EMERSON Rosemount 644 Rail Mount Temperature Transmitter with RK Option and HART 7 Protocol User Guide

Contents

EMERSON Rosemount 644 Rail Mount Temperature Transmitter with RK Option and HART 7 Protocol

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

Safety messages

WARNING

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 Rosemount nuclear-qualified products, contact your local Emerson Sales Representative.

Follow instructions
Failure to follow these installation guidelines could result in death or serious injury.
Ensure only qualified personnel perform the installation.

Physical access
Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.
Physical security is an important part of any security program and fundamental to protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

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. Please 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 handheld communicator in an explosive atmosphere, ensure 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 leaks
Process leaks could result in death or serious injury.
Do not remove the thermowell while in operation.
Install and tighten thermowells and sensors before applying pressure.

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.

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.

System readiness

Confirm HART revision capability
If using HART®-based control or asset management systems, 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 is a HART Revision 7 device.

Confirm the correct device driver

- Verify the latest Device Driver files are loaded on your systems to ensure proper communications.
- Download the latest Device Driver at Emerson.com/Rosemount.

Transmitter installation

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. Please 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.

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

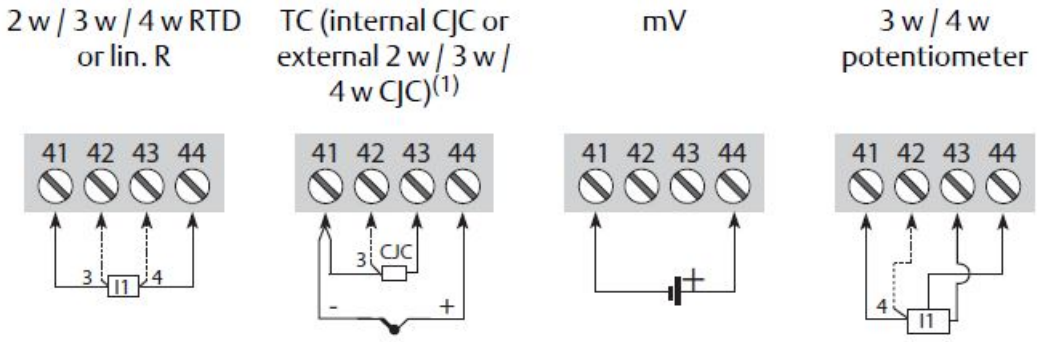
Process leaks could result in death or serious injury.

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

Electrical shock could cause death or serious injury.
Use extreme caution when making contact with the leads and terminals.

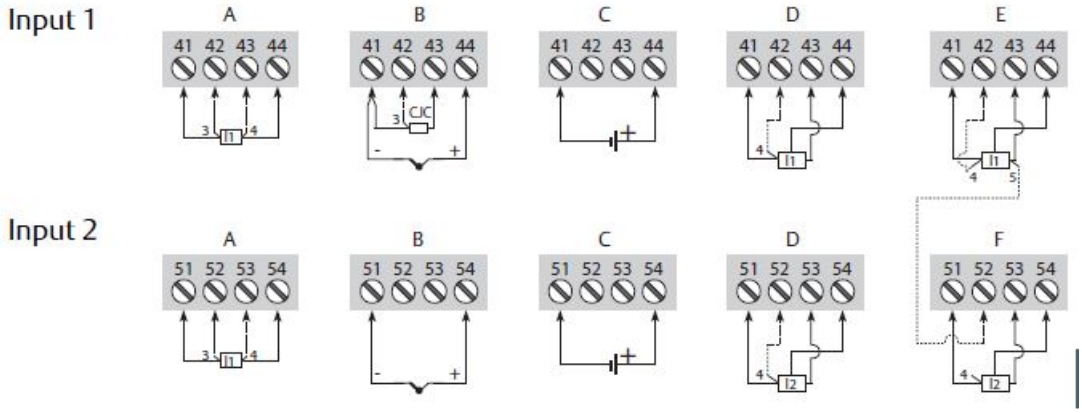
Connections

Single input



1. When using thermocouple input, the transmitter can be configured for either constant, internal or external CJC via a Pt100 or Ni100 sensor. This must be selected during device configuration.

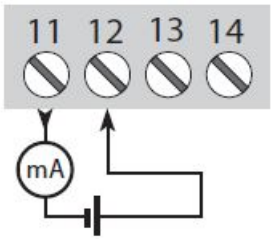
Dual inputs



- 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

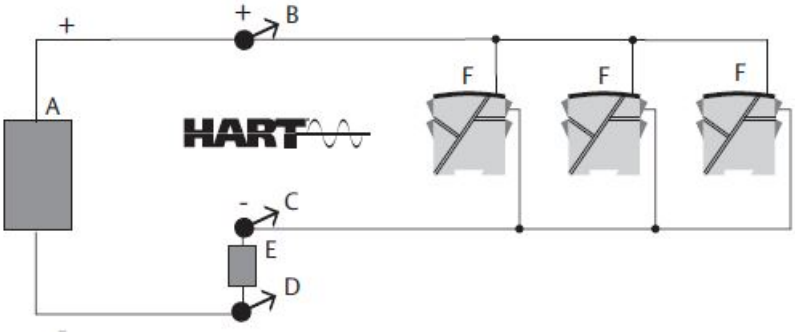
When using thermocouple input, the transmitter can be configured for either constant, internal or external CJC via a Pt100 or Ni100 sensor. This must be selected during device configuration.

Output
2-wire installation



Multidrop mode

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 maximum 63 transmitters can be connected in parallel for a digital HART 2-wire communication.
Before it is connected, each transmitter must be configured with a unique number from 1 to 63. If two transmitters are configured with the same number, both will be excluded. The transmitters must be programmed for multidrop mode (with a fixed output signal of 4 mA). Maximum current in the loop is therefore 252 mA.



- A. Power supply
- B. Connection
- C. Connection
- D. Connection
- E. 250 Ω < Rload < 1100 Ω
- F. Transmitter

Configuration

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. Please 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.

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 handheld communicator in an explosive atmosphere, ensure the instruments are installed in accordance with intrinsically safe or non-incendive field wiring practices.
Verify that 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 leaks could result in death or serious injury.
Do not remove the thermowell while in operation.
Install and tighten thermowells and sensors before applying pressure.

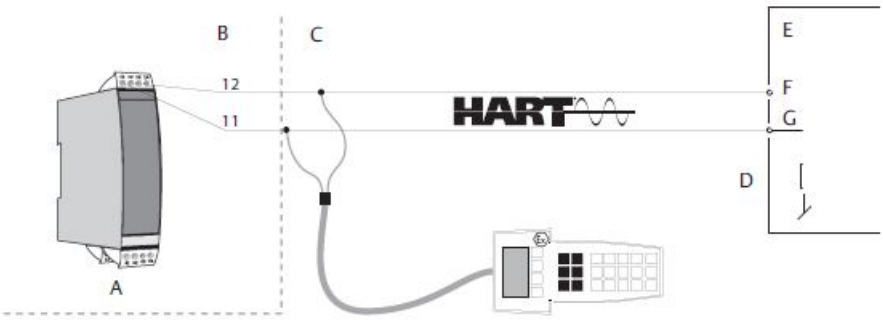
Electrical shock could cause death or serious injury.
Use extreme caution when making contact with the leads and terminals.

Configuration methods
The device can be configured in the following ways:

- With a HART® communicator with Emerson's DDL driver
- Via programming framework (e.g. AMS Device Manager, DCS, PACTware™)

HART communicator

To get access to product-specific commands, the HART communicator must be loaded with Emerson's DDL driver. This can be ordered through either the FieldComm Group or Emerson.



- A. Rosemount transmitter
- B. Ex area
- C. Safe area
- D. 250 Ω < Rload < 1100 Ω
- E. Receiving equipment
- F. +V supply
- G. Input

Programming framework
Support for both EDD and FDT®/DTM™ technology, offering configuration and monitoring via relevant DCS/Asset Management Systems and supported management packages (e.g. PACTware).

- A. Rosemount transmitter
- B. 250 Ω < Rload < 1100 Ω
- C. Process computer
- D. DCS, etc.

Mount the transmitter

Rail mount transmitter with remote mount sensor

The least complicated assembly uses:

- a remote-mounted transmitter
- an integral mount sensor with terminal block
- an integral style connection head
- a standard extension
- a threaded thermowell

  Refer to the Metric Sensor Product Data Sheet for complete sensor and mounting accessory information.

Assemble the device
To complete the assembly:

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. 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. Avoid contact with leads and terminals.

Rail mount transmitter with threaded sensor
The least complicated assembly uses:

- a threaded sensor with flying heads
- a threaded sensor connection head
- a union and nipple extension assembly
- a threaded thermowell

  Refer to Rosemount Metric Sensor Product Data Sheet for complete sensor and mounting accessory information.Refer to Rosemount Metric Sensor Product Data Sheet for complete sensor and mounting accessory information.

Assemble the device
To complete the assembly:

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 necessary extension nipples and adapters. Seal the nipple and adapter threads with silicone tape.
4. Twist the sensor into the thermowell. Install drain seals if required for severe environments or to satisfy code requirements.
5. Screw the connection head to the sensor.
6. Attach the sensor lead wires to the connection head terminals.
7. Attach additional sensor lead wires from the connection head to the transmitter.
8. Attach and tighten the connection head cover. Enclosure covers must be fully engaged to meet explosion-proof requirements.
9. Attach the sensor and power leads to the transmitter. Avoid contact with leads and terminals.

Safety instrumented systems

For Safety Certified installations, refer to the Rosemount 644R Reference Manual. The manual is available electronically at Emerson.com/Rosemount or by contacting an Emerson representative.

Product certifications

Rev: 1.1

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/Rosemount.

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).

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

- Certificate 80072530
- Standards UL Std No 913 Ed. 8, UL 60079-0 Ed. 5, UL 60079-11 Ed. 6, UL 60079-15 Ed. 4, UL 61010-1 Ed. 3
- Markings Class I, Division 1, Groups A, B, C, D
  Class I, Zone 0: AEx ia IIC T6…T4
  Class I, Zone 1: AEx ib [ia] IIC T6…T4
  Class I, Division 2, Groups A, B, C, D
  Class I, Zone 2: AEx nA IIC T6…T4
  Class I, Zone 2: AEx nA [ic] IIC T6…T4
  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

Table 7-1: IS Input Parameters vs Temperature Range (continued)

Input parameters (Terminals 11, 12)	Temperature range	Input parameters (Terminals 11, 12)	Temperature range
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 max	T4: -50 °C ≤ T_a ≤ +85 °C T5: -50 °C ≤ T_a ≤ +70 °C T6: -50 °C ≤ T_a ≤ +55 °C
30 VDC max	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

Special Conditions for Safe 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 fulfil 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.

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

- Certificate: 80072530
- Standards: CSA C22.2 No. 157-92 (R2012), CAN/CSA C22.2 No. 60079-0:11, CAN/CSA C22.2 No. 60079-11:11, CAN/CSA C22.2 No. 60079-15:12, CSA 61010-1-12

- Markings: Class I, Division 1, Groups A, B, C, DEx ia IIC T6…T4
  Ex ib [ia] IIC T6…T4
  Class I, Division 2, Groups A, B, C, D
  Ex nA IIC T6…T4
  Ex nA [ic] IIC T6…T4
  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

Input parameters (Terminals 11, 12)	Temperature range	Input parameters (Terminals 11, 12)	Temperature range
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 max	T4: -50 °C ≤ T_a ≤ +85 °C T5: -50 °C ≤ T_a ≤ +70 °C T6: -50 °C ≤ T_a ≤ +55 °C
30 VDC max	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

Special Conditions for Safe 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 fulfil 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.

Europe

I1 ATEX Intrinsic Safety

- Certificate: DEKRA 21ATEX0003X
- Standards: EN60079-0:2012+A11:2013, EN60079-11: 2012
- Markings: II 1 G Ex ia IIC T6…T4 Ga
  II 2(1) G Ex ib [ia Ga] IIC T6…T4 Gb
  II 1 D Ex ia IIIC Da
  I 1 M Ex ia I Ma
  when installed per Control Drawing 00644-8001

Input parameters (Power terminals)	Output parameters (Sensor terminals)
U_i: 30 Vdc	U_o: 7.2 Vdc
I_i: 120 mA	I_o: 7.3 mA
P_i: See table below	P_o: 13.2 mW
L_i: 0 uH	L_o: 667 mH
C_i: 1.0 nF	C_o: 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

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

Special Conditions for Safe 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 Da, the surface temperature “T” of the enclosure, for a dust layer with a maximum thickness of 5 mm, is the ambient temperature +20 K.

N1 ATEX Zone 2

- Certificate: DEKRA 21ATEX0004X
- Standards: EN60079-0:2012+A11:2013, EN60079-7:2015+A1:2018, EN60079-11:2012, EN60079-15:2010
- Markings: 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

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	+85 °C
			T5	+70 °C
			T6	+55 °C
V_{max} = 30 VDC	U_i = 30 VDC	P_i = 700 mW per channel	T4	+85 °C
			T5	+75 °C
			T6	+60 °C

Table 7-7: Maximum Output of Transmitter

Ex nA & Ex ec	Ex ic
Vmax = 7.2 VDC	U_o = 7.2 VDC I_o = 7.3 mA P_o = 13.2 mW L_o = 667 mH C_o = 13.5 µF

Special Conditions for Safe 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 0.2mm (group IIC), or 2mm (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. Additional, 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 5mm, is the ambient temperature + 20K.

International

I7 IECEx Intrinsic Safety

- Certificate IECEx DEK 21.0002X
- Standards IEC 60079-0:2011, IEC 60079-11:2011

- Markings Ex ia IIC T6…T4 Ga
  Ex ib [ia Ga] IIC T6…T4 Gb
  Ex ia IIIC Da
  Ex ia I Ma
  when installed per Control Drawing 00644-8002

Input parameters (Power terminals)	Output parameters (Sensor terminals)
U_i: 30 VDC	U_o: 7.2 VDC
I_i: 120 mA	I_o: 7.3 mA
P_i: See table below	P_o: 13.2 mW
L_i: 0 uH	L_o: 667 mH
C_i: 1.0 nF	C_o: 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

Special Conditions for Safe 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 Da, the surface temperature “T” of the enclosure, for a dust layer with a maximum thickness of 5 mm, is the ambient temperature +20 K.

N7 **IECEx** Zone 2

- **Certificate:** IECEx DEK 21.0002X
- **Standards:** IEC 60079-0:2011, IEC 60079-7:2017, IEC 60079-11:2011,
  IEC 60079-15:2010

- **Markings:** Ex nA IIC T6…T4 Gc
  Ex ec IIC T6…T4 Gc
  Ex ic IIC T6…T4 Gc
  Ex ic IIIC Dc
  when installed per Control Drawing 00644-8002

Supply/input to transmitter			Temperature class	Maximum ambient t emperature
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 inpu t
Vmax = 37 VDC	U_i = 37 VDC	P_i = 851 mW per channel	T4	+85 °C
			T5	+70 °C
			T6	+55 °C
Vmax = 30 VDC	U_i = 30 VDC	P_i = 700 mW per channel	T4	+85 °C
			T5	+75 °C
			T6	+60 °C

Table 7-8: Maximum Output of Transmitter

Ex nA & Ex ec	Ex ic
Vmax = 7.2 VDC	U_o = 7.2 VDC I_o = 7.3 mA P_o = 13.2 mW L_o = 667 mH C_o = 13.5 µF

Special Conditions for Safe 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 0.2mm (group IIC), or 2mm (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. Additional, 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 5mm, is the ambient temperature + 20K.

China

I3 China (NEPSI) Intrinsic Safety

- Certificate GYJ21.1036X
- Standards GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2013, GB12476.4-2010
- Markings Ex ia IIC T4/T5/T6 Ga
  Ex ib [ia Ga] IIC T4/T5/T6 Gb
  Ex iaD 20 T80 °C/T95 °C/T130 °C
  Ex ibD [iaD 20]21 T80 °C/T95 °C/T130 °C

Special Condition for Safe Use (X):
See certificate for special conditions.

N3 China (NEPSI) Zone 2
Certificate GYJ21.1036X

- Standards GB3836.1-2010, GB3836.4-2010, GB3836.8-2014, GB3836.20-2010
- Markings Ex nA [ic Gc] IIC T6…T4 Gc Ex ic IIC T6…T4 Gc

Special Condition for Safe Use (X):
See certificate for special conditions.

For more information: Emerson.com

Documents / Resources

	EMERSON Rosemount 644 Rail Mount Temperature Transmitter with RK Option and HART 7 Protocol [pdf] User Guide Rosemount 644 Rail Mount Temperature Transmitter with RK Option and HART 7 Protocol, Rosemount 644, Rail Mount Temperature Transmitter with RK Option and HART 7 Protocol

References

- Emerson Global | Emerson
- Rosemount | Emerson US
- Rosemount | Emerson US
- Rosemount | Emerson US
- Software Downloads & Drivers | Emerson US