

Rosemount™ 2051 Pressure Transmitter and Rosemount 2051CF Series Flow Meter

with FOUNDATION™ Fieldbus Protocol



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1 About this guide

This guide provides basic guidelines for Rosemount 2051 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 2051 [Reference Manual](#) for more instructions. This guide is also available electronically at Emerson.com/Rosemount.

1.1 Safety messages

▲ WARNING

Explosions could result in death or serious injury.

Installation of these transmitters in an explosive environment must be in accordance with the appropriate local, national, and international standards, codes, and practices. Review the approvals section of the Rosemount 2051 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 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.

Conduit/cable entries

Unless marked, the conduit/cable entries in the transmitter housing use a ½–14 NPT thread form. Entries marked “M20” are M20 × 1.5 thread form. On devices with multiple conduit entries, all entries will have the same thread form. Only use plugs, adapters, glands, or conduit with a compatible thread form when closing these 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 or Fieldbus.org.

2.1.1 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 2051 FOUNDATION Fieldbus Device Revisions and Files

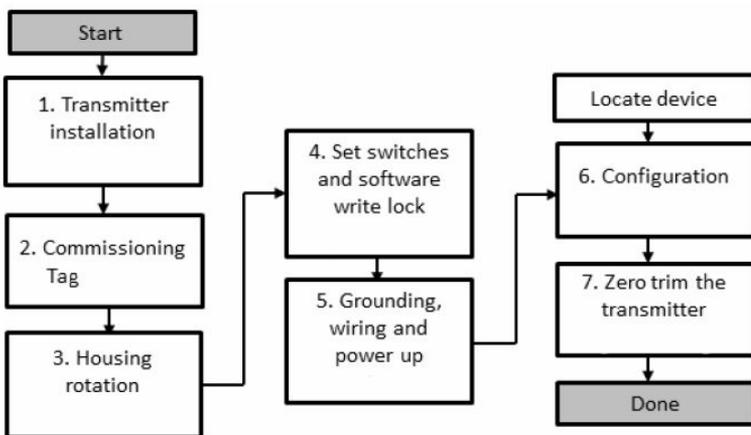
Device revision (1)	Host	Device driver (DD) ⁽²⁾	Obtain at	Device driver (DTM)	Reference document
2	All	DD4: DD Rev 1	Fieldbus.org	Emerson.com	00809-0200-4101, Rev BA or newer
	All	DD5: DD Rev 1	Fieldbus.org		
	Emerson	AMS Device Manager V 10.5 or higher: DD Rev 2	Emerson.com		
	Emerson	AMS Device Manager V 8 to 10.5: DD Rev 1	Emerson.com		
	Emerson	375/475: DD Rev 2	FieldCommunicator.com		
1	All	DD4: DD Rev 4	Fieldbus.org	Emerson.com	00809-0200-4101, Rev AA
	All	DD5: NA	N/A		
	Emerson	AMS Device Manager V 8 or higher: DD Rev 2	Emerson.com		

Table 2-1: Rosemount 2051 FOUNDATION Fieldbus Device Revisions and Files (continued)

Device revision (1)	Host	Device driver (DD) ⁽²⁾	Obtain at	Device driver (DTM)	Reference document
	Emerson	375/475: DD Rev 2	FieldCommunicator.com		

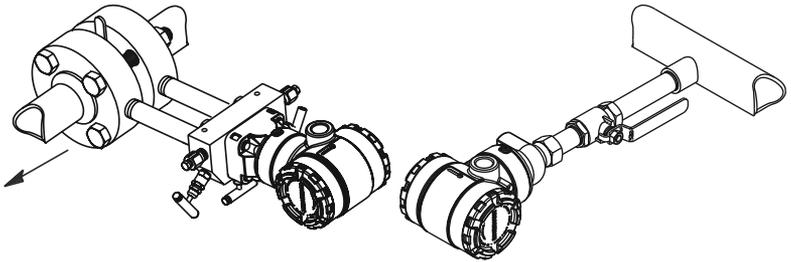
- (1) FOUNDATION Fieldbus device revision can be read using a FOUNDATION Fieldbus capable configuration tool.
- (2) Device driver file names use device and DD revision. To access functionality, the correct device driver must be installed on your control and asset management hosts, and on your configuration tools.

Figure 2-1: Installation Flowchart



3 Mount the transmitter

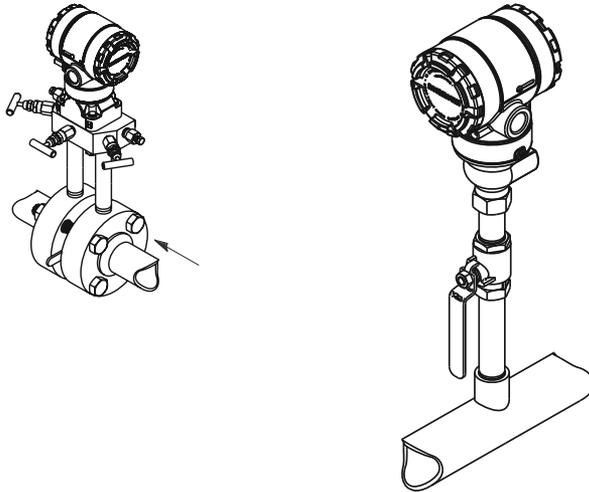
3.1 Liquid applications



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.

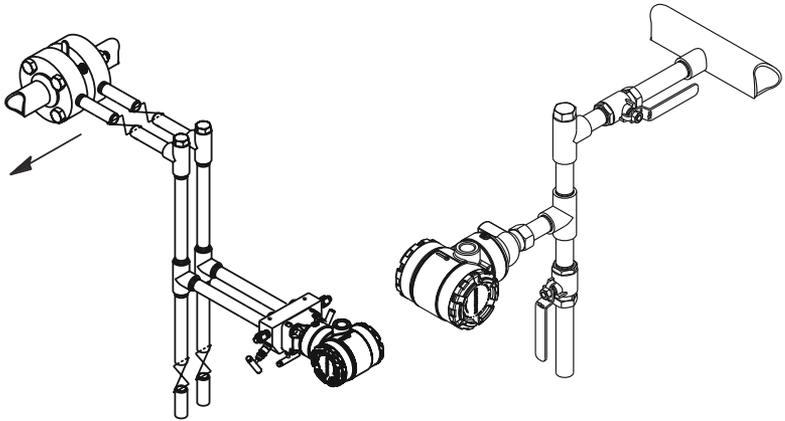
3.2 Gas applications



Procedure

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

3.3 Steam applications



Procedure

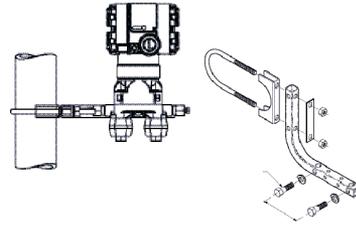
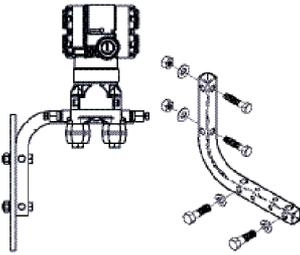
1. Place taps to the side of the line.
2. Mount beside or below the taps.
3. Fill impulse lines with water.

Figure 3-1: Panel and Pipe Mounting

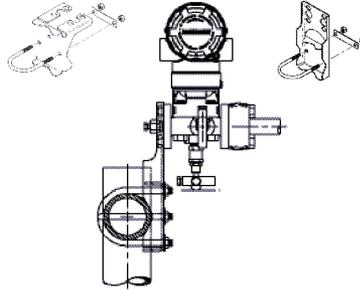
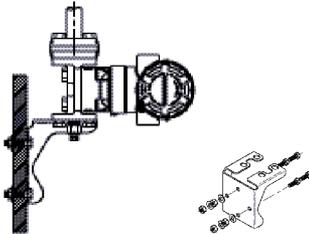
Panel mount⁽¹⁾

Pipe mount

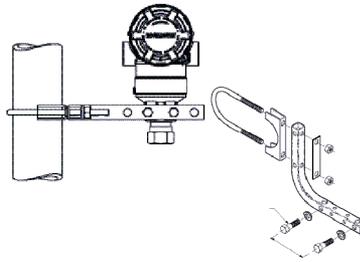
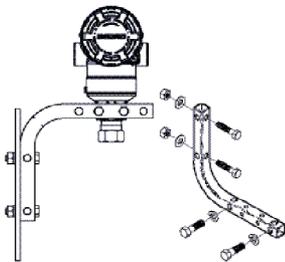
Coplanar flange



Traditional flange



Rosemount 2051T

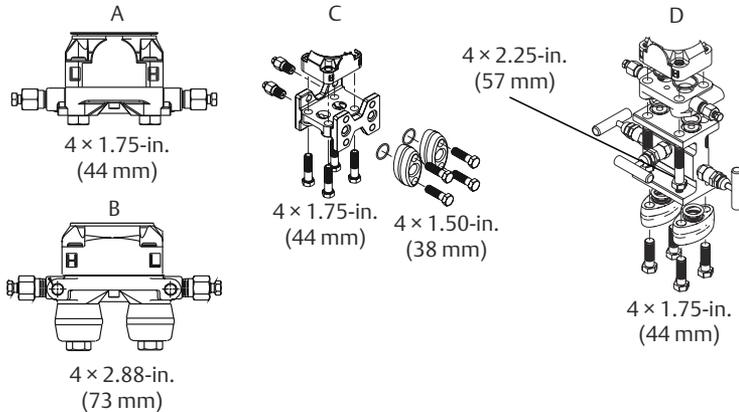


(1) × 1 panel bolts are customer supplied.

3.4 Bolting considerations

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 transmitters. Use only bolts supplied with the transmitter or sold by Emerson as spare parts. [Figure 3-2](#) illustrates common transmitter assemblies with the bolt length required for proper transmitter assembly.

Figure 3-2: 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 3-1](#). If bolt material is not shown in [Table 3-1](#), 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, no additional lubricant should be applied when installing either type of bolt.

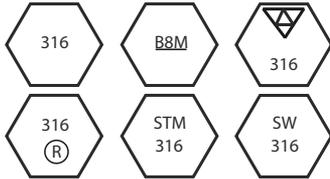
Use the following bolt installation procedure:

Procedure

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

3. Torque the bolts to the final torque value using the same crossing pattern. See [Table 3-1](#) for final torque value.
4. Verify the flange bolts are protruding through the sensor module bolt holes before applying pressure.

Table 3-1: 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

3.5 O-rings

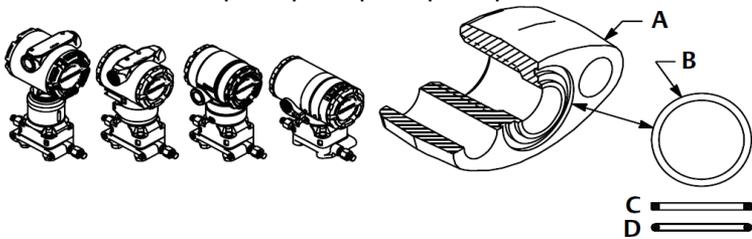
The two styles of Rosemount flange adapters (Rosemount 3051/2051/2024/3095) each require a unique O-ring (see [Figure 3-3](#)). Use only the O-ring designed for the corresponding flange adapter.

⚠ 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 below. When compressed, PTFE O-rings tend to *cold flow*, which aids in their sealing capabilities.

Figure 3-3: O-rings

ROSEMOUNT 3051S/3051/2051/3001/3095/2024



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

Note

You should replace PTFE O-rings if you remove the flange adapter.

3.6 Environmental seal for housing

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

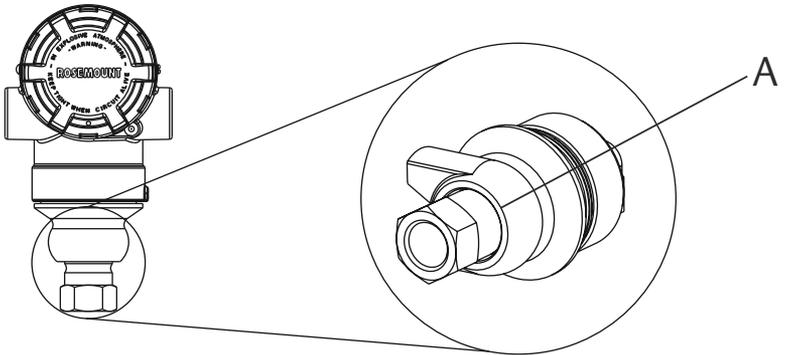
For M20 threads, install conduit plugs to full thread engagement or until mechanical resistance is met.

3.7 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 360° around the transmitter between the housing and sensor. (See [Figure 3-4](#).)

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.

Figure 3-4: In-line Gage Low Side Pressure Port



A. Pressure port location

4 Tagging

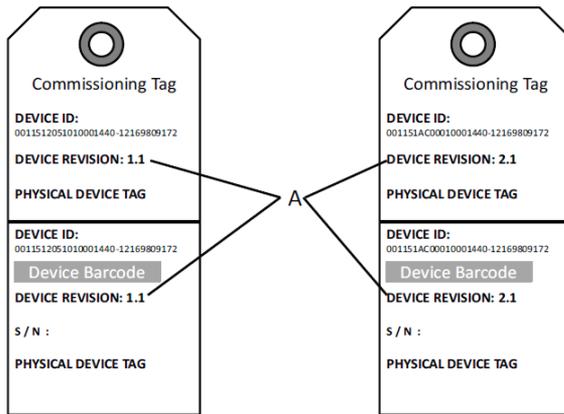
4.1 Commissioning (paper) tag

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 4-1: Commissioning Tag



A. Device revision

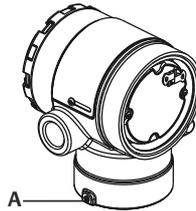
Note

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

5 Housing rotation

To improve field access to wiring or to better view the optional LCD display follow the procedure steps.

Figure 5-1: Housing Rotation



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

Procedure

1. Loosen the housing rotation set screw using a 5/64 -in. hex wrench.
2. Rotate the housing clockwise to the desired location.
3. If the desired location cannot be achieved due to thread limit, 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-lbs when desired location is reached.

6 Set the switches

Set simulate and security switch configuration before installation as shown in [Figure 6-1](#).

- 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.

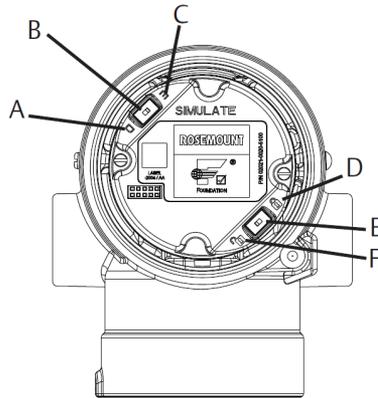
Use the following procedure to change the switch configuration:

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 housing.

Figure 6-1: Simulate and Security Switches

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

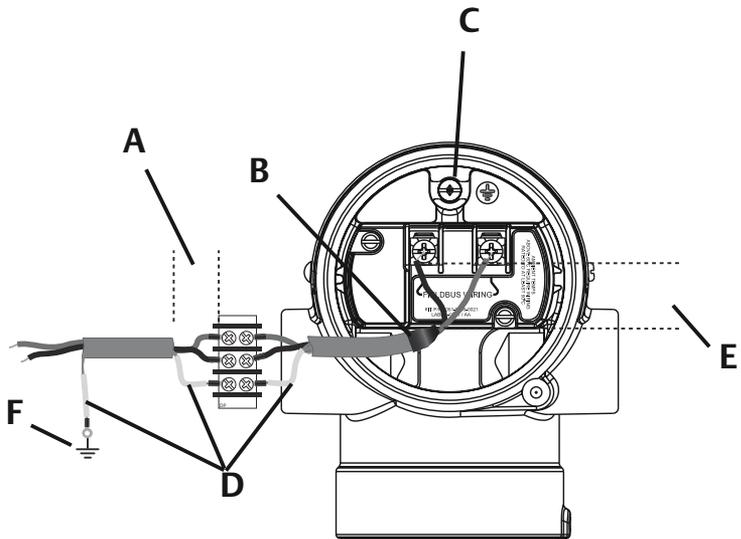
7 Wire, ground, and power up

Use of 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. A minimum of 12 Vdc under normal operating conditions is recommended. Shielded twisted pair Type A cable is recommended.

Procedure

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

Figure 7-1: 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. Minimize distance
- F. Connect shield back to the power supply ground

Note

The Rosemount 2051 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, terminal polarity should be followed. When wiring to the screw terminals, the use of crimped legs is recommended.

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. No additional power is needed.

Note

The use of a pin or a ferrule wire terminal is not recommended as the connection may be more susceptible to loosening over time or under vibration.

7.1 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.
2. Connect the wiring pair and ground as indicated in [Figure 7-1](#).
 - 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.

3. Continuously connect the cable shields to the power supply ground.
 - a) 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.

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

5. Plug and seal unused conduit connections.

7.2 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.

7.3 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.

7.4 Grounding

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

7.5 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.

7.6 Signal termination

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

7.7 Locating devices

Devices are frequently installed, configured, and commissioned over time by different personnel. A “Locate Device” capability has been provided to assist personnel in finding the desired device.

From the device Overview screen, select the Locate Device button. This will launch a method allowing the user to display a “Find me” message or enter a custom message to display on the device LCD display.

When the user exits the “Locate Device” method, the device LCD display automatically returns to normal operation.

Note

Some hosts do not support “Locate Device” in the DD.

8 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 2051 [Reference Manual](#).

Note

DeltaV™ users should use DeltaV Explorer for the Resource and Transducer blocks and Control Studio for the Function Blocks.

8.1 Configure the AI block

If your configuration tool supports Dashboard DD's or DTM's you may use either guided setup or manual setup. If your configuration tools don't support Dashboard DD's or DTM's, use manual setup. Navigation instructions for each step are provided below. In addition the screens used for each step are shown in [Device revisions and drivers](#).

Figure 8-1: Configuration Flowchart

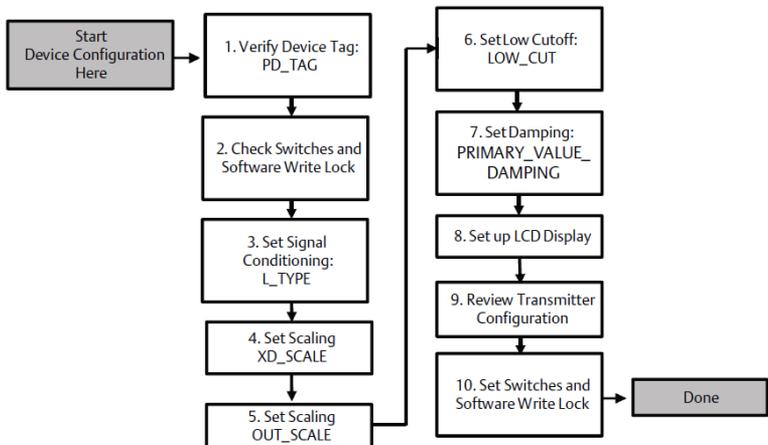
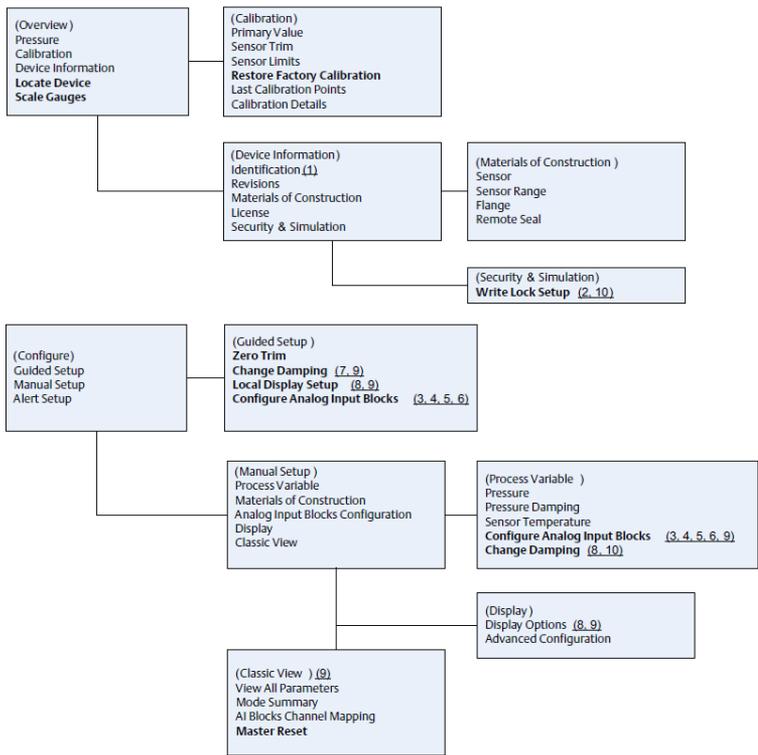


Figure 8-2: Basic Configuration Menu Tree



- 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

8.2 Before you begin

See [Figure 8-1](#) 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 or software write protection on the transmitter. To do this perform the Verify Device Tag instructions as shown in the Procedure. Otherwise, continue at navigating to [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 1](#)):
 - a) Verify the write lock switch is in the unlocked position if the switch has been enabled in software.
3. To disable the software write lock:
 - a) Navigation: from the *Overview* screen, select **Device Information** and then select the **Security and Simulation** tab.
 - b) Perform “Write Lock Setup” to disable software write lock.
 - c) Place the control loop in “Manual” mode before beginning [AI block configuration](#).

Note

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

8.3 AI block configuration

Procedure

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

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

Note

Step 3 through step 6 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 3 is “Direct”, step 4, step 5, and step 6 are not needed. If the L_TYPE selected is “Indirect”, step 6 is not needed. If guided setup is used, any unneeded steps will automatically be skipped.

2. 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.
3. 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.
4. 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.
5. Change damping.
 - a) To use guided setup:
 - Navigate to **Configure** → **Guided Setup**, and 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.
- b) To use manual setup:
- Navigate to **Configure** → **Manual Setup** → **Process Variable** and select **Change Damping**.
 - Enter the desired damping value in seconds. The permitted range of values is 0.4 to 60 seconds.
6. Configure LCD display (if installed).
- a) To use guided setup:
- Navigate to **Configure** → **Guided Setup**, and 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** → **Manual Setup** and 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 guided 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 1](#)).

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.

8.4 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.

8.5 AI block configuration parameters

Use the Pressure, DP Flow, and DP Level examples for guides.

Parameters	Enter data				
Channel	1 = Pressure, 2 = Sensor Temp				
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	ftH ₂ O at 4 °C	mH ₂ O at 4 °C
	kPa	mbar	kg/cm ²	ftH ₂ O at 60 °F	mmHg at 0 °C
	mPa	psf	kg/m ²	ftH ₂ O at 68 °F	cmHg at 0 °C
	hPa	Atm	inH ₂ O at 4 °C	mH ₂ O at 4 °C	inHg at 0 °C
	°C	psi	inH ₂ O at 60 °F	mmH ₂ O at 68 °C	mHg at 0 °C
	°F	g/cm ²	inH ₂ O at 68 °F	cmH 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
Note Select only the units that are supported by the device.	
Out_Scale	0–20 GPM
Low_Flow_Cutoff	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.

8.6 Display pressure on the LCD display meter

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

9 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 three to five 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** and select **Zero Trim**.
 - b) The method will execute the zero trim.

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

10 Product certifications

Rev 1.15

10.1 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.

10.2 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).

10.3 Hazardous Locations Certifications

Note

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

10.4 North America

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

Certificate FM16US0232

Standards FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3616 – 2011, FM Class 3810 – 2005, ANSI/NEMA 250 – 2008, ANSI/IEC 60529 2004

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

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

Certificate FM16US0231X (HART®)

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 02051-1009; Class I, Zone 0; AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ T_a ≤ +70 °C); Type 4x

Special Condition for Safe Use (X)

1. The Rosemount 2051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

Certificate 2041384 (HART/Fieldbus/PROFIBUS®)

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

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 02051-1009; Class I, Zone 0; AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ Ta ≤ +70 °C); Type 4x

IE USA FISCO

Certificate FM16US0231X

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 02051-1009 (-50°C ≤ Ta ≤ +60°C); Type 4x

Special Condition for Safe Use (X)

1. The Rosemount 2051 transmitter housing contains aluminum and is considered a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.

Certificate 2041384 (HART/Fieldbus/PROFIBUS)

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 IS CL I, DIV 1, GP A, B, C, D when connected per Rosemount drawing 02051-1009(-50 °C ≤ Ta ≤ +60 °C); Type 4x

E6 Canada Explosion-Proof, Dust Ignition Proof

Certificate 2041384

Standards CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA-C22.2 No. 94-M91, CSA Std C22.2 No.142-M1987, CAN/CSA-C22.2 No.157-92, CSA Std C22.2 No. 213-M1987, CAN/CSA-E60079-0:07, CAN/CSA-E60079-1:07, CAN/CSA-E60079-11-02, CAN/CSA-C22.2 No. 60529:05, ANSI/ISA-12.27.01-2003

Markings Explosion-Proof for Class I, Divisions 1, Groups B, C, and D. Dust-Ignition Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for Class I, Division 2; Groups A, B, C, and D for indoor and outdoor hazardous locations. Class I Zone 1 Ex d IIC T5. Enclosure type 4X, factory sealed. Single Seal.

I6 Canada Intrinsic Safety

Certificate 2041384

Standards CSA Std. C22.2 No. 142 - M1987, CSA Std. C22.2 No. 213 - M1987, CSA Std. C22.2 No. 157 - 92, CSA Std. C22.2 No. 213 - M1987, ANSI/ISA 12.27.01 – 2003, CAN/CSA-E60079-0:07, CAN/CSA-E60079-11:02

Markings Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 02051-1008. Ex ia IIC T3C. Single Seal. Enclosure Type 4X

IF Canada FISCO

Certificate 2041384

Standards CSA Std. C22.2 No. 142 - M1987, CSA Std. C22.2 No. 213 - M1987, CSA Std. C22.2 No. 157 - 92, CSA Std. C22.2 No. 213 - M1987, ANSI/ISA 12.27.01 – 2003, CAN/CSA-E60079-0:07, CAN/CSA-E60079-11:02

Markings Intrinsically safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawing 02051-1008. Ex ia IIC T3C. Single Seal. Enclosure Type 4X

10.5 Europe

E1 ATEX Flameproof

Certificate KEMA 08ATEX0090X

Standards EN 60079-0:2012 + A11:2013, EN 60079-1:2014, EN 60079-26:2015

Markings ⒺII 1/2 G Ex db IIC Ga/Gb T6(-60 °C ≤ T_a ≤ +70 °C), T4/T5(-60 °C ≤ T_a ≤ +80 °C)

Table 10-1: 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. Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.
2. 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.
3. The 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 shall be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
4. Flameproof joints are not intended for repair.

I1 ATEX Intrinsic Safety

Certificate Baseefa08ATEX0129X

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

Markings ⓈII 1 G Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +70\text{ °C}$)

Table 10-2: Input Parameters

Input parameter	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	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 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 should be taken to protect it from impact and abrasion when located in Zone 0.

IA ATEX FISCO

Certificate Baseefa08ATEX0129X

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

Markings ⓈII 1 G Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +60\text{ °C}$)

Table 10-3: Input Parameters

Input parameter	FISCO
Voltage U_i	17.5 V
Current I_i	380 mA
Power P_i	5.32 W
Capacitance C_i	0 μF
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 should be taken to protect it from impact and abrasion when located in Zone 0.

N1 ATEX Type n

Certificate Baseefa08ATEX0130X

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

Markings ⒺII 3 G Ex nA IIC T4 Gc ($-40\text{ °C} \leq T_a \leq +70\text{ °C}$)

Special Condition 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

Certificate Baseefa08ATEX0182X

Standards EN60079-0:2012+A11:2013, EN60079-31:2009

Markings ⒺII 1 D Ex ta IIIC T95 °C T₅₀₀ 105 °C Da ($-20\text{ °C} \leq T_a \leq +85\text{ °C}$)

Special Condition 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.

10.6 International

E7 IECEx Flameproof

Certificate IECExKEM08.0024X

Standards IEC 60079-0:2011, IEC 60079-1:2014-06, IEC 60079-26:2014-10

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

Table 10-4: 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. The 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 shall be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. Appropriate cable, glands and plugs need to be suitable for a temperature of 5 °C greater than maximum specified temperature for location where installed.
3. Flameproof joints are not intended for repair.
4. Non-standard paint options may cause risk from electrostatic discharge. Avoid installations that could cause electrostatic build-up on painted surfaces, and only clean the painted surfaces with a damp cloth. If paint is ordered through a special option code, contact the manufacturer for more information.

I7 IECEx Intrinsic Safety

Certificate IECEx BAS 08.0045X

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

Markings Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +70\text{ °C}$)

Table 10-5: Input Parameters

Parameter	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 μ 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 should 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 IEC60079-0:2011, IEC60079-11:2011

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

Table 10-6: Input Parameters

Parameter	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 μ 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 should be taken to protect it from impact and abrasion when 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

Certificate	IECEx BAS 08.0046X
Standards	IEC60079-0:2011, IEC60079-15:2010
Markings	Ex nA IIC T4 Gc (-40 °C ≤ T _a ≤ +70 °C)

Special Condition 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.

10.7 Brazil

E2 INMETRO Flameproof

Certificate UL-BR 14.0375X

Standards ABNT NBR IEC60079-0:2008 + Errata 1:2011, ABNT NBR IEC 60079-1:2009 + Errata 1:2011, ABNT NBR IEC 60079-26:2008 + Errata 1:2009

Markings Ex db IIC T6...T4 Ga/Gb IP66, T6(-60 °C ≤ T_a ≤ +70 °C), T4/T5(-60 °C ≤ T_a ≤ +80 °C)

Special Conditions for Safe Use (X):

1. The 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 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.

I2 INMETRO Intrinsic Safety

Certificate UL-BR 14.0759X

Standards ABNT NBR IEC 60079-0:2013; ABNT NBR IEC 60079-11:2013

Markings Ex ia IIC T4 Ga (-60 °C ≤ T_a ≤ +70 °C)

Table 10-7: Input Parameters

Parameter	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 aluminium alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in atmospheres that require EPL Ga.

IB INMETRO FISCO**Certificate** UL-BR 14.0759X**Standards** ABNT NBR IEC 60079-0:2008 + Errata 1:2011; ABNT NBR IEC 60079-11:2009**Markings** Ex ia IIC T4 Ga ($-60\text{ °C} \leq T_a \leq +60\text{ °C}$)**Table 10-8: Input Parameters**

Parameter	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 μ 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 insulation from earth test and this must be taken into account during installation.
2. The enclosure may be made of aluminium alloy and given a protective polyurethane paint finish; however care should be taken to protect it from impact and abrasion when located in atmospheres that require EPL Ga.

10.8 China**二、产品使用注意事项**

1. 产品温度组别和使用环境温度之间的关系为：

温度组别	使用环境温度	过程温度
T6	-60 °C ~ +70 °C	-60 °C ~ +70 °C

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

2. 产品外壳设有接地端子，用户在使用时应可靠接地。
3. 安装现场应不存在对产品外壳有腐蚀作用的有害气体。
4. 现场安装时，电缆引入口须选用经国家指定防爆检验机构检验认可、具有 Ex dIIC Gb 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。
5. 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“严禁带电开盖！”的警告语。
6. 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。
7. 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”、GB3836.15-2017“爆炸性环境 第 15 部分：电气装置的设计、选型和安装”、GB3836.16-2017“爆炸性环境 第 16 部分：电气装置的检查和维护”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”的有关规定。

10.9 Korea

EP Korea Flameproof

Certificate: 12-KB4BO-0342X, 12-KB4BO-0344X, 19-KB4BO-0978X

Markings: Ex d IIC T6...T4 Ga/Gb, T4/T5(-60 °C ≤ T_a ≤ +80 °C), T6(-60 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X)

1. See certificate for special conditions.

IP Korea Intrinsic Safety

Certificate: 12-KB4BO-0343X, 12-KB4BO-0345X, 13-KB4BO-0205X, 13-KB4BO-0207X, 18-KA4BO-0309X

Markings: Ex ia IIC T4 Ga (-60 °C ≤ T_a ≤ +70 °C)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

10.10 Japan

E4 Japan Flameproof

Certificate TC20598, TC20599, TC20602, TC20603 [HART]; TC20600, TC20601, TC20604, TC20605 [Fieldbus]

Markings Ex d IIC T5

10.11 Technical Regulations Customs Union (EAC)

EM EAC Flameproof

Certificate EAEC RU C-US.EX01.B.00175

Markings Ga/Gb Ex d IIC X, T5(-50 °C ≤ T_a ≤ +80 °C), T6(-50 °C ≤ T_a ≤ +65 °C)

Special Condition for Safe Use (X):

1. See certificate for special conditions.

IM EAC Intrinsically Safe

Certificate EAEC RU C-US.EX01.B.00175

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

Special Condition for Safe Use (X):

1. See certificate for special conditions.

10.12 Combinations

K1 Combination of E1, I1, N1, and ND

K2 Combination of E2 and I2

K5 Combination of E5 and I5

K6 Combination of E6 and I6

K7 Combination of E7, I7, N7 and IECEx Dust

IECEx Dust

Certificate IECEx BAS 08.0058X

Standards IEC60079-0:2011, IEC60079-31:2008

Markings Ex tA IIIC T95 °C T500 105 °C Da (-20 °C ≤ T_a ≤ +85 °C)

Special Condition for Safe Use (X):

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

- KA** Combination of E1, I1, and K6
- KB** Combination of K5 and K6
- KC** Combination of E1, I1, and K5
- KD** Combination of K1, K5, and K6
- KP** Combination of EP and IP
- KM** Combination of EM and IM

10.13 Additional Certifications

SBS American Bureau of Shipping (ABS) Type Approval

- Certificate** 18-HS1753847-PDA
- Intended Use** Marine & Offshore Applications – Measurement of either Gauge or Absolute Pressure for Liquid, Gas, and Vapor
- ABS Rules** 2018 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3, 1-1-Appendix 4

SBV Bureau Veritas (BV) Type Approval

- Certificate** 23157/BV
- BV Rules** Bureau Veritas Rules for the Classification of Steel Ships
- Application** Class notations: AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS; Pressure transmitter type 2051 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	
Type	Rosemount 2051
Temperature	D
Humidity	B
Vibration	A

Location classes	
EMC	B
Enclosure	D

SLL Lloyds Register (LR) Type Approval

Certificate 11/60002

Application Environmental categories ENV1, ENV2, ENV3 and ENV5

10.14 Rosemount 2051 Declaration of Conformity

	EU Declaration of Conformity No: RMD 1071 Rev. N	
<p>We,</p> <p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p> <p>declare under our sole responsibility that the product,</p> <p>Rosemount™ Model 2051 Pressure Transmitter</p> <p>manufactured by,</p> <p>Rosemount, Inc. 8200 Market Boulevard Chanhassen, MN 55317-9685 USA</p> <p>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.</p> <p>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.</p>		
 _____ (signature)		<u>Vice President of Global Quality</u> (function)
Chris LaPoint _____ (name)		<u>28-Feb-20 ; Shakopee, MN USA</u> (date of issue & place)
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EU Declaration of Conformity

No: RMD 1071 Rev. N



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
 Other Standards Used:
 ANSI / ISA 61010-1:2004
Note – previous PED Certificate No. 59552-2009-CE-HOU-DNV

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

ATEX Directive (2014/34/EU)

Baseefa08ATEX0129X - Intrinsic Safety Certificate
 Equipment Group II Category 1 G
 Ex ia IIC T4 Ga
 Harmonized Standards Used:
 EN60079-0:2012+A11:2013, EN60079-11:2012

Baseefa08ATEX0130X - Type n Certificate
 Equipment Group II Category 3 G
 Ex nA IIC T4 Gc
 Harmonized Standards Used:
 EN60079-0:2012+A11:2013, EN60079-15:2010

KEMA08ATEX0090X - Flameproof Certificate
 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

Baseefa08ATEX0182X - Dust Certificate
 Equipment Group II Category 1 D
 Ex ta IIIC T95°C T300105°C Da
 Harmonized Standards Used:
 EN60079-0:2012+A11:2013, EN60079-31:2014

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	EU Declaration of Conformity	
No: RMD 1071 Rev. N		
RoHS Directive (2011/65/EU) Model 2051 with 4-20 mA HART protocol only (output code A) Harmonized Standards: EN 50581:2012		
<hr/>		
PED Notified Body DNV GL Business Assurance Italia S.r.l. [Notified Body Number: 0496] Via Energy Park, 14, N-20871 Vimercate (MB), Italy <i>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: 0575] Veritasveien 1, N-1322 Hovik, Norway</i>		
<hr/>		
ATEX Notified Bodies DEKRA (KEMA) [Notified Body Number: 0344] Meander 1051 6825 MJ Arnhem The Netherlands SGS FIMCO OY [Notified Body Number: 0598] P. O. Box 30 (Sarkiniementie 3) 00211 HELSINKI Finland		
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ATEX Notified Body for Quality Assurance SGS FIMCO OY [Notified Body Number: 0598] P. O. Box 30 (Sarkiniementie 3) 00211 HELSINKI Finland		
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10.15 China RoHS

危害物质成分表
03031-9021, Rev AA

罗斯蒙特产品型号 2051
7/1/2016

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	O	O	O	O	O
壳体组件 Housing Assembly	X	O	O	X	O	O
传感器组件 Sensor Assembly	X	O	O	X	O	O

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

O: 意为该部件的所有均质材料中该有害物质的含量均低于GB/T 26572所规定的限值要求。
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所规定的限值要求。
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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