

Rosemount™ 3051 Pressure Transmitter and Rosemount 3051CF Series Flow Meters

with FOUNDATION™ Fieldbus Protocol



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1 About this guide

This guide provides basic guidelines for Rosemount 3051 Pressure Transmitters. It does not provide instructions for configuration, diagnostics, maintenance, service, troubleshooting, Explosion-proof, Flameproof, or intrinsically safe (I.S.) installations. Refer to Rosemount 3051 [Reference Manual](#) for more instructions. This guide is also available electronically at Emerson.com/Rosemount.

1.1 Safety messages

▲ 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 the approvals section of the Rosemount 3051 Reference Manual for any restrictions associated with a safe installation.

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

Process leaks

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.

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.

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.

⚠ 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 to protecting your system. Restrict physical access by unauthorized personnel to protect end users' assets. This is true for all systems used within the facility.

2 System readiness

2.1 Confirm correct device driver

- Verify the correct device driver (DD/DTM™) is loaded on your systems to ensure proper communications.
- Download the correct device driver at your host vendor download site, Emerson.com/Rosemount or Fieldbus.org.

2.1.1 Rosemount 3051 device revisions and drivers

Table 2-1 provides the information necessary to ensure you have the correct device driver and documentation for your device.

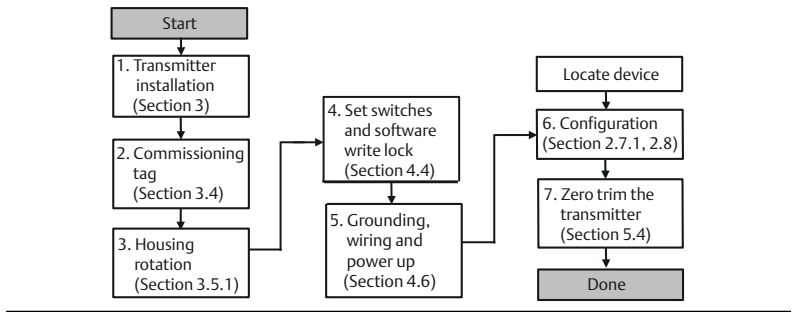
Table 2-1: Rosemount 3051 FOUNDATION Fieldbus Device Revisions and Files

Device Revision ⁽¹⁾	Host	Device driver (DD) ⁽²⁾	Device driver (DTM)	Document
8	All	DD4: DD Rev 1	Emerson.com	Rosemount 3051 Pressure Transmitter with FOUNDATION Fieldbus Reference Manual
	All	DD5: DD Rev 1		
	Emerson	AMS Device Manager V 10.5 or higher: DD Rev 2		
	Emerson	AMS Device Manager V 8 to 10.5: DD Rev 1		
	Emerson	Field Communicator: DD Rev 2		
7	All	DD4: DD Rev 3		
	All	DD5: NA		
	Emerson	AMS Device Manager V 10.5 or higher: DD Rev 6		
	Emerson	AMS Device Manager V 8 to 10.5: DD Rev 4		
	Emerson	Field Communicator: DD Rev 6		

(1) FOUNDATION Fieldbus device revision can be read using a FOUNDATION Fieldbus capable configuration tool.

(2) Device driver file names use device and DD revision. To access functionality, the correct device driver must be installed on your control and asset management hosts, and on your configuration tools.

Figure 2-1: Installation Flowchart



3 Transmitter installation

3.1 Mount the transmitter

Figure 3-1: Panel Mount Coplanar Flange

5/16 x 1½ panel bolts are customer supplied.

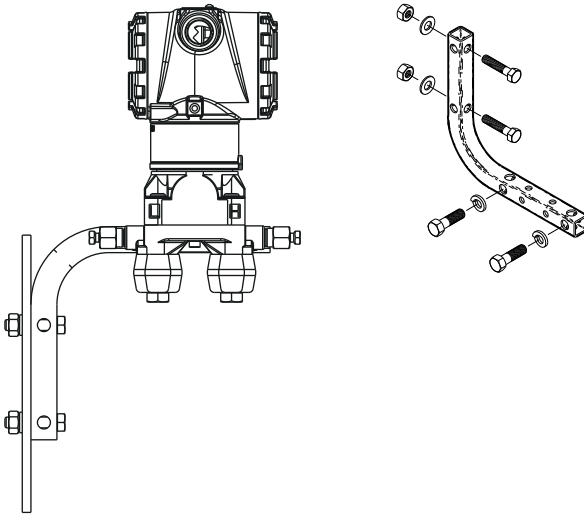


Figure 3-2: Pipe Mount Coplanar Flange

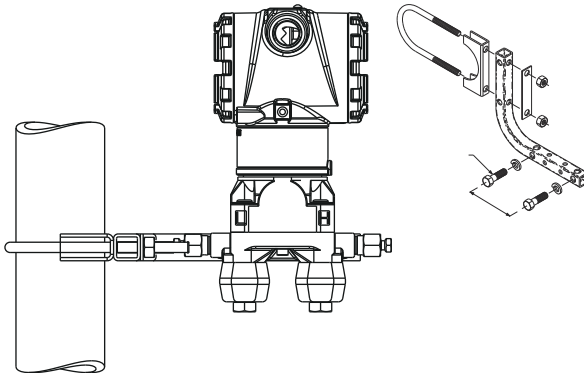


Figure 3-3: Panel Mount Traditional Flange

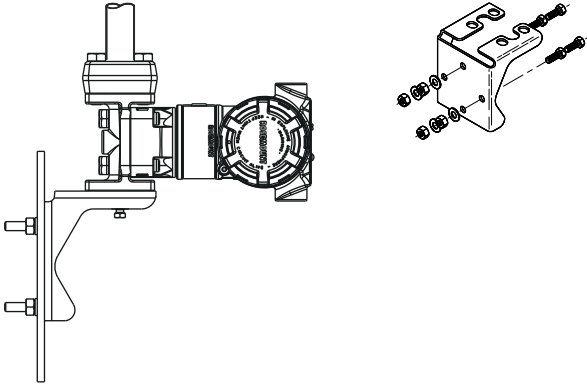


Figure 3-4: Pipe Mount Traditional Flange

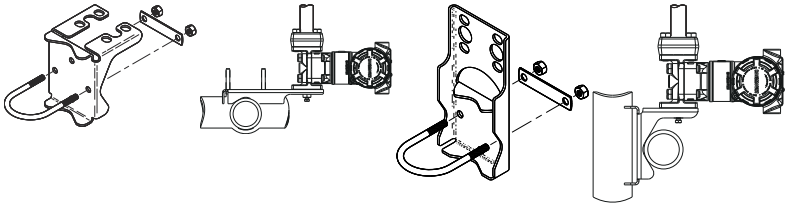


Figure 3-5: Panel Mount Rosemount 3051T

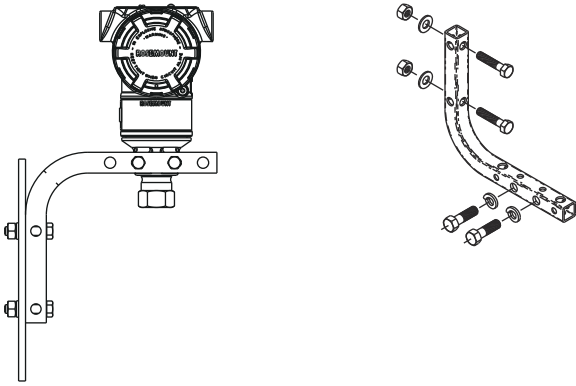


Figure 3-6: Pipe Mount Rosemount 3051T



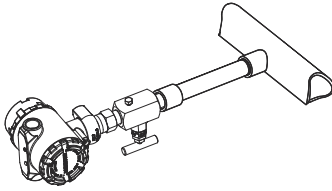
3.1.1 Mount the transmitter in liquid applications

Procedure

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

Figure 3-7: Mounting the Transmitter in Liquid Applications

In-line



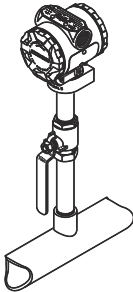
3.1.2 Mount the transmitter in gas applications

Procedure

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

Figure 3-8: Mounting the Transmitter in Gas Applications

In-line



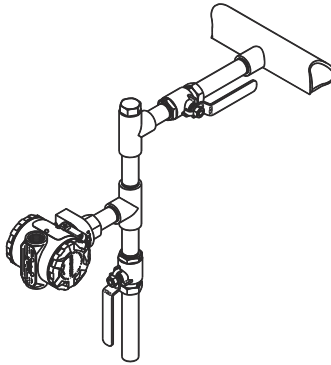
3.1.3 Mount the transmitter in steam applications

Procedure

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

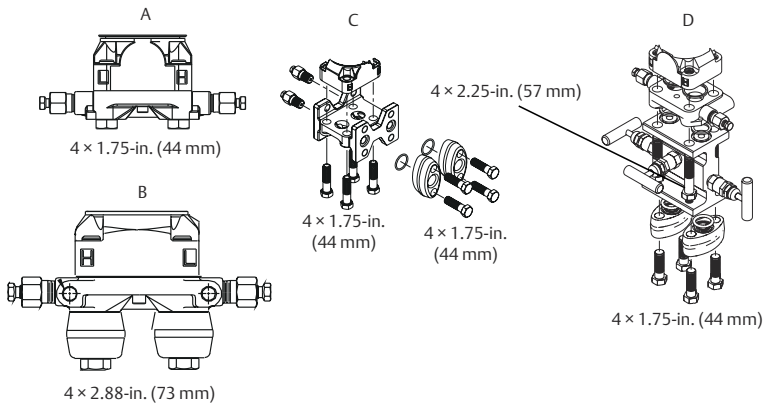
Figure 3-9: Mounting the Transmitter in Steam Applications

In-line



3.1.4 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 3-10](#) illustrates common transmitter assemblies with the bolt length required for proper transmitter assembly.

Figure 3-10: Common Transmitter Assemblies


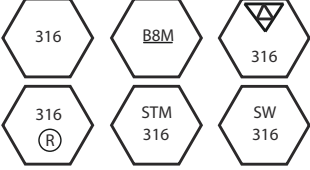
- A. Transmitter with coplanar flange
- B. Transmitter with coplanar flange and optional flange adapters
- C. Transmitter with traditional flange and optional flange adapters
- D. Transmitter with coplanar flange and optional manifold and flange adapters

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 . If bolt material is not shown in [Table 3-1](#), contact a local Emerson representative for more information.

Procedure

1. Carbon steel bolts do not require lubrication and the stainless steel bolts are coated with a lubricant to ease installation. However, no additional lubricant should be applied when installing either type of bolt.
2. Finger-tighten the bolts.
3. Torque the bolts to the initial torque value using a crossing pattern. See [Table 3-1](#) for initial torque value.
4. Torque the bolts to the final torque value using the same crossing pattern. See [Table 3-1](#) for final torque value.
5. Verify the flange bolts are protruding through the isolator plate before applying pressure.

Table 3-1: Torque Values for the Coplanar 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

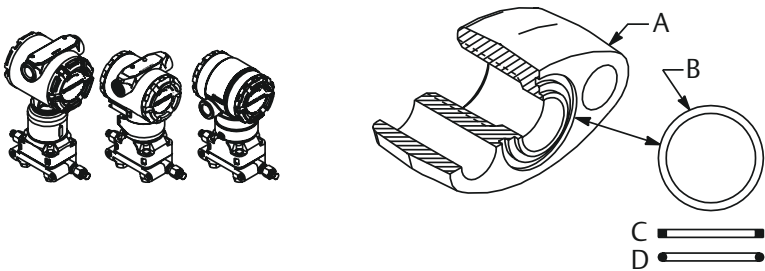
3.1.5 O-rings with flange adapters

▲ 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 below.

Figure 3-11: O-ring Location

Rosemount 3051S/3051/2051



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

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.

3.1.6 Environmental seal for housing

Thread sealing (PTFE) tape or paste on male threads of conduit is required to provide a water/dust tight conduit seals and meets requirements of NEMA[®] Type 4X, IP66, and IP68. Consult factory if other Ingress Protection ratings are required.

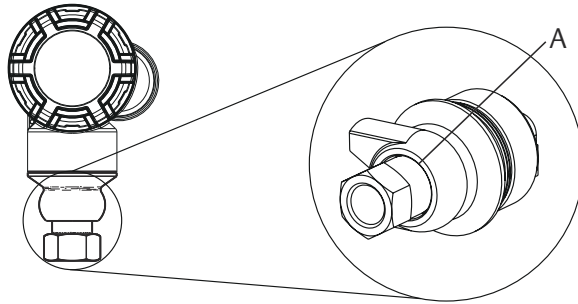
For M20 threads, install conduit plugs to full thread engagement or until mechanical resistance is met.

3.1.7 In-line gage transmitter orientation

The low side pressure port (atmospheric reference) on the in-line gage transmitter is located in the neck of the transmitter, behind the housing. The vent path is between the housing and sensor of the transmitter (see [Figure 3-12](#)).

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

Figure 3-12: In-line Gage Low Side Pressure Port



A. Low side pressure port (atmospheric reference)

3.1.8 Installing high pressure coned and threaded connection

The transmitter comes with an autoclave connection designed for high pressure applications. Follow the steps below to properly connect the transmitter to your process:

Procedure

1. Apply a process-compatible lubricant to the gland nut threads.
2. Slip the gland nut onto the tube, then thread the collar onto the tube end (the collar is reverse threaded).
3. Apply a small amount of process-compatible lubricant applied to the tube cone to help prevent galling and facilitate sealing. Insert the tubing into the connection and tighten finger tight.
4. Tighten the gland nut to a torque of 25 ft-lb.

Note

A weep hole has been designed into the transmitter for safety and leak detection. If fluid begins to leak from the weep hole, isolate the process pressure, disconnect the transmitter, and reseal until the leak is resolved.

3.2 Tagging

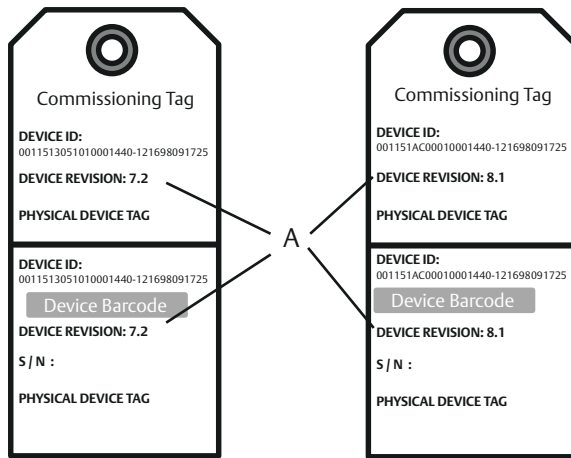
3.2.1 Commissioning (paper) tag

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

Note

The device description loaded in the host system must be at the same revision as this device.

Figure 3-13: Commissioning Tag



A. Device revision

Note

The device description loaded in the host system must be at the same revision as this device. You can download the device description from the host system website or Emerson.com/Rosemount by selecting **Device Drivers** under *Resources*. You can also visit Fieldbus.org and select **End User Resources**.

3.3 Consider housing rotation

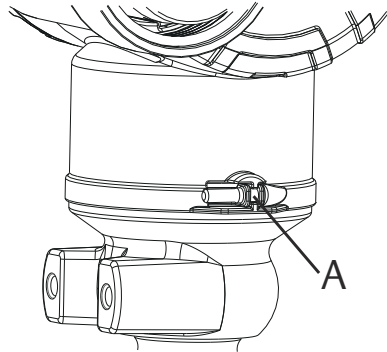
To improve visibility of optional LCD display:

Procedure

1. Loosen the housing rotation screw.

2. First rotate the housing clockwise to the desired location. If the desired location cannot be achieved due to thread limit, rotate the housing counter clockwise to the desired location (up to 360° from thread limit).
3. Re-tighten the housing rotation screw (see [Figure 3-14](#)).

Figure 3-14: Housing Rotation



A. Housing rotation screw (5/64-in. hex wrench required)

3.4 Set the switches

Set simulate and security switch configuration before installation as shown in [Figure 3-15](#).

- The simulate switch enables or disables simulated alerts and simulated AI Block status and values. The default simulate switch position is enabled.
- The security switch allows (unlocked symbol) or prevents (locked symbol) any configuration of the transmitter.
- Default security is off (unlocked symbol).
- The security switch can be enabled or disabled in software.

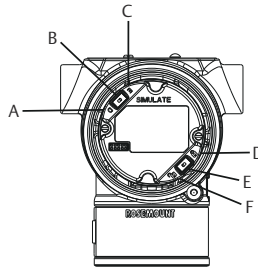
Use the following procedure to change the switch configuration:

Procedure

1. If the transmitter is installed, secure the loop, and remove power.
2. Remove the housing cover opposite the field terminal side. Do not remove the instrument cover in explosive atmospheres when the circuit is live.
3. Slide the security and simulate switches into the preferred position.
4. Replace the housing cover.

Note

It is recommended the cover be tightened until there is no gap between the cover and the housing.

Figure 3-15: Simulate and Security Switches

- A. *Simulate disabled position*
 - B. *Simulate switch*
 - C. *Simulate enabled position*
 - D. *Security locked position*
 - E. *Security switch*
 - F. *Security unlocked position*
-

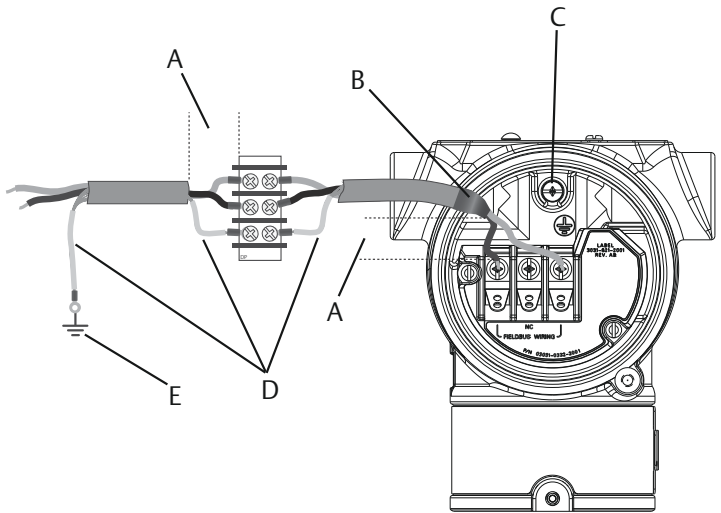
3.5 Connect wiring and power up

Use copper wire of sufficient size to ensure that the voltage across the transmitter power terminals does not drop below 9 Vdc. Power supply voltage can be variable, especially under abnormal conditions, such as when operating on battery backup. Emerson recommends a minimum of 12 Vdc under normal operating conditions and shielded twisted pair Type A cable.

Procedure

1. To power the transmitter, connect the power leads to the terminals indicated on the terminal block label.

Figure 3-16: Wiring Terminals



- A. Minimize distance
- B. Trim shield and insulate
- C. Protective grounding terminal (do not ground cable shield at the transmitter)
- D. Insulate shield
- E. Connect shield back to the power supply ground

Note

The Rosemount 3051 power terminals are polarity insensitive, which means the electrical polarity of the power leads does not matter when connecting to the power terminals. If polarity sensitive devices are connected to the segment, follow terminal polarity. When wiring to the screw terminals, Emerson recommends using crimped legs.

2. 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.

Note

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

3.5.1 Signal wiring grounding

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. These grounds are used when transient protect terminal blocks are installed or to fulfill local regulations.

Procedure

1. Remove the field terminals housing cover.
 - a) Trim the cable shield as short as practical and insulate from touching the transmitter housing.

Note

Do NOT ground the cable shield at the transmitter; if the cable shield touches the transmitter housing, it can create ground loops and interfere with communications.

- b) Continuously connect the cable shields to the power supply ground.
- c) Connect the cable shields for the entire segment to a single good earth ground at the power supply.

Note

Improper grounding is the most frequent cause of poor segment communications.

2. Connect the wiring pair and ground as indicated in [Figure 3-16](#).
3. Replace the housing cover. It is recommended that the cover be tightened until there is no gap between the cover and the housing.
4. Plug and seal unused conduit connections.

3.5.2 Power supply

The transmitter requires between 9 and 32 Vdc (9 and 30 Vdc for intrinsic safety and 9 and 17.5 Vdc for FISCO intrinsic safety) to operate and provide complete functionality.

3.5.3 Power conditioner

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

3.5.4 Grounding

Signal wiring of the Fieldbus segment cannot be grounded. Grounding out one of the signal wires will shut down the entire Fieldbus segment.

3.5.5 Shield wire ground

To protect the Fieldbus segment from noise, grounding techniques for shield wire require a single grounding point for shield wire to avoid creating a ground loop. Connect the cable shields for the entire segment to a single good earth ground at the power supply.

3.5.6 Signal termination

For every Fieldbus segment a terminator should be installed at the beginning and at the end of each segment.

3.5.7 Locating devices

Frequently, different personnel install, configure, and commission devices over time. A Locate Device capability uses the LCD display (when installed) to assist personnel in finding the desired device.

From the device Overview screen, select the Locate Device button. This launches a method allowing you to display a Find me message or enter a custom message to display on the device LCD display.

When you exit the Locate Device method, the device LCD display automatically returns to normal operation.

Note

Some hosts do not support Locate Device in the DD.

3.6 Configure

Each Foundation Fieldbus host or configuration tool has a different way of displaying and performing configurations. Some use device descriptions (DD) or DD methods for configuration and to display data consistently across platforms. There is no requirement that a host or configuration tool support these features. Use the following block examples to do basic configuration to the transmitter. For more advanced configurations, see the Rosemount 3051 Foundation Fieldbus [Reference Manual](#).

Note

DeltaV™ users should use DeltaV Explorer for the resource and transducer blocks and control studio for the function blocks.

3.6.1 Configure the AI block

Navigation instructions for each step are provided below. In addition, the screens used for each step are shown in [Figure 3-18](#).

Figure 3-17: Configuration Flowchart

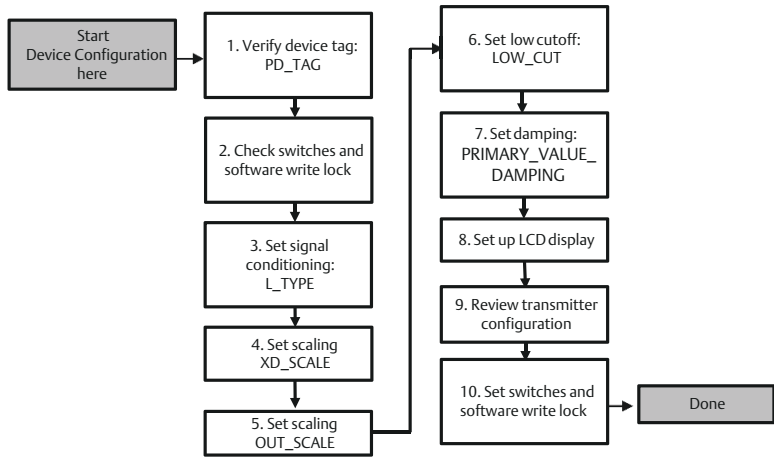
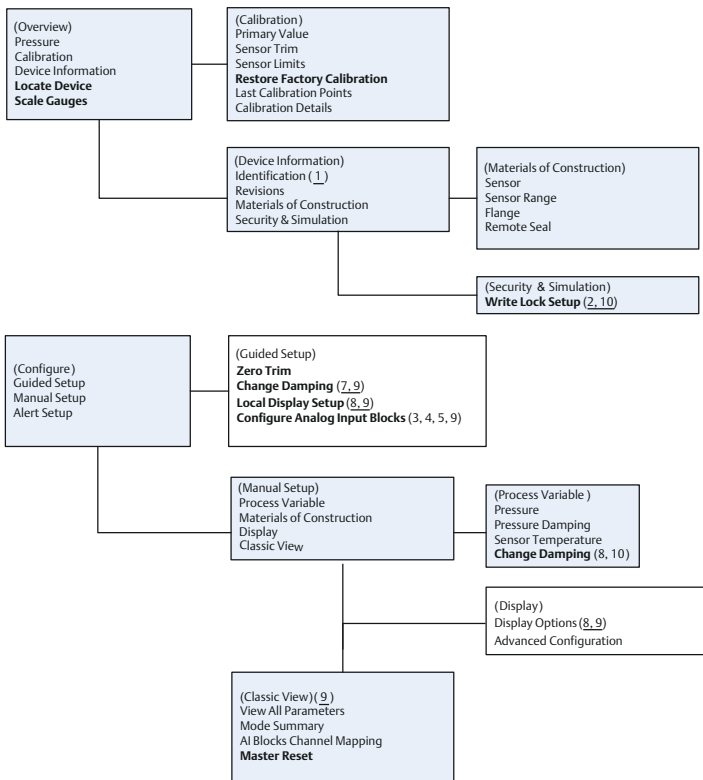


Figure 3-18: Basic Configuration Menu Tree



- Standard text – navigation selections available
- (Text) – name of selection used on parent menu screen to access this screen
- Bold text – automated methods
- Underlined text – configuration task numbers from configuration flow chart

3.6.2 Before you begin

See Figure 3-17 to graphically view the step by step process for basic device configuration. Before beginning configuration, you may need to verify the device tag or deactivate hardware and software write protection on the

transmitter. To do this follow [Step 1](#) and [Step 2](#) below. Otherwise continue at “[AI block configuration](#)”.

Procedure

1. To verify the device tag:
 - a) Navigation: from the Overview screen, select Device Information to verify the device tag.
2. To check the switches (see [Figure 3-15](#)):
 - a) The write lock switch must be in the unlocked position if the switch has been enabled in software.
 - b) To disable the software write lock (devices ship from the factory with the software write lock disabled):
 - Navigation: from the Overview screen, select Device Information and then select the Security and Simulation tab.
 - Perform Write Lock Setup to disable software write lock.

Example

Note

Place the control loop in “Manual” mode before beginning analog input block configuration.

3.6.3 AI block configuration

To use guided setup:

- Navigate to **Configure** → **Guided Setup**.
- Select **AI Block Unit Setup**.

Note

Guided setup will automatically go through each step in the proper order.

Note

For convenience, AI block 1 is pre-linked to the transmitter primary variable and should be used for this purpose. AI block 2 is pre-linked to the transmitter sensor temperature. The channel must be selected for AI blocks 3 and 4.

- Channel 1 is the primary variable.
- Channel 2 is the sensor temperature.

If the FOUNDATION Fieldbus Diagnostics Suite Option Code D01 is enabled, these additional channels are available.

- Channel 12 is the SPM mean.

- Channel 13 is the SPM standard deviation.

To configure SPM, refer to the Rosemount 3051 FOUNDATION Fieldbus [Reference Manual](#).

Note

Step 1 through step 4 are all performed in a single step by step method under guided setup, or on a single screen using manual setup.

Note

If the L_TYPE selected in Step 1 is "Direct", step 2, step 3, and step 4 are not needed. If the L_TYPE selected is "Indirect", step 4 is not needed. Any unneeded steps will automatically be skipped.

Procedure

1. To select the signal conditioning "L_TYPE" from the drop down menu:
 - a) Select L_TYPE: "**Direct**" for pressure measurements using the device default units.
 - b) Select L_TYPE: "**Indirect**" for other pressure or level units.
 - c) Select L_TYPE: "**Indirect Square Root**" for flow units.
2. To set XD_SCALE to the 0% and 100% scale points (the transmitter range):
 - a) Select the XD_SCALE_UNITS from the drop down menu.
 - b) Enter the XD_SCALE 0% point. This may be elevated or suppressed for level applications.
 - c) Enter the XD_SCALE 100% point. This may be elevated or suppressed for level applications.
 - d) If L_TYPE is "Direct", the AI block may be placed in AUTO mode to return the device to service. Guided setup does this automatically.
3. If L_TYPE is "Indirect" or "Indirect Square Root", set OUT_SCALE to change engineering units.
 - a) Select the OUT_SCALE UNITS from the drop down menu.
 - b) Set the OUT_SCALE low value. This may be elevated or suppressed for level applications.
 - c) Set the OUT_SCALE high value. This may be elevated or suppressed for level applications.

- d) If L_TYPE is “Indirect”, the AI Block may be placed in AUTO mode to return the device to service. Guided setup does this automatically.
4. If L_TYPE is “Indirect Square Root”, a LOW FLOW CUTOFF function is available.
- Enable LOW FLOW CUTOFF.
 - Set the LOW_CUT VALUE in XD_SCALE UNITS.
 - The AI block may be placed in AUTO mode to return the device to service. Guided setup does this automatically.
5. Change damping.
- To use guided setup:
 - Navigate to **Configure** → **Guided Setup**.
 - Select **Change Damping**.

Note
Guided setup will automatically go through each step in the proper order.

 - Enter the desired damping value in seconds. The permitted range of values is 0.4 to 60 seconds.
 - To use manual setup:
 - Navigate to **Configure** → **Manual Setup** → **Process Variable**.
 - Select **Change Damping**.
 - Enter the desired damping value in seconds. The permitted range of values is 0.4 to 60 seconds.
6. Configure optional LCD display (if installed).
- To use guided setup:
 - Navigate to **Configure** → **Guided Setup**.
 - Select **Local Display Setup**.

Note
Guided setup will automatically go through each step in the proper order.

- Check the box next to each parameter to be displayed to a maximum of four parameters. The LCD display will continuously scroll through the selected parameters.
- b) To use manual setup:
- Navigate to **Configure** → **Guided Setup**.
 - Select **Local Display Setup**.
 - Check each parameter to be displayed. The LCD display will continuously scroll through the selected parameters.
7. Review transmitter configuration and place in service.
- a) To review the transmitter configuration, navigate using the manual setup navigation sequences for “AI Block Unit Setup”, “Change Damping”, and “Set up LCD Display”.
 - b) Change any values as necessary.
 - c) Return to the Overview screen.
 - d) If mode is “Not in Service”, select the Change button, and then select Return All to Service.

Note

If hardware or software write protection is not needed, Step 10 can be skipped.

8. Set switches and software write lock.
- a) Check switches (see [Figure 3-17](#)).

Note

The write lock switch can be left in the locked or unlocked position. The simulate enable/disable switch may be in either position for normal device operation.

3.6.4 Enable software write lock

Procedure

1. Navigate from the **Overview** screen.
 - a) Select **Device Information**.
 - b) Select the **Security and Simulation** tab.
2. Perform Write Lock Setup to enable software write lock.

3.6.5 AI block configuration parameters

Use the pressure, DP flow, and DP level examples for guides.

Parameters	Enter data				
Channel	1 = Pressure, 2 = Sensor temp, 12 = SPM mean, 13 = SPM standard deviation				
L-Type	Direct, indirect, or square root				
XD_Scale	Scale and engineering units				
Note Select only the units that are supported by the device.	Pa	bar	torr at 0 °C	ft H ₂ O at 4 °C	m H ₂ O at 4 °C
	kPa	mbar	kg/cm ²	ft H ₂ O at 60 °F	mm Hg at 0 °C
	mPa	psf	kg/m ²	ft H ₂ O at 68 °F	cm Hg at 0 °C
	hPa	Atm	in H ₂ O at 4 °C	mm H ₂ O at 4 °C	in Hg at 0 °C
	°C	psi	in H ₂ O at 60 °F	mm H ₂ O at 68 °C	m Hg at 0 °C
	°F	g/cm ²	in H ₂ O at 68 °F	cm H ₂ O at 4 °C	
Out_Scale	Scale and engineering units				

Pressure example

Parameters	Enter data
Channel	1
L_Type	Direct
XD_Scale	See list of supported engineering units.
Note Select only the units that are supported by the device.	
Out_Scale	Set values outside operating range.

DP Flow example

Parameters	Enter data
Channel	1
L_Type	Square root
XD_Scale	0–100 inH ₂ O at 68 °F

Parameters	Enter data
Note Select only the units that are supported by the device.	
Out_Scale	0–20 GPM
Low_Cut	inH ₂ O at 68 °F

DP Level example

Parameters	Enter data
Channel	1
L_Type	Indirect
XD_Scale	0–300 inH ₂ O at 68 °F
Note Select only the units that are supported by the device.	
Out_Scale	0–25 ft.

3.6.6 Display pressure on the LCD display

Procedure

Select the **Pressure** check box on the Display Configuration screen.

3.7 Zero trim the transmitter

Note

Transmitters are shipped fully calibrated per request or by the factory default of full scale (span = upper range limit).

A zero trim is a single-point adjustment used for compensating mounting position and line pressure effects. When performing a zero trim, ensure the equalizing valve is open and all wet legs are filled to the correct level.

The transmitter will only allow 3–5 percent URL zero error to be trimmed. For greater zero errors, compensate for the offset by using the XD_Scaling, Out_Scaling and Indirect L_Type which are part of the AI block.

Procedure

1. To use guided setup:
 - a) Navigate to **Configure** → **Guided Setup**.
 - b) Select **Zero Trim**.

- c) The method will execute the zero trim.
2. To use manual setup:
- a) Navigate to **Overview** → **Calibration** → **Sensor Trim**.
 - b) Select **Zero Trim**.
 - c) The method will execute the zero trim.

4 Product certifications

Rev 2.9

4.1 European Directive Information

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

4.2 Ordinary Location Certification

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

4.3 North America

E5 USA Explosionproof (XP) and Dust-Ignitionproof (DIP)

Range 1–5 (HART®)

Certificate: FM16US0121

Standards: FM Class 3600 – 2018, FM Class 3615 – 2018, FM Class 3616 – 2011, FM Class 3810 – 2005, ANSI/NEMA 250 – 2008

Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II, DIV 1, GP E, F, G; CL III; T5(–50 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X

Range 1–6 (HART/Fieldbus/PROFIBUS®)

Certificate: 1053834

Standards: ANSI/ISA 12.27.01–2003, CSA Std. C22.2 No. 30–M1986, CSA Std. C22.2 No.142–M1987, CSA Std. C22.2 No. 213–M1987

Markings: XP Class I, Division 1, Groups B, C and D, T5, (–50 °C ≤ T_a ≤ +85 °C) Suitable for Class I, Zone 1, Group IIB+H2, T5; DIP Class II and Class III, Division 1, Groups E, F and G, T5, (–50 °C ≤ T_a ≤ +85 °C); Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

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

Range 1–5 (HART)

Certificate: FM16US0120X

Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, ANSI/NEMA 250 – 2008

Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G; Class III; DIV 1 when connected per Rosemount drawing 03031-1019; NI CL 1, DIV 2, GP A, B, C, D; T4 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$) [HART], T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$) [Fieldbus/PROFIBUS]; 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.

Range 1-6 (HART/Fieldbus/PROFIBUS)

Certificate: 1053834

Standards: ANSI/ISA 12.27.01 – 2003, CSA Std. C22.2 No.142 – M1987, CSA Std. C22.2. No.157 – 92

Markings: IS Class I, II, III, Division 1 Groups A, B, C, D, E, F, and G when connected in accordance with Rosemount drawing 03031–1024, Suitable for Class I, Zone 0 Group IIC; Class I, Division 2, Groups A, B, C and D; NIFW; Suitable for Class I Zone 2, Group IIC; HART: T4 ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$); T5 ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +40\text{ }^{\circ}\text{C}$) Fieldbus/Profibus: T4 ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$) Type 4X

IE USA FISCO

Range 1–5 (HART)

Certificate: FM16US0120X

Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005

Markings: IS CL I, DIV 1, GP A, B, C, D when connected per Rosemount drawing 03031-1019 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$); 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.

Range 1-6 (HART/Fieldbus/PROFIBUS)

Certificate: 1053834

Standards: ANSI/ISA 12.27.01 – 2003, CSA Std. C22.2 No.142 – M1987, CSA Std. C22.2. No.157–92

Markings: IS Class I, Division 1 Groups A, B, C, D, T4 ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$) when connected in accordance with Rosemount drawing 03031-1024, Suitable for Class I, Zone 0 Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

C6 Canada Explosionproof, Dust-Ignitionproof, Intrinsic Safety and Nonincendive

Certificate: 1053834

Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2. No.157-92, CSA Std. C22.2 No. 213 - M1987

Markings: Explosionproof for Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H2, T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$); Dust-Ignitionproof Class II, III Division 1, Groups E, F, G; T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$); Intrinsically Safe Class I, Division 1 Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T4; Suitable for Class I, Zone 0; Class I Division 2 Groups A, B, C and D, T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$); Intrinsically Safe Class I, Division 1 Groups A, B, C, D when connected in accordance with Rosemount drawing 03031-1024, Temperature Code T4; Suitable for Class I, Zone 0; Class I Division 2 Groups A, B, C, and D, T5; Suitable for Class I Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See drawing 03031-1053)

E6 Canada Explosionproof, Dust-Ignitionproof and Division 2

Certificate: 1053834

Standards: ANSI/ISA 12.27.01-2003, CSA Std. C22.2 No. 30 -M1986, CSA Std. C22.2 No.142-M1987, CSA Std. C22.2 No. 213 - M1987

Markings: Explosionproof Class I, Division 1, Groups B, C and D; Suitable for Class I, Zone 1, Group IIB+H2, T5; Dust-Ignitionproof for Class II and Class III, Division 1, Groups E, F and G; T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$); Dust-Ignitionproof for Class II and Class III, Division 1, Groups E, F and G; T5 ($-50\text{ }^{\circ}\text{C} \leq T_a \leq +85\text{ }^{\circ}\text{C}$); Class I,

Division 2, Groups A, B, C and D; T5 ($-50\text{ °C} \leq T_a \leq +85\text{ °C}$);
 Class I, Division 2, Groups A, B, C and D; T5; Suitable for Class I
 Zone 2, Group IIC; Type 4X; Factory Sealed; Single Seal (See
 drawing 03031-1053)

4.4 Europe

E8 ATEX Flameproof and Dust

Certificate: KEMA00ATEX2013X; Baseefa11ATEX0275X

Standards: EN60079-0:2012 + A11:2013, EN60079-1:2014,
 EN60079-26:2015, EN60079-31:2009

Markings: Ex II 1/2 G Ex db IIC T6...T4 Ga/Gb T6($-60\text{ °C} \leq T_a \leq +70\text{ °C}$),
 T4/T5($-60\text{ °C} \leq T_a \leq +80\text{ °C}$); Ex II 1 D Ex ta IIIC T95 °C T₅₀₀ 105
 °C Da ($-20\text{ °C} \leq T_a \leq +85\text{ °C}$)

Table 4-1: Process Temperature

Temperature class	Process temperature
T6	-60 to +70 °C
T5	-60 to +80 °C
T4	-60 to +120 °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 1 (process connection) and Category 2 (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 for repair.
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.

I1 ATEX Intrinsic Safety and Dust

Certificate: BAS97ATEX1089X; Baseefa11ATEX0275X

Standards: EN60079-0:2012 + A11:2013, EN60079-11:2012, EN60079-31:2014

Markings: HART: Ex II 1 G Ex ia IIC T5/T4 Ga, T5(−60 °C ≤ T_a ≤ +40 °C), T4(−60 °C ≤ T_a ≤ +70 °C)
 Fieldbus/PROFIBUS: Ex II 1 G Ex ia IIC Ga T4(−60 °C ≤ T_a ≤ +60 °C)
 DUST: Ex II 1 D Ex ta IIIC T95 °C T₅₀₀105 °C Da (−20 °C ≤ T_a ≤ +85 °C)

Table 4-2: Input Parameters

Parameter	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):

1. 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.

IA ATEX FISCO

Certificate: BAS97ATEX1089X

Standards: EN60079-0:2012 + A11:2013, EN60079-11:2012

Markings: Ex II 1 G Ex ia IIC T4 Ga (−60 °C ≤ T_a ≤ +60 °C)

Table 4-3: Input Parameters

Parameter	Fieldbus/PROFIBUS
Voltage U _i	17.5 V

Table 4-3: Input Parameters (continued)

Parameter	Fieldbus/PROFIBUS
Current I_i	380 mA
Power P_i	5.32 W
Capacitance C_i	≤ 5 nF
Inductance L_i	≤ 10 μ H

Special Conditions for Safe Use (X):

1. The apparatus is not capable of withstanding the 500 V insulation test required by EN60079-11. 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 should be taken to protect it from impact or abrasion if located in Zone 0.

N1 ATEX Type n and Dust

Certificate: BAS00ATEX3105X; Baseefa11ATEX0275X

Standards: EN60079-0:2012 + A11:2013, EN60079-15:2010, EN60079-31:2014

Markings: Ex II 3 G Ex nA IIC T5 Gc (-40 °C $\leq T_a \leq +70$ °C); Ex II 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C $\leq T_a \leq +85$ °C)

Special Conditions for Safe Use (X):

1. This apparatus is not capable of withstanding the 500 V insulation test that is required by clause 6.8.1 of EN60079-15. This must be taken into account when installing the apparatus.
2. Some variants of the equipment have reduced markings on the nameplate. Refer to the Certificate for full equipment marking.

4.5 International

E7 IECEx Flameproof and Dust

Certificate: IECEx KEM 09.0034X; IECEx BAS 10.0034X

Standards: IEC60079-0:2011, IEC60079-1:2014-06, IEC60079-26:2014-10, IEC60079-31:2013

Markings: Ex db IIC T6...T4 Ga/Gb T6(-60 °C $\leq T_a \leq +70$ °C), T4/T5(-60 °C $\leq T_a \leq +80$ °C); Ex ta IIIC T95 °C T₅₀₀ 105 °C Da (-20 °C $\leq T_a \leq +85$ °C)

Table 4-4: Process Temperature

Temperature class	Process temperature
T6	-60 to +70 °C
T5	-60 to +80 °C
T4	-60 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 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 for repair.
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.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 09.0076X

Standards: IEC60079-0:2011, IEC60079-11:2011

Markings: HART: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C) Fieldbus/PROFIBUS: Ex ia IIC T4(-60 °C ≤ T_a ≤ +60 °C)

Table 4-5: Input Parameter

Parameter	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

Table 4-5: Input Parameter (continued)

Parameter	HART	Fieldbus/PROFIBUS
Inductance L_i	0 mH	0 mH

Special Conditions for Safe Use (X):

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 clause 6.3.12 of IEC60079-11. 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 should be taken to protect it from impact or abrasion if located in Zone 0.

IECEx Mining (Special A0259)

Certificate: IECEx TSA 14.0001X

Standards: IEC60079-0:2011, IEC60079-11:2011

Markings: Ex ia I Ma ($-60\text{ }^{\circ}\text{C} \leq T_a \leq +70\text{ }^{\circ}\text{C}$)

Table 4-6: Input Parameter

Parameter	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

Special Conditions for Safe Use (X):

1. If the apparatus is fitted with 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 I applications.

IG IECEx FISCO

Certificate:	IECEx BAS 09.0076X
Standards:	IEC60079-0:2011, IEC60079-11:2011
Markings:	Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +60\text{ °C}$)

Special Conditions for Safe Use (X):

Table 4-7: Input Parameter

Parameter	Fieldbus/PROFIBUS
Voltage U_i	17.5 V
Current I_i	380 mA
Power P_i	5.32 W
Capacitance C_i	$\leq 5\text{ nF}$
Inductance L_i	$\leq 10\text{ }\mu\text{H}$

Special Conditions for Safe Use (X):

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 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 should be taken to protect it from impact or abrasion if located in Zone 0.

N7 IECEx Type n

Certificate:	IECEx BAS 09.0077X
Standards:	IEC60079-0:2011, IEC60079-15:2010
Markings:	Ex nA IIC T5 Gc ($-40\text{ °C} \leq T_a \leq +70\text{ °C}$)

Special 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.

4.6 Brazil

E2 INMETRO Flameproof

Certificate:	UL-BR 13.0643X
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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($-60\text{ °C} \leq T_a \leq +70\text{ °C}$), T4/T5($-60\text{ °C} \leq T_a \leq +80\text{ °C}$)

Special Conditions for Safe Use (X):

1. This device contains a thin wall diaphragm 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 for repair.
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.

12 INMETRO 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($-60\text{ °C} \leq T_a \leq +40\text{ °C}$), T4($-60\text{ °C} \leq T_a \leq +70\text{ °C}$) Fieldbus/PROFIBUS: Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +60\text{ °C}$)

Table 4-8: Input Parameter

Parameter	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):

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 should be taken to protect it from impact or abrasion if equipment requires EPL Ga.

IB INMETRO 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 ≤ T_a ≤ +60 °C)

Table 4-9: Input Parameter

Parameter	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 IEC 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 should be taken to protect it from impact or abrasion if equipment requires EPL Ga.

4.7 China

4.7.1 E3 China Flameproof

Certificate GYJ19.1056X [Transmitters]; GYJ15.1368X [Flow meters]

Standards GB3836.1-2010, GB3836.2-2010, GB3836.20-2010, GB12476.1-2013, GB12476.5-2013

Markings 3051 Series: Ex d IIC T6 ~ T4 Ga/Gb, Ex tD A20 IP66 T95 °C T₅₀₀ 105 °C (-20 °C ≤ T_a ≤ +85 °C)

3051CF Series: Ex d IIC T5/T6 Ga/Gb

一、产品安全使用特殊条件

证书编号后缀“X”表明产品具有安全使用特殊条件：涉及隔爆接合面的维修须联系产品制造商。

1. 涉及隔爆接合面的维修须联系产品制造商。
2. 产品使用厚度小于 1mm 的隔膜作为 0 区（过程连接）和 1 区（产品其他部分）的隔离，安装和维护时需严格遵守制造商提供的说明书，以确保安全性。
3. 产品外部涂层可能产生静电危险，使用时须防止产生静电火花，只能用湿布清理。

二、产品使用注意事项

1. 用于爆炸性气体环境中，产品温度组别和使用环境温度之间的关系为：（变送器）

温度组别	环境温度	过程温度
T6	-60°C ~ +70°C	-60°C ~ +70°C
T5	-60°C ~ +80°C	-60°C ~ +80°C
T4	-60°C ~ +80°C	-60°C ~ +120°C

用于爆炸性气体环境中，产品温度组别和使用环境温度之间的关系为：（流量计）

温度组别	使用环境温度
T6	-50°C ~ +65°C
T5	-50°C ~ +80°C

2. 产品外壳设有接地端子，用户在使用时应可靠接地； $-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$
3. 产品外壳设有接地端子，用户在使用时应可靠接地
4. 安装现场应不存在对产品外壳有腐蚀作用的有害气体。
5. 现场安装时，电缆引入口须选用国家指定的防爆检验机构按检验认可、具有 Ex dIIC，Ex tD A20 IP66 防爆等级的电缆引入装置或堵封件，冗余电缆引入口须用堵封件有效密封。
6. 用于爆炸性气体环境中，现场安装、使用和维护必须严格遵守“断电后开盖！”的警告语。用于爆炸性粉尘环境中，现场安装、使用和维护必须严格遵守“爆炸性粉尘场所严禁开盖！”的警告语。

7. 用于爆炸性粉尘环境中，产品外壳表面需保持清洁，以防粉尘堆积，但严禁用压缩空气吹扫。
8. 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。
9. 产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB/T3836.15-2017“爆炸性环境 第 15 部分：电气装置的设计、选型和安装”、GB/T3836.16-2017“爆炸性环境 第 16 部分：电气装置的检查与维护”、GB50257-2014“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”和 GB15577-2007“粉尘防爆安全规程” GB12476.2-2010“可燃性粉尘环境用电气设备 第 1 部分：用外壳和限制表面温度保护的电气设备 第 2 节 电气设备的选择、安装和维护”的有关规定。

4.7.2 I3 China Intrinsic Safety

Certificate GYJ13.1362X; GYJ15.1367X [Flow meters]

Standards GB3836.1-2010, GB3836.4-2010, GB3836.20-2010, GB12476.1-2000

Markings 3051 Series: Ex ia IIC T4/T5 Ga, DIP A20 T_A 80 °C IP66
3051 CF Series: Ex ia IIC T4/T5 Ga

- 产品安全使用特殊条件:
证书编号后缀“X”表明产品具有安全使用特殊条件：
 1. 产品（选用铝合金外壳）外壳含有轻金属，用于 0 区时需注意防止由于冲击或摩擦产生的点燃危险。
 2. 当选择 T1 瞬态抑制端子时,此设备不能承受 GB3836.4-2010 标准中第 6.3.12 条规定的 500V 交流有效值试验电压的介电强度试验。
 3. Transmitter output 为 X 时，需使用由厂家提供的型号为 701PG 的 Smart Power Green Power Module 电池。
 4. 产品外壳含有非金属部件，使用时须防止产生静电火花，只能用湿布清理。
- 产品使用注意事项:
 1. 产品使用环境温度范围：

气体/粉尘	Transmitter output	温度组别	环境温度范围
气体	A, M	T5	-60 °C ~ +40 °C
气体	A, M	T4	-60 °C ~ +70 °C
气体	F, W	T4	-60 °C ~ +60 °C

气体/粉尘	Transmitter output	温度组别	环境温度范围
气体	X	T4	-40 °C ~ +70 °C
粉尘	A, F, W	T80 °C	-20 °C ~ +40 °C

2. 本安电气参数：

Transmitter output	最高输入电压 U_i (V)	最大输入电流 I_i (mA)	最大输入功率 P_i (W)	最大内部等效参数	
				C_i (nF)	L_i (μ H)
A, M	30	200	0.9	12	0
F, W	30	300	1.3	0	0
F, W (FISCO)	17.5	380	5.32	5	10

注：Transmitter Output 为 F、W (FISCO) 时，本安电气参数符合 GB3836.19-2010 对 FISCO 现场仪表的参数要求。

- 该产品必须与已通过防爆认证的关联设备配套共同组成本安防爆系统方可使用于爆炸性气体环境。其系统接线必须同时遵守本产品和所配关联设备的使用说明书要求，接线端子不得接错。
- 该产品与关联设备的连接电缆应为带绝缘护套的屏蔽电缆，其屏蔽层应在安全场所接地。
- 对于爆炸性粉尘环境，最大输入电压为：

Transmitter output	最高输入电压
A	55 V
F, W	40 V

- 安装现场应不存在对产品外壳有腐蚀作用的有害气体。
- 现场安装时，电缆引入口须选用国家指定的防爆检验机构按检验认可、具有 DIP A20 IP66 防爆等级的电缆引入装置、转接头或堵封件，冗余电缆引入口须用堵封件有效密封。
- 对于爆炸性粉尘环境，现场安装、使用和维护必须严格遵守“爆炸性粉尘场所严禁开盖！”的警告语。
- 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。
- 安装现场确认无可燃性粉尘存在时方可维修。

11. 产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB3836.15-2000“爆炸性气体环境用电气设备 第 15 部分：危险场所电气安装（煤矿除外）”、GB3836.16-2006“爆炸性气体环境用电气设备 第 16 部分：电气装置的检查和维修（煤矿除外）”、GB3836.18-2010“爆炸性环境 第 18 部分：本质安全系统”和 GB50257-2014“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”，GB50527-1996“电气装置安装工程爆炸和火灾危险环境电气装置施工验收规范”以及 GB15577-2007“粉尘防爆安全规程”、GB12476.2-2006“可燃性粉尘环境用电气设备 第 1 部分：用外壳和限制表面温度保护的电气设备 第 2 节：电气设备的选择、安装和维护”的有关规定。

4.7.3 N3 China Type n

Certificate	GYJ15.1105X
Standards	GB3836.1-2010, GB3836.8-2003
Markings	Ex nA nL IIC T5 Gc (-40 °C ≤ T _a ≤ +70 °C)

- 产品安全使用特殊条件
产品防爆合格证号后缀“X”代表产品安全使用有特殊条件：产品不能承受 GB3836.8-2003 标准第 8.1 条中规定的 500V 对地电压试验 1 分钟，安装时需考虑在内。
- 产品使用注意事项
 1. 产品使用环境温度范围为：-40 °C ≤ T_a ≤ 70 °C
 2. 最高输入电压：

Transmitter output	最高输入电压
A, M (3051 Enhanced & 3051 Low Power HART)	55 Vdc
F, W	40 Vdc

3. 现场安装时，电缆引入口须选用经国家指定的防爆检验机构检验认可的、具有 Ex e 或 Ex n 型的电缆引入装置或堵封件，冗余电缆引入口须用堵封件有效密封。
4. 安装现场确认无可燃性气体存在时方可维修。
5. 用户不得自行更换该产品的零部件，应会同产品制造商共同解决运行中出现的故障，以杜绝损坏现象的发生。
6. 产品的安装、使用和维护应同时遵守产品使用说明书、GB3836.13-2013“爆炸性环境 第 13 部分：设备的修理、检修、修复和改造”、GB3836.15-2000“爆炸性气体环境用电气设备 第

15 部分：危险场所电气安装（煤矿除外）”、GB3836.16-2006“爆炸性气体环境用电气设备 第 16 部分：电气装置的检查和维修（煤矿除外）”、GB50257-1996“电气装置安装工程爆炸和火灾危险环境电力装置施工及验收规范”的有关规定。

4.8 Japan

E4 Japan Flameproof

Certificate: TC20577, TC20578, TC20583, TC20584 [HART]; TC20579, TC20580, TC20581, TC20582 [Fieldbus]

Markings: Ex d IIC T5

4.9 Republic of Korea

EP Republic of Korea Flameproof

Certificate: 11-KB4BO-0188X [Mfg Singapore], 19-KA4BO-079X [Mfg USA]

Markings: Ex d IIC T6...T4 Ga/Gb

IP Republic of Korea Intrinsic Safety

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

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

4.10 Technical Regulations Customs Union (EAC)

EM EAC Flameproof

Markings: Ga/Gb Ex db IIC T4...T6 X, T4/T5 ($-60^{\circ}\text{C} \leq T_a \leq +80^{\circ}\text{C}$), T6 ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

IM EAC Intrinsically Safe

Markings: HART: 0Ex ia IIC T4/T5 Ga X, T4 ($-60^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$), T5 ($-60^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$) Fieldbus/PROFIBUS: 0Ex ia IIC T4 Ga X ($-60^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$)

Special Conditions for Safe Use (X):

1. See certificate for special conditions.

4.11 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

4.12 Conduit plugs and adapters

IECEx Flameproof and Increased Safety

- Certificate:** IECEx FMG 13.0032X
- Standards:** IEC60079-0:2011, IEC60079-1:2007, IEC60079-7:2006-2007
- Markings:** Ex de IIC Gb

ATEX Flameproof and Increased Safety

- Certificate:** FM13ATEX0076X
- Standards:** EN60079-0:2012, EN60079-1:2007, IEC60079-7:2007
- Markings:** Ex II 2 G Ex de IIC Gb

Table 4-10: Conduit Plug Thread Sizes

Thread	Identification mark
M20 x 1.5	M20
½–14 NPT	½ NPT

Table 4-11: Thread Adapter Thread Sizes

Male thread	Identification mark
M20 x1.5–6H	M20

Table 4-11: Thread Adapter Thread Sizes (continued)

½–14 NPT	½–14 NPT
¾–14 NPT	¾–14 NPT
Female thread	Identification mark
M20 x 1.5–6H	M20
½–14 NPT	½–14 NPT
G½	G½

Special Conditions for Safe Use (X):

1. When the thread adapter or blanking plug is used with an enclosure in type of protection increased safety “e” the entry thread shall be suitably sealed in order to maintain the ingress protection rating (IP) of the enclosure.
2. The blanking plug shall not be used with an adapter.
3. Blanking Plug and Threaded Adapter shall be either NPT or Metric thread forms. G½ thread forms are only acceptable for existing (legacy) equipment installations.

4.13 Additional certifications

SBS American Bureau of Shipping (ABS) Type Approval

Certificate: 09-HS446883A-5-PDA

Intended: Marine & Offshore Applications — Measurement of either gauge or absolute pressure for liquid, gas, and vapor.

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

SDN Det Norske Veritas (DNV) Type Approval

Certificate: TAA000004F

Intended Use: DNV GL Rules for Classification — Ships and offshore units

Application:

Location classes	
Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	D

SLL Lloyds Register (LR) Type Approval

Certificate: 11/60002

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

C5 Custody Transfer - Measurement Canada Accuracy Approval

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

4.14 Declaration of Conformity




EU Declaration of Conformity

No: RMD 1017 Rev. AD

We,

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

declare under our sole responsibility that the product,

Rosemount 3051 Pressure Transmitters

manufactured by,

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

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

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



(signature)

Vice President of Global Quality

(function)



Chris LaPoint

(name)

20-Dec-19, Shakopee, MN USA

(date of issue & place)

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EU Declaration of Conformity

No: RMD 1017 Rev. AD

EMC Directive (2014/30/EU)
Harmonized Standards: EN 61326-1:2013, EN 61326-2-3:2013

PED Directive (2014/68/EU)

Rosemount 3051CA4; 3051CD2, 3, 4, 5; 3051HD2, 3, 4, 5; (also with P9 option)
QS Certificate of Assessment - Certificate No. 12698-2018-CE-USA-ACCREDIA
Module H Conformity Assessment
Other Standards Used: ANSI/ISA61010-1:2004
Note – previous PED Certificate No. 59552-2009-CE-HOU-DNV

All other Rosemount 3051 Pressure Transmitters
Sound Engineering Practice

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

Rosemount 3051CFx DP Flowmeters
See DSI 1000 Declaration of Conformity

RoHS Directive (2011/65/EU)

Models 3051 Pressure Transmitters
Harmonized standard: EN 50581:2012

Does not apply to the following options:

- Wireless output code X
- Low power output code M

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EU Declaration of Conformity

No: RMD 1017 Rev. AD

ATEX Directive (2014/34/EU)

BAS97ATEX1089X - Intrinsic Safety

Equipment Group II Category 1 G

Ex ia IIC T5/T4 Ga

Harmonized Standards Used:

EN60079-0:2012 + A11:2013, EN60079-11:2012

BAS00ATEX3105X - Type n

Equipment Group II Category 3 G

Ex nA IIC T5 Gc

Harmonized Standards Used:

EN60079-0:2012 + A11:2013, EN60079-15:2010

Baseefa11ATEX0275X - Dust

Equipment Group II Category 1 D

Ex ta IIIC T95°C T300 105°C Da

Harmonized Standards Used:

EN60079-0:2012 + A11:2013, EN60079-31:2014



KEMA00ATEX2013X - Flameproof

Equipment Group II Category 1/2 G

Ex db IIC T6...T4 Ga/Gb

Harmonized Standards Used:

EN60079-0:2012 + A11:2013, EN60079-1:2014, EN60079-26:2015



EU Declaration of Conformity

No: RMD 1017 Rev. AD

PED Notified Body

DNV GL Business Assurance Italia S.r.l. [Notified Body Number: 0496]
Via Energy Park, 14, N-20871
Vimercate (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:
Der Norske Veritas (DNV) [Notified Body Number: 0575]
Veritasveien 1, N-1322
Hovik, Norway*

ATEX Notified Bodies

DEKRA [Notified Body Number: 0344]
Utrechtseweg 310, 6812 AR Arnhem
P.O. Box 5185, 6802 ED Arnhem
The Netherlands
Postbank 6794687

SGS FIMCO OY [Notified Body Number: 0598]
P.O. Box 30 (Sarkiniementie 3)
00211 HELSINKI
Finland

ATEX Notified Body for Quality Assurance

SGS FIMCO OY [Notified Body Number: 0598]
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Figure 4-1: China ROHS

有害物质成分表
03031-9021, Rev AB

罗斯蒙特™ 品型号: 3051
1/10/2020

含有China RoHS 管控物质超过最大浓度限值的部件型号列表 3051
List of 3051 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	0	0	0	0	0
壳体组件 Housing Assembly	0	0	0	0	0	0
传感器组件 Sensor Assembly	X	0	0	0	0	0

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.

0: 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。
0: Indicate that said hazardous substance in all of the homogeneous materials for this part is below the limit requirement of GB/T 26572.

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

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



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