Quick Start Guide 00825-0100-4007, Rev HH February 2024

Rosemount[™] 3051 Pressure Transmitter and 3051CF Series Flow Meter

with 4-20 mA HART®





ROSEMOUNT

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1 About this guide

This guide provides basic guidelines for Rosemount 3051 Transmitters.

It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, explosion-proof, flameproof, or Intrinsically Safe (IS) installations. Refer to the Rosemount 3051 Pressure Transmitter Manual for more instructions. This guide and the referenced manual are also available on Emerson.com/global.

1.1 Safety messages

A WARNING

Explosions

Explosions could result in death or serious injury.

Installation of device in an explosive environment must be in accordance with appropriate local, national, and international standards, codes, and practices. Review for any restrictions associated with a safe installation.

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

In an explosion-proof/flameproof installation, do not remove the transmitter covers when power is applied to the transmitter.

A WARNING

Process leaks

Process leaks may cause harm or result in death.

To avoid process leaks, only use the O-ring designed to seal with the corresponding flange adapter.

A WARNING

Electrical shock

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.

A WARNING

Physical access

Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and needs to be protected against.

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

NOTICE

Conduit/cable entries

Unless otherwise marked, the conduit/cable entries in the housing enclosure use a $\frac{1}{2}$ -14 NPT form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these entries.

Entries marked M20 are M20 × 1.5 thread form. On devices with multiple conduit entries, all entries will have the same thread form.

When installing in a hazardous location, use only appropriately listed or Ex certified plugs, glands, or adapters in cable/conduit entries.

2 Mounting the transmitter

A WARNING

Process connection temperatures above +185 °F (+85 °C) require a limited ambient temperature, reduced by a 1:1.5 ratio.

Consider process connection and ambient temperatures when installing the 3051 with hazardous location certifications. See Table 2-1.

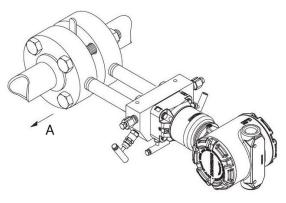
Table 2-1: Intrinsically safe/increased safety

Process connection temperature	Maximum ambient temperature
-76 to +185 °F (-60 to +85 °C)	+158 °F (+70 °C)
+185 to +250 °F (+85 to +121 °C)	+158 to +320 °F (+70 to +160 °C) ⁽¹⁾

 Maximum ambient temperature is reduced by a ratio of 1:1.5 as process connection temperature increased beyond +185 °F (+85 °C).

2.1 Mount the transmitter in a liquid flow application

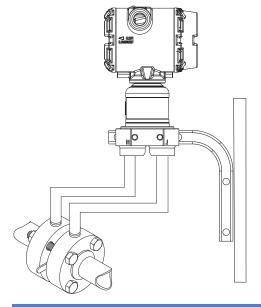
Figure 2-1: Mounting the transmitter



A. Flow

- 1. Place taps to the side of the line.
- 2. Mount the transmitter beside or below the taps.

- 3. Mount the transmitter so that the drain/vent valves are oriented upward.
- 2.2 Mount the transmitter in a gas flow application



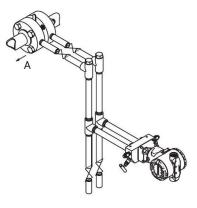
NOTICE

A bracket is required to support the transmitter and the ¼-inch tubing going into the transmitter.

- 1. Place taps in the top or side of the line.
- 2. Mount the transmitter beside or above the taps.

2.3 Steam flow applications

Figure 2-2: Steam flow application

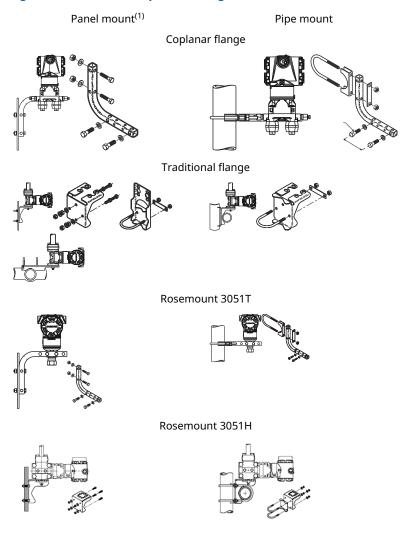


A. Flow

- 1. Place taps to the side of the line.
- 2. Mount beside or below the taps.
- 3. Fill impulse lines with water.

2.4 Panel and pipe mount

Figure 2-3: Panel and Pipe Mounting



(1) $_{5/16} \times 1\frac{1}{2}$ panel bolts are customer-supplied.

2.5 Bolting considerations

If the transmitter installation requires assembly of the process flanges, manifolds, or flange adapters, follow these assembly guidelines to ensure a tight seal for optimal performance characteristics of the transmitters.

Use only bolts supplied with the transmitter or sold by Emerson as spare parts. Figure 2-4 illustrates common transmitter assemblies with the bolt length required for proper transmitter assembly.

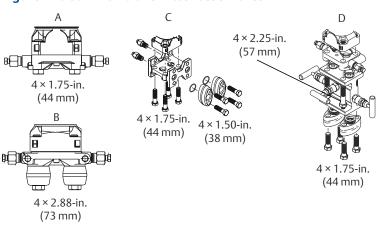


Figure 2-4: Common transmitter assemblies

- A. Transmitter with coplanar flange
- *B.* Transmitter with coplanar flange and optional flange adapters
- C. Transmitter with traditional flange and optional flange adapters
- D. Transmitter with coplanar flange and optional manifold and flange adapters

Bolts are typically carbon steel or stainless steel. Confirm the material by viewing the markings on the head of the bolt and referencing Table 2-2. If bolt material is not shown in Table 2-2, contact your local Emerson representative for more information.

2.5.1 Install bolts

NOTICE

Carbon steel bolts do not require lubrication and the stainless steel bolts are coated with a lubricant to ease installation. Do not apply any additional lubricant when installing either type of bolt.

Procedure

- 1. Finger-tighten the bolts.
- 2. Torque the bolts to the initial torque value using a crossing pattern (see Table 2-2 for torque values).
- 3. Torque the bolts to the final torque value using the same crossing pattern (see Table 2-2 for torque values).
- 4. Verify that the flange bolts are protruding through the isolator plate before applying pressure.

Table 2-2: Torque values for the flange and flange adapter bolts

Bolt material	Head markings	Initial torque	Final torque
Carbon steel (CS)	В7М	300 in-lb	650 in-lb
Stainless steel (SST)	316 BBM 316 316 STM SW 316 STM SW	150 in-lb	300 in-lb

2.6 O-rings with flange adapters

A WARNING

Failure to install proper flange adapter O-rings may cause process leaks, which can result in death or serious injury.

The two flange adapters are distinguished by unique O-ring grooves. Only use the O-ring that is designed for its specific flange adapter, as shown in Figure 2-5.

Figure 2-5: O-ring location: Rosemount 3051S/3051/2051



- A. Flange adapter
- B. O-ring
- C. PFTE-based profile (square)
- D. Elastomer profile (round)

Note

Whenever the flanges or adapters are removed, visually inspect the O-rings. Replace them if there are any signs of damage, such as nicks or cuts. If you replace the O-rings, re-torque the flange bolts and alignment screws after installation to compensate for seating of the PTFE O-ring.

2.7 Environmental seal for housing

For NEMA[®] 4X, IP66, and IP68 requirements, use thread sealing PTFE tape or paste on male threads of conduit to provide a water and dust tight seal. Consult factory if other ingress protection ratings are required.

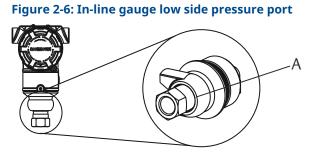
For M20 threads, install conduit plugs to full thread engagement or until mechanical resistance is met.

2.8 In-line gauge transmitter orientation

The low side pressure port (atmospheric reference) on the in-line gauge transmitter is located in the neck of the transmitter, behind the housing.

The vent path is 360° around the transmitter between the housing and sensor. (See Figure 2-6.)

Keep the vent path free of any obstruction, including but not limited to paint, dust, and lubrication, by mounting the transmitter so that fluids can drain away.



A. Pressure port location

Emerson.com/Rosemount

3 Rotate housing

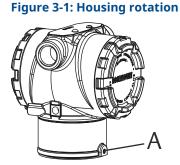
To improve field access to wiring or to better view the optional display:

Procedure

- 1. Loosen the housing rotation set screw using a 5/64-inch hex wrench.
- 2. Turn the housing left or right up to a maximum of 180° from its original position.⁽¹⁾
- 3. Re-tighten the housing rotation set screw to a maximum of 7 in-lb when desired location is reached.

NOTICE

Over-rotating will damage the transmitter.



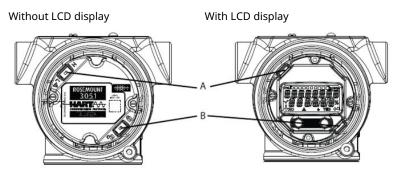
A. Housing rotation set screw (5/64-inch)

⁽¹⁾ Rosemount 3051C original position aligns with "H" side; Rosemount 3051T original position is the opposite side of the bracket holes.

4 Set the switches

Set **Alarm** and **Security** switch configuration before installation, as shown in Figure 4-1.

Figure 4-1: Electronics board



- A. Alarm
- B. Security
- The **Alarm** switch sets the analog output alarm to high or low.
- Default **Alarm** is high.
- The **Security** switch allows (**D**) or prevents (**D**) any configuration of the transmitter.
- Default **Security** is off (

To change the switch configuration:

Procedure

- 1. If the transmitter is installed, secure the loop, and remove power.
- 2. Remove the housing cover opposite the field terminal side.

A WARNING

Do not remove the instrument cover in explosive atmospheres when the circuit is live.

3. Slide the **Security** and **Alarm** switches into the preferred position using a small screwdriver.

4. Reattach the transmitter cover.

A WARNING

The cover must be fully engaged to comply with explosionproof requirements.

5 Connect the wiring and power up

Figure 5-1 shows wiring connections necessary to power a Rosemount 3051 Transmitter and enable communications with a communication device.

Figure 5-1: Transmitter wiring diagrams

- A. Power supply
- B. Ground
- C. Resistor

Table 5-1: Power supply and resistance needs by communicatortype

Communicator	Power supply	Resistor
AMS Device Manager	≥ 16.6 Vdc	≥ 250 Ω
AMS Trex (HART®)	≥ 16.6 Vdc	≥ 250 Ω
AMS Trex (HART + pwr)	None	None
AMS Device Configurator Bluetooth [®] App	≥ 10.5 Vdc	None
Quick Service buttons	≥ 10.5 Vdc	None
Local operator interface (LOI)	≥ 10.5 Vdc	None

Resistance and power requirements vary based on the interface type used to communicate with the device. See Table 5-1 for specific loop power and resistance needs.

To wire the transmitter:

Procedure

- 1. Remove the housing cover on the field terminals side.
- 2. Connect the positive lead to the "+" terminal (PWR/COMM) and the negative lead to the "-" terminal.
- 3. Ensure full contact with terminal block screw and washer. When using a direct wiring method, wrap wire clockwise to ensure it is in place when tightening the terminal block screw.

NOTICE

Emerson does not recommend using a pin or a ferrule wire, as the connection may be more susceptible to loosening over time or under vibration.

4. Ensure proper grounding.

NOTICE

It is important that the instrument cable shield:

Be trimmed close and insulated from touching the transmitter housing

Be connected to the next shield if cable is routed through a junction box

Be connected to a good earth ground at the power supply end

Do not connect the powered signal wiring to the test terminals. Power could damage the test diode in the test connection. Use shielded twisted pair cable for best results. Use 24 AWG or larger wire and do not exceed 5,000 ft. (1500 m).

- 5. Plug and seal unused conduit connections.
- 6. If applicable, install wiring with a drip loop. Arrange the drip loop so the bottom is lower than the conduit connections and the transmitter housing.
- 7. Replace the housing cover.

NOTICE

Installation of the transient protection terminal block does not provide transient protection unless the transmitter enclosure is properly grounded.

5.1 Ground signal wiring

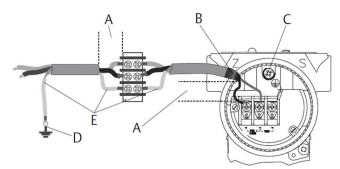
A WARNING

Do not run signal wiring in conduit or open trays with power wiring or near heavy electrical equipment.

Grounding terminations are provided on the outside of the electronics housing and inside the terminal compartment. Use these terminations when transient protect terminal blocks are installed or to fulfill local regulations. See Step 2 for more information on how the cable shield should be grounded.

- 1. Remove the field terminals housing cover.
- 2. Connect the wiring pair and ground as indicated in Figure 5-2. Make sure the wiring is:
 - Trimmed close and insulated from touching the transmitter housing
 - Continuously connected to the termination point
 - Connected to a good earth ground at the power supply end

Figure 5-2: Wiring



- A. Minimize distance
- B. Trim shield and insulate
- C. Ground for transient protection
- D. Shield connected to power supply ground
- E. Insulate shield
- 3. Replace the housing cover.

NOTICE

Emerson recommends tightening the cover until there is no gap between the cover and the housing.

4. Plug and seal unused conduit connections.

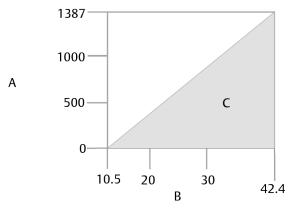
5.2 Power supply for a 4-20 mA HART[®]

The transmitter operates on 10.5 to 42.4 Vdc at the terminal of the transmitter. The DC power supply should provide power with less than two percent ripple. Loops with a 250 Ω resistance require a minimum of 16.6 V.

Note

The transmitter must have a minimum of 250Ω to communicate with a communication device. If you are using a single power supply to power more than one Rosemount 3051 Transmitter, ensure the power supply used and the circuitry common to the transmitters do not have more than 20Ω of impedance at 1200 Hz.

Figure 5-3: Load limitation



Maximum loop resistance = 43.5 x (power supply voltage - 10.5)

- A. Load (Ω)
- B. Voltage (Vdc)
- C. Operating region

The total resistance load is the sum of the resistance of the signal leads and the load resistance of the controller, indicator, Intrinsically Safe (IS) barriers, and related pieces. If you use IS barriers, then include the resistance and voltage drop.

6 Verify configuration parameters

Emerson recommends that you verify various configuration parameters prior to installing the transmitter into the process:

- Alarm and saturation levels
- Damping
- Process variables
- Range values
- Tag
- Transfer function
- Units

See Figure 6-1 for a full menu tree.

NOTICE

Emerson recommends installing the latest device descriptor (DD) to ensure full functionality. Download the latest DD at Software & Drivers.

- 1. Set alarm and saturation values: **Device Settings** → **Setup Overview** → **Alarm and Saturation Values**.
- 2. Set damping: **Device Settings** → **Setup Overview** → **Output**.
- 3. Set process variables:
 - Primary variable: Device Settings \rightarrow Setup Overview \rightarrow Output
 - Secondary/tertiary/quaternary variables: Device Settings → Communication → HART → Variable Mapping
- 4. Set range values: **Device Settings** → **Setup Overview** → **Output**.
- 5. Set tag: **Device Settings** \rightarrow **Setup Overview** \rightarrow **Device**.
- 6. Set transfer function: **Device Settings** \rightarrow **Setup Overview** \rightarrow **Output**.
- 7. Set units:
 - Pressure units: Device Settings \rightarrow Setup Overview \rightarrow Output

• Other units: Device Settings → Output → Pressure/Flow/ Totalizer/Level/Volume/Module Temperature → Setup

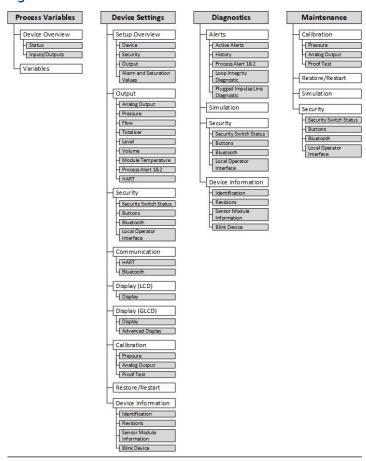


Figure 6-1: DD menu tree

6.1 Wireless configuration via Bluetooth[®] technology 6.1.1 Download AMS Device Configurator

Procedure

Download and install the app from your app store.

Note

The first time opening AMS Device Configurator, you may be asked to allow the application to access media on your device and to access your device's location. If prompted, select **Allow**.



Related information

Bluetooth Connectivity for Field Instrumentation

6.1.2 Configure via Bluetooth[®] wireless technology

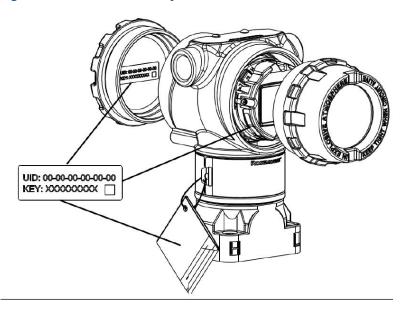
- Launch AMS Device Configurator. See AMS Device Configurator for Emerson Field Devices.
- 2. Select the device where you want to connect.
- 3. On first connection, enter the key for selected device.
- 4. At the top left, select the menu icon to navigate the desired device menu.

Bluetooth[®] UID and key

You can find the Unique Identifier (UID) and key on the disposable paper tag attached to:

- The device
- The terminal block cover
- The display unit

Figure 6-2: Bluetooth security information



7 Trimming the transmitter

Note

Emerson ships transmitters fully calibrated per request or by the factory default of full scale (span = upper range limit).

7.1 Zero trim

A zero trim is a single-point adjustment used for compensating mounting position effects.

When performing a zero trim, ensure the equalizing valve is open and all wet legs are filled to the correct level.

There are two methods to compensate for mounting effects:

- Zero trim
- Using the transmitter zero adjustment buttons

The zero trim will affect the 4–20 mA value, the HART[®] primary variable (PV), and the display value.

7.1.1 Zero trim using communication device

Procedure

- 1. Equalize or vent the transmitter and connect communication device.
- 2. Navigate to Maintenance \rightarrow Calibration \rightarrow Pressure \rightarrow Calibration \rightarrow Zero Sensor Trim.
- 3. Follow the commands to perform a zero trim.

7.1.2 Zero trim using Quick Service buttons

- 1. Locate the external buttons under the top nameplate as shown in Figure 7-1.
- 2. Press either button to wake the menu.
- 3. Follow the on screen prompt by pressing the other button.
- Once on the *Quick Service Button* main menu, use the Scroll and Enter buttons to navigate to the Zero menu.

7.1.3 Zero trim using the transmitter zero adjustment buttons

You can use the transmitter zero adjustment buttons to set the Lower Range Value (LRV) to the pressure applied to the transmitter.

This adjustment will affect the 4–20 mA value only. To perform a rerange using the zero adjustment buttons:

Procedure

- 1. Loosen the certifications label screw and slide the label to expose the zero adjustment buttons.
- Set the 4 mA point by pressing the Zero button for two seconds. Verify the output is 4 mA. The optional LCD display will show ZERO PASS.

Figure 7-1: Zero adjustment or Quick Service buttons

8 Safety Instrumented Systems (SIS)

For safety certified installations, refer to the Rosemount 3051 Pressure Transmitter Manual for installation procedure and system requirements.

9 Product certifications

Rev 3.1

9.1 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/global.

9.2 Federal Communication Commission (FCC) notice

This device complies with Part 15 of the Federal Communication Commission Rules.

Operation is subject to the following conditions: This device may not cause harmful interference; this device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 7.9 in. (20 cm) from all persons. Changes or modification to the equipment not expressly approved by Rosemount, Inc. could void the user's authority to operate the equipment.

9.3 Innovation, Science, and Economic Development (ISED) notice

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science, and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions: This device may not cause interference. This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conformé à la norme RSS-247 Industrie Canada exempt de licence. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant causer un mauvais fonctionnement du dispositif.

9.4 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).

9.5 North America

9.5.1 E5 USA Explosion-proof (XP) and Dust-Ignition-proof (DIP)

Certificate FM16US0121

Range 1-5 (HART[®] only)

- **Standards** FM 3600: 2018, FM 3615: 2018, FM 3616: 2011, FM 3810: 2005, ANSI/NEMA[®] 250: 2008
- Markings
 XP: CL I, DIV 1, GP B, C, D, T5;

 DIP: CL II, DIV 1, GP E, F, G; CL III; T5

 (-58 °F [-50 °C] ≤ T_a ≤ 185 °F [85 °C])

 Type 4X
- Certificate 1053834 Ranges 1-6
- Standards
 FM 3600: 2022, FM 3610: 2021, FM 3615: 2022, FM 3616: 2022, ANSI/UL 61010-1-2019 Third Edition, ANSI-ISA-12.27.01-2022, ANSI/UL 50E (First Edition)
- Markings XP: CL I, DIV 1, GP B, C, D T5; Seal not required DIP: CL II, DIV 1, GP E, F, G; CL III T5; (-58 °F [50 °C] ≤ T_a ≤ 185 °F [85 °C]) Type 4X, IP 68 Optional: single seal

Specific Conditions for Use:

- 1. The Model 3051 transmitter housing may contain aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken during installation and use to prevent impact and friction.
- 2. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).
- 3. Process temperature limits shall be in accordance with 03031-1053.
- 4. Flameproof joints are not intended for repair.

9.5.2 I5 USA Intrinsic Safety (IS) and Nonincendive (NI)

Certificate FM16US0120X

Ranges 1-5 (HART[®] only)

- Standards FM 3600: 2011, FM 3610: 2010, FM 3611: 2004, FM 3810: 2005, ANSI/NEMA 250: 2008
- Markings IS: CL I, DIV 1, GP A, B, C, D T4 CL II, DIV 1, GP E, F, G; CL III NI: CL 1, DIV 2, GP A, B, C, D; T4 HART: $(-50 \text{ °C} \le T_a \le +70 \text{ °C})$ FOUNDATION[™] Fieldbus/PROFIBUS[®]-PA: (-58 °F [-50 °C] ≤ T_a ≤ 140 °F [60 °C[) Install per 03031-1019. Type 4X

Special Conditions for Safe Use (X):

- 1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
- 2. The Rosemount 3051 Transmitter with the transient terminal block (option code T1) will not pass the 500 Vrms dielectric strength test, and this must be taken into account during installation

IIISta	ilation.
Certificate	1053834 Ranges 1-6
Standards	FM 3600: 2022, FM 3610: 2018, FM 3611: 2021, ANSI/UL 61010-1-2019 Third Edition, ANSI/UL 60079-0: 2017, ANSI/UL 60079-11: 2013, ANSI-ISA-12.27.01–2022, ANSI/UL 50E (First Edition)
Markings	IS: CL I GP ABCD T4 IS: CL II GP EFG; CL III T4 CL I ZN 0 AEx ia IIC T4 Ga NI: CL I DIV 2 GP ABCD T4 -76 °F (-60 °C) $\leq T_a \leq 158$ °F (70 °F) Optional: single seal Type 4X IP 68 INSTALL PER 03031-1024

Specific Conditions for Use

1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or

-2022.

friction. Care must be taken into account during installation and use to prevent impact and friction.

- 2. The Rosemount 3051 Transmitter with the transient terminal block (option code T1) will not pass the 500 Vrms dielectric strength test, and this must be taken into account during installation.
- 3. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).
- 4. Maximum process temperature limits shall be in accordance with 03031-1053.

9.5.3 IE USA FISCO

Certificate FM16US0120X

Ranges 1-5

Standards FM 3600: 2011, FM 3610: 2010, FM 3611: 2004, FM 3810: 2005, ANSI/NEMA[®] 250: 2008

 Markings
 IS: CL I, DIV 1, GP A, B, C, D T4;

 CL II, DIV 1, GP E, F, G; CL III

 -58 °F (-50 °C) \leq T_a \leq 140 °F (60 °C)

 FISCO

 Install per 03031-1019

 Type 4X

Special Conditions for Safe Use (X):

1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

Certificate 1053834

- Standards
 FM 3600: 2022, FM 3610: 2018, FM 3611: 2021, ANSI/UL 61010-1-2019 Third Edition, ANSI/UL 60079-0: 2017, ANSI/UL 60079-11: 2013, ANSI-ISA-12.27.01–2022, ANSI/UL 50E (First Edition)
- Markings IS: CL I GP ABCD T4 CL I ZN 0 AEx ia IIC T4 Ga 140 °F (-60 °C) \leq T_a \leq 158 °F (70 °C) FISCO Optional: single seal

Type 4X, IP 68 Install per 03031-1024.

Specific Conditions for Use

- 1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
- 2. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).
- 3. Process temperature limits shall be in accordance with 03031-1053.

9.5.4 C6 Canada Explosion-proof, Dust Ignition-proof, Intrinsic Safety, and Nonincendive

Certificate 1053834

- Standards
 CAN/CSA C22.2 No. 61010-1-12, CAN/CSA C22.2 No. 94.2-20, CSA C22.2 No. 25-17, CAN/CSA C22.2 No. 30:20, CAN/CSA C22.2 No. 213-17 +UPD1 (2018)+UPD2 (2019)+UPD3 (2021), CAN/CSA C22.2 No. 60079-0:19, CAN/CSA C22.2 No. 60079-1:16, CAN/CSA-60079-11:14, ANSI-ISA-12.27.01-2021
- Markings
 XP: CL I, DIV 1, GP B, C, D T5

 Ex db IIC T5 Gb

 Seal not required

 $(-50 \ ^{\circ}C \le T_a \le +85 \ ^{\circ}C)$;

 DIP: CL II, DIV 1, GP E, F, G; CL III T5;

 T5: -50 $^{\circ}C \le T_a \le +85 \ ^{\circ}C$

 IS: CL I DIV 2 GP ABCD T4

 T4: -60 $^{\circ}C \le Ta \le +70 \ ^{\circ}C$;

 Install per 03031-1024 (IS/NI only)

 Single seal temp limits 03031-1053

 Type 4X, IP 68

Specific Conditions for Use:

1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

- 2. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).
- 3. The Rosemount 3051 Transmitter with the transient terminal block (option code T1) will not pass the 500 Vrms dielectric strength test, and this must be taken into account during installation.
- 4. Flame-proof joints are not intended for repair.

9.5.5 E6 Canada Explosion-proof, Dust Ignition-proof, and Division 2

Certificate 1053834

- Standards CAN/CSA C22.2 No. 61010-1-12, CAN/CSA C22.2 No. 94.2-20, CSA C22.2 No. 25-17, CAN/CSA C22.2 No. 30:20, CAN/CSA C22.2 No. 213-17 +UPD1 (2018) +UPD2 (2019) +UPD3 (2021), CAN/CSA C22.2 No. 60079-0:19, CAN/CSA C22.2 No. 60079-1:16, ANSI-ISA-12.27.01–2021
- Markings XP: CL I, DIV 1, GP B, C, D T5 Ex db IIC T5 Gb Seal not required DIP: CL II, DIV 1, GP E, F, G; CL III T5; T5: $-50 \degree C \le T_a \le +85 \degree C$ NI: CL I DIV 2 GP ABCD T4 T4: $-60 \degree C \le Ta \le +70 \degree C$; Single seal - temp limits per 03031-1053 Type 4X, IP 68

Specific Conditions for Use:

- 1. The Rosemount 3051 Transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
- 2. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).
- 3. Flame-proof joints are not intended for repair.

9.6 Europe

9.6.1 E8 ATEX Flame-proof and Dust

ATEX Certificate KEMA00ATEX2013X (Ex db); Baseefa11ATEX0275X (Ex ta)

Standards Used	EN IEC 60079-0: 2018, EN 60079-1: 2014, EN 60079-26: 2015, EN 60079-31: 2014
Markings	$\underbrace{\text{Ex}}_{12} \text{ II } \frac{1}{2} \text{ G Ex db IIC T6T4 Ga/Gb T6}$ T6: -60 °C ≤ T _a ≤ +70 °C T4/T5: -60 °C ≤ T _a ≤ +80 °C; $\underbrace{\text{Ex}}_{12} \text{ II 1 D Ex ta IIIC T}_{500} 105 °C \text{ Da}$ -20 °C ≤ T _a ≤ +85 °C

Table 9-1: Process temperature

Temperature class	Process connection temperature	Ambient temperature
Т6	–60 °C to +70 °C	-60 °C to +70 °C
T5	–60 °C to +80 °C	-60 °C to +80 °C
T4	-60 °C to +120 °C	–60 °C to +80 °C

Special Conditions for Safe Use (X):

- This device contains a thin wall diaphragm less than

 mm thick that forms a boundary between Category
 G (process connection) and Category 2G (all other parts
 of the equipment). The model code and datasheet are
 to be consulted for details of the diaphragm material.
 During installation, maintenance, and use, the environmental
 conditions to which the diaphragm will be subjected shall
 be taken into account. The manufacturer's instructions for
 installation and maintenance shall be followed in detail to
 assure safety during its expected lifetime.
- 2. Flameproof joints are not intended to be repaired.
- 3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.
- 4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.
- 5. Variants with a paint finish must not be installed in a dustladen airflow.

9.6.2 I1 ATEX Intrinsic Safety and Dust

Certificate BAS97ATEX1089X; Baseefa11ATEX0275X

- Standards EN IEC 60079-0: 2018, EN60079-11: 2012, EN60079-31: 2014
- Markings IS: $\underbrace{ \mathbb{K} }$ II 1 G Ex ia IIC T4 Ga HART[®]: -60 °C $\leq T_a \leq +70$ °C Fieldbus/PROFIBUS[®]: -60 °C $\leq T_a \leq +60$ °C Dust: $\underbrace{ \mathbb{K} }$ II 1 D Ex ta IIIC T₅₀₀ 105 °C Da -20 °C $\leq T_a \leq +85$ °C

Table 9-2: Input parameters

	HART	Fieldbus/PROFIBUS
Voltage U _i	30 V	30 V
Current I _i	200 mA	300 mA
Power P _i	1.0 W	1.3 W
Capacitance C _i	0.012 μF	0 μF
Inductance L _i	0 mH	0 mH

Specific Conditions of Use (X):

- The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of EN60079-11: 2012. This must be taken into account when installing the apparatus.
- The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if located in Zone 0.
- 3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.
- 4. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

9.6.3 IA ATEX FISCO

Certificate BAS97ATEX1089X

Standards	EN IEC 60079-0: 2018, EN60079-11: 2012
Markings	🖾 II 1 G Ex ia IIC T4 Ga
	–60 °C ≤ T _a ≤ +60 °C

Table 9-3: Input parameters

	Fieldbus/PROFIBUS®
Voltage U _i	17.5 V
Current I _i	380 mA
Power P _i	5.32 W
Capacitance C _i	≤ 5 nF
Inductance L _i	≤ 10 µH

Specific Conditions for Safe Use (X):

- The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of EN60079-11: 2012. This must be taken into account when installing the apparatus.
- 2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in Zone 0.
- 3. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

9.6.4 N1 ATEX Type n and Dust

Certificate BAS00ATEX3105X; Baseefa11ATEX0275X

Standards EN IEC 60079-0: 2018, EN60079-15: 2010, EN60079-31: 2014

Markings $\langle Ex \rangle$ II 3 G Ex nA IIC T5 Gc -40 °C $\leq T_a \leq +70$ °C; $\langle Ex \rangle$ II 1 D Ex ta IIIC T₅₀₀ 105 °C Da -20 °C $\leq T_a \leq +85$ °C

Specific Conditions for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by EN 60079-15: 2010. This must be taken into account when installing the apparatus.

- 2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if located in Zone 0.
- 3. Variants with a paint finish must not be installed in a dustladen airflow.
- 4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

9.7 International

9.7.1 E7 IECEx Flame-proof and Dust

Certificate IECEx KEM 09.0034X; IECEx BAS 10.0034X

- Standards IEC 60079-0: 2017, IEC 60079-1: 2014-06, IEC 60079-26: 2014-10, IEC 60079-31: 2013
- MarkingsEx db IIC T6...T4 Ga/GbT6: -60 °C \leq Ta \leq +70 °C;T4/T5: -60 °C \leq Ta \leq +80 °C;Ex ta IIIC T500105 °C Da-20 °C \leq Ta \leq +85 °C

Table 9-4: Process temperature

Temperature class	Process connection temperature
Т6	-60 °C to +70 °C
Т5	-60 °C to +80 °C
T4	-60 °C to +80 °C

Specific Conditions of Use:

- This device contains a thin wall diaphragm less than 1 mm thick that forms a boundary between EPL Ga (process connection) and EPL Gb (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. During installation, maintenance, and use, the environmental conditions to which the diaphragm will be subjected shall be taken into account. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
- 2. Flameproof joints are not intended to be repaired.
- 3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic

build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

4. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

9.7.2 I7 IECEx Intrinsic Safety

Certificate	IECEx BAS 09.0076X
Standards	IEC 60079-0: 2017, IEC60079-11: 2011
Markings	Ex ia IIC T4 Ga
	HART [®] : -60 °C ≤ T _a ≤ +70 °C
	Fieldbus/PROFIBUS [®] : $-60 \text{ °C} \le T_a \le +60 \text{ °C}$

Table 9-5: Input parameters

	HART	Fieldbus/PROFIBUS
Voltage U _i	30 V	30 V
Current I _i	200 mA	300 mA
Power P _i	1.0 W	1.3 W
Capacitance C _i	0.012 µF	0 μF
Inductance L _i	0 mH	0 mH

Specific Conditions of Use:

- If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of IEC 60079-11. This must be taken into account when installing the apparatus.
- 2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if located in Zone 0.

IECEx Mining (Special A0259)

Certificate	IECEx TSA 14.0001X
Standards	IEC 60079-0 :2011, IEC 60079-11: 2011
Markings	Ex ia I Ma (−60 °C ≤ T _a ≤ +70 °C)

Table	9-6:	Input	parameters
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	HART	Fieldbus/ PROFIBUS	FISCO
Voltage U _i	30 V	30 V	17.5 V
Current I _i	200 mA	300 mA	380 mA
Power P _i	0.9 W	1.3 W	5.32 W
Capacitance C _i	0.012 µF	0 μF	< 5 nF
Inductance L _i	0 mH	0 mH	< 10 µH

Specific Conditions of Use:

- 1. If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by IEC60079-11. This must be taken into account when installing the apparatus.
- 2. It is a condition of safe use that the above input parameters shall be taken into account during installation.
- 3. It is a condition of manufacture that only the apparatus fitted with housing, covers, and sensor module housing made out of stainless steel are used in Group 1 applications.

9.7.3 IG IECEX FISCO

Certificate	IECEx BAS 09.0076X
Standards	IEC 60079-0: 2017, IEC60079-11: 2011
Markings	Ex ia IIC T4 Ga -60 °C ≤ T _a ≤ +60 °C

Table 9-7: Input parameters

	Fieldbus/PROFIBUS [®]
Voltage U _i	17.5 V
Current I _i	380 mA
Power P _i	5.32 W
Capacitance C _i	≤ 5 nF
Inductance L _i	≤ 10 µH

Specific Conditions for Safe Use:

- If the apparatus is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by clause 6.3.12 of IEC 60079-11. This must be taken into account when installing the apparatus.
- 2. The enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if located in Zone 0.

9.7.4 N7 IECEx Type n

Certificate	IECEx BAS 09.0077X
Standards	IEC60079-0: 2017, IEC60079-15: 2010
Markings	Ex nA IIC T5 Gc (-40 °C \leq T _a \leq +70 °C)

Specific Condition for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by clause 6.5.1 of IEC 60079-15. This must be taken into account when installing the apparatus.

9.8 Brazil

9.8.1 E2 Brazil Flame-proof

Certificate UL-BR 13.0643X

- Standards ABNT NBR IEC 60079-0: 2013; ABNT NBR IEC 60079-1: 2016; ABNT NBR IEC 60079-26: 2016
- **Markings** Ex db IIC T6...T4 Ga/Gb T6: $-60 \degree C \le T_a \le +70 \degree C$ T4/T5: $-60 \degree C \le T_a \le +80 \degree C$

Special Conditions for Safe Use (X):

- This device contains a thin wall diaphragm with less than 1 mm thickness that forms a boundary between zone 0 (process connection) and zone 1 (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. Installation, maintenance, and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
- 2. Flameproof joints are not intended to be repaired.

3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

9.8.2 I2 Brazil Intrinsic Safety

Certificate UL-BR 13.0584X

- Standards ABNT NBR IEC60079-0: 2013, ABNT NBR IEC60079-11: 2013
- Markings HART[®]: Ex ia IIC T5/T4 Ga, T5 (-60 °C \leq T_a \leq +40 °C), T4 (-60 °C \leq T_a \leq +70 °C)

Fieldbus/PROFIBUS[®]: Ex ia IIC T4 Ga (-60 °C \leq T_a \leq +60 °C)

Table 9-8: Input parameters

	HART	Fieldbus/PROFIBUS
Voltage U _i	30 V	30 V
Current I _i	200 mA	300 mA
Power P _i	0.9 W	1.3 W
Capacitance C _i	0.012 μF	0 μF
Inductance L _i	0 mH	0 mH

Special Conditions for Safe Use (X):

- If the equipment is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by ABNT NBR IRC 60079-11. This must be taken into account when installing the equipment.
- 2. The enclosure may be made of aluminum alloy and given protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if equipment requires EPL Ga.

9.8.3 IB Brazil FISCO

Certificate UL-BR 13.0584X

Standards ABNT NBR IEC60079-0: 2013, ABNT NBR IEC60079-11: 2013

Markings Ex ia IIC T4 Ga (-60 °C \leq T_a \leq +60 °C)

Table 9-9: Input parameters

	FISCO
Voltage U _i	17.5 V
Current I _i	380 mA
Power P _i	5.32 W
Capacitance C _i	≤ 5 nF
Inductance L _i	≤ 10 µH

Special Conditions for Safe Use (X):

- 1. If the equipment is fitted with an optional 90 V transient suppressor, it is not capable of withstanding the 500 V insulation test required by ABNT NBR IRC 60079-11. This must be taken into account when installing the equipment.
- 2. The enclosure may be made of aluminum alloy and given protective polyurethane paint finish; however, care must be taken to protect it from impact or abrasion if equipment requires EPL Ga.

9.9 China

9.9.1 E3 China Flame-proof

Certificate GYJ24.1006X [Transmitters]; GYJ20.1486X [Flow meters]

- Standards GB/T 3836.1-2021, GB/T 3836.2-2021, GB/T 3836.20-2021, GB/T 3836.31-2021
- Markings
 3051 Series: Ex db IIC T6···T4 Ga/Gb, Ex ta IIIC T200

 105 °C Da (-20 °C ≤ Ta ≤ 85 °C)
 3051CF Series: Ex d IIC T6~T4 Ga/Gb

9.9.2 I3 China Intrinsic Safety

Certificate GYJ23.1139X; GYJ20.1488X [Flow meters]

- Standards GB/T 3836.1-2021, GB/T 3836.4-2021, GB/T 3836.31-2021
- Markings3051 Series: Ex ia IIC T4 Ga, Ex ta IIIC T500 105 °C Da3051CF Series: Ex ia IIC T4 Ga, Ex ta IIIC T500 105 °C Da

9.9.3 N3 China Type n

Certificate	GYJ20.1110X
Standards	GB/T 3836.1-2021, GB/T 3836.3-2021

Markings Ex ec IIC T5 Gc

- 9.10 Japan
- 9.10.1 E4 Japan Flame-proof

Certificate CML20JPN1098X

Markings Ex db IIC T6...T4 Ga/Gb, T6 (-60 °C \leq Ta \leq +70 °C), T5/T4 (-60 °C \leq Ta \leq +80 °C)

Special Conditions for Safe Use (X):

- This device contains a thin wall diaphragm less than 1 mm thick that forms a boundary between EPL Ga (process connection) and EPL Gb (all other parts of the equipment). The model code and datasheet are to be consulted for details of the diaphragm material. During installation, maintenance, and use, the environmental conditions to which the diaphragm will be subjected shall be taken into account. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
- 2. Flameproof joints are not intended to be repaired.
- 3. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

9.11 Republic of Korea

9.11.1 EP Republic of Korea Flame-proof

- Certificate 11-KB4BO-0188X [Manufacturing Singapore], 19-KA4BO-079X [Manufacturing USA]
- Markings Ex d IIC T6...T4 Ga/Gb

9.11.2 IP Republic of Korea Intrinsic Safety

Certificate 13-KB4BO-0203X [HART[®] – Manufacturing USA], 13-KB4BO-0204X [Fieldbus – Manufacturing USA], 10-KB4BO-0138X [HART – Manufacturing Singapore], 13-KB4BO-0206X [Fieldbus – Manufacturing Singapore] 18-KA4BO-0354X [HART – Manufacturing USA], 18-KA4BO-0355X [Fieldbus – Manufacturing USA]

Markings Ex ia IIC T5/T4 (HART); Ex ia IIC T4 (Fieldbus)

9.12 Combinations

- K2 Combination of E2 and I2
- K5 Combination of E5 and I5
- K6 Combination of C6, E8, and I1
- **K7** Combination of E7, I7, and N7
- K8 Combination of E8, I1, and N1
- KB Combination of E5, I5, and C6
- **KD** Combination of E8, I1, E5, I5, and C6
- KM Combination of EM and IM
- **KP** Combination of EP and IP

9.13 Additional certifications

9.13.1 SBS American Bureau of Shipping (ABS) Type Approval

Intended use Marine and offshore applications – Measurement of either gauge or absolute pressure for liquid, gas, and vapor.

9.13.2 SBV Bureau Veritas (BV) Type Approval

Certificate	23155
Requirements	Bureau Veritas rules for the classification of steel ships
Application	Class notations: AUT-UMS, AUT-CCS, AUT-PORT, and AUT-IMS; Pressure transmitter type 3051 cannot be

installed on diesel engines.

9.13.3 SDN Det Norske Veritas (DNV) Type Approval

Intended Use DNV GL rules for classification - ships and offshore units

Application Table 9-10: Location classes

Temperature	D
Humidity	В

Table 9-10: Location classes (continued)

Vibration	A
Electromagnetic compatibility (EMC)	В
Enclosure	D

9.13.4 SLL Lloyds Register (LR) Type Approval

Certificate LR21173788TA

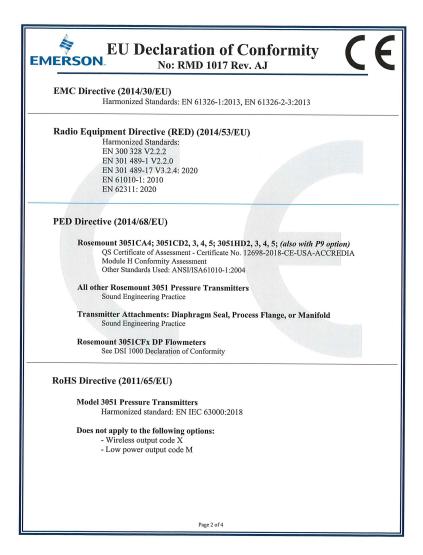
Application Environmental categories ENV1, ENV2, ENV3, and ENV5

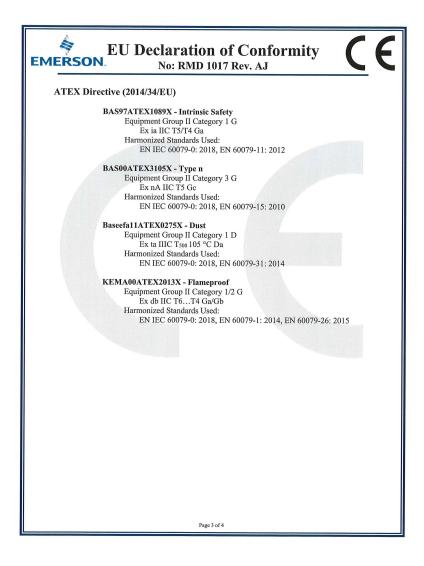
9.13.5 C5 Custody Transfer - Measurement Canada Accuracy Approval

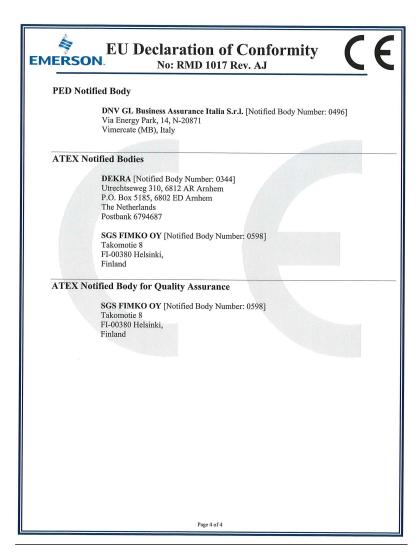
Certificate AG-0226; AG-0454; AG-0477

9.14 EU Declaration of Conformity

EU Declaration of Conformity EMERSON No: RMD 1017 Rev. AJ We, Rosemount, Inc. 6021 Innovation Blvd. Shakopee, MN 55379 USA declare under our sole responsibility that the product, **Rosemount 3051 Pressure Transmitters** manufactured by, Rosemount, Inc. 6021 Innovation Blvd. Shakopee, MN 55379 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. Vice President of Global Quality (signature) (function) ugust 4, 2023 Mark Lee (date of issue & place) (name) Page 1 of 4







9.15 China RoHS

	有害物质 / Hazardous Substances					
部件名称 Part N <i>a</i> me	船 Lead (Pb)	汞 Mercury (Hg)	fin Cadmium (Cd)	大价格 Hexavalent Chromium (Cr +6)	多狭碳萃 Polybrominated biphenyls (PBB)	多狭底苯醛 Polybrominated diphenyl ethers (PBDE)
电子组件 Electronics Assembly	х	0	0	0	0	0
壳体组件 Housing Assembly	0	0	0	0	0	0
传感器组件 Sensor Assembly	×	0	0	0	0	o

含有China RoHS 皆望物质超过最大波度限值的部件型号列表 3051 List of 3051 Parts with China RoHS Concentration above MCVs

本表格系依据SJT11964的规定而制作。

This table is proposed in accordance with the provision of SJ/T11964.

O: 总为该部件的所有均质材料中该有書物质的含量均低于GB/T 26072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所有均质材料里,至少有一类均质材料中该有書物质的含量高于GB/T 26572所规定的限量要求. X: Indicate that said harandous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement of GB/T 26572.

部件名称 Part Name	丝载各件 选明 Spare Parts Descriptions for Assemblies
电子组件 Electronics Assembly	电子线路板组件 Electronic Board Assemblies 端子块组件 Terminal Block Assemblies 升级套件 Upgrade Kits 液晶显示屏或本地操作界面 LCD or LOIDisplay
壳体组件 Housing Assembly	电子外壳 Electrical Housing
传感器组件 Sensor Assembly	传感器模块 Sensor Module

Quick Start Guide 00825-0100-4007, Rev. HH February 2024

For more information: Emerson.com/global

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