

# Rosemount™ 2051 Pressure Transmitter and Rosemount 2051CF DP Flow Meter

with *WirelessHART*® Protocol



## **⚠ WARNING**

### **Explosions**

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 *Product certifications* section of the *Quick Start Guide* for any restrictions associated with a safe installation. Before connecting a handheld communicator in an explosive atmosphere, ensure that the instruments in the loop are installed in accordance with intrinsically safe or non-incendive field wiring practices.

Process leaks could result in death or serious injury.

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

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.

### **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.

## **⚠ WARNING**

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

## **NOTICE**

This guide provides basic installation guidelines for Rosemount 2051 Wireless Transmitters. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting or intrinsically safe (I.S.) installations. Refer to the [Rosemount 2051 Wireless Pressure Transmitter Reference Manual](#) for more instruction. This manual is also available electronically on [Emerson.com/Global](http://Emerson.com/Global).

Shipping considerations for wireless products:

Emerson shipped the transmitter to you without the power module installed. Remove the power module prior to shipping the transmitter.

Each power module contains one D size primary lithium-thionyl chloride battery. Primary lithium batteries are regulated in transportation by the US Department of Transportation, and are also covered by the International Air Transport Association (IATA), International Civil Aviation Organization (ICAO), and European Ground Transportation of Dangerous Goods (ADR). It is the shipper's responsibility to ensure compliance with these or any other local requirements. Consult current regulations and requirements before shipping.

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# 1 Wireless considerations

## 1.1 Power up sequence

Do not install the power module on any wireless device until the Emerson Wireless Gateway is installed and functioning properly.

This transmitter uses the green power module (order model number 701PGNKF). Power up wireless devices in order of proximity from the Gateway, beginning with the closest. This will result in a simpler and faster network installation. Enable active advertising on the Gateway to ensure new devices join the network faster.

### Related information

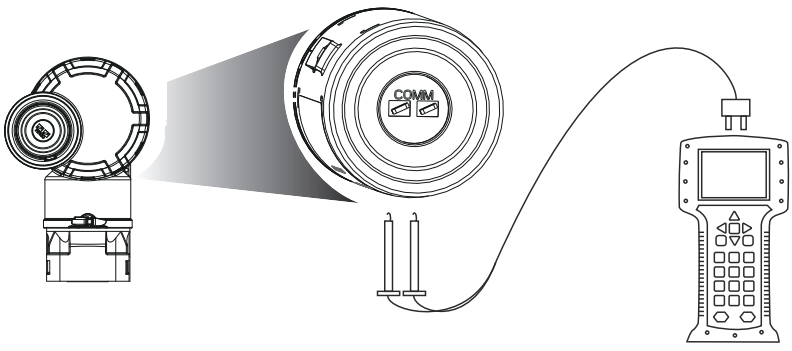
[Emerson Wireless 1420 Gateway Reference Manual](#)

## 1.2 Connecting the transmitter with a Field Communicator

In order for the Field Communicator to interface with the Rosemount 2051 Wireless Transmitter, you must connect the power module.

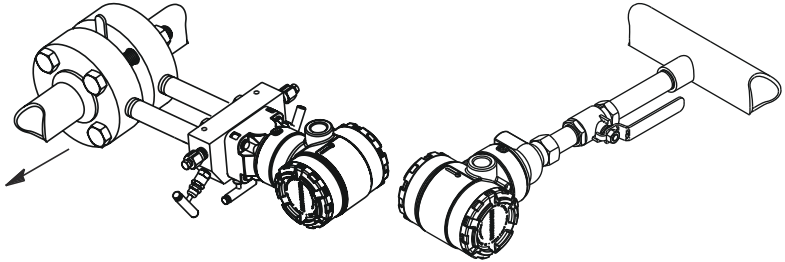
This transmitter uses the green power module (order model number 701PGNKF). [Figure 1-1](#) shows how to connect the Field Communicator to the transmitter. Open the power module compartment to hook up the leads.

**Figure 1-1: Field Communicator connections**



## 2 Mounting the transmitter

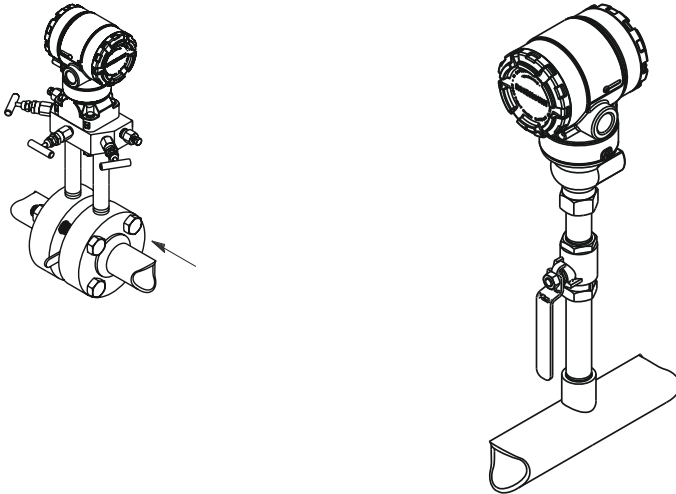
### 2.1 Mount the transmitter in liquid applications



#### Procedure

1. Place taps to the side of the line.
2. Mount the transmitter beside or below the taps.  
Mount the transmitter so the drain/vent valves are oriented upward.

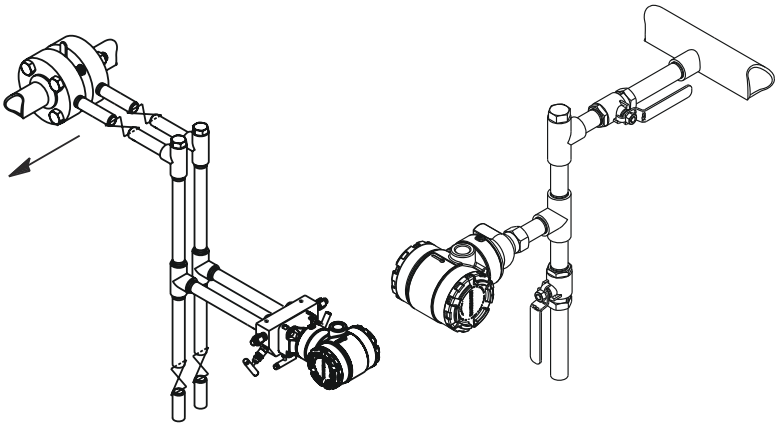
### 2.2 Mount the transmitter in gas applications



#### Procedure

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

## 2.3 Mount the transmitter in steam applications

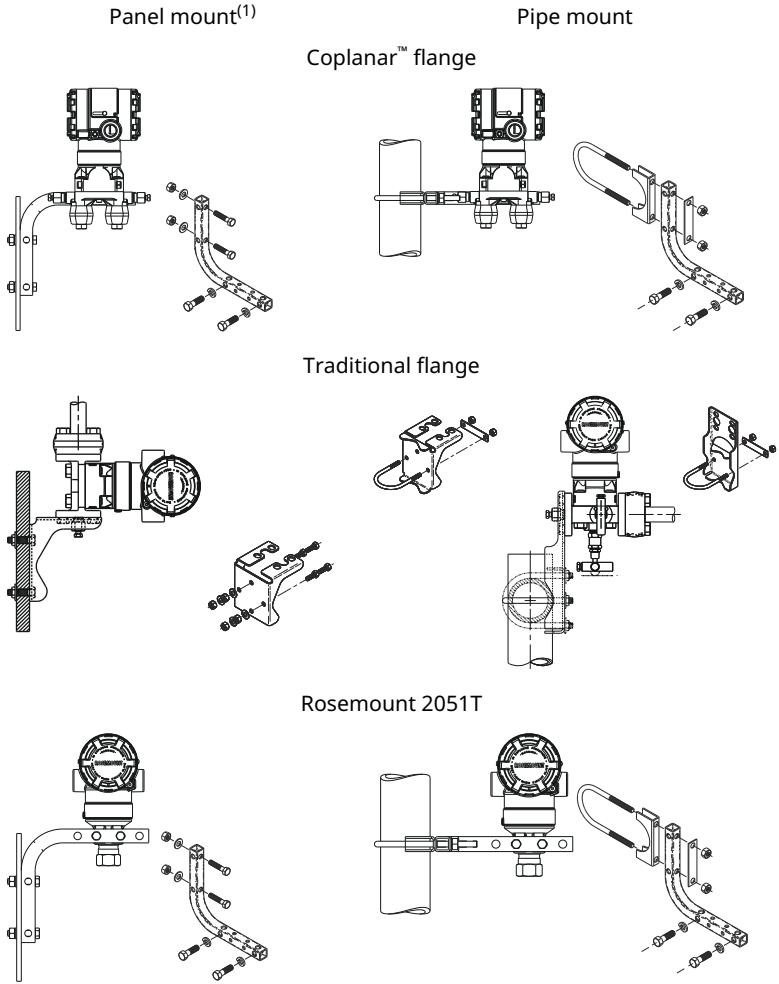


### Procedure

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

## 2.4 Panel and pipe mounting

**Figure 2-1: Panel and Pipe Mounting**



*(1) 5/16 × 1½ panel bolts are customer supplied.*

## 2.5 Install bolts

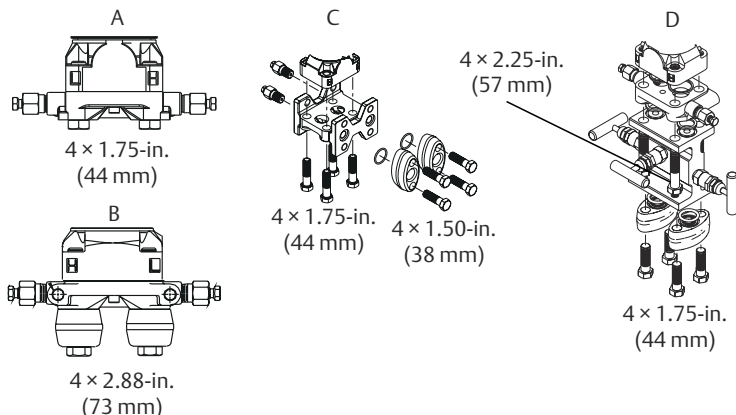
If the transmitter installation requires assembly of the process flanges, manifolds, or flange adapters, follow the assembly



guidelines to ensure a tight seal for optimal performance characteristics of the transmitter.

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

**Figure 2-2: 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 (CS) or Stainless Steel (SST). Confirm the material by viewing the markings on the head of the bolt and referencing [Table 2-1](#). If bolt material is not shown in [Table 2-1](#), contact a local Emerson representative for more information.

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


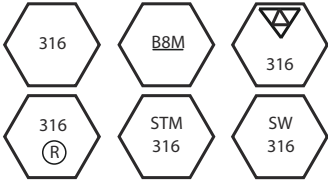
### Procedure

1. Tighten the bolts by hand.
2. Torque the bolts to the initial torque value using a crossing pattern.  
See [Table 2-1](#) for initial torque value.
3. Torque the bolts to the final torque value using the same crossing pattern.

See [Table 2-1](#) for final torque value.

- Verify the flange bolts are protruding through the sensor module bolt holes before applying pressure.

**Table 2-1: Torque Values for the Flange and Flange Adapter Bolts**

Bolt material	Head markings	Initial torque	Final torque
CS		300 in-lb	650 in-lb
SST		150 in-lb	300 in-lb

## 2.6 O-rings

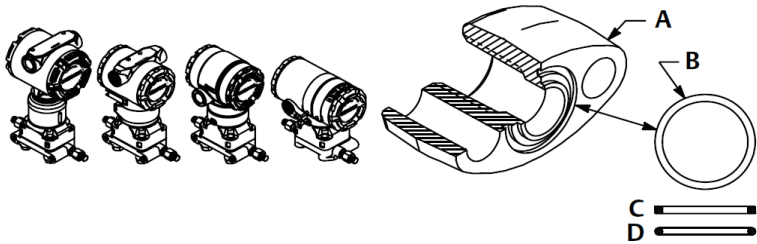
The two styles of Rosemount flange adapters (Rosemount 3051/2051/2024/3095) each require a unique O-ring (see [Figure 2-3](#)). Use only the O-ring designed for the corresponding flange adapter.

### **⚠ 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 2-3](#). When compressed, PTFE O-rings tend to cold flow, which aids in their sealing capabilities.

**Figure 2-3: O-rings for Rosemount 3051S, 3051, 2051, 3001, 3095, and 2024**



- A. Flange adapter
- B. O-ring
- C. PTFE based
- D. Elastomer

## NOTICE

If the flange adapter is removed, then the PTFE O-rings must be replaced.

## 2.7 Environmental seal for housing

Thread sealing (PTFE) tape or paste on male threads of conduit is required to provide a water/dust tight conduit seal and meets requirements of NEMA® Type 4X, IP66, and IP68. 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

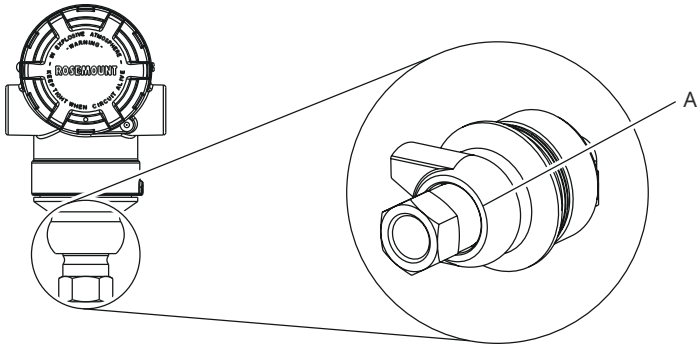
The low side pressure port (atmospheric reference) on the in-line gauge transmitter is located in the neck of the transmitter, behind the housing. The vent path is 360° around the transmitter between the housing and sensor. See [Figure 2-4](#).

## NOTICE

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

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**Figure 2-4: In-line Gauge Low Side Pressure Port**



*A. Pressure port location*

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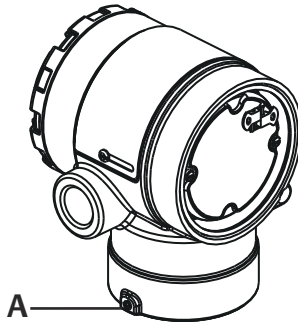
### 3 Rotate housing

You can rotate the electronics housing up to 180 degrees in either direction to improve field access to wiring or to better view the optional LCD display.

#### Procedure

1. Loosen the housing rotation set screw using a 5/64-inch hex wrench.
- 

**Figure 3-1: Housing Rotation**



A. Housing rotation set screw (5/64 in.)

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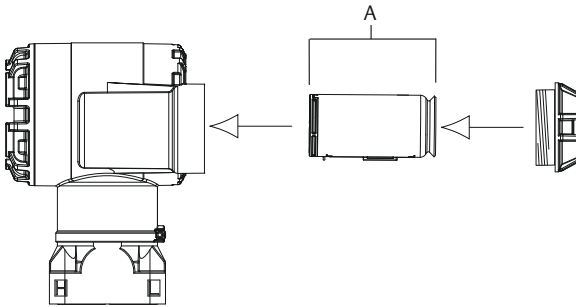
2. Rotate the housing clockwise to the desired location.
3. If the desired location cannot be achieved due to thread limitation, rotate the housing counterclockwise to the desired location (up to 360° from thread limit).
4. Retighten the housing rotation set screw to no more than 7 in-lb when desired location is reached.

## 4 Connect the power module

### Procedure

1. Remove the power module cover.
2. Connect the green power module. See [Figure 4-1](#).

**Figure 4-1: Power module**



*A. Power module*

## 5 Trimming the transmitter

The factory calibrates the transmitters. Once installed, Emerson recommends performing a zero trim on gauge and differential pressure transmitters to eliminate error due to mounting position or static pressure effects.

You can perform a zero trim either a Field Communicator or configuration buttons.

For instructions using AMS Wireless Configurator, see the [Rosemount 2051 Wireless Pressure Transmitters Reference Manual](#).

### Note

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

### NOTICE

Emerson does not recommend zeroing an absolute transmitter, Rosemount 2051CA, or 2051TA models.

### 5.1 Trim using Field Communicator

#### Procedure

1. Equalize or vent the transmitter and connect it to the Field Communicator.
2. Under the menu, input the HART® Fast Key sequence.
3. Follow the commands to perform a zero trim.

#### Example

From the **Home** screen, enter the Fast Key sequence:

Device Dashboard Fast Keys	2, 1, 2
----------------------------	---------

For connecting with a Field Communicator, refer to [Figure 1-1](#).

### 5.2 Trim using digital Zero trim button

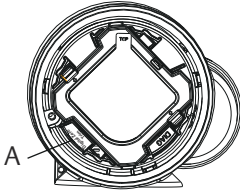
#### Procedure

1. Set the transmitter pressure.
2. Remove the electronics housing cover.
3. Press and hold the **Zero** button for two seconds to perform a digital zero trim.

4. Reinstall transmitter housing cover. Ensure a proper seal by installing the electronics housing cover so the polymer contacts polymer (no O-ring visible).

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**Figure 5-1: Digital Zero button**



A. Digital **Zero** button

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**Note**

You can also use AMS Wireless Configurator to perform a zero trim once the device has joined the network.

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## 6 Verifying transmitter configuration





You can verify configuration in four locations:

- At the device via the local display (LCD display)
- By using the Field Communicator
- Via the Emerson Wireless Gateway’s integrated web interface
- Via AMS Wireless Configurator

### 6.1 Verifying transmitter configuration using LCD display

The LCD display will show the output values at the same rate as the wireless update rate.

Refer to the [Rosemount 2051 Wireless Pressure Transmitters Reference Manual](#) for error codes and other LCD display messages. Press and hold the **Diagnostic** button for at least five seconds to display the **TAG, Device ID, Network ID, Network Join Status, and Device Status** screens.

Searching for network	Joining network	Connected with limited bandwidth	Connected
			

### 6.2 Verifying transmitter configuration using Field Communicator

For *WirelessHART*® transmitter communication, a Rosemount 2051 Wireless Transmitter Device Descriptor (DD) is required. For connecting with a Field Communicator, refer to [Figure 1-1](#).

From the **Home** screen, enter the Fast Key sequence:

Device Dashboard Fast Keys	3, 5
----------------------------	------

**Table 6-1: Device Revision 1, DD Revision 1 Fast Keys**

Function	Fast Keys
Tag	2, 1, 1, 1, 1
Date	2, 1, 1, 1, 5
Descriptor	2, 1, 1, 1, 3
Message	2, 1, 1, 1, 4
Long Tag	2, 1, 1, 1, 2
Network ID	2, 2, 1, 1
Join Device to Network	2, 2, 1, 2
Update Rate	2, 1, 4
Range Values	2, 1, 1, 5
Transfer Function	2, 1, 1, 6
Units	2, 1, 1, 2
Lower Sensor Trim	3, 5, 1, 1, 2
Upper Sensor Trim	3, 5, 1, 1, 1
Digital Zero Trim	3, 5, 1, 1, 3
Rerange by Applied Pressure	2, 2, 2, 2, 1
Custom Display Configuration	2, 1, 5
Scaled Variable	2, 1, 7, 1
Find Device	3, 5, 2
Simulate Digital Signal	3, 6

### 6.3 Verifying transmitter configuration using Emerson Wireless Gateway

In the Gateway's integrated web interface, navigate to **Explorer** → **Status**. This page will show whether the device has joined the network and if it is communicating properly.

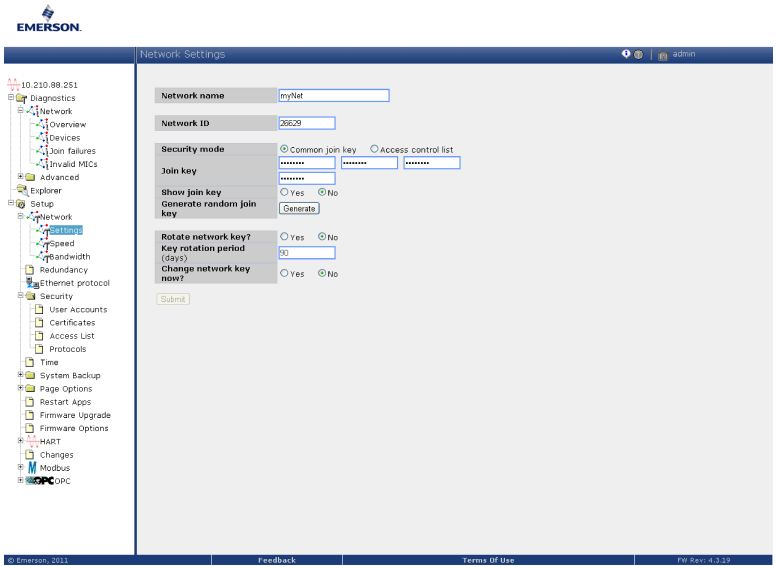
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#### Note

It may take several minutes for the device to join the network. See the [Emerson Wireless 1420 Gateway Quick Start Guide](#) for more information.

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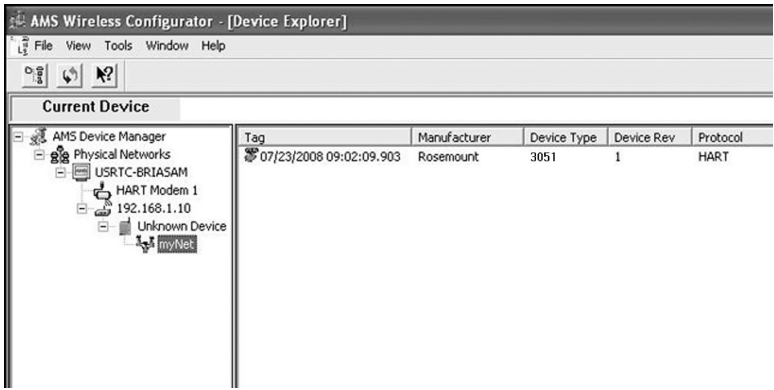
Figure 6-1: Gateway Network Settings



## 6.4 Verifying transmitter configuration using AMS Wireless Configurator

When the transmitter has joined the network, it will appear in the AMS Wireless Configurator as shown in [Figure 6-2](#).

Figure 6-2: AMS Wireless Configurator Network Setup



## 7 Troubleshooting

If the transmitter has not joined to the network after power up, verify the correct configuration of the network ID and join key. Verify that active advertising has been enabled on the Gateway. The network ID and join key in the transmitter must match the network ID and join key of the Gateway.

To obtain the network ID and join key from the Gateway, go to **Setup** → **Network** → **Settings** on the web interface (see [Figure 6-1](#)). You can change the network ID and join key in the wireless transmitter by using the following Fast Key sequence. See the [Rosemount 2051 Wireless Pressure Transmitters Reference Manual](#) for further troubleshooting.

From the **Home** screen, enter the Fast Key sequence:

Device Dashboard Fast Keys	3, 5
----------------------------	------

## 8 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 [www.Emerson.com](http://www.Emerson.com).

## 9 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).

### 9.1 Functional specifications

<b>Pollution degree</b>	4
<b>Altitude</b>	16,404.2 ft. (5000 m) maximum
<b>Humidity</b>	All models: 0 to 100 percent relative humidity
<b>Supply voltage (VMAX)</b>	4-20 mA (HART®): 42.4 Vdc FOUNDATION™ Fieldbus, PROFIBUS™ PA: 32 Vdc

## 10 Hazardous location certification

### NOTICE

Device ambient temperature ratings and electrical parameters may be limited to the levels dictated by the hazardous location certificate parameters.

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# 11 North America

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

<b>Certificate</b>	2041384
<b>Standards</b>	FM 3600: 2022, FM 3615: 2022, FM 3616: 2022, ANSI/UL 61010-1-2019 Third Edition, ANSI/UL 12.27.01: 2022 (Fourth Edition), ANSI/UL 50E (First Edition)
<b>Markings</b>	XP CL I, DIV I, GP B, C, & D T5; Seal not required DIP CL II, DIV I, GP E, F, & G; CL III T5; T5: (-50 °C ≤ Ta ≤ +85 °C) Type 4X, IP 68 Optional: single seal

### Specific Conditions of Use:

1. The Rosemount 2051 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.

## I5 USA Intrinsic Safety (IS), Nonincendive (NI)

<b>Certificate</b>	2041384
<b>Standards</b>	FM3600: 2022, FM3610: 2021, FM3611: 2021, ANSI/UL61010-1-2019 Third Edition, ANSI/UL60079-0: 2017, ANSI/UL60079-11: 2013, ANSI/UL12.27.01: 2022 (Fourth Edition), ANSI/UL50E (First Edition)
<b>Markings</b>	IS: CL I GP A, B, C, D T4; CL II GP EFG; CL III T4; CL I ZN 0 AEx ia IIC T4 Ga; NI: CL I DIV 2 GP ABCD T4; (-50 °C ≤ Ta ≤ +70 °C) Install per 02051-1008. Type 4X, IP 68



Optional: single seal

### Specific Conditions of Use:

1. The 2051 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. The 2051 with the transient terminal block (Option code T1) will not pass the 500 VRMS dielectric strength test; this must be considered 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.

### IE USA FISCO

<b>Certificate</b>	2041384
<b>Standards</b>	FM 3600: 2022, FM 3610: 2021, FM 3611: 2021, ANSI/UL 61010-1-2019 Third Edition, ANSI/UL 60079-0: 2017, ANSI/UL 60079-11: 2013, ANSI/UL 12.27.01: 2022 (Fourth Edition), ANSI/UL 50E (First Edition)
<b>Markings</b>	IS: CL I GP ABCD T4 CL I ZN 0 AEx ia IIC T4 Ga -50 °C ≤ Ta ≤ +60 °C FISCO Type 4X, IP 68 Install per 02051-1008 Optional: single seal

### Specific Conditions of Use:

1. The 2051 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. Maximum process temperature limits shall be in accordance with 03031-1053.

## E6 Canada Explosion-proof, Dust Ignition-proof

<b>Certificate</b>	2041384
<b>Standards</b>	CAN/CSA C22.2 No. 61010-1-12, CAN/CSA C22.2 No. 94.2-07, CSA C22.2 No. 25-17, CAN/CSA C22.2 No. 30:20, CAN/CSA C22.2 No. 60079-0:19, CAN/CSA C22.2 No. 60079-1:16, ANSI/UL 12.27.01: 2022 (Fourth Edition)
<b>Markings:</b>	XP: CL I, DIV I, GP B,C, D T5; Ex db IIC T5 Gb; Seal not required DIP: CL II, DIV I, GP E, F, & G; CL III T5; -50 °C ≤ Ta ≤ +85 °C Single seal - temp limits 03031-1053 Type 4X, IP 68

### Specific Conditions of Use:

1. The 2051 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).

## I6 Canada Intrinsic Safety (IS)

<b>Certificate</b>	2041384
<b>Standards</b>	C22.2 No. 61010-1-12, C22.2 No. 25-17, C22.2 No. 94.2-20 Third Edition, CSA Std C22.2 No. 213-17 + UPD 1 (2018) + UPD 2 (2019) + UPD 3 (2021), CAN/CSA-60079-0:19, CAN/CSA-60079-11:14, ANSI/UL 122701: 2022 (Fourth Edition), ANSI/UL 50E (First Edition)
<b>Markings</b>	IS: CL I GP A, B, C, D T4; CL II GP E, F, G, CL III T4; Ex ia IIC T4 Ga; NI: CL I DIV 2 GP A, B, C, D -50 °C ≤ Ta ≤ +70 °C Install per 02051-1008 Single seal - temp limits per 03031-1053 Type 4X, IP 68

### Specific Conditions of Use:

1. The 2051 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. The 2051 with the transient terminal block (Option code T1) will not pass the 500 VRMS dielectric strength test; this must be considered during installation.
3. Equipment evaluated for atmospheric pressure range between 80 kPa (0.8 bar) to 110 kPa (1.1 bar).

### IF Canada FISCO


<b>Certificate</b>	2041384
<b>Standards</b>	C22.2 No. 61010-1-12, C22.2 No. 25-17, C22.2 No. 94.2-20 Third Edition, CSA Std C22.2 No. 213-17 + UPD 1 (2018) + UPD 2 (2019) + UPD 3 (2021), CAN/CSA-60079-0:19, CAN/CSA-60079-11:14, ANSI/UL 12.27.01:2022 (Fourth Edition), ANSI/UL 50E (First Edition)
<b>Markings:</b>	IS: CL I GP ABCD T4; Ex ia IIC T4 Ga -50 °C ≤ Ta ≤ +60 °C FISCO Install per 02051-1008 Single seal - temp limits per 03031-1053 Type 4X, IP 68

### Specific Conditions of Use:

1. The 2051 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).

# 12 Europe

## E1 ATEX Flameproof

- Certificate** KEMA 08ATEX0090X
- Standards** EN IEC 60079-0: 2018, EN 60079-1: 2014, EN 60079-26: 2015
- Markings:**  II 1/2 G Ex db IIC T6...T4 Ga/Gb, T6 (-60 °C ≤ Ta ≤ +70 °C), T4/T5 (-60 °C ≤ Ta ≤ +80 °C)

**Table 12-1: Process Connection Temperature**

Temperature class	Process connection temperature	Ambient temperature
T6	-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):

1. This device contains a thin wall diaphragm less than 1 mm thick that forms a boundary between Category 1G (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.

### 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. 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.

## I1 ATEX Intrinsic Safety

<b>Certificate</b>	Baseefa08ATEX0129X
<b>Standards</b>	EN IEC 60079-0: 2018, EN60079-11: 2012
<b>Markings</b>	⊕ II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +70 °C)

**Table 12-2: Input Parameters**

	<b>HART®</b>	<b>Fieldbus/PROFIBUS®</b>
Voltage $U_i$	30 V	30 V
Current $I_i$	200 mA	300 mA
Power $P_i$	1 W	1.3 W
Capacitance $C_i$	0.012 $\mu$ F	0 $\mu$ F
Inductance $L_i$	0 mH	0 mH

## Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test, and this must be taken into account during installation.
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.

## IA ATEX FISCO

<b>Certificate</b>	Baseefa08ATEX0129X
<b>Standards</b>	EN IEC 60079-0: 2018, EN60079-11: 2012
<b>Markings</b>	⊕ II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +60 °C)

**Table 12-3: Input Parameters**

	<b>FISCO</b>
Voltage $U_i$	17.5 V
Current $I_i$	380 mA
Power $P_i$	5.32 W
Capacitance $C_i$	0 $\mu$ F
Inductance $L_i$	0 mH

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test, and this must be taken into account during installation.
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.

**N1 ATEX Type n**

<b>Certificate</b>	Baseefa08ATEX0130X
<b>Standards</b>	EN IEC 60079-0: 2018, EN60079-15: 2010
<b>Markings</b>	⊕ II 3 G Ex nA IIC T4 Gc (-40 °C ≤ Ta ≤ +70 °C)

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V electrical strength test as defined in clause 6.5.1 of by EN 60079-15: 2010. This must be taken into account during installation.

**ND ATEX Dust**

<b>Certificate</b>	Baseefa08ATEX0182X
<b>Standards</b>	EN IEC 60079-0: 2018, EN60079-31: 2014
<b>Markings</b>	⊕ II 1 D Ex ta IIIC T <sub>500</sub> 105 °C Da (-20 °C ≤ Ta ≤ +85 °C)

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test, and this must be taken into account during installation.
2. Variants with a paint finish must not be installed in a dust-laden airflow.
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.

## 13 International

### E7 IECEx Flameproof

<b>Certificate</b>	IECEXKEM08.0024X
<b>Standards</b>	IEC 60079-0: 2017, IEC 60079-1: 2014, IEC 60079-26: 2014
<b>Markings</b>	Ex db IIC T6...T4 Ga/Gb T6 ( $-60\text{ °C} \leq T_a \leq +70\text{ °C}$ ), T4/T5 ( $-60\text{ °C} \leq T_a \leq +80\text{ °C}$ )

**Table 13-1: Process Connection Temperature**

Temperature class	Process connection temperature	Ambient temperature
T6	$-60\text{ °C}$ to $+70\text{ °C}$	$-60\text{ °C}$ to $+70\text{ °C}$
T5	$-60\text{ °C}$ to $+80\text{ °C}$	$-60\text{ °C}$ to $+80\text{ °C}$
T4	$-60\text{ °C}$ to $+120\text{ °C}$	$-60\text{ °C}$ to $+80\text{ °C}$

### Special Conditions for Safe Use (X):

1. 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.

### 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. 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.

**I7 IECEx Intrinsic Safety**

- Certificate**            IECEx BAS 08.0045X
- Standards**            IEC 60079-0: 2017, IEC 60079-11: 2011
- Marking:**              Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +70 °C)

**Table 13-2: Input Parameters**

	<b>HART®</b>	<b>Fieldbus/PROFIBUS®</b>
Voltage U <sub>i</sub>	30 V	30 V
Current I <sub>i</sub>	200 mA	300 mA
Power P <sub>i</sub>	1 W	1.3 W
Capacitance C <sub>i</sub>	12 nF	0 μF
Inductance L <sub>i</sub>	0 mH	0 mH

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test, and this must be taken into account during installation.
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. The equipment contains thin wall diaphragms. The installation, maintenance, and use shall take into account the environmental conditions to which the diaphragms will be subjected. The manufacturer’s instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

**IG IECEx FISCO**

- Certificate**            IECEx BAS 08.0045X
- Standards**            IEC 60079-0: 2017, IEC60079-11: 2011
- Markings**             Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +60 °C)



**Table 13-3: Input Parameters**

	<b>FISCO</b>
Voltage $U_i$	17.5 V
Current $I_i$	380 mA
Power $P_i$	5.32 W
Capacitance $C_i$	0 nF
Inductance $L_i$	0 $\mu$ H

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V isolation from earth test, and this must be taken into account during installation.
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. The equipment contains thin wall diaphragms. The installation, maintenance, and use shall take into account the environmental conditions to which the diaphragms will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

**N7 IECEx Type n**

<b>Certificate</b>	IECEx BAS 08.0046X
<b>Standards</b>	IEC 60079-0: 2017, IEC60079-15: 2010
<b>Markings</b>	Ex nA IIC T4 Gc (-40 °C ≤ Ta ≤ +70 °C)

**Special Conditions for Safe Use (X):**

1. If fitted with a 90 V transient suppressor, the equipment is not capable of withstanding the 500 V electrical strength test as defined in clause 6.5.1 of IEC60079-15: 2010. This must be taken into account during installation.

## 14 Brazil

### E2 Brazil Flameproof

<b>Certificate</b>	UL-BR 14.0375X (Sorocaba, Sao Pao Paulo, Brazil), UL-BR22.3806X (Shakopee, MN, USA) UL-BR22.3807X (Singapore)
<b>Standards</b>	ABNT NBR IEC 60079-0, ABNT NBR IEC 60079-1, ABNT NBR IEC 60079-26
<b>Markings:</b>	Ex db IIC T6...T4 Ga/Gb IP66, T6 (-60 °C ≤ Ta ≤ +70 °C), T4/T5 (-60 °C ≤ Ta ≤ +80 °C)

### Special Conditions for Safe Use (X):

1. 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.

### I2 Brazil Intrinsic Safety

<b>Certificate</b>	UL-BR 14.0759X
<b>Standards</b>	ABNT NBR IEC 60079-0: 2013; ABNT NBR IEC 60079-11: 2013
<b>Markings</b>	Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +70 °C)

**Table 14-1: Input Parameters**

	HART®	Fieldbus/PROFIBUS®
Voltage $U_i$	30 V	30 V
Current $I_i$	200 mA	300 mA
Power $P_i$	1 W	1.3 W
Capacitance $C_i$	12 nF	0
Inductance $L_i$	0	0

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V insulation from earth test, and this must be taken into account during installation.
2. The enclosure may be made of aluminum alloy and given a protective polyurethane finish; however, care should be taken to protect it from impact and abrasion when located in atmospheres that require EPL Ga.

**IB Brazil FISCO**

<b>Certificate</b>	UL-BR 14.0759X
<b>Standards</b>	ABNT NBR IEC 60079-0: 2008 + Errata 1: 2011; ABNT NBR IEC 60079-11: 2009
<b>Markings</b>	Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +60 °C)

**Table 14-2: Input Parameters**

	FISCO
Voltage $U_i$	17.5 V
Current $I_i$	380 mA
Power $P_i$	5.32 W
Capacitance $C_i$	0 nF
Inductance $L_i$	0 μH

**Special Conditions for Safe Use (X):**

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding the 500 V insulation from earth test, and this must be taken into account during installation.

- 
2. The enclosure may be made of aluminum alloy and given a protective polyurethane finish; however, care should be taken to protect it from impact and abrasion when located in atmospheres that require EPL Ga.

## 15 China

### China Flameproof

**Certificate** GYJ23.1236X; GYJ20.1485X [Flow meters]

**Standards** GB/T 3836.1-2021, GB/T 3836.2-2021, GB 3836.20-2010

**Markings** Pressure transmitter: Ex db IIC T6~T4 Ga/Gb  
Flow meter: Ex d II C T6~T4 Ga/Gb

### I3 China Intrinsic Safety

**Certificate** GYJ22.1834X; GYJ20.1487X [Flow meters]

**Standards** GB3/T 3836.1-2021, GB/T 3836.4-2021, GB3836.20-2010

**Markings** Ex ia IIC T4 Ga, FISCO: Ex iaIICT4 Ga, Ex db+ib/ibIICT4 Ga/Gb

## 16 Korea

### EP Korea Flameproof

**Certificate** 12-KB4BO-0342X, 19-KB4BO-0978X

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

### Special Conditions for Safe Use (X):

See certificate for special conditions.

### IP Korea Intrinsic Safety

**Certificate** 12-KB4BO-0343X, 13-KB4BO-0207X, 18-KA4BO-0309X

**Markings** Ex ia IIC T4 (-60 °C ≤ Ta ≤ +70 °C)

### Special Conditions for Safe Use (X):

See certificate for special conditions.

# 17 Japan

## E4 Japan Flameproof

<b>Certificate</b>	CML20JPN112X
<b>Markings</b>	Ex db IIC T6...T4 Ga/Gb, T6 (-60 °C ≤ Ta ≤ +70 °C), T5/T4 (-60 °C ≤ Ta ≤ +80 °C )

### Special Conditions for Safe Use (X):

1. 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.

## 18 EAC

### EM EAC Flameproof

**Certificate** EAЭEC KZ 7500525.01.01.00647

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

### Special Conditions for Safe Use (X):

See certificate for special conditions.

### IM EAC Intrinsically Safe

**Certificate** EAЭEC KZ 7500525.01.01.00647

**Markings** 0Ex ia IIC T4 Ga X (-60 °C ≤ Ta ≤ +70 °C)

### Special Conditions for Safe Use (X):

See certificate for special conditions.



## 19 Combinations

<b>K1</b>	Combination of E1, I1, N1, and ND
<b>K2</b>	Combination of E2 and I2
<b>K5</b>	Combination of E5 and I5
<b>K6</b>	Combination of E6 and I6
<b>K7</b>	Combination of E7, I7, N7, and IECEx Dust

### IECEX Dust

<b>Certificate</b>	IECEX BAS 08.0058X
<b>Standards</b>	IEC 60079-0:2017, IEC 60079-31:2013
<b>Markings</b>	Ex ta IIIC T <sub>500</sub> 105 °C Da (-20 °C ≤ Ta ≤ +85 °C)

### Special Conditions for Safe Use (X):

1. If the equipment is fitted with an optional 90 V transient suppressor, it is incapable of withstanding a 500 V isolation from earth test, and this must be taken into account during installation.

<b>KA</b>	Combination of E1, I1, and K6
<b>KB</b>	Combination of K5 and K6
<b>KC</b>	Combination of E1, I1, and K5
<b>KD</b>	Combination of K1, K5, and K6
<b>KP</b>	Combination of EP and IP
<b>KM</b>	Combination of EM and IM

## 20 Y3 ATEX/IECEx RFID tag approvals

<b>Certificate</b>	IECEx EPS 15.0042X, EPS 15 ATEX 1 1011 X
<b>Markings</b>	II 2G Ex ia IIC T6/T4 Gb, II 2D Ex ia IIC T80/T130C Db

### Conditions of certification

Maximum operating temperature: -58 °F (-50 °C) to +158 °F (+70 °C)

The RFID tags shall never be exposed to high electromagnetic field strengths according to IEC 60079-14.

Electrostatic charges shall be avoided. The tags shall never be used next to strong charge generating processes.

### **▲ WARNING**

#### Additional warnings

The plastic enclosure may present a potential electrostatic ignition hazard.

RFID tag has limitations in ambient temperature and zone installation areas (Zones 1 & 21) as compared to the gauge.

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# 21 Declaration of Conformity



## EU DECLARATION OF CONFORMITY



This declaration of conformity is issued under the sole responsibility of

**Rosemount Inc.**  
6021 Innovation Blvd  
Shakopee, MN 55379  
USA

that the following products,

**Rosemount™ 2051 Series Pressure Transmitters**

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


JUNE 27, 2024

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

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

Regulatory Compliance Shared Services Department  
Email: [europesproductcompliance@emerson.com](mailto:europesproductcompliance@emerson.com) Phone: +40 374 132 035

**PED Notified Body:**  
**DNV GL Business Assurance Italia S.r.l** [Notified Body Number: 0496]  
Via Energy Park  
14, N-20871, Bimercate (MB)  
Italy

*Note – equipment manufactured prior to 20 October 2018 may be marked with the previous PED Notified Body number; previous PED Notified Body information was as follows: Det Norske Veritas (DNV) [Notified Body Number: 0373] Veritasveien 1, N-1322, Hovik, Norway*

**ATEX Notified Bodies for EU Type Examination Certificates:**

**DEKRA Certification B.V.** [Notified Body Number: 0344]  
Meander 1051, P.O. Box 5185,  
6825 MJ ARNHEM 6802 ED ARNHEM  
Netherlands Netherlands

**SGS Fimko Oy** [Notified Body Number: 0598]  
Takomotie 8  
FI-00380 Helsinki  
Finland

**ATEX Notified Body for Quality Assurance:**

**SGS Fimko Oy** [Notified Body Number: 0598]  
Takomotie 8  
FI-00380 Helsinki  
Finland



**EU DECLARATION OF CONFORMITY**



**EMC Directive (2014/30/EU)**

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

**PED Directive (2014/68/EU)**

**Rosemount 2051CD2, 3, 4, 5 (also with P9 option)**  
QS Certificate of Assessment - Certificate No. 12698-2018-CE-ACCREDIA  
Module H Conformity Assessment

**All other Rosemount 2051 Pressure Transmitters**  
Sound Engineering Practice

**Transmitter Attachments: Diaphragm Seal, Process Flange, or Manifold**  
Sound Engineering Practice

**Rosemount 2051CFx DP Flowmeter**  
See DSI 1000 Declaration of Conformity

**RoHS Directive (2011/65/EU)**

Harmonized Standards:  
EN IEC 63000:2018  
Does not apply to the following options:  
- Wireless output code X  
- Low power output option code M

**ATEX Directive (2014/34/EU)**

**EU-Type Examination Certificate: Baseefa08ATEX0129X**  
Equipment protection by intrinsic safety "i"  
Equipment Group II, Category 1 G  
Ex ia IIC T4 Ga  
Equipment Group II, Category 1/2 G  
Ex db+ib/ib IIC T4 Ga/Gb

Harmonized Standards:  
EN IEC 60079-0:2018  
EN 60079-1:2014  
EN 60079-11:2012  
EN 60079-26:2015

**EU-Type Examination Certificate: Baseefa08ATEX0130X**  
Equipment protection by type of protection "n"  
Equipment Group II, Category 3 G  
Ex nA IIC T4 Gc

Equipment protection by increased safety "e"  
Equipment Group II, Category 3 G  
Ex ec IIC T4 Gc

Harmonized Standards:  
EN IEC 60079-0:2018  
EN IEC 60079-7:2015+A1:2018  
EN 60079-15:2010

**EU-Type Examination Certificate: KEMA08ATEX0090X**  
Equipment protection by flameproof enclosure "d"  
Equipment Group II, Category 1/2 G  
Ex db IIC T6...T4 Ga/Gb

Harmonized Standards:  
EN IEC 60079-0:2018  
EN 60079-1:2014  
EN 60079-26:2015

**EU-Type Examination Certificate: Baseefa08ATEX0182X**  
Equipment dust ignition protection by enclosure "t"  
Equipment Group II, Category 1 D  
Ex ta IIIC T<sub>500</sub>105°C Da

Harmonized Standards:  
EN IEC 60079-0:2018  
EN 60079-31:2014

## 22 China RoHS

有害物质成分表  
03031-9021, Rev AB

罗斯蒙特产品型号 2051  
3/29/2021

含有China RoHS管控物质超过最大浓度限值的部件型号列表 2051  
List of 2051 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	○	○	○	○	○
壳体组件 Housing Assembly	○	○	○	○	○	○
传感器组件 Sensor Assembly	X	○	○	○	○	○

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.

部件名称 Part Name	组装备件说明 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 LOI Display
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**  
**00825-0100-4102, Rev. EE**  
**January 2025**

For more information: [Emerson.com/global](https://www.emerson.com/global)

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