if it is made of metal having a paint layer thicker than 0.00787402 in. (0.2 mm) (Group IIC), or 0.07874016 in. (2 mm) (Group IIB, IIA, I), or any thickness (Group III), electrostatic charges shall be avoided.
2. For EPL Ga, if the enclosure is made of aluminum, it must be installed such that ignition sources due to impact and friction sparks are excluded.
3. For EPL Db, the surface temperature "T" of the enclosure, for a dust layer with a maximum thickness of 0.19685039 in. (5 mm), is the ambient temperature +20 K.

7.7.2 N7 IECEx Zone 2

Certificate	IECEx DEK 21.0002X
Markings	Ex nA IIC T6...T4 Gc Ex ec IIC T6...T4 Gc Ex ic IIC T6...T4 Gc Ex ic IIIC Dc

Note

When installed per Control Drawing 00644-8002.

Supply/input to transmitter			**Temperature class**	**Maximum ambient temperature**
Ex nA & Ex ec	Ex ic L_i = 0 µH C_i = 1.0 nF	Ex ic U_i = 48 Vdc L_i = 0 µH C_i = 1.0 nF		**Single and dual input**
Vmax = 37 Vdc	U_i = 37 Vdc	P_i = 851 mW per channel	T4	185 °F (85 °C)
			T5	158 °F (70 °C)
			T6	131 °F (55 °C)
Vmax = 30 Vdc	U_i = 30 Vdc	P_i = 700 mW per channel	T4	185 °F (85 °C)
			T5	167 °F (75 °C)
			T6	140 °F (60 °C)

Table 7-8: Maximum Output of Transmitter

Ex nA & Ex ec	**One sensor using all output terminals (41-54)**	**Sensor using one set of output terminals (41-44 or 51-54)**
Vmax = 7.2 Vdc	7.2 Vdc 12.9 mA 23.3 mW 200 mH 13.5 uF	7.2 Vdc 7.3 mA 13.2 mW 667 mH 13.5 uF

Specific Conditions of Use (X):

1. For all potentially explosive atmospheres, if the enclosure is made of non-metallic materials, or if it is made of metal having a paint layer thicker than 0.00787402 in. (0.2 mm) (Group IIC), or 0.07874016 in. (2 mm) (Group IIB, IIA, I), or any thickness (Group III), electrostatic charges shall be avoided.
2. The transmitter shall be installed in an enclosure providing a degree of protection of not less than IP54, in accordance with EN 60079-0, which is suitable for the application and correctly installed, e.g., in an enclosure that is in type of protection Ex n or Ex e.

3. Additionally, for Ex nA or Ex ec, the area inside the enclosure shall be pollution degree 2 or better, as defined in EN 60664-1.

4. For EPL Dc, the surface temperature "T" of the enclosure, for a dust layer with a maximum thickness of 0.19685039 in. (5 mm), is the ambient temperature +20K.

7.8 China

7.8.1 I3 China (NEPSI) Intrinsic Safety

Certificate	GYJ26.1043X
Markings	Ex ia IIC T4 ... T6 Ga Ex ib [ia Ga] IIC T4 ... T6 Gb Ex ia IIIC T80/T95/T130 °C Db Ex ic IIIC T80/T95/T130 °C Dc

Specific Conditions of Use (X):
See certificate for specific conditions.

7.8.2 N3 China (NEPSI) Zone 2

Certificate	GYJ26.1043X
Markings	Ex ic IIC T4 ... T6 Gc Ex ec IIC T4 ... T6 Gc

Specific Conditions of Use (X):
See certificate for specific conditions.

7.9 Y3 ATEX/IECEx RFID tag approvals

⚠ WARNING

Additional warnings

The plastic enclosure may present a potential electrostatic ignition hazard.

RFID tag is suitable for installation in a limited set of Zone classified locations and ambient temperature ranges when compared to the transmitter.

Certificate	EPS 15 ATEX 11011X
Markings	Ex II 2G Ex ia IIC T6/T4 Gb Ex II 2D Ex ia IIIC T80 °C/T130 °C Db
Certificate	IECEx EPS 15.0042X
Markings	Ex ia IIC T6/T4 Gb Ex ia IIIC T80 °C/T130 °C Db

7.9.1 Specific Conditions of Use (X):

1. Maximum ambient temperature range:
   - –55 °C to +80 °C (T6 / T80 °C)
   - –55 °C to +110 °C (T4 / T130 °C)
2. The RFID tags shall never be exposed to high electromagnetic field strengths exceeding RMS values of 1 A/m or 3 V/m, e.g., in high current electrolysis plants.
3. Electrostatic charges shall be avoided. The tags shall never be used next to strong charge generating processes.

8 Declarations of Conformity (DoC)

8.1 Temperature Transmitter DoC

EMERSON.

EU DECLARATION OF CONFORMITY

CE
RMD 1160-C

This declaration of conformity is issued under the sole responsibility of

Rosemount Inc.
6021 Innovation Blvd
Shakopee, MN 55379
USA

that the following products,

Rosemount ™ 248R, 644R, 644T Temperature Transmitters with RK Option Code

comply with the provisions of the European Union Directives, including the latest amendments, valid at the time this declaration was signed.

October 23, 2024 | Mark Lee | Vice President, Quality | Boulder, CO, USA
(signature & date of issue) (name) (function) (place of issue)

Authorized Representative in Europe:
Emerson S.R.L., company No. J12/88/2006
Emerson 4 street, Parcul Industrial
Tetarom II, Cluj-Napoca 400638, Romania

Regulatory Compliance Shared Services Department
Email: europeproductcompliance@emerson.com Phone: +40 374 132 035

ATEX Notified Bodies for EU Type Examination Certificates:
DEKRA Certification B.V [Notified Body Number: 0344]
Meander 1051, 6825 MJ Arnhem
P.O. Box 5185
6802 ED Arnhem The Netherlands

ATEX Notified Body for Quality Assurance:
SGS Fimko Oy [Notified Body Number: 0598]
Takomotie 8
FI-00380 Helsinki
Finland

EMC Directive (2014/30/EU) Harmonized Standard: EN 61326-1: 2013 **RoHS Directive (2011/65/EU)** Harmonized Standards: EN IEC 63000: 2018	**ATEX Directive (2014/34/EU)** **DEKRA 21ATEX0003X – Intrinsic Safety Certificate** Equipment Group II, Category 1G (Ex ia IIC T6…T4 Ga) Equipment Group II, Category 2(1) G (Ex ib[ia Ga] IIC T6…T4 Gb) Equipment Group II, Category 2D (Ex ia IIIC Db) Equipment Group I, Category M1 (Ex ia I Ma) Harmonized Standards: EN IEC 60079-0:2018 EN 60079-11:2012 **DEKRA 21ATEX0004X – Type n, ec or ic** Equipment Group II, Category 3G (Ex nA IIC T6…T4 Gc or Ex ec IIC T6…T4 Gc) Equipment Group II, Category 3G (Ex ic IIC T6…T4 Gc) Equipment Group II, Category 3D (Ex ic IIIC Dc) Harmonized Standards: EN IEC 60079-0:2018 EN 60079-11:2012 EN IEC 60079-7:2015+A1:2018 EN 60079-15:2010

8.2 Optional RFID tag Declaration of Conformity

EU Declaration of Conformity

Company:	smart-TEC GmbH & Co. KG
Address:	Kolpingring 3 82041 Oberhaching
Product category:	Passive LF (125 kHz) RFID Tag Passive HF (13,56 MHz) RFID Tag
Model name:	*smart*-DOME Freestyle Ex, *smart*-DOME Classic Ex

The product is in compliance with the requirements of the following European harmonisation legislations:

Harmonisation legislation:	Title:
2014/53/EU:2014-04-16	Radio equipment Directive (RED)
2011/65/EU:2011-06-08	Restriction of the use of hazardous substances Directive (RoHS)
2014/34/EU 2014-02-16	Equipment and protective systems intended for use in potentially explosive 2014/34/EU atmospheres (ATEX)

The compliance with the requirements of the European harmonisation legislations was proved by the application of the following harmonised standards and technical specifications:

Essential requirements:	Reference:
Health and safety (article 3.1(a) RED)	EN 62368-1:2014+AC:2015 EN 50364:2010
Electromagnetic compatibility (article 3.1(b) RED)	EN 301 489-1 V2.2.3 EN 301 489-3 V2.1.1
Radio equipment (article 3.2 RED)	EN 300 330 V2.1.1
Equipment within certain categories or classes (article 3.3 RED)	N/A
Hazardous substances (RoHS)	EN IEC 63000:2018
ATEX	EN IEC 60079-0:2018 EN IEC 60079-11:2012

Additional information:

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

According to the EU Type Examination EPS 15 ATEX 1 1011 X issued by Bureau Veritas Consumer Products Services (Notified Body 2004).

Oberhaching, 16 November 2021

Klaus Dargahi, General Manager

smart-TEC GmbH & Co. KG
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Andrea Schrägle, graduate in business administration (VWA); Andreas Schrägle, graduate in industrial engineering (FH);
Klaus Dargahi, graduate in business administration (FH) | HR: *smart*-TEC Verwaltungsgesellschaft mbH, headquarter
Oberhaching: AG Mchn. B 162297 | *smart*-TEC GmbH & Co. KG: AG Mchn. A 74704 VAT-ID.-No.: DE203077185

9 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 644R/T
List of 644R/T Parts with China RoHS Concentration above MCVs

产品中有害物质的名称及含有的信息表 Names and information table of hazardous substances in product				
部件名称 Part Name				电子组件 Electronics Assembly
有害物质 Hazardous Substances	铅	Lead	(Pb)	X
	汞	Mercury	(Hg)	O
	镉	Cadmium	(Cd)	O
	六价铬	Hexavalent chromium	(Cr(VI))	O
	多溴联苯	Polybrominated biphenyls	(PBBs)	O
	多溴联苯醚	Polybrominated diphenyl ethers	(PBDEs)	O
	邻苯二甲酸二正丁酯	Dibutyl phthalate	(DBP)	O
	邻苯二甲酸二异丁酯	Diisobutyl phthalate	(DIBP)	O
	邻苯二甲酸丁苄酯	Butyl benzyl phthalate	(BBP)	O
	邻苯二甲酸二(2-乙基)己酯	Bis(2-ethylhexyl) phthalate	(DEHP)	O

注 1: O: 表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。

X: 表示该有害物质至少在该部件的某一均质材料中的含量超出电器电子产品有害物质限制使用国家标准要求。

Note1: O: Indicate that said hazardous substance contained in all of the homogeneous materials for this part does not exceed the limit requirement of the national standard for the restriction of the use of hazardous substances in electrical and electronic products.

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 the national standard for the restriction of the use of hazardous substances in electrical and electronic products.

注 2：以上未列出的部件，表明其有害物质含量均不超过电器电子产品有害物质限制使用国家标准要求。

Note2: For components not listed above, indicates that their hazardous substance content does not exceed the limit requirements of the national standard for the restriction of the use of hazardous substances in electrical and electronic products.

注 3：组装备件说明

Note3: Spare Parts Descriptions for Assemblies

部件名称 Part Name	组装备件说明 Spare Parts Descriptions for Assemblies
电子组件 Electronics Assembly	端子螺钉 Terminal Screws



Quick Start Guide
00825-0600-4728, Rev. AH
July 2026

For more information: Emerson.com

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