00809-0100-4797
English
Rev. BA

Model 3051 Pressure Transmitter with Profibus–PA Communications Protocol

ROSEMOUNT®

FISHER-ROSEMOUNT™ Managing The Process Better.™

Product Manual

Model 3051 Pressure Transmitter with Profibus–PA Communications Protocol

NOTICE

Read this manual before working with the product. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining this product.

Within the United States, Rosemount Inc. has two toll-free assistance numbers:

Customer Central
Technical support, quoting, and order-related questions.

1-800-999-9307 (7:00 am to 7:00 pm CST)

North American Response Center
Equipment service needs.

1-800-654-7768 (24 hours—includes Canada)

Outside of the United States, contact your local Rosemount representative.

⚠CAUTION

The products described in this document are NOT designed for nuclear-qualified applications. Using non-nuclear qualified products in applications that require nuclear-qualified hardware or products may cause inaccurate readings.

For information on Rosemount nuclear-qualified products, contact your local Rosemount Sales Representative.

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CE Fisher-Rosemount satisfies all obligations coming from legislation to harmonize product requirements in the European Union.

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Section 1

Introduction

INTRODUCTION

Rosemount Inc.® introduced the Model 3051 Transmitter in 1988. With its patented Coplanar™ platform, the Model 3051 transmitter offers the most advanced measurement capabilities available. The Model 3051 Transmitter is now the world's most popular flow, level, and pressure transmitter with over one million units sold.

Rosemount Inc. has recently expanded the Model 3051 product line. In addition to the full line of HART protocol devices, the Model 3051 Transmitter is now available with either FOUNDATION fieldbus protocol or with PROFIBUS–PA Communications Protocol.

USING THIS MANUAL

This manual is designed to assist in installing Rosemount® Model 3051 Pressure Transmitter with PROFIBUS–PA Communications Protocol.

This manual consists of three additional chapters:

Section 2: Installation

Section 2 contains mechanical and electrical installation instructions.

Section 3: Communication

Section 3 explains communication issue methods.

Appendix A: Model 3051 Profibus–PA Analog Input Block (AI)

Appendix A describes the operation and parameters of the Analog Input block.

Appendix B: Model 3051 Profibus–PA Physical Block (PB)

Appendix B describes the operation and parameters of the Physical block.

Appendix C: Model 3051 Profibus–PA Transducer Block (TB)

Appendix C describes the operation and parameters of the Transducer block.

NOTE
For Model 3051 with FOUNDATION™ fieldbus output, see Rosemount Manual 00809-0100-4774.

MODELS COVERED

The following Rosemount Model 3051 Pressure Transmitters are covered by this manual:

Model 3051CD Differential Pressure Transmitter

The Model 3051CD measures pressures from 0.1 inH_2O to 2000 psi (0,02 to 13 800 kPa) with superior performance including 0.075% accuracy and 100:1 rangeability.

Model 3051CG Gage Pressure Transmitter

The Model 3051CG measures gage pressures from 2.5 inH_2O to 2000 psig (0,62 to 13 800 kPa) using proven Rosemount capacitance cell technology.

Model 3051CA Absolute Pressure Transmitter

The Model 3051CA measures absolute pressures from 0.167 to 4000 psia (8,6 mmHga to 27 580 kPa) using a Rosemount patented piezoresistive silicon sensor.

Model 3051L Liquid Level Transmitter

The Model 3051L provides precise level and specific gravity measurements from 2.5 to 8310 inH_2O (0,62 to 2 070 kPa) for a wide variety of tank configurations.

Model 3051T Gage and Absolute Pressure Transmitter

The Model 3051T measures absolute and gage pressures from 0.3 to 10000 psig/a (2,07 to 68 900 kPa). The Model 3051T uses a single isolator design and microprocessor-based electronics.

Model 3051CD0 Draft Range Transmitter

See page 1-3 for the details of the Model 3051CD0 transmitter.

MODEL 3051CD0 DRAFT RANGE PRESSURE TRANSMITTER

The Model 3051CD0 Draft Range Pressure Transmitter is a true draft range offering that features a pressure range from –3.0 to 3.0 inH_2O (–750 to 750 Pa) with spans as small as 0.1 inH_2O (25 Pa). The transmitter has an accuracy of ±0.10% of calibrated range and has a redesigned capacitance sensor optimized for draft measurements. Because the Model 3051CD0 Draft Range Transmitter is based on the standard Model 3051 Transmitter design, the requirement for spare parts
is reduced.

The Model 3051CD0 Draft Range Transmitter is the perfect choice for applications including:

- Furnace and boiler draft
- HVAC duct flow and clogging filter detection
- Room and chamber pressurization
- Clean room pressurization control systems
- Flow measurements with low differential pressures

Special Draft Range Considerations

Installation

It is best to mount the transmitter with the isolators parallel to the ground. Installing the transmitter in this way reduces oil head effect and provides for optimal temperature performance.

Be sure the transmitter is securely mounted. Tilting of the transmitter will cause a zero shift in the transmitter output.

Reducing Process Noise

It is often difficult to isolate the actual process variable from process noise in draft range applications. Pressure fluctuations and air currents can also make accurate draft range measurements difficult to obtain.

There are two recommended methods of reducing process noise: output damping and, in gage applications, reference side filtering.

Output Damping

If the transmitter output is noisy, increase the damping time located in the analog input block (PV_FTIME). If faster response is needed, decrease the damping time.

Reference Side Filtering

In gage applications it is important to minimize fluctuations in atmospheric pressure to which the low side isolator is exposed. One simple way to reduce fluctuations in atmospheric pressure is to attach a length of tubing to the reference side of the transmitter to act as a pressure buffer. Another method is to plumb the reference side to a chamber that has a small vent to atmosphere.

Section 2

Installation

OVERVIEW

This section contains specific information pertaining to the installation of the Model 3051 Pressure Transmitter with PROFIBUS–PA Protocol.

SAFETY MESSAGES

Instructions and procedures in this section may require special precautions to ensure the safety of the personnel performing the operations. Information that raises potential safety issues is indicated by a warning symbol (⚠).

Warnings ⚠

⚠WARNING

Explosions can result in death or serious injury.

- Do not remove the transmitter covers in explosive environments when the circuit is alive.
- Both transmitter covers must be fully engaged to meet explosionproof requirements.
- Verify that the operating atmosphere of the transmitter is consistent with the appropriate hazardous locations certifications.

⚠WARNING

Process leaks could result in death or serious injury.

- Install and tighten all four flange bolts before applying pressure.
- Do not attempt to loosen or remove flange bolts while the transmitter is in service.

⚠WARNING

Replacement equipment or spare parts not approved by Rosemount Inc. for use as spare parts could reduce the pressure retaining capabilities of the transmitter and may render the instrument dangerous.

- Use only bolts supplied with the Model 3051 or sold by Rosemount Inc. as spare parts for the Model 3051.

GENERAL CONSIDERATIONS

Measurement accuracy depends upon proper installation of the transmitter and impulse piping. Mount the transmitter close to the process and use a minimum of piping to achieve best accuracy. Keep in mind the need for easy access, personnel safety, practical field calibration, and a suitable transmitter environment. Install the transmitter to minimize vibration, shock, and temperature fluctuation.

IMPORTANT
Install the enclosed pipe plug in unused conduit openings with a minimum of five threads engaged to comply with explosion–proof requirements.

MECHANICAL CONSIDERATIONS

Figures 2-1 through 2-5 on pages 2-3 through 2-6 show dimensional drawings of Model 3051 transmitters. Figure 2-7 on page 2-9 shows installation examples. Figures 2-10 through 2-11 on pages 2-14 through 2-19 show dimensional drawings of mounting brackets.

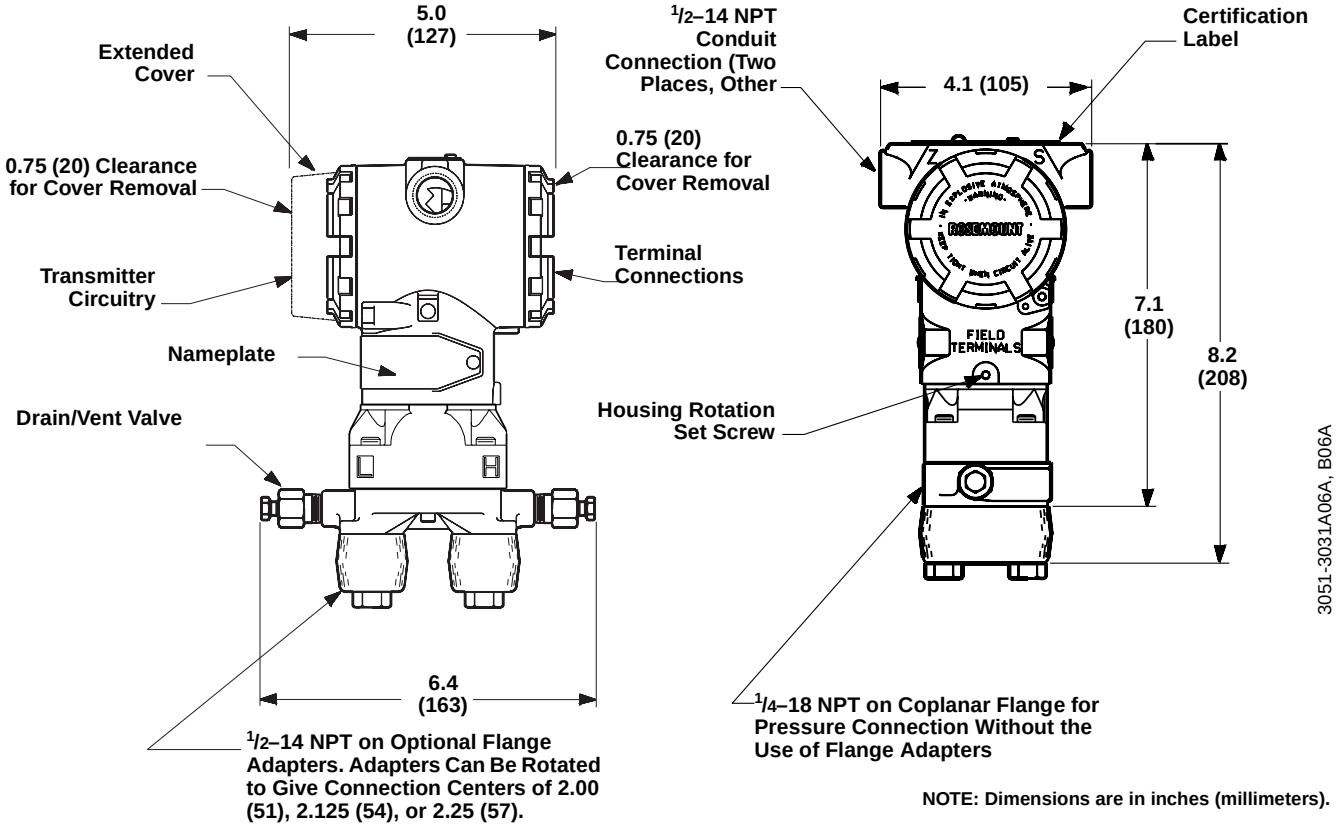
NOTE
For Model 3051CD0 and 3051CD1, mount the transmitter solidly to prevent tilting. A tilt in the physical transmitter may cause a zero shift in the transmitter output.

NOTE
For steam service, do not blow down impulse piping through the transmitter. Flush the lines with the blocking valves closed and refill the lines with water before resuming measurement.

NOTE
When the transmitter is mounted on its side, position the Coplanar flange to ensure proper venting or draining. Mount the flange as shown in Figure 2-8 on page 2-12, keeping drain/vent connections on the bottom for gas service and on the top for liquid service.

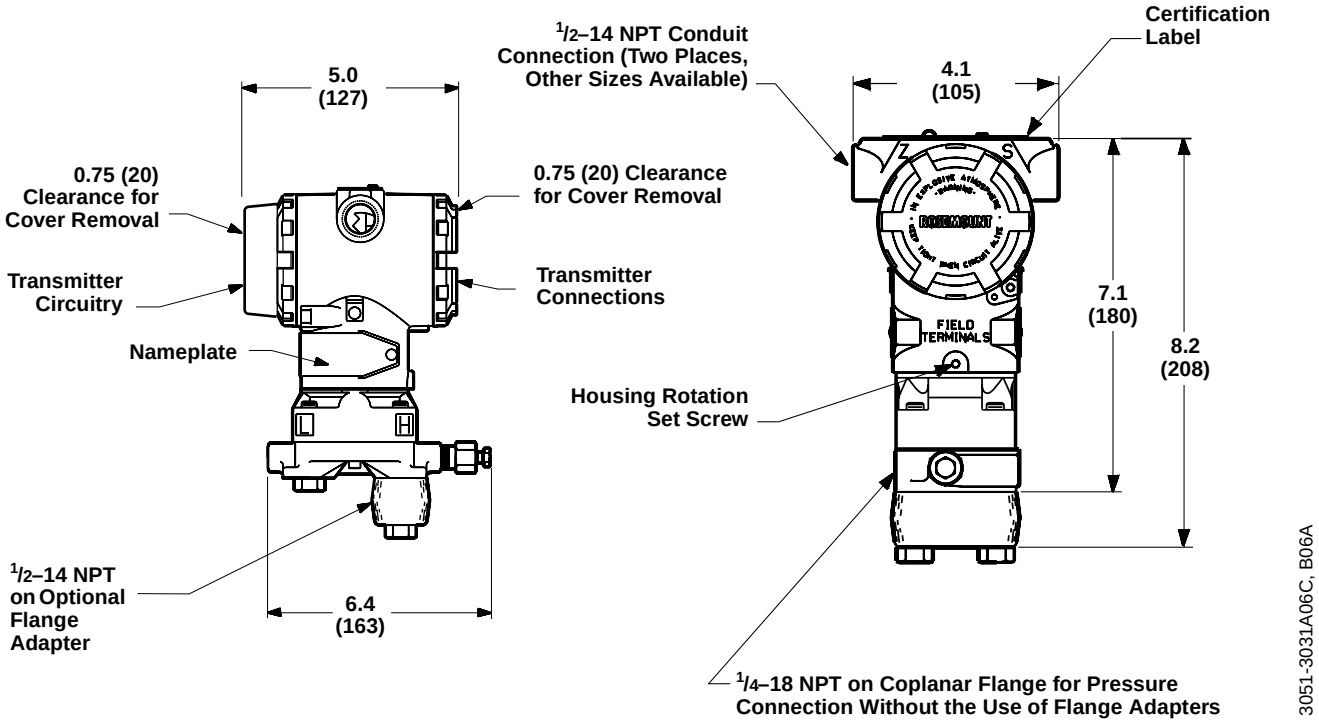
NOTE
The Model 3051 transmitter incorporates two independent seals between the process connection and the conduit connection.

Figure 2-1. Model 3051CD
Dimensional Drawings.



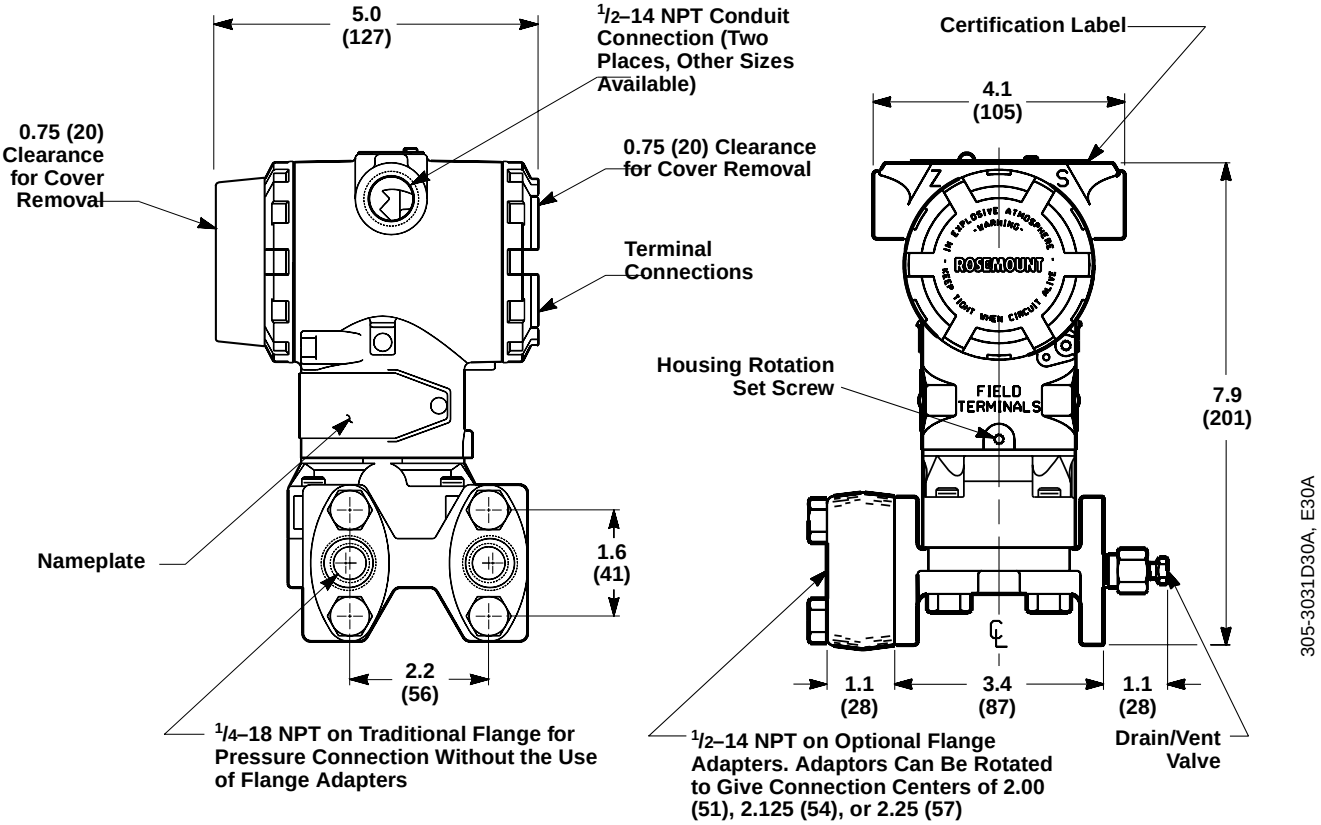
NOTE: Dimensions are in inches (millimeters).

Figure 2-2. Model 3051CG and
3051CA Dimensional Drawings.



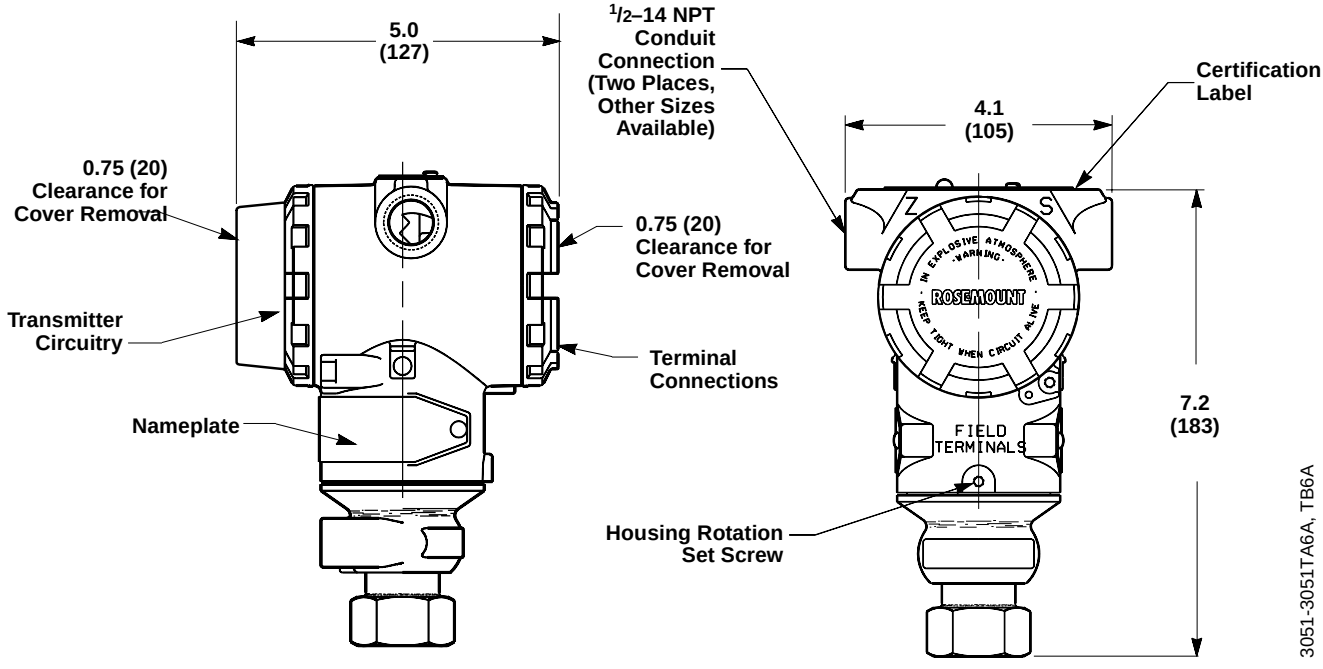
NOTE: Dimensions are in inches (millimeters).

Figure 2-3. Model 3051C (Traditional Flange) Dimensional Drawings.



NOTE: Dimensions are in inches (millimeters).

Figure 2-4. Model 3051T Dimensional Drawings.



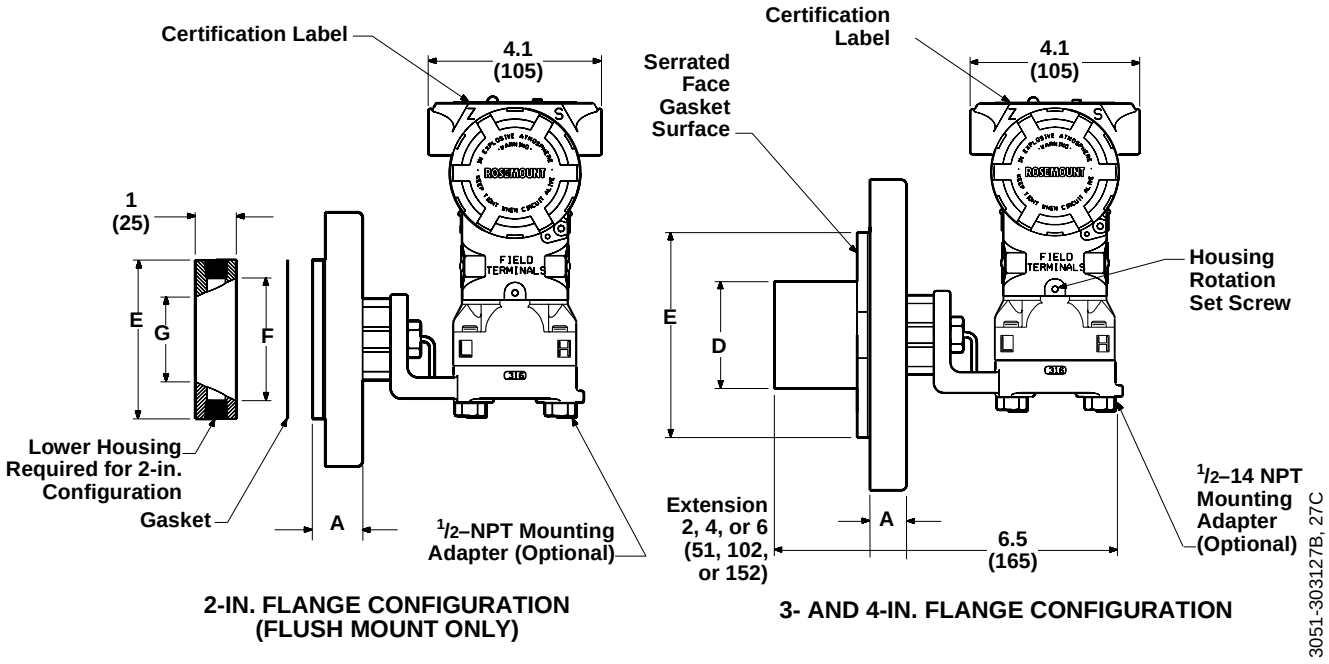
NOTE: Dimensions are in inches (millimeters).

TABLE 2-1. Model 3051L Dimensional Specifications—*Except Where Noted, Dimensions Are in Inches (Millimeters).*

Class	Pipe Size	Flange Thickness	Bolt Diameter	Outside Diameter	No. of Bolts	Bolt Hole Diameter	Exten. Diam.(1)	O.D. Gask. Surf.	Lower Housing	
									Xmtr Side	Proc. Side
		A	B	C			D	E	F	G
ASME B 16.5 (ANSI) 150	2 (51)	1.12 (28)	4.75 (121)	6.0 (152)	4	0.75 (19)	NA	3.75 (95)	2.9 (74)	2.16 (55)
	3 (76)	1.31 (33)	6.0 (152)	7.5 (190)	4	0.75 (19)	2.58 (65)	5.0 (127)	3.11 (79)	3.11 (79)
	4 (102)	1.31 (33)	7.5 (190)	9.0 (228)	8	0.75 (19)	3.5 (89)	6.81 (173)	4.06 (103)	4.06 (103)
ASME B 16.5 (ANSI) 300	2 (51)	1.25 (32)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.75 (95)	2.9 (74)	2.16 (55)
	3 (76)	1.50 (38)	6.62 (168)	8.25 (209)	8	0.88 (22)	2.58 (65)	5.0 (127)	3.11 (79)	3.11 (79)
	4 (102)	1.62 (41)	7.88 (200)	10.0 (254)	8	0.88 (22)	3.5 (89)	6.81 (173)	4.06 (103)	4.06 (103)
ASME B 16.5 (ANSI) 600	2 (51)	1.12 (28)	5.0 (127)	6.5 (165)	8	0.75 (19)	NA	3.75 (95)	2.9 (74)	2.16 (55)
	3 (76)	1.37 (35)	6.62 (168)	6.62 (168)	8	0.88 (22)	2.58 (65)	5.0 (127)	3.11 (79)	3.11 (79)
DIN PN 10–40	DN 50	26 mm	125 mm	165 mm	4	18 mm	NA	95 mm	74 mm	55 mm
DIN PN 25/40	DN 80	30 mm	160 mm	200 mm	8	18 mm	65 mm	127 mm	79 mm	79 mm
	DN 100	30 mm	190 mm	235 mm	8	22 mm	89 mm	173 mm	103 mm	103 mm
DIN PN 10/16	DN 100	26 mm	180 mm	220 mm	8	18 mm	89 mm	173 mm	103 mm	103 mm

(1) Tolerances are 0.040 (1,02), –0.020 (0,51).

Figure 2-5. Model 3051L Dimensional Drawings.



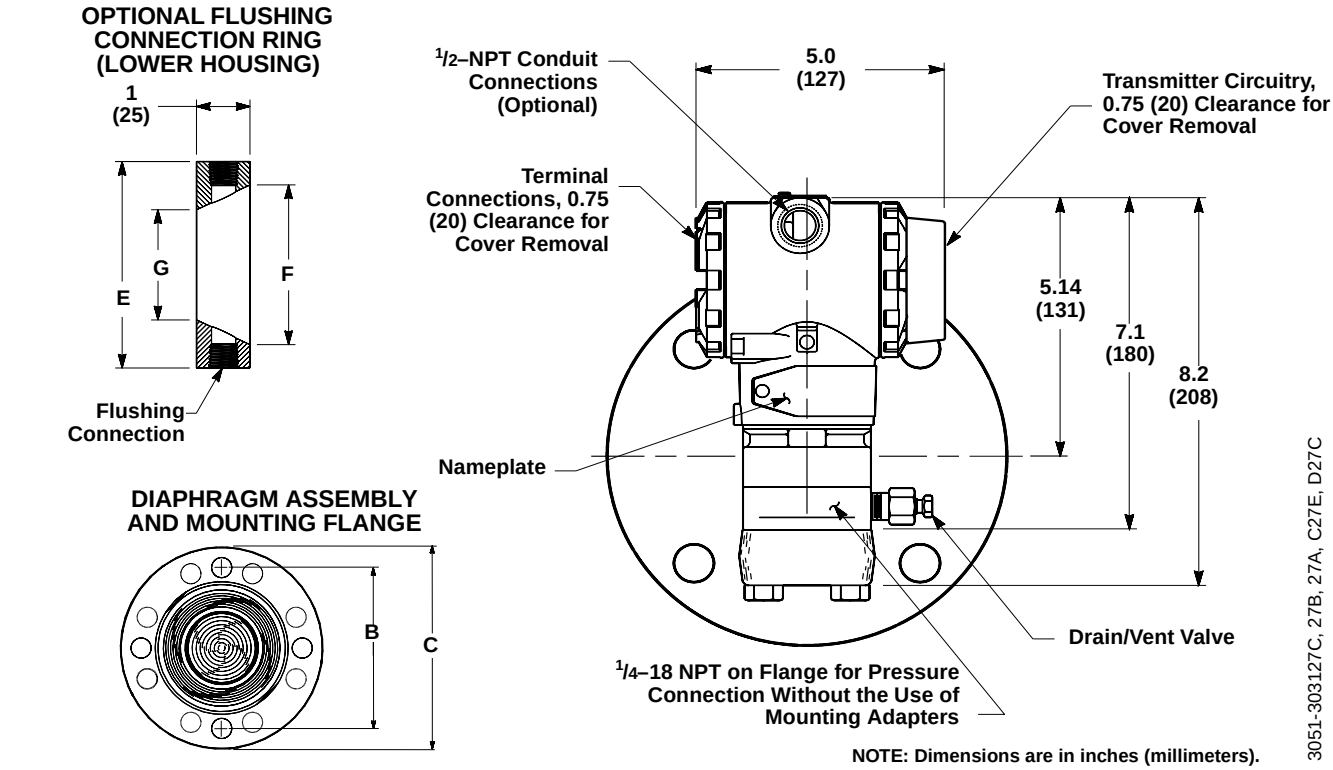
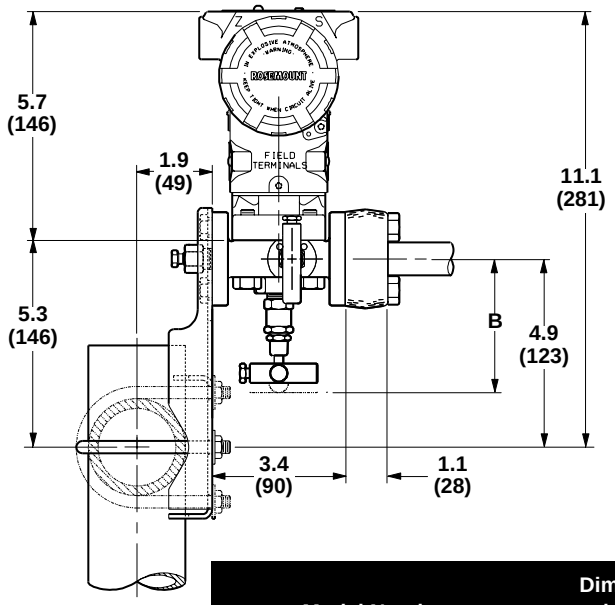
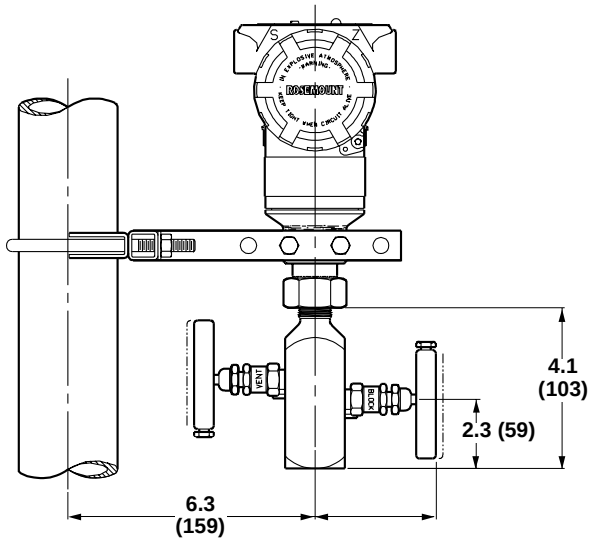


Figure 2-6. Typical Mounting Configurations for Model 3051 Transmitters with Model 305 and 305 Manifolds.

Model 3051C with Model 305 Manifold and Option Code B3/B9/BC Mounting Bracket



Model 3051T with Model 306 Manifold and Option Code B4 Mounting Bracket



305-3031L19A, 3051D04A

Model Number	Dimension B in. (mm)
0305AT2, *Teflon* Packing	3.6 (90)
0305AT2, *Grafoil* Packing	4.2 (107)
0305AT3, *Teflon* Packing	3.6 (90)
0305AT3, *Grafoil* Packing	4.2 (107)
0305AT7, ASME B 31.1 (ANSI)	4.2 (107)
0305AT8, ASME B 31.1 (ANSI)	4.2 (107)

NOTE: Dimensions are in inches (millimeters).

Mounting

The Model 3051C Pressure Transmitter weighs 5.5 lbs (2,5 kg) without additional options. Optional mounting brackets available with the Model 3051 allow mounting to a panel, wall, or 2-inch pipe. The B4 Bracket Option for use with the Coplanar flange and the Model 3051T is 316 SST with 316 SST bolts. Figures 2-8 and 2-9 on pages 2-12 and 2-13 show bracket dimensions and mounting configurations for the B4 Option.

Bracket options B1, B2, B3, B7, B8, and B9 are sturdy polyurethane painted carbon steel brackets designed for use in pipe or panel mounting the traditional flange (H2, H3, H4, or H7 option). The B1–B3 brackets have carbon steel bolts, while the B7–B9 brackets have stainless steel bolts.

Bracket options BA and BC are stainless steel with stainless steel bolts. Dimensionally, these brackets are identical to the B1–B3 brackets used with the Rosemount Model 1151 Pressure Transmitter except for the length of the bolts used to mount the transmitter to the bracket. These bracket styles facilitate multiple mounting configurations (see Figures 2-10 and 2-11 on page 2-14). When installing the transmitter to one of the mounting brackets, torque the bolts to 125 inch-pounds.

NOTE
The transmitter is calibrated in an upright position at the factory. If you mount the transmitter in any other position, the zero point will shift by an amount equivalent to the liquid head caused by the varied mounting position. To reset the zero point, refer to "Zero Calibration" on page C-3.

Mounting Requirements

Refer to Figure 2-7 for examples of the following mounting configurations:

Liquid Flow Measurement

- Place taps to the side of the line to prevent sediment deposits on the transmitter's process isolators.
- Mount the transmitter beside or below the taps so gases can vent into the process line.
- Mount drain/vent valve upward to allow gases to vent.

Gas Flow Measurement

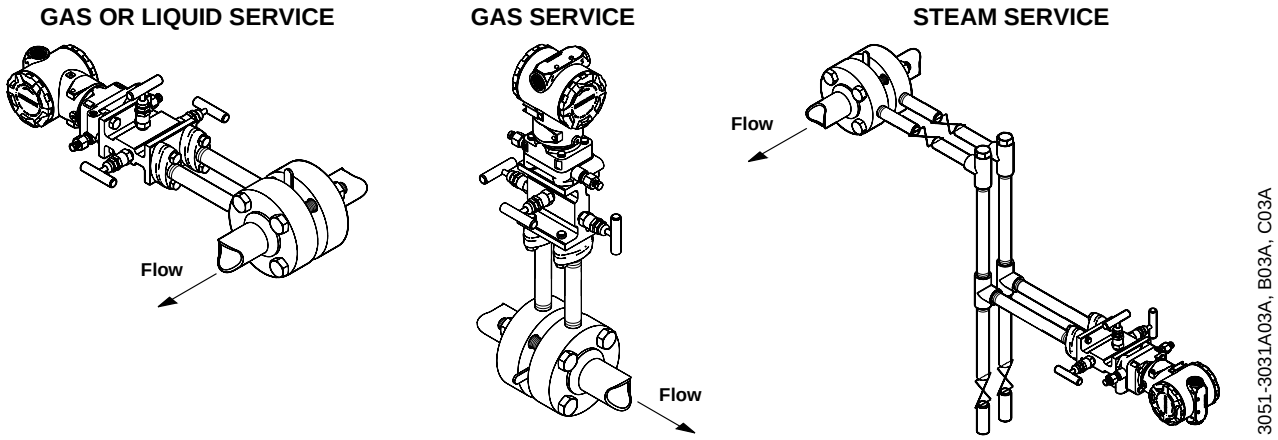
- Place taps in the top or side of the line.
- Mount the transmitter beside or above the taps so liquid will drain into the process line.

Steam Flow Measurement

- Place taps to the side of the line.
- Mount the transmitter below the taps to ensure that the impulse piping will stay filled with condensate.
- Fill impulse lines with water to prevent the steam from contacting the transmitter directly and to ensure accurate measurement start-up.

NOTE
In steam or other elevated temperature services, it is important that temperatures at the coplanar process flanges not exceed 250 °F (121 °C) for transmitters with silicone fill or 185 °F (85 °C) for inert fill. In vacuum service, these temperature limits are reduced to 220 °F (104 °C) for silicone fill and 160 °F (71 °C) for inert fill. Models 3051L, 3051H, and the traditional flange allow higher temperatures.

Figure 2-7. Installation Examples.



Impulse Piping

The piping between the process and the transmitter must accurately transfer the pressure to obtain accurate measurements. There are five possible sources of error: pressure transfer, leaks, friction loss (particularly if purging is used), trapped gas in a liquid line, liquid in a gas line, and density variations between the legs.

The best location for the transmitter in relation to the process pipe depends on the process itself. Use the following guidelines to determine transmitter location and placement of impulse piping:

- Keep impulse piping as short as possible.
- For liquid service, slope the impulse piping at least 1 inch per foot (8 cm per m) upward from the transmitter toward the process connection.
- For gas service, slope the impulse piping at least 1 inch per foot (8 cm per m) downward from the transmitter toward the process connection.
- Avoid high points in liquid lines and low points in gas lines.
- Make sure both impulse legs are the same temperature.
- Use impulse piping large enough to avoid friction effects and blockage.
- Vent all gas from liquid piping legs.
- When using a sealing fluid, fill both piping legs to the same level.
- When purging, make the purge connection close to the process taps and purge through equal lengths of the same size pipe. Avoid purging through the transmitter.
- Keep corrosive or hot (above 250 °F [121 °C]) process material out of direct contact with the sensor module and flanges.
- Prevent sediment deposits in the impulse piping.
- Keep the liquid head balanced on both legs of the impulse piping.
- Avoid conditions that might allow process fluid to freeze within the process flange.

Process Connections

Model 3051 process connections on the transmitter flange are ¼–18 NPT. Flange adapter unions with ½–14 NPT connections are supplied as standard. The threads are Class 2; use your plant-approved lubricant or sealant when making the process connections. The process connections on the transmitter flange are on 2⅛-inch (54 mm) centers to allow direct mounting to a three-valve or five-valve manifold. Rotate one or both of the flange adapters to attain connection centers of 2 inches (51 mm), 2⅛ inches (54 mm), or 2¼ inches (57 mm). See page 2-10 for information on the Model 3051T process connection.

⚠ Install and tighten all four flange bolts before applying pressure, or process leakage will result. When properly installed, the flange bolts will protrude through the top of the module housing. Do not attempt to loosen or remove the flange bolts while the transmitter is in service.

To install adapters to a Coplanar flange, perform the following procedure:

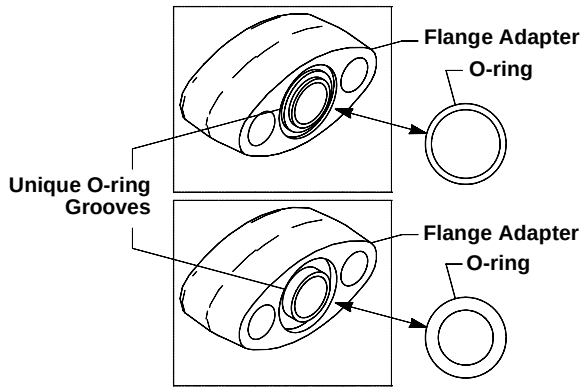
1. Remove the flange bolts.
2. Leaving the flange in place, move the adapters into position with the O-ring installed.
3. Clamp the adapters and the Coplanar flange to the transmitter module using the larger of the bolts supplied.
4. Tighten the bolts. Refer to “Mounting Bolts” on page 2-15 for torque specifications.

⚠WARNING

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

Each style of Rosemount flange adapters requires a unique O-ring, as shown below. Flange adapters are distinguished by their unique grooves.

MODEL 3001/3051/2024/3095



MODEL 1151

Use only the O-ring designed to seal with an adapter. Refer to the Spare Parts list in Section 5: Specifications and Reference Data for the correct part numbers of the flange adapters and O-rings designed for Model 3051 transmitters.

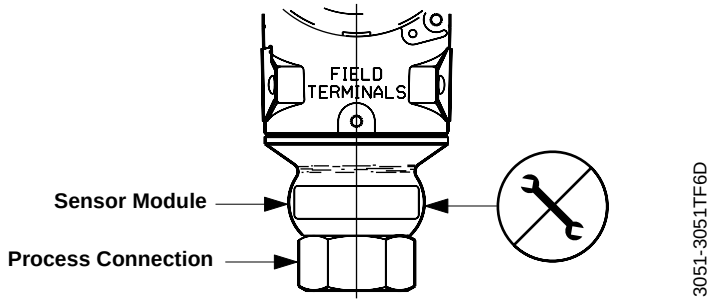
⚠ See “Mechanical Considerations” on page 2-2 for complete warning

When compressed, Teflon® O-rings tend to cold flow, which aids in their sealing capabilities. Whenever you remove flanges or adapters, visually inspect the Teflon O-rings. Replace them if there are any signs of damage, such as nicks or cuts. If they are undamaged, you may reuse them. If you replace the O-rings, retorque the flange bolts after installation to compensate for cold flow.

Model 3051T Process Connection

⚠WARNING

Do not apply torque directly to the sensor module. Rotation between the sensor module and the process connection can damage the electronics. To avoid damage, apply torque only to the hex-shaped process connection.



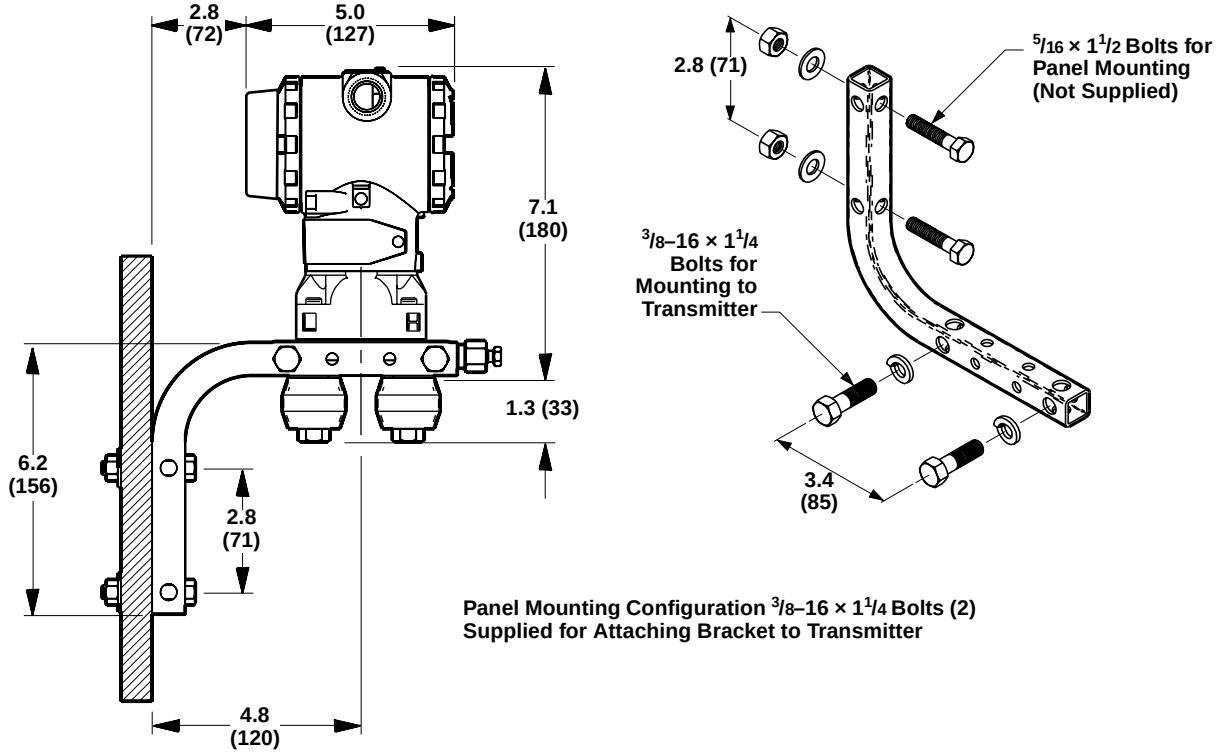
Housing Rotation

The electronics housing can be rotated up to 180 degrees (left or right) to improve field access or to better view the optional LCD meter. To rotate the housing, perform the following procedure:

1. Loosen the housing rotation set screw using a 9/64-in. hex wrench.
2. Turn the housing up to 180 degrees to the left or right of its original (as shipped) position. **Do not rotate the housing more than 180 degrees without first performing a disassembly procedure. Over-rotation will sever the electrical connection between the sensor module and the electronics module.**
3. Retighten the housing rotation set screw.

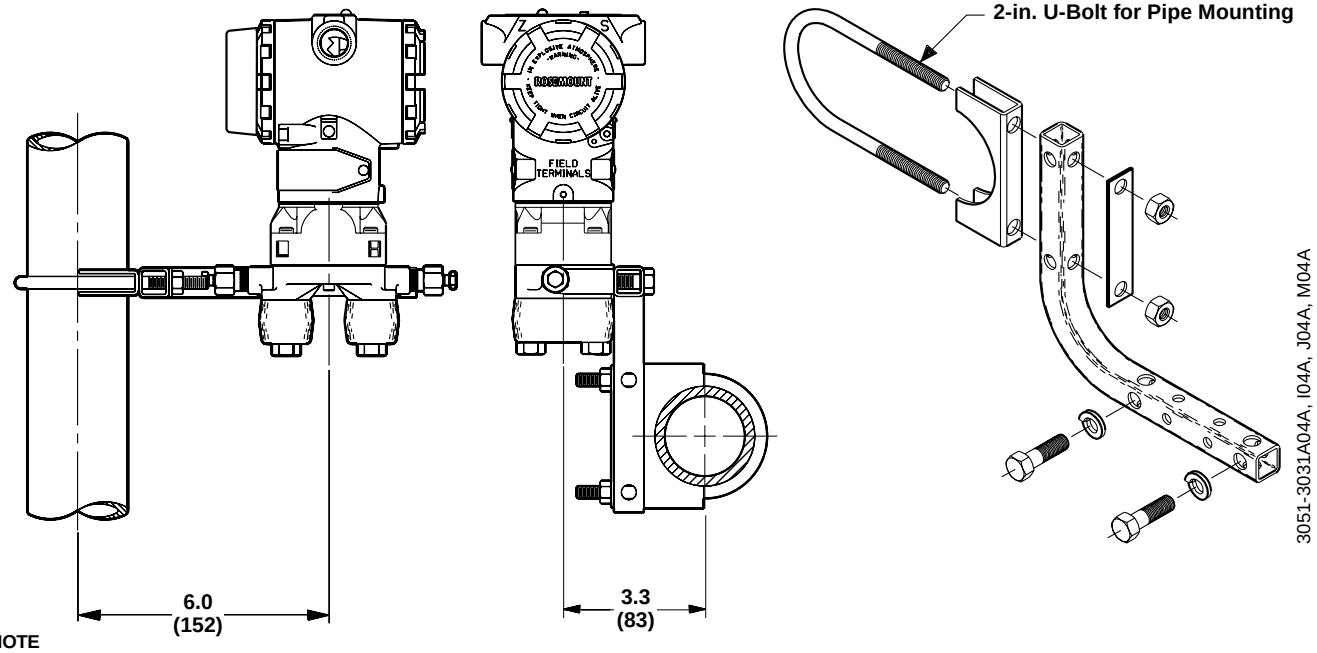
Figure 2-8. Coplanar Flange Mounting Configurations with Optional Bracket (B4) for 2-in. Pipe or Panel Mounting.

PANEL MOUNTING



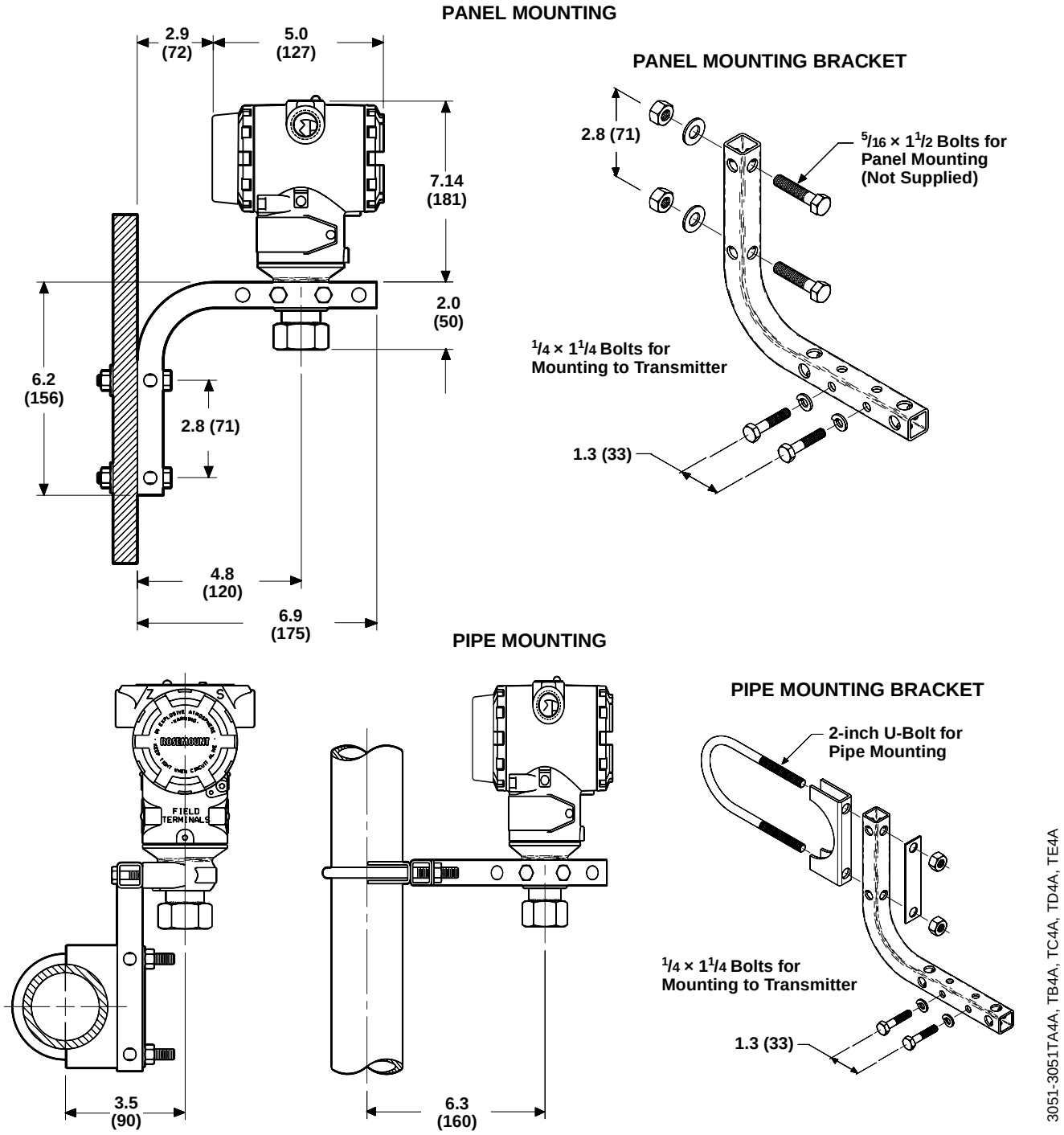
Panel Mounting Configuration 3/8–16 × 1 1/4 Bolts (2) Supplied for Attaching Bracket to Transmitter

PIPE MOUNTING



NOTE
Dimensions are in inches (millimeters).

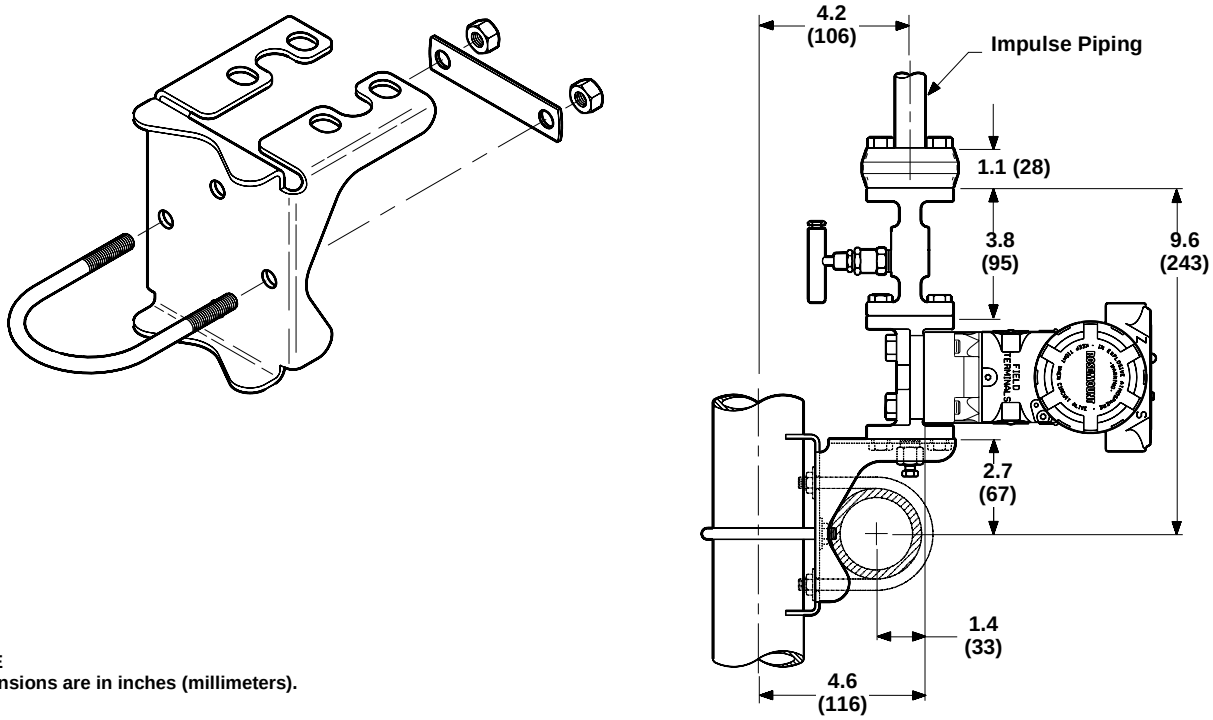
Figure 2-9. Model 3051T Mounting Configurations with Optional Bracket (B4) for 2-in. Pipe or Panel Mounting.



NOTE
Dimensions are in inches (millimeters).

Figure 2-10. Optional Mounting Bracket for Traditional Flange Options B1/B7/BA.

OPTION B1/B7/BA: TRADITIONAL FLANGE 2-IN. PIPE MOUNTING BRACKET

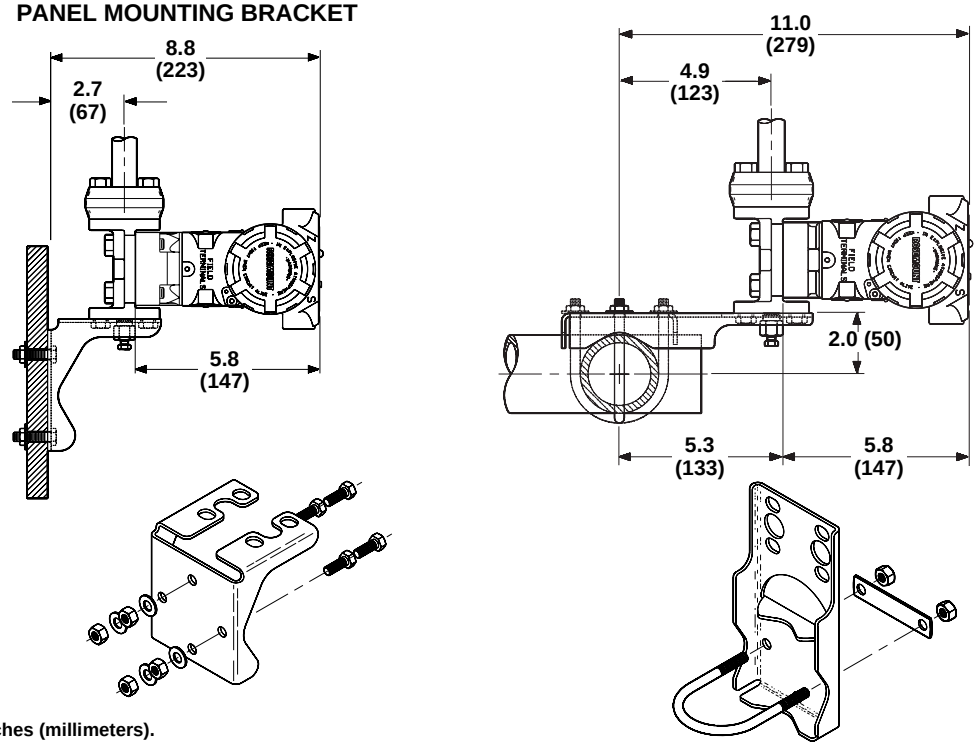


NOTE
Dimensions are in inches (millimeters).

Figure 2-11. Optional Mounting Brackets for Traditional Flange Options B2/B8, B3/B9/BC.

OPTION B2/B8: TRADITIONAL FLANGE PANEL MOUNTING BRACKET

OPTION B3/B9/BC: TRADITIONAL FLANGE



NOTE
Dimensions are in inches (millimeters).

Mounting Bolts

The following guidelines have been established to ensure a tight flange, adapter, or manifold seal. The Model 3051 is shipped with the Coplanar flange installed with four 1.75-inch flange bolts. The following bolts also are supplied to facilitate other mounting configurations:

Differential Pressure

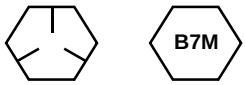
- Four 2.88-inch flange/adapter bolts for mounting the flange adapters to the Coplanar flange.
- Four 2.25-inch manifold/flange bolts for mounting the Coplanar flange on a three-valve manifold. In this configuration, the 1.75-inch bolts may be used to mount the flange adapters to the process connection side of the manifold.

Gage/Absolute Pressure

- Two 2.88-inch flange/adapter bolts for mounting the flange adapters to the Coplanar flange.

Figures 2-12 and 2-16 show mounting bolts and bolting configurations. Stainless steel bolts supplied by Rosemount Inc. are coated with a lubricant to ease installation. Carbon steel bolts do not require lubrication. No additional lubricant should be applied when installing either type of bolt. Bolts supplied by Rosemount Inc. are identified by their head markings:

Carbon Steel (CS) Head Markings



Stainless Steel (SST) Head Markings

*** The last digit in the F593_ head marking may be any letter between A and M.**

Bolt Installation

⚠ Only use bolts supplied with the Model 3051 or sold by Rosemount Inc. as spare parts for the Model 3051 transmitter. Use the following bolt installation procedure:

1. Finger-tighten the bolts.
2. Torque the bolts to the initial torque value using a crossing pattern (see Table 2-2 for torque values).
3. Torque the bolts to the final torque value using the same crossing pattern.

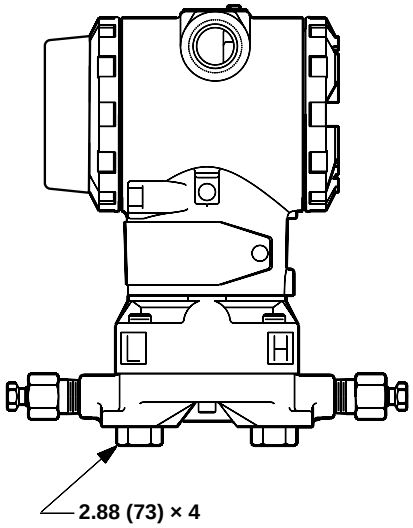
TABLE 2-2. Bolt Installation Torque Values.

Bolt Material	Initial Torque Value	Final Torque Value
Carbon Steel (CS)	300 in.-lb (34 N-m)	650 in.-lb (73 N-m)
Stainless Steel (SST)	150 in.-lb (17 N-m)	300 in.-lb (34 N-m)

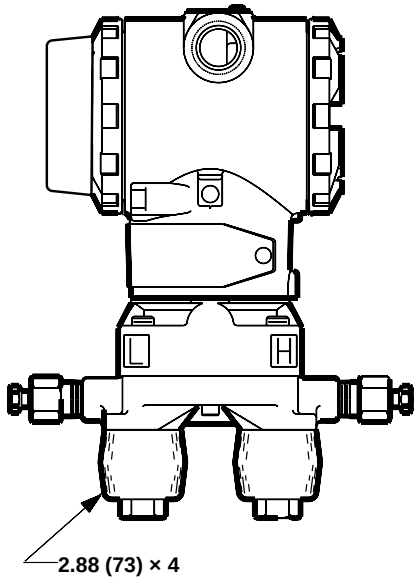
⚠ See “Mechanical Considerations” on page 2-2 for complete warning

Figure 2-12. Mounting Bolts and Bolt Configurations for Coplanar Flange.

TRANSMITTER WITH FLANGE BOLTS

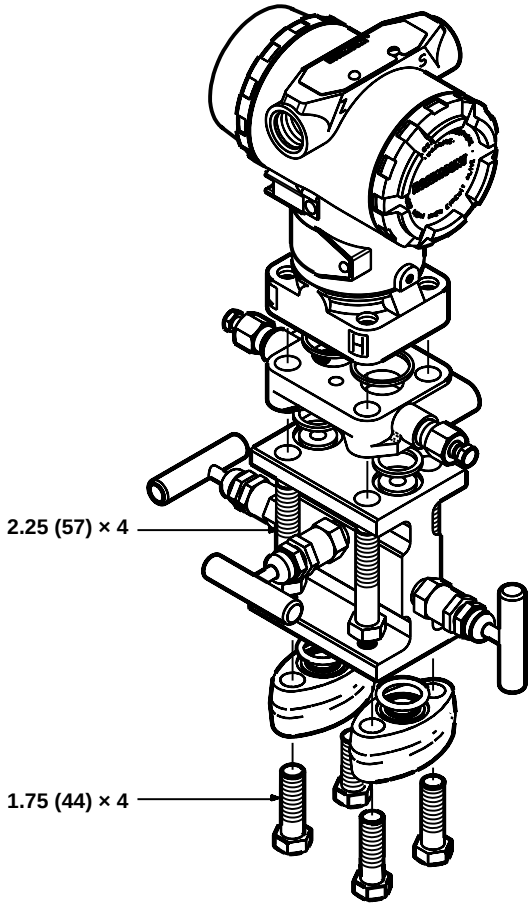


TRANSMITTER WITH FLANGE ADAPTERS AND FLANGE/ADAPTER BOLTS



TRANSMITTER WITH 3-VALVE MANIFOLD MANIFOLD/FLANGE BOLTS FLANGE ADAPTERS AND FLANGE/ADAPTER BOLTS

(Differential Configuration Shown)



Description	Qty	Size in. (mm)
Differential Pressure		
Flange Bolts	4	1.75 (44)
Flange/Adapter Bolts	4	2.88 (73)
Manifold/Flange Bolts	4	2.25 (57)
Gage/Absolute Pressure (1)		
Flange Bolts	4	1.74 (44)
Flange/Adapter Bolts	2	2.88 (73)

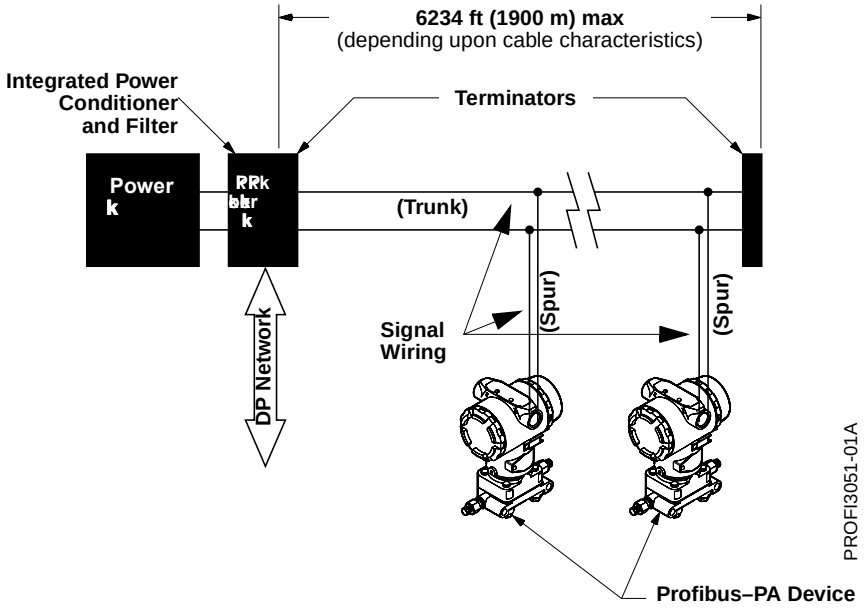
(1) Model 3051T transmitters are direct mount and do not require bolts for process connection.

NOTE
Dimensions are in inches (millimeters).

3051-3031E06D E06F; A29P

ELECTRICAL CONSIDERATIONS

Proper installation is necessary to prevent errors due to grounding and electrical noise. Shielded, twisted pair cable should be used for best results in electrically noisy environments.



Power Supply

The transmitter requires between 9 and 32 V dc at the terminals to operate and provide complete functionality. The dc power supply should provide power with less than 2% ripple.

Power Filter

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

Field Wiring

All power to the transmitter is supplied over the signal wiring. Signal wiring should be in shielded, twisted pair for best results. Do not run unshielded signal wiring in conduit or open trays with power wiring or near heavy electrical equipment. Do not remove the transmitter cover in explosive atmospheres when the circuit is alive.

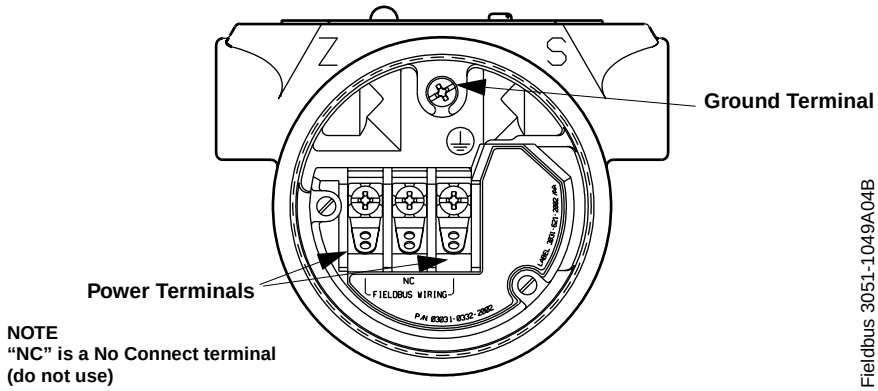
NOTE
Do not apply high voltage (e.g., ac line voltage) to the transmitter terminals. Abnormally high voltage can damage the unit. (Transmitter power terminals are rated to 32 V dc.)

Power Connections

Use ordinary copper wire of sufficient size to ensure that the voltage across the transmitter power terminals does not go below 9 V dc. To power the transmitter, connect the power leads to the terminals indicated on the terminal block label.

The power terminals are polarity insensitive, which means the electrical polarity of the power leads does not matter when connecting to the power terminals. When wiring to screw terminals, the use of crimped lugs is recommended. Tighten the terminal screws to ensure adequate contact. No additional power wiring is needed.

Figure 2-13. Transmitter Terminal Block



NOTE
If working on a live segment of a device, care should be taken to not ground out the communication wires to the housing. Grounding the communication wires may result in temporary loss of communication with all devices on the segment.

Grounding

Transmitters are electrically isolated to 500 V ac rms. The signal wiring can not be grounded at any point.

Shielded Wire and Grounding Techniques

Recommended grounding techniques for shielded wire usually call for a single grounding point for each shielded wire to avoid creating a ground loop. The following example employs the single point grounding technique:

- Connect the shield for signal wiring between transmitters and isolate electrically from the transmitter housing.
- Ground the shield at the power supply end in accordance with national and local electrical codes.

Surges/Transients

The transmitter will withstand electrical transients of the energy level usually encountered in static discharges or induced switching transients. However, high-energy transients, such as those induced in wiring from nearby lightning strikes, can damage the transmitter.

Option code T1 is a transient terminal block that protects the transmitter from these high-energy electrical transients.

JUMPERS

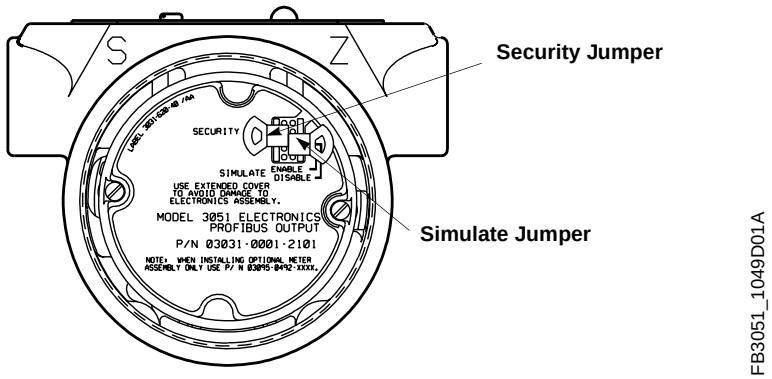
Security

After you configure the transmitter, you may want to protect the configuration data from unwarranted changes. Each transmitter is equipped with a security jumper that can be positioned "ON" to prevent the accidental or deliberate change of configuration data. The jumper is located on the front side of the electronics module and is labeled SECURITY, see Figure 2-14.

Simulate

The simulate jumper is used in conjunction with the Analog Input (AI) function block. This jumper is used to simulate the pressure measurement and is used as a lock-out feature for the AI block. To enable the simulate feature, the jumper must transition from "OFF" to "ON" *after* power is applied to the transmitter, see Figure 2-14. This feature prevents the transmitter from being accidentally left in simulate mode.

Figure 2-14. Transmitter Jumper Locations.



ENVIRONMENTAL CONSIDERATIONS

The following guidelines can help optimize transmitter performance. Mount the transmitter to minimize ambient temperature changes. Mount the transmitter to avoid vibration and mechanical shock, and to avoid external contact with corrosive materials.

Section 3

Communication

INTRODUCTION

The Model 3051 with PROFIBUS–PA Communications Protocol was designed to meet the PROFIBUS–PA standards as specified for a Class B device. As such, this Model 3051 Transmitter will communicate with any Profibus Host Device that is compliant with:

- PROFIBUS–PA Profile for Process Control Devices, Version 2.0, March 1997.
- DIN E 19 245, Part 3, and the implementation guidelines to DIN E 19 245, Part 3, September 1996.
- DP Extensions to EN 50170, Version 1.0, December 1997.

The PROFIBUS–PA function blocks and parameters installed in this Model 3051 Pressure Transmitter are identified and explained in the following Appendices:

Appendix A: Model 3051 Profibus–PA Analog Input Block (AI)
Appendix B: Model 3051 Profibus–PA Physical Block (PB)
Appendix C: Model 3051 Profibus–PA Transducer Block (TB)

It is not possible for this manual to know which PROFIBUS–PA host system will be used to communicate with the Model 3051. For specific instructions regarding how to communicate with a PROFIBUS–PA device, please consult your host system documentation.

Section 4

Specifications and Reference Data

PERFORMANCE SPECIFICATIONS

Total Performance is based upon combining errors of reference accuracy, ambient temperature effect, and line pressure. For detailed performance specifications, see page 4-2.

Model 3051C (Ranges 2–5) Model 3051T

Reference Accuracy

±0.075% of calibrated range.

Total Performance

±0.15% of calibrated range for ±50 °F (28 °C) temperature changes, up to 1000 psi (69 bar) line pressure (CD only), from 1:1 to 5:1 calibration rangedown.

Stability

±0.125% of URL for 5 years for ±50 °F (28 °C) temperature changes, and up to 1000 psi (69 bar) line pressure.

Model 3051CD (Ranges 0–1)

Reference Accuracy

±0.10% of calibrated range.

Stability

±0.2% of URL for one year.

Model 3051L – Liquid Level

Reference Accuracy

±0.075% of calibrated range.

DETAILED PERFORMANCE SPECIFICATIONS

Zero-based calibrations, reference conditions, silicon oil fill, and 316 SST isolating diaphragm.

Accuracy Notes

3051T/CA Ranges 1–5:

For calibrated ranges less than 10:1, accuracy =

$$\pm\left[0.0075\left(\frac{URL}{\text{Calibrated Range}}\right)\right]\% \text{ of Calibrated Range}$$

Model 3051CA Range 0:

For calibrated ranges less than 5:1, accuracy =

$$\pm\left[0.025 + 0.01\left(\frac{URL}{\text{Calibrated Range}}\right)\right]\% \text{ of Calibrated Range}$$

Model 3051CD Ranges 1–5 and Model 3051CG :

For calibrated ranges less than 10:1 (15:1 for Model 3051CD Range 1), accuracy =

$$\pm\left[0.025 + 0.005\left(\frac{URL}{\text{Calibrated Range}}\right)\right]\% \text{ of Calibrated Range}$$

Model 3051 CD Range 0

For calibrated ranges less than 2:1 to 30:1,
accuracy = 0.05% URL.

Model 3051L

For calibrated ranges less than 10:1, accuracy =

$$\pm\left[0.025 + 0.005\left(\frac{\text{URL}}{\text{Calibrated Range}}\right)\right]\% \text{ of Calibrated Range}$$

Ambient Temperature per 50 °F (28 °C)

3051CD/CG

±(0.0125% URL + 0.0625% calibrated range) from 1:1 to 5:1.
±(0.025% URL + 0.125% calibrated range) from 5:1 to 100:1.
Range 1: ±(0.1% URL + 0.25% calibrated range).
Range 0: ±(0.25% URL + 0.05% calibrated range).

3051L

See the Rosemount Instrument Toolkit™ or SOAP 2000™ software.

3051T and 3051CA

±(0.025% URL + 0.125% calibrated range) from 1:1 to 30:1
±(0.035% URL + 0.125% calibrated range) from 30:1 to 100:1
Range 0: ±(0.1% URL + 0.25% calibrated range)
Range 5: ±(0.1% URL + 0.15% calibrated range)

Model 3051T, Range 1:

±(0.025% URL + 0.125% calibrated range) from 1:1 to 10:1.
±(0.05% URL + 0.125% calibrated range) from 10:1 to 100:1.

Static Pressure

Zero Error (can be calibrated out at line pressure)

Zero line pressure effect per 1000 psi (69 bar).

Model	Range	Zero Effect with Static Pressure ≤ 2000 psi (13,7 MPa)	Zero Effect with Static Pressure > 2000 psi (13,7 MPa)
3051CD	0[1]	±0.125% URL	N/A
	1	±0.25% URL	N/A
	2,3	±0.05% URL	[0.10 + 0.10 (Pressure – 2)]%
	4,5	±0.10% URL	[0.20 + 0.20 (Pressure – 2)]%

(1) Specification expressed in Percent/100 psi (6,9 bar) up to 750 psi (52 bar).

Percent of Reading Error

Percent of reading effect per 1000 psi (69 bar).

Model	Range	Percent of Reading Effect
3051CD	0[1]	±0.15% of reading
	1	±0.40% of reading
	2,3	±0.10% of reading
	4,5[2]	±0.20% of reading

(1) Specification expressed in Percent/100 psi (6,9 bar) up to 750 psi (52 bar).
(2) Accuracy listed is after correction of systematic span effect. Refer to section (X.X) for line pressure compensation procedure.

Update Rate

Update Rate applies to all models and ranges.

Transducer Block: 45 milliseconds
Analog Input Block: 250 milliseconds

Mounting Position Effects

3051C

Zero shifts up to ±1.25 inH_2O (3,11 mbar), which can be calibrated out.

3051L

With liquid level diaphragm in vertical plane, zero shift of up to 1 inH_2O (2,5 mbar). With diaphragm in horizontal plane, zero shift of up to 5 inH_2O (12,45 mbar) plus extension length on extended units. All zero shifts can be calibrated out.

3051T/CA

Zero shifts up to 0.09 psi (6,2 mbar), which can be calibrated out.

FUNCTIONAL SPECIFICATIONS

Range and Sensor Limits

TABLE 4-1. Model 3051CD, 3051CG, and 3051L Range and Sensor Limits.

Range	Minimum Calibrated Range	Range and Sensor Limits				
			Lower (LRL)			
	Model 3051 CD, CG, L	Upper (URL)	3051C Differential	3051C Gage	3051L Differential	3051L Gage
0	0.1 inH_2O (0,25 mbar)	3.0 inH_2O (7,5 mbar)	–3.0 inH_2O (–7,5 mbar)	NA	NA	NA
1	0.5 inH_2O (1,2 mbar)	25 inH_2O (62,3 mbar)	–25 inH_2O (–62,3 bar)	NA	NA	NA
2	2.5 inH_2O (6,2 mbar)	250 inH_2O (0,6 bar)	–250 inH_2O (–0,6 bar)	–250 inH_2O (–0,6 bar)	–250 inH_2O (–0,6 bar)	–250 inH_2O (–0,6 bar)
3	10 inH_2O (25 mbar)	1000 inH_2O (2,5 bar)	–1000 inH_2O (–2,5 bar)	0.5 psia (34,5 mbar)	–1000 inH_2O (–2,5 bar)	0.5 psia (34,5 mbar)
4	3 psi (0,20 bar)	300 psi (20,9 bar)	–300 psi (1) (–20,9 bar)	0.5 psia (34,5 mbar)	–300 psi (–20,9 bar)	0.5 psia (34,5 mbar)
5	20 psi (1,4 bar)	2000 psi (138 bar)	– 2000 psi (1) (–138 bar)	0.5 psia (34,5 mbar)	NA	NA

TABLE 4-2. Model 3051CA Range and Sensor Limits.

Range	Minimum Calibrated Range	Range and Sensor Limits	
		Upper (URL)	Lower (LRL)
0	0.167 psia (11,5 mbar)	5 psia (0,34 bar)	0 psia (0 bar)
1	0.3 psia (20,7 mbar)	30 psia (2,07 bar)	0 psia (0 bar)
2	1.5 psia (103 mbar)	150 psia (10,3 bar)	0 psia (0 bar)
3	8 psia (0,55 bar)	800 psia (55,2 bar)	0 psia (0 bar)
4	40 psia (2,76 bar)	4000 psia (276 bar)	0 psia (0 bar)

TABLE 4-3. Model 3051T Range and Sensor Limits.

Range	Minimum Calibrated Range	Range and Sensor Limits		
		Upper (URL)	Lower (LRL) (Abs.)	Lower(1) (LRL) (Gage)
1	0.3 psi (0,02 bar)	30 psi (2,1 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)
2	1.5 psi (0,10 bar)	150 psi (10,3 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)
3	8 psi (0,55 bar)	800 psi (55,2 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)
4	40 psi (2,76 bar)	4000 psi (276 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)
5	2000 psi (138 bar)	10000 psi (689 bar)	0 psia (0 bar)	–14.7 psig (–1,01 bar)

(1) Assumes atmospheric pressure of 14.7 psia.

Service

Liquid, gas, and vapor applications.

Power Supply

External power supply and power conditioner are required. Transmitters operate on 9.0 to 32.0 V dc transmitter terminal voltage.

Overpressure Limits

Transmitters withstand the following limits without damage:

Model 3051CD/CG

Range 0: 750 psi (52 bar)
Range 1: 2000 psig (138 bar)
Ranges 2–5: 3626 psig (250 bar)

Model 3051CA

Range 0: 60 psia (4,1 bar)
Range 1: 120 psia (8,3 bar)
Range 2: 300 psia (20,7 bar)
Range 3: 1600 psia (110 bar)
Range 4: 6000 psia (414 bar)

Model 3051TG/TA

Range 1: 750 psi (52 bar)
Range 2: 1500 psi (103 bar)
Range 3: 1600 psi (110 bar)
Range 4: 6000 psi (414 bar)
Range 5: 15000 psi (1 034 bar)

For Model 3051L or Level Flange Option Codes FA, FB, FC, FD, FP, and FQ limit is 0 psia to the flange rating or sensor rating, whichever is lower.

TABLE 4-4. Model 3051L and Level Flange.

Flange Type	Carbon Steel Rating	Stainless Steel Rating
ASME (ANSI) Class 150	285 psig(1)	275 psig(1)
ASME (ANSI) Class 300	740 psig(1)	720 psig(1)
ASME (ANSI) Class 600	1480 psig(1)	1440 psig(1)
DIN PN 10-40	40 bar(2)	40 bar(2)
DIN PN 10/16	16 bar(2)	16 bar(2)
DIN PN 25/40	40 bar(2)	40 bar(2)

(1) At 100 °F (38 °C), the rating decreases with increasing temperature.
(2) At 248°F (120 °C), the rating decreases with increasing temperature.

Static Pressure Limit

Model 3051CD/PD Only

Operates within specifications between static line pressures of 0.5 psia and 3626 psig (4500 psig for Option Code P9).

Range 0: 0.5 psia and 750 psig
Range 1 (Model CD): 0.5 psia and 2000 psig

For Model 3051L or Level Flange Option Codes FA, FB, FC, FD, FP, and FQ limit is 0.5 psia to the flange rating or sensor rating, whichever is lower.

Burst Pressure Limits

Burst pressure on Coplanar or traditional process flange is 10000 psig (689 bar).

Burst pressure for the Model 3051T is
Ranges 1–4: 11000 psi (758 bar)
Range 5: 26000 psig (1793 bar)

Alarms

The AI block allows HI-HI, HI, LO, or LO-LO alarm configuration.

Temperature Limits

Ambient

–40 to 185 °F (–40 to 85 °C).

Storage

–50 to 230 °F (–46 to 110 °C).

Process

At atmospheric pressures and above. See Table 4-5.

TABLE 4-5. Process Temperature Limits.

Models 3051CD, 3051CG, 3051CA	
Silicone Fill Sensor(1):	
with Coplanar Flange	–40 to 250 °F (–40 to 121 °C)(2)
with Traditional Flange	–40 to 300 °F (–40 to 149 °C)(2)
with Level Flange	–40 to 300 °F (–40 to 149 °C)(2)
with Model 305 Integral Manifold	–40 to 300 °F (–40 to 149 °C)(2)
Inert Fill Sensor(1)	0 to 185 °F (–18 to 85 °C)(3) (4)
Models 3051T (Process Fill Fluid)	
Silicone Fill Sensor(1)	–40 to 250 °F (–40 to 121 °C)(2)
Inert Fill Sensor(1)	–22 to 250 °F (–30 to 121 °C)(2)
Models 3051L Low-Side Temperature Limits	
Silicone Fill Sensor(1)	–40 to 250 °F (–40 to 121 °C)(2)
Inert Fill Sensor(1)	0 to 185 °F (–18 to 85 °C)(2)
Models 3051L High-Side Temperature Limits (Process Fill Fluid)	
Syltherm® XLT	–100 to 300 °F (–73 to 149 °C)
D.C. Silicone 704(5)	60 to 600 °F (15 to 315 °C)
D.C. Silicone 200	–40 to 400 °F (–40 to 205 °C)
Inert	–50 to 350 °F (–45 to 177 °C)
Glycerin and Water	0 to 200 °F (–18 to 93 °C)
Neobee M-20®	0 to 400 °F (–18 to 205 °C)
Propylene Glycol and Water	0 to 200 °F (–18 to 93 °C)
Syltherm 800	–50 to 400 °F (–45 to 205 °C)

(1) Process temperatures above 185 °F (85 °C) require derating the ambient limits by a 1.5:1 ratio.
(2) 220 °F (104 °C) limit in vacuum service; 130 °F (54 °C) for pressures below 0.5 psia.
(3) 160 °F (71 °C) limit in vacuum service.
(4) Not available for Model 3051CA.
(5) Upper limit is for seal assemblies mounted away from the transmitter with the use of capillaries.

Humidity Limits

0–100% relative humidity.

Turn-on Time

Fieldbus communication is acheived less than ten seconds after power-up; at this time, performance is within specifications.

Volumetric Displacement

Less than 0.005 in^3 (0,08 cm^3).

Damping

Output response to a step input change is user-selectable in the Analog Input block for one time constant. This software damping is in addition to sensor module response time.

Physical Specifications

Electrical Connections

1/2–14 NPT, PG 13.5, G1/2, and M20 x 1.5 (CM20) conduit.

Process Connections

All Models except 3051L and 3051T

1/4–18 NPT on 2 1/8-in. centers;
1/2–14 NPT on 2-, 2 1/8-, or 2 1/4-in. centers.

Model 3051L

High pressure side: 2-, 3-, or 4-in., ASME (ANSI) Class 150, 300, or 600 flange; 50, 80, or 100 mm, PN 40 or 10/16 flange.

Low pressure side: 1/4–18 NPT on flange, 1/2–14 NPT on adapter.

Model 3051T

1/4–18, 1/2–14 NPT female, G1/2 A DIN 16288 Male (Available in SST for Range 1–4 transmitters only), or Autoclave type F-250-C (Pressure relieved 9/16–18 gland thread; 1/4 OD high pressure tube 60° cone; Available in SST for Range 5 transmitters only).

Process-Wetted Parts

Process Isolating Diaphragms

Isolating Diaphragm Material	3051CD/CG	3051T	3051CA	3051L
316L SST	•	•	•	See Below
Hastelloy C-276	•	•	•	
Monel	•		•	
Tantalum	•			
Gold-plated *Monel*	•		•	
Gold-plated SST	•		•	

Drain/Vent Valves

316 SST, Hastelloy C, or Monel material (Monel not available with Model 3051L).

Process Flanges and Adapters

Plated carbon steel, CF-8M (Cast version of 316 SST, material per ASTM-A743), Hastelloy C, or Monel.

Wetted O-rings

Glass-filled TFE (Graphite-filled TFE with isolating diaphragm Option Code 6).

Model 3051L Process Wetted Parts

Flanged Process Connection (Transmitter High Side)

Process diaphragms, including process gasket surface:

316L SST or Hastelloy C-276.

Extension

CF-3M (Cast version of 316L SST, material per ASTM-A743), or Hastelloy C.Fits schedule
40 and 80 pipe.

Mounting Flange

Zinc-cobalt plated CS or SST.

Reference Process Connection (Transmitter Low Side)

Isolating Diaphragms

316L SST or Hastelloy C-276.

Reference Flange and Adapter

CF-3M (Cast version of 316 SST, material per ASTM-A743).

Non-Wetted Parts

Electronics Housing

Low-copper aluminum or CF-8M (Cast version of 316 SST, material per ASTM-A743). NEMA 4X, IP 65, IP 66.

Coplanar Sensor Module Housing

CF-3M (Cast version of 316L SST, material per ASTM-A743).

Bolts

Plated carbon steel per ASTM A449, Type 1; Austenitic 316 SST, ANSI/ASTM-A-193-B7M, or Monel.

Sensor Module Fill Fluid

Silicone or inert halocarbon (inert not available with Model 3051CA or Model 3051H). Model 3051T uses silicone or Fluorinert® FC-43.

Process Fill Fluid (Model 3051L only)

3051L: Syltherm® XLT, D.C.® Silicone 704, D.C. Silicone 200, inert, glycerin and water, Neobee M-20®, propylene glycol and water, or Syltherm 800.

Paint

Polyurethane

Cover O-rings

Buna-N

Hazardous Locations Certifications

Stainless steel certification tag provided when optional approval is specified.

Factory Mutual (FM) Approvals

E5 Explosion proof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II and Class III, Division 1, Groups E, F, and G. Suitable for indoor and outdoor (NEMA 4X) hazardous locations. Factory Sealed.

I5 Intrinsically Safe for use in Class I, Division 1, Groups A, B, C, and D; Class II, Division 1, Groups E, F, and G; Class III, Division 1 when connected in accordance with Rosemount drawing 03031-1019. Temperature Code T4. Non-incendive for Class I, Division 2, Groups A, B, C, and D. NEMA 4X. Factory Sealed.

FM Approved Entity Parameters for Model 3051	FM Approved for Class I, II, III, Division 1 and 2, Groups:
V_{max} = 30 V dc	A–G
I_{max} = 300 mA	A–G
P_{max} = 1.3 W	A–G
C_i = 0.0 µF	A–G
L_i = 0,0 µH	A–G

Canadian Standards Association (CSA) Approvals

C6 Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D when connected in accordance with Rosemount drawings 03031-1024. Temperature Code T3C.

Explosionproof for Class I, Division 1, Groups B, C, and D. Dust-Ignition Proof for Class II, Division 1, Groups E, F, and G. Suitable for Class III, Division 1, indoor and outdoor hazardous locations, CSA enclosure 4X; factory sealed. Suitable for Class I, Division 2, Groups A, B, C, and D.

CSA Approved Barriers for Model 3051	CSA Approved for Class I, Division 1 and 2, Groups:
≤ 30 V, ≥ 300 Ω ≤ 28 V, ≥ 235 Ω ≤ 25 V, ≥ 160 Ω ≤ 22 V, ≥ 100 Ω	A–D

BASEEFA/CENELEC Intrinsic Safety Certification

I1 EEx ia IIC T4 ($-60 \leq T_{amb} = 60$ °C)

CENELEC Approved Entity Parameters

U_i= 30 V

I_i= 300 mA

P_i= 1.3 W

C_i= 0

L_i = 0

BASEEFA/CENELEC Non-incendive/Type N Certification

N1 EEx nL IIC T5 (-40 °C < T_{amb} < 70 °C)

Combinations of Approvals

K5 Combination of **E5** and **I5**

KB Combination of **K5** and **C6**
FM and CSA Explosionproof and Instrinsic Safety.

NOTE
Additional U.S., Canadian, Asian, and European Approvals Pending. Consult factory for updated approval information.

ORDERING INFORMATION

TABLE 4-6. Model 3051C Differential, Gage, and Absolute Pressure Transmitters.
— = Not Applicable • = Applicable

Model	Transmitter Type (Select One)	CD	CG	CA
3051CD	Differential Pressure Transmitter	•	—	—
3051CG	Gage Pressure Transmitter	—	•	—
3051CA	Absolute Pressure Transmitter	—	—	•

Pressure Ranges and Minimum Spans—English Units (SI Units)

	Model 3051CD		Model 3051CG		Model 3051CA				
Code	Range	Min. Span	Range	Min. Span	Range	Min. Span	CD	CG	CA
0	–3 to 3 inH_2O (–7,47 to 7,47 mbar)	0.1 inH_2O (0,2 mbar)	Not Applicable		0 to 5 psia (0 to 0,34 bar)	0.167 psia 11,5 mbar	•	—	•
1	–25 to 25 inH_2O (–62,2 to 62,2 mbar)	0.5 inH_2O (1,2 mbar)	Not Applicable		0 to 30 psia (0 to 2,07 bar)	0.3 psia (20,7 mbar)	•	—	•
2	–250 to 250 inH2O (–623 to 623 mbar)	2.5 inH_2O (6,2 mbar)	–250 to 250 inH_2O (–623 to 623 mbar)	2.5 inH_2O (6,2 mbar)	0 to 150 psia (0 to 10,34 bar)	1.5 psia (0,1 bar)	•	•	•
3	–1000 to 1000 inH_2O (–2,5 to 2,5 bar)	10 inH_2O (25 mbar)	–407 to 1000 inH_2O (–1,01 to 2,5 bar)	10 in H_2O (25 mbar)	0 to 800 psia (0 to 55,16 bar)	8 psia (0,55 bar)	•	•	•
4	–300 to 300 psi (–20,7 to 20,7 bar)	3 psi (0,2 bar)	–14.7 to 300 psi (–1,01 to 20,7 bar)	3 psi 0,2 bar	0 to 4000 psia (0 to 275,8 bar)	40 psia (2,76 bar)	•	•	•
5	–2000 to 2000 psi (–138 to138 bar)	20 psi (1,38 bar)	–14.7 to 2000 psig (–1,01 to 138 bar)	20 psi 1,38 bar	Not Applicable		•	•	—

NOTE: Model 3051CD0 is available only with Process Flange Code 0 (Alternate Flange H2), Isolating Diaphragm Code 2, O-ring Code A, and Bolting Option L4. For additional information, contact your Rosemount representative or see Rosemount PDS 00813-0600-4001.

Code	Output	CD	CG	CA
W	*PROFIBUS–PA* Protocol	•	•	•

Materials of Construction

Code	Process Flange Type	Flange Material	Drain/Vent	Flange Adapters	CD	CG	CA
2	*Coplanar*	SST	SST	SST	•	•	•
3	*Coplanar*	*Hastelloy C*	*Hastelloy C*	*Hastelloy C*	•	•	•
4	*Coplanar*	*Monel*	*Monel*	*Monel*	•	•	•
5	*Coplanar*	Plated CS	SST	Plated CS	•	•	•
7	*Coplanar*	SST	*Hastelloy C*	SST	•	•	•
8	*Coplanar*	Plated CS	*Hastelloy C*	Plated CS	•	•	•
0	Alternate Flange—See Options H2, H3, H4, H7, HJ, HK, HL, FA, FB, FC, FD, FP, FQ, or S5				•	•	•

NOTE: Option Codes 3, 7, and 8 meet NACE material recommendations per MR 01-75.

Code	Isolating Diaphragm	CD	CG	CA
2	316L SST	•	•	•
3	*Hastelloy C-276* (Meets NACE material recommendations per MR 01-75)	•	•	•
4	*Monel*	•	•	•
5	Tantalum: Available on Model 3051CD and CG, Ranges 2–5 only	•	•	—
6	Gold-plated *Monel*	•	•	•
7	Gold-plated SST	•	•	•

Code	O-ring	CD	CG	CA
A	Glass-filled TFE	•	•	•
B	Graphite-filled TFE	•	•	•

Code	Fill Fluid	CD	CG	CA
1	Silicone	•	•	•
2	Inert fill (Halocarbon)	•	•	—

Code	Housing Material	Conduit Entry Size	CD	CG	CA
A	Polyurethane-covered Aluminum	½–14 NPT	•	•	•
B	Polyurethane-covered Aluminum	M20 × 1.5 (CM20)	•	•	•
C	Polyurethane-covered Aluminum	PG 13.5	•	•	•
D	Polyurethane-covered Aluminum	G½	•	•	•

TABLE 4-6. Model 3051C Differential, Gage, and Absolute Pressure Transmitters. (continued)
— = Not Applicable • = Applicable

Code	Alternate Flange Options (Requires Materials of Construction Code 0)	CD	CG	CA
H2	Traditional Flange, 316 SST, SST Drain/Vent, SST Flange Adapter	•	•	•
H3	Traditional Flange, Hastelloy C, Hastelloy C Drain/Vent, Hastelloy C Flange Adapter (Meets NACE material recommendations per MR 01-75)	•	•	•
H4	Traditional Flange, *Monel*, *Monel* Drain/Vent, *Monel* Flange Adapter	•	•	•
H7	Traditional Flange, 316 SST, Hastelloy C Drain/Vent, 316 SST Flange Adapter (Meets NACE material recommendations per MR 01-75)	•	•	•
HJ	DIN Compliant Traditional Flange, SST, $^{7}/_{16}$ in. Adapter/Manifold Bolting	•	•	•
HK	DIN Compliant Traditional Flange, SST, 10 mm Adapter/Manifold Bolting	•	•	•
HL	DIN Compliant Traditional Flange, SST, 12mm Adapter/Manifold Bolting	•	•	•
FA	Level Flange, SST, 2 in., ASME B 16.5 (ANSI) Class 150, Vertical Mount	•	•	•
FB	Level Flange, SST, 2 in., ASME B 16.5 (ANSI) Class 300, Vertical Mount	•	•	•
FC	Level Flange, SST, 3 in., ASME B 16.5 (ANSI) Class 150, Vertical Mount	•	•	•
FD	Level Flange, SST, 3 in., ASME B 16.5 (ANSI) Class 300, Vertical Mount	•	•	•
FP	DIN Level Flange, SST, DN 50, PN 40, Vertical Mount	•	•	•
FQ	DIN Level Flange, SST, DN 80, PN 40, Vertical Mount	•	•	•
Code	**Integral Mount Manifold (Optional)**	**CD**	**CG**	**CA**
S5	Assemble to Model 305 Integral Manifold	•	•	•
Code	**Integral Mount Primary Elements (Optional)**	**CD**	**CG**	**CA**
S4	Factory Assembly to Rosemount Primary Element (*Annubar*® or Model 1195 Integral Orifice) *NOTE: With the primary element installed, the maximum operating pressure will equal the lesser of either the transmitter or the primary element. Option is available for factory assembly to range 1–4 transmitters only.*	•	•	•
Code	**Diaphragm Seal Assemblies (Optional)**	**CD**	**CG**	**CA**
S1	One Diaphragm Seal (Direct Mount or Capillary Connection Type)	•	•	•
S2	Two Diaphragm Seals (Direct Mount or Capillary Connection Type)	•	—	—
Code	**Optional All Welded Diaphragm Seals Systems (For High Vacuum Applications)**	**CD**	**CG**	**CA**
S7	One Diaphragm Seal, All-Welded System (Capillary Connection Type)	•	•	•
S8	Two Diaphragm Seals, All-Welded System (Capillary Connection Type)	•	—	—
S0	One Diaphragm Seal, All-Welded System (Direct Mount Connection Type)	•	•	•
S9	Two Diaphragm Seals, All-Welded System (One Direct Mount and One Capillary Connection Type)	•	—	—
NOTE: Option Code S7, S8, S9, and S0 standard flange adapter bolts are austenitic 316 SST.				
Code	**Optional Mounting Brackets**	**CD**	**CG**	**CA**
B4	*Coplanar* Flange Bracket for 2-in. Pipe or Panel Mounting, all SST	•	•	•
B1	Traditional Flange Bracket for 2-in. Pipe Mounting, CS Bolts	•	•	•
B2	Traditional Flange Bracket for Panel Mounting, CS Bolts	•	•	•
B3	Traditional Flange Flat Bracket for 2-in. Pipe Mounting, CS Bolts	•	•	•
B7	B1 Bracket with Series 300 SST Bolts	•	•	•
B8	B2 Bracket with Series 300 SST Bolts	•	•	•
B9	B3 Bracket with Series 300 SST Bolts	•	•	•
BA	SST B1 Bracket with Series 300 SST Bolts	•	•	•
BC	SST B3 Bracket with Series 300 SST Bolts	•	•	•
Code	**Optional Hazardous Locations Certifications**	**CD**	**CG**	**CA**
E5	FM Explosionproof Approval	•	•	•
I5	FM Non-incendive and Intrinsic Safety Approval	•	•	•
C6	Canadian Standards Association (CSA) Explosionproof and Intrinsic Safety Approval	•	•	•
I1	BASEEFA/CENELEC Intrinsic Safety Certification	•	•	•
N1	BASEEFA/CENELEC Type N Certification	•	•	•
K5	FM Explosionproof and Intrinsic Safety Approval	•	•	•
KB	Combination of FM and CSA Explosion Proof and Intrinsic Safety Approvals	•	•	•
Code	**Optional Bolting**	**CD**	**CG**	**CA**
L4	Austenitic 316 SST Bolts	•	•	•
L5	ANSI/ASTM-A-193-B7M Bolts	•	•	•
L6	*Monel* Bolts	•	•	•

TABLE 4-6. Model 3051C Differential, Gage, and Absolute Pressure Transmitters. (continued)
— = Not Applicable • = Applicable

Code	Other Options		CD	CG	CA
Q4	Calibration Data Sheet		•	•	•
Q8	Material Traceability Certification per EN 10204 3.1B		•	•	•
	NOTE: This option is available for the sensor module housing and Coplanar or traditional flanges and adapters (Model 3051C), and for the sensor module housing and low-volume Coplanar flange and adapter (Model 3051C with Option Code S1).				
T1	Transient Protection Terminal Block		•	•	•
C3	Gage Calibration (Model 3051CA4 only)		—	—	•
P1	Hydrostatic Testing		•	•	•
P2	Cleaning for Special Service		•	•	•
P3	Cleaning for <1 PPM Chlorine/Fluorine		•	•	•
D3	¼–18 NPT Process Connections (No flange adapters):	316 SST	•	•	•
	Materials of construction for this option are selected according to the materials of construction for the flange, drain/vent, and flange adapters selected under "Materials of Construction" on page 4-11	*Hastelloy*	•	•	•
		Monel	•	•	•
D7	Coplanar Flange Without Drain/Vent Ports		•	•	•
D8	Ceramic Ball Drain/Vents		•	•	•
D9	JIS Process Connection—RC ¼ Flange with RC ½ Flange Adapter	*Carbon Steel*	•	•	•
	Materials of construction for this option are selected according to the materials of construction for the flange, drain/vent, and flange adapters selected under "Materials of Construction" on page 4-11	316 SST	•	•	•
P9	4500 psig Static Pressure Limit (Model 3051CD Ranges 2–5 only)		•	—	—
V5	External Ground Screw Assembly		•	•	•
Typical Model Number:	**3051CD 2 W 2 2 A 1 A B4**				

TABLE 4-7. Model 3051T Gage and Absolute Pressure Transmitter.

Model	Transmitter Type				Available
3051T	Pressure Transmitter				•
Code	**Pressure Type**				
G	Gage				
A	Absolute				
	Pressure Ranges and Minimum Spans—English Units (SI Units)				
	3051TG		**3051TA**		
Code	**Range**	**Minimum Span**	**Range**	**Minimum Span**	
1	–14.7 to 30 psig (–1,01 to 2,06 bar)	0.3 psi (20,7 bar)	0 to 30 psia (0 to 2,06 bar)	0.3 psia (20,7 bar)	•
2	–14.7 to 150 psig (–1,01 to 10,34 bar)	1.5 psi (103,4 mbar)	0 to 150 psia (0 to 10,34 bar)	1.5 psia (103,4 mbar)	•
3	–14.7 to 800 psig (–1,01 to 55,16 bar)	8 psi (0,55 bar)	0 to 800 psia (0 to 55,16 bar)	8 psia (0,55 bar)	•
4	–14.7 to 4000 psig (–1,01 to 275,8 bar)	40 psi (2,76 bar)	0 to 4000 psia (0 to 275,8 bar)	40 psia (2,76 bar)	•
5	–14.7 to 10000 psig (–1,01 to 689,5 bar)	2000 psi (138 bar)	0 to 10000 psia (0 to 689,5 bar)	2000 psia (138 bar)	•
Code	**Output**				
W	*PROFIBUS–PA* Protocol				•
Code	**Process Connection Style**				
2A	¼–18 NPT Female				•
2B	½–14 NPT Female				•
2C	G½ A DIN 16288 Male (Available in SST for Range 1–4 only)				•
2F	Coned and Threaded, Compatible with Autoclave Type F-250-C (Includes Gland and Collar, Available in SST for Range 5 only)				•
Code	**Isolating Diaphragm**		**Process Connection Wetted Parts Material**		
2	316L SST		316L SST		•
3	*Hastelloy*		*Hastelloy*		•
NOTE: Option Code 3 meets NACE requirements per MR 01-75.					
Code	**Fill Fluid**				
1	Silicone				•
2	Inert				•
Code	**Housing Material**		**Conduit Entry Size**		
A	Polyurethane-covered Aluminum		½–14 NPT		•
B	Polyurethane-covered Aluminum		M20 × 1.5 (CM20)		•
C	Polyurethane-covered Aluminum		PG 13.5		•
D	Polyurethane-covered Aluminum		G½		•
Code	**Integral Mount Manifold (Optional)**				
S5	Assemble to Model 306 Integral Manifold (Requires ½ in. process connection code 2B—Refer to PPL 00814-0100-4733)				•
Code	**Remote Diaphragm Seal Assemblies (Optional)**				
S1	One Remote Diaphragm Seal (Direct Mount or Capillary Connection Type)				•
Code	**Mounting Brackets (Optional)**				
B4	Bracket for 2-in. Pipe or Panel Mounting, All SST				•
Code	**Hazardous Locations Certifications (Optional)**				
E5	FM Explosionproof Approval				•
I5	FM Non-incendive and Intrinsic Safety Approval				•
C6	Canadian Standards Association (CSA) Explosionproof and Intrinsic Safety Approval				•
I1	BASEEFA/CENELEC Intrinsic Safety Certification				•
N1	BASEEFA/CENELEC Type N Certification				•
K5	FM Explosionproof and Intrinsic Safety Approval				•
KB	Combination of FM and CSA Explosion Proof and Intrinsic Safety Approvals				•

TABLE 4-7. Model 3051T Gage and Absolute Pressure Transmitter. (continued)

Code	Other Options	
Q4	Calibration Data Sheet	•
Q8	Material Traceability Certification per EN 10204 3.1B NOTE: This option is available for the Model 3051T process connection only.	•
T1	Transient Protection Terminal Block	•
P1	Hydrostatic Testing	•
P2	Cleaning for Special Service	•
P3	Cleaning for less than 1 PPM Chlorine/Fluorine	•
V5	External Ground Screw Assembly	•
Typical Model Number:	**3051T G 5 W 2A 2 1 A B4**	

TABLE 4-8. Model 3051L Flange-Mounted Liquid Level Transmitter.

Model	Transmitter Type				Available
3051L	Flange-Mounted Liquid Level Transmitter				•
	Pressure Ranges				
Code	**Range**		**Minimum Span**		
2	–250 to 250 inH_2O (–0,62 to 0,62 bar)		2.5 inH_2O (6,22 mbar)		•
3	–1000 to 1000 inH_2O (–2,5 to 2,5 bar)		10 inH_2O (25 mbar)		•
4	–8310 to 8310 inH_2O (–20,7 to 20,7 bar)		83.1 inH_2O (207 mbar)		•
NOTE: For maximum accuracy, specify the calibration points that best accommodate your application using the Model 3051 with FOUNDATION fieldbus Configuration Data Sheet 00806-0100-4774.					
Code	**Output**				
W	*PROFIBUS–PA* Protocol				•
	HIGH PRESSURE SIDE				
Code	**Diaphragm Size**	**Material**	**Extension Length**		
G0	2 in./DIN DN 50	316L SST	Flush Mount Only	When specifying this option code, a lower housing must be selected from the flushing connection options table.	•
H0	2 in./DIN DN 50	*Hastelloy*	Flush Mount Only		•
J0	2 in./DIN DN 50	Tantalum	Flush Mount Only		•
A0	3 in./DIN DN 80	316L SST	Flush Mount		•
A2	3 in./DIN DN 80	316L SST	2 in./50 mm	*NOTE* Extension diameters are sized to fit Schedule 80 pipe. Consult factory for Schedule 40 pipe.	•
A4	3 in./DIN DN 80	316L SST	4 in./100 mm		•
A6	3 in./DIN DN 80	316L SST	6 in./150 mm		•
B0	4 in./DIN DN 100	316L SST	Flush Mount		•
B2	4 in./DIN DN 100	316L SST	2 in./50 mm		•
B4	4 in./DIN DN 100	316L SST	4 in./100 mm		•
B6	4 in./DIN DN 100	316L SST	6 in./150 mm		•
C0	3 in./DIN DN 80	*Hastelloy*	Flush Mount		•
C2	3 in./DIN DN 80	*Hastelloy*	2 in./50 mm		•
C4	3 in./DIN DN 80	*Hastelloy*	4 in./100 mm		•
C6	3 in./DIN DN 80	*Hastelloy*	6 in./150 mm		•
D0	4 in./DIN DN 100	*Hastelloy*	Flush Mount		•
D2	4 in./DIN DN 100	*Hastelloy*	2 in./50 mm		•
D4	4 in./DIN DN 100	*Hastelloy*	4 in./100 mm		•
D6	4 in./DIN DN 100	*Hastelloy*	6 in./150 mm		•
E0	3 in./DIN DN 80	Tantalum	Flush Mount Only		•
F0	4 in./DIN DN 100	Tantalum	Flush Mount Only		•

TABLE 4-8. Model 3051L Flange-Mounted Liquid Level Transmitter. (continued)

MOUNTING FLANGE					
Code	**Size**	**ASME B 16.5 (ANSI) or DIN Flange Rating**	**Material**	**Applicable with these High Pressure Side Diaphragm Sizes**	
M	2 in.	Class 150	CS	2 in. or DIN DN 50	•
A	3 in.	Class 150	CS	3 in. or DIN DN 80	•
B	4 in.	Class 150	CS	4 in. or DIN DN 100	•
N	2 in.	Class 300	CS	2 in. or DIN DN 50	•
C	3 in.	Class 300	CS	3 in. or DIN DN 80	•
D	4 in.	Class 300	CS	4 in. or DIN DN 100	•
P	2 in.	Class 600	CS	2 in. or DIN DN 50	•
E	3 in.	Class 600	CS	3 in. or DIN DN 80	•
X	2 in.	Class 150	SST	2 in. or DIN DN 50	•
F	3 in.	Class 150	SST	3 in. or DIN DN 80	•
G	4 in.	Class 150	SST	4 in. or DIN DN 100	•
Y	2 in.	Class 300	SST	2 in. or DIN DN 50	•
H	3 in.	Class 300	SST	3 in. or DIN DN 80	•
J	4 in.	Class 300	SST	4 in. or DIN DN 100	•
Z	2 in.	Class 600	SST	2 in. or DIN DN 50	•
L	3 in.	Class 600	SST	3 in. or DIN DN 80	•
Q	DIN DN 50	PN 10–40	CS	2 in. or DIN DN 50	•
R	DIN DN 80	PN 40	CS	3 in. or DIN DN 80	•
S	DIN DN 100	PN 40	CS	4 in. or DIN DN 100	•
V	DIN DN 100	PN 10/16	CS	4 in. or DIN DN 100	•
K	DIN DN 50	PN 10–40	SST	2 in. or DIN DN 50	•
T	DIN DN 80	PN 40	SST	3 in. or DIN DN 80	•
U	DIN DN 100	PN 40	SST	4 in. or DIN DN 100	•
W	DIN DN 100	PN 10/16	SST	4 in. or DIN DN 100	•

Code	**Process Fill-High Pressure Side**	**Temperature Limits**	
A	*Syltherm* XLT	–100 to 300 °F (–73 to 135 °C)	•
C	*D. C. Silicone 704*	60 to 600 °F (15 to 315 °C)	•
D	*D. C. Silicone 200*	–40 to 400 °F (–40 to 205 °C)	•
H	Inert (Halocarbon)	–50 to 350 °F (–45 to 177 °C)	•
G	Glycerine and Water	0 to 200 °F (–17 to 93 °C)	•
N	*Neobee M-20*	0 to 400 °F (–17 to 205 °C)	•
P	Propylene Glycol and Water	0 to 200 °F (–17 to 93 °C)	•

LOW PRESSURE SIDE					
Code	**Configuration**	**Flange Adapter**	**Diaphragm Material**	**Sensor Fill Fluid**	
21	Differential	SST	316L SST	Silicone	•
22	Differential	SST	*Hastelloy C-276*	Silicone	•
2A	Differential	SST	316L SST	Inert (Halocarbon)	•
2B	Differential	SST	*Hastelloy C-276*	Inert (Halocarbon)	•
31	Remote Seal	SST	316L SST	Silicone (Requires Option Code S1)	•

Code	**O-ring Material**	
A	Glass-filled TFE	•

Code	**Housing Material**	**Conduit Entry Size**	
A	Polyurethane-covered Aluminum	½–14 NPT	•
B	Polyurethane-covered Aluminum	M20 × 1.5 (CM20)	•
C	Polyurethane-covered Aluminum	PG 13.5	•
D	Polyurethane-covered Aluminum	G½	•

Code	**Diaphragm Seal Assemblies (Optional)**	
S1	One Diaphragm Seal (requires low pressure side Option Code 31 capillary connection type)	•

TABLE 4-8. Model 3051L Flange-Mounted Liquid Level Transmitter. (continued)

Code	Hazardous Locations Certifications (Optional)	
E5	FM Explosionproof Approval	•
I5	FM Non-incendive and Intrinsic Safety Approval	•
C6	Canadian Standards Association (CSA) Explosionproof and Intrinsic Safety Approval	•
I1	BASEEFA/CENELEC Intrinsic Safety Certification	•
N1	BASEEFA/CENELEC Type N Certification	•
K5	FM Explosionproof and Intrinsic Safety Approval	•
KB	Combination of FM and CSA Explosion Proof and Intrinsic Safety Approvals	•
Code	**Bolt for Flange and Adapters (Optional)**	
L4	Austenitic 316 SST Bolts	•
L5	ASME B 16.5 (ANSI)/ASTM-A-193-B7M Bolts	•
Code	**Other Options**	
Q4	Calibration Data Sheet	•
Q8	Material Traceability Certification per EN 10204 3.1B *NOTE: This option is available for the diaphragm, upper housing, Coplanar flange, adapter, sensor module housing/flushing connection, and extension.*	•
T1	Transient Protection Terminal Block	•
D8	Ceramic Ball Drain/Vents	•
V5	External Ground Screw Assembly	•

	Flushing Connections			Diaphragm Size		
Code	**Ring Material**	**Number**	**Size**	**2 in.**	**3 in.**	**4 in.**
F1	SST	1	¼	•	•	•
F2	SST	2	¼	•	•	•
F3	*Hastelloy*	1	¼	•	•	•
F4	*Hastelloy*	2	¼	•	•	•
FA	SST	0	—	•	—	—
FC	*Hastelloy*	0	—	•	—	—
F7	SST	1	½	•	•	•
F8	SST	2	½	•	•	•
F9	*Hastelloy*	1	½	•	•	•
F0	*Hastelloy*	2	½	•	•	•

NOTE: Option Code F3 is not available with Option Codes A0, B0, or G0. Option Code FC is not available with Option Code G0.
NOTE: Option Code F4 is available for the diaphragm, upper housing, Coplanar flange, adapter, sensor module housing/flushing connection, and extension.

Typical Model Number: 3051L 2 W A0 A D 21 A A Q4

Standard Configuration

Unless otherwise specified, transmitter is shipped as follows:

Engineering Units

Differential / Gage	inH_2O (Range 1, 2, and 3) psi (Range 4 and 5)
Absolute / 3051T	psi (all ranges)
Calibration points:	Full range unless otherwise specified.
Flange type:	Specified model code option.
Flange material:	Specified model code option.
O-ring material:	Specified model code option.
Drain/vent:	Specified model code option.
Software tag:	(Blank)

Tagging

Three customer tagging options are available:

1. Standard SST hardware tag is wired to the transmitter. Tag character height is 0.125 in. (3,18 mm), 56 characters maximum.
2. Tag may be permanently stamped on transmitter nameplate upon request, 56 characters maximum.
3. A customer-specified tag may be stored in transmitter memory (30 characters minimum); otherwise, it will match the tag assigned for option one and/or two.

Optional Model 305 Integral Manifolds

Factory assembled to Coplanar Model 3051 transmitters. Refer to PDS 00813-0100-4733 for ordering information.

Optional Three-Valve Conventional Manifolds

(Packaged separately.)

Part No. 01151-0150-0001

3-Valve Manifold, Carbon Steel
(Anderson, Greenwood & Co., M4AVIC).

Part No. 01151-0150-0002

3-Valve Manifold, 316 SST
(Anderson, Greenwood & Co., M4AVIS).

Output Information

Available units of measure include:

inH_2O @ 68 °F	psi	Pa
inHg @ 0 °C	bar	kPa
ftH_2O @ 68 °F	mbar	torr @ 0 °C
mmH_2O @ 68 °F	g/cm^2	atm
mmHg @ 0 °C	kg/cm^2	

Shipping Weights

TABLE 4-9. Transmitter Weights without Options.

Transmitter	Add Weight in lb (kg)
Model 3051C	6.0 (2,7)
Model 3051L	See Table 4-10
Model 3051T	3.0 (1,4)

TABLE 4-10. Model 3051L Transmitter Weights without Options.

Flush Mount		
Flange Size	**Flange Type**	**Weight: lb (kg)**
2-in.	ASME/(ANSI) Class 150	12.0 (5,5)
2-in.	ASME/(ANSI) Class 300	17.0 (7,7)
2-in.	ASME/(ANSI) Class 600	14.7 (6,7)
3-in.	ASME/(ANSI) Class 150	17.0 (7,7)
3-in.	ASME/(ANSI) Class 300	22.0 (10,0)
3-in.	ASME/(ANSI) Class 600	24.7 (11,2)
4-in.	ASME/(ANSI) Class 150	23.0 (10,5)
4-in.	ASME/(ANSI) Class 300	32.0 (14,5)
DIN DN 50	DIN PN 40	13.3 (6,0)
DIN DN 80	DIN PN 40	19.0 (8,6)
DIN DN 100	DIN PN 10/16	17.3 (7,9)
DIN DN 100	DIN PN 40	22.7 (10,3)
With 2-inch Extension		
Flange Size	**Flange Type**	**Weight: lb (kg)**
3-in.	ASME/(ANSI) Class 150	19.0 (8,6)
3-in.	ASME/(ANSI) Class 300	24.0 (10,9)
3-in.	ASME/(ANSI) Class 600	26.7 (12,1)
4-in.	ASME/(ANSI) Class 150	26.0 (11,8)
4-in.	ASME/(ANSI) Class 300	35.0 (15,9)
DIN DN 80	DIN PN 40	21.0 (9,5)
DIN DN 100	DIN PN 10/16	19.3 (8,8)
DIN DN 100	DIN PN 40	24.7 (11,3)
With 4-inch Extension		
Flange Size	**Flange Type**	**Weight: lb (kg)**
3-in.	ASME/(ANSI) Class 150	20.0 (9,1)
3-in.	ASME/(ANSI) Class 300	25.0 (11,3)
3-in.	ASME/(ANSI) Class 600	27.7 (12,6)
4-in.	ASME/(ANSI) Class 150	28.0 (12,7)
4-in.	ASME/(ANSI) Class 300	37.0 (16,8)
DIN DN 80	DIN PN 40	22.0 (10,0)
DIN DN 100	DIN PN 10/16	20.3 (9,3)
DIN DN 100	DIN PN 40	25.7 (11,7)
With 6-inch Extension		
Flange Size	**Flange Type**	**Weight: lb (kg)**
3-in.	ASME/(ANSI) Class 150	21.0 (9,5)
3-in.	ASME/(ANSI) Class 300	26.0 (11,8)
3-in.	ASME/(ANSI) Class 600	28.7 (13,0)
4-in.	ASME/(ANSI) Class 150	30 (13,6)
4-in.	ASME/(ANSI) Class 300	39.0 (17,7)
DIN DN 80	DIN PN 40	23.0 (10,4)
DIN DN 100	DIN PN 10/16	21.3 (9,7)
DIN DN 100	DIN PN 40	26.7 (12,1)

TABLE 4-11. Transmitter Option Weights.

Code	Option	Added Weight lb (kg)
J, K, L	Stainless Steel Housing	3.1 (1,4)
B4	SST Mounting Bracket for *Coplanar* Flange	1.0 (0,5)
B1, B2, B3	Mounting Bracket for Traditional Flange	2.3 (1,0)
B7, B8, B9	Mounting Bracket for Traditional Flange	2.3 (1,0)
BA, BC	SST Bracket for Traditional Flange	2.3 (1,0)
B5, B6	Mounting Bracket for Model 3051H	2.9 (1,3)
H2	Traditional Flange	2.4 (1,1)
H3	Traditional Flange	2.7 (1,2)
H4	Traditional Flange	2.6 (1,2)
H7	Traditional Flange	2.5 (1,1)
HJ	DIN Compliant Traditional Flange	
HK	DIN Compliant Traditional Flange	
HL	DIN Compliant Traditional Flange	
FC	Level Flange—3 in., 150	10.8 (4,9)
FD	Level Flange—3 in., 300	14.3 (6,5)
FA	Level Flange—2 in., 150	10.7 (4,8)
FB	Level Flange—2 in., 300	14.0 (6,3)
FP	DIN Level Flange: SST, DN 50, PN 40	8.3 (3,8)
FQ	DIN Level Flange: SST, DN 80, PN 40	13.7 (6,2)

TABLE 4-12. Manifold Weights.

Manifold Model(1)	Added Weight(2) lb (kg)
0305AC2	4.5 (2,0)
0305AC3	5.0 (2,3)
0305AC7	4.7 (2,1)
0305AC8	5.2 (2,4)
0305AT2	5.9 (2,7)
0305AT3	6.4 (2,9)
0305AT7	6.1 (2,8)
0305AT8	6.6 (3,0)

(1) Refer to PDS 00813-0100-4733 for additional information on Integral Manifold model numbers and weights.

(2) For total weight, add the weight of the transmitter and options to the manifold weight.

PARTS LIST

Item numbers are references to figure callouts (pages 4-31 through 4-35).

TABLE 4-13. Model 3051C Differential, Gage, and Absolute Transmitters.

Model 3051C Sensor Modules	Silicone Fill		Inert Fill	
	Part Number		Part Number	
Differential Sensor Module				
(One spare part is recommended for every 50 transmitters.)				
–25 to 25 inH_2O/0.5 inH_2O, Range 1	03031-1045-0012	•	03031-1145-0012	•
316L SST	03031-1045-0013	•	03031-1145-0013	•
Hastelloy C-276	03031-1045-0014	•	03031-1145-0014	•
Monel	03031-1045-0016	•	03031-1145-0016	•
Gold-plated *Monel*	03031-1045-0017	•	03031-1145-0017	•
Gold-plated 316 SST				
–250 to 250 inH_2O/2.5 inH_2O, Range 2	03031-1045-0022	•	03031-1145-0022	•
316L SST	03031-1045-0023	•	03031-1145-0023	•
Hastelloy C-276	03031-1045-0024	•	03031-1145-0024	•
Monel	03031-1045-0025	•	03031-1145-0025	•
Tantalum	03031-1045-0026	•	03031-1145-0026	•
Gold-plated *Monel*	03031-1045-0027	•	03031-1145-0027	•
Gold-plated 316 SST				
–1000 to 1000 inH_2O/10 inH_2O, Range 3	03031-1045-0032	•	03031-1145-0032	•
316L SST	03031-1045-0033	•	03031-1145-0033	•
Hastelloy C-276	03031-1045-0034	•	03031-1145-0034	•
Monel	03031-1045-0035	•	03031-1145-0035	•
Tantalum	03031-1045-0036	•	03031-1145-0036	•
Gold-plated *Monel*	03031-1045-0037	•	03031-1145-0037	•
Gold-plated 316 SST				
–300 to 300 psi/3 psi, Range 4	03031-1045-2042	•	03031-1145-2042	•
316L SST	03031-1045-2043	•	03031-1145-2043	•
Hastelloy C-276	03031-1045-2044	•	03031-1145-2044	•
Monel	03031-1045-2045	•	03031-1145-2045	•
Tantalum	03031-1045-2046	•	03031-1145-2046	•
Gold-plated *Monel*	03031-1045-2047	•	03031-1145-2047	•
Gold-plated 316 SST				
–2000 to 2000/20 psi, Range 5	03031-1045-2052	•	03031-1145-2052	•
316L SST	03031-1045-2053	•	03031-1145-2053	•
Hastelloy C-276	03031-1045-2054	•	03031-1145-2054	•
Monel	03031-1045-2055	•	03031-1145-2055	•
Tantalum	03031-1045-2056	•	03031-1145-2056	•
Gold-plated *Monel*	03031-1045-2057	•	03031-1145-2057	•
Gold-plated 316 SST				

TABLE 4-13. Model 3051C Differential, Gage, and Absolute Transmitters. (continued)

Model 3051C Sensor Modules	Silicone Fill Part Number		Inert Fill Part Number	
Gage Sensor Module				
(One spare part is recommended for every 50 transmitters.)				
–250 to 250 inH_2O/2.5 inH_2O, Range 2	03031-1045-0022	•	03031-1145-0022	•
316L SST	03031-1045-0023	•	03031-1145-0023	•
Hastelloy C-276	03031-1045-0024	•	03031-1145-0024	•
Monel	03031-1045-0025	•	03031-1145-0025	•
Tantalum	03031-1045-0026	•	03031-1145-0026	•
Gold-plated *Monel*	03031-1045-0027	•	03031-1145-0027	•
Gold-plated 316 SST				
–407 to 1000 inH_2O/10 inH_2O, Range 3	03031-1045-0032	•	03031-1145-0032	•
316L SST	03031-1045-0033	•	03031-1145-0033	•
Hastelloy C-276	03031-1045-0034	•	03031-1145-0034	•
Monel	03031-1045-0035	•	03031-1145-0035	•
Tantalum	03031-1045-0036	•	03031-1145-0036	•
Gold-plated *Monel*	03031-1045-0037	•	03031-1145-0037	•
Gold-plated 316 SST				
–14.7 to 300 psi/3 psi, Range 4	03031-1045-1042	•	03031-1145-1042	•
316L SST	03031-1045-1043	•	03031-1145-1043	•
Hastelloy C-276	03031-1045-1044	•	03031-1145-1044	•
Monel	03031-1045-1045	•	03031-1145-1045	•
Tantalum	03031-1045-1046	•	03031-1145-1046	•
Gold-plated *Monel*	03031-1045-1047	•	03031-1145-1047	•
Gold-plated 316 SST				
–14.7 to 2000 psi/20 psi, Range 5	03031-1045-1052	•	03031-1145-1052	•
316L SST	03031-1045-1053	•	03031-1145-1053	•
Hastelloy C-276	03031-1045-1054	•	03031-1145-1054	•
Monel	03031-1045-1055	•	03031-1145-1055	•
Tantalum	03031-1045-1056	•	03031-1145-1056	•
Gold-plated *Monel*	03031-1045-1057	•	03031-1145-1057	•
Gold-plated 316 SST				

TABLE 4-13. Model 3051C Differential, Gage, and Absolute Transmitters. (continued)

Model 3051C Sensor Modules	Silicone Fill		Inert Fill	
	Part Number		Part Number	
Absolute Sensor Module				
(One spare part is recommended for every 50 transmitters.)				
0 to 0.167 psia/5 psia, Range 0	03031-2020-0002	•	—	—
316L SST	03031-2020-0003	•	—	—
Hastelloy C-276	03031-2020-0004	•	—	—
Monel	03031-2020-0006	•	—	—
Gold-plated *Monel*	03031-2020-0007	•	—	—
Gold-plated 316 SST				
0 to 30 psia/0.3 psia, Range 1	03031-2020-0012	•	—	—
316L SST	03031-2020-0013	•	—	—
Hastelloy C-276	03031-2020-0014	•	—	—
Monel	03031-2020-0016	•	—	—
Gold-plated *Monel*	03031-2020-0017	•	—	—
Gold-plated 316 SST				
0 to 150/1.5 psia, Range 2	03031-2020-0022	•	—	—
316L SST	03031-2020-0023	•	—	—
Hastelloy C-276	03031-2020-0024	•	—	—
Monel	03031-2020-0026	•	—	—
Gold-plated *Monel*	03031-2020-0027	•	—	—
Gold-plated 316 SST				
0 to 800 psia/8 psia, Range 3	03031-2020-0032	•	—	—
316L SST	03031-2020-0033	•	—	—
Hastelloy C-276	03031-2020-0034	•	—	—
Monel	03031-2020-0036	•	—	—
Gold-plated *Monel*	03031-2020-0037	•	—	—
Gold-plated 316 SST				
0 to 4000 psia/40 psia, Range 4	03031-2020-0042	•	—	—
316L SST	03031-2020-0043	•	—	—
Hastelloy C-276	03031-2020-0044	•	—	—
Monel	03031-2020-0046	•	—	—
Gold-plated *Monel*	03031-2020-0047	•	—	—
Gold-plated 316 SST				

TABLE 4-14. Model 3051T Gage and Absolute Pressure Transmitters.

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Gage Sensor Module (One spare part is recommended for every 50 transmitters.)						
0–0.3/30 psig, Range 1	316L SST	Aluminum	03031-3112-3112	•	03031-3112-1112	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3113	•	03031-3112-1113	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3112	•	03031-3102-1112	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3113	•	03031-3102-1113	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3112	•	03031-3132-1112	
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3112	•	03031-3111-1112	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3113	•	03031-3111-1113	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3112	•	03031-3101-1112	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3113	•	03031-3101-1113	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Gage Sensor Module (One spare part is recommended for every 50 transmitters.)						
0–1.5/150 psig, Range 2	316L SST	Aluminum	03031-3112-3122	•	03031-3112-1122	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3123	•	03031-3112-1123	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3122	•	03031-3102-1122	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3123	•	03031-3102-1123	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3122	•	03031-3132-1122	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3122	•	03031-3111-1122	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3123	•	03031-3111-1123	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3122	•	03031-3101-1122	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3123	•	03031-3101-1123	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Gage Sensor Module (One spare part is recommended for every 50 transmitters.)						
0–8/800 psig, Range 3	316L SST	Aluminum	03031-3112-3132	•	03031-3112-1132	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3133	•	03031-3112-1133	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3132	•	03031-3102-1132	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3133	•	03031-3102-1133	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3132	•	03031-3132-1132	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3132	•	03031-3111-1132	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3133	•	03031-3111-1133	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3132	•	03031-3101-1132	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3133	•	03031-3101-1133	•

TABLE 4-14. Model 3051T Gage and Absolute Pressure Transmitters. (continued)

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Gage Sensor Module (One spare part is recommended for every50 transmitters.)						
0-40/4000 psig, Range 4	316L SST	Aluminum	03031-3112-3142	•	03031-3112-1142	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3143	•	03031-3112-1143	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3142	•	03031-3102-1142	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3143	•	03031-3102-1143	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3142	•	03031-3132-1142	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3142	•	03031-3111-1142	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3143	•	03031-3111-1143	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3142	•	03031-3101-1142	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3143	•	03031-3101-1143	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Absolute Sensor Module (1 spare part is recommended for every 50 transmitters.)						
0–0.3/30 psig, Range 1	316L SST	Aluminum	03031-3112-3012	•	03031-3112-1012	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3013	•	03031-3112-1013	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3012	•	03031-3102-1012	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3013	•	03031-3102-1013	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3012	•	03031-3132-1012	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3012	•	03031-3111-1012	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3013	•	03031-3111-1013	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3012	•	03031-3101-1012	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3013	•	03031-3101-1013	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Absolute Sensor Module (1 spare part is recommended for every 50 transmitters.)						
0–1.5/150 psig, Range 2	316L SST	Aluminum	03031-3112-3022	•	03031-3112-1022	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3023	•	03031-3112-1023	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3022	•	03031-3102-1022	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3023	•	03031-3102-1023	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3022	•	03031-3132-1022	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3022	•	03031-3111-1022	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3023	•	03031-3111-1023	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3022	•	03031-3101-1022	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3023	•	03031-3101-1023	•

TABLE 4-14. Model 3051T Gage and Absolute Pressure Transmitters. (continued)

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Absolute Sensor Module (1 spare part is recommended for every 50 transmitters.)						
0–8/800 psig, Range 3	316L SST	Aluminum	03031-3112-3032	•	03031-3112-1032	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3033	•	03031-3112-1033	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3032	•	03031-3102-1032	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3033	•	03031-3102-1033	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3032	•	03031-3132-1032	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3032	•	03031-3111-1032	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3033	•	03031-3111-1033	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3032	•	03031-3101-1032	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3033	•	03031-3101-1033	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Absolute Sensor Module (1 spare part is recommended for every 50 transmitters.)						
0-40/4000 psig, Range 4	316L SST	Aluminum	03031-3112-3042	•	03031-3112-1042	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3043	•	03031-3112-1043	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3042	•	03031-3102-1042	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3043	•	03031-3102-1043	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3132-3042	•	03031-3132-1042	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3042	•	03031-3111-1042	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3043	•	03031-3111-1043	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3042	•	03031-3101-1042	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3043	•	03031-3101-1043	•

Model 3051T Sensor Modules[1]	Isolating Diaphragm	Housing Material	Silicone Fill Part Number		Inert Fill Part Number	
Absolute Sensor Module (1 spare part is recommended for every 50 transmitters.)						
0-2000/10000 psig, Range 5	316L SST	Aluminum	03031-3112-3052	•	03031-3112-1052	•
1/4–18 NPT Female	*Hastelloy C*	Aluminum	03031-3112-3053	•	03031-3112-1053	•
1/4–18 NPT Female	316L SST	Aluminum	03031-3102-3052	•	03031-3102-1052	•
1/2–14 NPT Female	*Hastelloy C*	Aluminum	03031-3102-3053	•	03031-3102-1053	•
1/2–14 NPT Female	316L SST	Aluminum	03031-3122-3052	•	03031-3122-1052	•
G1/2A DIN 16288 Male						
1/4–18 NPT Female	316L SST	SST	03031-3111-3052	•	03031-3111-1052	•
1/4–18 NPT Female	*Hastelloy C*	SST	03031-3111-3053	•	03031-3111-1053	•
1/2–14 NPT Female	316L SST	SST	03031-3101-3052	•	03031-3101-1052	•
1/2–14 NPT Female	*Hastelloy C*	SST	03031-3101-3053	•	03031-3101-1053	•
AutoclaveType F-250-C	316L SST	SST	03031-3121-3052	•	03031-3121-1052	•

(1) For Model 3051TG Range 5 spare module, order absolute configuration and perform zero trim for gage calibrations.

TABLE 4-15. Model 3051C Differential, Gage, Absolute, and Liquid Level Transmitters.

Item No.	ELECTRONICS BOARD ASSEMBLY HARDWARE Part Description	Part Number	CD	CG	CA	L	T
6	PROFIBUS–PA Electronics Module Assembly	3031-0001-2101	•	•	•	•	•

Item No.	ELECTRONICS HOUSING, COVERS, TERMINAL BLOCKS Part Description	Part Number	CD	CG	CA	L	T
	Aluminum Housing						
4	Electronics Housing without Terminal Block						
	½–14 NPT conduit, Includes RFI Filters	03031-0635-0001	•	•	•	•	•
	M20×1.5 (CM20) conduit, Includes RFI filters	03031-0635-0002	•	•	•	•	•
	PG 13.5 conduit, Includes RFI Filters	03031-0635-0003	•	•	•	•	•
	G½ conduit, Includes RFI Filters	03031-0635-0004	•	•	•	•	•
1	Electronics Cover–Field Terminal Side(2)	03031-0292-0001	•	•	•	•	•
30	Electronics Cover—Electronics Side(2)	03031-0292-0003	•	•	•	•	•
3	Terminal Block Assembly(1)	03031-0332-2001	•	•	•	•	•
3	Transient Terminal Block Assy. (Option T1)(2)	03031-0332-2002	•	•	•	•	•
	External Ground Assembly (Option V5)(1)	03031-0398-0001	•	•	•	•	•
	SST Housing						
4	Electronics Housing without Terminal Block						
	½–14 NPT conduit, Includes RFI Filters	03031-0635-0041	•	•	•	•	•
	M20×1.5 (CM20) conduit, Includes RFI Filters	03031-0635-0042	•	•	•	•	•
	PG 13.5 conduit, Includes RFI Filters	03031-0635-0043	•	•	•	•	•
1	Electronics Cover–Field Terminal Side(2)	03031-0292-0002	•	•	•	•	•
30	Electronics Cover—Electronics Side	03031-0292-0004	•	•	•	•	•
3	Standard Terminal Block Assembly(1)	03031-0332-2001	•	•	•	•	•
3	Transient Terminal Block Assy. (Option T1)(2)	03031-0332-2002					
	External Ground Assembly (Option V5)(1)	03031-0398-0001	•	•	•	•	•

(1) One spare part is recommended for every 25 transmitters.
(2) One spare part is recommended for every 50 transmitters.

Item No.	FLANGES Part Description	Part Number	CD	CG	CA	L	T
	Process Flanges						
11	Differential *Coplanar* Flange						
	Nickel-plated Carbon Steel	03031-0388-0025	•	—	—	—	—
	316 SST	03031-0388-0022	•	—	—	—	—
	Hastelloy C	03031-0388-0023	•	—	—	—	—
	Monel	03031-0388-0024	•	—	—	—	—
11	Gage/Absolute *Coplanar* Flange						
	Nickel-plated Carbon Steel	03031-0388-1025	—	•	•	—	—
	316 SST	03031-0388-1022	—	•	•	—	—
	Hastelloy C	03031-0388-1023	—	•	•	—	—
	Monel	03031-0388-1024	—	•	•	—	—
13	*Coplanar* Flange Alignment Screw (pkg. of 12)	03031-0309-0001	•	•	•	—	—
16	Traditional Flange						
	316 SST	03031-0320-0002	•	•	•	—	—
	Hastelloy C	03031-0320-0003	•	•	•	—	—
	Monel	03031-0320-0004	•	•	•	—	—
22	Level Flange, Vertical Mount						
	2 in., Class 150, SST	03031-0393-0221	•	•	•	—	—
	2 in., Class 300, SST	03031-0393-0222	•	•	•	—	—
	3 in., Class 150, SST	03031-0393-0231	•	•	•	—	—
	3 in., Class 300, SST	03031-0393-0232	•	•	•	—	—
	DIN, DN 50, PN 40	03031-0393-1002	•	•	•	—	—
	DIN, DN 80, PN 40	03031-0393-1012	•	•	•	—	—

TABLE 4-15. Model 3051C Differential, Gage, Absolute, and Liquid Level Transmitters. (continued)

Item No.	FLANGE ADAPTER UNION Part Description	Part Number	CD	CG	CA	L	T
15	Nickel-plated Carbon Steel	02024-0069-0005	•	•	•	—	—
	316 SST	02024-0069-0002	•	•	•	—	—
	Hastelloy C	02024-0069-0003	•	•	•	—	—
	Monel	02024-0069-0004	•	•	•	—	—
Item No.	**DRAIN/VENT VALVE KITS Part Description**	**Part Number**	**CD**	**CG**	**CA**	**L**	**T**
9	**Differential Drain/Vent Kits**						
	(One spare part is recommended for every 25 transmitters.)						
	316 SST Stem and Seat Kit	01151-0028-0022	•	—	—	—	—
	Hastelloy C Stem and Seat Kit	01151-0028-0023	•	—	—	—	—
	Monel Stem and Seat Kit	01151-0028-0024	•	—	—	—	—
	316 SST Ceramic Ball Drain/Vent Kit	01151-0028-0122	•	—	—	—	—
	Hastelloy C Ceramic Ball Drain/Vent Kit	01151-0028-0123	•	—	—	—	—
	Monel Ceramic Ball Drain/Vent Kit	01151-0028-0124	•	—	—	—	—
	Gage/Absolute Drain/Vent Kits						
	(One spare part is recommended for every 25 transmitters. Each kit contains parts for one transmitter.)						
	316 SST Stem and Seat Kit	01151-0028-0012	—	•	•	•	—
	Hastelloy C Stem and Seat Kit	01151-0028-0013	—	•	•	•	—
	Monel Stem and Seat Kit	01151-0028-0014	—	•	•	•	—
	316 SST Ceramic Ball Drain/Vent Kit	01151-0028-0112	—	•	•	•	—
	Hastelloy C Ceramic Ball Drain/Vent Kit	01151-0028-0113	—	•	•	•	—
	Monel Ceramic Ball Drain/Vent Kit	01151-0028-0114	—	•	•	•	—
Item No.	**O-RING PACKAGES Part Description**	**Part Number**	**CD**	**CG**	**CA**	**L**	**T**
2	Electronic Housing, Cover (Std. and Meter)(3)	03031-0232-0001	•	•	•	•	•
7	Electronics Housing, Module(3)	03031-0233-0001	•	•	•	•	•
10	Process Flange, Glass-filled *Teflon*(3)	03031-0234-0001	•	•	•	—	—
	Process Flange, Graphite-filled *Teflon*	03031-0234-0002	•	•	•	—	—
12	Flange Adapter, Glass-filled *Teflon*(3)	03031-0242-0001	•	•	•	—	—
	Flange Adapter, Graphite-filled *Teflon*	03031-0242-0002	•	•	•	—	—
(3) One spare part is recommended for every 25 transmitters.							
Item No.	**MOUNTING BRACKETS Part Description**	**Part Number**	**CD**	**CG**	**CA**	**L**	**T**
	Coplanar Flange Bracket Kit						
	B4 Bracket, SST, 2-in. Pipe Mount, SST Bolts	03031-0189-0003	•	•	•	—	—
	3051T Bracket Kit						
	B4 Bracket, SST, 2-in. Pipe Mount, SST Bolts	02088-0071-0001	—	—	—	—	•
	Traditional Flange Bracket Kits						
	B1 Bracket, 2-in. Pipe Mount, CS Bolts	03031-0313-0001	•	•	•	—	—
	B2 Bracket, Panel Mount, CS Bolts	03031-0313-0002	•	•	•	—	—
	B3 Flat Bracket for 2-in. Pipe Mount, CS Bolts	03031-0313-0003	•	•	•	—	—
	B7 (B1 Style Bracket with SST Bolts)	03031-0313-0007	•	•	•	—	—
	B8 (B2 Style Bracket with SST Bolts)	03031-0313-0008	•	•	•	—	—
	B9 (B3 Style Bracket with SST Bolts)	03031-0313-0009	•	•	•	—	—
	BA (SST B1 Bracket with SST Bolts)	03031-0313-0011	•	•	•	—	—
	BC (SST B3 Bracket with SST Bolts)	03031-0313-0013	•	•	•	—	—

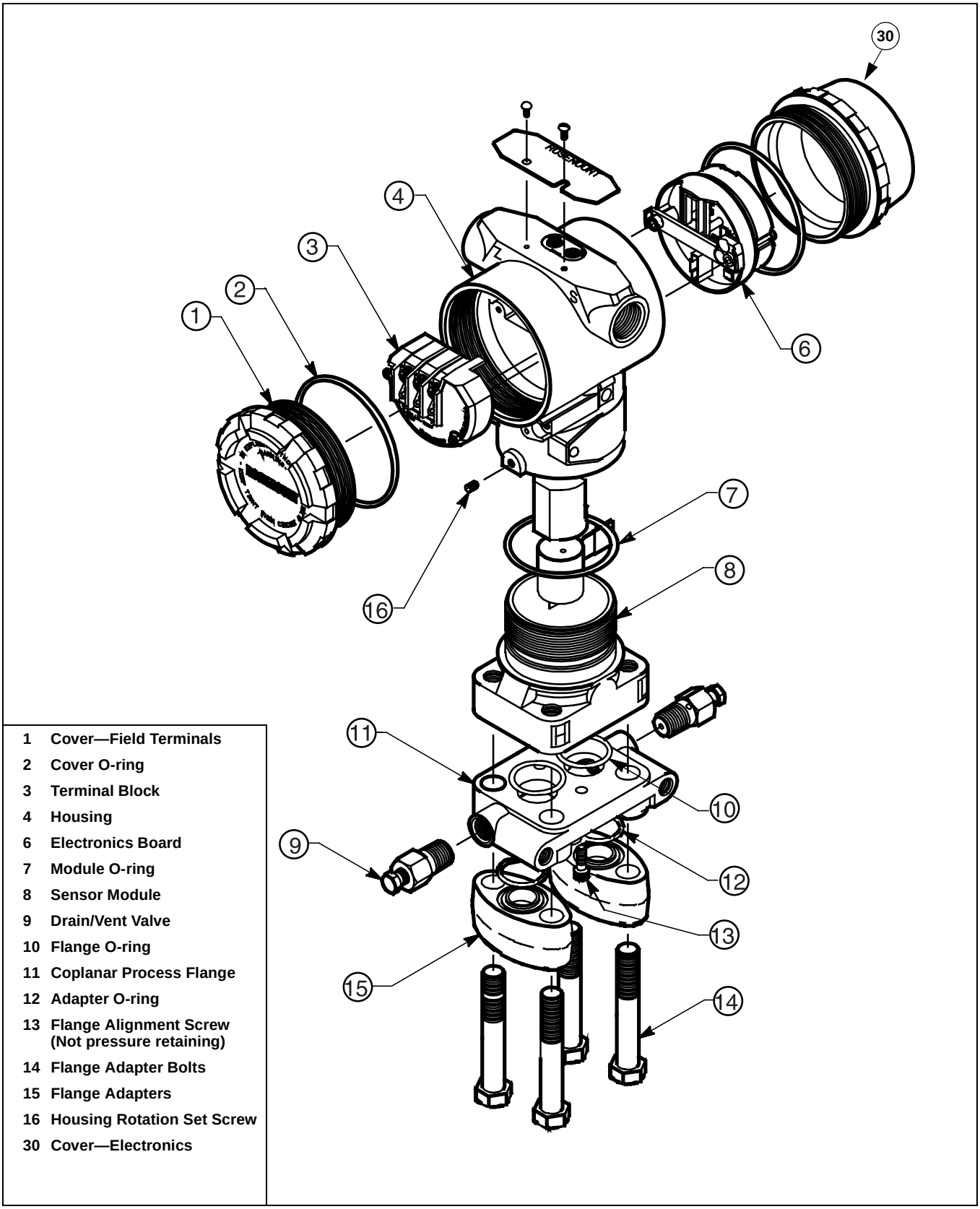
TABLE 4-15. Model 3051C Differential, Gage, Absolute, and Liquid Level Transmitters. (continued)

Item No.	BOLT KITS Part Description	Part Number	CD	CG	CA	L	T
	***Coplanar* Flange**						
25	Flange Bolt Kit 1.75 in. (44 mm)						
	Carbon Steel (set of 4)	03031-0312-0001	•	•	•	—	—
	316 SST (set of 4)	03031-0312-0002	•	•	•	—	—
	ANSI/ASTM-A-193-B7M	03031-0312-0003	•	•	•	—	—
	Monel	03031-0312-0004	•	•	•	—	—
26	Flange/Adapter Bolt Kit 2.88 in. (73 mm)						
	Carbon Steel (set of 4)	03031-0306-0001	•	•	•	—	—
	316 SST (set of 4)	03031-0306-0002	•	•	•	—	—
	ANSI/ASTM-A-193-B7M	03031-0306-0003	•	•	•	—	—
	Monel	03031-0306-0004	•	•	•	—	—
27	Manifold/Flange Kit 2.25 in. (57 mm)						
	Carbon Steel (set of 4)	03031-0311-0001	•	—	—	—	—
	316 SST (set of 4)	03031-0311-0002	•	—	—	—	—
	ANSI/ASTM-A-193-B7M	03031-0311-0003	•	—	—	—	—
	Monel	03031-0311-0004	•	—	—	—	—

Item No.	BOLT KITS (continued) Part Description	Part Number	CD	CG	CA	L	T
	Traditional Flange						
28	Differential Flange and Adapter Bolt Kit 1.75 in. (44 mm)						
	Carbon Steel (set of 8)	03031-0307-0001	•	—	—	—	—
	316 SST (set of 8)	03031-0307-0002	•	—	—	—	—
	ANSI/ASTM-A-193-B7M	03031-0307-0003	•	—	—	—	—
	Monel	03031-0307-0004	•	—	—	—	—
	Gage/Absolute Flange and Adapter Bolt Kit						
	Carbon Steel (set of 6)	03031-0307-1001	—	•	•	—	—
	316 SST (set of 6)	03031-0307-1002	—	•	•	—	—
	ANSI/ASTM-A-193-B7M	03031-0307-1003	—	•	•	—	—
	Monel	03031-0307-1004	—	•	•	—	—
	Manifold/Traditional Flange Bolts						
	Carbon Steel	Use Bolts Supplied with Anderson Greenwood Manifold					
	316 SST	Use Bolts Supplied with Anderson Greenwood Manifold					

Item No.	BOLT KITS (continued) Part Description	Part Number	CD	CG	CA	L	T
	Level Flange, Vertical Mount						
23	Flange Bolt Kit						
24	Carbon Steel (set of 4)	03031-0395-0001	•	•	•	—	—
	316 SST (set of 4)	03031-0395-0002	•	•	•	—	—
	(Each kit contains bolts for one transmitter.)						

Figure 4-1. Model 3051C Exploded View (with Coplanar Flange).



1 Cover—Field Terminals
2 Cover O-ring
3 Terminal Block
4 Housing
6 Electronics Board
7 Module O-ring
8 Sensor Module
9 Drain/Vent Valve
10 Flange O-ring
11 Coplanar Process Flange
12 Adapter O-ring
13 Flange Alignment Screw (Not pressure retaining)
14 Flange Adapter Bolts
15 Flange Adapters
16 Housing Rotation Set Screw
30 Cover—Electronics

Figure 4-2. Model 3051T Exploded View.

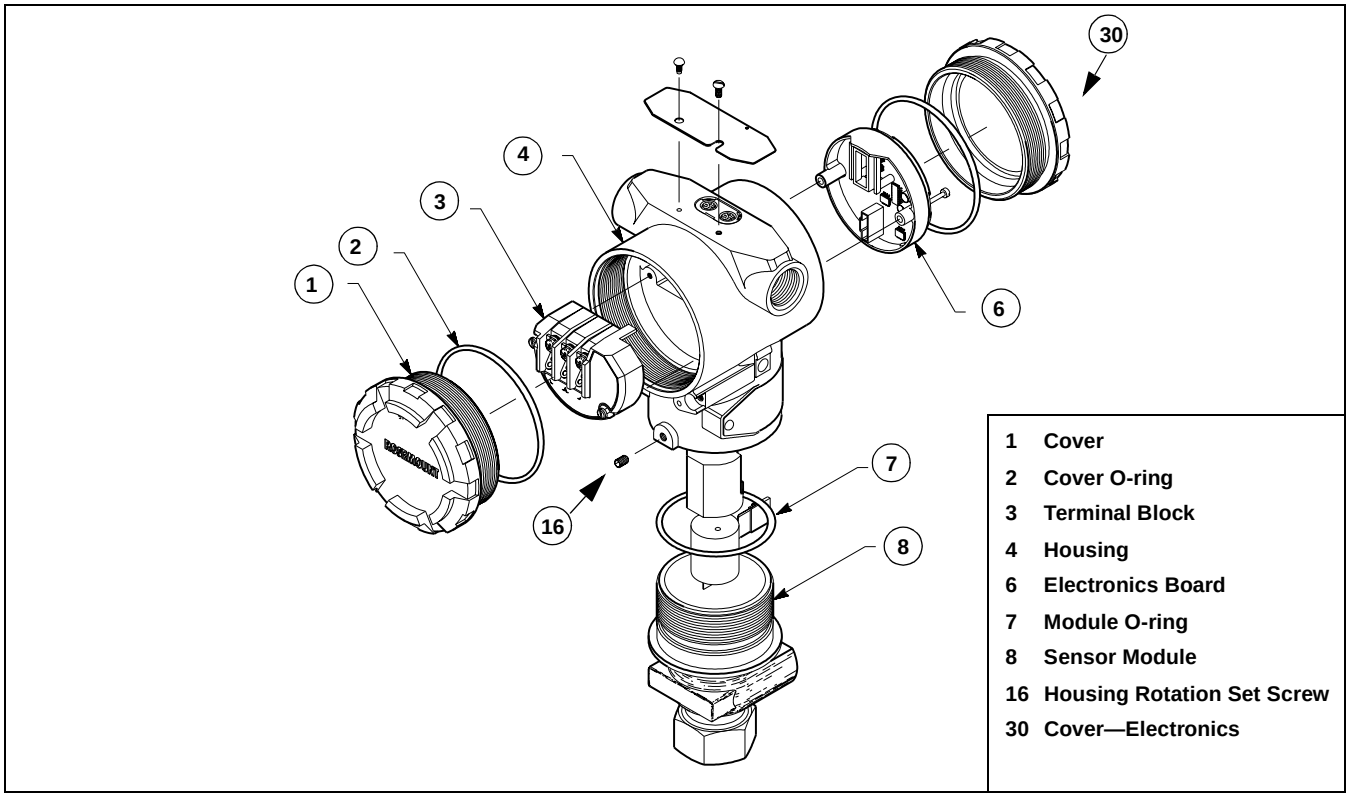
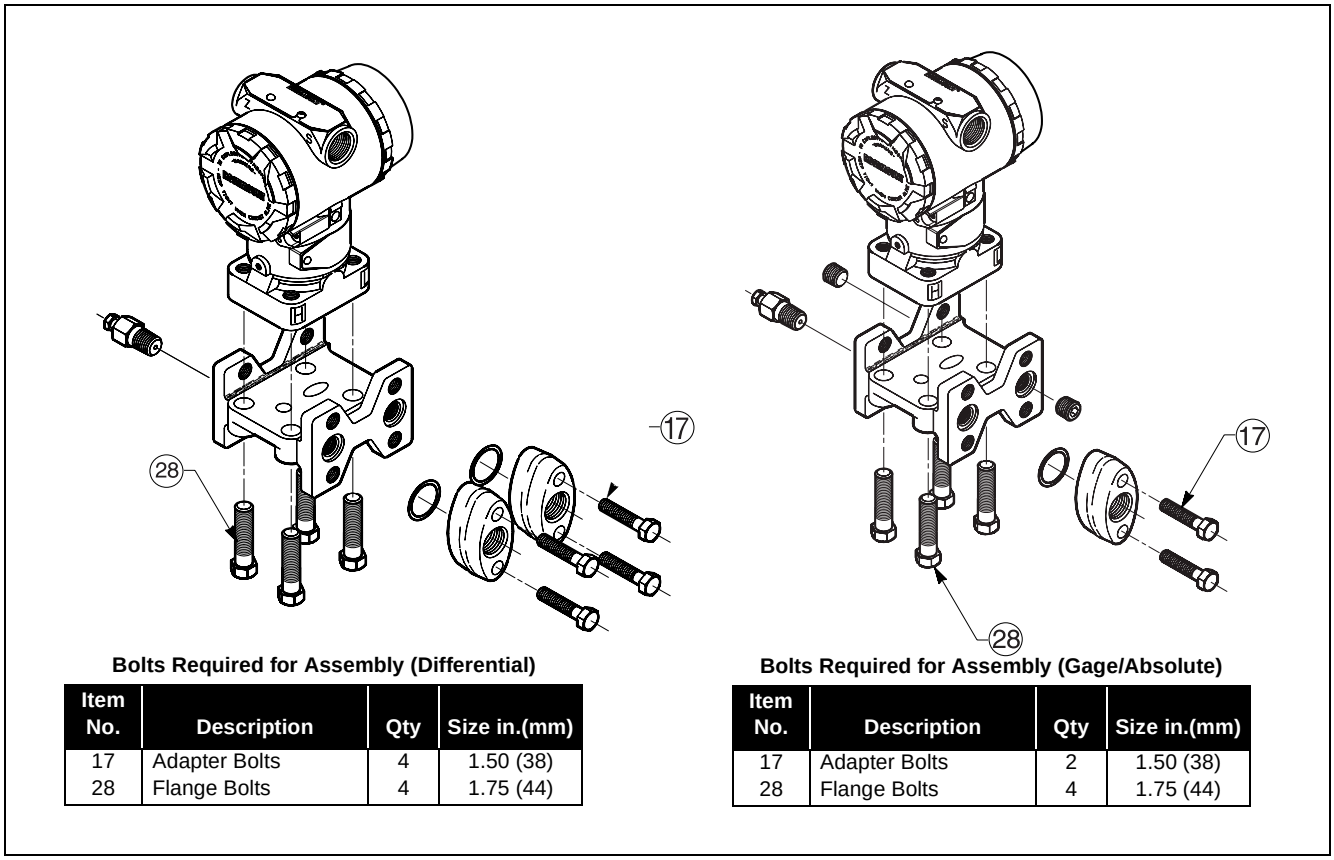


Figure 4-3. Traditional Flange Configuration.



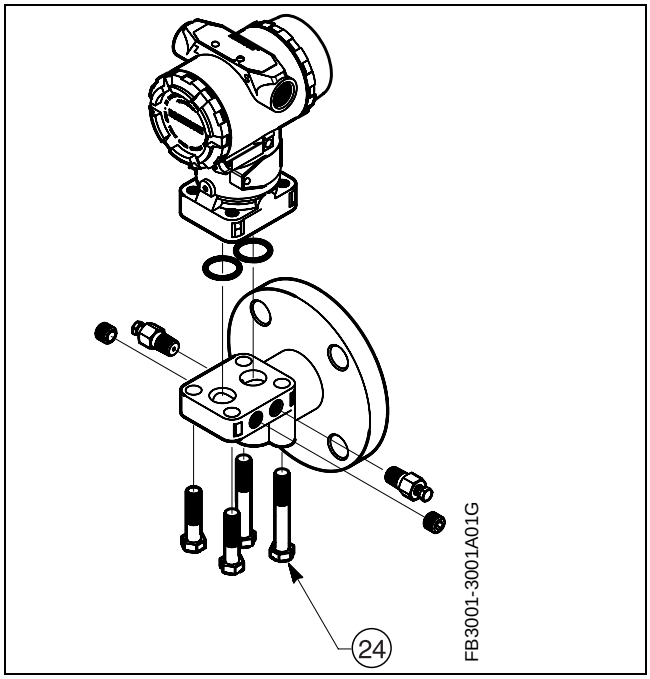
Bolts Required for Assembly (Differential)

Item No.	Description	Qty	Size in.(mm)
17	Adapter Bolts	4	1.50 (38)
28	Flange Bolts	4	1.75 (44)

Bolts Required for Assembly (Gage/Absolute)

Item No.	Description	Qty	Size in.(mm)
17	Adapter Bolts	2	1.50 (38)
28	Flange Bolts	4	1.75 (44)

Figure 4-4. Level Flange, Vertical Mount.

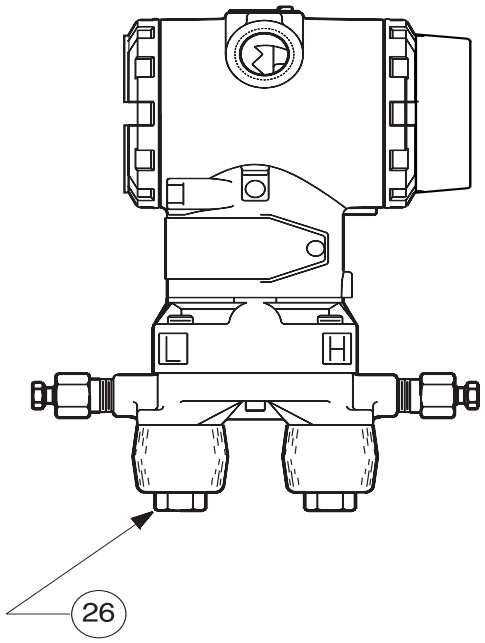


Bolts Required for Assembly (Gage/Absolute)

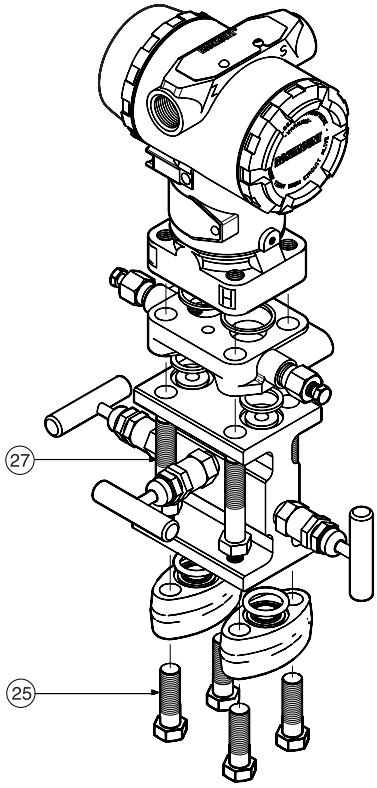
Item No.	Description	Qty	Size in.(mm)
24	CS Bolt Kit	4	1.5 (38)

Figure 4-5. Bolting Configurations for *Coplanar* Flange (Top–Differential/Bottom–Gage/Absolute).

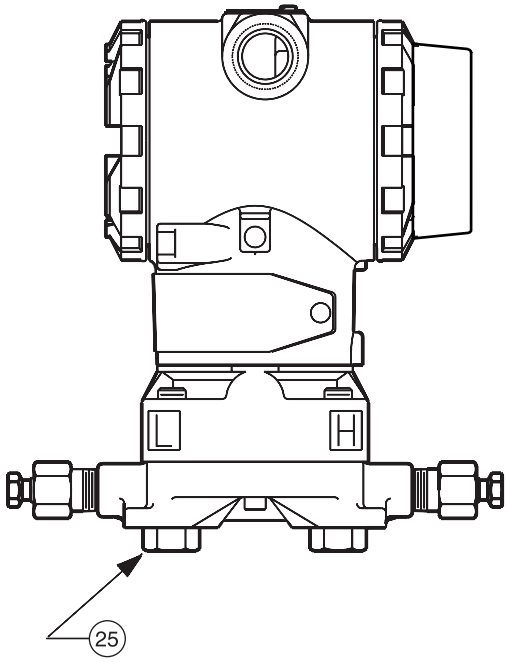
Transmitter with *Coplanar* Flange and Flange/Adapter Bolts



Transmitter with *Coplanar* Flange, 3-Valve Manifold, and Flange Adapters (Differential Version)



Transmitter with *Coplanar* Flange and Flange Bolts



Bolts Required for Assembly (Differential)

Item No.	Description	Qty	Size in.(mm)
25	Flange Bolts	4	1.75 (44)
26	Flange/Adapter Bolts	4	2.88 (73)
27	Manifold/Flange Bolts	4	2.25 (57)

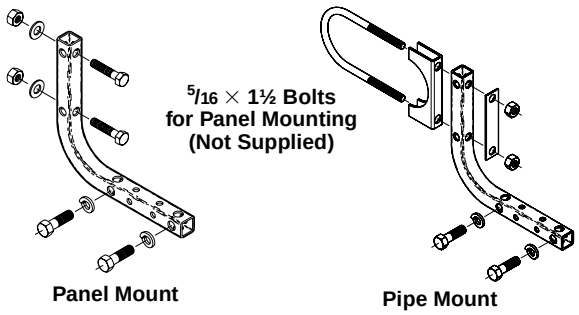
Bolts Required for Assembly (Gage/Absolute)

Item No.	Description	Qty	Size in.(mm)
25	Flange Bolts	4	1.75 (44)
26	Flange/Adapter Bolts	2	2.88 (73)

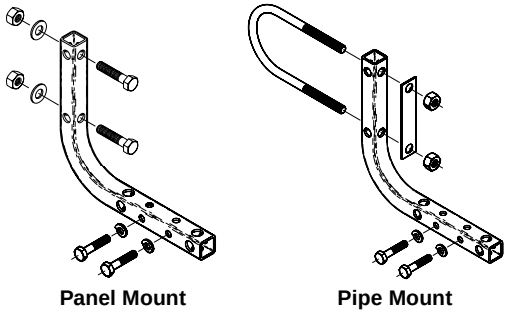
3051-3031E06E 3051-305-3031A29P

3051-3031E06F

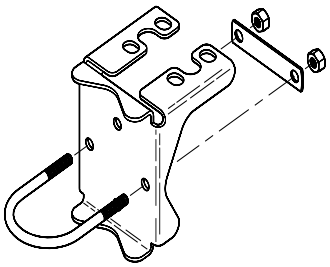
Figure 4-6. Mounting Bracket Kits.



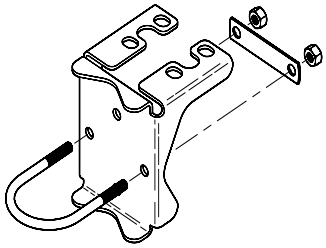
Option B4: *Coplanar* Flange Mounting Bracket



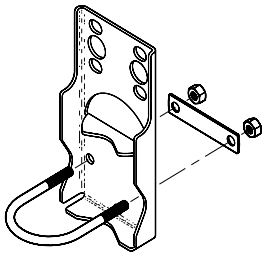
Option B4: Model 3051T Mounting Bracket



Option B1/B7/BA: Traditional Flange 2-In. Pipe Mounting Bracket



Option B2/B8: Traditional Flange Panel Mounting Bracket



Option B3/B9/BC: Traditional Flange Flat Bracket for 2-In. Pipe Mount

3051-3031-I04B, J04B, I04B, 2088-2088A04A, 3051-3031C19A, H19A

Section 5

Approval Drawings

OVERVIEW

Index of intrinsically safe Factory Mutual barrier systems and entity parameters for Models 3051C/L/P/H/T and 3001C/S (Drawing Number 03031-1019, Rev AA), pages 5-2 through 5-10.

Index of intrinsically safe C.S.A. barrier systems for Models 3051C/L/P/H/T and 3001C/S (Drawing Number 03031-1024, Rev AA), pages 5-11 through 5-14.

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY

REVISIONS

REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA	ADD FIELDBUS	RTC1004088	M.L.M.	5/28/98

ENTITY APPROVALS FOR

3051C 3001C
3051L 3001CL
3051P 3001CH
3051H 3001S
3051CA 3001SL
3051T 3001SH

OUTPUT CODE A (4-20 MA HART) SEE SHEETS 2-4
OUTPUT CODE M (LOW POWER) SEE SHEETS 5-6
OUTPUT CODE F (FIELDBUS) SEE SHEETS 7-9

THE ROSEMOUNT TRANSMITTERS LISTED ABOVE ARE F.M. APPROVED AS INTRINSICALLY SAFE WHEN USED IN CIRCUIT WITH F.M. APPROVED BARRIERS WHICH MEET THE ENTITY PARAMETERS LISTED IN THE CLASS I, II, AND III, DIVISION 1 GROUPS INDICATED. TEMP CODE T4. ADDITIONALLY, THE ROSEMOUNT 751 FIELD SIGNAL INDICATOR IS F.M. APPROVED AS INTRINSICALLY SAFE WHEN CONNECTED IN CIRCUIT WITH ROSEMOUNT TRANSMITTERS (FROM ABOVE) AND F.M. APPROVED BARRIERS WHICH MEET THE ENTITY PARAMETERS LISTED FOR CLASS I, II, AND III, DIVISION 1, GROUPS INDICATED, TEMP CODE T4.

TO ASSURE AN INTRINSICALLY SAFE SYSTEM, THE TRANSMITTER AND BARRIER MUST BE WIRED IN ACCORDANCE WITH THE BARRIER MANUFACTURER'S FIELD WIRING INSTRUCTIONS AND THE APPLICABLE CIRCUIT DIAGRAM.

CAD Maintained, (MICROSTATION).

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125

-TOLERANCE-
.X ± .1 [2.5]
.XX ± .02 [0.5]
.XXX ± .010 [0.25]

FRACTIONS ± 1/32
ANGLES ± 2°

DO NOT SCALE PRINT

CONTRACT NO.

DR. MIKE DOBE 03/21/89
CHK'D
APP'D. KELLY ORTH 03/22/89
APP'D. GOVT.

ROSEMOUNT® MEASUREMENT
FISHER-ROSEMOUNT

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

TITLE
INDEX OF I.S. F.M. FOR
3051C/L/P/H/T & 3001C/S

SIZE	FSCM NO	DWG NO.	
A		03031-1019	

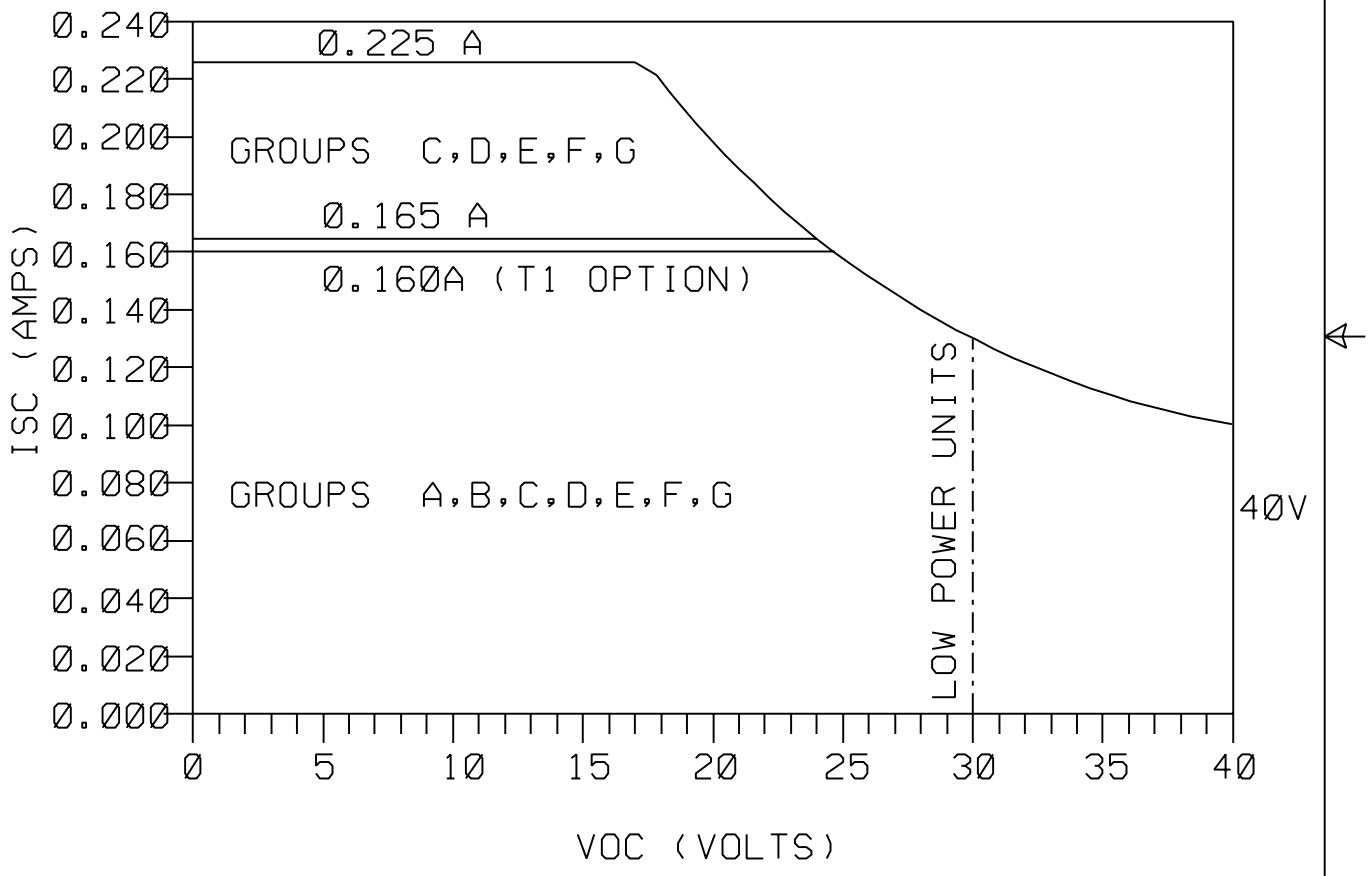
SCALE N/A WT. ——— SHEET 1 OF 9

1019A01A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

BARRIER PARAMETERS (APPLICABLE TO OUTPUT CODES A & M)

PMAX = 1WATT

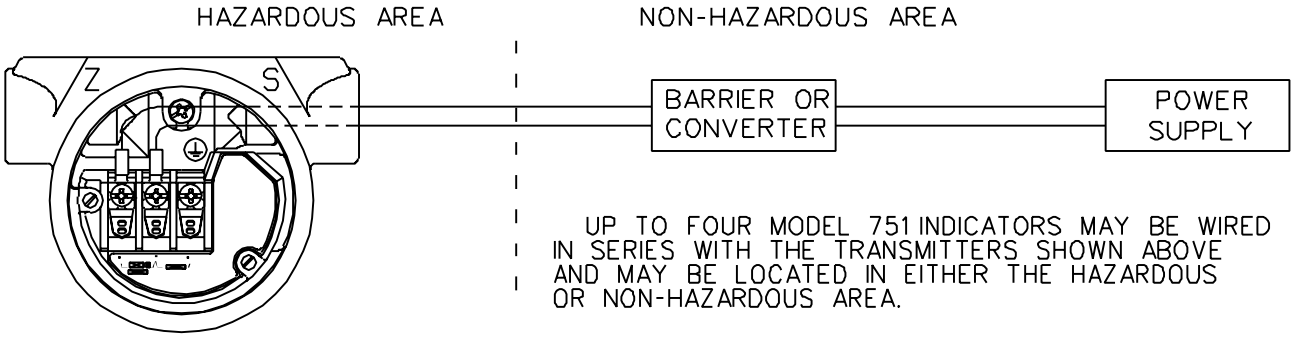


ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA			CAD Maintained, (MICROSTATION).	
DR. MIKE DOBE	SIZE A	FSCM NO	DWG NO. 03031-1019	
ISSUED	SCALE N/A	WT. ———	SHEET 2 OF 9	

1019A02A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

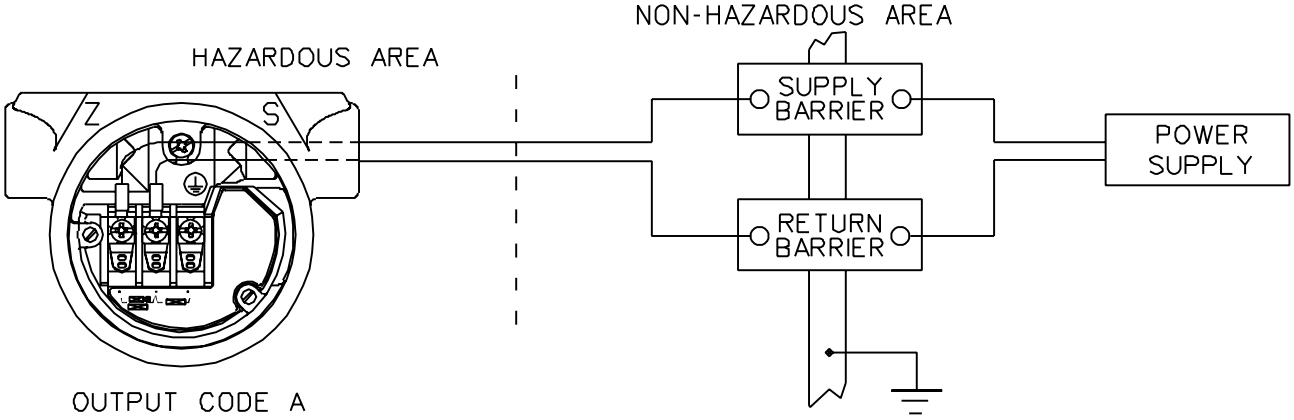
CIRCUIT DIAGRAM 1
ONE BARRIER OR CONVERTER:
SINGLE OR DUAL CHANNEL



UP TO FOUR MODEL 751 INDICATORS MAY BE WIRED IN SERIES WITH THE TRANSMITTERS SHOWN ABOVE AND MAY BE LOCATED IN EITHER THE HAZARDOUS OR NON-HAZARDOUS AREA.

OUTPUT CODE A
MODELS INCLUDED
3051C, L, P, H, T, CA
3001C, CL, CH, S, SL, SH

CIRCUIT DIAGRAM 2
SUPPLY AND RETURN BARRIERS
(ONLY FOR USE WITH BARRIERS APPROVED IN THIS CONFIGURATION)



UP TO FOUR MODEL 751 INDICATORS MAY BE WIRED IN SERIES WITH THE TRANSMITTERS SHOWN ABOVE AND MAY BE LOCATED IN EITHER THE HAZARDOUS OR NON-HAZARDOUS AREA.

OUTPUT CODE A
MODELS INCLUDED
3051C, L, P, H, T, CA
3001C, CL, CH, S, SL, SH

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

CAD Maintained, (MICROSTATION).

DR. MIKE DOBE	SIZE A	FSCM NO	DWG NO. 03031-1019
ISSUED	SCALE N/A	WT. ———	SHEET 3 OF 9

1019A03A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

ENTITY CONCEPT APPROVALS

THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM. THE APPROVED VALUES OF MAX. OPEN CIRCUIT VOLTAGE (VOC OR VT) AND MAX. SHORT CIRCUIT CURRENT (ISC OR IT) AND MAX.POWER (VOC X ISC/4) OR (VT X IT/4), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (VMAX), MAXIMUM SAFE INPUT CURRENT (IMAX), AND MAXIMUM SAFE INPUT POWER (PMAX) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (CA) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE CAPACITANCE AND THE UNPROTECTED INTERNAL CAPACITANCE (CI) OF THE INTRINSICALLY SAFE APPARATUS, AND THE APPROVED MAX. ALLOWABLE CONNECTED INDUCTANCE (LA) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE INDUCTANCE AND THE UNPROTECTED INTERNAL INDUCTANCE (LI) OF THE INTRINSICALLY SAFE APPARATUS.

FOR OUTPUT CODE A

NOTE: ENTITY PARAMETERS LISTED APPLY ONLY TO ASSOCIATED APPARATUS WITH LINEAR OUTPUT.

CLASS I, DIV. 1, GROUPS A AND B

V_{MAX} = 40V	V_T OR V_{OC} IS LESS THAN OR EQUAL TO 40V
I_{MAX} = 165MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 165MA
P_{MAX} = 1 WATT	$(\frac{V_T \times I_T}{4})$ OR $(\frac{VOC \times ISC}{4})$ IS LESS THAN OR EQUAL TO 1 WATT
C_I = .01μF	C_A IS GREATER THAN .01μF
L_I = 10μH	L_A IS GREATER THAN 10μH

* FOR T1 OPTION:

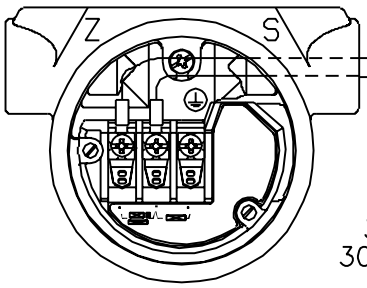
IMAX = 160MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 160MA
L_I = 1.05MH	L_A IS GREATER THAN 1.05MH

CLASS I, DIV. 1, GROUPS C AND D

V_{MAX} = 40V	V_T OR V_{OC} IS LESS THAN OR EQUAL TO 40V
I_{MAX} = 225MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 225MA
P_{MAX} = 1 WATT	$(\frac{V_T \times I_T}{4})$ OR $(\frac{VOC \times ISC}{4})$ IS LESS THAN OR EQUAL TO 1 WATT
C_I = .01μF	C_A IS GREATER THAN .01μF
L_I = 10μH	L_A IS GREATER THAN 10μH

* FOR T1 OPTION:

L_I = 1.05MH	L_A IS GREATER THAN 1.05MH



HAZARDOUS AREA | NON-HAZARDOUS AREA

ASSOCIATED APPARATUS

(SEE SHEET 3)

OUTPUT CODE A

MODELS INCLUDED

3051C, L, P, H, T, CA
3001C, CL, CH, S, SL, SH

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

CAD Maintained, (MICROSTATION).

DR. MIKE DOBE	SIZE A	FSCM NO	DWG NO. 03031-1019
ISSUED	SCALE N/A	WT. ———	SHEET 4 OF 9

1019A04A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

FOR OUTPUT CODE M

CLASS I, DIV. 1, GROUPS A AND B

V_{MAX} = 30V	V_T OR V_{OC} IS LESS THAN OR EQUAL TO 30V
I_{MAX} = 165MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 165MA
P_{MAX} = 1 WATT	$(\frac{V_T \times I_T}{4})$ OR $(\frac{V_{OC} \times I_{SC}}{4})$ IS LESS THAN OR EQUAL TO 1 WATT
C_I = .042μF	C_A IS GREATER THAN .042μF
L_I = 10μH	L_A IS GREATER THAN 10μH

* FOR T1 OPTION:

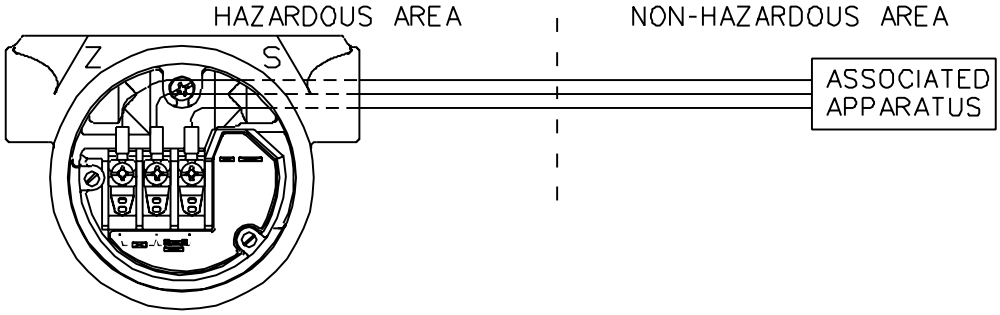
L_I = 0.75MH	L_A IS GREATER THAN 0.75MH

CLASS I, DIV. 1, GROUPS C AND D

V_{MAX} = 30V	V_T OR V_{OC} IS LESS THAN OR EQUAL TO 30V
I_{MAX} = 225MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 225MA
P_{MAX} = 1 WATT	$(\frac{V_T \times I_T}{4})$ OR $(\frac{V_{OC} \times I_{SC}}{4})$ IS LESS THAN OR EQUAL TO 1 WATT
C_I = .042μF	C_A IS GREATER THAN .042μF
L_I = 10μH	L_A IS GREATER THAN 10μH

* FOR T1 OPTION:

L_I = 0.75MH	L_A IS GREATER THAN 0.75MH



OUTPUT CODE M

AVAILABLE FOR THE MODELS LISTED

3051C 3051H
3051L 3051CA
3051P 3051T

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

DR. MIKE DOBE

ISSUED

CAD Maintained, (MICROSTATION).

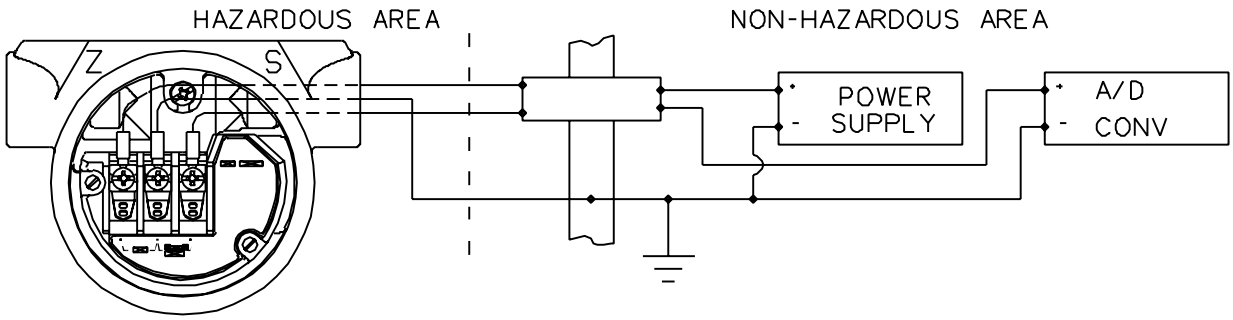
SIZE	FSCM NO	DWG NO.	
A		03031-1019	

SCALE N/A WT. ——— SHEET 5 OF 9

1019A05A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

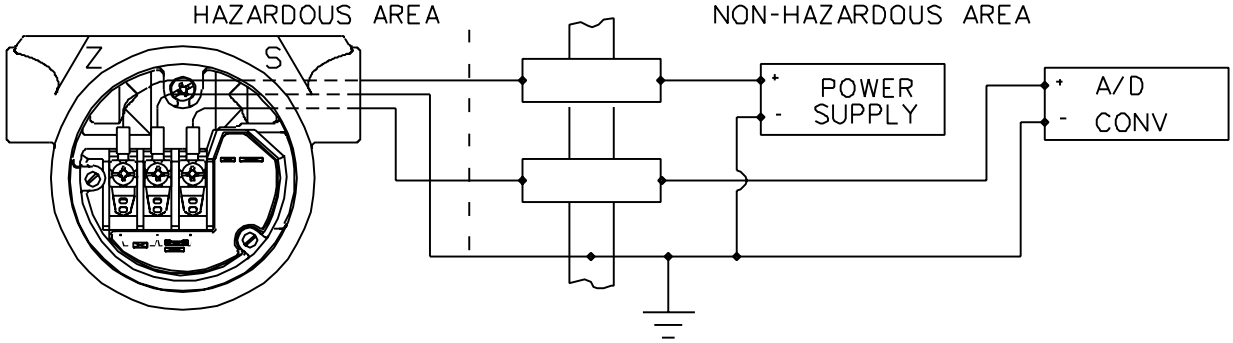
CIRCUIT DIAGRAM 3
ONE DUAL CHANNEL BARRIER



OUTPUT CODE M
AVAILABLE FOR THE MODELS LISTED

3051C	3051H
3051L	3051CA
3051P	3051T

CIRCUIT DIAGRAM 4
TWO SINGLE CHANNEL BARRIERS
(ONLY FOR USE WITH BARRIERS APPROVED
IN THIS CONFIGURATION)



OUTPUT CODE M
AVAILABLE FOR THE MODELS LISTED

3051C	3051H
3051L	3051CA
3051P	3051T

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

CAD Maintained, (MICROSTATION).

DR. SANDI MANSON	SIZE A	FSCM NO	DWG NO. 03031-1019
ISSUED	SCALE N/A	WT. ———	SHEET 6 OF 9

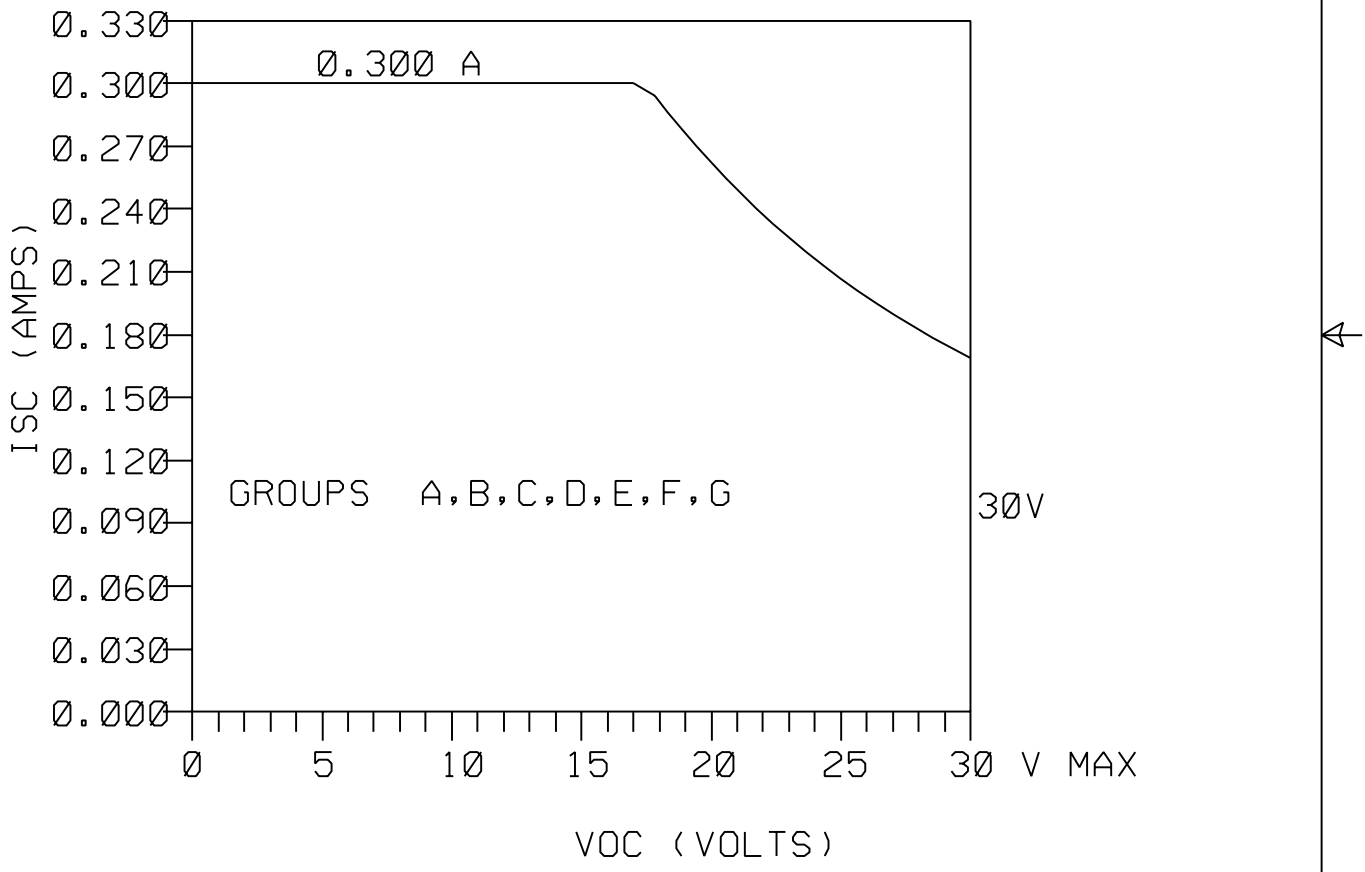
1019A06A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

3051 WITH FOUNDATION FIELDBUS. (OUTPUT CODE F)

BARRIER PARAMETERS (APPLICABLE TO OUTPUT CODE F)

PMAX = 1.3 WATT

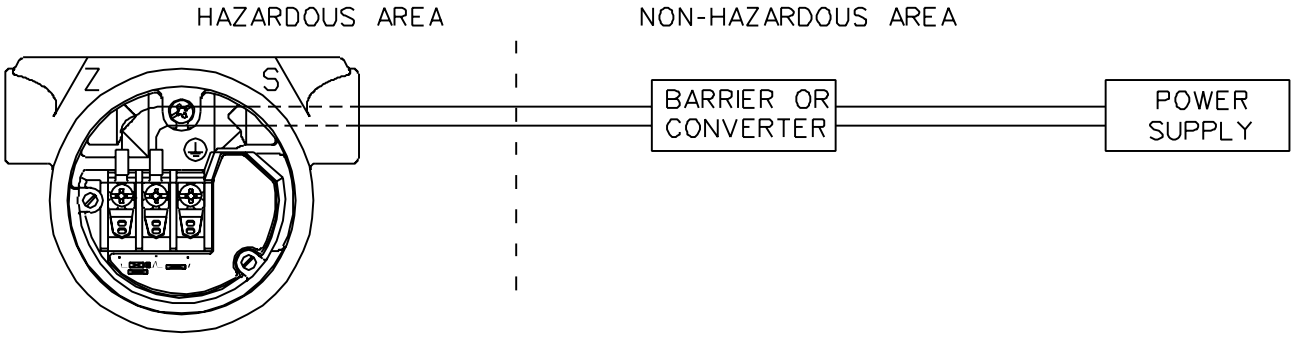


ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA			CAD Maintained, (MICROSTATION).
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03031-1019
ISSUED	SCALE N/A	WT. ———	SHEET 7 OF 9

1019A07A

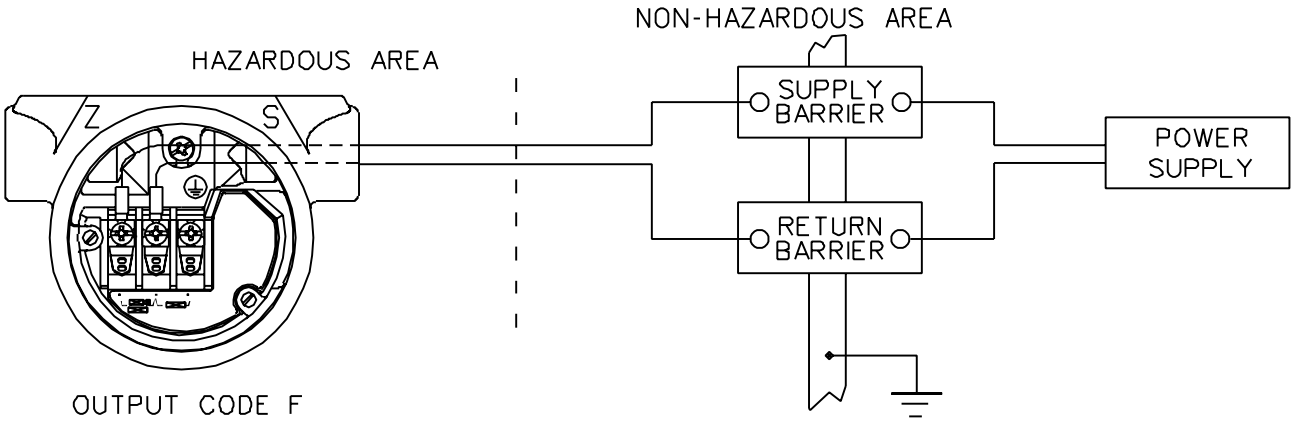
REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

CIRCUIT DIAGRAM 1
ONE BARRIER OR CONVERTER:
SINGLE OR DUAL CHANNEL



OUTPUT CODE F
MODELS INCLUDED
3051C, L, P, H, T, CA
3001C, CL, CH

CIRCUIT DIAGRAM 2
SUPPLY AND RETURN BARRIERS
(ONLY FOR USE WITH BARRIERS APPROVED IN THIS CONFIGURATION)



OUTPUT CODE F
MODELS INCLUDED
3051C, L, P, H, T, CA
3001C, CL, CH

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

CAD Maintained, (MICROSTATION).

DR.	SIZE	FSCM NO	DWG NO.	
Myles Lee Miller	A		03031-1019	
ISSUED	SCALE N/A	WT. ———	SHEET 8 OF 9	

1019A08A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004088		

ENTITY CONCEPT APPROVALS

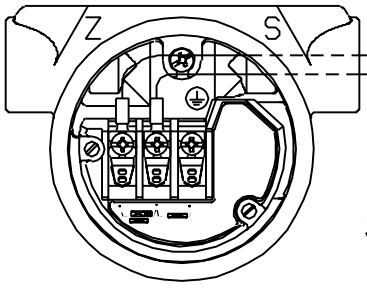
THE ENTITY CONCEPT ALLOWS INTERCONNECTION OF INTRINSICALLY SAFE APPARATUS TO ASSOCIATED APPARATUS NOT SPECIFICALLY EXAMINED IN COMBINATION AS A SYSTEM. THE APPROVED VALUES OF MAX. OPEN CIRCUIT VOLTAGE (VOC OR VT) AND MAX. SHORT CIRCUIT CURRENT (ISC OR IT) AND MAX.POWER (VOC X ISC/4) OR (VT X IT/4), FOR THE ASSOCIATED APPARATUS MUST BE LESS THAN OR EQUAL TO THE MAXIMUM SAFE INPUT VOLTAGE (VMAX), MAXIMUM SAFE INPUT CURRENT (IMAX), AND MAXIMUM SAFE INPUT POWER (PMAX) OF THE INTRINSICALLY SAFE APPARATUS. IN ADDITION, THE APPROVED MAX. ALLOWABLE CONNECTED CAPACITANCE (CA) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE CAPACITANCE AND THE UNPROTECTED INTERNAL CAPACITANCE (CI) OF THE INTRINSICALLY SAFE APPARATUS, AND THE APPROVED MAX. ALLOWABLE CONNECTED INDUCTANCE (LA) OF THE ASSOCIATED APPARATUS MUST BE GREATER THAN THE SUM OF THE INTERCONNECTING CABLE INDUCTANCE AND THE UNPROTECTED INTERNAL INDUCTANCE (LI) OF THE INTRINSICALLY SAFE APPARATUS.

FOR OUTPUT CODE F

NOTE: ENTITY PARAMETERS LISTED APPLY ONLY TO ASSOCIATED APPARATUS WITH LINEAR OUTPUT.

CLASS I, DIV. 1, GROUPS A, B, C AND D

V_{MAX} = 30V	V_T OR V_{OC} IS LESS THAN OR EQUAL TO 30V
I_{MAX} = 300MA	I_T OR I_{SC} IS LESS THAN OR EQUAL TO 300MA
P_{MAX} = 1.3 WATT	$(\frac{V_T \times I_T}{4})$ OR $(\frac{VOC \times ISC}{4})$ IS LESS THAN OR EQUAL TO 1.3 WATT
C_I = 0µF	C_A IS GREATER THAN 0µF
L_I = 0µH	L_A IS GREATER THAN 0µH



HAZARDOUS AREA | NON-HAZARDOUS AREA

ASSOCIATED APPARATUS

(SEE SHEET 3)

OUTPUT CODE F
MODELS INCLUDED
3051C, L, P, H, T, CA
3001C, CL, CH

ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA			CAD Maintained, (MICROSTATION).
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03031-1019
ISSUED	SCALE N/A	WT. ———	SHEET 9 OF 9

3

CONFIDENTIAL AND PROPRIETARY INFORMATION IS CONTAINED HEREIN AND MUST BE HANDLED ACCORDINGLY	REVISIONS				
	REV	DESCRIPTION	CHG. NO.	APP'D	DATE
	AA	ADD FIELDBUS	RTC1004232	M.L.M.	5/28/98

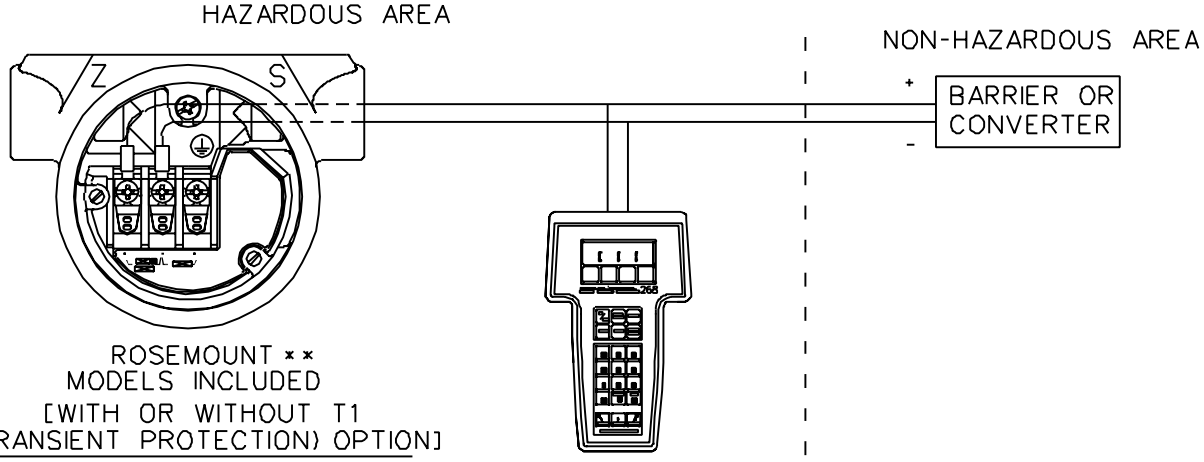
CSA INTRINSIC SAFETY APPROVALS

CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

Ex ia

INTRINSICALLY SAFE/SECURITE INTRINSEQUE

4-20 mA, ("A" OUTPUT CODE)



ROSEMOUNT ** MODELS INCLUDED
[WITH OR WITHOUT T1 (TRANSIENT PROTECTION) OPTION]
3051C, L, P, H, T, CA
3001C, CL, CH, S, SL, SH

ROSEMOUNT MODEL 268 or 275 SMART FAMILY INTERFACE

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

** FOR THE LOW POWER OPTION, SEE PAGE 3 FOR THE CIRCUIT CONNECTION WITH BARRIER OR CONVERTER. FOR FIELDBUS ("F" OUTPUT CODE), SEE PAGE 4 FOR PARAMETERS AND CIRCIUT CONNECTION TO BARRIER.

CAD Maintained, (MICROSTATION).

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES [mm]. REMOVE ALL BURRS AND SHARP EDGES. MACHINE SURFACE FINISH 125

-TOLERANCE-
.X ± .1 [2.5]
.XX ± .02 [0.5]
.XXX ± .010 [0.25]
FRACTIONS ± 1/32
ANGLES ± 2°

DO NOT SCALE PRINT

CONTRACT NO.

DR. Mike Debe 08/27/90

CHK'D

APP'D. GLEN MONZO 8/31/90

APP'D. GOVT.

ROSEMOUNT • MEASUREMENT
FISHER-ROSEMOUNT

ROSEMOUNT INC.
12001 TECHNOLOGY DRIVE
EDEN PRAIRIE, MN 55344 USA

TITLE
INDEX OF I.S. CSA FOR 3051C/L/P/H/T & 3001C/S

SIZE	FSCM NO	DWG NO.	
A		03031-1024	
SCALE N/A	WT. ———	SHEET 1 OF 4	

1024A01A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004232		

4-20 MA, ("A" OUTPUT CODE)

DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV.1
CSA APPROVED SAFETY BARRIER	30 V OR LESS * 330 OHMS OR MORE * 28 V OR LESS 300 OHMS OR MORE 25 V OR LESS 200 OHMS OR MORE * 22 V OR LESS 180 OHMS OR MORE	GROUPS A, B, C, D
FOXBORO CONVERTER 2A1-12V-CGB, 2AI-13V-CGB, 2AS-131-CGB, 3A2-12D-CGB, 3A2-13D-CGB, 3AD-131-CGB, 3A4-12D-CGB, 2AS-121-CGB, 3F4-12DA		GROUPS B, C, D
CSA APPROVED SAFETY BARRIER	30 V OR LESS 150 OHMS OR MORE	GROUPS C, D

LOW POWER, ("M" OUTPUT CODE)

DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV.1
	SUPPLY ≤ 28V ≥ 300 Ω RETURN ≤ 10V ≥ 47 Ω	GROUPS A, B, C, D
CSA APPROVED SAFETY BARRIER	SUPPLY ≤ 30V ≥ 150 Ω RETURN ≤ 10V ≥ 47 Ω	GROUPS C, D

* MAY BE USED WITH ROSEMOUNT MODEL 268 or 275 SMART FAMILY INTERFACE.

ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA		CAD Maintained, (MICROSTATION).	
DR. Mike Dobe	SIZE A	FSCM NO	DWG NO. 03031-1024
ISSUED	SCALE N/A	WT. ———	SHEET 2 OF 4

1024A02A

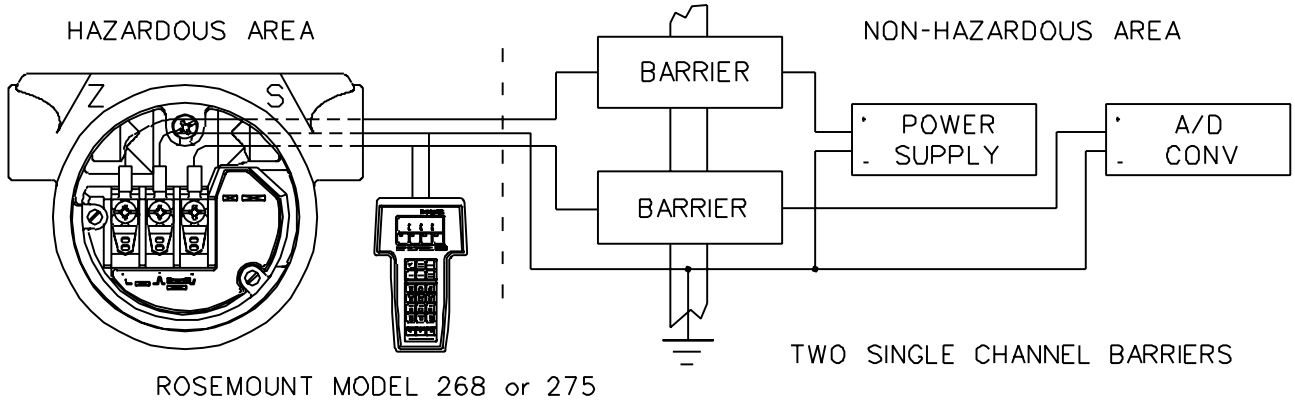
REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004232		

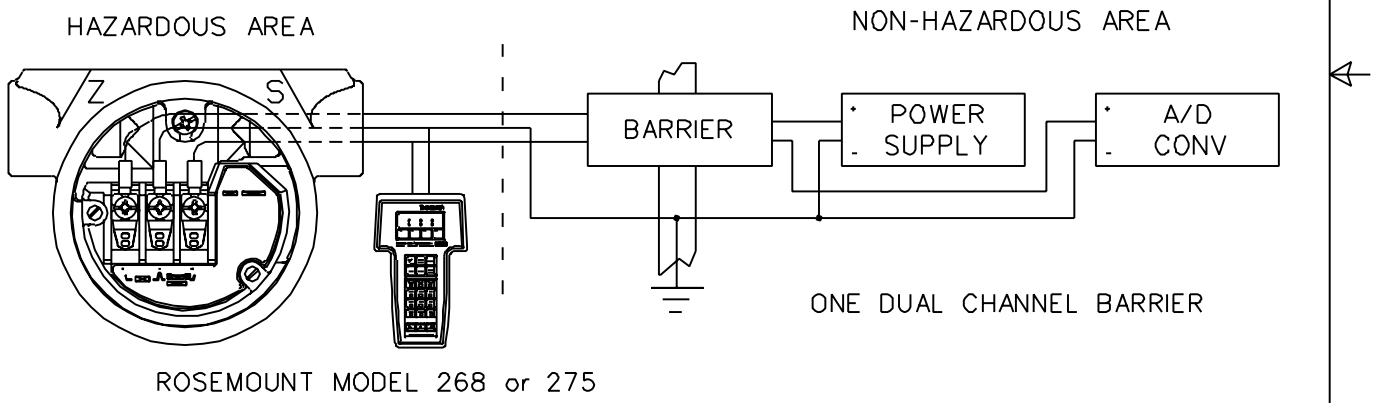
CSA INTRINSIC SAFETY APPROVALS

3051C LOW POWER CIRCUIT CONNECTION WITH INTRINSIC SAFETY BARRIERS

Ex ia

INTRINSICALLY SAFE/SECURITE INTRINSEQUE
LOWPOWER, ("M" OUTPUT CODE)





APPROVED FOR CLASS 1, DIVISION 1, GROUPS A,B,C,D WHEN USED IN CIRCUIT WITH TWO CSA APPROVED SINGLE CHANNEL SAFETY BARRIERS, ONE WITH APPROVED SAFETY PARAMETERS OF 28 VOLTS OR LESS AND 300 OHMS OR MORE IN +PWR LINE, AND ONE WITH APPROVED SAFETY PARAMETERS OF 10 VOLTS OR LESS AND 47 OHMS OR MORE IN Vout LINE, OR ONE CSA APPROVED DUAL CHANNEL SAFETY BARRIER WITH IDENTICAL APPROVED SAFETY PARAMETERS CONNECTED IN LIKE MANNER, AS ABOVE.

APPROVED FOR CLASS 1, DIVISION 1, GROUPS C,D WHEN USED IN CIRCUIT WITH TWO CSA APPROVED SINGLE CHANNEL SAFETY BARRIERS, ONE WITH APPROVED SAFETY PARAMETERS OF 30 VOLTS OR LESS AND 150 OHMS OR MORE IN +PWR LINE AND ONE WITH APPROVED SAFETY PARAMETERS OF 10 VOLTS OR LESS AND 47 OHMS OR MORE IN Vout LINE.

ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA		CAD Maintained, (MICROSTATION).	
DR. SANDI MANSON	SIZE A / FSCM NO	DWG NO. 03031-1024	
ISSUED	SCALE N/A / WT. ———	SHEET 3 OF 4	

1024A03A

REVISIONS				
REV	DESCRIPTION	CHG. NO.	APP'D	DATE
AA		RTC1004232		

FIELDBUS, ("F" OUTPUT CODE)

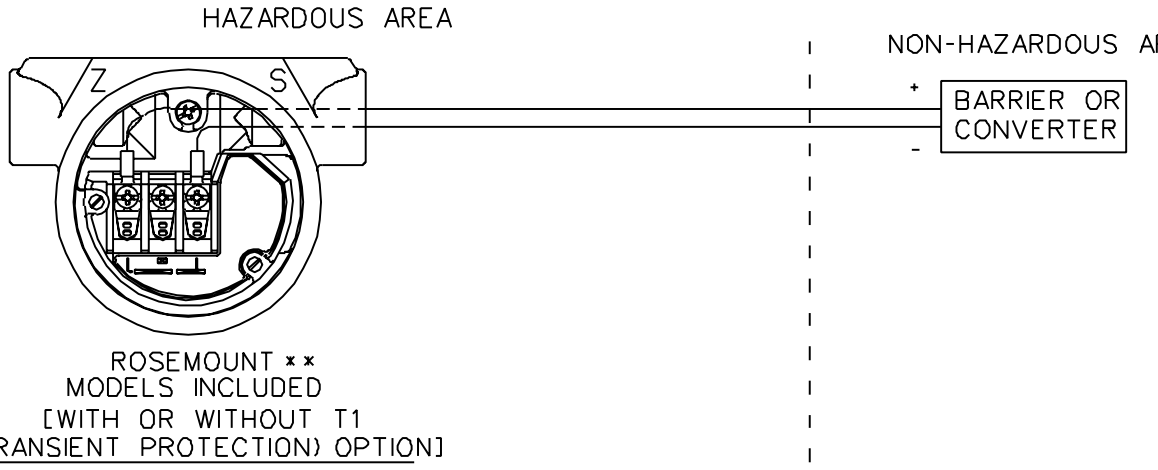
DEVICE	PARAMETERS	APPROVED FOR CLASS I, DIV.1
CSA APPROVED SAFETY BARRIER	30 V OR LESS 300 OHMS OR MORE 28 V OR LESS 235 OHMS OR MORE 25 V OR LESS 160 OHMS OR MORE 22 V OR LESS 100 OHMS OR MORE	GROUPS A, B, C, D

CSA INTRINSIC SAFETY APPROVALS

CIRCUIT CONNECTION WITH BARRIER OR CONVERTER

Ex ia

INTRINSICALLY SAFE/SECURITE INTRINSEQUE
FIELDBUS, ("F" OUTPUT CODE)



ROSEMOUNT ** MODELS INCLUDED
[WITH OR WITHOUT T1 (TRANSIENT PROTECTION) OPTION]
3051C, L, P, H, T, CA
3001C, CL, CH, S, SL, SH

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

AVERTISSEMENT - RISQUE D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE I, DIVISION 2.

ROSEMOUNT INC. 12001 TECHNOLOGY DRIVE EDEN PRAIRIE, MN 55344 USA		CAD Maintained, (MICROSTATION).	
DR. Myles Lee Miller	SIZE A	FSCM NO	DWG NO. 03031-1024
ISSUED	SCALE N/A	WT. ———	SHEET 4 OF 4

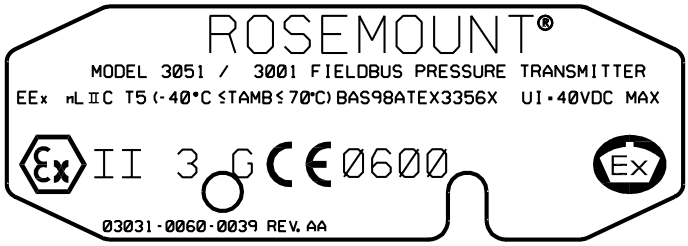
1024A04A

Section 6

European ATEX Directive Information

CENELEC/BASEEFA TYPE N

Rosemount Model 3051 Transmitters with PROFIBUS–PA that have the following label attached, have been certified to comply with Directive 94/9/EC of the European Parliament and the Council as published in the Official Journal of the European Communities No. L 100/1 on 19 April 1994.



3051-006H06A

The following information is provided as part of the labeling of the transmitter:

- Name and address of the manufacturer (may be any of the following):
  - Rosemount USA
  - Rosemount England
  - Rosemount Germany
  - Rosemount Singapore
  - Rosemount India

CE 0600

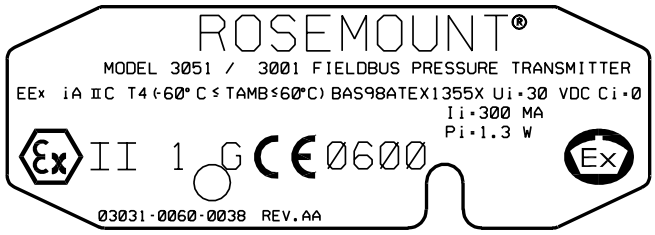
- Complete model number (see Section 6: Specifications and Reference Data).
- The serial number of the device
- Year of construction
- Marking for explosion protection: II 3 G
  - EEx nL IIC T5 (–40 °C ≤ T_{amb} ≤ 70 °C)
  - Ui = 40Vdc Max
- BASEEFA certificate number: BAS98ATEX3356X

Special conditions for safe use (X):

Model 3051 transmitters fitted with the transient protection terminal block are not capable of withstanding the 500 V insulation test required by clause 9.1 of EN 50 021 (1998), and this must be taken into account when installing the apparatus.

CENELEC/BASEEFA INTRINSIC SAFETY

Rosemount 3051 transmitters with FOUNDATION Fieldbus that have the following label attached, have been certified to comply with Directive 94/9/EC of the European Parliament and the Council as published in the Official Journal of the European Communities No. L 100/1 on 19 April 1994.



3051-0060H05A

The following information is provided as part of the labeling of the transmitters:

- Name and address of the manufacturer (may be any of the following):
  - Rosemount USA
  - Rosemount England
  - Rosemount Germany
  - Rosemount Singapore
  - Rosemount India

CE 0600

- Complete model number (see Section 6: Specifications and Reference Data)
- The serial number of the device
- Year of construction
- Marking for explosion protection: II 1 G
  - EEx ia IIC T4 (–60 °C ≤ T_{amb} ≤ 60 °C)
  - U_i = 30Vdc I_i = 300 mA P_i = 1.3 W C_i = 0.0 µF
- BASEEFA ATEX certificate number: BAS98ATEX1355X

Special conditions for safe use (X):

Model 3051 transmitters fitted with the transient protection terminal block are not capable of withstanding the 500 V insulation test required by clause 6.4.12 of EN 50 020 (1994), and this must be taken into account when installing the apparatus.

Appendix A

Model 3051 PROFIBUS–PA Analog Input Block (AI)

OVERVIEW

The Analog Input (AI) function block processes field device measurements and makes them available to the host device. The output value from the AI block is in engineering units and contains a status indicating the quality of the measurement. The measuring device may have several measurements or derived values available in different channels. Use the channel number to define the variable that the AI block processes.

TABLE A-1. Definitions of Analog Input Block System Parameters.

Parameter	Index Number	Description
ALARM_HYS	19	The amount the alarm value must return within the alarm limit before the associated active alarm condition clears.
ALARM_SUM	7	Contains the current states of the block alarms.
ALERT_KEY	4	The identification number of the plant unit. This information may be used in the host for sorting alarms, etc.
CHANNEL	14	The channel value is used to select the TB measurement value. CHANNEL must be configured before the PV_SCALE parameter. 1 = Pressure measurement value
HI_ALM	31	The HI alarm data.
HI_HI_ALM	30	The HI Hi alarm data.
HI_HI_LIM	21	The setting of the alarm limit used to detect the HI HI alarm condition.
HI_LIM	23	The setting of the alarm limit used to detect the HI alarm condition.
LO_ALM	32	The LO alarm data.
LO_LIM	25	The setting of the alarm limit used to detect the LO alarm condition.
LO_LO_ALM	33	The LO LO alarm data.
LO_LO_LIM	27	The setting of the alarm limit used to detect the LO LO alarm condition.
MODE_BLK	6	Contains the actual, permitted, and normal modes of the block.
OUT	10	Value and status of the block output.
OUT_SCALE	12	The high and low scale values, units code, and number of digits to the right of the decimal point associated with OUT.
PV_FTIME	16	The time constant of the first order PV filter. Time required for a 63% change in the input value (seconds).
PV_SCALE	11	The high and low scale values, units code, and number of digits to the right of the decimal point associated with the assigned TB measurement value; the PV_SCALE units must be valid, and CHANNEL must be properly configured.
SIMULATE	34	A group of data that contains the simulated transducer value and status, and the enable/disable bit.
ST_REV	1	The revision level of the static data associated with block; the revision value will be incremented each time a static parameter value in the block is changed.
STRATEGY	3	Grouping of function blocks.
TAG_DESC	2	The user description of the intended block application.
TARGET_MODE	5	Contains desired mode of the block normally set by the operator or a control specification.
Reserved by PNO	35-39	

Configuration Data

1. Place the AI block in OOS (Out of Service) mode. Write 0x80 to AI TARGET_MODE (Index 5).
2. Write 1 to AI CHANNEL (Index 14).
3. Configure AI PV_SCALE (Index 11).
   a. EU at 100%
   b. EU at 0%
   c. Units index
   d. Decimal point
4. Configure AI OUT_SCALE (Index 12).
   a. EU at 100%
   b. EU at 0%
   c. Units index
   d. Decimal point
5. Place AI block in AUTO. Write 0x08 to AI TARGET_MODE (Index 5).

NOTE
Devices may be pre-configured from the factory.

Appendix B

Model 3051 PROFIBUS–PA Physical Block (PB)

OVERVIEW

This section contains information on the Model 3051 Physical Block. Descriptions of all Physical Block Parameters, errors, and diagnostics are included. Also the modes, alarm detection, status handling, and troubleshooting are discussed.

Definition

The physical block defines the physical resources of the device including type of memory, etc. The physical block also handles functionality that is common across multiple blocks. The block performs memory-level diagnostics.

TABLE B-1. Definitions of Physcial Block System Parameters.

Parameter	Index Number	Description
ALARM_SUM	7	Contains the current states of the block alarms.
ALERT_KEY	4	The identification number of the plant unit. This information may be used in the host for sorting alarms, etc.
DESCRIPTOR	30	User-definable text to describe the device.
DEVICE_ID	11	Identification of the device 0x3051 = Rosemount 3051 Pressure Transmitter
DEVICE_INSTAL_DATE	32	Date of installation of the device.
DEVICE_MAN_ID	10	Identification code of the manufacturer of the field device 38 = Rosemount Inc.
DEVICE_MESSAGE	31	User-definable message to the device or application in plant.
DEVICE_SER_NUM	12	Serial number of the device (output board serial number).
DIAGNOSIS	13	Detailed information of the device bitwise coded. MSB (bit 31) represents more information available in Diagnosis extension.
DIAGNOSIS_EXTENSION	14	Additional manufacturer diagnoses information (See DIAGNOSIS_EXTENSION table below).
DIAGNOSIS_MASK	15	Definition of supported DIAGNOSIS information bits: 0 = Not supported 1 = Supported
DIAGNOSIS_MASK_EXTENSION	16	Definition of supported DIAGNOSIS_EXTENSION information bits: 0 = Not supported 1 = Supported
FACTORY_RESET	19	Command for restarting device: 1 = Restart with defaults 4 = Restart processor
HARDWARE_REVISION	9	Hardware revision
MODE_BLK	6	Contains the actual, permitted, and normal modes of the block.
SOFTWARE_REVISION	8	Software revision, includes a major, minor, and build revision.
STRATEGY	3	Grouping of function blocks.
ST_REV	1	The revision level of the static data associated with block; the revision value will be incremented each time a static parameter vlaue in the block is changed.
TAG_ DESC	2	The user description of the intended block application.
TARGET_MODE	5	Contains desired mode of the block normally set by the operator or a control specification.

NOTE
Bit Value 0 = Nonactive
Bit Value 1 = Active.

TABLE B-2. Diagnosis Extensions – Description

Byte-Bit	Description
1-7	**Other**
1-6	*Not implemented*
1-5	*Not implemented*
1-4	**Simulate Active**
1-3	*Not implemented*
1-2	*Not implemented*
1-1	*Not implemented*
1-0	*Not implemented*
2-7	*Not implemented*
2-6	**Memory Failure**
2-5	**Lost Static Data**
2-4	**Lost NV Data**
2-3	*Not implemented*
2-2	**Device Needs Maintenance Now**
2-1	**Power-Up**
2-0	**Out-of-Service**
3-7	*Not implemented*
3-6	**Sensor Transducer Block Error**
3-5	**Manufacturing Block Integrity Error**
3-4	**Hardware/Software Incompatible**
3-3	**Non-Volatile Memory Integrity Error**
3-2	*Not implemented*
3-1	**ROM Integrity Error**
3-0	*Not implemented*
4-	*Not implemented*
5-	*Not implemented*
6-	*Not implemented*

TABLE B-3. Diagnosis Extensions – Bit Stream

Byte 1								Byte 2								Byte 3								Byte 4								Byte 5								Byte 6							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0

TABLE B-4. Bit Stream Example—Two Conditions Active

NOTE: If both "Out of Service" and "Device Needs Maintenance Now" are active, the diagnostic bit stream will be:																																															
Byte 1								**Byte 2**								**Byte 3**								**Byte 4**								**Byte 5**								**Byte 6**							
7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0	7	6	5	4	3	2	1	0
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0x00								0x05								0x00								0x00								0x00								0x00							

Appendix C

Model 3051 PROFIBUS–PA Transducer Block (TB)

OVERVIEW

This section contains information on the 3051 Profibus Transducer Block (TB). Descriptions of all Transducer Block parameters are listed.

TABLE C-1. Definitions of Transducer Block System Parameters.

Parameter	Index Number	Description
ALARM_SUM	7	Contains the current states of the block alarms.
ALERT_KEY	4	The identification number of the plant unit. This information may be used in the host for sorting alarms, etc.
AUX_VALUE	29	Sensor Temperature measured value and status.
AUX_VALUE_NO	30	Number of Auxiliary Values (1)
AUX_VALUE_TYPE	31	Type of Auxiliary Values 105 = Non-process temperature
AUX_VALUE_UNIT	32	Units index code for the auxiliary value 32 = °C
CAL_MIN_SPAN	13	The minimum span that is allowed between the calibration high and low points.
CAL_POINT_HI	11	The value of the sensor measurement used for the high calibration point.
CAL_POINT_LO	12	The value of the sensor measurement used for the low calibration point.
CAL_UNIT	14	Units index code for the calibration inputs: 1 = inH_2O @ 68 °F 2 = inHg @ 0 °C 3 = ftH_2O @ 68 °F 4 = mmH_2O @ 68 °F 5 = mmHg @ 0 °C 6 = psi 7 = bar 8 = mbar 9 = g/cm^2 10 = kg/cm^2 11 = pascals 12 = Kilopascals 13 = torr 14 = atm
MODE_BLK	6	Contains the actual, permitted, and normal modes of the block.
PRIMARY_VALUE	19	Pressure measured value and status available to the function blocks.
PRIMARY_VALUE_DECIMAL	21	Number of digits to the right of the decimal point that should be displayed for the primary value.
PRIMARY_VALUE_TYPE	20	Type of measurement of the primary value: 107 = Differential Pressure 108 = Gage Pressure 109 = Absolute Pressure 65535 = Other

TABLE C-1. Definitions of Transducer Block System Parameters.

Parameter	Index Number	Description
PRIMARY_VALUE_UNIT	22	Units index code for the primary value: 1 = inH_2O @ 68 °F 2 = inHg @ 0 °C 3 = ftH_2O @ 68 °F 4 = mmH_2O @ 68 °F 5 = mmHg @ 0 °C 6 = psi 7 = bar 8 = mbar 9 = g/cm^2 10 = kg/cm^2 11 = pascals 12 = Kilopascals 13 = torr 14 = atm
SENSOR_DIAPHRAGM_MATERIAL	23	Type of material of the sensor isolator: 2 = 316 Stainless steel 3 = Hastelloy C™ 4 = Monel 5 = Tantalum 253 = "Special"
SENSOR_FILL_FLUID	24	Type of fill fluid used in sensor: 0 = Undefined 1 = Silicone 2 = Inert 3 = Undefined 7 = Neobee 251 = "None" 252 = "Unknown" 253 = "Special"
SENSOR_O_RING_MATERIAL	26	Type of material of the flange 0-rings: 10 = PTFE (Teflon™) 11 = Viton® 12 = Buna–N 13 = Ethyl–Prop 252 = "Unknown" 253 = "Special"
SENSOR_SERIAL_NUMBER	18	Serial number of the sensor
SENSOR_TYPE	17	Index code for the sensor type: 117 = Capacitance 121 = Pressure sensor unknown 124 = Strain gauge 65535 = Other
SENSOR_VALUE	8	The value of the pressure measrement.
STRATEGY	3	Grouping of function blocks.
ST_REV	1	The revision level of the static data associated with block; the revision value will be incremented each time a static parameter value in the block is changed.
TAG_DESCRIPTION	2	The user description of the intended block application.
TARGET_MODE	5	Contains desired mode of the block normally set by the operator or a control specification.
TRIMMED_VALUE	15	The value of the pressure measurement after calibration.
TRIMMED_VALUE_DECIMAL	16	Number of digits to the right of the decimal point that should be displayed for the trimmed value.

Sensor Calibration

1. Place TB in OOS (Out of Service) mode. Write 0x80 to TB TARGET_MODE (Index 5).
2. Apply desired low pressure (i.e., 0) to device and allow to stabilize.
3. Write applied pressure to TB CAL_POINT_LO (Index 12).
4. Apply desired high pressure to device and allow to stabilize.
5. Write applied pressure to TB CAL_POINT_HI (Index 11).
6. Place TB in AUTO. Write 0x08 to TB TARGET_MODE.

NOTE
Devices are calibrated by the factory.

Zero Calibration

1. Place TB in OOS (Out of Service) mode. Write 0x80 to TB TARGET_MODE (Index 5).
2. Apply zero pressure to device and allow to stabilize.
3. Write zero pressure to TB CAL_POINT_LO (Index 12).
4. Place TB in AUTO. Write 0x08 to TB TARGET_MODE.

NOTE
Zero calibration for the transmitter is recommended to compensate for mounting position effects or static pressure effects.

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