Product Data Sheet
October 2014
00813-0300-4801, Rev AA

Rosemount 3051S Pressure Transmitter

High accuracy pressure measurement for tank gauging systems

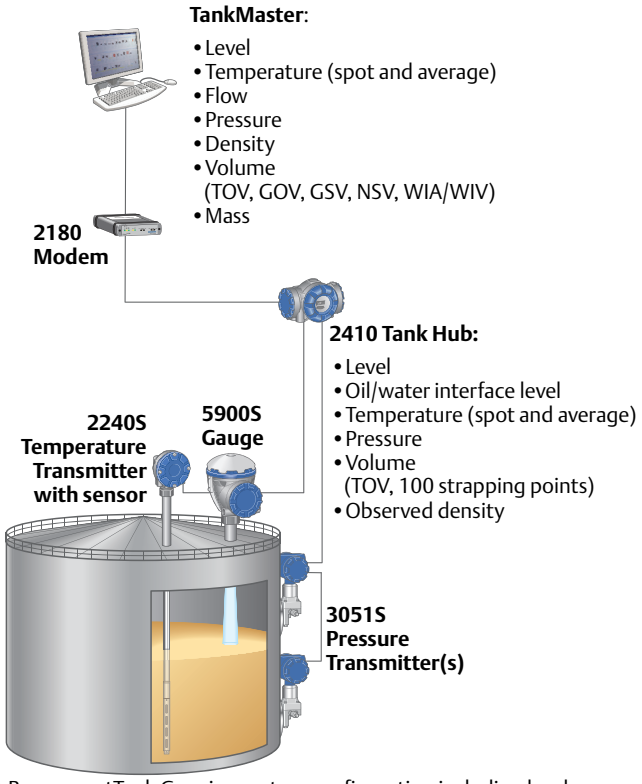
- Enable online mass and density calculation – no need for manual density sampling
- Use in all storage applications, including crude oil tanks, pressurized tanks and tanks with/without floating roofs
- Benefit from convenient and safe installation with 2-wire IS bus power supply
- Measure with industry leading 0.025% pressure accuracy, and density according to API chapter 3.6
- Includes a wireless version utilizing a long-life IS power module

Note
For the general 3051S Product Data Sheet, see document number 00813-0100-4801.

ROSEMOUNT

EMERSON
Process Management

Rosemount 3051S pressure transmitter in tank gauging applications



A RosemountTank Gauging system configuration including level, temperature and pressure measurement instruments for high performance mass, density, volume, and level gauging

3051S Wireless Scalable Pressure Transmitter

Get online mass and density measurement

Enhance your bulk liquid measurement and eliminate the need for manual sampling. By complementing the high accuracy level measurement with high performance temperature and pressure measurement, the density and mass of the product in the tank as well as net volume can be continuously calculated.

Rosemount 3051S is the standard pressure transmitter for Rosemount Tank Gauging Systems:

- One or several pressure transmitters per tank can be used for liquid and vapor pressure
- State-of-the-art pressure accuracy gives highest density precision
- 3051S supplies pressure data to the self-configured FOUNDATION™ fieldbus communication based Tankbus

The 3051S Series consists of transmitters and flanges suitable for all kinds of applications, including crude oil tanks and tanks with/without floating roofs.

3051S is also available as a wireless device, which can be used in an IEC 62591 (*Wireless*HART) network. It is powered by a long-life intrinsically safe power module, and has the same outstanding performance as the wired version.

For more information, see the 3051S Product Data Sheet (00813-0100-4801). Also see the Product Data Sheets 5900S (00813-0100-5900), 2240S (00813-0100-2240) and 565/566/765 (00813-0100-5565).

Contents

Ordering Information 3
Specifications 10
Product Certifications 12
Dimensional Drawings 16

Ordering Information

Rosemount 3051S Coplanar™ Pressure Transmitter

Rosemount 3051S Coplanar Pressure Transmitters are the industry leader for Differential, Gage, and Absolute pressure measurement.

For density measurement on non-viscous liquids such as diesel, and vapor pressure measurement. Capabilities include:

- Ultra and Classic Performance
- Wireless and FOUNDATION fieldbus protocols
- Safety Certification (Option Code QT)

Additional information
Specifications: page 10
Dimensional drawings: page 16

This section includes a selection of Rosemount pressure transmitter products and options.
For complete information, see the 3051S Product Data Sheet (00813-0100-4801).

Table 1. Rosemount 3051S Coplanar Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
3051S	Scalable Pressure Transmitter	
Performance Class		
1	Ultra: 0.025% span accuracy, 200:1 rangedown, 15-year stability, 15-year limited warranty	★
2	Classic: 0.035% span accuracy, 150:1 rangedown, 15-year stability	★
Connection Type		
C	Coplanar	★
Measurement Type		
G	Gage	★
Pressure Range		
1A(1)	-25 to 25 inH_2O (-62.3 to 62.3 mbar)	★
2A(1)	-250 to 250 inH_2O (-623 to 623 mbar)	★
3A(2)	-393 to 1000 inH_2O (-0.98 to 2.5 bar)	★
Isolating Diaphragm		
2	316L SST	★
Process Connection		
Connection for Vapor Pressure Transmitter (SST/316 SST)		
E12	Coplanar flange, ¼ - 18 NPT	★

Table 1. Rosemount 3051S Coplanar Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Vertical mount ANSI flanges (SST/316 SST)		
G11	2 in. class 150	★
G12	2 in. class 300	★
G21	3 in. class 150	★
G22	3 in. class 300	★
Vertical mount EN flanges (SST/316 SST)		
G31	DN50 PN40	★
G41	DN80 PN40	★
Transmitter Output		
F[3]	Bus powered 2-wire FOUNDATION fieldbus (IEC 61158)	★
A	4-20 mA with digital signal based on HART® protocol	★
X[4]	Wireless (only intrinsically safe approval codes apply)	★
Housing Style		
1A	PlantWeb™ housing (aluminum), ½-14 NPT	★
1B	PlantWeb housing (aluminum), M20 x 1.5	★
2A	Junction Box housing (aluminum), ½-14 NPT	★
2B	Junction Box housing (aluminum), M20 x 1.5	★
5A[5]	Wireless PlantWeb housing (aluminum), ½-14 NPT	★
Wireless Options[6]		
Update rate		
WA	User configurable update rate	★
Operating frequency and protocol		
3	2.4 GHz DSSS, IEC 62591(*Wireless*HART)	★
Omni-directional wireless antenna		
WK	External antenna	★
WM	Extended range, external antenna	★
SmartPower™		
1[7]	Intrinsically safe power module adapter (power module is separate)	★
Other options – none or multiple selections are possible		
Product certifications		
E1	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
IA[8]	ATEX FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
E5	FM Explosion-proof, Dust Ignition-proof	★

Table 1. Rosemount 3051S Coplanar Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

I5	FM Intrinsically Safe; Nonincendive	★
IE[8]	FM FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2 (Not available with M20 or G ½ conduit entry size)	★
I6	CSA Intrinsically Safe	★
IF[8]	CSA FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsically Safe	★
IG[8]	IECEx FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
IB[8]	INMETRO FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
Other		
L4	Austenitic 316 SST bolts	★
M5	PlantWeb LCD display	★
Q4	Calibration certificate	★
Q8	Material traceability certification per EN 10204 3.1	★
QT[9]	Safety-certified to IEC 61508 with certificate of FMEDA data	★
T1[10][11]	Transient terminal block	★
GE[11][12]	M12, 4-pin, male connector (eurofast®)	★
GM[11][12]	A size Mini, 4-pin, male connector (minifast®)	★
P1	Hydrostatic testing with certificate	
Typical Model Number: 3051S - 1 C G 3A 2 G11 F 1A - IA Q4		

(1) For vapor pressure measurement (P3).

(2) For liquid pressure measurement (P1).

(3) Requires PlantWeb housing.

(4) Requires Housing Style code 5A and Wireless Options.

(5) Requires Transmitter Output code X.

(6) Requires Transmitter Output code X and Housing Style code 5A.
Also see section for Hazardous Location Certification.

(7) Long-Life Power Module must be shipped separately, order power module 701 PBKKF.

(8) For use with Rosemount 2410 Tank Hub.

(9) Not available with Transmitter Output code F or X.

(10) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO Product Certification codes IA, IB, IE, IF and IG.

(11) Not available with Housing Style code 5A.

(12) Available with Intrinsically Safe approvals only. For FM Intrinsically Safe; Nonincendive (option code i5) or FM FISCO Intrinsically Safe (option code IE), install in accordance with Rosemount drawing 03151-1009. Suitable for use with all IS approvals (I1, I5, I6, I7, IA, IB, IE, IF and IG).

Rosemount 3051S Liquid Level Pressure Transmitter

For density measurement of viscous liquids such as crude oil:

- Integrated transmitter and direct mount seal in a single model number
- Variety of process connections including flanged, threaded, and hygienic direct mount seals
- FOUNDATION fieldbus and wireless protocols
- Safety Certification (Option Code QT)

Additional information
Specifications: page 10
Dimensional drawings: page 16

This section includes a selection of Rosemount pressure transmitter products and options.
For complete information, see the 3051S Product Data Sheet (00813-0100-4801).

Table 2. Rosemount 3051S Liquid Level Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product Description	
3051SAL	Scalable Advanced Level Transmitter for liquid level applications	
Performance Class		
1	Ultra: 0.055% span accuracy, 150:1 rangedown, 15-year limited warranty	★
2	Classic: 0.065% span accuracy, 150:1 rangedown	★
Configuration Type		
C	Liquid Level Transmitter	★
Pressure Module Type and Pressure Sensor Type		
G	Coplanar module; Gage sensor	★
Pressure Range		
3A	-393 to 1000 inH_2O (-0.98 to 2.5 bar)	★
4A	-14,2 to 300 psig (-0.98 to 20,7 bar)	★
Transmitter Output		
F(1)	Bus powered 2-wire FOUNDATION fieldbus (IEC61158)	★
A	4-20 mA with digital signal based on HART protocol	★
X(2)	Wireless (only intrinsically safe approval codes apply)	★
Housing Style		
1A	PlantWeb housing (aluminum), ½-14 NPT	★
1B	PlantWeb housing (aluminum), M20 x 1.5	★
2A	Junction Box housing (aluminum), ½-14 NPT	★
2B	Junction Box housing (aluminum), M20 x 1.5	★
5A(3)	Wireless PlantWeb housing (aluminum), ½-14 NPT	★

Table 2. Rosemount 3051S Liquid Level Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Direct-Mount Extension (between transmitter flange and seal)				
10	No extension			
Transmitter Reference Pressure Connection				
20	316 L SST Isolator with SST Transmitter flange			★
Seal Fill Fluid				
D	Silicone 200, -45 to 205 °C (-49 to 401 °F)			★
Process Connection Type				
FF	Flush flanged seal			
Process Connection Size				
G	2 in./DN50/50 A			★
7	3 in./80 A			★
J	DN 80			★
9	4 in./DN 100/100 A			★
Flange/Pressure Rating				
1	ANSI/ASME B16.5 Class 150			★
2	ANSI/ASME B16.5 Class 300			★
G	PN 40 per EN 1092-1			★
E	PN 10/16 per EN 1092-1, (DN100 only)			
Materials of Construction				
	Isolating diaphragm	**Upper housing**	**Flange**	
DA	316L SST	316L SST	316 SST	★
Flushing Connection Ring (lower housing)				
A	316 SST			★
0	None			★
Flushing Connection Quantity & Size				
0	None			★
3	Two ¼-18 NPT Flushing connections			★
Wireless options[(4)]				
Update rate				
WA	User configurable update rate			★
Operating frequency and protocol				
3	2.4 GHz DSSS, IEC 62591(*Wireless*HART)			★

Table 2. Rosemount 3051S Liquid Level Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Omni-directional wireless antenna		
WK	External antenna	★
WM	Extended range, external antenna	★
SmartPower		
1[5]	Adapter for power module (intrinsically safe power module is sold separately)	★
Other options – none or multiple selections are possible		
Flushing connection ring plugs		
SG	SST plug(s) for flushing connection(s)	★
SH	SST drain/vent(s) for flushing connection(s)	★
Product certifications		
E	ATEX Flameproof	★
I1	ATEX Intrinsic Safety	★
IA[6]	ATEX FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
E5	FM Explosion-proof, Dust Ignition-proof	★
I5	FM Intrinsically Safe; Nonincendive	★
IE[6]	FM FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
E6	CSA Explosion-proof, Dust Ignition-proof, Division 2 (Not available with conduit entry size)	★
I6	CSA Intrinsically Safe	★
IF[6]	CSA FISCO Intrinsically Safe (FOUNDATION fieldbus protocol only)	★
E7	IECEx Flameproof, Dust Ignition-proof	★
I7	IECEx Intrinsic Safety	★
IG[6]	IECEx FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
I2	INMETRO Intrinsic Safety	★
IB[6]	INMETRO FISCO Intrinsic Safety (FOUNDATION fieldbus protocol only)	★
Other		
L4	Austenitic 316 SST bolts	★
M5[7][8][9]	PlantWeb LCD display	★
Q4	Calibration certificate	★
Q8	Material traceability certification per EN 10204 3.1	★
QT[9]	Safety-certified to IEC 61508 with certificate of FMEDA data	★
T1[10][11]	Transient terminal block	★
GE[12]	M12, 4-pin, male connector (eurofast)	★
GM[12]	A size Mini, 4-pin, male connector (minifast)	★
Q15[13]	Certificate of Compliance to NACE MR0175/ISO 15156 for wetted materials	★

Table 2. Rosemount 3051S Liquid Level Pressure Transmitter ordering information

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Q25[13]	Certificate of Compliance to NACE MR0103 for wetted materials	★
P1	Hydrostatic testing with certificate	
Typical Model Number: 3051SAL - 2 C G 3A F 1A 10 20 D FF G 1 DA 0 0 - IA Q4		

(1) Requires PlantWeb housing.

(2) Requires Housing Style code 5A and Wireless Options.

(3) Requires Transmitter Output code X.

(4) Requires Transmitter Output code X and Housing Style code 5A. Also see section for Hazardous Location Certification.

(5) Long-Life Power Module must be shipped separately, order Part #00753-9220-0001.

(6) For use with Rosemount 2410 Tank Hub.

(7) See the 3051S Reference manual (document number 00809-0100-4801) for cable requirements. Contact an Emerson Process Management representative for additional information.

(8) Not available with Option code QT.

(9) Not available with Transmitter Output code F or X.

(10) Not available with Housing Style code 5A.

(11) The T1 option is not needed with FISCO Product Certifications; transient protection is included in the FISCO product certification codes IA, IB, IE, IF and IG.

(12) Not available with Housing Style code 5A. Available with Intrinsically Safe approvals only. For FM Intrinsically Safe, Division 2 (option code I5) or FM FISCO Intrinsically safe (option code IE), install in accordance with Rosemount drawing 03151-1009.

(13) Materials of construction comply with metallurgical requirements highlighted within NACE MR 0175/ISO 15156 for sour oil field production environments. Environmental limits apply to certain materials. Consult latest standard for details. Selected materials also conform to NACE MR 0103 for sour refining environments.

Specifications

Rosemount 3051S Pressure Transmitter:

- Coplanar pressure transmitter
- Liquid level pressure transmitter

For complete information and offering, see the Rosemount 3051S Product Data Sheet (document number 00813-0100-4801).

Performance specifications

Reference accuracy

Coplanar Pressure Transmitter: up to ± 0.025% of span for ultra version, up to ± 0.035% of span for classic version.

Liquid Level Pressure Transmitter: up to ± 0.055% of span for ultra version, up to ± 0.065% of span for classic version.

Vibration effect

Less than ±0.1% of URL when tested per the requirements of IEC60770-1 field or pipeline with high vibration level (10-60 Hz 0.21 mm displacement peak amplitude / 60-2000 Hz 3g).

Transient protection (option T1)

Tested in accordance with IEEE C62.41.2-2002,
Location Category B
6 kV crest (0.5 µs - 100 kHz)
3 kA crest (8 x 20 microseconds)
6 kV crest (1.2 x 50 microseconds)

Electromagnetic compatibility (EMC)

Meets all relevant requirements of EN 61326 and NAMUR NE-21.(1)

Functional specifications

Pressure range

-393 to 1000 inH_2O (-0.98 to 2.5 bar).
1000 inH_2O <=> 25 mH_2O.

FOUNDATION fieldbus

Power supply

Powered by Rosemount 2410 Tank Hub.

Bus current draw

17.5 mA.

Class (basic or link master)

The transmitter can function as a backup Link Active Scheduler (LAS) if the current link master device fails or is removed from the segment.

Standard blocks and execution time

Block	Execution Time
Resource	N/A
Transducer	N/A
LCD Block	N/A
Analog Input 1, 2	20 milliseconds
PID with Auto-tune	35 milliseconds
Input Selector	20 milliseconds
Arithmetic	20 milliseconds
Signal Characterizer	20 milliseconds
Integrator	20 milliseconds
Output Splitter	20 milliseconds
Control Selector	20 milliseconds

PlantWeb alerts

Yes

IEC 62591 (*Wireless*HART)

Output

IEC 62591 *Wireless*HART, 2.4 GHz DSSS.

Radio frequency power output from antenna

External antenna (WK option): Maximum of 10 mW (10 dBM) EIRP.

Extended range, External antenna (WM option): Maximum of 18 mW (12.5 dBm) EIRP.

Update rate

User selectable 1 sec. to 60 min.

Power module

Field replaceable, keyed connection eliminates the risk of incorrect installation, Intrinsically Safe Lithium-thionyl chloride Power Module with polybutadine terephthalate (PTB) enclosure. Ten-year life at one minute update rate.(2)

(1) NAMUR NE-21 does not apply to Transmitter Output code X (Wireless).

(2) Reference conditions are 21 °C (70 °F), and routing data for three additional network devices.
NOTE: Continuous exposure to ambient temperature limits of -40 °C or +85 °C (-40 °F or +185 °F) may reduce specified life by less than 20 percent.

Temperature limits

Ambient

-40 to +85 °C (-40 to +185 °F)
With LCD display[(1)]: -40 to +80 °C (-40 to +175 °F)

Storage

-46 to +85 °C (-50 to 185 °F)
With LCD display: -40 to +85 °C (-40 to +185 °F)
With Wireless output: -40 to +85 °C (-40 to +185 °F)

Process

Coplanar Pressure Transmitter: -40 to + 149 °C (-40 to + 300 °F)

Liquid Level Pressure Transmitter: -45 to + 205 °C
(-49 to + 401 °F)

Humidity limits

0–100% relative humidity.

Physical specifications

Electrical connections

½ - 14 NPT and M20 x 1.5 entries for cable glands and conduits.

Tankbus cabling

0.5-1.5 mm² (AWG 22-16), twisted shielded pairs.

Non-wetted parts

Electronics housing

Low-copper aluminum alloy or CF-8M (Cast 316 SST)
NEMA 4X, IP 66, IP 68 (66 ft (20 m) for 168 hours).

Note: IP 68 not available with Wireless Output.

Paint for aluminum housing

Polyurethane.

Weight

4 to 15 kg (9-33 lbs) including tank connection, depending on transmitter choice.

Integral display

Yes.

Configuration tools

Field Communicator, AMS™ Suite, DeltaV® or any other DD (Device Description) compatible host system.

(1) LCD display may not be readable and display updates will be slower at temperatures below -20 °C (-4 °F).

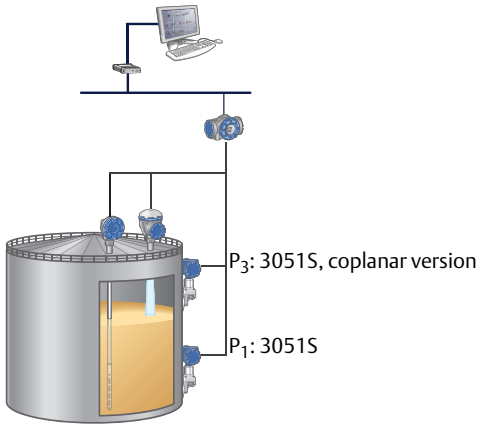
Tank gauging pressure applications

Pressure transmitters are used in two main configuration alternatives:

- Tank ventilated to atmosphere:
  There is one pressure transmitter installed at the bottom of the tank (P_1) to measure liquid pressure (P_L).
- Pressurized, non-ventilated tank (possibly with a vapor recovery system), and blanketed tanks (nitrogen): One pressure transmitter is installed at the bottom of the tank (P_1), and one pressure transmitter is installed at the top (P_3) to measure vapor pressure.
  The liquid pressure, $P_L=P_1-P_3$

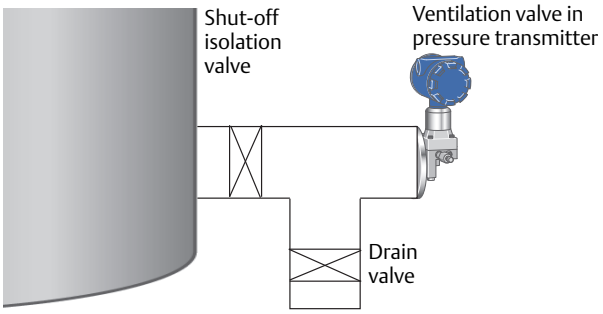
The pressure transmitter installed to measure vapor pressure should always be of coplanar type, non-flanged version (E12 in model code).

The pressure transmitter which measures liquid pressure, should be of either flanged liquid level or coplanar type. The liquid level pressure transmitter is used for crude oil applications, and the coplanar pressure transmitter is used for any other liquid type.



Calibration

Use a T-connection with drain valve, which is necessary for zero calibration of the pressure transmitter installed to measure liquid pressure at the bottom of the tank.



Shut-off isolation and drain valves used for zero calibration of the pressure transmitter.

Product Certifications

Rosemount 3051S Pressure Transmitter:
Coplanar pressure transmitter
Liquid level pressure transmitter

For complete information and offering, see the Rosemount 3051S Product Data Sheet (document number 00813-0100-4801).

European Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at www.rosemount.com.

Ordinary Location Certification from FM Approvals

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

North America

The US National Electrical Code (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

United States of America

E5 FM Explosionproof (XP) and Dust-Ignitionproof (DIP)
Certificate: 3008216
Standards: FM Class 3600 – 2011, FM Class 3615 – 2006, FM Class 3810 – 2005, ANSI/NEMA 250 –2003
Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II; DIV 1, GP E, F, G; CL III; T5(-50 °C ≤ T_a ≤ +85 °C); Factory Sealed; Type 4X

I5 FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3012350
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 –2003
Markings: IS CL I, DIV 1, GP A, B, C, D; CL II, DIV 1, GP E, F, G Class III; Class 1, Zone 0 AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D; T4(-50 °C ≤ T_a ≤ +70 °C) [HART]; T4(-50 °C ≤ T_a ≤ +60 °C) [fieldbus]; when connected per Rosemount drawing 03151-1006; Type 4x

Special conditions for safe use (X):

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

Note
Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03051-1006.

IE FM FISCO Field Device
Certificate: 3012350
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 –2005, NEMA 250 –2003
Markings: IS CL I, DIV 1, GP A, B, C, D; (-50 °C ≤ T_a ≤ +60 °C); when connected per Rosemount drawing 03151-1006; Type 4x

Special conditions for safe use (X):

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

Canada

E6 CSA Explosionproof, Dust-Ignitionproof, and Division 2
Certificate: 143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 25-1966, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 213-M1987, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Explosionproof Class I, Division 1, Groups B, C, D; Dust-Ignitionproof Class II, Division 1, Groups E, F, G; Class III; suitable for Class I, Zone 1, Group IIB+H2, T5; suitable for Class I, Division 2, Groups A, B, C, D; suitable for Class I, Zone 2, Group IIC, T5; when connected per Rosemount drawing 03151-1013; Type 4x

I6 CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1016; Type 4x

IF CSA FISCO Field Device
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: FISCO Intrinsically Safe Class I, Division 1; suitable for Class I, Zone 0; T3C; when installed per Rosemount drawing 03151-1016; Type 4X

Europe

E1 ATEX Flameproof
Certificate: KEMA 00ATEX2143X
Standards: EN 60079-0:2012, EN 60079-1: 2007, EN 60079-26:2007
Markings: ⟨Ex⟩ II 1/2 G Ex d IIC T6...T4 Ga/Gb, T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4(-60 °C ≤ T_a ≤ +80 °C)

Temperature class	Process temperature
T6	-60 °C to +70 °C
T5	-60 °C to +80 °C
T4	-60 °C to +120 °C

Special conditions for safe use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints, the manufacturer shall be contacted.

I1 ATEX Intrinsic Safety
Certificate: BAS01ATEX1303X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

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

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.3.13 of EN 60079-11:2012. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.

IA ATEX FISCO Field Device
Certificate: BAS01ATEX1303X
Standards: EN 60079-0:2012, EN 60079-11: 2012
Markings: ⟨Ex⟩ II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

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

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.3.13 of EN 60079-11:2012. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.

International

E7 IECEx Flameproof and Dust
Certificate: IECEx KEM 08.0010X (Flameproof)
Standards: IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-26:2006, IEC 60079-31:2008
Markings: Ex d IIC T6... T4 Ga/Gb, T6(-60 °C ≤ T_a ≤ +70 °C), T5/T4(-60 °C ≤ T_a ≤ +80 °C)

Temperature class	Process temperature
T6	-60 °C to +70 °C
T5	-60 °C to +80 °C
T4	-60 °C to +120 °C

Special conditions for safe use (X):

1. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.
2. For information on the dimensions of the flameproof joints the manufacturer shall be contacted.

Certificate: IECEx BAS 09.0014X (Dust)
Standards: IEC 60079-0:2011, IEC 60079-31:2008
Markings: Ex ta IIIC T105 °C T_{500} 95°C Da, (-20 °C ≤ T_a ≤ +85 °C)
V_{max} = 42.4 V

Special conditions for safe use (X):

1. Cable entries must be used which maintain the ingress protection of the enclosure to at least IP66.
2. Unused cable entries must be filled with suitable blanking plugs which maintain the ingress protection of the enclosure to at least IP66.
3. Cable entries and blanking plugs must be suitable for the ambient temperature range of the apparatus and capable of withstanding a 7J impact test.
4. The 3051S- SuperModule must be securely screwed in place to maintain the ingress protection of the enclosure.

I7 IECEx Intrinsic Safety
Certificate: IECEx BAS 04.0017X
Standards: IEC 60079-0: 2011, IEC 60079-11:2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

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

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.3.13 of IEC 60079-11:2011. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.
3. The Model 3051S enclosure may be made of aluminum alloy and given a protective polyurethane paint finish, however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.

IG IECEx FISCO
Certificate: IECEx BAS 04.0017X
Standards: IEC 60079-0: 2011, IEC 60079-11:2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

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

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.3.13 of IEC 60079-11:2011. This must be taken into account during installation.
2. The terminal pins of the Model 3051S SuperModule must be provided with a degree of protection of at least IP20 in accordance with IEC/EN 60529.
3. The Model 3051S enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.

Brazil

E2 INMETRO Flameproof
Certificate: CEPEL 03.0140X [Mfg USA, Singapore, Germany], CEPEL 07.1413X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-1:2009, ABNT NBR IEC 60529:2009
Markings: Ex d IIC T* Ga/Gb, T6(-40 °C ≤ T_a ≤ +65 °C), T5(-40 °C ≤ T_a ≤ +80 °C), IP66(AI)/IP66W(SST)

Special conditions for safe use (X):

1. For ambient temperature above 60 °C, cable wiring must have minimum isolation temperature of 90 °C, to be in accordance to equipment operation temperature.
2. The device contains a thin wall diaphragm. Installation, maintenance and use shall take into account the environmental conditions to which the diaphragm will be subjected. The manufacturer's instructions for installation and maintenance shall be followed in detail to assure safety during its expected lifetime.

I2 INMETRO Intrinsic Safety
Certificate: CEPEL 05.0722X [Mfg USA, Singapore, Germany], CEPEL 07.1414X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T4 Ga, T4(-20 °C ≤ T_a ≤ +70 °C), IP66(AI)/IP66W(SST)

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.4.12 of IEC 60079-11. This must be taken into account during installation.

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

IB INMETRO FISCO
Certificate: CEPEL 05.0722X [Mfg USA, Singapore, Germany], CEPEL 07.1414X [Mfg Brazil]
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T4 Ga, T4(-20 °C ≤ T_a ≤ +40 °C), IP66(AI)/IP66W(SST)

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

Special conditions for safe use (X):

1. The Model 3051S Transmitters fitted with transient protection are not capable of withstanding the 500 V test as defined in Clause 6.4.12 of IEC 60079-11. This must be taken into account during installation.

Wireless Certifications

European Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at www.rosemount.com.

Telecommunication compliance

All wireless devices require certification to ensure they adhere to regulations regarding the use of the RF spectrum. Nearly every country requires this type of product certification.
Emerson working with governmental agencies around the world to supply fully compliant products and remove the risk of violating country directives or laws governing wireless device usage.

FCC and IC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. This device must be installed to ensure a minimum antenna separation distance of 20 cm from all persons.

Ordinary Location Certification from FM Approvals

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

North America

The US National Electrical Code (NEC) and the Canadian Electrical Code (CEC) permit the use of Division marked equipment in Zones and Zone marked equipment in Divisions. The markings must be suitable for the area classification, gas, and temperature class. This information is clearly defined in the respective codes.

United States of America

I5 FM Intrinsic Safety (IS) and Nonincendive (NI)
Certificate: 3027705
Standards: FM Class 3600 – 2011, FM Class 3610 – 2010, FM Class 3611 – 2004, FM Class 3810 – 2005, NEMA 250 –2003
Markings: IS CL 1, DIV 1, GP 1, B, C, D; CL II, DIV 1, GP E, F, G CL III, CL 1, Zone 0 AEx ia IIC T4; NI CL 1, DIV 2, GP A, B, C, D, T4; DIP CL II, DIV 1, GP E, F, G; CL III, T5; T4(-50 °C ≤ T_a ≤ +70 °C) /T5 (-50 °C ≤ T_a ≤ +85 °C) when connected per Rosemount drawing 03151-1000; Type 4x

Special conditions for safe use (X):

1. The transmitter may contain more than 10% aluminum and is considered a potential risk of ignition by impact or friction.
2. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or a dry cloth.

Note
Transmitters marked with NI CL 1, DIV 2 can be installed in Division 2 locations using general Division 2 wiring methods or Nonincendive Field Wiring (NIFW). See Drawing 03051-1000.

Canada

I6 CSA Intrinsically Safe
Certificate: 1143113
Standards: CAN/CSA C22.2 No. 0-10, CSA Std C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std C22.2 No. 142-M1987, CSA Std C22.2 No. 157-92, ANSI/ISA 12.27.01-2003, CSA Std C22.2 No. 60529:05
Markings: Intrinsically Safe Class I, Division 1; suitable for Class 1, Zone 0, IIC, T3C; when connected per Rosemount drawing 03151-1010; Type 4x

Europe

I1 ATEX Intrinsic Safety
Certificate: Baseefa 13ATEX0127X
Standards: EN 60079-0: 2012, EN 60079-11: 2012
Markings: Ⓔx II 1 G Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Special conditions for safe use (X):

1. The Model 3051S Wireless enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion if located in a zone 0 area.
2. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or dry cloth.

International

I7 IECEx Intrinsic Safety
Certificate: IECEx BAS 13.0068X
Standards: IEC 60079-0: 2011, IEC 60079-11:2011
Markings: Ex ia IIC T4 Ga, T4(-60 °C ≤ T_a ≤ +70 °C)

Special conditions for safe use (X):

1. The Model 3051S Wireless enclosure may be made of aluminum alloy and given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion of located in a zone 0 area.
2. The surface resistivity of the antenna is greater than 1GΩ. To avoid electrostatic charge build-up, it must not be rubbed or cleaned with solvents or dry cloth.

Brazil

I2 INMETRO Intrinsic Safety
Certificate: CEPEL 08.1618
Standards: ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-11:2009, ABNT NBR IEC 60079-26:2008, ABNT NBR IEC 60529:2009
Markings: Ex ia IIC T5/T4 Ga, T5(-60 °C ≤ T_a ≤ +40 °C), T4(-60 °C ≤ T_a ≤ +70 °C), IP66(AI)/IP66W(SST)

Note
Not currently available on the 3051S MultiVariable Wireless Transmitter.

Dimensional Drawings

Figure 1. Coplanar Pressure Transmitter

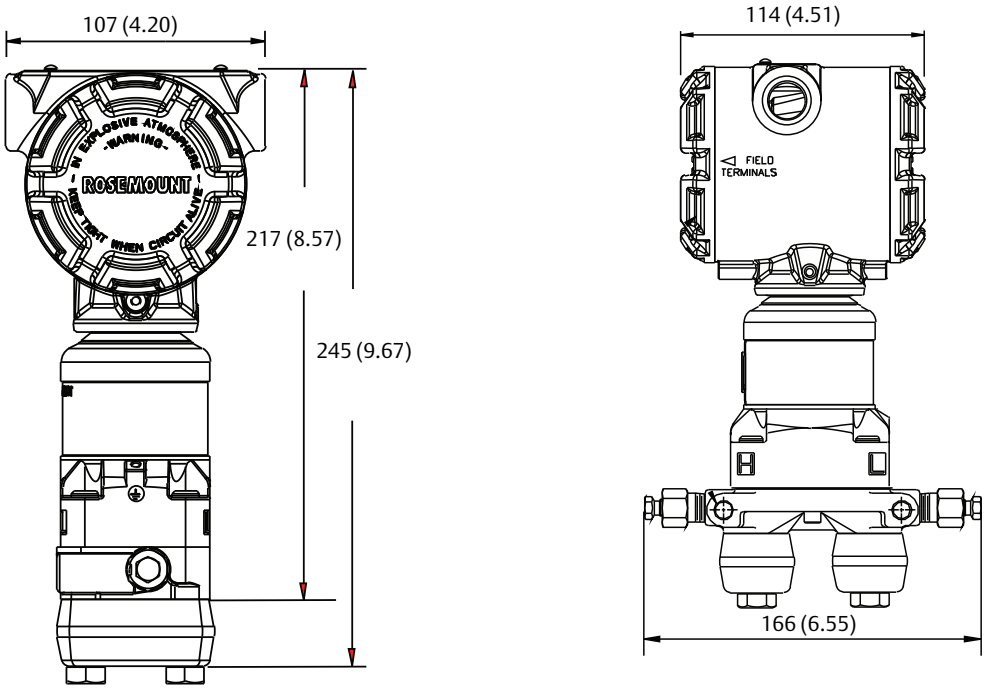
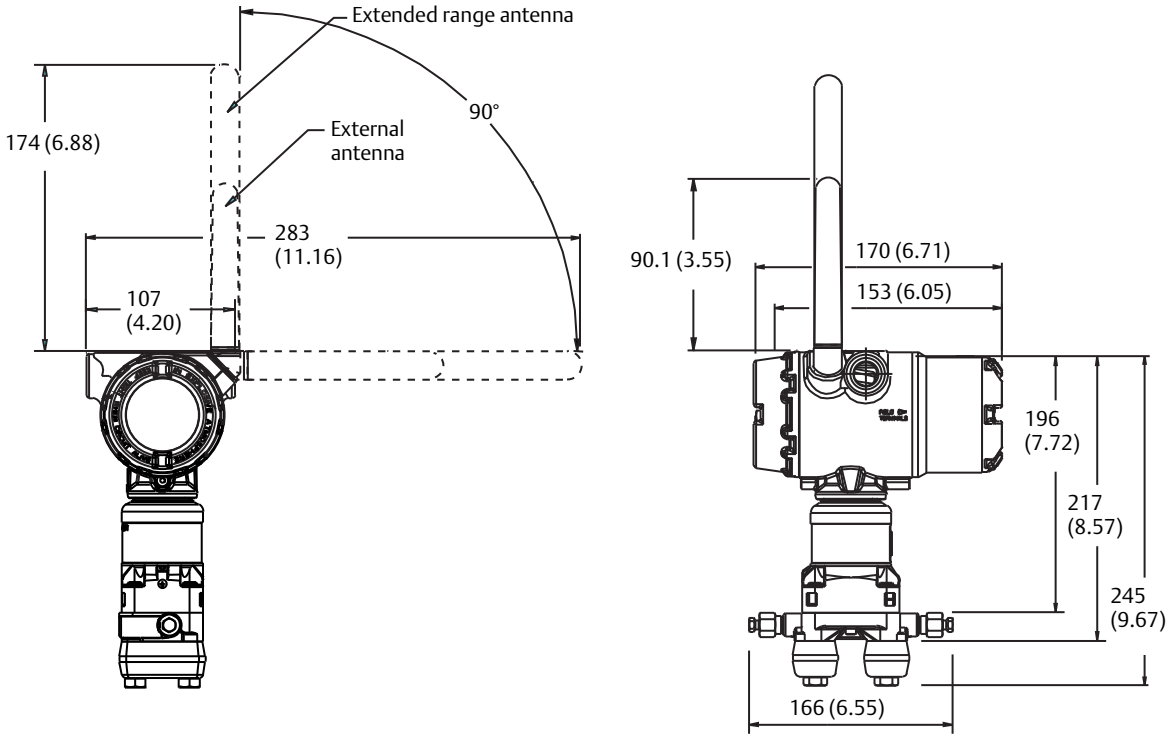


Figure 2. Wireless version



Dimensions are in millimeters (inches)

Figure 3. Pipe installation

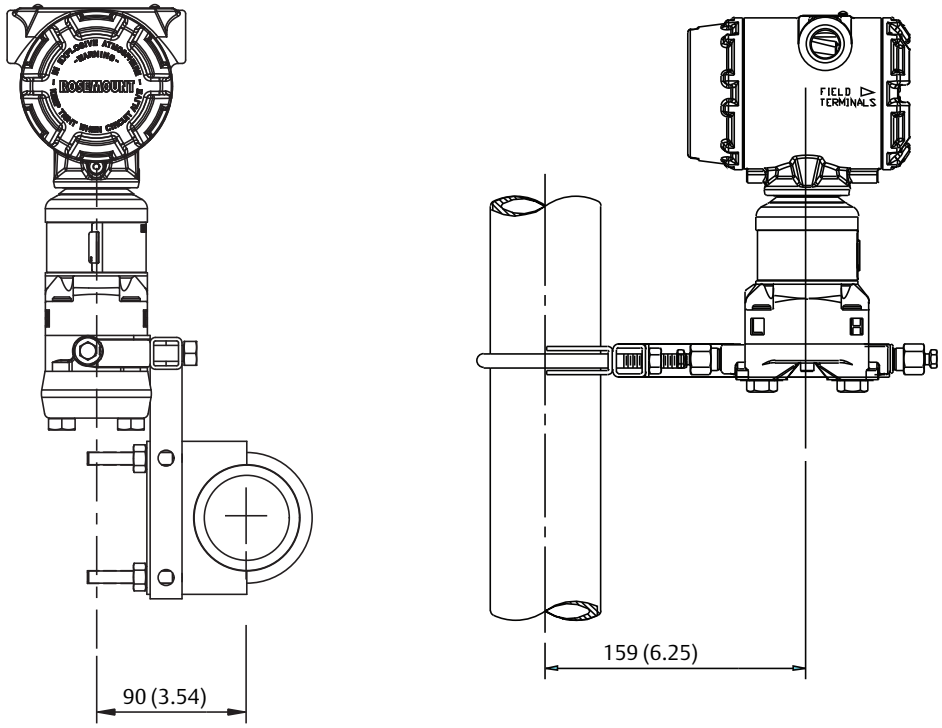
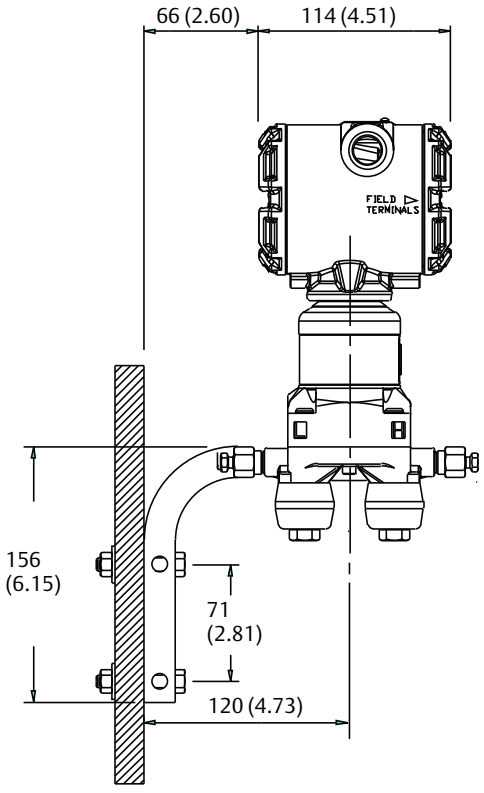
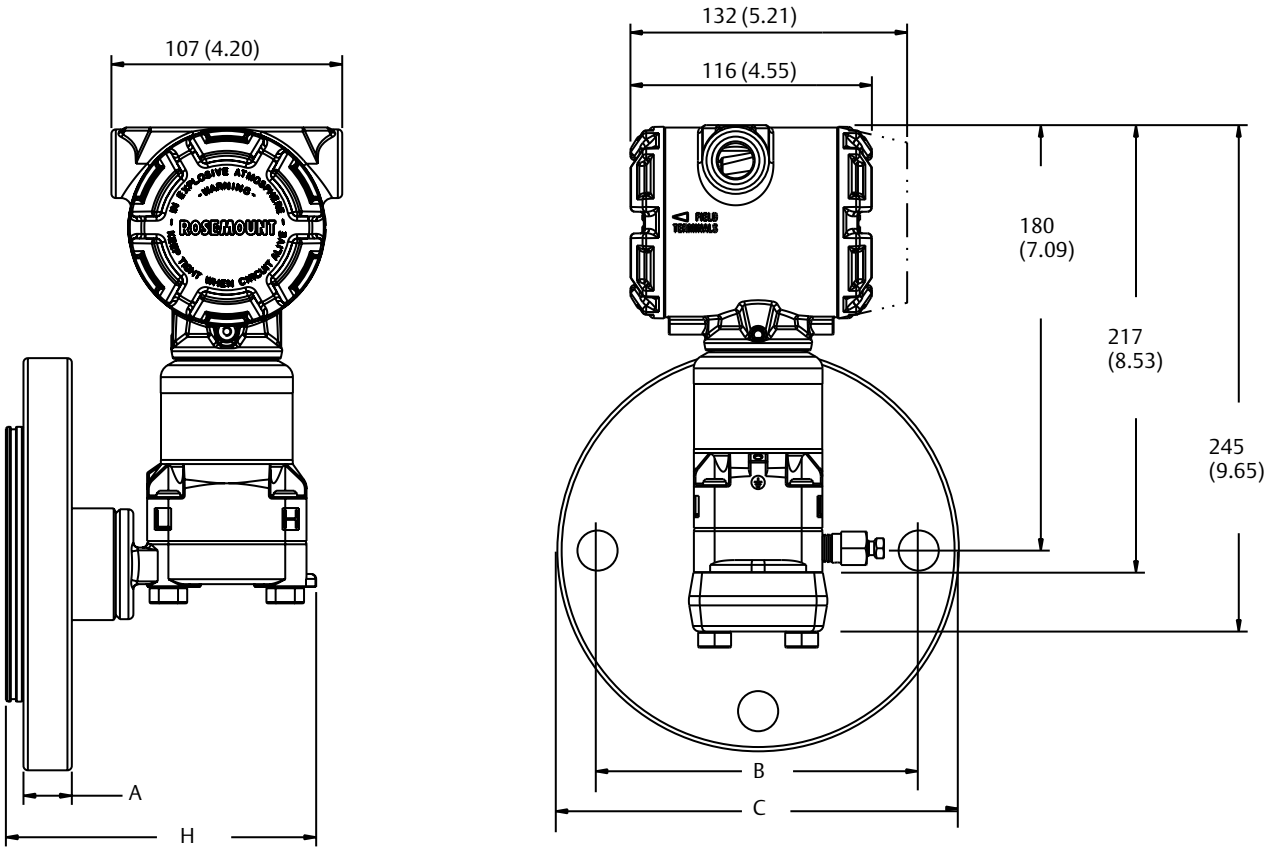


Figure 4. Panel installation



Dimensions are in millimeters (inches)

Figure 5. Liquid Level Pressure Transmitter



Dimensions are in millimeters (inches)

Class	Pipe size	Flange thickness A	Bolt circle diameter B	Outside diameter C	No. of bolts	Bolt hole diameter	H
ASME B16.5 (ANSI) 150	51 (2)	18 (0.69)	121 (4.75)	152 (6.0)	4	19 (0.75)	143 (5.65)
	76 (3)	22 (0.88)	152 (6.0)	191 (7.5)	4	19 (0.75)	143 (5.65)
	102 (4)	22 (0.88)	191 (7.5)	229 (9.0)	8	19 (0.75)	143 (5.65)
ASME B16.5 (ANSI) 300	51 (2)	21 (0.82)	127 (5.0)	165 (6.5)	8	19 (0.75)	143 (5.65)
	76 (3)	27 (1.06)	168 (6.62)	210 (8.25)	8	22 (0.88)	143 (5.65)
DIN 2501 PN 10–40	DN 50	20 mm	125 mm	165 mm	4	18 mm	143 (5.65)
DIN 2501 PN 25/40	DN 80	24 mm	160 mm	200 mm	8	18 mm	143 (5.65)
	DN 100	24 mm	190 mm	235 mm	8	22 mm	143 (5.65)
DIN 2501PN 10/16	DN 100	20 mm	180 mm	220 mm	8	18 mm	143 (5.65)

Emerson Process Management
Rosemount Tank Gauging

Box 130 45
SE-402 51 Göteborg
SWEDEN
Tel: +46 31 337 00 00
Fax: +46 31 25 30 22
E-mail: sales.rtg@emerson.com
www.rosemount-tg.com

Emerson Process Management
Rosemount Tank Gauging North America Inc.

6005 Rogerdale Road
Mail Stop NC 136
Houston, TX 77072
United States
Primary Phone: +1 281 988 4000
Secondary Phone: +1 800 722 2865
E-mail: sales.rtg.hou@emerson.com

Emerson Process Management
Latin America

1300 Concord Terrace, Suite 400
Sunrise Florida 33323
United States
Tel: +1 954 846 5030

Emerson Process Management
Rosemount Tank Gauging Middle East & Africa.

P. O Box 20048
Manama
Bahrain
Tel: +973 1722 6610
Fax: +973 1722 7771
E-mail: rtgmea.sales@emerson.com

Emerson Process Management
Asia Pacific Pte Ltd

1 Pandan Crescent
SINGAPORE 128461
Tel: +65 6777 8211
Fax: +65 6777 0947
Email: specialist-itg.rmt-ap@ap.emersonprocess.com

ROSEMOUNT

EMERSON
Process Management