

Rosemount™ 3144P Temperature Transmitters

with FOUNDATION™ Fieldbus Protocol



NOTICE

This guide provides basic guidelines for Rosemount 3144P. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting or intrinsically safe (I.S.) installations. Refer to the Rosemount 3144P [Reference Manual](#) for more instruction. The manual and this guide are also available electronically on EmersonProcess.com/Rosemount.

⚠ WARNING

- Explosions could result in death or serious injury.**
- Installation of this transmitter in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Review the approvals section of this manual for any restrictions associated with a safe installation.
- In an Explosion-proof/Flameproof installation, do not remove the transmitter covers when power is applied to the unit.
- 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.

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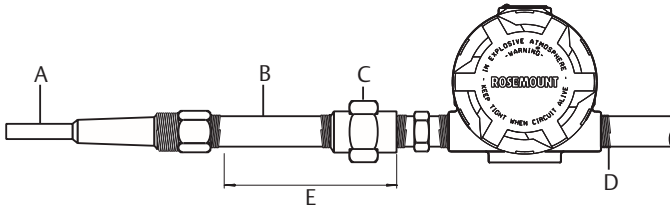
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1.0 Mount the transmitter

Mount the transmitter at a high point in the conduit run to prevent moisture from draining into the transmitter housing.

1.1 Typical North America installation

1. Mount the thermowell to the process container wall. Install and tighten thermowells. Perform a leak check.
2. Attach any necessary unions, couplings, and extension fittings. Seal the fitting threads with an approved thread sealant, such as silicone or PTFE tape (if required).
3. Screw the sensor into the thermowell or directly into the process (depending on installation requirements).
4. Verify all sealing requirements.
5. Attach the transmitter to the thermowell/sensor assembly. Seal all threads with an approved thread sealant, such as silicone or PTFE tape (if required).
6. Install field wiring conduit into the open transmitter conduit entry (for remote mounting) and feed wires into the transmitter housing.
7. Pull the field wiring leads into the terminal side of the housing.
8. Attach the sensor leads to the transmitter sensor terminals (the wiring diagram is located inside the housing cover).
9. Attach and tighten both transmitter covers.



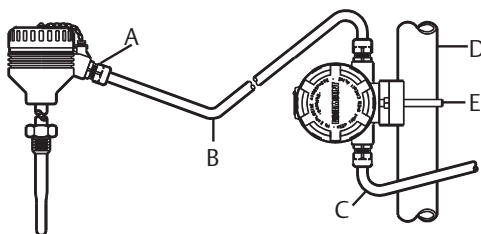
- A. Thermowell
- B. Extension (Nipple)
- C. Union or Coupling

- D. Conduit for field wiring (dc power)
- E. Extension fitting length

1.2 Typical European installation

1. Mount the thermowell to the process container wall. Install and tighten thermowells. Perform a leak check.
2. Attach a connection head to the thermowell.
3. Insert sensor into the thermowell and wire the sensor to the connection head (the wiring diagram is located inside the connection head).
4. Mount the transmitter to a 2-in. (50 mm) pipe or a panel using one of the optional mounting bracket (B4 bracket is shown below).
5. Attach cable glands to the shielded cable running from the connection head to the transmitter conduit entry.

6. Run the shielded cable from the opposite conduit entry on the transmitter back to the control room.
7. Insert shielded cable leads through the cable entries into the connection head/transmitter. Connect and tighten cable glands.
8. Connect the shielded cable leads to the connection head terminals (located inside the connection head) and to the sensor wiring terminals (located inside the transmitter housing).



- A. Cable gland
- B. Shielded cable from sensor to transmitter
- C. Shielded cable from transmitter to control room
- D. 2-in. (50 mm) pipe
- E. B4 mounting bracket

2.0 Wire and apply power

Connect the transmitter to a FOUNDATION Fieldbus network. Two terminators and a power conditioner are required. The voltage at the transmitter terminals must be between 9 and 32 Vdc to operate properly.

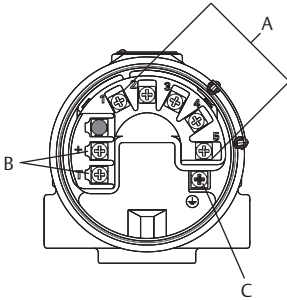
2.1 Power filter

A fieldbus segment requires a power conditioner to isolate the power supply and decouple the segment from other segments attached to the same power supply.

2.2 Power the transmitter

1. Remove the terminal block cover.
2. Connect power to the power terminal. The terminals are polarity insensitive.
3. Tighten the terminal screws.
4. Reattach and tighten the cover.
5. Apply power.

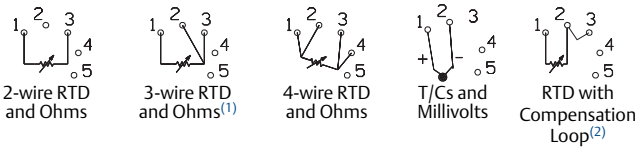
Figure 1. Power the Transmitter



- A. Sensor terminals (1–5)
- B. Power terminals
- C. Ground

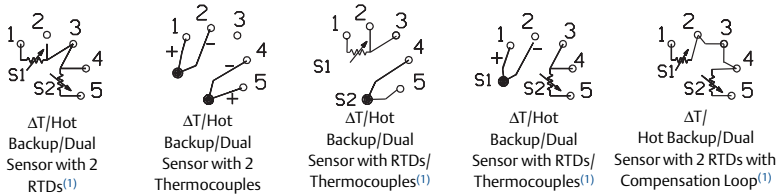
2.3 Wiring diagram

Figure 2. Rosemount 3144P Single-Sensor

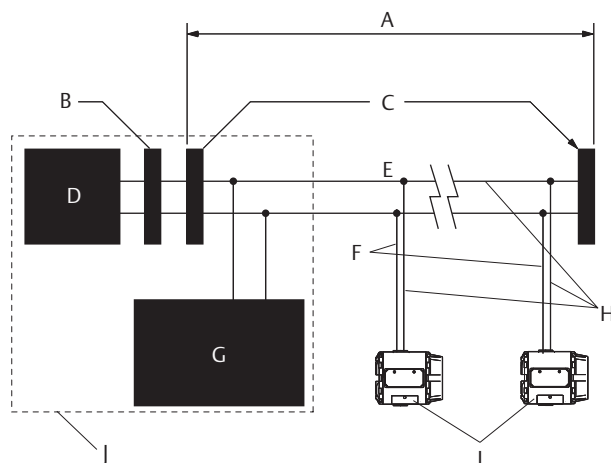


- Emerson™ Process Management provides 4-wire sensors for all single-element RTDs. You can use these RTDs in 3-wire configurations by leaving the unneeded leads disconnected and insulated with electrical tape.
- Transmitter must be configured for a 3-wire RTD in order to recognize an RTD with a compensation loop.

Figure 3. Rosemount 3144P Dual-Sensor



- Emerson provides 4-wire sensors for all single-element RTDs. You can use these RTDs in 3-wire configurations by leaving the unneeded leads disconnected and insulated with electrical tape.

Figure 4. Typical Configuration for FOUNDATION Fieldbus Networking

- A. 6234 ft. (1900 m) max
(depending upon cable characteristics)
- B. Integrated power conditioner and filter
- C. Terminators
- D. Power supply
- E. Trunk
- F. Spur

- G. FOUNDATION Fieldbus configuration tool
- H. Power/signal wiring
- I. Devices 1 through 16
- J. The power supply, filter, first terminator,
and configuration tool are typically located
in the control room.

Note

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

2.4 Ground the transmitter

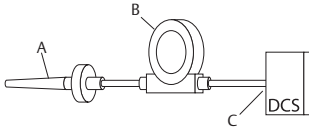
Ungrounded thermocouple, mV, and RTD/Ohm inputs

Each process installation has different requirements for grounding. Use the grounding options recommended by the facility for the specific sensor type, or begin with grounding Option 1 (the most common).

Option 1 (recommended for ungrounded transmitter housing)

1. Connect signal wiring shield to the sensor wiring shield.
2. Ensure the two shields are tied together and electrically isolated from the transmitter housing and other grounded fixtures.
3. Ground shield at the power supply end only.
4. Ensure the sensor shield is electrically isolated from the surrounding grounded fixtures.

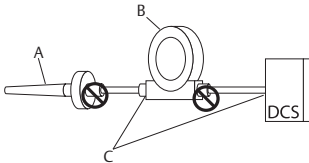
5. Connect shields together, electrically isolated from the transmitter.



- A. Sensor wire
- B. Transmitter
- C. Shield ground point

Option 2 (recommended for grounded transmitter housing)

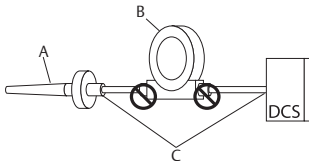
1. Connect sensor wiring shield to the transmitter housing (only if the housing is grounded).
2. Ensure the sensor shield is electrically isolated from the transmitter housing and other grounded fixtures.
3. Ground signal wiring shield at the power supply end.



- A. Sensor wire
- B. Transmitter
- C. Shield ground point

Option 3

1. Ground sensor wiring shield at the sensor, if possible.
2. Ensure the sensor wiring and signal wiring shields are electrically isolated from the transmitter housing and other grounded fixtures.
3. Ground signal wiring shield at the power supply end.

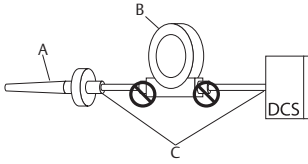


- A. Sensor wire
- B. Transmitter
- C. Shield ground point

Grounded thermocouple inputs

1. Ground sensor wiring shield at the sensor.
2. Ensure the sensor wiring and signal wiring shields are electrically isolated from the transmitter housing and other grounded fixtures.

3. Ground signal wiring shield at the power supply end.




- A. Sensor wire
- B. Transmitter
- C. Shield ground point

3.0 Verify tagging

3.1 Commissioning (paper) tag

To identify which device is at a particular location use the removable tag provided with the transmitter. Ensure the physical device tag (PD Tag field) is properly entered in both places on the removable commissioning tag and tear off the bottom portion for each transmitter.

Figure 5. Commissioning (Paper) Tag



COMMISSIONING TAG

Device ID:
0011513144-FR-TEMP-0X472D2402

PD Tag:
TT- 101

Revision:

— — Tear Here — —

Device ID:
0011513144-FR-TEMP-0X472D2402

PD Tag:
TT- 101

Revision:

Note

The device description loaded in the host system must be at the same revision as this device. The device description can be downloaded from EmersonProcess.com/Rosemount.

Verify 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 methods 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 methods. For a complete list of parameters and configuration information refer to the Rosemount 3144P Temperature Transmitter [Reference Manual](#).

3.2 Transducer function block

This block contains temperature measurement data for the sensors and the terminal temperature. It also includes information about sensor types, engineering units, damping, and diagnostics. At a minimum, verify the parameters in [Table 1](#).

Table 1. Transducer Block Parameters

Parameter	Comments
Typical configuration	
SENSOR_TYPE_X	example: "Pt 100_A_385 (IEC 751)"
SENSOR_CONNECTIONS_X	example: "2-wire", "3-wire", "4-wire"
Sensor matching configuration	
SENSOR_TYPE_X	"User Defined, Calvandu"
SENSOR_CONNECTIONS_X	example: "2-wire", "3-wire", "4-wire"
SENSOR_CAL_METHOD_X	set to "User Trim Standard"
SPECIAL_SENSOR_A_X	enter sensor specific coefficients
SPECIAL_SENSOR_B_X	enter sensor specific coefficients
SPECIAL_SENSOR_C_X	enter sensor specific coefficients
SPECIAL_SENSOR_R0_X	enter sensor specific coefficients

Analog Input (AI) function block

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 each AI block in [Table 2](#).

Note

All devices ship with the AI blocks scheduled, meaning no configuration is needed if the factory default channels are used.

Table 2. AI Block Parameters⁽¹⁾

Parameter	Comments
CHANNEL	Choices: 1. Sensor 1 Temperature 2. Sensor 2 Temperature 3. Differential Temperature 4. Terminal Temperature 5. Sensor 1 Min. Value 6. Sensor 1 Max Value 7. Sensor 2 Min. Value 8. Sensor 2 Max Value 9. Differential Min. Value 10. Differential Max Value 11. Terminal Temp Min. Value 12. Terminal Temp Max Value 13. Hot Backup
L_TYPE	For most measurements, set to "DIRECT"
XD_SCALE	Set desired measurement range and units. Units must be one of the following: ■ mV ■ Ohms ■ °C ■ °F ■ °R ■ K
OUT_SCALE	For "DIRECT" L_TYPE, set OUT_SCALE to match XD_SCALE
HIGH_HIGH_LIM HIGH_LIM LOW_LIM LOW_LOW_LIM	Process alarms. Must be within the range defined by "OUT_SCALE."

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.

Set the switches

The security and simulate switches are located on the top center of the electronics module. Follow the steps below to set the switches.

Note

The simulate switch is shipped in the "ON" position from the factory.

3.3 Without a LCD display

1. Set the loop to Out-of-Service (OOS) mode (if applicable) and disconnect the power.
2. Remove the electronics housing cover.
3. Set the switches to the desired position. Reattach housing cover.
4. Apply power and set the loop to In-Service mode.

3.4 With a LCD display

1. Set the loop to Out-of-Service (OOS) (if applicable) and disconnect the power.
2. Remove the electronics housing cover.
3. Unscrew the LCD display meter screws and pull the meter straight off.
4. Set the switches to the desired position. The simulate switch is default set to the "ON" position.
5. Reattach the LCD display meter and electronics housing cover (consider LCD display meter orientation).
6. Apply power and set the loop to In-Service mode.

4.0 Product Certifications

Rev 1.3

4.1 European Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at EmersonProcess.com/Rosemount.

4.2 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).

North America

E5 FM Explosionproof, Dust-Ignitionproof, and Nonincendive

Certificate: 3012752

Standards: FM Class 3600: 1998, FM Class 3611: 2004, FM Class 3615: 1989, FM Class 3810: 2005, NEMA®-250: 1991, ANSI/ISA 60079-0: 2009, ANSI/ISA 60079-11: 2009

Markings: **XP** CL I, DIV 1, GP A, B, C, D; T5($-50^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$); **DIP** CL II/III, DIV 1, GP E, F, G; T5($-50^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$); T6($-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); when installed per Rosemount drawing 03144-0320; **NI** CL I, DIV 2, GP A, B, C, D; T5($-60^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$); T6($-60^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$); when installed per Rosemount drawing 03144-0321, 03144-5075

I5 FM Intrinsic Safety and Nonincendive

Certificate: 3012752

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

Markings: **IS** CL I/II/III, DIV 1, GP A, B, C, D, E, F, G; T4($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); **IS** [Entity] CL I, Zone 0, AEx ia IIC T4($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); **NI** CL I, DIV 2, GP A, B, C, D; T5($-60^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$); T6($-60^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$); when installed per Rosemount drawing 03144-0321, 03144-5075

I6 CSA Intrinsic Safety and Division 2

Certificate: 1242650

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

Markings: Intrinsically Safe for Class I Groups A, B, C, D; Class II, Groups E, F, G; Class III; [HART® only zone markings]: Intrinsically Safe for Class I Zone 0 Group IIC; T4 ($-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); Type 4X; Suitable for Class I, Div. 2, Groups A, B, C, D; [HART only zone markings]: Suitable for Class I Zone 2 Group IIC; T6($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); T5($-60^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$); when installed per Rosemount drawing 03144-5076

K6 CSA Explosionproof, Intrinsic Safety and Division 2

Certificate: 1242650

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,


CAN/CSA-C22.2 No. 157-92, CSA Std C22.2 No. 213-M1987

Markings: Explosionproof for Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III; [HART only zone markings]: Suitable for Class I Zone 1 Group IIC; Intrinsically Safe for Class I Groups A, B, C, D; Class II, Groups E, F, G; Class III [HART only zone markings]: Suitable for Class I Zone 0 Group IIC; T4 ($-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); Type 4X; Suitable for Class I, Div. 2, Groups A, B, C, D [HART only zone markings]: Suitable for Class I Zone 2 Group IIC; T($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$); T5($-60^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$); when installed per Rosemount drawing 03144-5076

Europe**E1** ATEX Flameproof

Certificate: FM12ATEX0065X

Standards: EN 60079-0: 2012, EN 60079-1: 2007, EN 60529:1991 +A1:2000

Markings:  II 2 G Ex d IIC T6...T1 Gb, T6($-50^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$), T5...T1($-50^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)



See [Table 3](#) at the end of the Product Certifications section for process temperatures.**Special Conditions for Safe Use (X):**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

I1 ATEX Intrinsic Safety

Certificate: BAS01ATEX1431X [HART]; Baseefa03ATEX0708X [Fieldbus];

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


Markings: HART:  II 1 G Ex ia IIC T4 Ga; T4($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$),Fieldbus:  II 1 G Ex ia IIC T4 Ga; T4($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)See [Table 4](#) at the end of the Product Certifications section for Entity Parameters.**Special Conditions for Safe Use (X):**


1. When fitted with the transient terminal options, the equipment is not capable of passing the 500 V insulation test. This must be taken into account during installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0.

N1 ATEX Type n

Certificate: BAS01ATEX3432X [HART]; Baseefa03ATEX0709X [Fieldbus]

Standards: EN 60079-0:2012, EN 60079-15:2010

Markings: HART:  II 3 G Ex nA IIC T5/T6 Gc; T6($-40^{\circ}\text{C} \leq T_a \leq +50^{\circ}\text{C}$), T5($-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$);


Fieldbus:  II 3 G Ex nA IIC T5 Gc; T5($-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$)**Special Condition for Safe Use (X):**

1. When fitted with the transient terminal options, the equipment is not capable of withstanding the 500 V electrical strength test as defined in clause 6.5.1 of EN 60079-15: 2010. This must be taken into account during installation.

ND ATEX Dust

Certificate: FM12ATEX0065X

Standards: EN 60079-0: 2012, EN 60079-31: 2009, EN 60529:1991 +A1:2000

Markings:  II 2 D Ex tb IIIC T130 °C Db, (-40 °C ≤ T_a ≤ +70 °C); IP66See [Table 3](#) at the end of the Product Certifications section for process temperatures.**Special Conditions for Safe Use (X):**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

International**E7** IECEx Flameproof

Certificate: IECEx FMG 12.0022X

Standards: IEC 60079-0:2011, IEC 60079-1:2007-04, IEC 60079-31:2008

Markings: Ex d IIC T6...T1 Gb, T6(-50 °C ≤ T_a ≤ +40 °C), T5...T1(-50 °C ≤ T_a ≤ +60 °C); Ex tb IIIC T130 °C Db, (-40 °C ≤ T_a ≤ +70 °C); IP66See [Table 3](#) at the end of the Product Certifications section for process temperatures.**Special Conditions for Safe Use (X):**

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 07.0002X [HART]; IECEx BAS 07.0004X [Fieldbus]

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

Markings: HART: Ex ia IIC T5/T6 Ga; T6(-60 °C ≤ T_a ≤ +50 °C), T5(-60 °C ≤ T_a ≤ +75 °C);
Fieldbus: Ex ia IIC T4 Ga; T4(-60 °C ≤ T_a ≤ +60 °C)See [Table 4](#) at the end of the Product Certifications section for entity parameters.**Special Conditions for Safe Use (X):**

1. When fitted with the transient terminal options, the apparatus is not capable of withstanding the 500 V electrical strength test as defined in Clause 6.3.13 of IEC 60079-11: 2011. This must be taken into account during installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion when located in Zone 0.

N7 IECEx Type n

Certificate: IECEx BAS 07.0003X [HART]; IECEx BAS 07.0005X [Fieldbus]

Standards: IEC 60079-0:2011, IEC 60079-15:2010

Markings: HART: Ex nA IIC T5/T6 Gc; T6(-40 °C ≤ T_a ≤ +50 °C), T5(-40 °C ≤ T_a ≤ +75 °C);
Fieldbus: Ex nA IIC T5 Gc; T5(-40 °C ≤ T_a ≤ +75 °C)

Brazil

E2 INMETRO Flameproof

Certificate: UL-BR 13.0535X

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

Markings: Ex d IIC T6...T1* Gb; T6...T1*: $-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +40^{\circ}\text{C}$; T5...T1*: $-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

Special Conditions for Safe Use (X):

1. See product description for ambient temperature limits and process temperature limits.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

I2 INMETRO Intrinsic Safety [HART]

Certificate: UL-BR 15.0088X

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

Markings: Ex ia IIC T4 Ga ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$),

See [Table 4](#) at the end of the Product Certifications section for entity parameters.

Special Conditions for Safe Use (X):

1. When mounted with the terminal options with transient protection, the equipment is not capable of withstanding the dielectric strength test with 500 V as defined in ISO IEC 60079-11. This feature should be taken into account during installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact and abrasion when located in areas that require EPL Ga (Zone 0).

INMETRO Intrinsic Safety [Fieldbus/FISCO]

Certificate: UL-BR 15.0030X

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

Markings: Ex ia IIC T4 Ga ($-60^{\circ}\text{C} < T_a < 60^{\circ}\text{C}$)

See [Table 4](#) at the end of the Product Certifications section for Entity Parameters.

Special Condition for Safe Use (X):

1. When mounted with the terminal options with transient protection, the equipment is not capable of withstanding the dielectric strength test with 500 V as defined in ABNT NBR IEC 60079-11. This feature should be taken into account during installation.
2. The enclosure may be made from aluminum alloy with a protective polyurethane paint finish; however, care should be taken to protect it from impact and abrasion when located in areas that require EPL Ga (Zone 0).

China

E3 China Flameproof

Certificate: GYJ11.1650X

Standards: GB3836.1-2000, GB3836.2-2010

Markings: Ex d IIC T5/T6 Gb

Special Conditions for Safe Use (X):

1. Symbol "X" is used to denote specific conditions of use: For information on the dimensions of the flameproof joints the manufacturer shall be contacted. This shall be mentioned in the manual.
2. Relation between T code and ambient temperature range is:

T code	Ambient temperature
T6	$-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$
T5	$-40^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$

3. The earth connection facility in the enclosure should be connected reliably.
4. During installation, there should be no mixture harmful to flameproof housing.
5. During installation in hazardous location. Cable glands, conduits and blanking plugs, certified by state-appointed inspection bodies with Ex d IIC Gb degree, should be used.
6. During installation, use and maintenance in explosive gas atmospheres, observe the warning "Do not open when energized".
7. End users is not permitted to change any components insides, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
8. When installation, use and maintenance of this product, observe 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"

I3 China Intrinsic Safety

Certificate: GYJ11.1536X

Standards: GB3836.1-2000, GB3836.4-2010

Markings: Ex ia IIC T4/T5/T6

Special Conditions for Safe Use (X):

1. Symbol "X" is used to denote specific conditions of use:
 - a. The enclosure may contain light metal, attention should be taken to avoid ignition hazard due to impact or friction when used in Zone 0.
 - b. When fitted with the "Transient Terminal Option", this apparatus is not capable of withstanding the 500 V r.m.s. insulation test required by Clause 6.3.12 of GB3836.4-2010.
2. Relation between T code and ambient temperature range is:

Output	T code	Ambient temperature
HART	T6	$-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$
	T5	$-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$
Fieldbus	T4	$-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

3. Parameters:

Power/loop terminals (+ and -)

Output	Maximum input voltage: U_i (V)	Maximum input current: I_i (mA)	Maximum input power: P_i (W)	Maximum internal parameters:	
				C_i (nF)	L_i (μ H)
HART	30	300	1	5	0
Fieldbus	30	300	1.3	2.1	0

Sensor terminal (1 to 5)

Output	Maximum input voltage: U_o (V)	Maximum input current: I_o (mA)	Maximum input power: P_o (W)	Maximum internal parameters:	
				C_o (nF)	L_o (μ H)
HART	30	300	1	5	0
Fieldbus	30	300	1.3	2.1	0

Load connected to sensor terminals (1 to 5)

Output	Group	Maximum external parameters:	
		C_o (μ F)	L_o (mH)
HART	IIC	0.74	11.7
	IIB	5.12	44
	IIA	18.52	94
Fieldbus	IIC	0.73	30.2
	IIB	4.8	110.9
	IIA	17.69	231.2

Temperature transmitters comply to the requirements for FISCO field devices specified in GB3836.19-2010. FISCO parameters are as follows:

Maximum input voltage: U_i (V)	Maximum input current: I_i (mA)	Maximum input power: P_i (W)	Maximum internal parameters	
			C_i (nF)	L_i (μ H)
17.5	380	5.32	2.1	0

- 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.
- The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shielded has to be grounded reliably in non-hazardous area.
- End users are not permitted to change any components insides, but to settle the problem in conjunction with manufacturer to avoid damage to the product.

7. When installation, use and maintenance of this product, observe following standards:
 GB3836.13-1997 “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)”
 GB3836.6-2006 “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”

EAC - Belarus, Kazakhstan, Russia

EM Technical Regulation Customs Union (EAC) Flameproof

Certificate: RU C-US.GB05.B.00289

Markings: 1Ex d IIC T6...T1 Gb X

Special Condition for Safe Use (X):

1. See certificate for special conditions.

IM Technical Regulation Customs Union (EAC) Intrinsic Safety

Certificate: RU C-US.GB05.B.00289

Markings: [HART]: 0Ex ia IIC T5, T6 Ga X; [Fieldbus/Profibus]: 0Ex ia IIC T4 Ga X

Special Condition for Safe Use (X):

1. See certificate for special conditions.

Japan

E4 TIIS Flameproof

Certificate: TC21038, TC21039

Markings: Ex d IIC T5 ($-20\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$)

Certificate: TC16127, TC16128, TC16129, TC16130

Markings: Ex d IIB T4 ($-20\text{ }^{\circ}\text{C} \leq T_a \leq +55\text{ }^{\circ}\text{C}$)

Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K7 Combination of E7, I7, N7

KA Combination of K1 and K6

KB Combination of K5, I6, and K6

KM Combination of EM and IM

Tables

Table 3. Process Temperatures

		T6	T5	T4	T3	T2	T1	T130
Max ambient		+ 40 °C	+ 60 °C	+ 60 °C	+ 60 °C	+ 60 °C	+ 60 °C	+ 70 °C
Sensor extension	Transmitter with LCD display							
	0-in.	55 °C	70 °C	95 °C	95 °C	95 °C	95 °C	95 °C
	3-in.	55 °C	70 °C	100 °C	100 °C	100 °C	100 °C	100 °C
	6-in.	60 °C	70 °C	100 °C	100 °C	100 °C	100 °C	100 °C
	9-in.	65 °C	75 °C	110 °C	110 °C	110 °C	110 °C	110 °C
	Transmitter without LCD display							
	0-in.	55 °C	70 °C	100 °C	170 °C	280 °C	440 °C	100 °C
	3-in.	55 °C	70 °C	110 °C	190 °C	300 °C	450 °C	110 °C
	6-in.	60 °C	70 °C	120 °C	200 °C	300 °C	450 °C	110 °C
	9-in.	65 °C	75 °C	130 °C	200 °C	300 °C	450 °C	120 °C

Table 4. Entity Parameters

Parameter	HART	Fieldbus/PROFIBUS®	FISCO
Voltage U_i (V)	30	30	17.5
Current I_i (mA)	300	300	380
Power P_i (W)	1	1.3	5.32
Capacitance C_i (nF)	5	2.1	2.1
Inductance L_i (mH)	0	0	0

Additional certifications

- SBS** American Bureau of Shipping (ABS) Type Approval
 Certificate: 02-HS289101-4-PDA
 Intended Use: Measurement of temperature for marine and offshore applications.
- SBV** Bureau Veritas (BV) Type Approval
 Certificate: 23154
 Requirements: Bureau Veritas Rules for the Classification of Steel Ships
 Application: Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS;
 Temperature transmitter type 3144P cannot be installed on diesel engines

SDN Det Norske Veritas (DNV) Type Approval

Certificate: A-14184

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	D

SLL Lloyds Register (LR) Type Approval

Certificate: 11/60002

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

Figure 6. Rosemount 3144P Declaration of Conformity



CE

EU Declaration of Conformity

No: RMD 1045 Rev. H

We,

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

declare under our sole responsibility that the product,

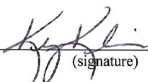
Rosemount 3144P Temperature Transmitter

manufactured by,

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

to which this declaration relates, is in conformity with the provisions of the European Union Directives, including the latest amendments, as shown in the attached schedule.

Assumption of conformity is based on the application of the harmonized standards and, when applicable or required, a European Union notified body certification, as shown in the attached schedule.


(signature)

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 1045 Rev. H



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: EN61326-1:2006, EN61326-2-3: 2006

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*

Rosemount 3144P Temperature Transmitter (4-20mA/HART Output)

BAS01ATEX1431X – Intrinsic Safety Certificate

Equipment Group II, Category 1 G (Ex ia IIC T5/T6 Ga)

Harmonized Standards:

EN60079-0:2012, EN60079-11:2012

BAS01ATEX3432X – Type n Certificate

Equipment Group II, Category 3 G (Ex nA IIC T5/T6 Gc)

Harmonized Standards:

EN60079-0:2012, EN60079-15:2010

Rosemount 3144P Temperature Transmitter (Fieldbus Output)

Baseefa03ATEX0708X – Intrinsic Safety Certificate

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

Harmonized Standards:

EN60079-0:2012, EN60079-11:2012

Baseefa03ATEX0709 – Type n Certificate

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

Harmonized Standards:

EN60079-0:2012, EN60079-15:2010



EU Declaration of Conformity

No: RMD 1045 Rev. H



Rosemount 3144P Temperature Transmitter (all Output Protocols)

FM12ATEX0065X – Dust Certificate

Equipment Group II, Category 2 D (Ex tb IIIC T130°C Db)

Harmonized Standards:

EN 60079-0:2012, EN 60079-31:2009

FM12ATEX0065X – Flameproof Certificate

Equipment Group II, Category 2 G (Ex d IIC T6...T1)

Harmonized Standards:

EN 60079-0:2012, EN 60079-1:2007

ATEX Notified Bodies

SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park

Staden Lane

Buxton, Derbyshire SK17 9RZ

United Kingdom

FM Approvals Ltd. [Notified Body Number: 1725]

1 Windsor Dials

Windsor, Berkshire, SL4 1RS

United Kingdom

ATEX Notified Body for Quality Assurance

SGS Baseefa Limited [Notified Body Number: 1180]

Rockhead Business Park

Staden Lane

Buxton, Derbyshire SK17 9RZ

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 3144P
List of Rosemount 3144P Parts with China RoHS Concentration above MCVs

部件名称 Part Name	有害物质 / Hazardous Substances					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr +6)	多溴联苯 Polybrominated biphenyls (PBB)	多溴联苯醚 Polybrominated diphenyl ethers (PBDE)
电子组件 Electronics Assembly	X	O	O	O	O	O
壳体组件 Housing Assembly	O	O	O	X	O	O
传感器组件 Sensor Assembly	X	O	O	O	O	O

本表格系依据 SJ/T11364 的规定而制作。
This table is proposed in accordance with the provision of SJ/T11364.

- O: 意为该部件的所有均质材料中该有害物质的含量均低于 GB/T 26572 所规定的限量要求。
O: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.
- X: 意为在该部件所使用的的所有均质材料里，至少有一类均质材料中该有害物质的含量高于 GB/T 26572 所规定的限量要求。
X: Indicate that said hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.



Quick Start Guide

00825-0100-4834, Rev DA
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